Planning and Zoning Department
616 Germantown Pike, Lafayette Hill, PA 19444-1821
484-594-2625
www.whitemarshtwp.org

Subdivision and Land Development Cover Page for SLD # 07-24

Project Name:
Gemma Services- Whitemarsh Campus

Address: 5168 & 5200 Butler Pike
Plymouth Meeting, PA 19462

Date: 10/29/24

Status: UNDER REVIEW

Updates:

- Zoning Ordinance Compliance Review Letter- 12.12.24
- Montgomery County Planning Commission Review Letter- 12.19.24
- Fire Marshal Review- 1.6.25
- Township Engineer Review- 1.6.25
- Revised Waiver Request Letter- 1.13.25
- Waiver Request Letter for Shade Tree Commission- 1.21.25
- Revised Shade Tree Commission Checklist- 1.21.25
- Revised Plans- dated 1.7.25, received 1.21.25
- Arborist Review Memo- 1.28.25
- Shade Tree Commission Meeting Memo- 3.5.25

This Checklist and the following items MUST be submitted to the Township, completed in their entirety, at the time of submission for the Township to accept a subdivision/land development application.

This checklist page must be filled out after printing the completed form starting on page 2 where applicable.

Applicant Initials	Required Items of Submission	Township Receipt
NN	Whitemarsh Township Checklist	
GEMMA	Whitemarsh Township Application (Signature MUST Be Original)	
NN	Whitemarsh Township Request for Modification (Signature MUST Be Original)	
GEMMA	Whitemarsh Time Waiver Form (Signature MUST Be Original)	
GEMMA	Whitemarsh Township Escrow (Payable to Whitemarsh Township; credit card payment accepted in person)	
NN	Montgomery County Planning Commission Municipal Request for Review (County will request fee directly from applicant)	
NN	Shade Tree Commission Checklist for Compliance with Chapter 55 (attached)	
TPD	Transportation Impact Study [§105-21.B.(9)(c)] (if applicable)	
NN	Stormwater Management Plan & Supporting Calculations (if applicable)	
NN	Supplemental Documents Applicable to a Specific Application	
NN	List of Encumbrances (Book & Page Numbers) (if applicable)	
NN	Three (3) Complete Sets of All Application Materials	
NN	PDF or Link to Digital File of Each Component of the Application	

Applicant Name: Gemma Services

Development Name: Gemma Redevelopment

Location of Property: 512 Township Line Rd Plymouth Meeting, PA 19462

Date: 10/21/2024

PROJECT COVER SHEET – *Approved at June 6, 2023 Shade Tree Commission Meeting*

To verify fulfillment of Chapter 55 Ordinance requirements for:

1. *Maximum Tree Removal – 55-4B*
2. *Tree Replacement – 55-4D(6)(a)*
3. *Substitutions for Replacements – 55-4F*
4. *Replacement Tree Species – 55-4E*
5. *Tree and Shrub requirements for Chapters other than Chapter 55*

Complete the following tables, filling in data for each lettered item, and resolving each Compliance Test. In accordance with 55-4C(4)(e), provide this completed Cover Sheet together with the Landscape Plan.

Citations to Sections of Chapter 55 are provided for the convenience of the Applicant. Other Chapters of the Whitemarsh Township Code and other sections of Chapter 55, such as 55-2 Definitions, may be relevant. In the event of an inconsistency between this Cover Sheet and any provision of the Code, the language of the Code shall be controlling.

1) ***Calculation of Requirement for Maximum Tree Removal – 55-4B:***

A.	***Total of all existing Trees on the lot with DBH of 6" or greater**, per 55-4C(3)(a).*	+/- 359,499 sf of Tree Canopy
B.	*33% of line (A) =* ***maximum existing Trees which may be Removed.***	+/- 119,714 sf of Tree Canopy
C.	*Provide* ***number of existing Trees proposed to be Removed by the Applicant,** per 55-4C(3)(a).*	9 Trees
	***COMPLIANCE TEST:** If Line (C) is greater than Line (B), the Applicant's proposal is not in compliance with the requirement that no more than 33% of trees having a DBH of six inches or greater may be removed.*	Compliant

2) *Calculation of Replacement Requirement for Removed Trees having a DBH of Six Inches or Greater 55-4D(6)(a):*

D.	***Total DBH of all existing Living and Healthy Trees*** *(as determined per 55-4A) having a DBH of 6" or greater* ***that are proposed to be Removed****, per 55-4C(3)(a).*	108"
E.	***Total DBH of all Living and Healthy Trees*** *(as determined per 55-4A) having a DBH of 6" or greater,* ***removed within five years prior to the submission of application****, per 55-4C(3)(b).*	0"
F.	*Sum of line (D) and line (E) =* ***Total DBH that must be replaced for all Removed Living and Healthy Trees.***	108"
G.	***Total Caliper inches of Canopy Replacement Trees proposed to be planted*** *by the Applicant (as shown on the Landscape Plan) per 55-4D(6)(a). Each Canopy Replacement Tree shall have a minimum Caliper of three inches.*	108" (36 x 3")
	COMPLIANCE TEST: *If Line (G) is less than Line (F), the Applicant's proposal is not in compliance with the minimum Canopy Tree Replacement Requirement.* *To comply with this requirement, the Applicant may request a waiver from the Shade Tree Commission to permit limited substitutions per 55-4F. If so, proceed to Substitution calculation (3) below.*	Compliant

3) *Calculation of maximum Proposed Substitutions for Replacement Canopy Trees – 554F, subject to certain limitations and approval by the Shade Tree Commission.*

H.	*40% of line (F) (round fractions down to a whole number) =* ***maximum Caliper of required Replacement Canopy Trees that may be substituted*** *with Understory Trees and/or FIL, upon STC approval, per 55-4F.*	n/a
I.	*Line (F) less Line (G) =* ***Shortfall in DBH compliance with the minimum Canopy Tree Replacement Requirement,*** *per 55-4D(6)(a).*	n/a
	COMPLIANCE TEST: *If line (H) is less than line (I), the deficit of minimum Canopy Tree Replacement requirement, per 55-4D(6) cannot be fully compensated with Substitutions, per 55-4F.*	n/a

J.	*Line (I) divided by 3" (round fractions <u>up</u> to a whole number) =* ***Shortfall in the <u>number</u> of required 3" Canopy Replacement Trees.***	n/a
K.	*Provide the* ***total number of substitution Understory Trees proposed to be planted*** *by the Applicant, per 55-4F(1).*	n/a
L.	*Line (K) divided by two =* ***Number of required 3"-cal. Replacement Canopy Trees being substituted with Understory Trees*** *per 55-4F(1).*	n/a
M.	*Line (J) less Line (L) =* ***Number of required 3"-cal. Replacement Canopy Trees proposed by the Applicant to be substituted with payment of in-lieu fees****, per 55-4F(2).* ***NOTE:*** *Review proposed Landscape Plan to ensure that the use of Replacement Understory Tree substitutes has been maximized prior to calculating the number of substitutes via in-lieu fees, per 55-4F(4).*	n/a
N.	*Sum of Line (L) and Line (M) =* ***Total proposed number of Replacement Canopy Trees being substituted per 55-4F.***	n/a
O.	*Line (N) multiplied by 3" =* ***Total shortfall of DBH to be fulfilled with substitutions*** *as proposed by this Landscape Plan.*	n/a
	COMPLIANCE TEST: *If (O) is greater than (H), the Applicant's proposal has exceeded the 40% maximum eligible for consideration for Replacement substitutions, per 55-4F, and is not in compliance.*	n/a
P.	*Sum of Line (O) and (G) =* ***Total Caliper compensation for Removed Trees*** *as provided by this proposed Landscape Plan.*	108"
	COMPLIANCE TEST: *If (P) is less than (F), the Applicant's proposal is not in compliance with the Tree Replacement Requirement.*	Compliant

4) <u>Compliance with Species Requirement of Replacement Trees – 55-4E</u>:

Q.	***Total number of proposed Canopy Replacement Trees,*** *per 55-4C(4)(c).*	36 Canopy Trees

R.	*75% of line (Q) (round fractions up to the next whole number) =* ***Minimum required number of Native Species Replacement Canopy Trees****, per 55-4E.*	27 Canopy Trees
S.	*Provide the* ***number of proposed Native Species Canopy Replacement Trees,*** *per 55-4C(4)(c).*	36 Canopy Trees
	COMPLIANCE TEST: *If Line (S) is less than Line (R), the Applicant's proposal is not in compliance with the 75% Native Species requirement for Replacement Canopy Trees, per 55-4E.*	Compliant
T.	*Provide the* ***number of proposed Native Species Understory Trees****.*	n/a
	COMPLIANCE TEST: *If Line (T) is less than line (K), he Applicant's proposal is not in compliance with the 100% Native Species requirement for Replacement Understory Trees.*	n/a

5) <u>Compliance with Landscaping Requirements of Other Code Chapters</u>. Complete the following Tables for each applicable requirement.

<u>REQUIRED TREES</u>:

A	B	C	D*	E	F**
Full Code Citation: Chapter; sub-chapter, etc.	Subject matter as indicated in Code caption	Required # of Trees	Credits for Preserved Trees per 55-4D(5)	Proposed # of Trees	Column (C) less Columns (D) and (E)
105-48.1.B.3	Building Area Landscaping	28		28	0
55-1.6A	Tree Replacement	36		36	0

NOTE: Column (D) Credits are strictly limited to calculating Chapter 105-52 Buffer yards, in accordance with 55-4D(5).
****NOTE: When the result in Column (F) is greater than zero, the Applicant's proposal is not in compliance with the applicable Code requirement.***

<u>REQUIRED SHRUBS</u>:

A	B	C	D	E*
Full Code Citation: Chapter; sub-chapter, etc.	Subject matter as indicated in Code caption	Required # of Shrubs	Proposed # of Shrubs	Column (C) less Column (D)
105-48.1.B.3	Building Area Landscaping	56	56	0

NOTE: When the result in Column (E) is greater than zero, the Applicant's proposal is not in compliance with the applicable Code requirement.

WHITEMARSH TOWNSHIP
SUBDIVISION and/or LAND DEVELOPMENT APPLICATION

The applicant, or applicant's authorized agent, for the Township to accept submission of the application, must complete each Application item and each Application Submission Checklist item.

Application Type: (check one)
☐ Minor Subdivision ☐ Minor Land Development
☐ Major Subdivision ☒ Major Land Development
☐ Land Development Waiver

Plan Type:
☐ Sketch ☒ Preliminary ☒ Final

INSERT "N/A" FOR NOT APPLICABLE WHERE APPROPRIATE

Name of Subdivision/Land Development: Gemma Development

Location of Subdivision/Land Development: 5168 & 5200 Butler Pike Plymouth Meeting, PA 19462
(Primary Access Roadway Name)

Between: Campus Dr (Roadway Name) and Township Line Rd (Roadway Name)

Number of Parcels: 2 **Block Number(s):** 45 & 45 **Unit Number(s):** 27 & 45

Parcel Number(s): 65-00-01333-00-6 & 65-00-01327-00-3

Acreage: 22.6377 AC **Total Lots Proposed:** _____ **Zoning District:** Institutional Overlay Dist

Water Service Proposed: ☒ Public ☐ Private Sewer Service Proposed: ☐ Public ☒ Private

Applicant Name: Gemma Services **Contact Name:** Joan Plump

Phone #: 610-825-4400 Fax #: _____ Email: jplump@gemmaservices.org

Address: 512 Township Line Rd Plymouth Meeting, PA 19462

Owner of Record Name (If Different): Emergency Care Research Institute

Phone #: 610-825-6000 Fax #: _____ Email: _____

Address: 5200 Butler Pike Plymouth Meeting, PA 19462

Engineer Name: James Bannon **Firm Name:** Nave Newell

Phone #: 484-410-7187 Fax #: _____ Email: jbannon@navenewell.net

Address: 900 West Valley Rd Suite 1100 Wayne, PA 19087

Fees and plans showing all public improvements are submitted with this application. Any additional plan information required by the Township Engineer will be submitted to the Director of Planning and Zoning for distribution. The undersigned applicant agrees to comply with all the provisions of Chapter 105 of the Code of the Township of Whitemarsh, as amended, and agrees to obtain all necessary permits in connection with the proposed subdivision and/or land development.

Whitemarsh Township employees, or township-authorized agents, are hereby granted permission to enter upon the land, if necessary, for site inspections.

Original preliminary and/or original final subdivision and/or land development applications submitted by 4:00pm on the last business day of the month will be reviewed by the Whitemarsh Township Planning Commission at a regular meeting two (2) months following the date of submission or other appropriate meeting date depending upon the results of Township reviews.

I hereby certify, as the undersigned applicant, that I am familiar with the provisions of: [1] Chapter 105, "Subdivision and Land Development", [2] Chapter 58, "Grading, Erosion Control, Stormwater Management and Best Management Practices", and [3] Chapter 55, "Tree Protection Standards" of the Code of the Township of Whitemarsh, as amended, and, to the best of my knowledge and belief, this application and the submitted plans conform to those provisions.

Date of Submission: October 24, 2024

Signature: Joan Plump

(Original Signature must be submitted)

Printed Name: Joan Plump

I, **(name)** Joan Plump **(title)** Chief of Staff of

(entity submitting application) Gemma Services do hereby affirm

that I am authorized by the applicant to affix my signature to this application.

Date: 10/24/24 Signature: Joan Plump

(Original Signature must be submitted)

PRELIMINARY/FINAL LAND DEVELOPMENT PLAN
FOR

GEMMA REDEVELOPMENT

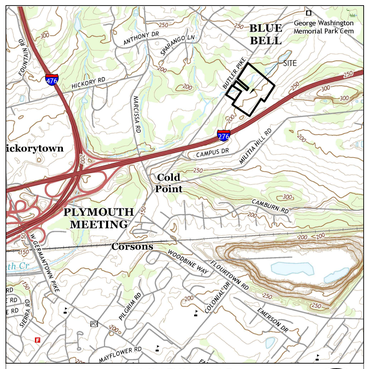
SITUATED IN
WHITEMARSH TOWNSHIP
MONTGOMERY COUNTY, PENNSYLVANIA

OWNER
ECRI INSTITUTE
5200 BUTLER PIKE
PLYMOUTH MEETING, PA 19462

APPLICANT
GEMMA SERVIES
512 TOWNSHIP LINE ROAD
PLYMOUTH MEETING, PA 19462
PHONE: 610-825-4400
ATTN: NEIL CLARK

CIVIL ENGINEER
NAVE NEWELL, INC.
900 WEST VALLEY ROAD
SUITE 1100
WAYNE, PA 19087
PHONE: 610-265-8323
ATTN: JAMES P. BANNON, PE

ARCHITECT:
KIMMEL BROGRETTE
482 NORRISTOWN ROAD
SUITE 200
BLUE BELL, PA 19422
PHONE: 610-834-7805
ATTN: JOE HORAN



LOCATION MAP
SCALE 1" = 2,000'

IMAGE SOURCE
US QUAD MAP
NORRISTOWN

SITE ADDRESS:
5168 & 5200 BUTLER PIKE
PLYMOUTH MEETING, PA 19462

PLAN INDEX

DRAWING NUMBER	SHEET TITLE	SHEET NUMBER	SHEET DATE	SHEET REVISION DATE
C0.0	TITLE	1	10/21/24	
C0.1	PROJECT NOTES AND LEGEND SHEET	2	10/21/24	
C1.0	COMPOSITE EXISTING FEATURES	3	10/21/24	
C2.0	COMPOSITE DEMOLITION PLAN	4	10/21/24	
C3.0	COMPOSITE SITE PLAN	5	10/21/24	
C3.1	SITE PLAN	6	10/21/24	
C4.0	GRADING PLAN	7	10/21/24	
C5.0	UTILITY PLAN	8	10/21/24	
C6.0	THRU LANE PROFILE SHEET	9	10/21/24	
C7.0	LANDSCAPE PLAN	10	10/21/24	
C7.1	LANDSCAPE DETAIL SHEET	11	10/21/24	
C8.0	LIGHTING PLAN	12	10/21/24	
C8.1	LIGHTING DETAIL SHEET	13	10/21/24	
C9.0	EROSION & SEDIMENTATION	14	10/21/24	
C9.2	EROSION & SEDIMENTATION CONTROL PLAN DETAIL SHEET	15	10/21/24	
C10.1	SITE POST CONSTRUCTION STORMWATERMANAGEMENT PLAN	16	10/21/24	
C10.2	POST CONSTRUCTION STORMWATERMANAGEMENT PLAN DETAIL SHEET	17	10/21/24	
C11.0	CONSTRUCTION DETAIL SHEET	18	10/21/24	

WHITEMARSH TOWNSHIP ZONING HEARING BOARD GRANTED THE FOLLOWING RELIEF BY DECISION DATED JUNE 11, 2024:

1. SPECIAL EXCEPTION APPROVAL PURSUANT TO § 116-175.B OF THE ZONING ORDINANCE TO PERMIT SCHOOL USE ON THE PROPERTY
2. A VARIANCE FROM § 116-165.B OF THE ZONING ORDINANCE TO PERMIT CONSTRUCTION OF A PORTION OF THE GYMNASIUM FOR THE PROPOSED SCHOOL USE LOCATED WITHIN THE FLOODPLAIN SOIL
3. ALL USE AND DEVELOPMENT PERMITTED BY THIS DECISION SHALL SUBSTANTIALLY CONFORM TO THE EXHIBITS AND TESTIMONY PRESENTED BY THE APPLICANT, UNLESS INCONSISTENT WITH ANY SPECIFIC CONDITIONS IMPOSED BY THIS BOARD, IN WHICH CASE THESE SPECIFIC CONDITIONS SHALL TAKE PRECEDENCE.
4. THE APPLICANT SHALL APPLY FOR AND OBTAIN ALL PERMITS REQUIRED BY THE TOWNSHIP CODES IN A TIMELY MANNER.
5. THE APPLICANT SHALL COMPLY WITH ALL REQUIREMENTS OF THE TOWNSHIP RELATED TO THE SUBDIVISION AND LAND DEVELOPMENT ORDINANCE, UNLESS WAIVED BY THE BOARD OF SUPERVISORS. THE LOCATIONS AND CONFIGURATIONS OF BUILDINGS, STRUCTURES, AND IMPROVEMENTS SHALL BE SUBSTANTIALLY AS SHOWN ON THE PLANS. HOWEVER IT IS ACKNOWLEDGED THAT SUCH LOCATIONS AND CONFIGURATIONS MAY CHANGE IN SOME MINOR DEGREE DURING THE LAND DEVELOPMENT PROCESS, SUBJECT TO APPROVAL BY THE BOARD OF SUPERVISORS. USE OF THE FIELDS AND GYMNASIUM AS ACCOMMUNITY AMENITY SHALL NOT REQUIRE FURTHER ZONING HEARING BOARD APPROVAL. THE APPLICANT SHALL COMPLY WITH ALL LIGHTING REQUIREMENTS AS APPLICABLE TO THE CAMPUS AND FIELDS.
6. THE APPLICANT SHALL COMPLY WITH ALL REQUIREMENTS OF THE TOWNSHIP ENGINEER, INCLUDING BUT NOT LIMITED TO THE TOWNSHIP ENGINEER'S MEMO DATED MAY 23, 2024 MARKED AS EXHIBIT T-4.

WAIVERS REQUESTED:

1. SECTION 105-12.D. - REQUIRING THE PRESENTATION OF A PRELIMINARY PLAN AND A FINAL PLAN TO BE CONSIDERED A SEPARATE SUBMISSION.

PROJECT SERIAL NO. 20241620090

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - STOP CALL
Pennsylvania One Call System, Inc.
1-800-242-1776

WHITEMARSH BOARD OF SUPERVISORS:
THIS PLAN WAS APPROVED BY THE BOARD OF SUPERVISORS OF WHITEMARSH TOWNSHIP AT A MEETING HELD ON THE ____ DAY OF____ , 20__ .

_____ (CHAIRMAN)

_____ (SECRETARY)

WHITEMARSH TOWNSHIP ENGINEER:

_____ ENGINEER DATE

MONTGOMERY COUNTY PLANNING COMMISSION CERTIFICATION:
THIS PLAN WAS REVIEWED BY THE MONTGOMERY COUNTY PLANNING COMMISSION ON_____ , MCPC FILE NUMBER_____.

_____ (DIRECTOR)

CERTIFICATE OF OWNERSHIP AND ACKNOWLEDGEMENT OF PLAN:
ON THIS, THE _____DAY OF _____, 20___ BEFORE ME, THE UNDERSIGNED OFFICER, PERSONALLY APPEARED _____

_____ (NAME OF OWNER)
WHO BEING DULY SWORN ACCORDING TO LAW, DEPOSES AND SAYS THAT HE IS THE _____OF _____, THE OWNER OF THE PROPERTY SHOWN ON THIS PLAN, AND THAT HE ACKNOWLEDGES THE SAME TO BE HIS ACT AND PLAN AND DESIRES THE SAME BE RECORDED AS SUCH ACCORDING TO LAW.

WITNESS MY HAND AND SEAL THE DAY AND DATE ABOVE WRITTEN.

MY COMMISSION EXPIRES:

_____ _____ (NOTARY PUBLIC OR OTHER OFFICER)

I, _____, CERTIFY THAT I AM THE _____OF _____ , ADOPT THIS PLAN AND DESIRE THE SAME TO BE RECORDED.

_____ (OWNER)

Nave NEWELL
900 West Valley Road • Suite 1100
Wayne, PA 19087-1830
p: 610.265.8323 f: 610.264.4299
www.navenewell.com

REVISIONS

date:	no.	description	chk'd	by
----	----	----	----	----

SEAL:
COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JAMES P. BANNON
ENGINEER
No. PE080137

DRAWING NAME: TITLE

GEMMA REDEVELOPMENT

LOCATION: WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PA

project no.	drawn by:
2024-039	JSD
date:	chk'd by:
10/24/24	BTK
scale:	approv. by:
AS NOTED	PEL

sheet no.

C0.0

1 of 18

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GENERAL CONSERVATION NOTES AND SPECIFICATIONS

INTENT OF CONSERVATION PROGRAM: THE INTENT OF THIS PROGRAM IS TO PREVENT ACCELERATED EROSION OF THE EXPOSED SITE SOILS DURING THE CONSTRUCTION AND PERMANENT LIFE PERIODS OF THE DEVELOPMENT, THE PROGRAM REQUIRES RETENTION OF ALL SEDIMENTS ON THE CONSTRUCTION SITE TO MINIMIZE THE IMPACT OF DEVELOPMENT ON EXISTING STREAMS AND ADJACENT PROPERTY OWNERS. THESE OBJECTIVES WILL BE ACHIEVED BY MINIMIZING THE EXPOSURE TIME OF POTENTIALLY EROSIVE SOILS TO RUNOFF AND INSTALLATION OF THE TEMPORARY CONSTRUCTION. THE INTENT OF THIS PROGRAM SHOULD BE UNDERSTOOD AND IMPLEMENTED THROUGHOUT THE ENTIRE DEVELOPMENT. THE VARIOUS CONSTRUCTION TRADES SHOULD BE APPRAISED OF THIS PROGRAM AND DIRECTED TO PREVENT UNDUE DISTURBANCE OF PREPARED AND PROTECTED SURFACES.

SURFACE STABILIZATION CRITERIA: ALL DENUDED SOIL SURFACES, INCLUDING SOIL STOCKPILES. ARE SUBJECT TO EROSION AND SHALL BE STABILIZED EITHER TEMPORARILY OR PERMANENTLY, IMMEDIATELY DURING NON-GERMINATION PERIODS, MULCH MUST BE APPLIED AT RECOMMENDED RATES. CRUSHED STONE ON PAVEMENT SUBGRADES IS CONSIDERED ADEQUATE PROTECTION. ALL DISTURBED ZONES AND VEGETATED REGIONS SHALL BE STABILIZED, PREFERABLY WITH A PERMANENT TREATMENT AS FOLLOWS:

SEEDING & MULCHING SPECIFICATIONS
TEMPORARY: SEEDING SHALL BE COMMON RYE GRASS APPLIED AT 45 LBS. PER ACRE. LIMING TO BE APPLIED AT 1 TON/ACRE. 50-50-50 FERTILIZER TO BE APPLIED AT 1000 LBS/ACRE. HAY OR STRAW MULCH TO BE APPLIED AT 3 TONS/ACRE.

PERMANENT: SEEDING SHALL BE 15% KENTUCKY BLUEGRASS, 35% KENTUCKY 31 FESCUE, 25% CHEWINGS FESCUE, 15% PERENNIAL RYE GRASS, AND 10% RECLEANED REDTOP AT A RATE OF 60 LBS. PER ACRE. LIMING TO BE APPLIED AT 3 TONS/ACRE. 10-20-30 FERTILIZER TO BE APPLIED AT 1000 LBS/ACRE. HAY OR STRAW MULCH TO BE APPLIED AT 3 TONS/ACRE THE NON-GERMINATING PERIODS ARE BETWEEN 6/15 THROUGH 8/15 AND 9/30 THROUGH 4/15. AREAS DISTURBED DURING THESE PERIODS MUST BE LIMED, FERTILIZED, SEEDED AND MULCHED IMMEDIATELY FOLLOWING THE END OF THOSE PERIODS. TOPSOIL TAKEN FROM CONSTRUCTION AREAS SHALL BE SEEDED WITH VEGETATIVE COVER AND STOCKPILES FOR RE-USE IN FINISH GRADING. THERE IS TO BE NO EARTH DISTURBANCE OR VEGETATIVE CLEARING IN AREAS OUTSIDE OF THE DELINEATED AREAS TO BE DISTURBED.

SEDIMENT DISPOSAL:

SILT REMOVED FROM TEMPORARY SEDIMENT CONTROL STRUCTURES SHALL BE DISPOSED ON-SITE IN LANDSCAPED AREAS LOCATED OUTSIDE OF FLOOD PLAINS, WETLANDS, STEEP SLOPES, AND DRAINAGE SWALES. AREAS OF SEDIMENT DISPOSAL SHALL BE CONSIDERED C.V.A..

DUST CONTROL:

DUST AND OTHER PARTICULATES SHALL BE KEPT WITHIN TOLERABLE LIMITS BY USING WATER. APPLICATION SHALL BE AS NEEDED OR AS DIRECTED BY THE TOWNSHIP ENGINEER OR THE CONSERVATION DISTRICT.

CRITICAL VEGETATION AREAS (C.V.A.):

CRITICAL VEGETATION AREAS ARE TO BE GRADED, HYDROSEEDED AND MULCHED WITHIN 10 DAYS OF THE BEGINNING OF EXCAVATION. IN GENERAL, CRITICAL VEGETATION AREAS ARE DEFINED AS CUT SLOPES STEEPER THAN 3H:1V, ALL FILL SLOPES STEEPER THAN 4H:1V AND IN ALL DRAINAGE SWALES.

GENERAL NOTES FOR UTILITY CONSTRUCTION

1. EXCAVATED MATERIAL SHOULD BE STAGED ON THE UPSTREAM SIDE OF A TRENCH.
2. THE DAILY EXTENT OF TRENCHING SHOULD NOT EXCEED WHAT CAN BE BACK FILLED AND STABILIZED IN ONE WORKING DAY.
3. LIMIT ADVANCED CLEARING AND GRUBBING OPERATIONS TO A DISTANCE EQUAL TO TWO TIMES THE LENGTH OF PIPE INSTALLATION THAT CAN BE COMPLETED IN ONE DAY.
4. WORK CREWS AND EQUIPMENT FROM TRENCHING, PLACEMENT OF PIPE, AND BACKFILLING WILL BE SELF CONTAINED AND SEPARATE FROM CLEARING AND GRUBBING AND SITE RESTORATION AND STABILIZATION OPERATIONS.
5. WATER WHICH ACCUMULATES IN THE OPEN TRENCH WILL BE COMPLETELY REMOVED BY PUMPING BEFORE PIPE PLACEMENT AND/OR BACKFILLING BEGINS. WATER REMOVED FROM THE TRENCH SHALL BE PUMPED THROUGH A FILTRATION DEVICE.
6. ON THE DAY FOLLOWING PIPE PLACEMENT AND TRENCH BACKFILLING, THE DISTURBED AREA WILL BE GRADED TO FINAL CONTOURS AND IMMEDIATELY STABILIZED.
7. SOILS EXCAVATED FROM EXISTING SURFACE LAYER SHOULD BE STOCKPILED SEPARATELY AND RETURNED AS FINAL SURFACE LAYER FOLLOWING TRENCH BACKFILLING.

MAINTENANCE SCHEDULE FOR TEMPORARY SEDIMENTATION CONTROL STRUCTURES

INSPECTION AND MAINTENANCE OF ALL FACILITIES SHALL BE MADE AFTER EACH RAIN STORM EVENT AND ON A WEEKLY BASIS. MAINTENANCE OF ALL TEMPORARY SEDIMENTATION CONTROL STRUCTURES SHALL BE IN ACCORDANCE WITH THESE PLANS AND THE "EROSION AND SEDIMENT CONTROL NARRATIVE."

MAINTENANCE OF TEMPORARY SEDIMENTATION CONTROL STRUCTURES

MAINTENANCE OF ALL TEMPORARY SEDIMENTATION CONTROL STRUCTURES SHALL BE IN ACCORDANCE WITH THESE PLANS AND THE "EROSION AND SEDIMENT CONTROL NARRATIVE." INSPECTION AND MAINTENANCE OF ALL FACILITIES SHALL BE MADE AFTER EACH RAIN STORM EVENT AND ON A WEEKLY BASIS. INSPECTIONS SHALL BE LOGGED ONTO DEP FORM 3800-FM-BCW0271d, DATED 12/2019 AND KEPT ON SITE AT ALL TIMES.

MAINTENANCE PROGRAM FOR TEMPORARY SEDIMENTATION CONTROLS STRUCTURES

MAINTENANCE OF ALL TEMPORARY SEDIMENTATION CONTROL STRUCTURES SHALL BE THE RESPONSIBILITY OF THE DEVELOPER AND AS STATED BELOW:

1. ROCK CONSTRUCTION ENTRANCE - MAINTENANCE: ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCKPILE SHALL BE MAINTAINED ON SITE FOR THIS PURPOSE. ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE IMMEDIATELY. IF EXCESSIVE AMOUNTS OF SEDIMENT ARE BEING DEPOSITED ON ROADWAY, EXTEND LENGTH OF ROCK CONSTRUCTION ENTRANCE BY 50 FOOT INCREMENTS UNTIL CONDITION IS ALLEVIATED OR INSTALL WASH RACK. WASHING THE ROADWAY OR SWEEPING THE DEPOSITS INTO ROADWAY DITCHES, SEWERS, CULVERTS, OR OTHER DRAINAGE COURSES IS NOT ACCEPTABLE. SEDIMENT MUST BE REMOVED WHEN ACCUMULATIONS REACH ONE-HALF THE ABOVE-GROUND HEIGHT OF SILT FENCING.
2. EROSION CONTROL BLANKET (ECB) - BLANKETED AREAS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT UNTIL PERENNIAL VEGETATION IS ESTABLISHED TO A MINIMUM UNIFORM 70% COVERAGE THROUGHOUT THE BLANKETED AREA. DAMAGED OR DISPLACED BLANKETS SHALL BE RESTORED OR REPLACED WITHIN 4 CALENDAR DAYS.
3. PUMPED WATER FILTER BAGS - FILTER BAGS SHALL BE INSPECTED DAILY. IF ANY PROBLEM IS DETECTED, PUMPING SHALL CEASE IMMEDIATELY AND NOT RESUME UNTIL THE PROBLEM IS CORRECTED.
4. COMPOST FILTER SOCK - ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/2 THE ABOVE GROUND HEIGHT OF THE BARRIER AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN. COMPOST FILTER SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.
5. INLET PROTECTION - INLET FILTER BAGS SHALL BE INSPECTED ON A WEEKLY BASIS AND AFTER EACH RUNOFF EVENT. BAGS SHALL BE EMPTIED AND RINSED OR REPLACED WHEN HALF FULL OR WHEN FLOW CAPACITY HAS BEEN REDUCED SO AS TO CAUSE FLOODING OR BYPASSING OF THE INLET. DAMAGED OR CLOGGED BAGS SHALL BE REPLACED, A SUPPLY SHALL BE MAINTAINED ON SITE FOR REPLACEMENT OF BAGS. ALL NEEDED REPAIRS SHALL BE INITIATED IMMEDIATELY AFTER THE INSPECTION. DISPOSE ACCUMULATED SEDIMENT AS WELL AS ALL USED BAGS ACCORDING TO THE PLAN NOTES.
6. ROCK FILTER OUTLET - SEDIMENT SHALL BE REMOVED WHEN ACCUMULATIONS REACH 1/3 THE HEIGHT OF THE OUTLET. ADD ADDITIONAL ROCK AS NEEDED.
7. CONTROLLED NON-DISCHARGE CONCRETE WASHOUT - ALL CONCRETE WASHOUT FACILITIES SHOULD BE INSPECTED DAILY. DAMAGED OR LEAKING WASHOUTS SHOULD BE DEACTIVATED AND REPAIRED OR REPLACED IMMEDIATELY. WHEN WASHOUT MATERIAL REACHES 50% CAPACITY OF FILTERING HEIGHT, STOP USAGE OF THAT RING. WHEN STABLE, BREAK UP CONCRETE WASHOUT MATERIAL AND DISPOSE OF APPROPRIATELY.

POTENTIAL THERMAL IMPACTS

THERMAL IMPACTS DURING CONSTRUCTION ACTIVITIES WILL BE MINIMIZED THROUGH AVOIDING DIRECT DISCHARGE INTO SURFACE WATERS, LIMITING THE EXTENT AND DURATION OF EARTH DISTURBANCE AND THE USE OF COMPOST FILTER SOCK, WHICH IS THE PRIMARY PERIMETER CONTROL. RUNOFF WILL BE TREATED BY THE COMPOST FILTER SOCK AND THEN DISCHARGED TO STABILIZED VEGETATIVE COVER, AS THE DISCHARGE FLOWS BELOW THE CANOPY OF EXISTING VEGETATION (LAWN, TREES, ETC.), THE DISCHARGE WILL BE AFFORDED TIME TO COOL PRIOR TO REACHING THE RECEIVING WATERWAYS.

GEOLOGIC FORMATIONS/SOIL CONDITIONS/POLLUTANT PREVENTION

THE PROPOSED SITE IS UNDERLAIN BY STOCKTON FORMATIONS COMPOSED OF ARKOSIC SANDSTONE, SILTSTONE, AND SANDSTONE; MUDSTONE, RESPECTIVELY BASED ON MONTGOMERY COUNTY GEOLOGY SURVEY (JUNE 1973). GEOTECHNICAL INVESTIGATIONS SHOWED NO EVIDENCE OF KARST FEATURES ON SITE, OR SOIL CONDITIONS ARE KNOWN TO BE PRESENT THAT WOULD REQUIRE SPECIFIC BMPS TO MINIMIZE POLLUTION EFFECTS ASSOCIATED WITH SAID FEATURES. BASED ON THE INFORMATION OBTAINED AT THE BORING LOCATION, THE GEOTECHNICAL REPORT CONCLUDES THAT THE SITE SOILS WILL PROVIDE ADEQUATE INFILTRATION AT THE DEPTHS TESTED; IT IS NOT ANTICIPATED THAT BEDROCK WILL BE ENCOUNTERED WITHIN THE EXCAVATION AREA OF THE PROPOSED INFILTRATION FACILITIES; AND GROUNDWATER IS NOT ANTICIPATED TO BE ENCOUNTERED WITHIN THE LIMITS OF EXCAVATION FOR THE PROPOSED INFILTRATION FACILITIES. IF ISSUES ARISE ON SITE DURING CONSTRUCTION THE GEOTECHNICAL ENGINEER SHALL BE NOTIFIED IMMEDIATELY.

ANTICIPATED E&S BMP RELATED CONSTRUCTION WASTES AND DISPOSAL PROCEDURES

SEDIMENT: SILT REMOVED FROM TEMPORARY SEDIMENT CONTROL STRUCTURES SHALL BE DISPOSED OF ON-SITE IN LANDSCAPED AREAS LOCATED OUTSIDE FLOODPLAINS, WETLANDS, STEEP SLOPES, AND DRAINAGE SWALES. SILT AND SEDIMENT CATEGORIZED AS CONTAMINATED SHALL BE DISPOSED OF PER THE SOIL MANAGEMENT NOTES.

TRASH & LITTER: TRASH AND LITTER SHALL BE REMOVED FROM EROSION AND SEDIMENTATION CONTROL BMPS AND DISPOSED OF IN APPROPRIATE TRASH RECEPTACLE.

CONCRETE WASHWATER: CONCRETE WASHWATER SHALL BE DISPOSED OF IN THE LOCATION SHOWN ON-SITE. ONCE WASHWATER SOLIDIFIES THE HARDENED CONCRETE SHALL BE DISPOSED OF OFF-SITE IN AN APPROVED MANNER.

NOTE: ANY APPLICABLE MATERIAL SHALL BE RECYCLED IN ACCORDANCE TO THE APPROPRIATE REGULATIONS.

PROJECT SERIAL NO.: 20241620090

CALL BEFORE YOU DIG!

PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - STOP CALL

PennsylvaniaOne Call System, Inc.

1-800-242-1776

SOIL EROSION AND SEDIMENTATION CONTROL NOTES:

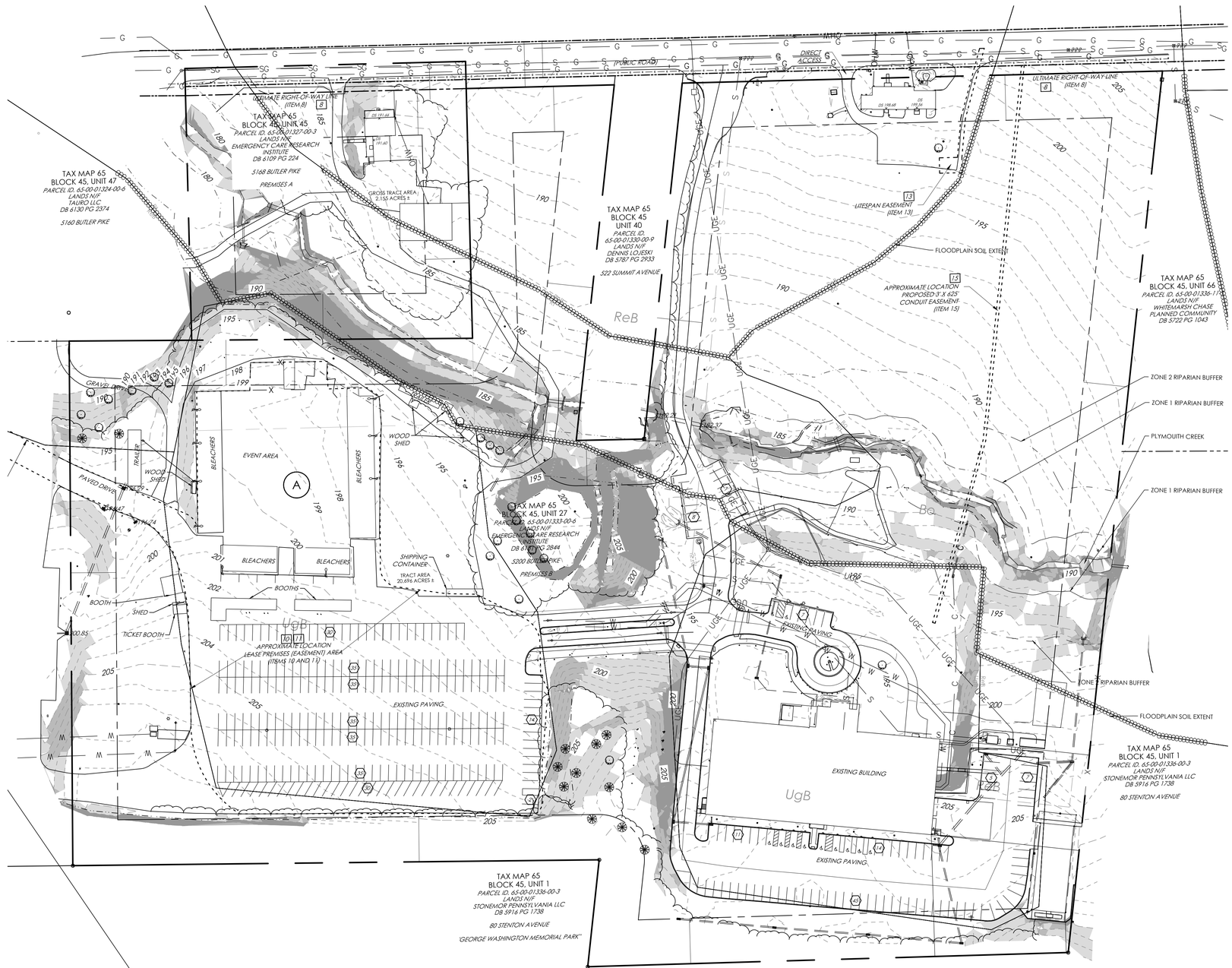
1. ALL EARTH DISTURBANCES, INCLUDING CLEARING AND GRUBBING AS WELL AS CUTS AND FILLS SHALL BE DONE IN ACCORDANCE WITH THE APPROVED E&S PLAN. A COPY OF THE APPROVED DRAWINGS (STAMPED, SIGNED AND DATED BY THE REVIEWING AGENCY) MUST BE AVAILABLE AT THE PROJECT SITE AT ALL TIMES. THE REVIEWING AGENCY SHALL BE NOTIFIED OF ANY CHANGES TO THE APPROVED PLAN PRIOR TO IMPLEMENTATION OF THOSE CHANGES. THE REVIEWING AGENCY MAY REQUIRE A WRITTEN SUBMITTAL OF THOSE CHANGES FOR REVIEW AND APPROVAL AT ITS DISCRETION.
2. AT LEAST 7 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, INCLUDING CLEARING AND GRUBBING, THE OWNER AND/OR OPERATOR SHALL INVITE ALL CONTRACTORS, THE LANDOWNER, APPROPRIATE WHITEMARSH TOWNSHIP OFFICIALS, THE E&S PLAN PREPARER, THE PCSM PLAN PREPARER, THE LICENSED PROFESSIONAL RESPONSIBLE FOR OVERSIGHT OF CRITICAL STAGES OF IMPLEMENTATION OF THE PCSM PLAN, AND A REPRESENTATIVE FROM THE LOCAL CONSERVATION DISTRICT TO AN ON-SITE PRE-CONSTRUCTION MEETING.
3. AT LEAST 3 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, OR EXPANDING INTO AN AREA PREVIOUSLY UNMARKED, THE PENNSYLVANIA ONE CALL SYSTEM INC. SHALL BE NOTIFIED AT 1-800-242-1776 FOR THE LOCATION OF EXISTING UNDERGROUND UTILITIES.
4. ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE SEQUENCE PROVIDED ON THE PLAN DRAWINGS. DEVIATION FROM THAT SEQUENCE MUST BE APPROVED IN WRITING FROM THE LOCAL CONSERVATION DISTRICT OR BY THE DEPARTMENT PRIOR TO IMPLEMENTATION.
5. AREAS TO BE FILLED ARE TO BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL.
6. CLEARING, GRUBBING, AND TOPSOIL STRIPPING SHALL BE LIMITED TO THOSE AREAS DESCRIBED IN EACH STAGE OF THE CONSTRUCTION SEQUENCE. GENERAL SITE CLEARING, GRUBBING AND TOPSOIL STRIPPING MAY NOT COMMENCE IN ANY STAGE OR PHASE OF THE PROJECT UNTIL THE E&S BMPS SPECIFIED BY THE BMP SEQUENCE FOR THAT STAGE OR PHASE HAVE BEEN INSTALLED AND ARE FUNCTIONING AS DESCRIBED IN THIS E&S PLAN.
7. AT NO TIME SHALL CONSTRUCTION VEHICLES BE ALLOWED TO ENTER AREAS OUTSIDE THE LIMIT OF DISTURBANCE BOUNDARIES SHOWN ON THE PLAN MAPS. THESE AREAS MUST BE CLEARLY MARKED AND FENCED OFF BEFORE CLEARING AND GRUBBING OPERATIONS BEGIN.
8. TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED AT THE LOCATION(S) SHOWN ON THE PLAN MAPS(S) IN THE AMOUNT NECESSARY TO COMPLETE THE FINISH GRADING OF ALL EXPOSED AREAS THAT ARE TO BE STABILIZED BY VEGETATION. EACH STOCKPILE SHALL BE PROTECTED IN THE MANNER SHOWN ON THE PLAN DRAWINGS. STOCKPILE SLOPES SHALL BE 2H:1V OR FLATTER.
9. IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE OPERATOR SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES TO MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENT POLLUTION AND NOTIFY MONTGOMERY COUNTY CONSERVATION DISTRICT AND/OR THE REGIONAL OFFICE OF THE DEPARTMENT.
10. ALL BUILDING MATERIALS AND WASTES SHALL BE REMOVED FROM THE SITE AND RECYCLED OR DISPOSED OF IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA. CODE 260.1 ET SEQ., 271.1, AND 287.1 ET. SEG.. NO BUILDING MATERIALS OR WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURNED, BURIED, DUMPED, OR DISCHARGED AT THE SITE.
11. ALL OFF-SITE WASTE AND BORROW AREAS MUST HAVE AN E&S PLAN APPROVED BY MONTGOMERY COUNTY CONSERVATION DISTRICT OR THE DEPARTMENT FULLY IMPLEMENTED PRIOR TO BEING ACTIVATED.
12. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ANY MATERIAL BROUGHT ON SITE IS CLEAN FILL. FORM FP-001 MUST BE RETAINED BY THE PROPERTY OWNER FOR ANY FILL MATERIAL AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE BUT QUALIFYING AS CLEAN FILL DUE TO ANALYTICAL TESTING.
13. ALL PUMPING OF WATER FROM ANY WORK AREA SHALL BE DONE ACCORDING TO THE PROCEDURE DESCRIBED IN THIS PLAN, OVER UNDISTURBED VEGETATED AREAS.
14. UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENT BMPS SHALL BE MAINTAINED PROPERLY. MAINTENANCE SHALL INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENT BMPS AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT REGRADING, RE-SEEDING, RE-MULCHING AND RE-NETTING MUST BE PERFORMED IMMEDIATELY. IF THE E&S BMPS FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPS, OR MODIFICATIONS OF THOSE INSTALLED WILL BE REQUIRED.
15. A LOG SHOWING DATES THAT E&S BMPS WERE INSPECTED AS WELL AS ANY DEFICIENCIES FOUND AND THE DATE THEY WERE CORRECTED SHALL BE MAINTAINED ON THE SITE AND BE MADE AVAILABLE TO REGULATORY AGENCY OFFICIALS AT THE TIME OF INSPECTION.
16. SEDIMENT TRACKED ONTO ANY PUBLIC ROADWAY OR SIDEWALK SHALL BE RETURNED TO THE CONSTRUCTION SITE BY THE END OF EACH WORK DAY, OR AS NEEDED, OR AS DIRECTED BY MONTGOMERY COUNTY CONSERVATION DISTRICT OR WHITEMARSH TOWNSHIP, AND DISPOSED IN THE MANNER DESCRIBED IN THIS PLAN. IN NO CASE SHALL THE SEDIMENT BE WASHED, SHOVELED, OR SWEPT INTO ANY ROAD SIDE DITCH, STORM SEWER, OR SURFACE WATER.
17. ALL SEDIMENT REMOVED FROM BMPS SHALL BE DISPOSED OF IN THE MANNER DESCRIBED ON THE PLAN DRAWINGS.
18. AREAS WHICH ARE TO BE TOPSOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 3 TO 5 INCHES -- 6 TO 12 INCHES ON COMPACTED SOILS -- PRIOR TO PLACEMENT OF TOPSOIL. AREAS TO BE VEGETATED SHALL HAVE A MINIMUM 4 INCHES OF TOPSOIL IN PLACE PRIOR TO SEEDING AND MULCHING. FILL OUTSLOPES SHALL HAVE A MINIMUM OF 2 INCHES OF TOPSOIL.
19. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC., SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.
20. ALL EARTHEN FILLS SHALL BE PLACED IN COMPACTED LAYERS NOT TO EXCEED 9 INCHES IN THICKNESS.
21. FILL MATERIALS SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OR OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS.
22. FROZEN MATERIALS OR SOFT, MUCKY, OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED INTO FILLS.
23. FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.
24. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED IN ACCORDANCE WITH THE STANDARD AND SPECIFICATION FOR SUBSURFACE DRAIN OR OTHER APPROVED METHOD.
25. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY UPON REACHING FINISHED GRADE. CUT SLOPES IN COMPETENT BEDROCK AND ROCK FILLS NEED NOT BE VEGETATED. ALL SLOPES 3H:1V OR STEEPER AND SEEDED AREAS WITHIN 50 FEET OF A SURFACE WATER, OR AS OTHERWISE SHOWN ON THE PLAN DRAWINGS, SHALL BE BLANKETED ACCORDING TO THE STANDARDS OF THIS PLAN.
26. IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES CEASE IN ANY AREA OR SUBAREA OF THE PROJECT, THE OPERATOR SHALL STABILIZE ALL DISTURBED AREAS, DURING NON-GERMINATING MONTHS, MULCH OR PROTECTIVE BLANKETING SHALL BE APPLIED AS DESCRIBED IN THE PLAN. AREAS NOT AT FINISHED GRADE, WHICH WILL BE REACTIVATED WITHIN 1 YEAR, MAY BE STABILIZED IN ACCORDANCE WITH THE TEMPORARY STABILIZATION SPECIFICATIONS. THOSE AREAS WHICH WILL NOT BE REACTIVATED WITHIN 1 YEAR SHALL BE STABILIZED IN ACCORDANCE WITH THE PERMANENT STABILIZATION SPECIFICATIONS.
27. PERMANENT STABILIZATION IS DEFINED AS A MINIMUM UNIFORM, PERENNIAL 70% VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED EROSION. CUT AND FILL SLOPES SHALL BE CAPABLE OF RESISTING FAILURE DUE TO SLUMPING, SLIDING, OR OTHER MOVEMENTS.
28. E&S BMPS SHALL REMAIN FUNCTIONAL AS SUCH UNTIL ALL AREAS TRIBUTARY TO THEM ARE PERMANENTLY STABILIZED OR UNTIL THEY ARE REPLACED BY ANOTHER BMP APPROVED BY MONTGOMERY COUNTY CONSERVATION DISTRICT OR THE DEPARTMENT.
29. UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT MONTGOMERY COUNTY CONSERVATION DISTRICT FOR AN INSPECTION PRIOR TO REMOVAL/CONVERSION OF THE E&S BMPS.
30. AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENT BMPS MUST BE REMOVED OR CONVERTED TO PERMANENT POST CONSTRUCTION STORMWATER MANAGEMENT BMPS. AREAS DISTURBED DURING REMOVAL OR CONVERSION OF THE BMPS SHALL BE STABILIZED IMMEDIATELY. IN ORDER TO ENSURE RAPID REVEGETATION OF DISTURBED AREAS, SUCH REMOVAL/CONVERSIONS ARE TO BE DONE ONLY DURING THE GERMINATING SEASON.
31. UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT MONTGOMERY COUNTY CONSERVATION DISTRICT TO SCHEDULE A FINAL INSPECTION.
32. FAILURE TO CORRECTLY INSTALL E&S BMPS, FAILURE TO PREVENT SEDIMENT-LADEN RUNOFF FROM LEAVING THE CONSTRUCTION SITE OR FAILURE TO TAKE IMMEDIATE CORRECTIVE ACTION TO RESOLVE FAILURE OF E&S BMPS MAY RESULT IN ADMINISTRATIVE, CIVIL, AND/OR CRIMINAL PENALTIES BEING INSTITUTED BY THE DEPARTMENT AS DEFINED IN SECTION 602 OF THE PENNSYLVANIA CLEAN STREAMS LAW. THE CLEAN STREAMS LAW PROVIDES FOR UP TO $10,000 PER DAY IN CIVIL PENALTIES, UP TO $10,000 IN SUMMARY CRIMINAL PENALTIES, AND UP TO $25,000 IN MISDEMEANOR CRIMINAL PENALTIES FOR EACH VIOLATION.
33. CONCRETE WASH WATER SHALL BE HANDLED IN THE MANNER DESCRIBED ON THE PLAN DRAWINGS. IN NO CASE SHALL IT BE ALLOWED TO ENTER ANY SURFACE WATERS OR GROUNDWATER SYSTEMS.
34. ALL CHANNELS SHALL BE KEPT FREE OF OBSTRUCTIONS INCLUDING BUT NOT LIMITED TO FILL, ROCKS, LEAVES, WOODY DEBRIS, ACCUMULATED SEDIMENT, EXCESS VEGETATION, AND CONSTRUCTION MATERIAL/WASTES.
35. UNDERGROUND UTILITIES CUTTING THROUGH ANY ACTIVE CHANNEL SHALL BE IMMEDIATELY BACKFILLED AND THE CHANNEL RESTORED TO ITS ORIGINAL CROSS-SECTION AND PROTECTIVE LINING. ANY BASE FLOW WITHIN THE CHANNEL SHALL BE CONVEYED PAST THE WORK AREA IN THE MANNER DESCRIBED IN THIS PLAN UNTIL SUCH RESTORATION IS COMPLETE.
36. CHANNELS HAVING RIPRAP, RENO MATTRESS, OR GABION LININGS MUST BE SUFFICIENTLY OVER-EXCAVATED SO THAT THE DESIGN DIMENSIONS WILL BE PROVIDED AFTER PLACEMENT OF THE PROTECTIVE LINING.
37. SEDIMENT BASINS AND/OR TRAPS SHALL BE KEPT FREE OF ALL CONSTRUCTION WASTE, WASH WATER, AND OTHER DEBRIS HAVING POTENTIAL TO CLOG THE BASIN/TRAP OUTLET STRUCTURES AND/OR POLLUTE THE SURFACE WATERS.
38. SEDIMENT BASINS SHALL BE PROTECTED FROM UNAUTHORIZED ACTS BY THIRD PARTIES.
39. ANY DAMAGE THAT OCCURS IN WHOLE OR IN PART AS A RESULT OF BASIN OR TRAP DISCHARGE SHALL BE IMMEDIATELY REPAIRED BY THE PERMITTEE IN A PERMANENT MANNER SATISFACTORY TO WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY CONSERVATION DISTRICT, AND THE OWNER OF THE DAMAGED PROPERTY.
40. UPON REQUEST, THE APPLICANT OR HIS CONTRACTOR SHALL PROVIDE AN AS-BUILT (RECORD DRAWING) FOR ANY SEDIMENT BASIN OR TRAP TO THE TOWNSHIP INSPECTOR, MONTGOMERY COUNTY CONSERVATION DISTRICT OR THE DEPARTMENT.
41. EROSION CONTROL BLANKETING SHALL BE INSTALLED ON ALL SLOPES 3H:1V OR STEEPER WITHIN 50 FEET OF A SURFACE WATER AND ON ALL OTHER DISTURBED AREAS SPECIFIED ON THE PLAN MAPS AND/OR DETAIL SHEETS.
42. FILL MATERIAL FOR EMBANKMENTS SHALL BE FREE OF ROOTS, OR OTHER WOODY VEGETATION, ORGANIC MATERIAL, LARGE STONES, AND OTHER OBJECTIONABLE MATERIALS.

SEQUENCE OF CONSTRUCTION

CRITICAL STAGES OF INSPECTION WHEN A LICENSED PROFESSIONAL IS TO BE PRESENT ON SITE ARE INDICATED WITH AN ASTERISK (*) IN THE FOLLOWING CONSTRUCTION SEQUENCES.

1. AT LEAST 7 DAYS BEFORE ANY EARTH DISTURBANCE ACTIVITIES, THE OPERATOR SHALL INVITE ALL CONTRACTORS INVOLVED IN THOSE ACTIVITIES, THE LANDOWNER, ALL APPROPRIATE MUNICIPAL OFFICIALS, THE EROSION AND SEDIMENT CONTROL PLAN PREPARER, THE DESIGNATED LICENSED PROFESSIONAL, AND MONTGOMERY COUNTY CONSERVATION DISTRICT TO AN ON-SITE PRE-CONSTRUCTION MEETING. ALSO, AT LEAST 3 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, OR EXPANDING INTO AN AREA PREVIOUSLY UNMARKED, THE PENNSYLVANIA ONE CALL SYSTEM SHALL BE NOTIFIED AT 1-800-242-1776 FOR THE LOCATION OF EXISTING UNDERGROUND UTILITIES. ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE SEQUENCE PROVIDED ON THE PLAN DRAWINGS. DEVIATION FROM THAT SEQUENCE MUST BE APPROVED IN WRITING FROM THE LOCAL CONSERVATION DISTRICT OR BY THE DEPARTMENT PRIOR TO IMPLEMENTATION.
2. STABILIZATION NOTE. UPON COMPLETION OR TEMPORARY CESSATION OF THE EARTH DISTURBANCE ACTIVITY THAT WILL EXCEED 4 DAYS, OR ANY STAGE THEREOF, THE PROJECT SITE SHALL BE IMMEDIATELY STABILIZED WITH THE APPROPRIATE TEMPORARY OR PERMANENT STABILIZATION. HAY OR STRAW MULCH MUST BE APPLIED AT 3.0 TONS PER ACRE. HYDROSEED IS NOT CONSIDERED STABILIZATION UNTIL IT GERMINATES. IN NO CASE SHOULD AN AREA EXCEEDING 15,000 SQUARE FEET, WHICH IS TO BE STABILIZED BY VEGETATION, REACH FINAL GRADE WITHOUT BEING SEEDED AND MULCHED.
3. THE LIMITS OF DISTURBANCE MUST BE DELINEATED WITH ORANGE CONSTRUCTION FENCE OR APPROVED EQUAL PRIOR TO EARTH-MOVING ACTIVITIES. ANY CESSATION OF ACTIVITIES FOR MORE THAN FOUR DAYS OR LONGER REQUIRES TEMPORARY STABILIZATION.
4. INSTALL STABILIZED CONSTRUCTION ENTRANCES AS SHOWN ON THE EROSION AND SEDIMENT CONTROL PLAN. CONTRACTOR TO UTILIZE ACCEPTABLE STANDARDS AND PRACTICES TO ENSURE SEDIMENT IS NOT TRACKED OFF THE PROPERTY AND ONTO PUBLIC RIGHTS-OF-WAY. STABILIZE ANY RESULTING DISTURBANCE IMMEDIATELY, AS APPROPRIATE.
5. ***PLACE PERIMETER EROSION AND SEDIMENT CONTROLS AS SHOWN ON EROSION AND SEDIMENT CONTROL PLAN THAT INCLUDE: COMPOST FILTER SOCKS, AND LOCATIONS FOR TEMPORARY TOPSOIL STOCK PILES. STABILIZE ANY RESULTANT DISTURBANCE IMMEDIATELY, AS APPROPRIATE.**
6. AFTER ALL PERIMETER CONTROLS ARE INSTALLED AND FUNCTIONING, BEGIN DEMOLITION OF EXISTING FEATURES AS INDICATED ON THE DEMOLITION PLAN. REMOVE AND DISPOSE/RECYCLE EXISTING ASPHALT, CONCRETE, GRAVEL, AND CURB. STABILIZE ANY RESULTING DISTURBANCE I

EXISTING STRUCTURE INVENTORY					
LABEL	ADDRESS	BUILDING COVERAGE (SF)	TAX PARCEL NUMBER	PARCEL OWNER	PARCEL SIZE (AC)
A	5200 BUTLER PIKE	35,879.54	65-00-01333-00-6	EMERGENCY CARE RESEARCH INSTITUTE	(+/-) 20.7
B	5168 BUTLER PIKE	3,549.00	65-00-01327-00-3	EMERGENCY CARE RESEARCH INSTITUTE	(+/-) 2.15



UTILITIES CONTACTS LIST

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762 W. LANCASTER AVENUE
BRYN MAWR, PA 19010
CONTACT: STEVE PIZZI
PHONE: (484) 525-1400

AMBLER WATER COMPANY
122 E BUTLER AVE
AMBLER, PA 19002
PHONE: (215) 646-1000

PECO ENERGY
C/O STS. CLC
1004 W. 8TH AVENUE
KING OF PRUSSIA, PA 19406
CONTACT: WAYNE VINCENT
EMAIL: WVINCENT@STSUS.NET

VERIZON PENNSYLVANIA, INC.
6TH FLOOR
900 RACE STREET
PHILADELPHIA, PA 19107
CONTACT: SUZETTE WALKER
EMAIL: SUZETTE.E.WALKER@VERIZON.COM

COMCAST
755 BUSINESS CENTER DR
HORSHAM, PA 19044
PHONE: (215) 259-1589

WHITEMARSH TOWNSHIP SEWER AUTHORITY
P.O. BOX 447
LAFAYETTE HILL, PA 19444
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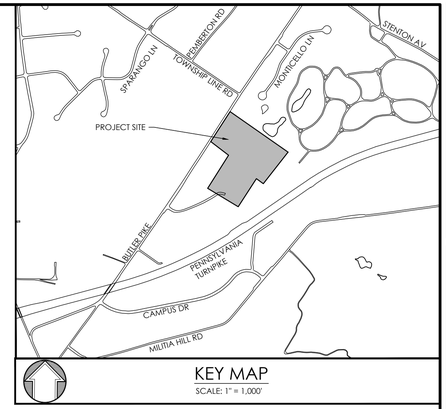

KEY MAP
SCALE: 1" = 1,000'

SOILS LEGEND:

SOILS INFORMATION OBTAINED FROM THE USDA-NRCS WEB SOIL SURVEY, VERSION 10, SURVEY PERFORMED ON (INSERT DATE).

Bo - BOWMANSVILLE-KNAUERS SILT LOAMS
ReB - READINGTON SILT LOAM, 3 TO 8 PERCENT SLOPES
Rt - ROWLAND SILT LOAM, TERRACE
UgB - URBAN LAND, 0 TO 8 PERCENT SLOPES
UnB - URBAN LAND-PENN COMPLEX, 0 TO 8 PERCENT SLOPES

SOIL LIMITATIONS AND RESOLUTIONS

APPLICABILITY TO PROJECT	SOIL LIMITATION	RESOLUTION(S)
YES	CUTBANKS CAVE	PROVIDE APPROPRIATE BENCHING AND/OR SHORING IN AREAS OF EXCAVATION.
YES	CORROSIVE TO CONCRETE/STEEL	INSTALL REBAR TO MINIMUM COVER REQUIREMENTS AND USE EPOXY COATED REBAR. APPLY MOISTURE BARRIER TO SURFACE OF EXPOSED CONCRETE.
YES	EASILY ERODIBLE	SOILS SHALL BE STABILIZED WITH EITHER TEMPORARY OR FINAL STABILIZATION IN AREAS WHERE EARTHWORK IS DELAYED OR STOPPED FOR FOUR CONSECUTIVE DAYS.
YES	FLOODING	AVOID DEVELOPMENT IN FLOOD PRONE AREAS.
YES	DEPTH TO SATURATED ZONE / SEASONAL HIGH WATER TABLE	SOILS SHOULD BE EVALUATED FOR WETNESS PRIOR TO USE IN SITE WORK. IF GEOTECHNICAL ENGINEER DEEMS SOILS TOO WET FOR SITE WORK, THEN SOILS SHALL BE AMENDED OR DRIED PER GEOTECHNICAL ENGINEER'S RECOMMENDATIONS.
YES	HYDRIC / HYDRIC INCLUSIONS	SOILS TO BE EVALUATED BY GEOTECHNICAL SPECIALIST. WATER TABLE EVALUATION WILL BE REQUIRED. POSSIBLY IN AREA OF WETLANDS.
YES	LOW STRENGTH / LANDSLIDE PRONE	SOILS SHOULD NOT BE USED FOR STRUCTURAL FILL UNLESS THEY HAVE BEEN EVALUATED BY A GEOTECHNICAL ENGINEER AND THE GEOTECHNICAL ENGINEER DEEMS THEM SUITABLE AS FILL OR PROVIDES RECOMMENDATIONS TO AMEND SOILS MAKING THEM SUITABLE AS FILL.
YES	SLOW PERCOLATION	SOIL TO BE EVALUATED FOR SUITABILITY FOR INFILTRATION PRACTICES.
YES	PIPING	AREAS OF EMBANKMENTS WITH PIPES PASSING THROUGH THEM SHALL HAVE ANTI-SEEP COLLARS INSTALLED PER THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION'S (PA DEP) EROSION AND SEDIMENT POLLUTION CONTROL PROGRAM.
YES	POOR SOURCE OF TOPSOIL	SOIL SHOULD BE AMENDED AS RECOMMENDED TO PROVIDE ADEQUATE MATERIALS NECESSARY FOR REQUIRED PLANT GROWTH.
YES	FROST ACTION	SOILS SHOULD BE FREE OF FROZEN OR MUCKY MATERIALS. FILL SHOULD NOT BE PLACED ON SATURATED OR FROZEN SURFACES. EARTHWORK INVOLVING THESE SOILS SHOULD BE LIMITED TO THE WARMER MONTHS WHEN PRACTICAL.
YES	WETNESS	SOILS SHOULD BE EVALUATED FOR WETNESS PRIOR TO USE IN SITE WORK. IF GEOTECHNICAL ENGINEER DEEMS SOILS TOO WET FOR SITE WORK, THEN SOILS SHALL BE AMENDED OR DRIED PER GEOTECHNICAL ENGINEER'S RECOMMENDATIONS.

NOTES:

1. *THIS PLAN IS BASED ON A SURVEY CONDUCTED IN THE FIELD BY NAVE NEWELL INC. COMPLETED ON JUNE 6, 2024.*
2. *THE PROPERTY FALLS WITHIN ZONE 'X' (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) AS DEPICTED ON THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP (FIRM) NO. 42091C0357G, MAP REVISED MARCH 2, 2016.*
3. *PURSUANT TO ACT 187, A PENNSYLVANIA ONE CALL WAS PLACED AND ASSIGNED SERIAL NO. 20241620090. INFORMATION THEREBY OBTAINED WAS USED TO ILLUSTRATE EXISTING UTILITIES.*
4. *LOCATIONS OF EXISTING UTILITIES AS SHOWN HEREIN HAVE BEEN DEVELOPED FROM EXISTING UTILITY RECORDS, PLANS BY OTHERS AND/OR ABOVE GROUND EXAMINATION OF SITE. THIS PLAN ILLUSTRATES UTILITIES OF RECORD PROVIDED BY OR BEFORE THE DATE OF THIS SURVEY. THIS MAY OR MAY NOT COMPRISE ALL THE UTILITY INFORMATION FOR THIS PROPERTY. THE COMPLETENESS OR ACCURACIES OF THE LOCATIONS ARE NOT GUARANTEED. SHOULD ANY NEW CONSTRUCTION BE PROPOSED, THE CONTRACTOR MUST VERIFY LOCATIONS AND DEPTHS OF ALL UTILITIES BEFORE START OF WORK.*
5. *ALL STEEP AND VERY STEEP SLOPES DELINEATED ON THE TRACT APPEAR TO BE MANMADE.*
6. *UNIT AND BLOCK NUMBERS REFER TO THE OFFICIAL TAX MAPS OF THE WHITEMARSH TOWNSHIP, PA.*

REFERENCE PLANS:

1. *OFFICIAL TAX MAPS OF WHITEMARSH TOWNSHIP.*
2. *PLAN ENTITLED "MINOR SUBDIVISION - RECORD PLAN FOR 5140 BUTLER PIKE", PREPARED BY WOODROW & ASSOCIATES INC., DATED DECEMBER 2, 2016, LAST REVISED SEPTEMBER 18, 2017 AND RECORDED IN MONTGOMERY COUNTY COURTHOUSE AS PLAN BOOK 46 PAGE 431.*

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(IN FEET)
1 inch = 60 ft

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USER: ----

Nave NEWELL
900 West Valley Road • Suite 1100
Wayne, PA 19087-1830
p: 610.225.2677 f: 610.225.2299
www.navenewell.com

REVISIONS			
date:	no.	description	chk'd by
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COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JAMES D. BAUMAN
No. PE059181
SEAL:

DRAWING NAME: COMPOSITE EXISTING FEATURES

GEMMA REDEVELOPMENT

LOCATION: WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PA

project no.	drawn by:
2024-039	JSD
date:	chk'd by:
10/24/24	BTK
scale:	approv. by:
1" = 60'	PEL

sheet no.

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3 of 18

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TAX MAP 65
BLOCK 45, UNIT 45
PARCEL ID. 65-00-01327-00-3
LANDS N/F
EMERGENCY CARE RESEARCH INSTITUTE
DB 6109 PG 224
5168 BUTLER PIKE
PREMISES A

TAX MAP 65
BLOCK 45, UNIT 47
PARCEL ID. 65-00-01324-00-6
LANDS N/F
TAURO LLC
DB 6130 PG 2374
5160 BUTLER PIKE

TAX MAP 65
BLOCK 45
UNIT 40
PARCEL ID. 65-00-01330-00-9
LANDS N/F
DENNIS LOJESKI
DB 5787 PG 2933
522 SUMMIT AVENUE

TAX MAP 65
BLOCK 45, UNIT 66
PARCEL ID. 65-00-01336-11-0
LANDS N/F
WHITEMARSH CHASE
PLANNED COMMUNITY
DB 5722 PG 1043

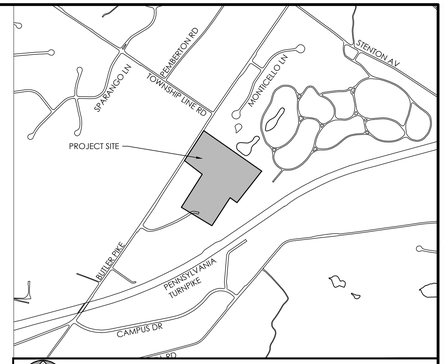
TAX MAP 65
BLOCK 45, UNIT 27
PARCEL ID. 65-00-01333-00-6
LANDS N/F
EMERGENCY CARE RESEARCH INSTITUTE
DB 6109 PG 224
5200 BUTLER PIKE
PREMISES B

TAX MAP 65
BLOCK 45, UNIT 1
PARCEL ID. 65-00-01336-00-3
LANDS N/F
STONEMOR PENNSYLVANIA LLC
DB 5916 PG 1738
80 STENTON AVENUE
"GEORGE WASHINGTON MEMORIAL PARK"

TAX MAP 65
BLOCK 45, UNIT 1
PARCEL ID. 65-00-01336-00-3
LANDS N/F
STONEMOR PENNSYLVANIA LLC
DB 5916 PG 1738
80 STENTON AVENUE

ULTIMATE RIGHT-OF-WAY LINE (ITEM 8)
DIRECT ACCESS TO THORN ROAD
GROSS TRACT AREA 2.155 ACRES ±
TRACT AREA 20.696 ACRES ±
LIFESPAN EASEMENT (ITEM 13)
APPROXIMATE LOCATION PROPOSED 3.5" ID PVC CONDUIT EASEMENT (ITEM 15)
APPROXIMATE LOCATION LEASE PREMISES EASEMENT AREA (ITEM 18 AND 19)

EXISTING GRAVEL DRIVE **TO BE REMOVED**
EXISTING ANNOUNCERS BOX **TO BE REMOVED**
EXISTING TRAILER **TO BE REMOVED**
EXISTING STORM INLETS **TO BE REMOVED**
EXISTING STORM CONVEYANCE **TO BE REMOVED**
EXISTING BOOTH **TO BE REMOVED**
EXISTING SHED **TO BE REMOVED**
EXISTING TICKET BOOTH **TO BE REMOVED**
EXISTING PAVEMENT **TO BE REMOVED**
EXISTING WOOD SHEDS **TO BE REMOVED**
EXISTING WOOD SHEDS **TO BE REMOVED**
EXISTING WOOD SHEDS **TO BE REMOVED**
EXISTING BLEACHERS **TO BE REMOVED**
EXISTING WOOD SHED **TO BE REMOVED**
EXISTING BLEACHERS **TO BE REMOVED**
EXISTING BOOTHS **TO BE REMOVED**
EXISTING LIGHTS **TO BE REMOVED**
EXISTING LIGHT POLES **TO BE REMOVED**
EXISTING SHIPPING CONTAINER **TO BE REMOVED**
EXISTING PAVEMENT **TO BE REMOVED**
EXISTING STRIPING **TO BE REPLACED**
EXISTING SIDEWALK **TO BE REMOVED**
EXISTING COMMUNICATIONS LINE **TO BE RELOCATED**
EXISTING ELECTRIC LINE **TO BE RELOCATED**
EXISTING SANITARY LINE **TO BE CAPPED AND ABANDONED**
EXISTING WATER LINES **TO BE RELOCATED**



KEY MAP
SCALE: 1" = 1,000'

DEMOLITION NOTES:

1. LOCATIONS OF EXISTING UTILITIES AS SHOWN HEREIN HAVE BEEN DEVELOPED FROM EXISTING UTILITY RECORDS, PLANS BY OTHERS, ABOVE GROUND EXAMINATION OF THE SITE AND/OR PRIVATE UTILITY LOCATION COMPANY. THE COMPLETENESS OR ACCURACY OF THE LOCATIONS ARE NOT GUARANTEED. THE CONTRACTOR MUST VERIFY LOCATIONS AND DEPTHS OF ALL UTILITIES BEFORE START OF WORK.
2. PRIOR TO STARTING CONSTRUCTION, ALL UTILITY SERVICES IN THE AREA ARE TO BE LOCATED, THE USER NOTIFIED, AND MEASURES TAKEN TO PROTECT THE LINES IN ACCORDANCE WITH PA ACT 287, AS AMENDED. CONTRACTORS ARE TO IMMEDIATELY NOTIFY THE ENGINEER OF ANY DEVIATIONS FROM THE PLAN INFORMATION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONTACT PA "ONE-CALL" AT LEAST 72 HOURS TO ANY EXCAVATION OR DEMOLITION ON-SITE.
3. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO THE START OF DEMOLITION.
4. THE EXISTING ASPHALT TO BE RESURFACED SHALL BE PATCHED, FILLED AND/OR REPAIRED AS NECESSARY PRIOR TO THE APPLICATION OF THE WEARING COURSE.
5. IN ALL AREAS WHERE FINISHED PAVING IS TO BE PROVIDED, THE CONTRACTOR IS TO BREAK APART EXISTING ASPHALT TO EXISTING SUBBASE STONE. FOLLOWING MILLING, THE EXPOSED SUBGRADE SHALL BE INSPECTED FOR ITS SUITABILITY AS PAVEMENT SUBBASE. IN AREAS WHERE EXISTING ASPHALT WILL BE CONVERTED TO GREEN SPACE OR BUILDING, THE CONTRACTOR IS TO MILL OUT THE EXISTING ASPHALT FOR ITS REUSE ON-SITE AS SUBBASE IN PROPOSED ASPHALT PAVEMENT AREAS. ALL FILL MEASURES TO BE COMPACTED IN ACCORDANCE WITH THE GEOTECHNICAL SPECIFICATIONS.
6. WHERE IMPROVEMENTS ARE PROPOSED TO TIE INTO EXISTING FEATURES, THE EXISTING FEATURES SHALL BE FIELD VERIFIED FOR ELEVATION AND LOCATION. IF FIELD LOCATED DATA IS DIFFERENT THAN THE DATA CONTAINED WITH THE CONSTRUCTION DOCUMENTS, THE CONTRACTOR SHALL NOTIFY NAVE NEWELL, INC. PRIOR TO ANY DESIGN CHANGES.
7. THE PAVEMENT SECTION AREA DELINEATED ON THE PLANS TO BE MODIFIED SHALL BE USED AS GUIDANCE. EXPAND OR CONTRACT THIS AREA AT THE TIE IN LOCATION TO EXISTING PAVEMENT, SIDEWALK, DRIVEWAY APRONS, AND LOADING AREAS AS THE FIELD CONDITIONS WARRANT. ALL PAVEMENT SEAMS SHALL BE SEALED.
8. SITE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE THE DISCONNECTION, ABANDONMENT, RELOCATION AND/OR REMOVAL OF ALL APPLICABLE ON-SITE UTILITIES, IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL REGULATIONS AS WELL AS ANY REQUIREMENTS FROM THE RELEVANT UTILITY COMPANY.
9. ALL DEMOLITION SHALL BE PERFORMED BY A QUALIFIED, LICENSED CONTRACTOR IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL REGULATIONS.
10. THIS PLAN IS NOT INTENDED TO DEPICT ALL FACETS AND ITEMS TO BE ADDRESSED DURING THE COURSE OF DEMOLITION ACTIVITIES. THIS PLAN IS INTENDED TO REPRESENT ONLY THE READILY VISIBLE, EXISTING IMPROVEMENTS ON-SITE. CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE SITE CONDITION PRIOR TO FINALIZING HIS BID AND PROVIDE ALL NECESSARY DEMOLITION SERVICES REQUIRED TO COMPLETE THE SCOPE OF WORK OUTLINED ON THESE DRAWINGS. UPON INITIATION OF DEMOLITION, CONTRACTOR SHALL ADVISE THE ENGINEER OF RECORD IMMEDIATELY, SHOULD CONFLICTS ARISE IN THE FIELD.
11. CONTRACTOR IS TO EXERCISE CARE WHEN REMOVING PAVEMENT OVER EXISTING PIPES TO REMAIN, DURING CONSTRUCTION. CONTRACTOR SHALL TAKE STEPS TO MAINTAIN ADEQUATE COVER OVER ALL EXISTING PIPES TO REMAIN AND TO PREVENT CONSTRUCTION TRAFFIC FROM DAMAGING SAID PIPES. IF THE EXISTING PIPES ARE DAMAGED, THE CONTRACTOR SHALL REPLACE THEM IN KIND AT THE CONTRACTORS COST.
12. ALL PAVEMENT WITHIN THE LIMITS OF DISTURBANCE NOT SCHEDULED TO BE REMOVED SHALL BE MILLED AND OVERLAID WITH 1.5" ID-2 BITUMINOUS WEARING COURSE. MILLING AND OVERLAYING SHALL BE PERFORMED TO MAKE PATCHING NONVISUAL WHEN COMPLETED.
13. CONTRACTOR SHALL USE EXTREME CAUTION WHEN REMOVING EXISTING UTILITIES TO PREVENT ANY DISTURBANCE TO UTILITIES THAT ARE TO REMAIN. IF SAID REMAINING UTILITY IS DAMAGED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR UTILITY REPAIRS.
14. ALL UTILITIES TO BE ABANDONED AND LEFT IN PLACE SHALL BE PLUGGED AND FILLED WITH FLOWABLE CONCRETE.
15. ALL EXCAVATED UNSUITABLE MATERIAL MUST BE TRANSPORTED TO AN APPROVED DISPOSAL LOCATION.
16. CONTRACTOR IS RESPONSIBLE FOR ALL SHORING REQUIRED DURING EXCAVATION AND SHALL BE PERFORMED IN ACCORDANCE WITH CURRENT OSHA STANDARDS, AS WELL AS ADDITIONAL PROVISIONS TO ASSURE STABILITY OF CONTIGUOUS STRUCTURES, AS FIELD CONDITIONS DICTATE.

60 0 30 60 120 240
(IN FEET)
1 inch = 60 ft

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USER: ----

Nave Newell
900 West Valley Road • Suite 1100
Wayne, PA 19087-1830
p: 610.265.6733 f: 610.964.9299
www.navenewell.com

REVISIONS

no.	description	date:	chk'd	by
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SEAL:
COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL LANDSCAPE ARCHITECT
JAMES D. BANNON
EXPIRES
JUNE 30, 2025

DRAWING NAME: COMPOSITE DEMOLITION PLAN

GEMMA REDEVELOPMENT

LOCATION: WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PA

project no.	drawn by:
2024-039	JSD
date:	chk'd by:
10/24/24	BTK
scale:	approv. by:
1" = 60'	PEL

sheet no.

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4 of 18

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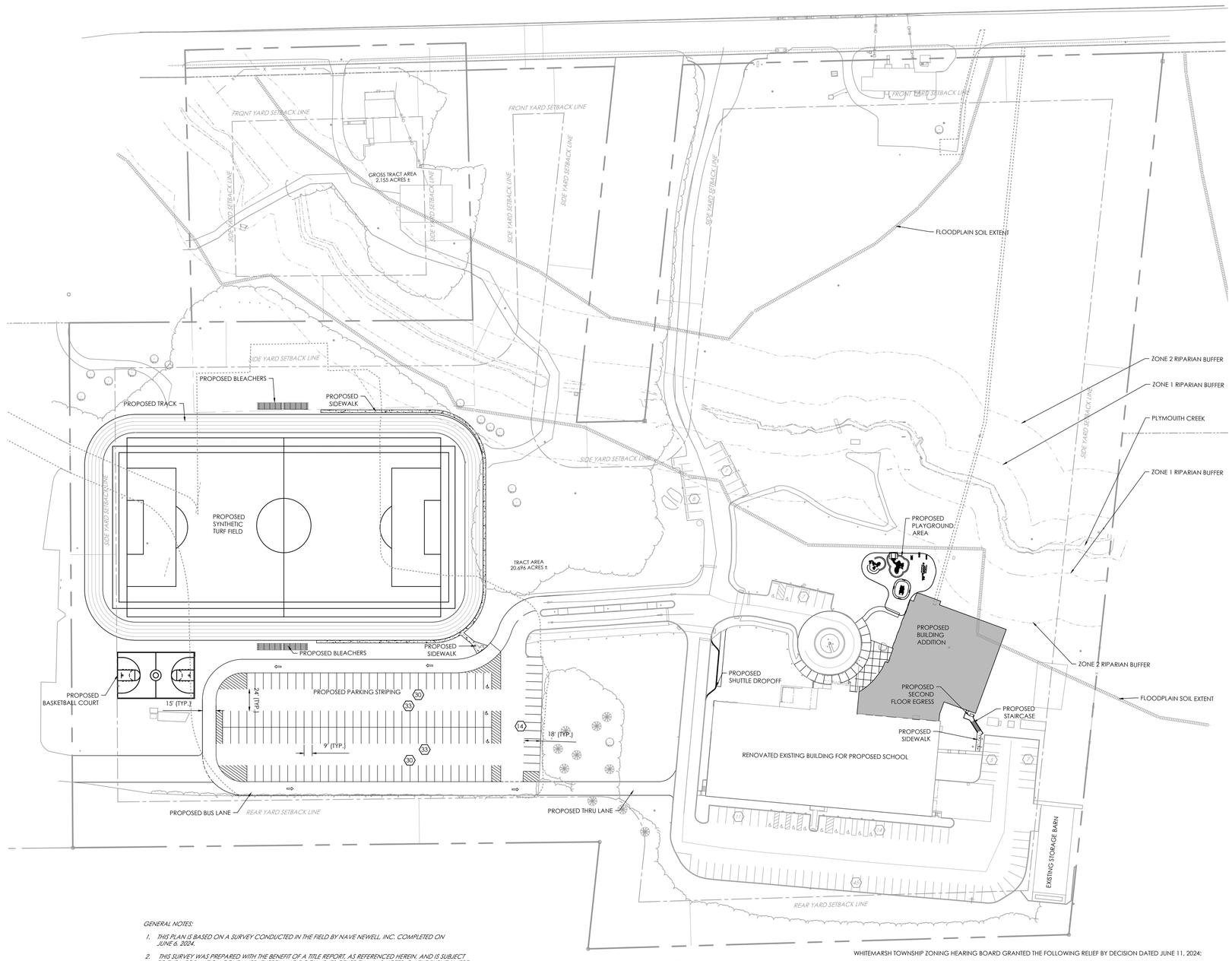
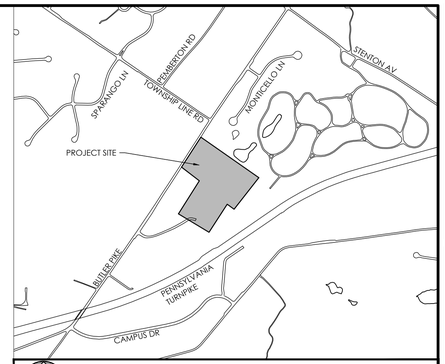
OWNER
ECRI INSTITUTE
5200 BUTLER PIKE
PLYMOUTH MEETING, PA 19462

APPLICANT
GEMMA SERVIES
512 TOWNSHIP LINE ROAD
PLYMOUTH MEETING, PA 19462
PHONE: 610-825-4400
ATTN: NEIL CLARK

CIVIL ENGINEER
NAVE NEWELL, INC.
900 WEST VALLEY ROAD
SUITE 1100
WAYNE, PA 19087
PHONE: 610-265-8323
ATTN: JAMES P. BANNON, PE

ARCHITECT:
KIMMEL BROGRETTE
482 NORRISTOWN ROAD
SUITE 200
BLUE BELL, PA 19422
PHONE: 610-834-7805
ATTN: JOE HORAN





KEY MAP
SCALE: 1" = 1,000'

5168 & 5200 BUTLER PIKE COMBINED SITE ZONING DATA (INSTITUTIONAL OVERLAY DISTRICT)

CLI - CAMPUS-TYPE LIMITED INDUSTRIAL (ARTICLE XVIII)
INSTITUTIONAL OVERLAY (ARTICLE XXIV)

	REQUIRED	EXISTING	PROPOSED
MIN. LOT SIZE	10 AC	22.64 AC	22.64 AC
PRINCIPAL BUILDING YARD SETBACKS:			
FRONT:	50 FT	9.1 FT*	9.1 FT*
SIDE:	50 FT	79.3 FT**	79.3 FT **
REAR:	50 FT	134.5 FT	134.5 FT
ACCESSORY STRUCTURE YARD SETBACKS:			
FRONT:	NOT PERMITTED	0***	0***
SIDE:	4 FT	8.8 FT	8.8 FT
REAR:	4 FT	43.7 FT	43.7 FT
LOT WIDTH:	200 FT	>200 FT	1,003.6 FT
MAX. HEIGHT:	40 FT	40 FT	<40 FT
MAX BLDG COVERAGE	25%	4.37%	5.11%
MAX IMPERVIOUS COVERAGE:	50%	32.73%	34%
MIN GREEN SPACE:	50%	67.27%	66.86%

* EXISTING LEGAL NON-CONFORMITY: 2 STORY BUILDING - 5200 BUTLER PIKE
** EXISTING 2 STORY BUILDING - 5168 BUTLER PIKE
*** EXISTING LEGAL NON-CONFORMITY: ACCESSORY STRUCTURE ALONG BUTLER PIKE

5168 BUTLER PIKE SITE ZONING DATA (CL-I DISTRICT)****

CL-I CLASSIFICATION:	REQUIRED	EXISTING & PROPOSED 5168 BUTLER PIKE
MIN LOT SIZE:	10 AC	1.94 AC*****
YARD SETBACKS:		
ADJ TO RES DISTRICTS:	150 FT	29.5 FT *****
ADJ TO NON-RES DISTRICTS	50 FT	79.3 FT
ACCESSORY STRUCTURE YARD SETBACKS:		
FRONT:	NOT PERMITTED	N/A
SIDE:	4 FT	19.0 FT
REAR:	4 FT	108.2 FT
MAX BLDG COVERAGE	25%	4.20%
MAX IMPERVIOUS COVERAGE:	50%	29.58%
LANDSCAPE BUFFER:	50 FT	50 FT

**** 1. A VARIANCE GRANTED FROM SECTION 116-121.B WHICH REQUIRES A MINIMUM LOT SIZE OF 10 ACRES IN THE CL-I DISTRICT.
2. A VARIANCE GRANTED FROM SECTION 116-127 TO PERMIT SUBDIVISION OF THE NONCONFORMING RESIDENTIAL LOT IN THE CL-I DISTRICT.
3. A VARIANCE GRANTED FORM SECTION 116-189 & 116-194 TO PERMIT SUBDIVISION OF NONCONFORMING LOT.
ZONING HEARING DATE OF 06/07/2017. WRITTEN DECISION DATE OF 06/12/2017.
***** EXISTING LEGAL NON-CONFORMITY: 2 STORY BUILDING LOCATED ALONG BUTLER PIKE

5200 BUTLER PIKE SITE ZONING DATA (INSTITUTIONAL OVERLAY DISTRICT)

INSTITUTIONAL CLASSIFICATION:	REQUIRED	EXISTING: 5200 BUTLER PIKE	PROPOSED 5200 BUTLER PIKE
MIN LOT SIZE:	10 AC	20.70 AC	20.70 AC
PRINCIPAL BUILDING YARD SETBACKS:			
FRONT:	50 FT	9.1 FT******	9.1 FT******
SIDE:	50 FT	165.9 FT	104.4 FT
REAR:	50 FT	134.5 FT	134.5 FT
ACCESSORY STRUCTURE YARD SETBACKS:			
FRONT:	NOT PERMITTED	0*******	0*******
SIDE:	4 FT	8.8 FT	8.8 FT
REAR:	4 FT	43.7 FT	43.7 FT
LOT WIDTH:	200 FT	>200 FT	633.7 FT
MAX HEIGHT:	40 FT	40 FT	<40 FT
MAX BLDG COVERAGE:	25%	3.98%	5.20%
MAX IMPERVIOUS COVERAGE:	50%	31.15%	34.66%
MIN GREEN SPACE:	50%	68.85%	65.34%

****** EXISTING LEGAL NON-CONFORMITY: 2 STORY BUILDING ALONG BUTLER PIKE
******* EXISTING LEGAL NON-CONFORMITY: ACCESSORY STRUCTURE ALONG BUTLER PIKE

GEMMA SERVICES - PROJECTED PARKING CALCULATIONS

1 PARKING SPACE PER FACULTY MEMBER
1 PARKING SPACE PER 2 CLASSROOMS/OFFICES
1 PARKING SPACE PER 10 STUDENTS (HIGH SCHOOL)

CLASSIFICATION	***REQUIRED***	***PROVIDED***
153 FACULTY MEMBERS	153	153 PARKING SPACES
42 CLASSROOMS	21	21 PARKING SPACES
80 OFFICES/ROOMS	40	40 PARKING SPACES
160 HIGH SCHOOL STUDENTS	16	16 PARKING SPACES
TOTAL PARKING SPACES	230	243 PARKING SPACES (13 ADDITIONAL PARKING SPACES PROVIDED ON SITE)

SITE PLAN NOTES:

1. IN THOSE AREAS OF WHITEMARSH TOWNSHIP WHERE AN OVERLAY DISTRICT APPLIES, THE REQUIREMENTS OF THE OVERLAY DISTRICT SHALL APPLY, AND IN THE EVENT OF A CONFLICT, THE OVERLAY DISTRICT REQUIREMENTS TAKE PRECEDENCE OVER THOSE OF THE UNDERLYING ZONING DISTRICT(S).

GENERAL NOTES:

1. *THIS PLAN IS BASED ON A SURVEY CONDUCTED IN THE FIELD BY NAVE NEWELL, INC. COMPLETED ON JUNE 6, 2024.*
2. *THIS SURVEY WAS PREPARED WITH THE BENEFIT OF A TITLE REPORT, AS REFERENCED HEREIN, AND IS SUBJECT TO THE INFORMATION CONTAINED THEREIN. NO DOCUMENTS OTHER THAN AS NOTED ON THE SURVEY WERE REVIEWED IN THE COURSE OF COMPLETING THIS SURVEY.*
3. *THIS SURVEY REPRESENTS CONDITIONS AS OF THE DATE OF THE SURVEY EXCEPT SUCH IMPROVEMENTS OR EASEMENTS, IF ANY, THAT MAY BE LOCATED BELOW THE SURFACE OF THE LANDS, ON THE SURFACE OF THE LANDS OR ABOVE THE SURFACE OF THE LANDS AND NOT VISIBLE.*
4. *BEARING BASIS FOR THE SURVEY IS BASED ON THE DEED REFERENCE THEREIN. BEARINGS NOTED AS NAD 83. REFERENCE THE PENNSYLVANIA STATE PLANE COORDINATE SYSTEM, SOUTH ZONE AS DERIVED FROM GPS OBSERVATIONS. THE NAD 83 BEARINGS ARE ROTATED 00°00'54" COUNTERCLOCKWISE FROM THE DEED BEARINGS.*
5. *PROPERTY FALLS WITHIN "ZONE X" AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN AS DEPICTED ON THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAPS, MAP NO. 42091C0357G, MAP REVISED MARCH 2, 2016.*
6. *LOCATIONS OF EXISTING UTILITIES AS SHOWN HEREIN HAVE BEEN DEVELOPED FROM EXISTING UTILITY RECORDS, PLANS BY OTHERS AND/OR ABOVE GROUND EXAMINATION OF SITE. THIS PLAN ILLUSTRATES UTILITIES OF RECORD PROVIDED BY OR BEFORE THE DATE OF THIS SURVEY. THIS MAY OR MAY NOT COMPRISE ALL THE UTILITY INFORMATION FOR THIS PROPERTY. THE COMPLETENESS OR ACCURACIES OF THE LOCATIONS ARE NOT GUARANTEED. SHOULD ANY NEW CONSTRUCTION BE PROPOSED, THE CONTRACTOR MUST VERIFY LOCATIONS AND DEPTHS OF ALL UTILITIES BEFORE START OF WORK.*
7. *UNIT AND BLOCK NUMBERS REFER TO THE OFFICIAL TAX MAPS OF THE WHITEMARSH TOWNSHIP, PA.*
8. PURSUANT TO ACT 187 A PENNSYLVANIA "ONE CALL" WAS PLACED AND ASSIGNED SERIAL NUMBERS AS NOTED HEREIN. INFORMATION THEREBY OBTAINED WAS USED TO ILLUSTRATE EXISTING UTILITIES.
9. THE SUBJECT PROPERTIES HAVE DIRECT ACCESS TO BUTLER PIKE, A DEDICATED PUBLIC ROAD.
10. THE LANDS DEPICTED ON THE SURVEY ARE THE SAME LANDS AS DESCRIBED IN THE COMMITMENT.
11. THERE WERE NO POTENTIAL ENCROACHMENTS OBSERVED OR IDENTIFIED ON THE PROPERTY WHILE CONDUCTING THIS SURVEY.
12. PLEASE NOTE THAT WHILE THIS PLAN DEPICTS TWO PARCELS - 65-00-01327-003 ("5168 BUTLER PIKE") AND 65-00-01333-006 ("5200 BUTLER PIKE") - THE PARCEL AT 5200 BUTLER PIKE INDEPENDENTLY SATISFIES ALL REQUIREMENTS FOR THE PROPOSED DEVELOPMENT. THE PARCEL AT 5168 BUTLER PIKE MAY BE CONVEYED SEPARATELY IN A FUTURE SALE.
13. TITLE TO THE SUBJECT PROPERTIES ARE FILED IN THE MONTGOMERY COUNTY COURT HOUSE IN DEED BOOK 6109 PAGE 224 AND DEED BOOK 6131 PAGE 2844 IN WHITEMARSH TOWNSHIP, COUNTY OF MONTGOMERY, PENNSYLVANIA.

5168 BUTLER PIKE
PARCEL ID: 65-00-01327-00-3
LANDS N/F EMERGENCY CARE RESEARCH INSTITUTE
DB 6109 PG 224

5200 BUTLER PIKE
PARCEL ID: 65-00-01333-00-6
LANDS N/F EMERGENCY CARE RESEARCH INSTITUTE
DB 6131 PG 2844

WHITEMARSH TOWNSHIP ZONING HEARING BOARD GRANTED THE FOLLOWING RELIEF BY DECISION DATED JUNE 11, 2024:

1. SPECIAL EXCEPTION APPROVAL PURSUANT TO § 116-175.B OF THE ZONING ORDINANCE TO PERMIT SCHOOL USE ON THE PROPERTY
2. A VARIANCE FROM § 116-165.B OF THE ZONING ORDINANCE TO PERMIT CONSTRUCTION OF A PORTION OF THE GYMNASIUM FOR THE PROPOSED SCHOOL USE LOCATED WITHIN THE FLOODPLAIN SOIL

CONDITIONS OF APPROVAL:
I. ALL USE AND DEVELOPMENT PERMITTED BY THIS DECISION SHALL SUBSTANTIALLY CONFORM TO THE EXHIBITS AND TESTIMONY PRESENTED BY THE APPLICANT, UNLESS INCONSISTENT WITH ANY SPECIFIC CONDITIONS IMPOSED BY THIS BOARD, IN WHICH CASE THESE SPECIFIC CONDITIONS SHALL TAKE PRECEDENCE.
II. THE APPLICANT SHALL APPLY FOR AND OBTAIN ALL PERMITS REQUIRED BY THE TOWNSHIP CODES IN A TIMELY MANNER.
III. THE APPLICANT SHALL COMPLY WITH ALL REQUIREMENTS OF THE TOWNSHIP RELATED TO THE SUBDIVISION AND LAND DEVELOPMENT ORDINANCE, UNLESS WAIVED BY THE BOARD OF SUPERVISORS. THE LOCATIONS AND CONFIGURATIONS OF BUILDINGS, STRUCTURES, AND IMPROVEMENTS SHALL BE SUBSTANTIALLY AS SHOWN ON THE PLANS, HOWEVER IT IS ACKNOWLEDGED THAT SUCH LOCATIONS AND CONFIGURATIONS MAY CHANGE IN SOME MINOR DEGREE DURING THE LAND DEVELOPMENT PROCESS, SUBJECT TO APPROVAL BY THE BOARD OF SUPERVISORS. USE OF THE FIELDS AND GYMNASIUM AS A COMMUNITY AMENITY SHALL NOT REQUIRE FURTHER ZONING HEARING BOARD APPROVAL. THE APPLICANT SHALL COMPLY WITH ALL LIGHTING REQUIREMENTS AS APPLICABLE TO THE CAMPUS AND FIELDS.
IV. THE APPLICANT SHALL COMPLY WITH ALL REQUIREMENTS OF THE TOWNSHIP ENGINEER, INCLUDING BUT NOT LIMITED TO THE TOWNSHIP ENGINEER'S MEMO DATED MAY 23, 2024 MARKED AS EXHIBIT T-4.

WAIVERS REQUESTED:

1. SECTION 105-12.D. - REQUIRING THE PRESENTATION OF A PRELIMINARY PLAN AND A FINAL PLAN TO BE CONSIDERED A SEPARATE SUBMISSION.

60 0 30 60 120 240
(IN FEET)
1 inch = 60 ft

REFERENCE PLANS:

1. *OFFICIAL TAX MAPS OF WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA.*
2. *PLAN ENTITLED "MINOR SUBDIVISION - RECORD PLAN FOR 5140 BUTLER PIKE", PREPARED BY WOODROW & ASSOCIATES, INC., DATED DECEMBER 2, 2016, LAST REVISED SEPTEMBER 18, 2017 AND RECORDED IN MONTGOMERY COUNTY COURTHOUSE AS PLAN BOOK 48 PAGE 431.*

PROJECT SERIAL NO. 20241620090
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REVISIONS

no.	description	date:	chk'd	by
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SEAL:
COMMONWEALTH OF PENNSYLVANIA
JAMES P. BANNON
ENGINEER
No. PE069181
REGISTERED PROFESSIONAL

DRAWING NAME: COMPOSITE SITE PLAN
LOCATION: WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PA

GEMMA REDEVELOPMENT

project no.	drawn by:
2024-039	JSD
date:	chk'd by:
10/24/24	BTK
scale:	approv. by:
1" = 60'	PEL
sheet no.	

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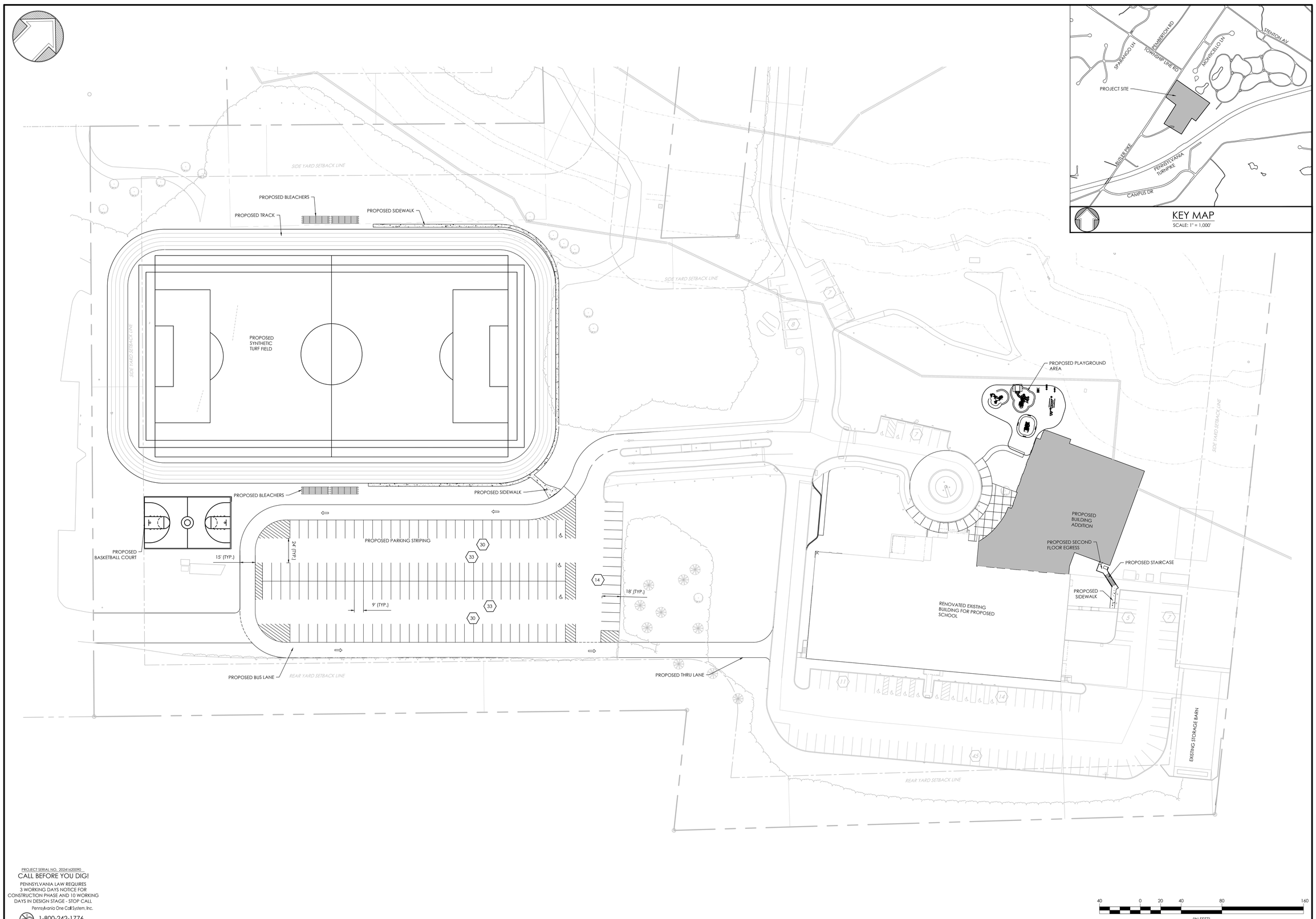

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REVISIONS

SEAL:

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JAMES D. BAUHOF
ENGINEER No. PE087181

DRAWING NAME: SITE PLAN

GEMMA REDEVELOPMENT

LOCATION: WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PA

project no.	drawn by:
2024-039	JSD
date:	chk'd by:
10/24/24	BTK
scale:	approv. by:
1" = 40'	PEL

sheet no.

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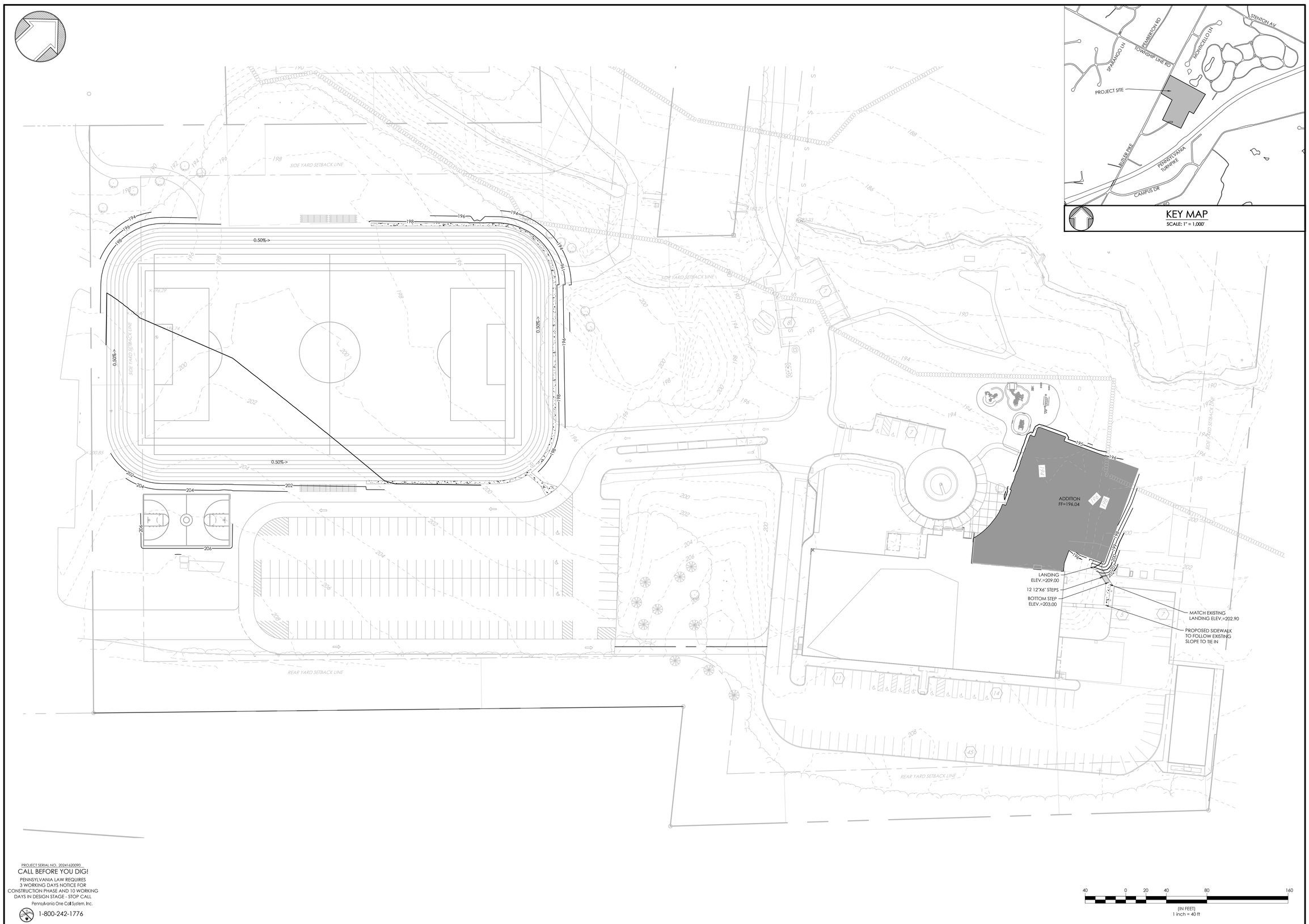

KEY MAP
SCALE: 1" = 1,000'

PROJECT SERIAL NO. 20241620990

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1 inch = 40 ft

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REVISIONS

SEAL:

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JAMES D. BANNON
ENGINEER
No. PE082137

DRAWING NAME: GRADING PLAN

GEMMA REDEVELOPMENT

LOCATION: WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PA

project no.	drawn by:
2024-039	JSD
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10/24/24	BTK
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7 of 18

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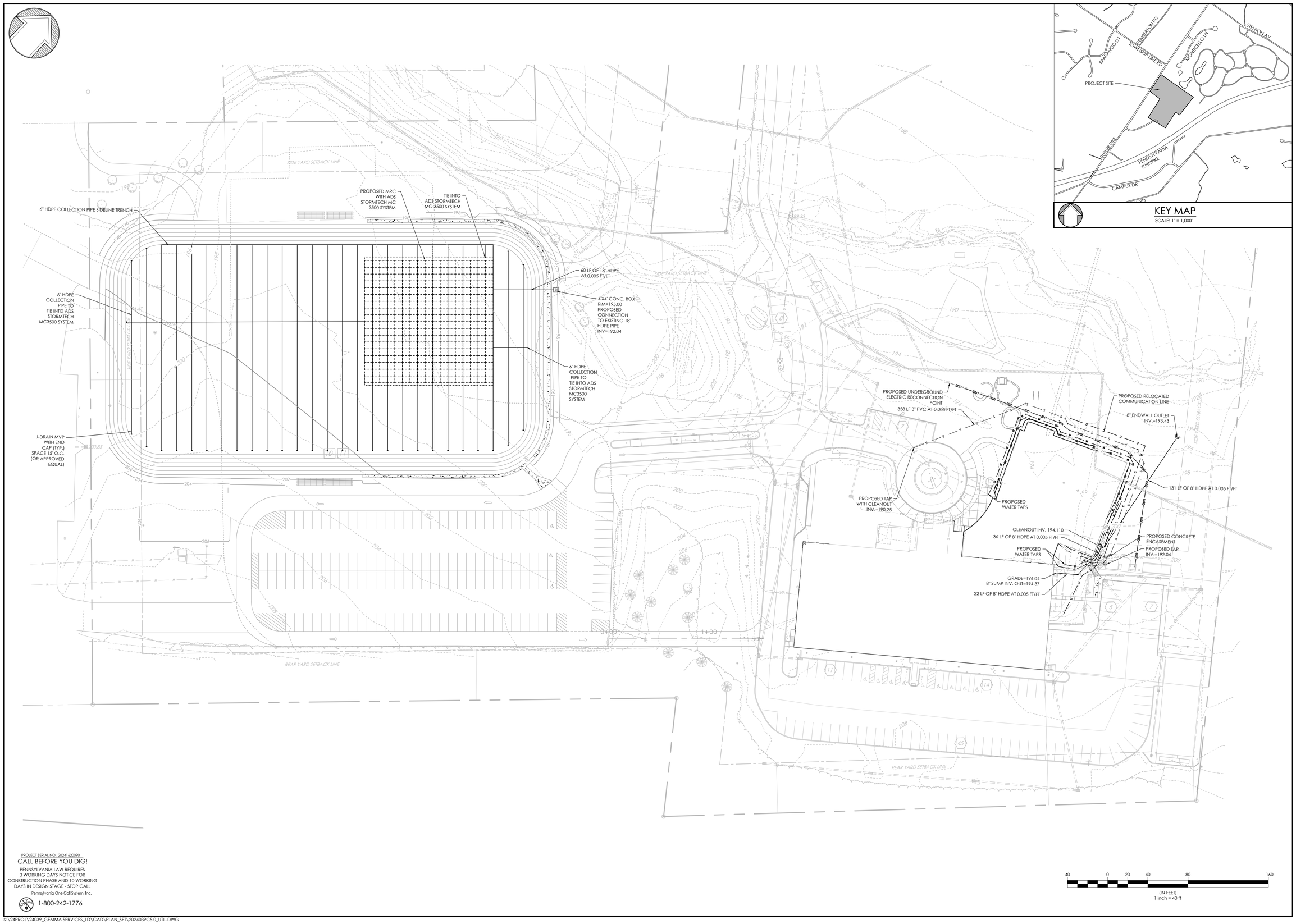

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REVISIONS

SEAL:

COMMONWEALTH OF PENNSYLVANIA
JAMES D. BANNON
ENGINEER
No. PE082877
REGISTERED PROFESSIONAL

DRAWING NAME: UTILITY PLAN

GEMMA REDEVELOPMENT

LOCATION: WHITEMARSH TOWNSHIP , MONTGOMERY COUNTY, PA

project no. 2024-039	drawn by: JSD
date: 10/24/24	chk'd by: BTK
scale: 1" = 40'	approv. by: PEL
sheet no. C5.0	

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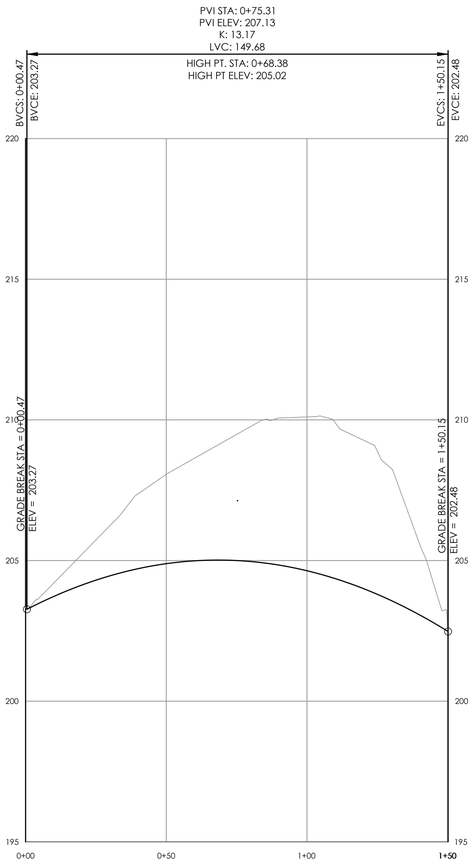
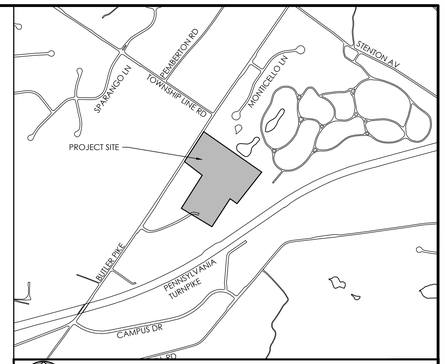


Thru Lane PROFILE
HORIZ. SCALE: 1" = 30'
VERT. SCALE: 1" = 3'



KEY MAP
SCALE: 1" = 1,000'

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1 inch = 40 ft

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SEAL:
COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
No. PE068131
JAMES D. BANNON

DRAWING NAME: PROFILE SHEET

GEMMA REDEVELOPMENT

LOCATION: WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PA

project no.	drawn by:
2024-039	JSD
date: 10/24/24	chk'd by: BTK
scale: 1" = 40'	approv. by: PEL

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9 of 18

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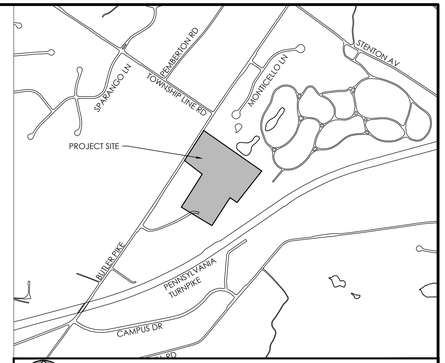
LANDSCAPE REQUIREMENTS				
CLASSIFICATION	**DECIDUOUS**		**EVERGREEN**	
CH. 105,ARTICLE V: SECTION 105-48.1.B.3	TREES	SHRUBS	TREES	SHRUBS
PER 1,000 SF. OF GROSS BUILDING AREA (14,061 SF)	1	2	1	2
REQUIRED	14	28	14	28
PROPOSED	**14**	**28**	**14**	**28**
CH 55: SECTION 55-1.6.A	TREES	SHRUBS	TREES	SHRUBS
PER REMOVED TREE W/ DBH OF 6" OR GREATER (9 TREES REMOVED), TOTAL CALIPER OF REPLACEMENT TREES MUST EQUAL/EXCEED TOTAL DBH REMOVED (108").	1 (3")	0	0	0
REQUIRED	36	0	0	0
PROPOSED	**36**	**0**	**0**	**0**
	DECIDUOUS		**EVERGREEN**	
TOTAL LANDSCAPING	TREES	SHRUBS	TREES	SHRUBS
REQUIRED	50	28	14	28
PROPOSED	**50**	**28**	**14**	**28**



KEY MAP
SCALE: 1" = 1,000'

EVERGREEN TREES								
Count	SYMBOL	SCIENTIFIC NAME	COMMON NAME	HEIGHT	SPREAD	CALIPER	ROOT	NOTES
6	AC	ABIES CONCOLOR	CONCOLOR FIR	6'			B&B	
5	PO	PICEA ORIENTALIS	ORIENTAL PINE	6'			B&B	
6	PP	PICEA PUNGENS	COLORADO SPRUCE	6'			B&B	
4	PS	PINUS STROBUS	EASTERN WHITE PINE	6'			B&B	

DECIDUOUS TREES								
Count	SYMBOL	SCIENTIFIC NAME	COMMON NAME	HEIGHT	SPREAD	CALIPER	ROOT	NOTES
12	AR	ACER RUBRUM	RED MAPLE	8'-10'	8'-10'	3"	B&B	
3	BN	BETULA NIGRA	RIVER BIRCH	8'-10'	8'-10'	3"	B&B	
18	GT	GLEDITSIA TRIACANTHOS INERMIS	THORNLESS HONEYLOCUST	8'-10'	8'-10'	3"	B&B	
2	LP	PLATANUS ACERIFOLIA	LONDON PLANETREE	8'-10'	8'-10'	3"	B&B	
16	LT	LIRIDENDRON TULIPIFERA	TULIP POPLAR	8'-10'	8'-10'	3"	B&B	

EVERGREEN SHRUBS								
Count	SYMBOL	SCIENTIFIC NAME	COMMON NAME	HEIGHT	SPREAD	CALIPER	ROOT	NOTES
11	IG	ILEX GLABRA	INKBERRY				#5 CONT.	24" AT PLANTING
5	IV	ILEX VERTICILATA	WINTERBERRY HOLLY				B&B	24" AT PLANTING
6	MP	MYRICA PENSYLVANICA	BAYBERRY				#5 CONT.	24" AT PLANTING
6	VR	VIBURNUM RHYTIDOPHYLLUM	LEATHERLEAF VIBURNUM				#5 CONT.	24" AT PLANTING

DECIDUOUS SHRUBS								
Count	SYMBOL	SCIENTIFIC NAME	COMMON NAME	HEIGHT	SPREAD	CALIPER	ROOT	NOTES
3	CA	CLETHRA ALNIFOLIA	SUMMERSWEET				B&B	24" AT PLANTING
9	CS	CORNUS SERICEA	RED TWIG DOGWOOD				#5 CONT.	24" AT PLANTING
7	LB	LINDERA BENZOIN	SPICEBUSH				#5 CONT.	24" AT PLANTING
9	VP	VIBURNUM PRUNIFOLIA	BLACKHAW VIBURNUM				#5 CONT.	24" AT PLANTING

40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft

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date:	no.	description	chk'd by
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SEAL:
PAUL E. LEONARD, JR.
Registered Landscape Architect
Pennsylvania License No. LA001224R

DRAWING NAME: LANDSCAPE PLAN

GEMMA REDEVELOPMENT

LOCATION: WHITEMARSH TOWNSHIP , MONTGOMERY COUNTY, PA

project no.	drawn by:
2024-039	GSS
date:	chk'd by:
10/24/24	BTK
scale:	approv. by:
1" = 40'	PEL

sheet no.

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GENERAL PLANTING

SUBMITTALS:

Topsoil & Planting soils: A soil analysis report shall be submitted and show the percentage of each constituent, pH, and other pertinent soil characteristics. Recommendations should include quantities of each soil amendment and fertilizer required to achieve optimal soil conditions.

Maintenance Written Maintenance Instructions for the owner's use and reference for the maintenance of landscaping must be submitted prior to acceptance of landscaping. This will list the scope of maintenance, including initial maintenance recommendations, 12 months, and long term.

QUALITY ASSURANCE:

General All material must comply with the American Standard for Nursery Stock (ANSI Z60.1) new standards applicable to landscaping. Material must be provided as indicated with no substitutions permitted unless with approval from the landscape architect.

Inspection The landscape architect retains the right to inspect planting materials at any time for compliance with the contract documents. Regarding, but not limited, to latent defects, lack of protection or maintenance, and may reject defective or damaged material. Rejected material must be immediately removed from the project site. Contractor shall schedule plant inspection with landscape architect prior to installation of all plant materials.

DELIVERY, STORAGE, AND HANDLING:

Packaged Materials Material must be delivered in original unopened containers displaying weight, guaranteed chemical analysis, and manufacturer's name or furnished in bulk with appropriate certificates and protected from deterioration.

Sod Delivery of sod shall be timed so that it will be installed within 24 hours after delivery. Sod shall be protected against drying and breakage.

Ground Covers and Plants Delivery shall be scheduled to avoid on site storage. If planting does not occur on same day as delivery, store in location protected from sun and weather. All trees and shrubs shall not be pruned before delivery in order to prevent shock. Stock must be covered for protection during transportation. Stock shall be bound to protect branches, bark, and overall shape during transport. Any balled and burlapped stock must be freshly dug unless otherwise approved. Stock must not be dropped. Stock must be delivered only after soil has been prepared. Schedule plant harvest with delivery in quantities suitably timed for immediate planting upon arrival. If planting cannot be accomplished immediately, provide root shade, protect from wind and protect root balls from drying out by covering at all times with moist saw dust, wood chips, shredded bark or other similar mulching materials. All plant material shall be suitably watered during on site storage.

PROJECT CONDITIONS:

Work coordination All work shall be scheduled and coordinated with work occurring in other sections of the project and local seasons. All underground utilities must be located so to avoid damage and injury. The contractor shall be responsible for all repairs to any utility damages associated with excavation and planting.

The landscape architect shall be notified prior to the beginning of planting operations. Spring planting should be between April 15' and June 15'. Fall planting should occur between August 30' and October 15'. Do not install plant materials when temperatures are below 35 degrees Fahrenheit or above 90 degrees Fahrenheit.

Sequencing Final grades must be established before planting trees and shrubs. Lawns may then be installed unless specified on the plans differently. Earlier plantings must be protected from later planting operations and repairs made to any resulting damage or inconsistencies.

WARRANTIES:

General Warranties shall be addition to, and not a limitation of, other rights the owner may have against the contractor under the contract documents.

Lawns Warrant lawns until turf exhibits vigorous growth for (12) months. Lawns need to have 80% coverage/viable seed for survival.

Trees and Shrubs Warrant trees and shrubs for twelve (12) months after final approval by Township Landscape Architect. Warranty shall cover death, unsatisfactory growth, neglect, vandalism, and/or acts of God. If completion of landscaping work is materially delayed beyond the date of substantial completion, provide warranty commencing on date of acceptance by the project landscape architect and township/municipality landscape architect.

Unsatisfactory Material Replace unsatisfactory material with matching, healthy, vigorous plants. Plant only during the subsequent planting season. At the direction of the project landscape architect, either replace materials exhibiting poor quality, marginal condition or extend the warranty covering such materials for one full growing season. Any plant material of which 25% or more is dead shall be considered unsatisfactory. A tree shall be considered dead when more than 25% of the trees main leader has died, 25% of the crown is dead or the root buttress circumference is damaged. Another inspection will be conducted at the end of the extended warranty period(s), if any, to determine acceptance or rejection. Only one replacement will be required at the end of the warranty period, except for losses or replacements due to neglect or failure to comply with specified requirements.

MAINTENANCE:

Lawns- Maintain lawn from immediately after planting until an acceptable lawn is established. At the end of the maintenance period, sodded lawns shall be uniform in texture, density and species variety. Water regularly and at such times and rates as necessary for optimum growth and to avoid wilting, puddling, runoff, or erosion. Mow grass at regular intervals. Do not cut more than 1/3 of grass blade at any one mowing. Trim edges and clip by hand where necessary. Immediately remove clippings after mowing and trimming. Follow-up application of fertilizer for cool season turf/lawns: if the seeding was done in the fall, fertilizer should be applied no later than November 15. For seed sown in the spring, do not apply after June 1. Apply 0.9-1.8 lbs a year 0.9lb. in September and 0.9lb. in October for cool season grasses. Do not apply fertilizer between November 15 and March 1. Control growth of weeds by applying herbicides in accordance with manufacturer's instructions. Remedy any damage resulting from use of herbicides.

Regrade and replant areas to correct rutted, damaged, or improperly graded areas.

Trees and Shrubs Maintain trees and shrubs from immediately after planting through the warranty period. Provide all maintenance necessary to achieve healthy plant growth such as eroded watering basis around trunks if needed. Adjust stakes and guys to provide proper support and replant trees and shrubs to vertical position if necessary. Apply insecticides or fungicides if necessary to prevent or correct insect infestation and disease.

Ground Covers/Small Plants/Plugs - Maintain ground covers, small plants, and plugs from immediately after planting through the warranty period. Provide the following maintenance necessary to achieve healthy plant growth: water regularly and on a timely basis, remove weeds and replace mulch if needed, and spray as required to keep ground cover and small plants free of insects and disease.

Watering All plants shall be thoroughly watered twice during the first 24 hours after planting. Until plants and lawns are accepted by the landscape architect, the contractor is responsible for watering. Watering shall be provided as needed to assure healthy plant materials, turf and trees.

PRODUCTS:

TOPSOIL

Topsoil at Site Verify suitability and quantity of topsoil stockpiled at site. If sufficient quantities of suitable topsoil are not available at the site, provide topsoil from approved off-site sources. Fertile agricultural soil, typical for locality, capable of sustaining vigorous plant growth and taken from a drained site; free of subsoil, rocks larger than 2 inches in diameter, clay, toxic matter, plants, weeds, and roots.

SOIL AMENDMENTS

Lime Pulverized dolomitic limestone containing not less than 85 percent total carbonates with a minimum of 30 percent magnesium carbonates; minimum 90 percent passing a 10-mesh sieve and minimum 50 passing a 100-mesh sieve.

Humus Shall be decomposed organic matter; pH suitable for intended use.

Sand Shall be clean, washed sand, free of toxic materials.

Perlite Horticultural perlite of soil amendment grade.

Commercial Fertilizer Granular, commercial grade, pH neutral, comprised of both slow and fast release elements and containing the following minimum content of available plant nutrients:
- Trees and shrubs 5% total nitrogen, 10% phosphoric acid, 5% soluble potash
- Ground cover and plants 3% total nitrogen, 10% phosphoric acid, 5% soluble potash
- Lawns Available nitrogen content as required to provide 1 pound per 1,000 square feet at normal application rate, minimum 4% phosphoric acid, and minimum 2% soluble potash.

SEEDING:

Apply seed at a rate of 4 lbs. per 1,000 square feet evenly in two intersecting directions. Rake in slightly. Do not seed areas in excess of that which can be mulched the same day. Do not sow immediately following rain, when ground is too dry, or during windy periods. Roll seeded area with roller not exceeding 100 lbs. Immediately following seeding and compacting, apply even layer of hay mulch. Maintain clear of shrubs and trees. Apply water with a fine spray immediately after area has been mulch. Saturate to 4 inches of soil.

SEED SPECIFICATION

Turf Mixture:
15% Kentucky Bluegrass
35% Kentucky 31 Fescue
25% Chewings Fescue
15% Perennial Rye Grass
10% Recleaned Redtop

HYDROSEEDING

Apply seeding slurry with a hydraulic seeder at a rate of 4 lbs. of seed per 1,000 square feet evenly in two intersecting directions. Do not hydroseed areas in excess of that which can be mulched on the same day. Immediately following seeding, apply an even layer of hay mulch. Maintain clear of shrubs and trees. Apply water with a fine spray immediately after the area has been mulched. Saturate to 4 inches of soil.

SEED PROTECTION

Cover seeded slopes where grade exceeds 1' in 5' or greater with a jute erosion control blanket (NA Green's BioNet). Roll fabric onto slopes without stretching or pulling. Lay fabric smoothly on surface, bury top end of each section in 6 inch deep excavated topsoil trench. Provide 12 inch overlap of adjacent rolls. Backfill trench and rake smooth, level with adjacent soil. Secure outside edges and overlaps at 36"intervals with stakes. Lightly dress slopes with topsoil to ensure close contact between fabric and soil. At sides of ditches, lay fabric laps in direction of water flow. Lap ends and edges minimum 6 inches

SPECIFICATIONS:

TREES AND SHRUBS

General Provide nursery or plantation grown stock conforming to the American Standard for Nursery Stock. All vegetation shall be nursery grown, well-branched and uniformly sound, vigorous, healthy, and free from disease, sun-scald, windburn, abrasion, and harmful insects or insect eggs. Deciduous trees and shrubs shall be symmetrically developed, uniform habit growth, with straight trunks or stems, and free from objectionable disfigurements. Coniferous evergreen trees and shrubs shall have well- developed symmetrical canopies with uniform spread of branches for each particular species or variety. Provide stock complying in all respect with ANSI Z60.1 and in sizes indicated, measured in accordance with ANSI Z60.1. Larger sizes with larger roots and root containment may be furnished, if approved by the landscape architect. Do not spread or compress branches when measuring. Measure main body of branches; do not measure extreme tip to tips of single branches. Pruning to size is not acceptable. Shade and flowering trees, deciduous, shrubs, and coniferous evergreens shall be balled and burlapped (B&B).

PLANTS

General Provide field-grown or acclimatized container-grown plants from a commercial nursery, healthy, vigorous, of sizes indicated and in accordance with ANSI Z60.1, Section 7, "Young Plants".

PLUGS

General Provide field-grown or acclimatized container-grown plants from a commercial nursery, healthy, vigorous, of the sizes indicated and in accordance with ANSI Z60.1, Section 7, "Young Plants".

GRASS MATERIALS

Sod Provide viable (not dormant) certified turf grass complying with ASPA specifications for thickness, size, strength, moisture content, mowed height, time between harvest and transplanting, thatch, disease, nematodes, insects, and weeds. Sod type shall be Kentucky Bluegrass (Poa pratensis). (Seed Mix: 30% Midnight Star Kentucky Bluegrass, 30% Brilliant Kentucky Bluegrass, 40% P105 Kentucky Bluegrass)

Miscellaneous Landscape Material:

Decorative Mulch Shall be free of harmful materials, suitable for top dressing of plantings, and consisting of dye/pigment tree, composted double shredded hardwood.

Anti-desiccant is a film forming an emulsion, permeable to transpiration yet retarding to excessive moisture loss.

Staking and Guying Materials Stakes shall be hardwood lumber of sizes indicated; sound, straight, and free of splits and knots larger than ¼ of the least nominal dimension of the piece. Sharpen end and chamfer sides of driven end to prevent splitting from off-center hammer strikes. Stakes shall be fastened to tree using ¾" 2" wide, flat, woven polypropylene material such as Arbor Tie™or use 3"wide webbing straps secured to stakes with galvanized mild steel wire, minimum 12 gauge; provide double strands. Do not run wire through hose. Attach loosely to allow flexing, remove staking material after one year.

PLANTING SOIL

Soil Mix Provide planting soil mix, consisting of topsoil and amendments as recommended by soil analysis laboratory report.

Mixing Mix topsoil and amendments thoroughly to provide uniform mixture, using a drum-type mechanical mixer, powered rotary tiller, or other means acceptable to the landscape architect.

EXECUTION

PREPARATION:

Clearing and Grubbing
The work consists of clearing, grubbing, and disposing of trees, snags, logs, brush, stumps, shrubs, and rubbish from the designated areas.
Protection of existing vegetation
Trees and other vegetation designated to remain undisturbed shall be protected from damage throughout the duration of the construction period. Any damages resulting from the contractor's operations or neglect shall be repaired or replaced by the contractor.
Marking
The limits of the area(s) to be cleared and grubbed will be marked by stakes, flags, tree markings, or other suitable methods. Trees to be left standing and uninjured will be designated by special markings that are conducive to preventing injury to the tree and shall be placed on the trunk about 6 feet above the ground surface.
Clearing and grubbing
All trees not marked for preservation and all snags, logs, brush, stumps, shrubs, rubbish, and similar materials shall be cleared from within the limits of the designated areas. Unless otherwise specified, all stumps, roots, and root clusters that have a diameter of 1 inch or larger shall be grubbed out to a depth of at least 2 feet below subgrade for concrete structures and 1 foot below the ground surface at embankment sites and other designated areas.
Disposal
All materials cleared and grubbed from the designated areas shall be disposed of at locations shown on the drawings or in a manner specified in section 7. The contractor is responsible for complying with all local rules and regulations and the payment of any and all fees that may result from disposal at locations away from the project site.

Layout Lay out planting locations, mark with stakes, adjust locations if requested and obtain the landscape architect's approval of locations before proceeding with installation.

Subgrades All subgrades under planting areas (except for within an area equal to the dripline underneath existing trees to remain) shall be scarified to a depth of 4 inches before placing topsoil. Where compaction has resulted from construction operations, the owner may require scarification to a depth of 6 inches.

Preparation of Planting Soil Prior to mixing in drum type mixer or during tillage operations, clean topsoil of sticks, stones, clay lumps, vegetable matter, and other objectionable objects. Pit and trench backfill: mix planting soil and stockpile at site, ready for use as backfill. For planting beds and lawns, either spread planting soil before placing or uniformly spread fertilizer in and soil amendments on surface of in place topsoil and till thoroughly before planting.

Preparation for Planting Lawns Prepare only those areas that will be immediately planted. Allow for sod thickness in area to be sodded. For preparation of stripped areas, till subgrade to a depth of at least 4 inches. Place topsoil in two approximately equal lifts, working first lift into subgrade before placing second lift. Spread second lift to comply with finished lines, grades, and elevations required after allowing for settlement. To prepare for unchanged grades, prepare yet unstripped areas as follows: remove existing vegetation including grasses and dispose of off-site. Till the soil to a depth of at least 6 inches. Clean topsoil of sticks, stones, clay, lumps, vegetable matter, and other objectionable objects. Fine-grade, roll, rake, and drag lawn areas cutting down high spots and filling low spots, leaving a smooth, even surface of fine-textured soil complying with required grades. If dry, water full depth of topsoil thoroughly but not excessively and allow surface moisture to dry before planting. Just before planting, correct any lawn areas that have been eroded, rutted, or settled.

Preparation of Planting Beds Till planting bed area to a depth of at least 6 inches, clear, and add soil amendments necessary to achieve optimum growing conditions and till thoroughly.

Excavation for Trees and Shrubs Pits, beds, and trenches: Excavate with sides vertical and bottom flat. Deglaze sides and loosen bottom.

All excavated holes shall have vertical sides and shall be of a size that is three times the diameter and 1 and 1/2 times the depth of the root ball for all trees and shrubs. After pits are dug, roughen the sides of the pit and loosen soil in the bottom of the pit to a depth of 3 inches. Construct foot-tamped mound in the bottom of the pit to support the plant at the proper level. All excavated subsoil from the site shall be mixed with appropriate volumes of soil amendments as recommended by soils analysis laboratory report as indicated on plans prior use of planting backfill.

PLANTING TREES AND SHRUBS:

Balled and Burlapped Stock Cut and remove rope and wire from the top 2/3 of the root ball. Set plants in excavation with top of ball to match adjacent finished grade. Add soil as required under ball to achieve plumb. Remove burlap from the top 2/3 of ball; retain burlap on bottom of ball. Place backfill in 3 4 inch thick layers. Work each layer by hand to compact backfill and eliminate voids. Maintain plumb during backfilling. When backfilling is approximately 2/3 complete, saturate backfill with water and repeat until suitably filled and compacted. Remainder of backfill and water again, provide earth watering basin over, as indicated on the plans, and water stock.

Container Grown Plant/Plug Immediately before placing, remove container, or can. Container Removal: a. Cut containers on 2 sides with a can cutter designed for the job. b. Do not injure root ball. c. Do not cut containers with spade or ax. d. After removing plant, superficially cut edge roots with knife on 3 sides. Set and plumb plants. Place initial backfill and remove sides of container, taking care to avoid damage to root system.

Groundcover plants shall be grown in flats or gallon containers as indicated on the Drawings. Flat grown plants shall remain in those flats until transplanting. The flat's soil shall contain sufficient moisture so that it will not fall apart when lifting the plants. 2. Groundcover shall be planted in straight rows and evenly spaced, unless otherwise noted, and at intervals called out in the Drawings. Triangular spacing shall be used unless otherwise noted on the Drawings. 3. Each rooted plant shall be planted with its proportionate amount of flat or container soil. Plantings shall be immediately sprinkled with water after planting until the entire area is soaked to the full depth of each hole. 4. Care shall be exercised at all times to protect the plants after planting. Any damage to plants by trampling or other operations shall be repaired immediately.

Basin Form earthen watering basin around excavation area with backfill holding at least 2 ½gallons for shrubs and 5 gallons for trees. Apply mulch.

Anti-dessicant Spray Apply, covering all portions of plant in accordance with manufacturer's instructions. If in full leaf, spray deciduous trees or shrubs at nursery just before transportation, and 2 weeks after transplanting.

Pruning Remove dead or broken branches. Prune to retain typical growth habit of plants with as much height and spread as practical. Make cuts with sharp instruments and flush with trunk or adjacent branch. Do not remove leaders from trees.

STAKING AND GUYING OF TREES:

Guy and stake trees the same day as planting. Unless otherwise directed, trees shall be staked as shown on the plans and in accordance with these specifications. Refer to drawings and schedule for guying and staking requirements. Trees shall stand plumb after staking. At the time the stakes are removed any holes left by the stake shall be filled with topsoil of the same quality as the backfill previously specified for planting.

SODDING NEW LAWNS:

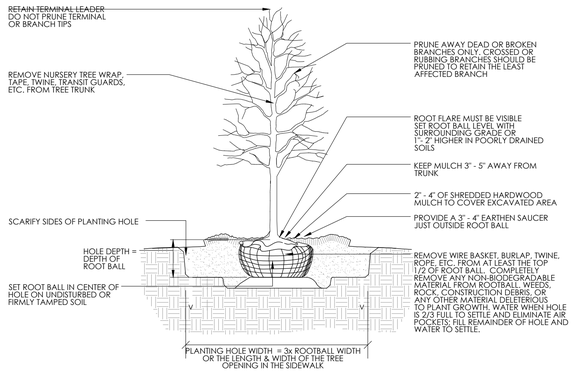
Laying Sod Do not lay dried or broken sod: Use only fresh, properly protected sod. Lay first and subsequent parallel rows in a straight line with tightly butted joints. Do not overlay sod or leave voids. Stagger lateral joints. When each section is laid, lightly roll the entire area to ensure contact between sod and subgrade. Water sod immediately after planting to thoroughly wet the pad and subgrade immediately beneath. During first week, maintain soil continually moist to depth of 4 inches by watering daily or more often, absent adequate rainfall.

MISCELLANEOUS MATERIALS:

Decorative Mulch Apply a uniform three inch (3") thick layer of double shredded hardwood mulch in the following areas: individual planting pits and planting beds. During maintenance and warranty period, the contractor is required to apply new mulch as necessary due to erosion, settling or as required by landscape architect.

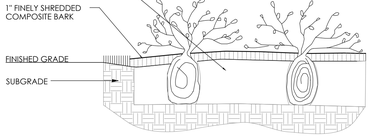
GENERAL NOTE:

It is agreed that the professional services of the design professional do not extend to or include the review or site observation of the contractor's work, unless otherwise specified and agreed. It is further agreed that the owner will hold harmless, indemnify and defend the design professional from any claim or suit whatsoever arising from the contractor's performance or the failure of the contractor's work to conform to the design plans and the contract documents.

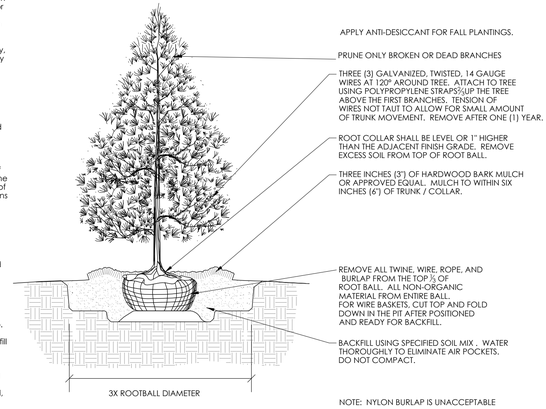


1 DECIDUOUS TREE PLANTINGS
N.T.S.

NOTES:
FASTEN STAKES TO TREE USING 3/4" - 2" WIDE, FLAT, WOVEN POLYPROPYLENE MATERIAL SUCH AS ARBOR TIE (TM) OR USE 3" WIDE WEBBING STRAPS SECURED TO STAKES WITH HEAVY GAUGE WIRE. DO NOT USE WIRE RUN THROUGH HOSE. ATTACH TREE LOOSELY TO ALLOW FLEXING. REMOVE STAKING MATERIAL AFTER ONE YEAR.

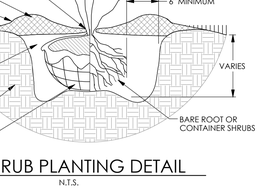


2 GROUND COVER/PERENNIAL PLANTING DETAIL
N.T.S.

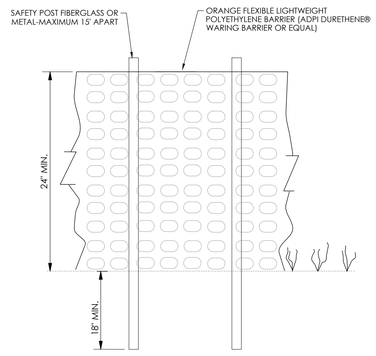


3 EVERGREEN PLANTING DETAIL
N.T.S.

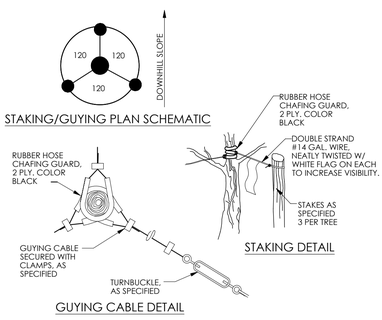
NOTE:



5 SHRUB PLANTING DETAIL
N.T.S.



4 TREE PROTECTION FENCE DETAIL
N.T.S.



6 TREE STAKING AND GUYING DETAIL
N.T.S.

Nave NEWELL
900 West Valley Road • Suite 1100
Wayne, PA 19087-1830
p: 610.265.6101 f: 610.687.3299
www.navenewell.com

REVISIONS

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SEAL:

PAUL E. LENHARDT, JR.
Registered Landscape Architect
Pennsylvania License No. LA001224R

DRAWING NAME: LANDSCAPE DETAIL SHEET

LOCATION: WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PA

GEMMA REDEVELOPMENT

project no.	drawn by:
2024-039	GSS
date:	chk'd by:
10/24/24	BTK
scale:	approv. by:
N.T.S.	PEL

sheet no.

C7.1

11 of 18

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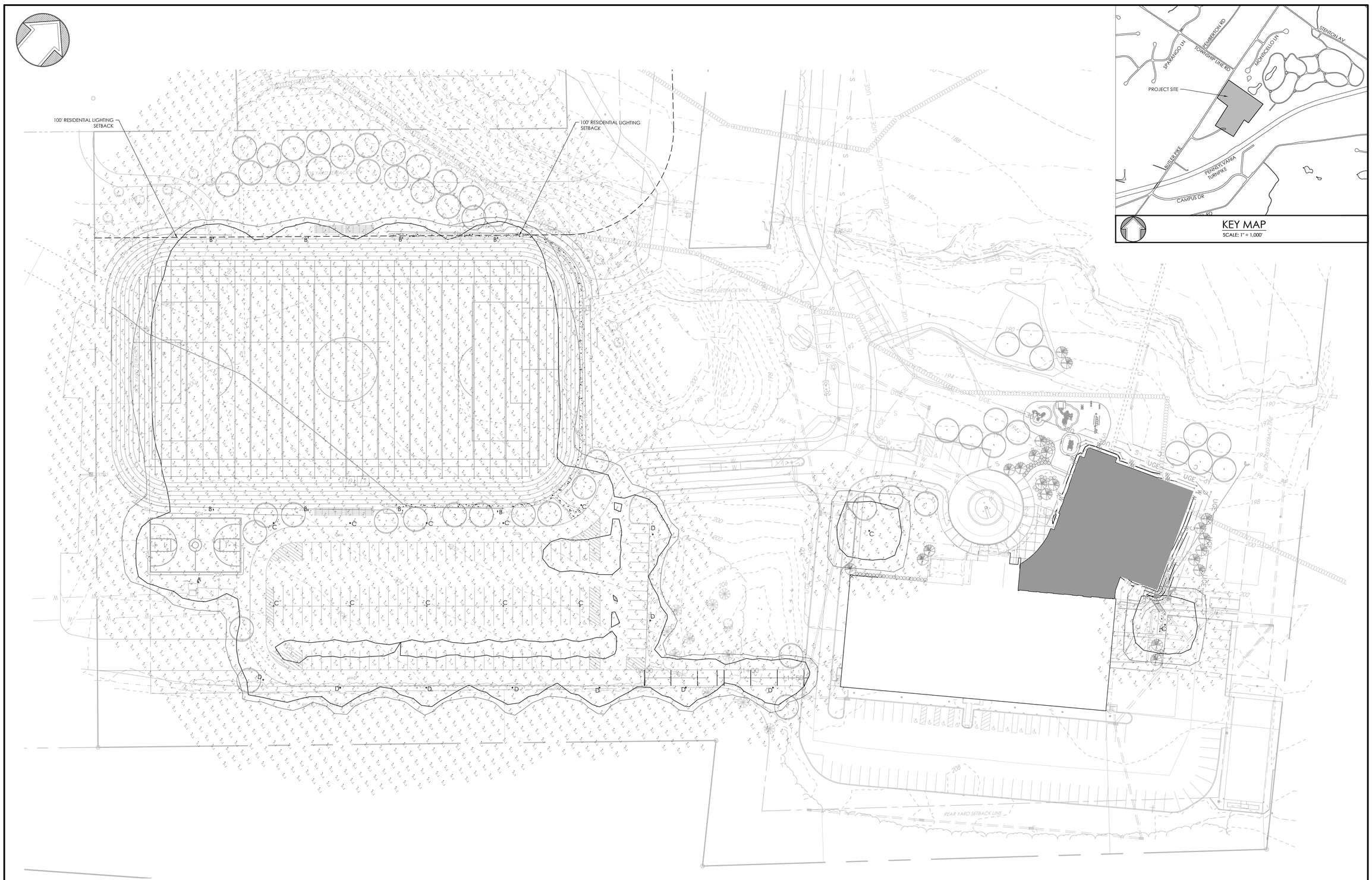

KEY MAP
SCALE: 1" = 1,000'

Luminaire Schedule								
Symbol	Qty	Label	Description	Tag	Luminaire Lumens	Luminaire Watts	Total Watts	Mounting Height
A	1	DSX1 LED P8 40K 70CRI T4M HS	DSX1 LED P8 40K 70CRI T4M HS		24471	215.7732	215.773	20
B	8	FFHL-750			102569	756.98	6055.84	30
C	12	PPT-P-A05-740-T5M	PPT-P-A05-740-T5M	T5M	9232	53.9	646.8	12
D	9	PPT-P-A05-740-T3M	PPT-P-A05-740-T3M	T3M	9063	53.9	485.1	12

40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft

PROJECT SERIAL NO. 20241620090
CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - STOP CALL
Pennsylvania One Call System, Inc.
1-800-242-1776

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10/24/2024 12:55 PM
USER: ----

Nave Newell
900 West Valley Road • Suite 1100
Wayne, PA 19087-1830
p: 610.265.6533 f: 610.964.9299
www.navenewell.com

REVISIONS				
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SEAL:
COMMONWEALTH OF PENNSYLVANIA
REGISTERED LANDSCAPE ARCHITECT
PAUL E. LEONARD, JR.
Registered Landscape Architect
Pennsylvania License No. LA001224R

DRAWING NAME: LIGHTING PLAN

GEMMA REDEVELOPMENT

LOCATION: WHITEMARSH TOWNSHIP , MONTGOMERY COUNTY, PA

project no.	drawn by:
2024-039	CAB
date:	chk'd by:
10/24/24	BTK
scale:	approv. by:
1" = 40'	GSS

sheet no.

C8.0

12 of 18

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GARDCO

Site & Area

PureForm

PPT PureForm LED post top

Gardco PureForm LED post top features a sleek, low profile design and is available with two light engines. ComfortEdge optics provide a unique and lower glare lighting solution designed to enhance visual comfort for pedestrian applications, while precision optics maximize efficiency and spacing. PureForm post top is available with multiple optical distributions with output up to 17,000 lumens. A full range of control options provides additional energy savings. Optional integral emergency battery backup is available for path-of-egress illumination.

Project: Gemma Services
Location: Plymouth Meeting
Cat.No:
Type:
Lamps: Qty:
Notes:

Ordering guide

Example: PPT-P-A09-840-TSM-T3-120-DALI-CS30-PCB-BZ

Prefix	Catalog Code	Lumens Selection	CCT/CRI	Distribution	Shielding	Mounting	Voltage
PPT	P	A05	740	T3M & T5M[1]	NONE	T3	UNV

PPT PureForm post top, comfort optics

P Precision optics
- A01* 2500
- A02* 3500
- A03* 5000
- A04 7000
- A05 9000
- A06 11000
- A07 13500
- A08 16000
- A09 17000

C Comfort optics
- A01* 2000
- A02 3500
- A03 5000
- A04 7000
- A05 9000
- A06 11000
- A07* 13500
- A08* 16000
- A09* 17000

730 70CRI, 3000K
740 70CRI, 4000K
750 70CRI, 5000K
830 80CRI, 3000K
840 80CRI, 4000K
827 80CRI, 2700K (ETI)
835 80CRI, 3500K (ETI)
750* 70CRI, 5000K (ETI)

T2M Area optic type 2
T3M Area optic type 3
T4M Area optic type 4
T5M Area optic type 5
BLC Back light control

T2M Comfort optic type 2M
T3M Comfort optic type 3M
T4M Comfort optic type 4M
T5M Comfort optic type 5M

None -
HS[2] Internal house side shield (clip-on)

None -
(comfort shielding must be ordered as separately as accessory PPT-SHS-BK)

T3 Mounts to a 3"x4" tenon (standard)
T2 Post top tenon adapter for 2-3/8" x 4" (ships separately)

120 120V
208 208V
240 240V
277 277V
UNV 120-277V
347 347V
480 480V
HVU 374-480V

Driver type	Dimming Controls (only one may be selected)	Lighting controls[10] (only one may be selected)	Emergency	Finish
				BK

0-10V

010V 0-10V
- **None** -
- **DLEA** Dimming leads externally accessible (controls by others)
- **FAWS** Field adjustable wattage selector
- **BL50L2**[3] PIR motion response dim to 50% L2 lens
- **BL50L3**[3] PIR motion response dim to 50% L3 lens
- **BL30MW**[13] Microwave motion sensor factory set at 50% dimming

- **None** -
- **PCB**[14,15] Photocontrol button
- **TLR5** 5-pin twist lock w/ 0-10v driver
- **TLR7** 7-pin twist lock w/ 0-10v driver (non-D4i)
- **TLRPC**[11] 7-pin twist lock w/ 0-10v driver (non-D4i) & on/off photocell

- **None** -
- **EM**[4,5,9] Emergency battery backup (0°C to +40°C/-32°F to +104°F)
- **EMC**[4, 5, 6, 9] Emergency battery pack, cold rated (20°C to +40°C/-4°F to +104°F)

Standard textured finish
- **BK** Black
- **WH** White
- **BZ** Bronze
- **DG** Dark gray
- **MG** Medium gray

DALI

DALI SR/ DALI
- **None** -
- **CS50**[8,9] Security 50 % dimming, 7 hours
- **CM50**[8,9] Median 50 % dimming, 8 hours
- **CS30**[8,9] Security 30 % dimming, 7 hours
- **CM30**[8,9] Median 30 % dimming, 8 hours
- **SRDB**[8,9] SR driver connected to Zhaga socket (D4i)
- **WIAPLW**[8,9] Wireless Interact outdoor low mounting (7-15'), white housing
- **WIAPLB**[8,9] Wireless Interact outdoor low mounting (7-15'), black housing
- **WIAPHW**[8,9] Wireless Interact outdoor low mounting (15-40'), white housing
- **WIAPHB**[8,9] Wireless Interact outdoor low mounting (15-40'), black housing

- **None** -
- **PCB**[14,15] Photocontrol button
- **TR5**[8,9,15] 5-pin twist lock SR/DALI driver
- **TR7**[8,9,15] 7-pin twist lock SR/DALI driver (D4i)
- **TLR**[8,9,15] 7-pin twist lock SR/DALI driver (D4i) & on/off photocell

- **None** -
- **F1**[9] Single Fuse (120V, 277V, or 347V)
- **F2**[9] Double Fuse (208V, 240V, or 480V)
- **F3**[9] Double Fuse Canadian double pole (208V, 240V, or 480V)

Surge Protection
- **None** SP1 Surge Protector 10kV / 10kA (standard)
- **SP2** Surge Protector 20kV/ 10kA (option)

Customer specified
- **OC** Optional color (specify optional color or RAL, contact factory)
- **SC** Special color (must supply color chip, requires factory quote)

1. Extended lead times apply. Contact factory for details.
2. Available with Area optics only. Not allowed with Comfort optics.
3. Available with Comfort optics only at 120-347V. Not allowed with Area optics.
4. Not available at 347-480V(HVU).
5. Not available at 347-480V(HVU) for Pixelated (P-Axx) optic lumen packages. A01–A02 and Comfort (C-Axx) optic lumen packages A01–A09.
6. Not available at 120-277V(UNV) for Pixelated (P-Axx) optic lumen packages A01–A02 and Comfort (C-Axx) optic lumen packages A01–A02.
7. EMC only compatible with DLEA and Dynadimmer (CSXX, CMXX) Dimming control options.
8. Not available with Microwave Motion Sensor BL50MW.
9. Not available with Comfort (C-Axx) optic lumen packages A07–A09.
10. If selected with Dimming control, DIM leads from receptacle will not be connected to driver.
11. Available only with Comfort optics.
12. Must specify input voltage.
13. BL50MW options and Twistlock photocell options (TLR5, TLR7, TLRPC, PCB) are not compatible due to mechanical conflict.
14. Not available with emergency options.
15. EMC limited to 25°C max ambient with shielding and A09. All other configurations listed to 40°C ambient.
16. For comfort PPT, emergency cold-pack conflicts with BL50xx & PCB/TLRx & Zhaga & FAWS.

1 PROPOSED POST-TOP LIGHTING - GARDCO

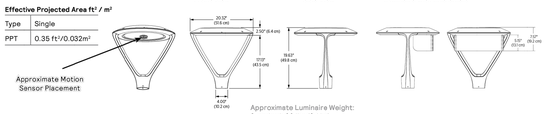
N.T.S.

PPT PureForm LED post top

Dimensions – Post Top Luminaire

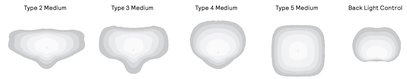
Effective Projected Area ft² / m²

Type	Single
PPT	0.35 ft²/0.032m²



Approximate Luminaire Weight:
Standard: 20 lbs (9.1 kg)
With battery pack: 26 lbs (11.8 kg)

Precision Optical Distributions



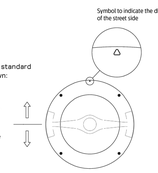
Comfort Optical Distributions

Asymmetric Optical Orientation Information

Standard Optic Position

Aimed Between The Yoke Supports

Luminaires ordered with asymmetric optical systems in the standard optic position will have the optical system oriented as shown:



2 RECREATIONAL LIGHTING - PACLIGHTS

N.T.S.

FFHL™

PacLights

high lumen
LED Flood

cULus LISTED · DLC PREMIUM · 0-10V DIMMING

PROJECT:
DATE:
TYPE:
PREPARED BY:

5 YEAR WARRANTY

KEY FEATURES
100,000-Hour LED lifespan
1-10V dimming standard on all models
Light modules **±15° adjustable**
Optional **slipfitter, arm mount** available
40°, 60° and 90° light distribution options provided

TECHNICAL SPECIFICATIONS

COMPLIANCE

UL Listed
Suitable for wet locations

IESNA LM79 & LM-80 Testing
Paclights LED luminaires have been tested by an independent laboratory in accordance with IESNA LM-79 and LM-80.

DLC Qualification
Selected models of this product are on the Design Lights Consortium (DLC) Qualified Products List and are eligible for rebates from DLC Member Utilities. To view our DLC qualified products, please consult the DLC Qualified Products List at www.designlights.org/qpl

LED CHARACTERISTICS

LEDS
Long-life, high-efficacy, surface-mount LEDs

Lifespan
100,000-hour LED lifespan based on IES LM-80 results and TM-21 calculations

Color Rendering Index
>70

Color Uniformity
PacLights' range of Correlated Color Temperature follows the guidelines of the American National Standard for Specifications for the Chromaticity of Solid State Lighting (SSL) Products, ANSI C78.377-2017

ELECTRICAL

Drivers
1-10V Dimmable
Input Voltage: 100-277V (UV models), 50-60 Hz; or 277-480V (HV models), 50-60 Hz
Power Factor > 0.9
THD <15%
Surge Protection 10kA

CONSTRUCTION

IP Rating
IP 65 Rated

Ambient Temperature
Suitable for up to 50° C (122° F) ambient temperature

Cold Weather Starting
The minimum starting temperature is -40 F° / -40° C

Housing
Die-cast aluminum housing

Gaskets
Silicon Gaskets

Finish
Our environmentally friendly polyester powder coatings are formulated for high-durability and long-lasting color, and contain no VOC or toxic heavy metals.

Mounting Methods
- Trunnion (included)
- Slipfitter (optional)
- Arm Mount (optional)

Green Technology
Mercury and UV free, and RoHS compliant. Polyester powder coat finish formulated without the use of VOC or toxic heavy metals.

Lens
Polycarbonate

OTHER

5-Year Limited Warranty**
The PacLights 5-year, limited warranty covers light output, driver performance and paint finish.

**PacLights's warranty is subject to all terms and conditions found at paclights.com/warranty

Copyright© 2021 PacLights All Rights Reserved Specifications are subject to change at any time without notice

GARDCO

Site and Area

PureForm

PBL LED bollard

Gardco PureForm LED bollard PBL integrates a sleek, low profile design, extraordinary light output, and energy savings into an innovative pedestrian scale luminaire. PureForm bollard features a high performance optical system designed to achieve wide spacings and full cutoff performance. Three heights available for a customized look. IP66 optics ensure dust or moisture will never interfere with performance.

Project: Gemma Services
Location: Plymouth Meeting
Cat.No:
Type:
Lamps: Qty:
Notes:

Ordering guide

example: PBL-42-14L-450-NW-G2-5-UNV

Luminaire	Shaft Height	Number of LEDs	Drive Current	LED Color - generation	Distribution	Emergency	Voltage
PBL	36	14L	600	NW-G2	3 & 5		UNV

PBL PureForm bollard

Shaft Height
- 36 Standard Shaft 36"
- 42 Standard Shaft 42"
- 60 Standard Shaft 60"

Number of LEDs
- 14L 14 LEDs (full ring)

Drive Current
- 100 100mA
- 200 200mA
- 350 350mA
- 450 450mA
- 600 600mA
- 800 800mA
- 1050 1050mA

LED Color - generation
- NW-G2 Warm White 3000K, 80CRI Generation 2
- NW-G2 Neutral White 4000K, 80CRI Generation 2
- CW-G2 Cool White 5000K, 80CRI Generation 2

Distribution
- **Type 3** 3 Type 3
- **Type 5** 5 Type 5

Emergency
- **Leave blank for no battery**
- EBP Emergency battery [2,3,5]

Voltage
- 120 120V
- 208 208V
- 240 240V
- 277 277V
- 347 347V
- 480 480V
- UNV 120-277V (50/60HZ)

Options

Dimming controls	Motion Sensing	Photo-sensing	Electrical	Finish
				BK

Dimming controls
- DD 0–10V External dimming (by others) [3,4]
- FAWS Field Adjustable [3,4]
- LLC Wireless controls without PIR sensor [3,4,5]
- BL Bi-level functionary with motion sensor [3,5]

Motion Sensing
- IMRI Integral Infrared [6,7]

Photo-sensing
- PCB Photocontrol button [4,10,11]

Electrical

Fusing
- F1 Single (120, 277, 347VAC)[8]
- F2 Double (208, 240, 480VAC)[8]
- F3 Canadian Double Pull (208, 240, 480VAC)[8]

Surge Protection (10kA standard)
- SP2 Increased 20kA
- GFCI Ground Fault Interrupt Outlet[4]

Finish

Textured
- BK Black
- WH White
- BZ Bronze
- DGY Dark Gray
- MDY Medium Gray

Customer Specified
- RAL Special optional color or RAL (ex. RAL7024)
- CC Custom color (must supply color chip for required factory quote)

DynaDimmer: Automatic Profile Dimming [1,4]
- CS50 Security 50% dimming, 7 hours
- CM50 Median 50% dimming, 8 hours
- CS30 Security 30% dimming, 7 hours
- CM30 Median 30% dimming, 8 hours

1. Extended lead times apply. Contact factory for details.
2. Not available in 100, 200 or 350mA.
3. Not available with other control options.
4. Not available with motion sensor.
5. Not available with photocontrol.
6. Available only with BL dimming control.
7. Not available with LLC and CS/CM.
8. Must specify input voltage.
9. Available in 120V only.
10. Not available in 347 or 480V.
11. Not available in 100, 200, and 1050mA.
12. Not available with LLC.

Accessories

Service	12NC	Description
	(4) 3/8X8X1.5 A/B 2N-2W-1LW + (1) Template	
For shipment with the bollard (order 1 per bollard)	912401538601	KIT, PBL ANCHOR BOLTS & TEMPL

3 EXISTING BOLLARD - GARDCO

N.T.S.

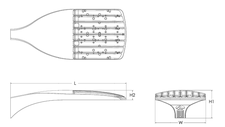
D-Series Size 1
LED Area Luminaire

Catalog Number
Notes
Type

Hit the tab key or mouse over the page to see all interactive elements.

Specifications

EPA: 0.69 ft² (0.06 m²)
Length: 32.71" (83.1 cm)
Width: 14.26" (36.2 cm)
Height H1: 7.88" (20.0 cm)
Height H2: 2.73" (6.9 cm)
Weight: 34 lbs (15.4 kg)



Introduction

The modern styling of the D-Series features a highly refined aesthetic that blends seamlessly with its environment. The D-Series offers the benefits of the latest in LED technology into a high performance, high efficacy, long-life luminaire.

The photometric performance results in sites with excellent uniformity, greater pole spacing and lower power density. D-Series outstanding photometry aids in reducing the number of poles required in area lighting applications with typical energy savings of 65% and expected service life of over 100,000 hours.

Ordering Information

EXAMPLE: DSX1 LED P7 40K 70CRI T3M MVOLT SPA NLTAIR2 PIRHN DDBXD

DSX1 LED

Series	LEDs	Color temperature[1]	Color Rendering Index[1]	Distribution	Voltage	Mounting
DSX1 LED	**Forward optics** P1 P6 P2 P7 P3 P8 P4 P9 P5 **Rotated optics** P10[1] P12[1] P11[1] P13[1]	(this section 70CRI only) 30K 3000K 40K 4000K 50K 5000K (this section 80CRI only, extended lead times apply) 27K 2700K 30K 3000K 35K 3500K 40K 4000K 50K 5000K	70CRI 70CRI 70CRI 80CRI 80CRI 80CRI 80CRI 80CRI	AFR Automotive front row T1S Type I short T2M Type II medium T3M Type III medium T3LG Type III low glare[2] T4M Type IV medium T4LG Type IV low glare[2] TFTM Forward throw medium T5M Type V medium T5LG Type V low glare T5W Type V wide BLC3 Type III backlight control[3] BLC4 Type IV backlight control[3] LCCO Left corner cutoff[3] RCCO Right corner cutoff[3]	MVOLT (120V-277V)[4] HVOLT (347V-480V)[5,6] 120[5,6] 208[5,6] 240[5,6] 277[5,6] 347[5,6] 480[5,6]	**Shipped included** SPA Square pole mounting (#3 drilling) RPA Round pole mounting (#3 drilling) SPA5 Square pole mounting (#5 drilling) RPA5 Round pole mounting (#5 drilling) SPABN Square narrow pole mounting (#3 drilling) WBA Wall bracket[8] MA Mast arm adapter (mounts on 2 3/8" OD horizontal tenon)

Control options	Other options	Finish (required)
Shipped installed NLTAIR2 PIRHN nLight AIR gen 2 enabled with bi-level motion / ambient sensor, 8–40' mounting height, ambient sensor enabled at 2fc[9,10,11,12] PIR High/low, motion/ambient sensor, 8–40' mounting height, ambient sensor enabled at 2fc[9,10,11] PER NEMA twist-lock receptacle only (controls ordered separately)[13] PERS Five-pin receptacle only (controls ordered separately)[14,15] PER7 Seven-pin receptacle only (controls ordered separately)[14,15] FAO Field adjustable output[16,17] BL30 Bi-level switched dimming, 30%[16,17] BL50 Bi-level switched dimming, 50%[16,17] DMG 0–10v dimming wires pulled outside fixture (for use with an external control, ordered separately)[17] DS Dual switching[16,18,19]	**Shipped installed** SPD20KV 20KV surge protection HS Houseside shield (black finish standard)[17] LWR Left retated optics[1] RWR Right retated optics[1] CCE Coastal Construction[20] HA 50°C ambient operation[20] BAA Buy America(n) Act Compliant SF Single fuse (120, 277, 347V)[21] DF Double fuse (208, 240, 480V)[21] **Shipped separately** EGSR External Glare Shield (reversible, field install required, matches housing finish) BSDB Bird Spikes (field install required)	DDBXD Dark Bronze DBLXD Black DNAXD Natural Aluminum DWHXD White DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white

LITHONIA LIGHTING
COMMERCIAL OUTDOOR

One Lithonia Way • Conyers, Georgia 30012 • Phone: 1-800-705-SERV (7378) • www.lithonia.com
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DSX1-LED
Rev. 09/05/23
Page 1 of 10

4 LITHONIA - D SERIES 1

N.T.S.

PROJECT SERIAL NO. 20241620090

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USER: ----

Nave Newell
900 West Valley Road • Suite 1100
Wayne, PA 19087-1830
p: 610.293.1133 f: 610.964.8299
www.navenewell.com

REVISIONS

no.	description	date:	chk'd	by
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SEAL:

Registered Landscape Architect
Pennsylvania License No. LA001222-R

DRAWING NAME: LIGHTING DETAIL SHEET

LOCATION: WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PA

GEMMA REDEVELOPMENT

project no.	drawn by:
2024-039	GSS
date:	chk'd by:
10/24/24	BTK
scale:	approv. by:
N.T.S.	PEL

sheet no.

C8.1

13 of 18

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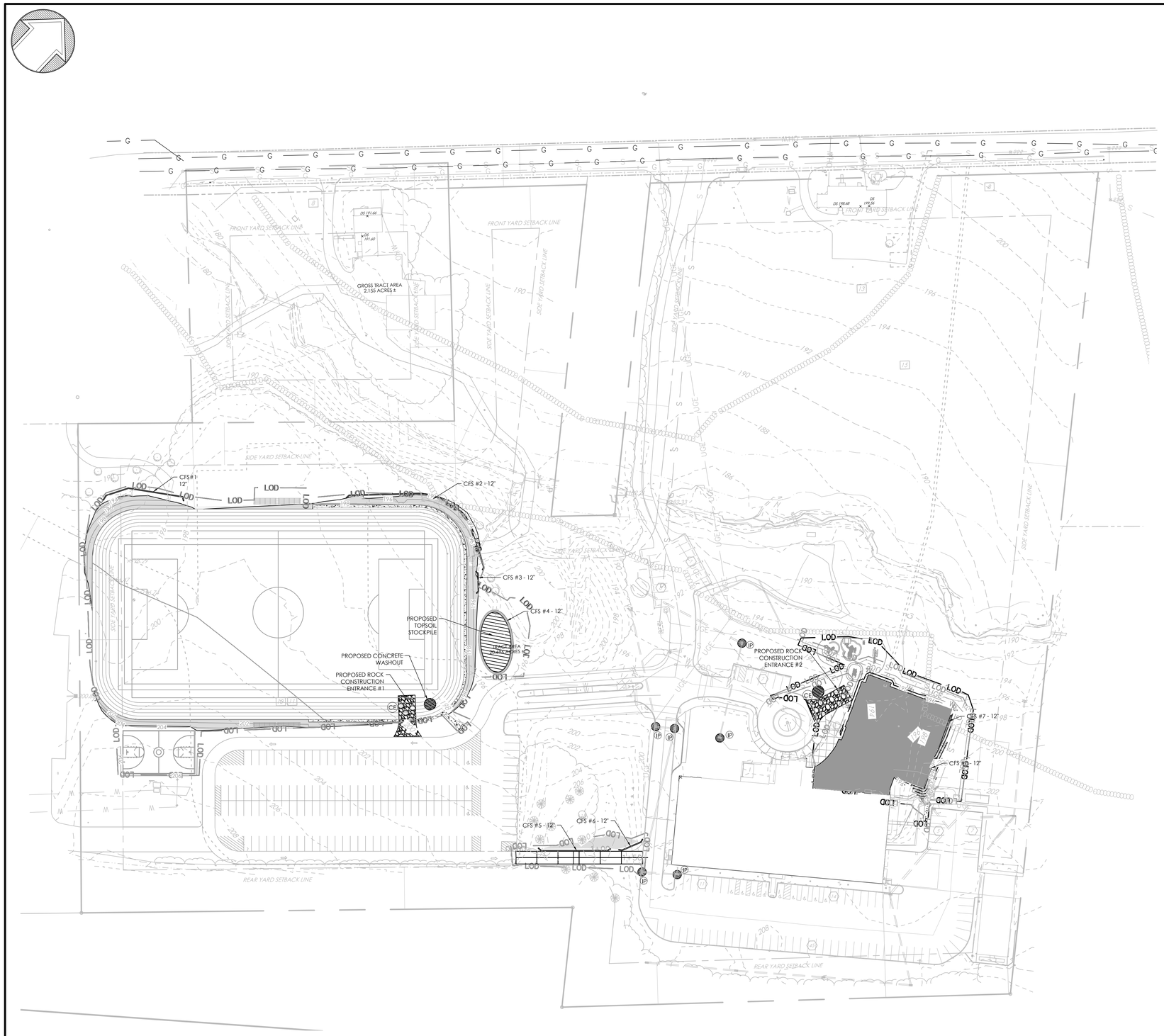

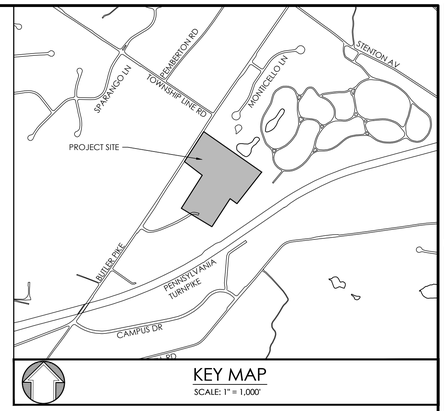

KEY MAP
SCALE: 1" = 1,000'

SOILS LEGEND:

SOILS INFORMATION OBTAINED FROM THE USDA-NRCS WEB SOIL SURVEY, VERSION 10. SURVEY PERFORMED ON (INSERT DATE).

Bo - BOWMANSVILLE-KNAUERS SILT LOAMS
ReB - READINGTON SILT LOAM, 3 TO 8 PERCENT SLOPES
Rt - ROWLAND SILT LOAM, TERRACE
UgB - URBAN LAND, 0 TO 8 PERCENT SLOPES
UnB - URBAN LAND-PENN COMPLEX, 0 TO 8 PERCENT SLOPES

SOIL LIMITATIONS AND RESOLUTIONS

APPLICABILITY TO PROJECT	SOIL LIMITATION	RESOLUTION(S)
YES	CUTBANKS CAVE	PROVIDE APPROPRIATE BENCHING AND/OR SHORING IN AREAS OF EXCAVATION.
YES	CORROSIVE TO CONCRETE/STEEL	INSTALL REBAR TO MINIMUM COVER REQUIREMENTS AND USE EPOXY COATED REBAR. APPLY MOISTURE BARRIER TO SURFACE OF EXPOSED CONCRETE.
YES	EASILY ERODIBLE	SOILS SHALL BE STABILIZED WITH EITHER TEMPORARY OR FINAL STABILIZATION IN AREAS WHERE EARTHWORK IS DELAYED OR STOPPED FOR FOUR CONSECUTIVE DAYS.
YES	FLOODING	AVOID DEVELOPMENT IN FLOOD PRONE AREAS.
YES	DEPTH TO SATURATED ZONE / SEASONAL HIGH WATER TABLE	SOILS SHOULD BE EVALUATED FOR WETNESS PRIOR TO USE IN SITE WORK. IF GEOTECHNICAL ENGINEER DEEMS SOILS TOO WET FOR SITE WORK, THEN SOILS SHALL BE AMENDED OR DRIED PER GEOTECHNICAL ENGINEER'S RECOMMENDATIONS.
YES	HYDRIC / HYDRIC INCLUSIONS	SOILS TO BE EVALUATED BY GEOTECHNICAL SPECIALIST. WATER TABLE EVALUATION WILL BE REQUIRED. POSSIBLY IN AREA OF WETLANDS.
YES	LOW STRENGTH / LANDSLIDE PRONE	SOILS SHOULD NOT BE USED FOR STRUCTURAL FILL UNLESS THEY HAVE BEEN EVALUATED BY A GEOTECHNICAL ENGINEER AND THE GEOTECHNICAL ENGINEER DEEMS THEM SUITABLE AS FILL OR PROVIDES RECOMMENDATIONS TO AMEND SOILS MAKING THEM SUITABLE AS FILL.
YES	SLOW PERCOLATION	SOIL TO BE EVALUATED FOR SUITABILITY FOR INFILTRATION PRACTICES.
YES	PIPING	AREAS OF EMBANKMENTS WITH PIPES PASSING THROUGH THEM SHALL HAVE ANTI-SEEP COLLARS INSTALLED PER THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION'S (PA DEP) EROSION AND SEDIMENT POLLUTION CONTROL PROGRAM.
YES	POOR SOURCE OF TOPSOIL	SOIL SHOULD BE AMENDED AS RECOMMENDED TO PROVIDE ADEQUATE MATERIALS NECESSARY FOR REQUIRED PLANT GROWTH.
YES	FROST ACTION	SOILS SHOULD BE FREE OF FROZEN OR MUCKY MATERIALS. FILL SHOULD NOT BE PLACED ON SATURATED OR FROZEN SURFACES. EARTHWORK INVOLVING THESE SOILS SHOULD BE LIMITED TO THE WARMER MONTHS WHEN PRACTICAL.
YES	WETNESS	SOILS SHOULD BE EVALUATED FOR WETNESS PRIOR TO USE IN SITE WORK. IF GEOTECHNICAL ENGINEER DEEMS SOILS TOO WET FOR SITE WORK, THEN SOILS SHALL BE AMENDED OR DRIED PER GEOTECHNICAL ENGINEER'S RECOMMENDATIONS.

LIMIT OF DISTURBANCE: 171,183 SF (3.93 AC.)

60 0 30 60 120 240
(IN FEET)
1 inch = 60 ft

PROJECT SERIAL NO. 20241620090
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1-800-242-1776

FOR EROSION AND SEDIMENTATION CONTROL PURPOSES ONLY

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USER: ----

Nave Newell
900 West Valley Road • Suite 1100
Wayne, PA 19087-1830
p: 610.565.7333 f: 610.964.9299
www.navenewell.com

REVISIONS

date:	no.	description	chk'd	by
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SEAL:
COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JAMES D. SAUNDERS
ENGINEER
No. PE083137

DRAWING NAME: EROSION & SEDIMENTATION

GEMMA REDEVELOPMENT

LOCATION: WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PA

project no.: 2024-039	drawn by: JSD
date: 10/24/24	chk'd by: BTK
scale: 1" = 60'	approv. by: PEL

sheet no.
C9.0
14 of 18

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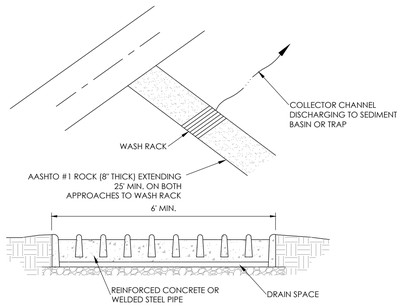


NOTES:

WASH RACK SHALL BE 20 FEET (MIN.) WIDE OR TOTAL WIDTH OF ACCESS.

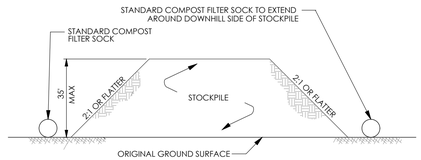
WASH RACK SHALL BE DESIGNED AND CONSTRUCTED TO ACCOMMODATE ANTICIPATED CONSTRUCTION VEHICULAR TRAFFIC.

A WATER SUPPLY SHALL BE MADE AVAILABLE TO WASH THE WHEELS OF ALL VEHICLES EXITING THE SITE.

MAINTENANCE: ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCKPILE OF ROCK MATERIAL SHALL BE MAINTAINED ON SITE FOR THIS PURPOSE. DRAIN SPACE UNDER WASH RACK SHALL BE KEPT OPEN AT ALL TIMES. DAMAGE TO THE WASH RACK SHALL BE REPAIRED PRIOR TO FURTHER USE OF THE RACK. ALL SEDIMENT DEPOSITED ON ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE IMMEDIATELY. WASHING THE ROADWAY OR SWEEPING THE DEPOSITS INTO ROADWAY DITCHES, SEWERS, CULVERTS, OR OTHER DRAINAGE COURSES IS NOT ACCEPTABLE.

STANDARD CONSTRUCTION DETAIL #3-2
ROCK CONSTRUCTION ACCESS WITH WASH RACK

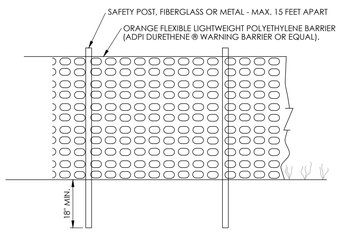
NOT TO SCALE



TEMPORARY STOCKPILE DETAIL

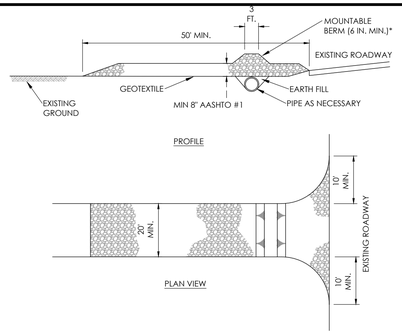
NOT TO SCALE

NOTES:
1. STOCKPILE HEIGHTS MUST NOT EXCEED 35 FEET.
2. STOCKPILE SLOPES MUST BE 2:1 OR FLATTER.



BARRIER FENCE DETAIL (CONSTRUCTION FENCE)

NOT TO SCALE



* MOUNTABLE BERM USED TO PROVIDE PROPER COVER FOR PIPE

NOTES:

REMOVE TOPSOIL PRIOR TO INSTALLATION OF ROCK CONSTRUCTION ENTRANCE. EXTEND ROCK OVER FULL WIDTH OF ENTRANCE.

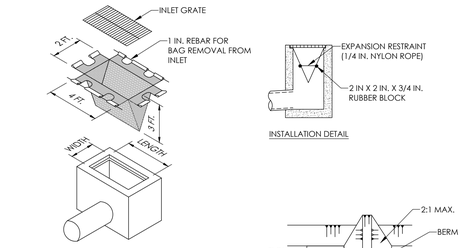
RUNOFF SHALL BE DIVERTED FROM ROADWAY TO A SUITABLE SEDIMENT REMOVAL BMP PRIOR TO ENTERING ROCK CONSTRUCTION ENTRANCE.

MOUNTABLE BERM SHALL BE INSTALLED WHEREVER OPTIONAL CULVERT PIPE IS USED AND PROPER PIPE COVER AS SPECIFIED BY MANUFACTURER IS NOT OTHERWISE PROVIDED. PIPE SHALL BE SIZED APPROPRIATELY FOR SIZE OF DITCH BEING CROSSED.

MAINTENANCE: ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCKPILE SHALL BE MAINTAINED ON SITE FOR THIS PURPOSE. ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE IMMEDIATELY. IF EXCESSIVE AMOUNTS OF SEDIMENT ARE BEING DEPOSITED ON ROADWAY, EXTEND LENGTH OF ROCK CONSTRUCTION ENTRANCE BY 50 FOOT INCREMENTS UNTIL CONDITION IS ALLEVIATED OR INSTALL WASH RACK. WASHING THE ROADWAY OR SWEEPING THE DEPOSITS INTO ROADWAY DITCHES, SEWERS, CULVERTS, OR OTHER DRAINAGE COURSES IS NOT ACCEPTABLE.

STANDARD CONSTRUCTION DETAIL #3-1
ROCK CONSTRUCTION ENTRANCE

NOT TO SCALE



NOTES:

MAXIMUM DRAINAGE AREA = 1/2 ACRE.

INLET PROTECTION SHALL NOT BE REQUIRED FOR INLET TRIBUTARY TO SEDIMENT BASIN OR TRAP. BERMS SHALL BE REQUIRED FOR ALL INSTALLATIONS.

ROLLED EARTHEN BERM IN ROADWAY SHALL BE MAINTAINED UNTIL ROADWAY IS STONED. ROAD SUBBASE BERM ON ROADWAY SHALL BE MAINTAINED UNTIL ROADWAY IS PAVED. EARTHEN BERM IN CHANNEL SHALL BE MAINTAINED UNTIL PERMANENT STABILIZATION IS COMPLETED OR REMAIN PERMANENTLY.

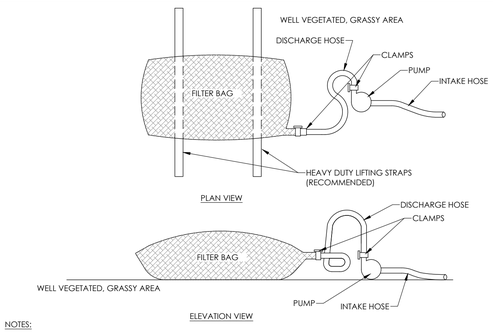
AT A MINIMUM, THE FABRIC SHALL HAVE A MINIMUM GRAB TENSILE STRENGTH OF 120 LBS., A MINIMUM BURST STRENGTH OF 200 PSI, AND A MINIMUM TRAPEZOIDAL TEAR STRENGTH OF 50 LBS. FILTER BAGS SHALL BE CAPABLE OF TRAPPING ALL PARTICLES NOT PASSING A NO. 40 SIEVE.

INLET FILTER BAGS SHALL BE INSPECTED ON A WEEKLY BASIS AND AFTER EACH RUNOFF EVENT. BAGS SHALL BE EMPTIED AND RINSED OR REPLACED WHEN HALF FULL OR WHEN FLOW CAPACITY HAS BEEN REDUCED SO AS TO CAUSE FLOODING OR BYPASSING OF THE INLET. DAMAGED OR CLOGGED BAGS SHALL BE REPLACED. A SUPPLY SHALL BE MAINTAINED ON SITE FOR REPLACEMENT OF BAGS. ALL NEEDED REPAIRS SHALL BE INITIATED IMMEDIATELY AFTER THE INSPECTION. DISPOSE ACCUMULATED SEDIMENT AS WELL AS ALL USED BAGS ACCORDING TO THE PLAN NOTES.

DO NOT USE ON MAJOR PAVED ROADWAYS WHERE PONDING MAY CAUSE TRAFFIC HAZARDS.

STANDARD CONSTRUCTION DETAIL #4-16
FILTER BAG INLET PROTECTION - TYPE M INLET

NOT TO SCALE



NOTES:

LOW VOLUME FILTER BAGS SHALL BE MADE FROM NON-WOVEN GEOTEXTILE MATERIAL SEWN WITH HIGH STRENGTH, DOUBLE STITCHED "J" TYPE SEAMS. THEY SHALL BE CAPABLE OF TRAPPING PARTICLES LARGER THAN 150 MICRONS. HIGH VOLUME FILTER BAGS SHALL BE MADE FROM WOVEN GEOTEXTILES THAT MEET THE FOLLOWING STANDARDS:

PROPERTY	TEST METHOD	MINIMUM STANDARD
AVG. WIDE WIDTH STRENGTH	ASTM D-4884	60 LB/IN
GRAB TENSILE	ASTM D-4632	205 LB
PUNCTURE	ASTM D-4833	110 LB
MULLEN BURST	ASTM D-3786	350 PSI
UV RESISTANCE	ASTM D-4355	70%
AOS % RETAINED	ASTM D-4751	80 SIEVE

A SUITABLE MEANS OF ACCESSING THE BAG WITH MACHINERY REQUIRED FOR DISPOSAL PURPOSES SHALL BE PROVIDED. FILTER BAGS SHALL BE REPLACED WHEN THEY BECOME 1/2 FULL OF SEDIMENT. SPARE BAGS SHALL BE KEPT AVAILABLE FOR REPLACEMENT OF THOSE THAT HAVE FAILED OR ARE FILLED. BAGS SHALL BE PLACED ON STRAPS TO FACILITATE REMOVAL UNLESS BAGS COME WITH LIFTING STRAPS ALREADY ATTACHED.

BAGS SHALL BE LOCATED IN WELL-VEGETATED (GRASSY) AREA, AND DISCHARGE ONTO STABLE, EROSION RESISTANT AREAS, WHERE THIS IS NOT POSSIBLE, A GEOTEXTILE UNDERLAYMENT AND FLOW PATH SHALL BE PROVIDED. BAGS MAY BE PLACED ON FILTER STONE TO INCREASE DISCHARGE CAPACITY. BAGS SHALL NOT BE PLACED ON SLOPES GREATER THAN 5%. FOR SLOPES EXCEEDING 5%, CLEAN ROCK OR OTHER NON-ERODIBLE AND NON-POLLUTING MATERIAL MAY BE PLACED UNDER THE BAG TO REDUCE SLOPE STEEPNESS.

NO DOWNSLOPE SEDIMENT BARRIER IS REQUIRED FOR MOST INSTALLATIONS. COMPOST BERM OR COMPOST FILTER SOCK SHALL BE INSTALLED BELOW BAGS LOCATED IN HQ OR EV WATERSHEDS, WITHIN 50 FEET OF ANY RECEIVING SURFACE WATER OR WHERE GRASSY AREA IS NOT AVAILABLE.

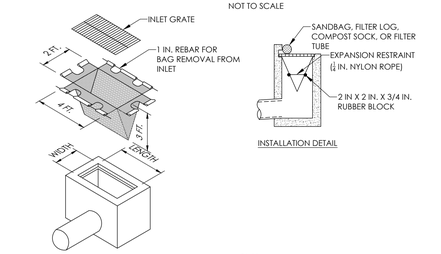
THE PUMP DISCHARGE HOSE SHALL BE INSERTED INTO THE BAGS IN THE MANNER SPECIFIED BY THE MANUFACTURER AND SECURELY CLAMPED, A PIECE OF PVC PIPE IS RECOMMENDED FOR THIS PURPOSE.

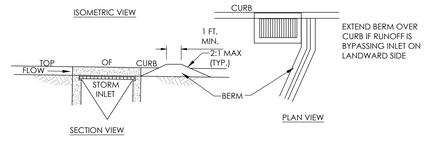
THE PUMPING RATE SHALL BE NO GREATER THAN 750 GPM OR 1/2 THE MAXIMUM SPECIFIED BY THE MANUFACTURER, WHICHEVER IS LESS. PUMP INTAKES SHALL BE FLOATING AND SCREENED.

FILTER BAGS SHALL BE INSPECTED DAILY. IF ANY PROBLEM IS DETECTED, PUMPING SHALL CEASE IMMEDIATELY AND NOT RESUME UNTIL THE PROBLEM IS CORRECTED.

STANDARD CONSTRUCTION DETAIL #3-16
PUMPED WATER FILTER BAG

NOT TO SCALE





NOTES:

MAXIMUM DRAINAGE AREA = 1/2 ACRE.

INLET PROTECTION SHALL NOT BE REQUIRED FOR INLET TRIBUTARY TO SEDIMENT BASIN OR TRAP. BERMS SHALL BE REQUIRED FOR ALL INSTALLATIONS.

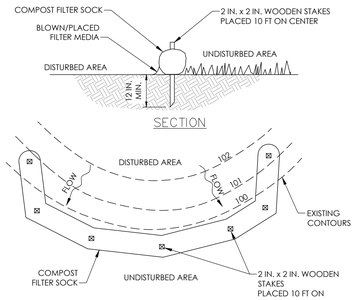
ROLLED EARTHEN BERM SHALL BE MAINTAINED UNTIL ROADWAY IS STONED. ROAD SUBBASE BERM SHALL BE MAINTAINED UNTIL ROADWAY IS PAVED. SIX INCH MINIMUM HEIGHT ASPHALT BERM SHALL BE MAINTAINED UNTIL ROADWAY SURFACE RECEIVES FINAL COAT.
AT A MINIMUM, THE FABRIC SHALL HAVE A MINIMUM GRAB TENSILE STRENGTH OF 120 LBS., A MINIMUM BURST STRENGTH OF 200 PSI, AND A MINIMUM TRAPEZOIDAL TEAR STRENGTH OF 50 LBS. FILTER BAGS SHALL BE CAPABLE OF TRAPPING ALL PARTICLES NOT PASSING A NO. 40 SIEVE.

INLET FILTER BAGS SHALL BE INSPECTED ON A WEEKLY BASIS AND AFTER EACH RUNOFF EVENT. BAGS SHALL BE EMPTIED AND RINSED OR REPLACED WHEN HALF FULL OR WHEN FLOW CAPACITY HAS BEEN REDUCED SO AS TO CAUSE FLOODING OR BYPASSING OF THE INLET. DAMAGED OR CLOGGED BAGS SHALL BE REPLACED. A SUPPLY SHALL BE MAINTAINED ON SITE FOR REPLACEMENT OF BAGS. ALL NEEDED REPAIRS SHALL BE INITIATED IMMEDIATELY AFTER THE INSPECTION. DISPOSE OF ACCUMULATED SEDIMENT AS WELL AS ALL USED BAGS ACCORDING TO THE PLAN NOTES.

DO NOT USE ON MAJOR PAVED ROADWAYS WHERE PONDING MAY CAUSE TRAFFIC HAZARDS.

STANDARD CONSTRUCTION DETAIL #4-15
FILTER BAG INLET PROTECTION - TYPE C INLET

NOT TO SCALE



NOTES:

SOCK FABRIC SHALL MEET STANDARDS OF TABLE 4.1 OF THE PA DEP EROSION CONTROL MANUAL. COMPOST SHALL MEET THE STANDARDS OF TABLE 4.2 OF THE PA DEP EROSION CONTROL MANUAL.

COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE BARRIER SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN BARRIER ALIGNMENT. MAXIMUM SLOPE LENGTH ABOVE ANY BARRIER SHALL NOT EXCEED THAT SPECIFIED FOR THE SIZE OF THE SOCK AND THE SLOPE OF ITS TRIBUTARY AREA.

TRAFFIC SHALL NOT BE PERMITTED TO CROSS COMPOST FILTER SOCKS.

ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/2 THE ABOVE GROUND HEIGHT OF THE BARRIER AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.

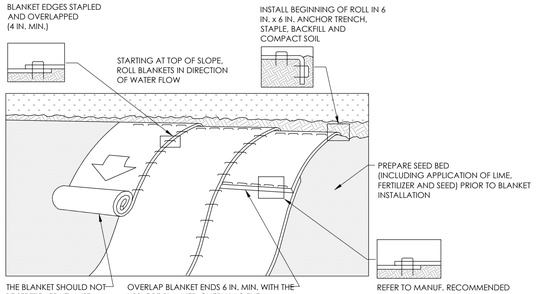
COMPOST FILTER SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.

BIODEGRADABLE COMPOST FILTER SOCKS SHALL BE REPLACED AFTER 6 MONTHS; PHOTODEGRADABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

UPON STABILIZATION OF THE AREA TRIBUTARY TO THE SOCK, STAKES SHALL BE REMOVED. THE SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATTER CASE, THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD AS A SOIL SUPPLEMENT.

STANDARD CONSTRUCTION DETAIL #4-1
COMPOST FILTER SOCK

NOT TO SCALE



NOTES:

SEED AND SOIL AMENDMENTS SHALL BE APPLIED ACCORDING TO THE RATES IN THE PLAN DRAWINGS PRIOR TO INSTALLING THE BLANKET.

PROVIDE ANCHOR TRENCH AT TOE OF SLOPE IN SIMILAR FASHION AS AT TOP OF SLOPE.

SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS, AND GRASS.

BLANKET SHALL HAVE GOOD CONTINUOUS CONTACT WITH UNDERLYING SOIL THROUGHOUT ENTIRE LENGTH. LAY BLANKET LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH SOIL. DO NOT STRETCH BLANKET.

THE BLANKET SHALL BE STAPLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

BLANKETED AREAS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT UNTIL PERENNIAL VEGETATION IS ESTABLISHED TO A MINIMUM UNIFORM 70% COVERAGE THROUGHOUT THE BLANKETED AREA. DAMAGED OR DISPLACED BLANKETS SHALL BE RESTORED OR REPLACED WITHIN 4 CALENDAR DAYS.

STANDARD CONSTRUCTION DETAIL #11-1
EROSION CONTROL BLANKET INSTALLATION

NOT TO SCALE

PROJECT SERIAL NO. 20241620090

CALL BEFORE YOU DIG!

PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - STOP CALL

Pennsylvania One Call System, Inc.

1-800-242-1776

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USER: ----

Nave Newell
900 West Valley Road • Suite 1100
Wayne, PA 19087-1830
p: 610.265.6733 f: 610.265.8299
www.navenewell.com

REVISIONS

no.	description	date:	chk'd	by
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SEAL:

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — JAMES D. BARNHART — ENGINEER No. PE088137

DRAWING NAME: EROSION & SEDIMENTATION CONTROL PLAN DETAIL SHEET

LOCATION: WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PA

GEMMA REDEVELOPMENT

project no.	drawn by:
2024-039	JSD
date:	chk'd by:
10/24/24	BTK
scale:	approv. by:
N.T.S.	PEL

sheet no.

C9.2

15 of 18

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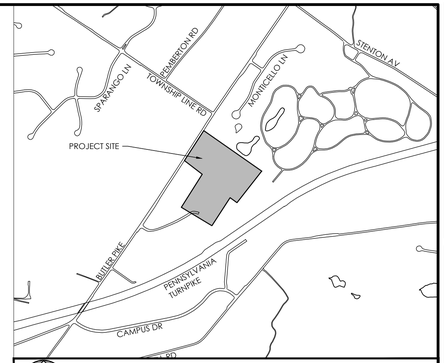

KEY MAP
SCALE: 1" = 1,000'

REFERENCE SHEET 10.2 FOR A POST CONSTRUCTION STORMWATER MANAGEMENT LEGEND

40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft

PROJECT SERIAL NO. 20241620090
CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - STOP CALL
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Wayne, PA 19087-1830
p: 610.265.8333 f: 610.964.9299
www.navenewell.com

date:	no.	description	chk'd	by
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REVISIONS

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JAMES D. BANNON
ENGINEER
No. PE060132

SEAL:

DRAWING NAME: POST CONSTRUCTION STORMWATER MANAGEMENT

GEMMA REDEVELOPMENT

LOCATION: WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PA

project no.	drawn by:
2024-039	JSD
date:	chk'd by:
10/24/24	BTK
scale:	approv. by:
1" = 40'	PEL

sheet no.

C10.1

16 of 18

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USER: ----

MRC NOTES

1. THE IWS ORIFICE SHALL BE CLEAN, SMOOTH, AND SANDED SO THAT NO BURS OR IRREGULARITIES ARE PRESENT.
2. THE ORIFICE PLATE AND OTHER CONNECTIONS SHOULD BE WATER-TIGHT AND ACCESSIBLE FOR MAINTENANCE.
3. THE CONTROL VALVES CANNOT BE SUBSTITUTED FOR AN ORIFICE.
4. ENSURE THE UNDERDRAIN ORIFICE(S) ARE PROPERLY PROTECTED FROM CLOGGING.

ADS
Advanced Drainage Systems, Inc.

ADS StormTech®
FOR STORMTECH INSTALLATION INSTRUCTIONS VISIT ADS.COM

MC-3500 STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH MC-3500.
2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 45/478 DESIGNATION SS
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: DEAD LOAD WITH A LOAD FACTOR OF 1.95; AND LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
6. CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) WITHSTANDING 11 MPH AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER, 2) MAXIMUM PERMANENT 10 YPS COVER LOAD AND 3) ACCIDENTAL COVER WITH PARKED 11 MEGA AASHTO DESIGN TRUCK.
7. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - CHAMBERS SHALL BE MARKED TO FACILITATE SAFE INSPECTIONS, SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTERNAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 5".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 450 LBS/FT/%. THE ASC IS DEFINED IN SECTION 8.2.8 OF ASTM F2418, AND IS TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F/ 23° C). CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE SOLID OR YELLOW COLORS.
8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
   - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
   - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 8TH EDITION, 2017.
   - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT SOAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75 YEAR MODULUS USED FOR DESIGN.
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF MC-3500 CHAMBER SYSTEM

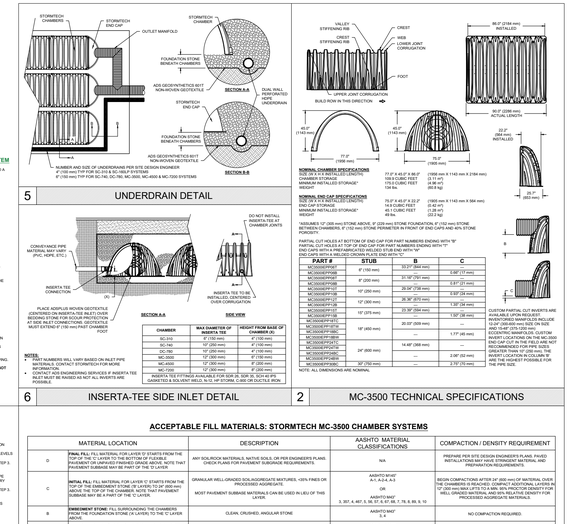
1. STORMTECH MC-3500 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   - STONE AND ROLL FOR LARGE PROJECTS WITH EXCAVATOR
   - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM _____ SPACING BETWEEN THE CHAMBER ROWS.
7. INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 12" (300 mm) INTO CHAMBER END CAPS.
8. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE MEETING THE AASHTO M43 DESIGNATION OF #3 OR #4.
9. STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.
10. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
11. WE RECOMMEND THE USE OF "FLEXSTORM CATCH-IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

1. STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
2. THE USE OF EQUIPMENT OVER MC-3500 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON RAW CHAMBERS.
   - NO RUBBER TIRED LOADER, DUMP TRUCK, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH TABLE BELOW. TRACKED EQUIPMENT MAY BE USED SOONER.
   - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE.
3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

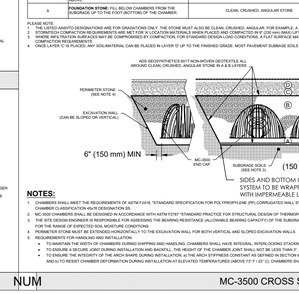
USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT RECOMMENDED. ANY DAMAGE TO CHAMBERS CAUSED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.



5 UNDERDRAIN DETAIL

PLACE ADEPLUS WOVEN GEOTEXTILE (IDENTIFIED ON INSERTA TEE INLET) OVER CONTINUOUS CHAMBER BED BETWEEN FIRST AND LAST CHAMBER CORRUGATIONS. IT MUST EXTEND 6" (150 mm) PAST CHAMBER FOOT



CHAMBER	MAX DIAMETER OF INSERTA TEE	HEIGHT FROM BASE OF CHAMBER (h)
SC-310	6" (150 mm)	4" (100 mm)
SC-160	12" (300 mm)	4" (100 mm)
DC-780	10" (250 mm)	4" (100 mm)
DC-780	12" (300 mm)	4" (100 mm)
MC-4500	12" (300 mm)	4" (100 mm)
MC-7200	12" (300 mm)	6" (356 mm)

NOTES:
1. INSERTA TEE FITTINGS AVAILABLE FOR SCH 35, SCH 40, SCH 80 AND DUROMAXX STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.
2. INSERTA TEE FITTINGS AVAILABLE FOR SCH 35, SCH 40, SCH 80 AND DUROMAXX STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.
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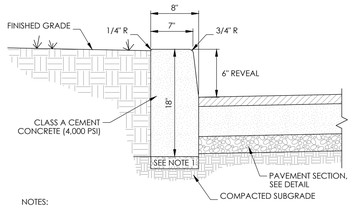
6 INSERTA-TEE SIDE INLET DETAIL

2 MC-3500 TECHNICAL SPECIFICATIONS

ACCEPTABLE FILL MATERIALS: STORMTECH MC-3500 CHAMBER SYSTEMS

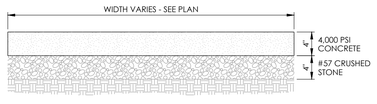
MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEERS PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY REQUIRE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES



NOTES:

1. ANY EXCAVATION BELOW DESIRED GRADE DUE TO OVER EXCAVATION OR WET SOIL CONDITIONS SHALL BE BACKFILLED WITH ¾" CLEAN CRUSHED STONE. ALL SUBGRADES SHALL BE APPROVED BY THE TOWNSHIP ENGINEER PRIOR TO POURING.
2. EXPANSION JOINTS SHALL BE PROVIDED AT EQUAL DISTANCES OF NOT MORE THAN 20' AND AT ALL STORM SEWER INLETS. JOINTS SHALL BE FILLED WITH PREFORMED EXPANSION JOINT FILLER, ½" THICK, CONFORMING TO PENNSYLVANIA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION. CONTRACTION JOINTS SHALL BE PROVIDED EVERY 10'. THE JOINT SHALL BE RECESSED ½" FROM THE TOP AND FRONT OF THE CONCRETE CURB.
3. CURB SHALL BE TEMPORARILY BACKFILLED TO FINISHED GRADE WITH SOIL BEHIND AND STONE ON THE ROAD SIDE AS SOON AS IT HAS ATTAINED SUFFICIENT SUPPORTING STRENGTH OR WITHIN 24 HOURS OF POURING (WHICHEVER IS LESS).
4. WHEN NEW CURB IS INSTALLED ALONG AN EXISTING PAVED AREA, THE EXISTING PAVEMENT SHALL BE CUT 2 FEET IN FRONT OF THE NEW CURB FACE IN A STRAIGHT LINE AT A 45 DEGREE ANGLE WITH A CUTTING WHEEL OR PNEUMATIC HAMMER. THE NEW PAVEMENT SHALL BE TACKED AND BUTTED TO THE EXISTING PAVEMENT.
5. THE GENERAL CONTRACTOR OR OWNER IS RESPONSIBLE FOR MAINTAINING ALL CURB UNTIL FORMALLY ACCEPTED BY THE TOWNSHIP. ALL CURB THAT IS BROKEN, CRACKED, OR OUT OF ALIGNMENT SHALL BE REPLACED PRIOR TO FINAL PAVING AND/OR ACCEPTANCE. CURB REPLACEMENT SHALL BE FROM EXPANSION JOINT TO EXPANSION JOINT ONLY.

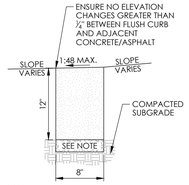
PROPOSED CURB
N.T.S.



NOTES:

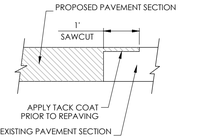
1. SIDEWALKS SHALL BE CONSTRUCTED WITH A GRADE NOT LESS THAN ONE-QUARTER (1/4) INCH TO ONE INCH, SLOPED TOWARD THE STREET. THE FINISHED GRADE BETWEEN THE OUTSIDE OF THE SIDEWALK TO THE CURBLINE (EDGE OF THE CARTWAY) SHALL NEVER EXCEED A TOTAL VERTICAL ELEVATION CHANGE OF ONE FOOT.
2. CONCRETE USED IN SIDEWALK WORK SHALL BE FOUR THOUSAND (4,000) PSI AIR ENTRAINED AT TWENTY-EIGHT (28) DAYS WITH CERTIFICATION OF THE MIX FURNISHED TO THE TOWNSHIP ENGINEER. CONCRETE SHALL BE PLACED IN FORMS THAT ARE STRAIGHT AND SECURELY BRACED. CARE SHALL BE TAKEN TO CONTROL THE WATER CONTENT TO PREVENT SEPARATION OF THE AGGREGATES. THE CONCRETE SHALL HAVE A BROOM FINISH AND THE EDGES SHALL BE FINISHED WITH AN APPROVED EDGING TOOL.
3. ALL CONCRETE SIDEWALKS SHALL BE CONSTRUCTED ON A FOUR-INCH CRUSHED STONE OR GRAVEL BASE TO INSURE PROPER DRAINAGE. THE CONCRETE SHALL BE PLACED SO THAT THERE IS A SEPARATE JOINT EVERY FIVE (5) FEET AND SHALL BE SO CONSTRUCTED SO THAT THE FIVE FOOT SECTIONS ARE COMPLETELY SEPARATED FROM ADJACENT SECTIONS. ONE-HALF-INCH PREMOLDED EXPANSION JOINTS SHALL BE PLACED EVERY TWENTY (20) FEET AND BETWEEN ALL POINTS WHERE THE CONCRETE SIDEWALK ABUTS A CONCRETE CURB.
4. ALL CONCRETE SIDEWALKS SHALL HAVE A MINIMUM THICKNESS OF FOUR (4) INCHES.

CONCRETE SIDEWALK
N.T.S.

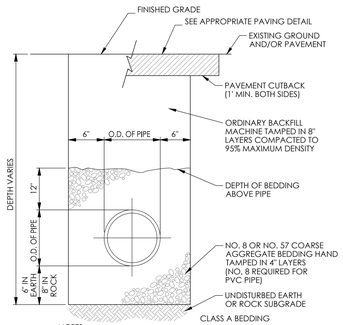


NOTE:
REFER TO NOTES ASSOCIATED WITH THE PROPOSED CURB DETAIL.

FLUSH CURB
N.T.S.



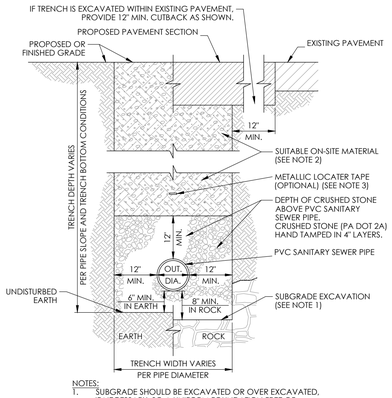
PAVEMENT SAWCUT DETAIL
N.T.S.



NOTES:

1. ALL STONE GRADATIONS ARE AASHTO CLASSIFICATION.
2. DETAIL FOR PIPE 4" AND LARGER.

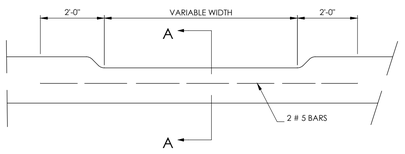
STORM PIPE TRENCH DETAIL
N.T.S.



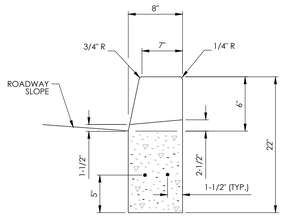
NOTES:

1. SUBGRADE SHOULD BE EXCAVATED OR OVER EXCAVATED, IF NECESSARY, SO A UNIFORM FOUNDATION FREE OF PROTRUDING ROCKS MAY BE PROVIDED.
2. SUITABLE ON-SITE MATERIAL IS TO BE TESTED AND CERTIFIED BY A GEOTECH ENGINEER.
3. IF APPLIED, METALLIC LOCATER TAPE TO BE PLACED 18" MIN. ABOVE THE SANITARY SEWER PIPE.
4. WHEN APPLICABLE, THIS TYPICAL TRENCH DETAIL SHALL BE SUPERCEDED BY THE GOVERNING MUNICIPAL OR SEWER AUTHORITY CODES AND SPECIFICATIONS.

SANITARY SEWER TRENCH DETAIL
N.T.S.

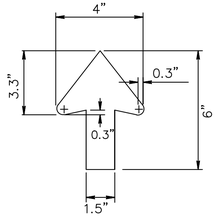


PLAN VIEW

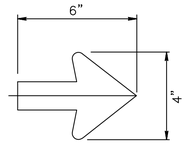


SECTION A-A

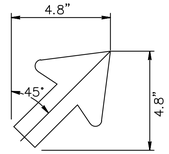
DEPRESSED CURB DETAIL
N.T.S.



TYPE P

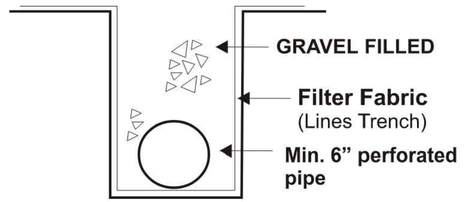


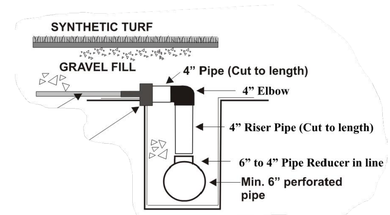
TYPE Q



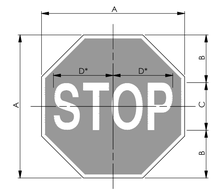
FOR DETAIL OF ARROW, SEE TYPE P

TYPE R





SIDELINE TRENCH DETAIL
N.T.S.



COLOR: LEGEND AND BORDER - WHITE (REFLECTORIZED)
BACKGROUND - RED (REFLECTORIZED)

SIGN SIZE	DIMENSIONS			BOR-	BLANK
A x A	B	C	D	DER	STD
30" x 30"	10"	10C"	10"	0.8	B1-30

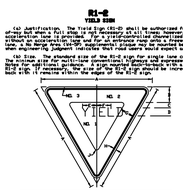
* Reduce spacing 40%

STOP SIGN (R1-1)
N.T.S. (REFER TO PENNDOT PUB. 236)

R1-2
YIELD SIGN

(a) Justification. The Yield Sign (R1-2) shall be authorized for use when it is necessary to assign the right-of-way to traffic on one highway at an intersection and to traffic approaching on the other highway. Such authorization here is permitted for a stop-controlled (downhill) right-turn movement where a requirement without an acceleration lane and for an entrance road onto a roadway or expressway without an acceleration lane. A Yield Sign may be used at a location where a Stop Sign is not always required, but where engineering judgment indicates that right-of-way should expect on acceleration lane to be present.

(b) Size. The standard size of the R1-2 sign for single lane conventional highways shall be 30" per side. Where the application justifies a sign smaller than the standard size, a 24" per side sign may be used. Where the application justifies a sign exceeding the standard size, a sign with a per side dimension of 36" or 48" may be used. (If necessary, the size of the R1-2 sign should be increased so that any other sign installed back-to-back with it remains within the edges of the R1-2 sign.



SIGN SIZE	A	B	C	D	E	F	G	H	I	J	BLANK STD
30" x 30"	8	1	1.50	2.4	2.8	2	0.4	0.6	——		
24" x 24"	6.8	1	30	2.4	4.4	5	0.8	1.2	B1-24		
36" x 36"	7	2.6	45	6.3	5.8	6	1	2	B1-48		
48" x 48"	9.5	3.5	60	7.9	7.4	8	1.4	2.4	B1-60		

COLOR
NO. 1 — LEGEND AND BORDER — RED (REFLECTORIZED)
BACKGROUND — WHITE (REFLECTORIZED)
NO. 2 — RED (REFLECTORIZED)
NO. 3 — BLACK — WHITE (REFLECTORIZED)

R6-6
BEGIN ONE-WAY SIGN

The Begin One-Way Sign (R6-6) may be used when a two-way roadway changes to a one-way roadway. As such, the R6-6 sign advises drivers what they can see the left side of the roadway.

The R6-6 sign should be placed on the right side of the one-way roadway near the beginning of the one-way roadway.

The standard size R6-6 sign for single lane conventional highways shall be 24" x 30". The standard size for multi-lane conventional highways shall be 30" x 36". See General Notes for additional guidance.

SIGN SIZE	A	B	C	D	E	F	G	H	I	J	BLANK STD
24" x 30"	4	10	6.4	28	9.9	11.4	1.9	2.6	3	B1-2424	
30" x 36"	5	12	7.9	35	12.3	14.2	2.4	3.2	3.8	B1-3630	
36" x 48"	6	16	9.5	46	15.8	18.9	2.9	4.1	5.1	B1-4836	

COLOR
LEGEND AND BORDER — BLACK (REFLECTORIZED)
BACKGROUND — WHITE (REFLECTORIZED)

R6-7
END ONE-WAY SIGN

The End One-Way Sign (R6-7) may be used when a one-way street or roadway changes to a two-way street or roadway.

The R6-7 sign should be placed on both right and left sides of the street or roadway at the approximate point of change to a two-way operation. It should be preceded with a two-way traffic Sign (W6-3).

The standard size of the R6-7 sign for single lane conventional highways shall be 24" x 30". The standard size for multi-lane conventional highways shall be 30" x 36". See General Notes for additional guidance.

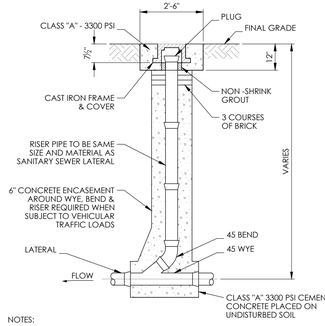
SIGN SIZE	C	D	E	F	G	H	I	J	BLANK STD
24" x 30"	6.4	28	9.9	11.4	1.9	2.6	3	B1-2424	
30" x 36"	7.9	35	12.3	14.2	2.4	3.2	3.8	B1-3630	
36" x 48"	9.5	46	15.8	18.9	2.9	4.1	5.1	B1-4836	

COLOR
LEGEND AND BORDER — BLACK (REFLECTORIZED)
BACKGROUND — WHITE (REFLECTORIZED)

PROJECT SERIAL NO. 20241620090

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - STOP CALL
Pennsylvania One Call System, Inc.
1-800-242-1776

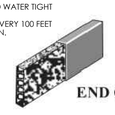
DESTINATION SIGN ARROWS (4" LEGEND)



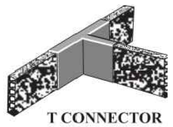
NOTES:

1. VERTICAL PIPE OR CLEAN-OUT SHALL BE PLUGGED WITH APPROVED WATER TIGHT PLUG AS DIRECTED BY THE ENGINEER.
2. CLEAN-OUTS ARE REQUIRED EVERY 50 FEET FOR 4-INCH LATERALS, EVERY 100 FEET FOR 6" LATERALS, AND AT EVERY 90 DEGREE CHANGE OF DIRECTION.

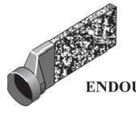
CLEAN-OUT DETAIL
N.T.S.



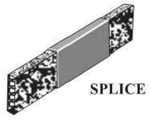
END CAP



T CONNECTOR (6" only)

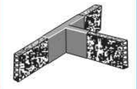


ENDOUT



SPLICE

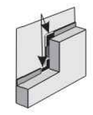
J•DRAIN SWD & MVP Fittings

6" ONLY T-CONNECTOR


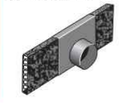
6" & 12" END OUTLET

6" & 12" CORNER

6" & 12" SPLICE

6" ONLY STEP DOWN


6" ONLY END CAP

6" & 12" SIDE OUTLET


info@j-drain.com
www.j-drain.com
JDR Enterprises, Inc.
292 S. Main St., Suite 200 Alpharetta, GA 30009
(800) 843-7569 (770) 442-1461 Fax: (770) 664-7951

Nave Newell
900 West Valley Road • Suite 1100
Wayne, PA 19087-1830
p: 610.565.7121 f: 610.565.4299
www.navenewell.com

REVISIONS			
date:	no.	description	chk'd
----	----	----	----

SEAL:

DRAWING NAME: CONSTRUCTION DETAIL SHEET

LOCATION: WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PA

GEMMA REDEVELOPMENT

project no.	drawn by:
2024-039	JSD
date:	chk'd by:
10/24/24	BTK
scale:	approv. by:
N.T.S.	PEL

sheet no.

C11.0

18 of 18

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K:\24PROJ\24039_GEMMA SERVICES_LD\CAD\PLAN_SET\2024039C11.0_CONDET.DWG
10/24/2024 12:56 PM
USER: ----

WHITEMARSH TOWNSHIP
REQUEST FOR MODIFICATION (WAIVER) OF
SUBDIVISION and/or LAND DEVELOPMENT ORDINANCE REQUIREMENTS

Pursuant to § 512.1.(b) of the Pennsylvania Municipalities Planning Code, all requests for a modification shall be in writing and shall accompany and be a part of the application for development. The request shall state in full the grounds and facts of unreasonableness or hardship on which the request is based, the provision or provisions of the ordinance involved and the minimum modification necessary.

Check the appropriate line:

☐ No modification (or waiver) of the Whitemarsh Township Subdivision and Land Development Ordinance is requested

☒ I/we hereby request the following modification[s] (or waiver[s]) of the Whitemarsh Township Subdivision and Land Development Ordinance. (The request must identify the applicable Section[s] of the Ordinance, modification[s] requested, and facts of unreasonableness or hardship upon which the request is made; attach additional sheets if necessary).

SECTION 105-12.D. REQUEST THE JOINT SUBMISSION OF A PRELIMINARY AND FINAL PLAN.

Name of Subdivision and/or Land Development: GEMMA SERVICES REDEVELOPMENT

Date: October 23, 2024 **Signature:** [signature]

(Original Signature must be submitted)

WHITEMARSH TOWNSHIP
SUBDIVISION and/or LAND DEVELOPMENT
TIME WAIVER FORM

Date: October 24, 2024

Granted to: Whitemarsh Township Board of Supervisors

Name of Subdivision and/or Land Development: Gemma Development

On or about, 10/24/24, I/we submitted for official filing the above-reference application.

Notwithstanding any contrary provision of the Pennsylvania Municipalities Planning Code or the Code of the Township of Whitemarsh, this letter will serve as notice to Whitemarsh Township that the requirement that action be taken on this application within ninety (90) days is hereby waived, without limitation as to time. This waiver is granted to permit us to make revisions to the application during the application review process.

Further, with the understanding that this waiver is voluntarily given and will be relied upon by Whitemarsh Township, I/we will give Whitemarsh Township written notice (by certified mail or recognized overnight carrier) should we determine that limiting the time of the review process becomes necessary. Whitemarsh Township shall then have ninety (90) days from receipt of such written notice in which to act upon the application.

This waver is not transferable or assignable by the Applicants and shall apply to any and all revised submissions made in relation to the above-referenced application.

I/we represent that I/we have been duly authorized to execute this waiver on behalf of the Applicant.

Date: 10/24/24

Signature: Joan Plump
(Original Signature must be submitted)

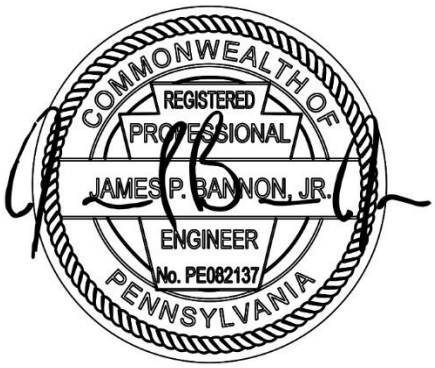
Printed Name: Joan Plump

Firm Name: Gemma Services
(if applicable)

Title: Chief of Staff
(if applicable)

POST-CONSTRUCTION STORMWATER MANAGEMENT REPORT

GEMMMA SERVICES
WHITEMARSH TOWNSHIP
MONTGOMERY COUNTY, PENNSYLVANIA



Issued: October 21st, 2024
Nave Newell No.: 2024-039.00

Civil Engineers • Land Planners • Surveyors • Landscape Architects
900 West Valley Road, Suite 1100, Wayne, PA 19087 • 610.265.8323 • fax 610.265.4299 • www.navenewell.com

POST-CONSTRUCTION STORMWATER MANAGEMENT REPORT

TABLE OF CONTENTS

Section	Title	Page
I.	PCSM Narrative	1
II.	Maps • Location Map • NRCS Soil Map	9
III.	Peak Rate Control Summary	12
IV.	Volume Control Summary • DEP Worksheets • Volume Summary	22
V.	Pre-Development HydroCAD Routing Model and Summaries • Routing Diagram • Drainage Area Summaries • Discharge Point Summaries	32
VI.	Post-Development HydroCAD Routing Model and Summaries • Routing Diagram • Drainage Area Summaries • Discharge Area Summaries	56
VII.	Pre-Development Drainage Area Plan Post-Development Drainage Area Plan	Pocket

I.

Post-Construction Stormwater Management (PCSM) Narrative

Introduction

This Post-Construction Stormwater Management Narrative was developed to comply with the requirements of Chapter 102, Title 25 of the Administrative Code, created under the Clean Streams Law and the Township Stormwater Management Ordinance. The Pennsylvania Department of Environmental Protection (PADEP) Pennsylvania Stormwater Best Management Practices Manual was used as a reference in facilities design.

Project Description

The site is located in Whitemarsh Township. The project includes the demolition of an existing rodeo area and the construction of a synthetic turf field and track in its place. A new addition to the school is to be constructed as well as a thru lane to connect existing parking lots. A field house is also proposed between the school and field. A subsurface stormwater management facility under the turf field will be utilized to comply with the Township's stormwater peak rate control and volume control requirements.

Existing Conditions

The site is located at 5200 Butler Pike, Plymouth Meeting, PA 19355 in Whitemarsh Township, Montgomery County, PA.

Site topography description: The majority of the project area generally drains from the south to the north.

Existing and Historic land use: The project area is currently two separate parcels that are developed. The existing buildings include one commercial facility, recreational trailers and ticket booths. There is an existing rodeo area with bleachers.

Watershed Information: The project area is located within the Schuylkill River Watershed and is tributary to Plymouth Creek, which is currently classified as Impaired, WWF – Impaired, Warm Water Fish by the Pennsylvania Chapter 93 classifications.

Proposed Conditions

The project proposes the construction of an addition to the existing commercial building to be used as a school with a footprint of approximately 14,100 sf, construction of a proposed thru lane that connects two parking lots, and a synthetic turf field and track with a footprint of approximately 106,817 sf. The existing parking lots will remain. The site drainage pattern will generally remain the same with runoff draining from south to north.

PCSM PLAN STORMWATER ANALYSIS §102.8(g):

Stormwater Management
The project is subject to the provisions of Township's Stormwater Management Ordinance as well as to the requirements imposed by the PA DEP in the course of obtaining a NPDES Permit.

The following discharge point's were established in order to perform the analysis:

Discharge Point Name:	**001**
Location of POI:	Located at the southwestern corner of the proposed field and track on the southern half of the site
Drainage Area within the LOD:	+/- .77 acres
Description:	Minority portion of the site that currently flows overland along the side of the existing rodeo area before falling down towards Plymouth Creek.

Discharge Point Name:	**002**
Location of POI:	18" culvert located at the northern corner of the proposed field and track on the southern half of the site
Drainage Area within the LOD:	+/- 2.49 acres
Description:	Majority portion of the site that currently flows overland across the existing rodeo area from south to north before entering existing stormwater conveyance systems and discharging to Plymouth Creek.

Discharge Point Name:	**003**
Location of POI:	Located at the northeastern corner of the proposed addition
Drainage Area within the LOD:	+/- .54 acres
Description:	Minority portion of the site that currently flows overland to a swale before falling down towards Plymouth Creek.

(1) Predevelopment site characterization and assessment of soil and geology including appropriate infiltration and geotechnical studies that identify location and depths of test sites and methods used.

These supplementary reports are provided in the Appendices.

Infiltration testing was conducted on site by Howell Engineering on October 8th and 9th, 2024.

VOLUME CONTROL AND WATER QUALITY §58-14

Analysis demonstrating that the PCSM BMPs will meet the volume reduction and water quality requirements specified in an applicable Department approved and current Act 167 stormwater management watershed plan; or manage the net change for storms up to and including the 2-year/24-hour storm event when compared to preconstruction runoff volume and water quality.

Township Requirement
Per the Township Stormwater Management Ordinance, the post-construction total runoff volume shall not exceed the pre-development total runoff condition for all storms equal to or less than the 2-year, 24-hour duration precipitation (design storm). The ordinance specifies that wherever possible, infiltration should be designed to accommodate the entire water quality and runoff volume.

Volume Control
Two-year runoff volumes were evaluated for each discharge point. The following BMP's are proposed for this project:

- BMP 6.4.3. Subsurface Infiltration Bed (BMP ID 1) – one subsurface infiltration bed is proposed to regulate peak rate and volume control.
    - Discharge Point 002: BMP-1 will be located under the synthetic turf

Managed Release Concept

The site will utilize one stormwater management BMPs. The BMP will be a Managed Release Concept (MRC) system due to the in-situ soils that do not promote infiltration as well as the presence of karst soils. Infiltration tests were conducted throughout the site. We have evaluated BMP options per the PADEP BMP Manual and have exhausted all other options than the use of an MRC system. As seen in the Infiltration Testing Report, it has been advised to not use infiltration based on the extensive soil testing.

Groundwater Recharge/Infiltration
Managed Release Concept will be used as an alternative to infiltration due to the site's underlying soils.

Water Quality
The following BMPs are used to meet the water quality requirements of the NPDES permit and the Township:

- BMP 6.4.3. Subsurface Infiltration Bed
- BMP 6.6.4. Water Quality Filters

A detailed sequence of construction and operations and maintenance schedule is included on the PCSM Plan.

RATE CONTROL §58-15

Analysis demonstrating that the PCSM BMPs will meet the rate requirements specified in an applicable Department approved and current Act 167 stormwater management watershed plan; or manage the net change in peak rate for the 2-, 10-, 50-, and 100-year/24-hour storm events in a manner not to exceed preconstruction rates.

Township Requirement
Per the Township Stormwater Management Ordinance, the following peak flow rate reductions are required for redevelopment:

Pre-development Design Storm (24-Hour)	Post-development Design Storm (24-Hour)
2-year	100% of 2-year
5-year	100% of 5-year
10-year	100% of 10-year
25-year	100% of 25-year
50-year	100% of 50-year
100-year	100% of 100-year

METHODOLGY

Methodologies Identification of the methodologies for calculating the total runoff volume and peak rate of runoff and provide supporting documentation and calculations.

Volume Control Methodology - The Soil Cover Complex Method was utilized to calculate the pre-development and post-development volumes. The rainfall values from NOAA Atlas 14, Volume 2, Version 3 used for the stormwater calculations. The following rainfall values were used:

Average recurrence interval (years)	Rainfall (inches)
1 year	2.72
2 year	3.28
5 year	4.12
10 year	4.82
25 year	5.83
50 year	6.68
100 year	7.60

Rate Control Methodology – Stormwater rate calculations are based on the SCS TR-20 method and were calculated using HydroCAD, Version 10. Stormwater Collection and Conveyance design calculations and hydraulic grade analyses for the proposed stormwater conveyance pipes were performed using Bentley Systems' "StormCAD V8i". The proposed stormwater conveyance system is designed to collect and convey the 100-year storm regardless if the piping does or does not connect to a storage facility.

SPECIAL CONSIDERATION TO ADDRESS SOIL AND GEOLOGIC LIMITATIONS

Soil Summary:
The following soils are mapped for the project area per the NRCS Web Soil Survey, dated September 20, 2024.

UgB	Urban land, 0 to 8 percent slopes	
ReB	Readington, silt loam, 3 to 8 percent slopes	HSG "C"
Rt	Rowland, silt loam, terrace,	HSG "C"
Bo	Bowmansville-Knauers, silt loams,	HSG "C/D"
BwA	Buckingham, silt loams, 0 to 3 percent slopes	HSG "B/D"

Soil Limitations are as follows:

SOIL NAME	CUTBANKS CAVE	CORROSIVE TO CONCRETE	CORROSIVE TO STEEL	EASILY ERODIBLE	FLOODING	DEPTH TO SATURATED ZONE/ SEASONAL HIGH WATER TABLE	HYDRIC/ HYDRIC INCLUSIONS	LOW STRENGTH / LANDSLIDE PRONE	SLOW PERCOLATION	PIPING	POOR SOURCE OF TOPSOIL	FROST ACTION	WETNESS
Bowmansville	X	X	X		X	X	X	X	X	X	X	X	X
Buckingham	X	X	X	X		X	X	X	X	X	X	X	X
Readington	X	X	X	X		X	X	X	X	X	X	X	X
Rowland	X	X	X	X	X	X	X	X	X	X	X	X	X

Soil Resolutions are as follows:

Soil Limitation	Resolution(s)
Cutbanks Cave	Provide appropriate benching and/or shoring in areas of excavation
Corrosive to Concrete / Steel	Install rebar to minimum cover requirements and use epoxy coated rebar. Apply moisture barrier to surface of exposed concrete.
Easily Erodible	Soils shall be stabilized, with either temporary or final stabilization, in areas where earthwork is delayed or stopped for four consecutive days.
Flooding	Avoid development in flood prone areas.
Depth to Saturated Zone / Seasonal High Water Table	Soils should be evaluated for wetness prior to use in site work. If geotechnical engineer deems soils too wet for site work, then soils shall be amended or dried per geotechnical engineer's recommendations
Hydric / Hydric Inclusions	Soils to be evaluated by Geotechnical Specialist. Water table evaluation will be required. Possibly in area of wetlands.
Low Strength / Landslide prone	Soils should not be used for structural fill unless they have been evaluated by a geotechnical engineer and the geotechnical engineer deems them suitable as fill or provides recommendations to amend soils making them suitable as fill.
Slow Percolation	Soil to be evaluated for suitability for infiltration practices.
Piping	Areas of embankments with pipes passing through them shall have anti-seep collars installed per the Pennsylvania Department of Environmental Protection's (PA DEP) Erosion and Sediment Pollution Control Program
Poor source of Topsoil	Soils should be amended as recommended to provide adequate materials necessary for required plant growth
Frost Action	Soils should be free of frozen or mucky materials. Fill should not be placed on saturated or frozen surfaces. Earthwork involving these soils should be limited to the warmer months when practical.
Wetness	Soils should be evaluated for wetness prior to use in site work. If geotechnical engineer deems soils too wet for site work, then soils shall be amended or dried per geotechnical engineer's recommendations

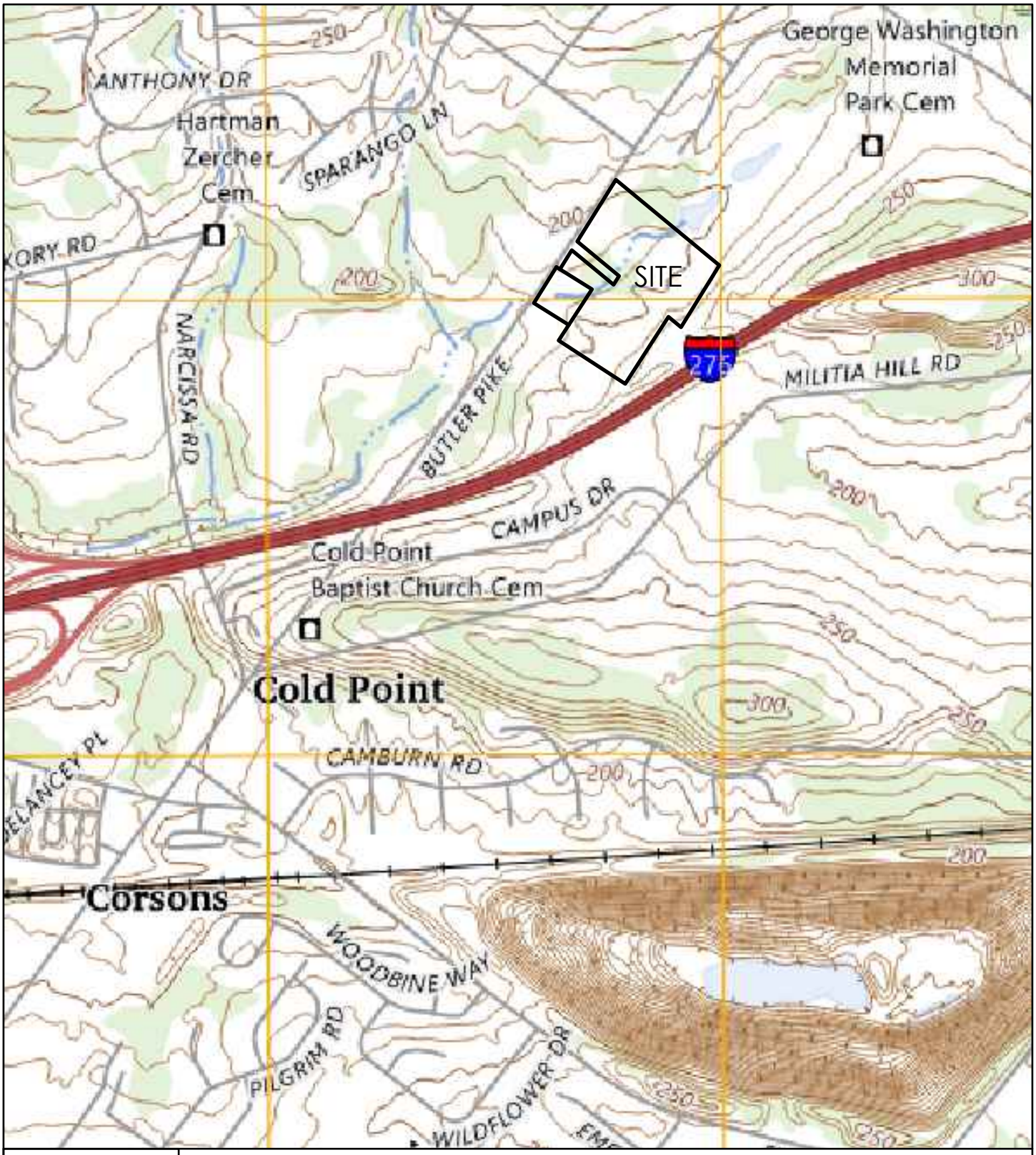
Conclusion
The project will include the construction of a new synthetic turf field, addition onto an existing building, a thru lane to connect parking lots and a field house. The proposed stormwater management facilities/practices to the project site allow the project to meet the Township and State's stormwater management requirements.

PCSM PLAN PREPARER REQUIREMENTS *The PCSM Plan shall be prepared by a person trained and experienced in PCSM design methods and techniques applicable to the size and scope of the project being designed.*
The plan was prepared under the direction of the following professional:

James, P. Bannon, Jr., PE
Nave Newell, Inc.
900 West Valley Road, Suite 1100
Wayne, PA 19087
(610) 265-8323

Mr. Bannon has over 23 years of experience preparing land development, post-construction stormwater management, and erosion and sedimentation control plans.

II.



DRAWING NAME: LOCATION MAP			
PROJECT NAME: GEMMA WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PA			
SCALE: 1" = 1000'	DRAWN BY: JT	PROJECT NUMBER: 2024-025.00	SHEET 1 of 1
CHK'D BY: JSD	APPROV. BY: KJM	DATE: 10/17/24	

Nave Newell
900 West Valley Road • Suite 1100
Wayne, PA 19087-1830
p: 610.265.8323 f: 610.265.4299
www.navenewell.com

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Custom Soil Resource Report
Soil Map

Map Scale: 1:5,040 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

Feet
0 200 400 800 1200

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

III.

SUMMARY OF FLOWS
Pre-Development/Post Development DP001

Storm	Pre-Development Flow (CFS)	Allowable Flow* (CFS)	Post-Development Flow (CFS)	Net Change in Runoff (CFS)
1	1.07	1.07	0.17	-0.90
2	1.61	1.61	0.24	-1.37
5	2.48	2.48	0.36	-2.12
10	3.24	3.24	0.47	-2.77
25	4.39	4.39	0.63	-3.76
50	5.38	5.38	0.76	-4.62
100	6.47	6.47	0.91	-5.56
MRC	0.16	0.16	0.03	-0.13

*Per whitemarsh Township Stormwater Management Requirements (Section 58-15)
For areas not covered by a release rate map from an approved Act 167 Stormwater Management

1, 2, 5, 10, 25, 50, and 100-yr 24-hr storms post-development peak rates shall
be less than or equal to their respective pre-devlopment peak rates.

Nave Newell
Where Ideas Get Down to Earth
900 West Valley Road
Suite 1100
Wayne, PA
(610) 265-8323

PROJECT NAME: Altair Eco-Village
JOB #: 2023140.00 **BY:** JSD
DATE: 10/17/2024 **CHK'D:** KJM

SUMMARY OF FLOWS
Pre-Development/Post Development DP002

Storm	Pre-Development Flow (CFS)	Allowable Flow* (CFS)	Post-Development Flow (CFS)	Net Change in Runoff (CFS)
1	6.05	6.050	2.47	-3.58
2	8.10	8.100	3.33	-4.77
5	11.23	11.230	4.55	-6.68
10	13.88	13.880	5.54	-8.34
25	17.71	17.710	6.95	-10.76
50	20.92	20.920	8.12	-12.80
100	24.40	24.400	9.37	-15.03
MRC	2.34	2.340	1.13	-1.21

*Per whitemarsh Township Stormwater Management Requirements (Section 58-15)
For areas not covered by a release rate map from an approved Act 167 Stormwater Management

1, 2, 5, 10, 25, 50, and 100-yr 24-hr storms post-development peak rates shall
be less than or equal to their respective pre-devlopment peak rates.

Nave Newell
Where Ideas Get Down to Earth
900 West Valley Road
Suite 1100
Wayne, PA
(610) 265-8323

PROJECT NAME: Altair Eco-Village
JOB #: 2023140.00 **BY:** JSD
DATE: 10/17/2024 **CHK'D:** KJM

SUMMARY OF FLOWS
Pre-Development/Post Development DP003

Storm	Pre-Development Flow (CFS)	Allowable Flow* (CFS)	Post-Development Flow (CFS)	Net Change in Runoff (CFS)
1	0.60	0.600	0.21	-0.39
2	0.94	0.940	0.32	-0.62
5	1.50	1.500	0.49	-1.01
10	2.01	2.010	0.65	-1.36
25	2.78	2.780	0.88	-1.90
50	3.45	3.450	1.07	-2.38
100	4.19	4.190	1.29	-2.90
MRC	0.05	0.050	0.03	-0.02

*Per whitemarsh Township Stormwater Management Requirements (Section 58-15)
For areas not covered by a release rate map from an approved Act 167 Stormwater Management Plan:

1, 2, 5, 10, 25, 50, and 100-yr 24-hr storms post-development peak rates shall be less than or equal to their respective pre-devlopment peak rates.

Nave Newell
Where Ideas Get Down to Earth
900 West Valley Road
Suite 1100
Wayne, PA
(610) 265-8323

PROJECT NAME: Gemma Services
JOB #: 2024039.00 **BY:** JSD
DATE: 10/21/2024 **CHK'D:** JPB

Events for Link Pre DP001: Pre-Development DP001

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)
1-yr	1.07	1.07	**0.00**
2-yr	1.61	1.61	0.00
5-yr	2.48	2.48	0.00
10-yr	3.24	3.24	0.00
25-yr	4.39	4.39	0.00
50-yr	5.38	5.38	0.00
100-yr	**6.47**	**6.47**	0.00

Events for Link Pre DP002: Pre-Development DP002

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)
1-yr	6.05	6.05	**0.00**
2-yr	8.10	8.10	0.00
5-yr	11.23	11.23	0.00
10-yr	13.88	13.88	0.00
25-yr	17.71	17.71	0.00
50-yr	20.92	20.92	0.00
100-yr	**24.40**	**24.40**	0.00

Events for Link Pre DP003: Pre-Development DP003

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)
1-yr	0.60	0.60	**0.00**
2-yr	0.94	0.94	0.00
5-yr	1.50	1.50	0.00
10-yr	2.01	2.01	0.00
25-yr	2.78	2.78	0.00
50-yr	3.45	3.45	0.00
100-yr	**4.19**	**4.19**	0.00

Events for Link Post DP001: Post-Development DP001

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)
1-yr	0.17	0.17	**0.00**
2-yr	0.24	0.24	0.00
5-yr	0.36	0.36	0.00
10-yr	0.47	0.47	0.00
25-yr	0.63	0.63	0.00
50-yr	0.76	0.76	0.00
100-yr	**0.91**	**0.91**	0.00
MRC	0.03	0.03	0.00

Events for Link Post DP002: Post-Development DP002

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)
1-yr	2.47	2.47	**0.00**
2-yr	3.33	3.33	0.00
5-yr	4.55	4.55	0.00
10-yr	5.54	5.54	0.00
25-yr	6.95	6.95	0.00
50-yr	8.12	8.12	0.00
100-yr	**9.37**	**9.37**	0.00
MRC	1.13	1.13	0.00

Events for Link Post DP003: Post-Development DP003

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)
1-yr	0.21	0.21	**0.00**
2-yr	0.32	0.32	0.00
5-yr	0.49	0.49	0.00
10-yr	0.65	0.65	0.00
25-yr	0.88	0.88	0.00
50-yr	1.07	1.07	0.00
100-yr	**1.29**	**1.29**	0.00
MRC	0.03	0.03	0.00

IV.

Volume Management

Project: Gemma Servies

Instructions | General | *Volume* | Rate | Quality

2-Year / 24-Hour Storm Event (NOAA Atlas 14): **3.28** inches

Alternative 2-Year / 24-Hour Storm Event _____ inches

Alternative Source: _____

Pre-Construction Conditions: *No. Rows:* **5**

☐ *Exempt from Meadow in Good Condition* ☑ *Automatically Calculate CN, Ia, Runoff and Volume*

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)
Pervious as Meadow	0.07	B	58	1.448	0.37	94
Pervious as Meadow	1.69	C	71	0.817	0.93	5,684
Forested (Good Condition)	0.02	B	55	1.636	0.27	20
Forested (Good Condition)	0.23	C	70	0.857	0.88	731
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	1.79	C	98	0.041	3.05	19,800
TOTAL (ACRES):	**3.80**				**TOTAL (CF):**	**26,329**

Post-Construction Conditions: *No. Rows:* **3**

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	0.67	C	74	0.703	1.09	2,652
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	0.06	D	80	0.500	1.46	319
Impervious Areas: Commercial	3.07	C	98	0.041	3.05	33,958

TOTAL (ACRES): 3.80 **TOTAL (CF):** 36,929

NET CHANGE IN VOLUME TO MANAGE (CF): 10,601

Non-Structural BMP Volume Credits:

☐ Tree Planting Credit

☐ Other (attach calculations):

Structural BMP Volume Credits: *No. Structural BMPs:* 1 *Start BMP Numbering at:* 1

DP No.	BMP No.	BMP Name	MRC?	Discharge	Incremental BMP DA (acres)	Volume Routed to BMP (CF)	Infiltration / Vegetated Area (SF)	Infiltration Rate (in/hr)	Infiltration Period (hrs)	Vegeta-ted?	Media Depth (ft)	Storage Volume (CF)	Infiltration Credit (CF)	ET Credit (CF)
	1	Infiltration Bed	Y	Off-Site	2.69	27,083	20,195	0.01	96	No	1.0	9,027		
												Totals:		

INFILTRATION & ET CREDITS (CF):

MANAGED RELEASE CREDIT (CF): 27,083

NET CHANGE IN VOLUME TO MANAGE (CF): 10,601

TOTAL CREDITS (CF): 27,083

VOLUME REQUIREMENT SATISFIED

Water Quality

Project: Gemma Servies

PRINT

Instructions | General | Volume | Rate | *Quality*

Pre-Construction Pollutant Loads:

Land Cover (from Volume Worksheet)	Land Cover for Water Quality	Area (acres)	Soil Group	Runoff Volume (cf)	Pollutant Conc. (mg/L)			Pollutant Loads (lbs)		
					TSS	TP	TN	TSS	TP	TN
Pervious as Meadow	Grassland/Herbaceous	0.07	B	94	48.8	0.22	2.30	0.29	0.00	0.01
Pervious as Meadow	Grassland/Herbaceous	1.69	C	5,684	48.8	0.22	2.30	17.32	0.08	0.82
Forested (Good Condition)	Deciduous Forest/Evergreen Forest/Mixed Forest	0.02	B	20	45.0	0.13	1.05	0.06	0.00	0.00
Forested (Good Condition)	Deciduous Forest/Evergreen Forest/Mixed Forest	0.23	C	731	45.0	0.13	1.05	2.05	0.01	0.05
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	Residential	1.79	C	19,800	65.0	0.29	2.05	80.36	0.36	2.53
	TOTAL (ACRES):	**3.80**					**TOTALS:**	**100.08**	**0.44**	**3.41**

Post-Construction Pollutant Loads (without BMPs):

Land Cover (from Volume Worksheet)	Land Cover for Water Quality	Area (acres)	Soil Group	Runoff Volume (cf)	Pollutant Conc. (mg/L)			Pollutant Loads (lbs)		
					TSS	TP	TN	TSS	TP	TN

Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	Open Space	0.67	C	2,652	78.0	0.25	1.25	12.92	0.04	0.21
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	Open Space	0.06	D	319	78.0	0.25	1.25	1.55	0.00	0.02
Impervious Areas: Commercial	Commercial	3.07	C	33,958	61.7	0.22	2.02	130.87	0.47	4.28
	TOTAL (ACRES):	**3.80**					**TOTALS:**	**145.34**	**0.51**	**4.52**

POLLUTANT LOAD REDUCTION REQUIREMENTS (LBS):	**45.27**	**0.07**	**1.10**

☐ **Characterize Undetained Areas (for Untreated Stormwater)**

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)						

Non-Structural BMP Water Quality Credits:

☐ Pervious Undetained Area Credit

☐ Other (attach calculations)

Structural BMP Water Quality Credits:

☑ *Use default BMP Outflows and Median BMP Outflow Concentrations*

DP No.	BMP No.	BMP Name	MRC?	BMP DA (acres)	Vol. Routed to BMP (CF)	Inf. & ET Credits (CF)	Capture & Buffer Credits (CF)	Outflow (CF)	Outflow Conc. (mg/L)			Pollutant Loads (lbs)		
									TSS	TP	TN	TSS	TP	TN
	1	Infiltration Bed	Y	2.69	27,083			27,083						

	TSS	**TP**	**TN**

POLLUTANT LOADS FROM STRUCTURAL BMP (TREATED) OUTFLOWS (LBS):	**0.00**	**0.00**	**0.00**
POLLUTANT LOADS FROM UNTREATED STORMWATER (LBS):	**38.75**	**0.14**	**1.20**
NON-STRUCTURAL BMP WATER QUALITY CREDITS (LBS):			
NET POLLUTANT LOADS FROM SITE, POST-CONSTRUCTION (LBS):	**38.75**	**0.14**	**1.20**
POLLUTANT LOADS FROM SITE, PRE-CONSTRUCTION (LBS):	**100.08**	**0.44**	**3.41**

WATER QUALITY REQUIREMENT SATISFIED

CERTIFICATION

I certify under penalty of law and subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities) that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I further certify that the structure, function, and calculations contained in this spreadsheet have not been modified in comparison to the spreadsheet DEP has posted to its website or, if modifications were made, an explanation of the modifications made is attached to this spreadsheet.

John DeMartino	10/16/2024
Spreadsheet User Name	Date

Stage-Area-Storage for Pond 3P: MRC

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
192.55	0	193.07	0	193.59	571
192.56	0	193.08	0	193.60	713
192.57	0	193.09	0	193.61	856
192.58	0	193.10	0	193.62	999
192.59	0	193.11	0	193.63	1,141
192.60	0	193.12	0	193.64	1,283
192.61	0	193.13	0	193.65	1,426
192.62	0	193.14	0	193.66	1,568
192.63	0	193.15	0	193.67	1,710
192.64	0	193.16	0	193.68	1,853
192.65	0	193.17	0	193.69	1,995
192.66	0	193.18	0	193.70	2,137
192.67	0	193.19	0	193.71	2,279
192.68	0	193.20	0	193.72	2,421
192.69	0	193.21	0	193.73	2,563
192.70	0	193.22	0	193.74	2,704
192.71	0	193.23	0	193.75	2,846
192.72	0	193.24	0	193.76	2,988
192.73	0	193.25	0	193.77	3,130
192.74	0	193.26	0	193.78	3,271
192.75	0	193.27	0	193.79	3,413
192.76	0	193.28	0	193.80	3,554
192.77	0	193.29	0	193.81	3,696
192.78	0	193.30	0	193.82	3,837
192.79	0	193.31	0	193.83	3,978
192.80	0	193.32	0	193.84	4,120
192.81	0	193.33	0	193.85	4,261
192.82	0	193.34	0	193.86	4,402
192.83	0	193.35	0	193.87	4,543
192.84	0	193.36	0	193.88	4,684
192.85	0	193.37	0	193.89	4,825
192.86	0	193.38	0	193.90	4,966
192.87	0	193.39	0	193.91	5,107
192.88	0	193.40	0	193.92	5,248
192.89	0	193.41	0	193.93	5,389
192.90	0	193.42	0	193.94	5,529
192.91	0	193.43	0	193.95	5,670
192.92	0	193.44	0	193.96	5,811
192.93	0	193.45	0	193.97	5,951
192.94	0	193.46	0	193.98	6,091
192.95	0	193.47	0	193.99	6,232
192.96	0	193.48	0	194.00	6,372
192.97	0	193.49	0	194.01	6,512
192.98	0	193.50	0	194.02	6,652
192.99	0	193.51	0	194.03	6,793
193.00	0	193.52	0	194.04	6,933
193.01	0	193.53	0	194.05	7,073
193.02	0	193.54	0	194.06	7,213
193.03	0	193.55	0	194.07	7,352
193.04	0	193.56	143	194.08	7,492
193.05	0	193.57	285	194.09	7,632
193.06	0	193.58	428	194.10	7,772

Stage-Area-Storage for Pond 3P: MRC (continued)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
194.11	7,911	194.63	15,073	195.15	21,988
194.12	8,051	194.64	15,208	195.16	22,118
194.13	8,191	194.65	15,344	195.17	22,248
194.14	8,330	194.66	15,479	195.18	22,377
194.15	8,470	194.67	15,614	195.19	22,507
194.16	8,609	194.68	15,750	195.20	22,637
194.17	8,748	194.69	15,885	195.21	22,766
194.18	8,887	194.70	16,020	195.22	22,895
194.19	9,027	194.71	16,155	195.23	23,024
194.20	9,166	194.72	16,289	195.24	23,153
194.21	9,305	194.73	16,424	195.25	23,282
194.22	9,444	194.74	16,559	195.26	23,411
194.23	9,582	194.75	16,693	195.27	23,539
194.24	9,721	194.76	16,828	195.28	23,668
194.25	9,860	194.77	16,962	195.29	23,796
194.26	9,999	194.78	17,097	195.30	23,924
194.27	10,137	194.79	17,231	195.31	24,052
194.28	10,276	194.80	17,365	195.32	24,180
194.29	10,414	194.81	17,499	195.33	24,308
194.30	10,552	194.82	17,633	195.34	24,436
194.31	10,691	194.83	17,766	195.35	24,563
194.32	10,829	194.84	17,900	195.36	24,690
194.33	10,967	194.85	18,034	195.37	24,818
194.34	11,105	194.86	18,167	195.38	24,945
194.35	11,243	194.87	18,301	195.39	25,072
194.36	11,381	194.88	18,434	195.40	25,199
194.37	11,518	194.89	18,567	195.41	25,325
194.38	11,656	194.90	18,700	195.42	25,452
194.39	11,794	194.91	18,833	195.43	25,578
194.40	11,931	194.92	18,966	195.44	25,704
194.41	12,069	194.93	19,098	195.45	25,830
194.42	12,206	194.94	19,231	195.46	25,956
194.43	12,344	194.95	19,363	195.47	26,082
194.44	12,481	194.96	19,496	195.48	26,208
194.45	12,618	194.97	19,628	195.49	26,333
194.46	12,755	194.98	19,760	195.50	26,459
194.47	12,892	194.99	19,892	195.51	26,584
194.48	13,029	195.00	20,024	195.52	26,709
194.49	13,166	195.01	20,156	195.53	26,834
194.50	13,303	195.02	20,287	195.54	26,958
194.51	13,439	195.03	20,419	195.55	27,083
194.52	13,576	195.04	20,550	195.56	27,207
194.53	13,712	195.05	20,681	195.57	27,332
194.54	13,849	195.06	20,813	195.58	27,456
194.55	13,985	195.07	20,944	195.59	27,580
194.56	14,121	195.08	21,075	195.60	27,703
194.57	14,258	195.09	21,205	195.61	27,827
194.58	14,394	195.10	21,336	195.62	27,950
194.59	14,530	195.11	21,467	195.63	28,074
194.60	14,666	195.12	21,597	195.64	28,197
194.61	14,801	195.13	21,727	195.65	28,320
194.62	14,937	195.14	21,858	195.66	28,442

STORAGE VOLUME USED IN DEP PCSM SPREADSHEET

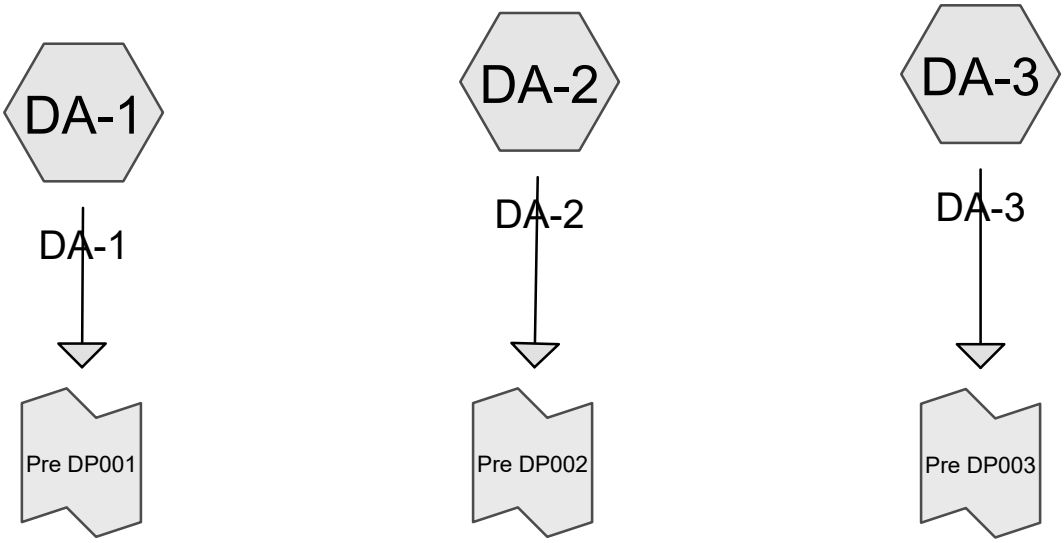
Stage-Area-Storage for Pond 3P: MRC (continued)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
195.67	28,565	196.19	34,672	196.71	40,078
195.68	28,687	196.20	34,783	196.72	40,172
195.69	28,810	196.21	34,894	196.73	40,266
195.70	28,932	196.22	35,006	196.74	40,359
195.71	29,054	196.23	35,116	196.75	40,452
195.72	29,175	196.24	35,227	196.76	40,544
195.73	29,297	196.25	35,337	196.77	40,635
195.74	29,418	196.26	35,447	196.78	40,727
195.75	29,539	196.27	35,557	196.79	40,817
195.76	29,660	196.28	35,667	196.80	40,907
195.77	29,781	196.29	35,776	196.81	40,996
195.78	29,902	196.30	35,885	196.82	41,085
195.79	30,022	196.31	35,994	196.83	41,173
195.80	30,142	196.32	36,102	196.84	41,260
195.81	30,262	196.33	36,210	196.85	41,346
195.82	30,382	196.34	36,318	196.86	41,432
195.83	30,502	196.35	36,426	196.87	41,517
195.84	30,621	196.36	36,533	196.88	41,601
195.85	30,741	196.37	36,640	196.89	41,684
195.86	30,860	196.38	36,746	196.90	41,767
195.87	30,979	196.39	36,853	196.91	41,848
195.88	31,097	196.40	36,959	196.92	41,929
195.89	31,216	196.41	37,065	196.93	42,009
195.90	31,334	196.42	37,170	196.94	42,088
195.91	31,452	196.43	37,275	196.95	42,167
195.92	31,570	196.44	37,380	196.96	42,244
195.93	31,688	196.45	37,485	196.97	42,321
195.94	31,806	196.46	37,589	196.98	42,397
195.95	31,923	196.47	37,693	196.99	42,473
195.96	32,040	196.48	37,796	197.00	42,548
195.97	32,157	196.49	37,900	197.01	42,622
195.98	32,273	196.50	38,003	197.02	42,696
195.99	32,390	196.51	38,105	197.03	42,769
196.00	32,506	196.52	38,207	197.04	42,842
196.01	32,622	196.53	38,309	197.05	42,915
196.02	32,738	196.54	38,411	197.06	42,987
196.03	32,854	196.55	38,512	197.07	43,058
196.04	32,969	196.56	38,613	197.08	43,130
196.05	33,084	196.57	38,713	197.09	43,201
196.06	33,199	196.58	38,813	197.10	43,272
196.07	33,314	196.59	38,913	197.11	43,342
196.08	33,428	196.60	39,013	197.12	43,412
196.09	33,542	196.61	39,111	197.13	43,482
196.10	33,656	196.62	39,210	197.14	43,552
196.11	33,770	196.63	39,308	197.15	43,621
196.12	33,884	196.64	39,406	197.16	43,691
196.13	33,997	196.65	39,503	197.17	43,759
196.14	34,110	196.66	39,600	197.18	43,828
196.15	34,223	196.67	39,697	197.19	43,896
196.16	34,335	196.68	39,793	197.20	43,964
196.17	34,448	196.69	39,888	197.21	44,031
196.18	34,560	196.70	39,983	197.22	44,098

Stage-Area-Storage for Pond 3P: MRC (continued)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
197.23	44,165	197.75	47,517	198.27	50,861
197.24	44,232	197.76	47,582	198.28	50,925
197.25	44,298	197.77	47,646	198.29	50,990
197.26	44,364	197.78	47,710	198.30	**51,054**
197.27	44,429	197.79	47,774		
197.28	44,494	197.80	47,839		
197.29	44,559	197.81	47,903		
197.30	44,624	197.82	47,967		
197.31	44,688	197.83	48,032		
197.32	44,752	197.84	48,096		
197.33	44,816	197.85	48,160		
197.34	44,881	197.86	48,225		
197.35	44,945	197.87	48,289		
197.36	45,009	197.88	48,353		
197.37	45,074	197.89	48,418		
197.38	45,138	197.90	48,482		
197.39	45,202	197.91	48,546		
197.40	45,267	197.92	48,610		
197.41	45,331	197.93	48,675		
197.42	45,395	197.94	48,739		
197.43	45,459	197.95	48,803		
197.44	45,524	197.96	48,868		
197.45	45,588	197.97	48,932		
197.46	45,652	197.98	48,996		
197.47	45,717	197.99	49,061		
197.48	45,781	198.00	49,125		
197.49	45,845	198.01	49,189		
197.50	45,910	198.02	49,254		
197.51	45,974	198.03	49,318		
197.52	46,038	198.04	49,382		
197.53	46,103	198.05	49,446		
197.54	46,167	198.06	49,511		
197.55	46,231	198.07	49,575		
197.56	46,295	198.08	49,639		
197.57	46,360	198.09	49,704		
197.58	46,424	198.10	49,768		
197.59	46,488	198.11	49,832		
197.60	46,553	198.12	49,897		
197.61	46,617	198.13	49,961		
197.62	46,681	198.14	50,025		
197.63	46,746	198.15	50,089		
197.64	46,810	198.16	50,154		
197.65	46,874	198.17	50,218		
197.66	46,939	198.18	50,282		
197.67	47,003	198.19	50,347		
197.68	47,067	198.20	50,411		
197.69	47,131	198.21	50,475		
197.70	47,196	198.22	50,540		
197.71	47,260	198.23	50,604		
197.72	47,324	198.24	50,668		
197.73	47,389	198.25	50,733		
197.74	47,453	198.26	50,797		

V.



Pre-Development
DP001

Pre-Development
DP002

Pre-Development
DP003

Subcat Reach Pond Link

Routing Diagram for 24039_Hydrocad
Prepared by Nave Newell Inc, Printed 10/17/2024
HydroCAD® 10.20-5a s/n 07511 © 2023 HydroCAD Software Solutions LLC

Summary for Subcatchment DA-1: DA-1

Runoff = 1.07 cfs @ 11.97 hrs, Volume= 1,993 cf, Depth> 0.70"
Routed to Link Pre DP001 : Pre-Development DP001

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-yr Rainfall=2.72"

	Area (sf)	CN	Description
	6,319	98	Paved parking, HSG C
	1,606	58	Meadow, non-grazed, HSG B
	582	60	Woods, Fair, HSG B
	23,967	71	Meadow, non-grazed, HSG C
*	1,580	71	20% Impervious as meadow
	34,054	75	Weighted Average
	27,735		81.44% Pervious Area
	6,319		18.56% Impervious Area

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

Summary for Subcatchment DA-2: DA-2

Runoff = 6.05 cfs @ 11.96 hrs, Volume= 11,248 cf, Depth> 1.25"
Routed to Link Pre DP002 : Pre-Development DP002

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-yr Rainfall=2.72"

	Area (sf)	CN	Description
	54,808	98	Paved parking, HSG C
*	13,702	71	20% Impervious as meadow
	1,400	58	Meadow, non-grazed, HSG B
	446	60	Woods, Fair, HSG B
	27,860	71	Meadow, non-grazed, HSG C
	9,883	73	Woods, Fair, HSG C
	108,099	85	Weighted Average
	53,291		49.30% Pervious Area
	54,808		50.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc-1**

Summary for Subcatchment DA-3: DA-3

Runoff = 0.60 cfs @ 11.97 hrs, Volume= 1,130 cf, Depth> 0.57"
Routed to Link Pre DP003 : Pre-Development DP003

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-yr Rainfall=2.72"

	Area (sf)	CN	Description
	1,304	98	Paved parking, HSG C
*	326	71	20% impervious as meadow
	21,961	71	Meadow, non-grazed, HSG C
	23,591	72	Weighted Average
	22,222		94.20% Pervious Area
	1,369		5.80% Impervious Area

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

Summary for Link Pre DP001: Pre-Development DP001

Inflow Area = 34,054 sf, 18.56% Impervious, Inflow Depth > 0.70" for 1-yr event
Inflow = 1.07 cfs @ 11.97 hrs, Volume= 1,993 cf
Primary = 1.07 cfs @ 11.97 hrs, Volume= 1,993 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Link Pre DP002: Pre-Development DP002

Inflow Area = 108,099 sf, 50.70% Impervious, Inflow Depth > 1.25" for 1-yr event
Inflow = 6.05 cfs @ 11.96 hrs, Volume= 11,248 cf
Primary = 6.05 cfs @ 11.96 hrs, Volume= 11,248 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Link Pre DP003: Pre-Development DP003

Inflow Area = 23,591 sf, 5.80% Impervious, Inflow Depth > 0.57" for 1-yr event
Inflow = 0.60 cfs @ 11.97 hrs, Volume= 1,130 cf
Primary = 0.60 cfs @ 11.97 hrs, Volume= 1,130 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Subcatchment DA-1: DA-1

Runoff = 1.61 cfs @ 11.96 hrs, Volume= 2,952 cf, Depth> 1.04"
Routed to Link Pre DP001 : Pre-Development DP001

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.28"

	Area (sf)	CN	Description
	6,319	98	Paved parking, HSG C
	1,606	58	Meadow, non-grazed, HSG B
	582	60	Woods, Fair, HSG B
	23,967	71	Meadow, non-grazed, HSG C
*	1,580	71	20% Impervious as meadow
	34,054	75	Weighted Average
	27,735		81.44% Pervious Area
	6,319		18.56% Impervious Area

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

Summary for Subcatchment DA-2: DA-2

Runoff = 8.10 cfs @ 11.96 hrs, Volume= 15,222 cf, Depth> 1.69"
Routed to Link Pre DP002 : Pre-Development DP002

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.28"

	Area (sf)	CN	Description
	54,808	98	Paved parking, HSG C
*	13,702	71	20% Impervious as meadow
	1,400	58	Meadow, non-grazed, HSG B
	446	60	Woods, Fair, HSG B
	27,860	71	Meadow, non-grazed, HSG C
	9,883	73	Woods, Fair, HSG C
	108,099	85	Weighted Average
	53,291		49.30% Pervious Area
	54,808		50.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc-1**

Summary for Subcatchment DA-3: DA-3

Runoff = 0.94 cfs @ 11.97 hrs, Volume= 1,731 cf, Depth> 0.88"
Routed to Link Pre DP003 : Pre-Development DP003

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.28"

	Area (sf)	CN	Description
	1,304	98	Paved parking, HSG C
*	326	71	20% impervious as meadow
	21,961	71	Meadow, non-grazed, HSG C
	23,591	72	Weighted Average
	22,222		94.20% Pervious Area
	1,369		5.80% Impervious Area

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

Summary for Link Pre DP001: Pre-Development DP001

Inflow Area = 34,054 sf, 18.56% Impervious, Inflow Depth > 1.04" for 2-yr event
Inflow = 1.61 cfs @ 11.96 hrs, Volume= 2,952 cf
Primary = 1.61 cfs @ 11.96 hrs, Volume= 2,952 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Link Pre DP002: Pre-Development DP002

Inflow Area = 108,099 sf, 50.70% Impervious, Inflow Depth > 1.69" for 2-yr event
Inflow = 8.10 cfs @ 11.96 hrs, Volume= 15,222 cf
Primary = 8.10 cfs @ 11.96 hrs, Volume= 15,222 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Link Pre DP003: Pre-Development DP003

Inflow Area = 23,591 sf, 5.80% Impervious, Inflow Depth > 0.88" for 2-yr event
Inflow = 0.94 cfs @ 11.97 hrs, Volume= 1,731 cf
Primary = 0.94 cfs @ 11.97 hrs, Volume= 1,731 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Subcatchment DA-1: DA-1

Runoff = 2.48 cfs @ 11.96 hrs, Volume= 4,559 cf, Depth> 1.61"
Routed to Link Pre DP001 : Pre-Development DP001

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 5-yr Rainfall=4.12"

	Area (sf)	CN	Description
	6,319	98	Paved parking, HSG C
	1,606	58	Meadow, non-grazed, HSG B
	582	60	Woods, Fair, HSG B
	23,967	71	Meadow, non-grazed, HSG C
*	1,580	71	20% Impervious as meadow
	34,054	75	Weighted Average
	27,735		81.44% Pervious Area
	6,319		18.56% Impervious Area

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

Summary for Subcatchment DA-2: DA-2

Runoff = 11.23 cfs @ 11.96 hrs, Volume= 21,493 cf, Depth> 2.39"
Routed to Link Pre DP002 : Pre-Development DP002

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 5-yr Rainfall=4.12"

	Area (sf)	CN	Description
	54,808	98	Paved parking, HSG C
*	13,702	71	20% Impervious as meadow
	1,400	58	Meadow, non-grazed, HSG B
	446	60	Woods, Fair, HSG B
	27,860	71	Meadow, non-grazed, HSG C
	9,883	73	Woods, Fair, HSG C
	108,099	85	Weighted Average
	53,291		49.30% Pervious Area
	54,808		50.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc-1**

Summary for Subcatchment DA-3: DA-3

Runoff = 1.50 cfs @ 11.96 hrs, Volume= 2,760 cf, Depth> 1.40"
Routed to Link Pre DP003 : Pre-Development DP003

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 5-yr Rainfall=4.12"

	Area (sf)	CN	Description
	1,304	98	Paved parking, HSG C
*	326	71	20% impervious as meadow
	21,961	71	Meadow, non-grazed, HSG C
	23,591	72	Weighted Average
	22,222		94.20% Pervious Area
	1,369		5.80% Impervious Area

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

Summary for Link Pre DP001: Pre-Development DP001

Inflow Area = 34,054 sf, 18.56% Impervious, Inflow Depth > 1.61" for 5-yr event
Inflow = 2.48 cfs @ 11.96 hrs, Volume= 4,559 cf
Primary = 2.48 cfs @ 11.96 hrs, Volume= 4,559 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Link Pre DP002: Pre-Development DP002

Inflow Area = 108,099 sf, 50.70% Impervious, Inflow Depth > 2.39" for 5-yr event
Inflow = 11.23 cfs @ 11.96 hrs, Volume= 21,493 cf
Primary = 11.23 cfs @ 11.96 hrs, Volume= 21,493 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Link Pre DP003: Pre-Development DP003

Inflow Area = 23,591 sf, 5.80% Impervious, Inflow Depth > 1.40" for 5-yr event
Inflow = 1.50 cfs @ 11.96 hrs, Volume= 2,760 cf
Primary = 1.50 cfs @ 11.96 hrs, Volume= 2,760 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Subcatchment DA-1: DA-1

Runoff = 3.24 cfs @ 11.96 hrs, Volume= 6,009 cf, Depth> 2.12"
Routed to Link Pre DP001 : Pre-Development DP001

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=4.82"

	Area (sf)	CN	Description
	6,319	98	Paved parking, HSG C
	1,606	58	Meadow, non-grazed, HSG B
	582	60	Woods, Fair, HSG B
	23,967	71	Meadow, non-grazed, HSG C
*	1,580	71	20% Impervious as meadow
	34,054	75	Weighted Average
	27,735		81.44% Pervious Area
	6,319		18.56% Impervious Area

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

Summary for Subcatchment DA-2: DA-2

Runoff = 13.88 cfs @ 11.95 hrs, Volume= 26,907 cf, Depth> 2.99"
Routed to Link Pre DP002 : Pre-Development DP002

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=4.82"

	Area (sf)	CN	Description
	54,808	98	Paved parking, HSG C
*	13,702	71	20% Impervious as meadow
	1,400	58	Meadow, non-grazed, HSG B
	446	60	Woods, Fair, HSG B
	27,860	71	Meadow, non-grazed, HSG C
	9,883	73	Woods, Fair, HSG C
	108,099	85	Weighted Average
	53,291		49.30% Pervious Area
	54,808		50.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc-1**

Summary for Subcatchment DA-3: DA-3

Runoff = 2.01 cfs @ 11.96 hrs, Volume= 3,703 cf, Depth> 1.88"
Routed to Link Pre DP003 : Pre-Development DP003

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=4.82"

	Area (sf)	CN	Description
	1,304	98	Paved parking, HSG C
*	326	71	20% impervious as meadow
	21,961	71	Meadow, non-grazed, HSG C
	23,591	72	Weighted Average
	22,222		94.20% Pervious Area
	1,369		5.80% Impervious Area

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

Summary for Link Pre DP001: Pre-Development DP001

Inflow Area = 34,054 sf, 18.56% Impervious, Inflow Depth > 2.12" for 10-yr event
Inflow = 3.24 cfs @ 11.96 hrs, Volume= 6,009 cf
Primary = 3.24 cfs @ 11.96 hrs, Volume= 6,009 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Link Pre DP002: Pre-Development DP002

Inflow Area = 108,099 sf, 50.70% Impervious, Inflow Depth > 2.99" for 10-yr event
Inflow = 13.88 cfs @ 11.95 hrs, Volume= 26,907 cf
Primary = 13.88 cfs @ 11.95 hrs, Volume= 26,907 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Link Pre DP003: Pre-Development DP003

Inflow Area = 23,591 sf, 5.80% Impervious, Inflow Depth > 1.88" for 10-yr event
Inflow = 2.01 cfs @ 11.96 hrs, Volume= 3,703 cf
Primary = 2.01 cfs @ 11.96 hrs, Volume= 3,703 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Subcatchment DA-1: DA-1

Runoff = 4.39 cfs @ 11.96 hrs, Volume= 8,227 cf, Depth> 2.90"
Routed to Link Pre DP001 : Pre-Development DP001

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=5.83"

	Area (sf)	CN	Description
	6,319	98	Paved parking, HSG C
	1,606	58	Meadow, non-grazed, HSG B
	582	60	Woods, Fair, HSG B
	23,967	71	Meadow, non-grazed, HSG C
*	1,580	71	20% Impervious as meadow
	34,054	75	Weighted Average
	27,735		81.44% Pervious Area
	6,319		18.56% Impervious Area

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

Summary for Subcatchment DA-2: DA-2

Runoff = 17.71 cfs @ 11.95 hrs, Volume= 34,917 cf, Depth> 3.88"
Routed to Link Pre DP002 : Pre-Development DP002

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=5.83"

	Area (sf)	CN	Description
	54,808	98	Paved parking, HSG C
*	13,702	71	20% Impervious as meadow
	1,400	58	Meadow, non-grazed, HSG B
	446	60	Woods, Fair, HSG B
	27,860	71	Meadow, non-grazed, HSG C
	9,883	73	Woods, Fair, HSG C
	108,099	85	Weighted Average
	53,291		49.30% Pervious Area
	54,808		50.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc-1**

Summary for Subcatchment DA-3: DA-3

Runoff = 2.78 cfs @ 11.96 hrs, Volume= 5,163 cf, Depth> 2.63"
Routed to Link Pre DP003 : Pre-Development DP003

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=5.83"

	Area (sf)	CN	Description
	1,304	98	Paved parking, HSG C
*	326	71	20% impervious as meadow
	21,961	71	Meadow, non-grazed, HSG C
	23,591	72	Weighted Average
	22,222		94.20% Pervious Area
	1,369		5.80% Impervious Area

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

Summary for Link Pre DP001: Pre-Development DP001

Inflow Area = 34,054 sf, 18.56% Impervious, Inflow Depth > 2.90" for 25-yr event
Inflow = 4.39 cfs @ 11.96 hrs, Volume= 8,227 cf
Primary = 4.39 cfs @ 11.96 hrs, Volume= 8,227 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Link Pre DP002: Pre-Development DP002

Inflow Area = 108,099 sf, 50.70% Impervious, Inflow Depth > 3.88" for 25-yr event
Inflow = 17.71 cfs @ 11.95 hrs, Volume= 34,917 cf
Primary = 17.71 cfs @ 11.95 hrs, Volume= 34,917 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Link Pre DP003: Pre-Development DP003

Inflow Area = 23,591 sf, 5.80% Impervious, Inflow Depth > 2.63" for 25-yr event
Inflow = 2.78 cfs @ 11.96 hrs, Volume= 5,163 cf
Primary = 2.78 cfs @ 11.96 hrs, Volume= 5,163 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Subcatchment DA-1: DA-1

Runoff = 5.38 cfs @ 11.96 hrs, Volume= 10,178 cf, Depth> 3.59"
Routed to Link Pre DP001 : Pre-Development DP001

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=6.68"

	Area (sf)	CN	Description
	6,319	98	Paved parking, HSG C
	1,606	58	Meadow, non-grazed, HSG B
	582	60	Woods, Fair, HSG B
	23,967	71	Meadow, non-grazed, HSG C
*	1,580	71	20% Impervious as meadow
	34,054	75	Weighted Average
	27,735		81.44% Pervious Area
	6,319		18.56% Impervious Area

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

Summary for Subcatchment DA-2: DA-2

Runoff = 20.92 cfs @ 11.95 hrs, Volume= 41,781 cf, Depth> 4.64"
Routed to Link Pre DP002 : Pre-Development DP002

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=6.68"

	Area (sf)	CN	Description
	54,808	98	Paved parking, HSG C
*	13,702	71	20% Impervious as meadow
	1,400	58	Meadow, non-grazed, HSG B
	446	60	Woods, Fair, HSG B
	27,860	71	Meadow, non-grazed, HSG C
	9,883	73	Woods, Fair, HSG C
	108,099	85	Weighted Average
	53,291		49.30% Pervious Area
	54,808		50.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc-1**

Summary for Subcatchment DA-3: DA-3

Runoff = 3.45 cfs @ 11.96 hrs, Volume= 6,460 cf, Depth> 3.29"
Routed to Link Pre DP003 : Pre-Development DP003

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=6.68"

	Area (sf)	CN	Description
	1,304	98	Paved parking, HSG C
*	326	71	20% impervious as meadow
	21,961	71	Meadow, non-grazed, HSG C
	23,591	72	Weighted Average
	22,222		94.20% Pervious Area
	1,369		5.80% Impervious Area

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

Summary for Link Pre DP001: Pre-Development DP001

Inflow Area = 34,054 sf, 18.56% Impervious, Inflow Depth > 3.59" for 50-yr event
Inflow = 5.38 cfs @ 11.96 hrs, Volume= 10,178 cf
Primary = 5.38 cfs @ 11.96 hrs, Volume= 10,178 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Link Pre DP002: Pre-Development DP002

Inflow Area = 108,099 sf, 50.70% Impervious, Inflow Depth > 4.64" for 50-yr event
Inflow = 20.92 cfs @ 11.95 hrs, Volume= 41,781 cf
Primary = 20.92 cfs @ 11.95 hrs, Volume= 41,781 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Link Pre DP003: Pre-Development DP003

Inflow Area = 23,591 sf, 5.80% Impervious, Inflow Depth > 3.29" for 50-yr event
Inflow = 3.45 cfs @ 11.96 hrs, Volume= 6,460 cf
Primary = 3.45 cfs @ 11.96 hrs, Volume= 6,460 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Subcatchment DA-1: DA-1

Runoff = 6.47 cfs @ 11.96 hrs, Volume= 12,352 cf, Depth> 4.35"
Routed to Link Pre DP001 : Pre-Development DP001

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

	Area (sf)	CN	Description
	6,319	98	Paved parking, HSG C
	1,606	58	Meadow, non-grazed, HSG B
	582	60	Woods, Fair, HSG B
	23,967	71	Meadow, non-grazed, HSG C
*	1,580	71	20% Impervious as meadow
	34,054	75	Weighted Average
	27,735		81.44% Pervious Area
	6,319		18.56% Impervious Area

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

Summary for Subcatchment DA-2: DA-2

Runoff = 24.40 cfs @ 11.95 hrs, Volume= 49,300 cf, Depth> 5.47"
Routed to Link Pre DP002 : Pre-Development DP002

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

	Area (sf)	CN	Description
	54,808	98	Paved parking, HSG C
*	13,702	71	20% Impervious as meadow
	1,400	58	Meadow, non-grazed, HSG B
	446	60	Woods, Fair, HSG B
	27,860	71	Meadow, non-grazed, HSG C
	9,883	73	Woods, Fair, HSG C
	108,099	85	Weighted Average
	53,291		49.30% Pervious Area
	54,808		50.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc-1**

Summary for Subcatchment DA-3: DA-3

Runoff = 4.19 cfs @ 11.96 hrs, Volume= 7,914 cf, Depth> 4.03"
Routed to Link Pre DP003 : Pre-Development DP003

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

	Area (sf)	CN	Description
	1,304	98	Paved parking, HSG C
*	326	71	20% impervious as meadow
	21,961	71	Meadow, non-grazed, HSG C
	23,591	72	Weighted Average
	22,222		94.20% Pervious Area
	1,369		5.80% Impervious Area

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

Summary for Link Pre DP001: Pre-Development DP001

Inflow Area = 34,054 sf, 18.56% Impervious, Inflow Depth > 4.35" for 100-yr event
Inflow = 6.47 cfs @ 11.96 hrs, Volume= 12,352 cf
Primary = 6.47 cfs @ 11.96 hrs, Volume= 12,352 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Link Pre DP002: Pre-Development DP002

Inflow Area = 108,099 sf, 50.70% Impervious, Inflow Depth > 5.47" for 100-yr event
Inflow = 24.40 cfs @ 11.95 hrs, Volume= 49,300 cf
Primary = 24.40 cfs @ 11.95 hrs, Volume= 49,300 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Link Pre DP003: Pre-Development DP003

Inflow Area = 23,591 sf, 5.80% Impervious, Inflow Depth > 4.03" for 100-yr event
Inflow = 4.19 cfs @ 11.96 hrs, Volume= 7,914 cf
Primary = 4.19 cfs @ 11.96 hrs, Volume= 7,914 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Subcatchment DA-1: DA-1

Runoff = 0.16 cfs @ 1.17 hrs, Volume= 247 cf, Depth= 0.09"
Routed to Link Pre DP001 : Pre-Development DP001

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr MRC Rainfall=1.25"

	Area (sf)	CN	Description
	6,319	98	Paved parking, HSG C
	1,606	58	Meadow, non-grazed, HSG B
	582	60	Woods, Fair, HSG B
	23,967	71	Meadow, non-grazed, HSG C
*	1,580	71	20% Impervious as meadow
	34,054	75	Weighted Average
	27,735		81.44% Pervious Area
	6,319		18.56% Impervious Area

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

Summary for Subcatchment DA-2: DA-2

Runoff = 2.34 cfs @ 1.12 hrs, Volume= 2,723 cf, Depth= 0.30"
Routed to Link Pre DP002 : Pre-Development DP002

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr MRC Rainfall=1.25"

	Area (sf)	CN	Description
	54,808	98	Paved parking, HSG C
*	13,702	71	20% Impervious as meadow
	1,400	58	Meadow, non-grazed, HSG B
	446	60	Woods, Fair, HSG B
	27,860	71	Meadow, non-grazed, HSG C
	9,883	73	Woods, Fair, HSG C
	108,099	85	Weighted Average
	53,291		49.30% Pervious Area
	54,808		50.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc-1**

Summary for Subcatchment DA-3: DA-3

Runoff = 0.05 cfs @ 1.22 hrs, Volume= 101 cf, Depth= 0.05"
Routed to Link Pre DP003 : Pre-Development DP003

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr MRC Rainfall=1.25"

	Area (sf)	CN	Description
	1,304	98	Paved parking, HSG C
*	326	71	20% impervious as meadow
	21,961	71	Meadow, non-grazed, HSG C
	23,591	72	Weighted Average
	22,222		94.20% Pervious Area
	1,369		5.80% Impervious Area

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

Summary for Link Pre DP001: Pre-Development DP001

Inflow Area = 34,054 sf, 18.56% Impervious, Inflow Depth = 0.09" for MRC event
Inflow = 0.16 cfs @ 1.17 hrs, Volume= 247 cf
Primary = 0.16 cfs @ 1.17 hrs, Volume= 247 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Link Pre DP002: Pre-Development DP002

Inflow Area = 108,099 sf, 50.70% Impervious, Inflow Depth = 0.30" for MRC event
Inflow = 2.34 cfs @ 1.12 hrs, Volume= 2,723 cf
Primary = 2.34 cfs @ 1.12 hrs, Volume= 2,723 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Link Pre DP003: Pre-Development DP003

Inflow Area = 23,591 sf, 5.80% Impervious, Inflow Depth = 0.05" for MRC event
Inflow = 0.05 cfs @ 1.22 hrs, Volume= 101 cf
Primary = 0.05 cfs @ 1.22 hrs, Volume= 101 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Events for Subcatchment DA-1: DA-1

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
1-yr	2.72	1.07	1,993	0.70
2-yr	3.28	1.61	2,952	1.04
5-yr	4.12	2.48	4,559	1.61
10-yr	4.82	3.24	6,009	2.12
25-yr	5.83	4.39	8,227	2.90
50-yr	6.68	5.38	10,178	3.59
100-yr	**7.60**	**6.47**	**12,352**	**4.35**
MRC	1.25	0.16	247	0.09

Events for Subcatchment DA-2: DA-2

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
1-yr	2.72	6.05	11,248	1.25
2-yr	3.28	8.10	15,222	1.69
5-yr	4.12	11.23	21,493	2.39
10-yr	4.82	13.88	26,907	2.99
25-yr	5.83	17.71	34,917	3.88
50-yr	6.68	20.92	41,781	4.64
100-yr	**7.60**	**24.40**	**49,300**	**5.47**
MRC	1.25	2.34	2,723	0.30

Events for Subcatchment DA-3: DA-3

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
1-yr	2.72	0.60	1,130	0.57
2-yr	3.28	0.94	1,731	0.88
5-yr	4.12	1.50	2,760	1.40
10-yr	4.82	2.01	3,703	1.88
25-yr	5.83	2.78	5,163	2.63
50-yr	6.68	3.45	6,460	3.29
100-yr	**7.60**	**4.19**	**7,914**	**4.03**
MRC	1.25	0.05	101	0.05

Events for Link Pre DP001: Pre-Development DP001

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)
1-yr	1.07	1.07	**0.00**
2-yr	1.61	1.61	0.00
5-yr	2.48	2.48	0.00
10-yr	3.24	3.24	0.00
25-yr	4.39	4.39	0.00
50-yr	5.38	5.38	0.00
100-yr	**6.47**	**6.47**	0.00
MRC	0.16	0.16	0.00

Events for Link Pre DP002: Pre-Development DP002

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)
1-yr	6.05	6.05	**0.00**
2-yr	8.10	8.10	0.00
5-yr	11.23	11.23	0.00
10-yr	13.88	13.88	0.00
25-yr	17.71	17.71	0.00
50-yr	20.92	20.92	0.00
100-yr	**24.40**	**24.40**	0.00
MRC	2.34	2.34	0.00

Events for Link Pre DP003: Pre-Development DP003

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)
1-yr	0.60	0.60	**0.00**
2-yr	0.94	0.94	0.00
5-yr	1.50	1.50	0.00
10-yr	2.01	2.01	0.00
25-yr	2.78	2.78	0.00
50-yr	3.45	3.45	0.00
100-yr	**4.19**	**4.19**	0.00
MRC	0.05	0.05	0.00

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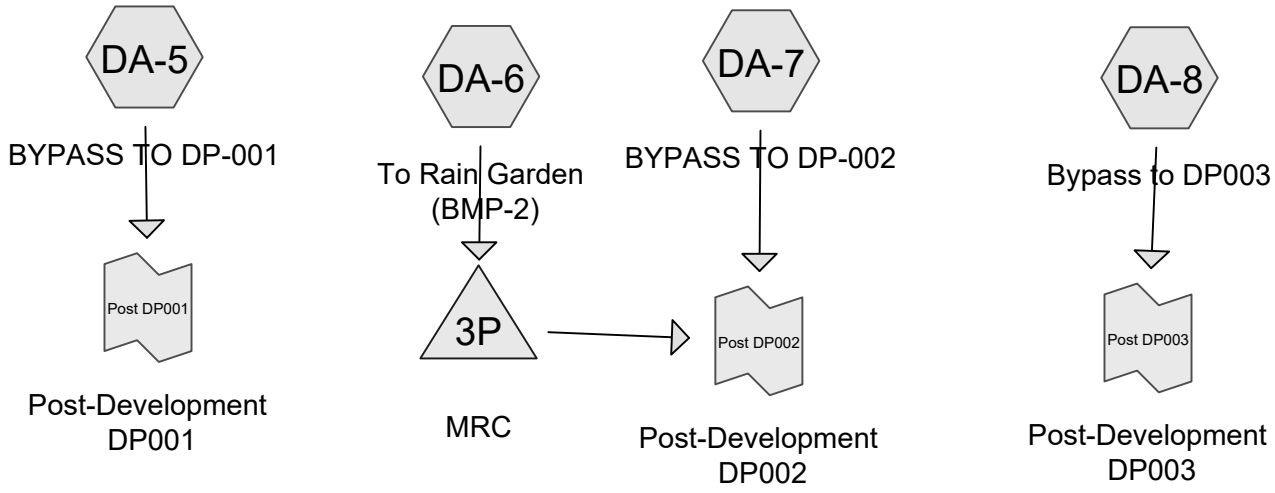

Subcat Reach Pond Link

Routing Diagram for 24039_Hydrocad
Prepared by Nave Newell Inc, Printed 10/17/2024
HydroCAD® 10.20-5a s/n 07511 © 2023 HydroCAD Software Solutions LLC

Summary for Subcatchment DA-5: BYPASS TO DP-001

Runoff = 0.17 cfs @ 11.96 hrs, Volume= 305 cf, Depth> 0.80"
Routed to Link Post DP001 : Post-Development DP001

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-yr Rainfall=2.72"

Area (sf)	CN	Description
1,989	74	>75% Grass cover, Good, HSG C
2,612	80	>75% Grass cover, Good, HSG D
4,601	77	Weighted Average
4,601		100.00% Pervious Area

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

Summary for Subcatchment DA-6: To Rain Garden (BMP-2)

Runoff = 10.21 cfs @ 11.95 hrs, Volume= 21,940 cf, Depth> 2.25"
Routed to Pond 3P : MRC

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-yr Rainfall=2.72"

	Area (sf)	CN	Description
*	111,197	98	Paved parking, All HSGs
	5,808	74	>75% Grass cover, Good, HSG C
	117,005	97	Weighted Average
	5,808		4.96% Pervious Area
	111,197		95.04% Impervious Area

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

Summary for Subcatchment DA-7: BYPASS TO DP-002

Runoff = 2.40 cfs @ 11.96 hrs, Volume= 4,533 cf, Depth> 1.46"
Routed to Link Post DP002 : Post-Development DP002

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-yr Rainfall=2.72"

Area (sf)	CN	Description
15,016	74	>75% Grass cover, Good, HSG C
22,323	98	Paved parking, HSG C
37,339	88	Weighted Average
15,016		40.22% Pervious Area
22,323		59.78% Impervious Area

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

Summary for Subcatchment DA-8: Bypass to DP003

Runoff = 0.21 cfs @ 11.97 hrs, Volume= 398 cf, Depth> 0.70"
Routed to Link Post DP003 : Post-Development DP003

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-yr Rainfall=2.72"

Area (sf)	CN	Description
6,532	74	>75% Grass cover, Good, HSG C
267	98	Paved parking, HSG C
6,799	75	Weighted Average
6,532		96.07% Pervious Area
267		3.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc-1**

Summary for Pond 3P: MRC

Inflow Area = 117,005 sf, 95.04% Impervious, Inflow Depth > 2.25" for 1-yr event
Inflow = 10.21 cfs @ 11.95 hrs, Volume= 21,940 cf
Outflow = 0.29 cfs @ 13.93 hrs, Volume= 7,983 cf, Atten= 97%, Lag= 118.7 min
Primary = 0.29 cfs @ 13.93 hrs, Volume= 7,983 cf
Routed to Link Post DP002 : Post-Development DP002

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 194.71' @ 13.93 hrs Surf.Area= 31,076 sf Storage= 16,134 cf

Plug-Flow detention time= 319.7 min calculated for 7,963 cf (36% of inflow)
Center-of-Mass det. time= 203.6 min (937.2 - 733.6)

Volume	Invert	Avail.Storage	Storage Description
#1	192.55'	0 cf	**100.00'W x 150.00'L x 1.00'H Prismatoid** 15,000 cf Overall x 0.0% Voids
#2A	193.55'	16,872 cf	**126.00'W x 127.59'L x 4.75'H Field A** 76,363 cf Overall - 34,182 cf Embedded = 42,181 cf x 40.0% Voids
#3A	193.55'	34,182 cf	**ADS_StormTech MC-3500 d +Cap**x 306 Inside #2 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 306 Chambers in 18 Rows Cap Storage= 14.9 cf x 2 x 18 rows = 536.4 cf
		51,054 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	193.55'	**18.0" Round 18" Outlet** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 193.55' / 192.00' S= 0.0775 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	192.55'	**1.2" Vert. MRC Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	194.19'	**4.0" Vert. 4" Circular Orifice** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.29 cfs @ 13.93 hrs HW=194.71' (Free Discharge)
↑**1=18" Outlet** (Passes 0.29 cfs of 5.37 cfs potential flow)
↑**2=MRC Orifice** (Orifice Controls 0.04 cfs @ 5.18 fps)
3=4" Circular Orifice (Orifice Controls 0.25 cfs @ 2.86 fps)

Summary for Link Post DP001: Post-Development DP001

Inflow Area = 4,601 sf, 0.00% Impervious, Inflow Depth > 0.80" for 1-yr event
Inflow = 0.17 cfs @ 11.96 hrs, Volume= 305 cf
Primary = 0.17 cfs @ 11.96 hrs, Volume= 305 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Link Post DP002: Post-Development DP002

Inflow Area = 154,344 sf, 86.51% Impervious, Inflow Depth > 0.97" for 1-yr event
Inflow = 2.47 cfs @ 11.96 hrs, Volume= 12,516 cf
Primary = 2.47 cfs @ 11.96 hrs, Volume= 12,516 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Link Post DP003: Post-Development DP003

Inflow Area = 6,799 sf, 3.93% Impervious, Inflow Depth > 0.70" for 1-yr event
Inflow = 0.21 cfs @ 11.97 hrs, Volume= 398 cf
Primary = 0.21 cfs @ 11.97 hrs, Volume= 398 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Subcatchment DA-5: BYPASS TO DP-001

Runoff = 0.24 cfs @ 11.96 hrs, Volume= 443 cf, Depth> 1.16"
Routed to Link Post DP001 : Post-Development DP001

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
1,989	74	>75% Grass cover, Good, HSG C
2,612	80	>75% Grass cover, Good, HSG D
4,601	77	Weighted Average
4,601		100.00% Pervious Area

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

Summary for Subcatchment DA-6: To Rain Garden (BMP-2)

Runoff = 12.43 cfs @ 11.95 hrs, Volume= 27,083 cf, Depth> 2.78"
Routed to Pond 3P : MRC

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
* 111,197	98	Paved parking, All HSGs
5,808	74	>75% Grass cover, Good, HSG C
117,005	97	Weighted Average
5,808		4.96% Pervious Area
111,197		95.04% Impervious Area

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

Summary for Subcatchment DA-7: BYPASS TO DP-002

Runoff = 3.12 cfs @ 11.95 hrs, Volume= 5,991 cf, Depth> 1.93"
Routed to Link Post DP002 : Post-Development DP002

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
15,016	74	>75% Grass cover, Good, HSG C
22,323	98	Paved parking, HSG C
37,339	88	Weighted Average
15,016		40.22% Pervious Area
22,323		59.78% Impervious Area

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

Summary for Subcatchment DA-8: Bypass to DP003

Runoff = 0.32 cfs @ 11.96 hrs, Volume= 589 cf, Depth> 1.04"
Routed to Link Post DP003 : Post-Development DP003

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
6,532	74	>75% Grass cover, Good, HSG C
267	98	Paved parking, HSG C
6,799	75	Weighted Average
6,532		96.07% Pervious Area
267		3.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc-1**

Summary for Pond 3P: MRC

Inflow Area = 117,005 sf, 95.04% Impervious, Inflow Depth > 2.78" for 2-yr event
Inflow = 12.43 cfs @ 11.95 hrs, Volume= 27,083 cf
Outflow = 0.38 cfs @ 13.78 hrs, Volume= 10,553 cf, Atten= 97%, Lag= 109.7 min
Primary = 0.38 cfs @ 13.78 hrs, Volume= 10,553 cf
Routed to Link Post DP002 : Post-Development DP002

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 194.98' @ 13.78 hrs Surf.Area= 31,076 sf Storage= 19,779 cf

Plug-Flow detention time= 323.1 min calculated for 10,553 cf (39% of inflow)
Center-of-Mass det. time= 208.3 min (937.2 - 728.9)

Volume	Invert	Avail.Storage	Storage Description
#1	192.55'	0 cf	**100.00'W x 150.00'L x 1.00'H Prismatoid** 15,000 cf Overall x 0.0% Voids
#2A	193.55'	16,872 cf	**126.00'W x 127.59'L x 4.75'H Field A** 76,363 cf Overall - 34,182 cf Embedded = 42,181 cf x 40.0% Voids
#3A	193.55'	34,182 cf	**ADS_StormTech MC-3500 d +Cap**x 306 Inside #2 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 306 Chambers in 18 Rows Cap Storage= 14.9 cf x 2 x 18 rows = 536.4 cf
		51,054 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	193.55'	**18.0" Round 18" Outlet** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 193.55' / 192.00' S= 0.0775 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	192.55'	**1.2" Vert. MRC Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	194.19'	**4.0" Vert. 4" Circular Orifice** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.38 cfs @ 13.78 hrs HW=194.98' (Free Discharge)
↑**1=18" Outlet** (Passes 0.38 cfs of 7.08 cfs potential flow)
↑**2=MRC Orifice** (Orifice Controls 0.05 cfs @ 5.76 fps)
3=4" Circular Orifice (Orifice Controls 0.33 cfs @ 3.81 fps)

Summary for Link Post DP001: Post-Development DP001

Inflow Area = 4,601 sf, 0.00% Impervious, Inflow Depth > 1.16" for 2-yr event
Inflow = 0.24 cfs @ 11.96 hrs, Volume= 443 cf
Primary = 0.24 cfs @ 11.96 hrs, Volume= 443 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Link Post DP002: Post-Development DP002

Inflow Area = 154,344 sf, 86.51% Impervious, Inflow Depth > 1.29" for 2-yr event
Inflow = 3.33 cfs @ 11.96 hrs, Volume= 16,544 cf
Primary = 3.33 cfs @ 11.96 hrs, Volume= 16,544 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Link Post DP003: Post-Development DP003

Inflow Area = 6,799 sf, 3.93% Impervious, Inflow Depth > 1.04" for 2-yr event
Inflow = 0.32 cfs @ 11.96 hrs, Volume= 589 cf
Primary = 0.32 cfs @ 11.96 hrs, Volume= 589 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Subcatchment DA-5: BYPASS TO DP-001

Runoff = 0.36 cfs @ 11.96 hrs, Volume= 671 cf, Depth> 1.75"
Routed to Link Post DP001 : Post-Development DP001

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 5-yr Rainfall=4.12"

Area (sf)	CN	Description
1,989	74	>75% Grass cover, Good, HSG C
2,612	80	>75% Grass cover, Good, HSG D
4,601	77	Weighted Average
4,601		100.00% Pervious Area

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

Summary for Subcatchment DA-6: To Rain Garden (BMP-2)

Runoff = 15.74 cfs @ 11.95 hrs, Volume= 34,821 cf, Depth> 3.57"
Routed to Pond 3P : MRC

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 5-yr Rainfall=4.12"

Area (sf)	CN	Description
* 111,197	98	Paved parking, All HSGs
5,808	74	>75% Grass cover, Good, HSG C
117,005	97	Weighted Average
5,808		4.96% Pervious Area
111,197		95.04% Impervious Area

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

Summary for Subcatchment DA-7: BYPASS TO DP-002

Runoff = 4.22 cfs @ 11.95 hrs, Volume= 8,259 cf, Depth> 2.65"
Routed to Link Post DP002 : Post-Development DP002

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 5-yr Rainfall=4.12"

Area (sf)	CN	Description
15,016	74	>75% Grass cover, Good, HSG C
22,323	98	Paved parking, HSG C
37,339	88	Weighted Average
15,016		40.22% Pervious Area
22,323		59.78% Impervious Area

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

Summary for Subcatchment DA-8: Bypass to DP003

Runoff = 0.49 cfs @ 11.96 hrs, Volume= 910 cf, Depth> 1.61"
Routed to Link Post DP003 : Post-Development DP003

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 5-yr Rainfall=4.12"

Area (sf)	CN	Description
6,532	74	>75% Grass cover, Good, HSG C
267	98	Paved parking, HSG C
6,799	75	Weighted Average
6,532		96.07% Pervious Area
267		3.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc-1**

Summary for Pond 3P: MRC

Inflow Area = 117,005 sf, 95.04% Impervious, Inflow Depth > 3.57" for 5-yr event
Inflow = 15.74 cfs @ 11.95 hrs, Volume= 34,821 cf
Outflow = 0.49 cfs @ 13.74 hrs, Volume= 13,802 cf, Atten= 97%, Lag= 107.2 min
Primary = 0.49 cfs @ 13.74 hrs, Volume= 13,802 cf
Routed to Link Post DP002 : Post-Development DP002

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 195.42' @ 13.74 hrs Surf.Area= 31,076 sf Storage= 25,453 cf

Plug-Flow detention time= 331.9 min calculated for 13,802 cf (40% of inflow)
Center-of-Mass det. time= 213.5 min (937.2 - 723.7)

Volume	Invert	Avail.Storage	Storage Description
#1	192.55'	0 cf	**100.00'W x 150.00'L x 1.00'H Prismatoid** 15,000 cf Overall x 0.0% Voids
#2A	193.55'	16,872 cf	**126.00'W x 127.59'L x 4.75'H Field A** 76,363 cf Overall - 34,182 cf Embedded = 42,181 cf x 40.0% Voids
#3A	193.55'	34,182 cf	**ADS_StormTech MC-3500 d +Cap**x 306 Inside #2 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 306 Chambers in 18 Rows Cap Storage= 14.9 cf x 2 x 18 rows = 536.4 cf
		51,054 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	193.55'	**18.0" Round 18" Outlet** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 193.55' / 192.00' S= 0.0775 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	192.55'	**1.2" Vert. MRC Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	194.19'	**4.0" Vert. 4" Circular Orifice** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.49 cfs @ 13.74 hrs HW=195.42' (Free Discharge)
↑**1=18" Outlet** (Passes 0.49 cfs of 9.01 cfs potential flow)
↑**2=MRC Orifice** (Orifice Controls 0.05 cfs @ 6.58 fps)
3=4" Circular Orifice (Orifice Controls 0.43 cfs @ 4.97 fps)

Summary for Link Post DP001: Post-Development DP001

Inflow Area = 4,601 sf, 0.00% Impervious, Inflow Depth > 1.75" for 5-yr event
Inflow = 0.36 cfs @ 11.96 hrs, Volume= 671 cf
Primary = 0.36 cfs @ 11.96 hrs, Volume= 671 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Link Post DP002: Post-Development DP002

Inflow Area = 154,344 sf, 86.51% Impervious, Inflow Depth > 1.72" for 5-yr event
Inflow = 4.55 cfs @ 11.96 hrs, Volume= 22,061 cf
Primary = 4.55 cfs @ 11.96 hrs, Volume= 22,061 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Link Post DP003: Post-Development DP003

Inflow Area = 6,799 sf, 3.93% Impervious, Inflow Depth > 1.61" for 5-yr event
Inflow = 0.49 cfs @ 11.96 hrs, Volume= 910 cf
Primary = 0.49 cfs @ 11.96 hrs, Volume= 910 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Subcatchment DA-5: BYPASS TO DP-001

Runoff = 0.47 cfs @ 11.96 hrs, Volume= 874 cf, Depth> 2.28"
Routed to Link Post DP001 : Post-Development DP001

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=4.82"

Area (sf)	CN	Description
1,989	74	>75% Grass cover, Good, HSG C
2,612	80	>75% Grass cover, Good, HSG D
4,601	77	Weighted Average
4,601		100.00% Pervious Area

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

Summary for Subcatchment DA-6: To Rain Garden (BMP-2)

Runoff = 18.50 cfs @ 11.95 hrs, Volume= 41,283 cf, Depth> 4.23"
Routed to Pond 3P : MRC

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=4.82"

	Area (sf)	CN	Description
*	111,197	98	Paved parking, All HSGs
	5,808	74	>75% Grass cover, Good, HSG C
	117,005	97	Weighted Average
	5,808		4.96% Pervious Area
	111,197		95.04% Impervious Area

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

Summary for Subcatchment DA-7: BYPASS TO DP-002

Runoff = 5.14 cfs @ 11.95 hrs, Volume= 10,195 cf, Depth> 3.28"
Routed to Link Post DP002 : Post-Development DP002

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=4.82"

Area (sf)	CN	Description
15,016	74	>75% Grass cover, Good, HSG C
22,323	98	Paved parking, HSG C
37,339	88	Weighted Average
15,016		40.22% Pervious Area
22,323		59.78% Impervious Area

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

Summary for Subcatchment DA-8: Bypass to DP003

Runoff = 0.65 cfs @ 11.96 hrs, Volume= 1,200 cf, Depth> 2.12"
Routed to Link Post DP003 : Post-Development DP003

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=4.82"

Area (sf)	CN	Description
6,532	74	>75% Grass cover, Good, HSG C
267	98	Paved parking, HSG C
6,799	75	Weighted Average
6,532		96.07% Pervious Area
267		3.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc-1**

Summary for Pond 3P: MRC

Inflow Area = 117,005 sf, 95.04% Impervious, Inflow Depth > 4.23" for 10-yr event
Inflow = 18.50 cfs @ 11.95 hrs, Volume= 41,283 cf
Outflow = 0.56 cfs @ 13.76 hrs, Volume= 16,212 cf, Atten= 97%, Lag= 108.4 min
Primary = 0.56 cfs @ 13.76 hrs, Volume= 16,212 cf
Routed to Link Post DP002 : Post-Development DP002

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 195.81' @ 13.76 hrs Surf.Area= 31,076 sf Storage= 30,259 cf

Plug-Flow detention time= 339.0 min calculated for 16,172 cf (39% of inflow)
Center-of-Mass det. time= 216.4 min (936.7 - 720.3)

Volume	Invert	Avail.Storage	Storage Description
#1	192.55'	0 cf	**100.00'W x 150.00'L x 1.00'H Prismatoid** 15,000 cf Overall x 0.0% Voids
#2A	193.55'	16,872 cf	**126.00'W x 127.59'L x 4.75'H Field A** 76,363 cf Overall - 34,182 cf Embedded = 42,181 cf x 40.0% Voids
#3A	193.55'	34,182 cf	**ADS_StormTech MC-3500 d +Cap**x 306 Inside #2 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 306 Chambers in 18 Rows Cap Storage= 14.9 cf x 2 x 18 rows = 536.4 cf
		51,054 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	193.55'	**18.0" Round 18" Outlet** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 193.55' / 192.00' S= 0.0775 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	192.55'	**1.2" Vert. MRC Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	194.19'	**4.0" Vert. 4" Circular Orifice** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.56 cfs @ 13.76 hrs HW=195.81' (Free Discharge)
↑**1=18" Outlet** (Passes 0.56 cfs of 10.45 cfs potential flow)
↑**2=MRC Orifice** (Orifice Controls 0.06 cfs @ 7.24 fps)
3=4" Circular Orifice (Orifice Controls 0.51 cfs @ 5.80 fps)

Summary for Link Post DP001: Post-Development DP001

Inflow Area = 4,601 sf, 0.00% Impervious, Inflow Depth > 2.28" for 10-yr event
Inflow = 0.47 cfs @ 11.96 hrs, Volume= 874 cf
Primary = 0.47 cfs @ 11.96 hrs, Volume= 874 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Link Post DP002: Post-Development DP002

Inflow Area = 154,344 sf, 86.51% Impervious, Inflow Depth > 2.05" for 10-yr event
Inflow = 5.54 cfs @ 11.95 hrs, Volume= 26,407 cf
Primary = 5.54 cfs @ 11.95 hrs, Volume= 26,407 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Link Post DP003: Post-Development DP003

Inflow Area = 6,799 sf, 3.93% Impervious, Inflow Depth > 2.12" for 10-yr event
Inflow = 0.65 cfs @ 11.96 hrs, Volume= 1,200 cf
Primary = 0.65 cfs @ 11.96 hrs, Volume= 1,200 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Subcatchment DA-5: BYPASS TO DP-001

Runoff = 0.63 cfs @ 11.96 hrs, Volume= 1,183 cf, Depth> 3.09"
Routed to Link Post DP001 : Post-Development DP001

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=5.83"

Area (sf)	CN	Description
1,989	74	>75% Grass cover, Good, HSG C
2,612	80	>75% Grass cover, Good, HSG D
4,601	77	Weighted Average
4,601		100.00% Pervious Area

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

Summary for Subcatchment DA-6: To Rain Garden (BMP-2)

Runoff = 22.45 cfs @ 11.95 hrs, Volume= 50,620 cf, Depth> 5.19"
Routed to Pond 3P : MRC

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=5.83"

	Area (sf)	CN	Description
*	111,197	98	Paved parking, All HSGs
	5,808	74	>75% Grass cover, Good, HSG C
	117,005	97	Weighted Average
	5,808		4.96% Pervious Area
	111,197		95.04% Impervious Area

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

Summary for Subcatchment DA-7: BYPASS TO DP-002

Runoff = 6.46 cfs @ 11.95 hrs, Volume= 13,037 cf, Depth> 4.19"
Routed to Link Post DP002 : Post-Development DP002

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=5.83"

Area (sf)	CN	Description
15,016	74	>75% Grass cover, Good, HSG C
22,323	98	Paved parking, HSG C
37,339	88	Weighted Average
15,016		40.22% Pervious Area
22,323		59.78% Impervious Area

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

Summary for Subcatchment DA-8: Bypass to DP003

Runoff = 0.88 cfs @ 11.96 hrs, Volume= 1,643 cf, Depth> 2.90"
Routed to Link Post DP003 : Post-Development DP003

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=5.83"

Area (sf)	CN	Description
6,532	74	>75% Grass cover, Good, HSG C
267	98	Paved parking, HSG C
6,799	75	Weighted Average
6,532		96.07% Pervious Area
267		3.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc-1**

Summary for Pond 3P: MRC

Inflow Area = 117,005 sf, 95.04% Impervious, Inflow Depth > 5.19" for 25-yr event
Inflow = 22.45 cfs @ 11.95 hrs, Volume= 50,620 cf
Outflow = 0.67 cfs @ 13.80 hrs, Volume= 19,498 cf, Atten= 97%, Lag= 111.2 min
Primary = 0.67 cfs @ 13.80 hrs, Volume= 19,498 cf
Routed to Link Post DP002 : Post-Development DP002

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 196.42' @ 13.80 hrs Surf.Area= 31,076 sf Storage= 37,190 cf

Plug-Flow detention time= 347.8 min calculated for 19,498 cf (39% of inflow)
Center-of-Mass det. time= 218.3 min (934.9 - 716.6)

Volume	Invert	Avail.Storage	Storage Description
#1	192.55'	0 cf	**100.00'W x 150.00'L x 1.00'H Prismatoid** 15,000 cf Overall x 0.0% Voids
#2A	193.55'	16,872 cf	**126.00'W x 127.59'L x 4.75'H Field A** 76,363 cf Overall - 34,182 cf Embedded = 42,181 cf x 40.0% Voids
#3A	193.55'	34,182 cf	**ADS_StormTech MC-3500 d +Cap**x 306 Inside #2 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 306 Chambers in 18 Rows Cap Storage= 14.9 cf x 2 x 18 rows = 536.4 cf
		51,054 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	193.55'	**18.0" Round 18" Outlet** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 193.55' / 192.00' S= 0.0775 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	192.55'	**1.2" Vert. MRC Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	194.19'	**4.0" Vert. 4" Circular Orifice** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.67 cfs @ 13.80 hrs HW=196.42' (Free Discharge)
↑**1=18" Outlet** (Passes 0.67 cfs of 12.39 cfs potential flow)
↑**2=MRC Orifice** (Orifice Controls 0.06 cfs @ 8.16 fps)
3=4" Circular Orifice (Orifice Controls 0.60 cfs @ 6.92 fps)

Summary for Link Post DP001: Post-Development DP001

Inflow Area = 4,601 sf, 0.00% Impervious, Inflow Depth > 3.09" for 25-yr event
Inflow = 0.63 cfs @ 11.96 hrs, Volume= 1,183 cf
Primary = 0.63 cfs @ 11.96 hrs, Volume= 1,183 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Link Post DP002: Post-Development DP002

Inflow Area = 154,344 sf, 86.51% Impervious, Inflow Depth > 2.53" for 25-yr event
Inflow = 6.95 cfs @ 11.95 hrs, Volume= 32,535 cf
Primary = 6.95 cfs @ 11.95 hrs, Volume= 32,535 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Link Post DP003: Post-Development DP003

Inflow Area = 6,799 sf, 3.93% Impervious, Inflow Depth > 2.90" for 25-yr event
Inflow = 0.88 cfs @ 11.96 hrs, Volume= 1,643 cf
Primary = 0.88 cfs @ 11.96 hrs, Volume= 1,643 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Subcatchment DA-5: BYPASS TO DP-001

Runoff = 0.76 cfs @ 11.96 hrs, Volume= 1,453 cf, Depth> 3.79"
Routed to Link Post DP001 : Post-Development DP001

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=6.68"

Area (sf)	CN	Description
1,989	74	>75% Grass cover, Good, HSG C
2,612	80	>75% Grass cover, Good, HSG D
4,601	77	Weighted Average
4,601		100.00% Pervious Area

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

Summary for Subcatchment DA-6: To Rain Garden (BMP-2)

Runoff = 25.78 cfs @ 11.95 hrs, Volume= 58,484 cf, Depth> 6.00"
Routed to Pond 3P : MRC

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=6.68"

	Area (sf)	CN	Description
*	111,197	98	Paved parking, All HSGs
	5,808	74	>75% Grass cover, Good, HSG C
	117,005	97	Weighted Average
	5,808		4.96% Pervious Area
	111,197		95.04% Impervious Area

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

Summary for Subcatchment DA-7: BYPASS TO DP-002

Runoff = 7.56 cfs @ 11.95 hrs, Volume= 15,459 cf, Depth> 4.97"
Routed to Link Post DP002 : Post-Development DP002

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=6.68"

Area (sf)	CN	Description
15,016	74	>75% Grass cover, Good, HSG C
22,323	98	Paved parking, HSG C
37,339	88	Weighted Average
15,016		40.22% Pervious Area
22,323		59.78% Impervious Area

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

Summary for Subcatchment DA-8: Bypass to DP003

Runoff = 1.07 cfs @ 11.96 hrs, Volume= 2,032 cf, Depth> 3.59"
Routed to Link Post DP003 : Post-Development DP003

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=6.68"

Area (sf)	CN	Description
6,532	74	>75% Grass cover, Good, HSG C
267	98	Paved parking, HSG C
6,799	75	Weighted Average
6,532		96.07% Pervious Area
267		3.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc-1**

Summary for Pond 3P: MRC

Inflow Area = 117,005 sf, 95.04% Impervious, Inflow Depth > 6.00" for 50-yr event
Inflow = 25.78 cfs @ 11.95 hrs, Volume= 58,484 cf
Outflow = 0.76 cfs @ 13.82 hrs, Volume= 22,320 cf, Atten= 97%, Lag= 112.2 min
Primary = 0.76 cfs @ 13.82 hrs, Volume= 22,320 cf
Routed to Link Post DP002 : Post-Development DP002

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 197.05' @ 13.82 hrs Surf.Area= 31,076 sf Storage= 42,925 cf

Plug-Flow detention time= 351.1 min calculated for 22,265 cf (38% of inflow)
Center-of-Mass det. time= 217.9 min (932.0 - 714.1)

Volume	Invert	Avail.Storage	Storage Description
#1	192.55'	0 cf	**100.00'W x 150.00'L x 1.00'H Prismatoid** 15,000 cf Overall x 0.0% Voids
#2A	193.55'	16,872 cf	**126.00'W x 127.59'L x 4.75'H Field A** 76,363 cf Overall - 34,182 cf Embedded = 42,181 cf x 40.0% Voids
#3A	193.55'	34,182 cf	**ADS_StormTech MC-3500 d +Cap**x 306 Inside #2 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 306 Chambers in 18 Rows Cap Storage= 14.9 cf x 2 x 18 rows = 536.4 cf
		51,054 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	193.55'	**18.0" Round 18" Outlet** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 193.55' / 192.00' S= 0.0775 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	192.55'	**1.2" Vert. MRC Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	194.19'	**4.0" Vert. 4" Circular Orifice** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.76 cfs @ 13.82 hrs HW=197.05' (Free Discharge)
↑**1=18" Outlet** (Passes 0.76 cfs of 14.11 cfs potential flow)
↑**2=MRC Orifice** (Orifice Controls 0.07 cfs @ 9.01 fps)
3=4" Circular Orifice (Orifice Controls 0.69 cfs @ 7.90 fps)

Summary for Link Post DP001: Post-Development DP001

Inflow Area = 4,601 sf, 0.00% Impervious, Inflow Depth > 3.79" for 50-yr event
Inflow = 0.76 cfs @ 11.96 hrs, Volume= 1,453 cf
Primary = 0.76 cfs @ 11.96 hrs, Volume= 1,453 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Link Post DP002: Post-Development DP002

Inflow Area = 154,344 sf, 86.51% Impervious, Inflow Depth > 2.94" for 50-yr event
Inflow = 8.12 cfs @ 11.95 hrs, Volume= 37,779 cf
Primary = 8.12 cfs @ 11.95 hrs, Volume= 37,779 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Link Post DP003: Post-Development DP003

Inflow Area = 6,799 sf, 3.93% Impervious, Inflow Depth > 3.59" for 50-yr event
Inflow = 1.07 cfs @ 11.96 hrs, Volume= 2,032 cf
Primary = 1.07 cfs @ 11.96 hrs, Volume= 2,032 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Subcatchment DA-5: BYPASS TO DP-001

Runoff = 0.91 cfs @ 11.95 hrs, Volume= 1,753 cf, Depth> 4.57"
Routed to Link Post DP001 : Post-Development DP001

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

Area (sf)	CN	Description
1,989	74	>75% Grass cover, Good, HSG C
2,612	80	>75% Grass cover, Good, HSG D
4,601	77	Weighted Average
4,601		100.00% Pervious Area

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

Summary for Subcatchment DA-6: To Rain Garden (BMP-2)

Runoff = 29.37 cfs @ 11.95 hrs, Volume= 67,001 cf, Depth> 6.87"
Routed to Pond 3P : MRC

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

Area (sf)	CN	Description
* 111,197	98	Paved parking, All HSGs
5,808	74	>75% Grass cover, Good, HSG C
117,005	97	Weighted Average
5,808		4.96% Pervious Area
111,197		95.04% Impervious Area

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

Summary for Subcatchment DA-7: BYPASS TO DP-002

Runoff = 8.75 cfs @ 11.95 hrs, Volume= 18,100 cf, Depth> 5.82"
Routed to Link Post DP002 : Post-Development DP002

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

Area (sf)	CN	Description
15,016	74	>75% Grass cover, Good, HSG C
22,323	98	Paved parking, HSG C
37,339	88	Weighted Average
15,016		40.22% Pervious Area
22,323		59.78% Impervious Area

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

Summary for Subcatchment DA-8: Bypass to DP003

Runoff = 1.29 cfs @ 11.96 hrs, Volume= 2,466 cf, Depth> 4.35"
Routed to Link Post DP003 : Post-Development DP003

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

Area (sf)	CN	Description
6,532	74	>75% Grass cover, Good, HSG C
267	98	Paved parking, HSG C
6,799	75	Weighted Average
6,532		96.07% Pervious Area
267		3.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc-1**

Summary for Pond 3P: MRC

Inflow Area = 117,005 sf, 95.04% Impervious, Inflow Depth > 6.87" for 100-yr event
Inflow = 29.37 cfs @ 11.95 hrs, Volume= 67,001 cf
Outflow = 0.88 cfs @ 13.79 hrs, Volume= 25,810 cf, Atten= 97%, Lag= 110.3 min
Primary = 0.88 cfs @ 13.79 hrs, Volume= 25,810 cf
Routed to Link Post DP002 : Post-Development DP002

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 197.97' @ 13.79 hrs Surf.Area= 31,076 sf Storage= 48,945 cf

Plug-Flow detention time= 350.7 min calculated for 25,745 cf (38% of inflow)
Center-of-Mass det. time= 216.1 min (928.0 - 711.9)

Volume	Invert	Avail.Storage	Storage Description
#1	192.55'	0 cf	**100.00'W x 150.00'L x 1.00'H Prismatoid** 15,000 cf Overall x 0.0% Voids
#2A	193.55'	16,872 cf	**126.00'W x 127.59'L x 4.75'H Field A** 76,363 cf Overall - 34,182 cf Embedded = 42,181 cf x 40.0% Voids
#3A	193.55'	34,182 cf	**ADS_StormTech MC-3500 d +Cap**x 306 Inside #2 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 306 Chambers in 18 Rows Cap Storage= 14.9 cf x 2 x 18 rows = 536.4 cf
		51,054 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	193.55'	**18.0" Round 18" Outlet** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 193.55' / 192.00' S= 0.0775 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	192.55'	**1.2" Vert. MRC Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	194.19'	**4.0" Vert. 4" Circular Orifice** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.88 cfs @ 13.79 hrs HW=197.97' (Free Discharge)
↑**1=18" Outlet** (Passes 0.88 cfs of 16.30 cfs potential flow)
↑**2=MRC Orifice** (Orifice Controls 0.08 cfs @ 10.13 fps)
3=4" Circular Orifice (Orifice Controls 0.80 cfs @ 9.16 fps)

Summary for Link Post DP001: Post-Development DP001

Inflow Area = 4,601 sf, 0.00% Impervious, Inflow Depth > 4.57" for 100-yr event
Inflow = 0.91 cfs @ 11.95 hrs, Volume= 1,753 cf
Primary = 0.91 cfs @ 11.95 hrs, Volume= 1,753 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Link Post DP002: Post-Development DP002

Inflow Area = 154,344 sf, 86.51% Impervious, Inflow Depth > 3.41" for 100-yr event
Inflow = 9.37 cfs @ 11.95 hrs, Volume= 43,910 cf
Primary = 9.37 cfs @ 11.95 hrs, Volume= 43,910 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Link Post DP003: Post-Development DP003

Inflow Area = 6,799 sf, 3.93% Impervious, Inflow Depth > 4.35" for 100-yr event
Inflow = 1.29 cfs @ 11.96 hrs, Volume= 2,466 cf
Primary = 1.29 cfs @ 11.96 hrs, Volume= 2,466 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Subcatchment DA-5: BYPASS TO DP-001

Runoff = 0.03 cfs @ 1.16 hrs, Volume= 45 cf, Depth= 0.12"
Routed to Link Post DP001 : Post-Development DP001

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr MRC Rainfall=1.25"

Area (sf)	CN	Description
1,989	74	>75% Grass cover, Good, HSG C
2,612	80	>75% Grass cover, Good, HSG D
4,601	77	Weighted Average
4,601		100.00% Pervious Area

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

Summary for Subcatchment DA-6: To Rain Garden (BMP-2)

Runoff = 7.54 cfs @ 1.09 hrs, Volume= 9,192 cf, Depth= 0.94"
Routed to Pond 3P : MRC

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr MRC Rainfall=1.25"

	Area (sf)	CN	Description
*	111,197	98	Paved parking, All HSGs
	5,808	74	>75% Grass cover, Good, HSG C
	117,005	97	Weighted Average
	5,808		4.96% Pervious Area
	111,197		95.04% Impervious Area

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

Summary for Subcatchment DA-7: BYPASS TO DP-002

Runoff = 1.11 cfs @ 1.11 hrs, Volume= 1,269 cf, Depth= 0.41"
Routed to Link Post DP002 : Post-Development DP002

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr MRC Rainfall=1.25"

Area (sf)	CN	Description
15,016	74	>75% Grass cover, Good, HSG C
22,323	98	Paved parking, HSG C
37,339	88	Weighted Average
15,016		40.22% Pervious Area
22,323		59.78% Impervious Area

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

Summary for Subcatchment DA-8: Bypass to DP003

Runoff = 0.03 cfs @ 1.17 hrs, Volume= 49 cf, Depth= 0.09"
Routed to Link Post DP003 : Post-Development DP003

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr MRC Rainfall=1.25"

Area (sf)	CN	Description
6,532	74	>75% Grass cover, Good, HSG C
267	98	Paved parking, HSG C
6,799	75	Weighted Average
6,532		96.07% Pervious Area
267		3.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc-1**

Summary for Pond 3P: MRC

Inflow Area = 117,005 sf, 95.04% Impervious, Inflow Depth = 0.94" for MRC event
Inflow = 7.54 cfs @ 1.09 hrs, Volume= 9,192 cf
Outflow = 0.03 cfs @ 2.14 hrs, Volume= 1,967 cf, Atten= 100%, Lag= 62.9 min
Primary = 0.03 cfs @ 2.14 hrs, Volume= 1,967 cf
Routed to Link Post DP002 : Post-Development DP002

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 194.19' @ 2.14 hrs Surf.Area= 31,076 sf Storage= 9,069 cf

Plug-Flow detention time= 566.7 min calculated for 1,967 cf (21% of inflow)
Center-of-Mass det. time= 549.6 min (620.2 - 70.6)

Volume	Invert	Avail.Storage	Storage Description
#1	192.55'	0 cf	**100.00'W x 150.00'L x 1.00'H Prismatoid** 15,000 cf Overall x 0.0% Voids
#2A	193.55'	16,872 cf	**126.00'W x 127.59'L x 4.75'H Field A** 76,363 cf Overall - 34,182 cf Embedded = 42,181 cf x 40.0% Voids
#3A	193.55'	34,182 cf	**ADS_StormTech MC-3500 d +Cap**x 306 Inside #2 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 306 Chambers in 18 Rows Cap Storage= 14.9 cf x 2 x 18 rows = 536.4 cf
		51,054 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	193.55'	**18.0" Round 18" Outlet** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 193.55' / 192.00' S= 0.0775 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	192.55'	**1.2" Vert. MRC Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	194.19'	**4.0" Vert. 4" Circular Orifice** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.03 cfs @ 2.14 hrs HW=194.19' (Free Discharge)
↑**1=18" Outlet** (Passes 0.03 cfs of 1.98 cfs potential flow)
↑**2=MRC Orifice** (Orifice Controls 0.03 cfs @ 3.86 fps)
3=4" Circular Orifice (Orifice Controls 0.00 cfs @ 0.19 fps)

Summary for Link Post DP001: Post-Development DP001

Inflow Area = 4,601 sf, 0.00% Impervious, Inflow Depth = 0.12" for MRC event
Inflow = 0.03 cfs @ 1.16 hrs, Volume= 45 cf
Primary = 0.03 cfs @ 1.16 hrs, Volume= 45 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Link Post DP002: Post-Development DP002

Inflow Area = 154,344 sf, 86.51% Impervious, Inflow Depth > 0.25" for MRC event
Inflow = 1.13 cfs @ 1.11 hrs, Volume= 3,236 cf
Primary = 1.13 cfs @ 1.11 hrs, Volume= 3,236 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Link Post DP003: Post-Development DP003

Inflow Area = 6,799 sf, 3.93% Impervious, Inflow Depth = 0.09" for MRC event
Inflow = 0.03 cfs @ 1.17 hrs, Volume= 49 cf
Primary = 0.03 cfs @ 1.17 hrs, Volume= 49 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Events for Subcatchment DA-5: BYPASS TO DP-001

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
1-yr	2.72	0.17	305	0.80
2-yr	3.28	0.24	443	1.16
5-yr	4.12	0.36	671	1.75
10-yr	4.82	0.47	874	2.28
25-yr	5.83	0.63	1,183	3.09
50-yr	6.68	0.76	1,453	3.79
100-yr	**7.60**	**0.91**	**1,753**	**4.57**
MRC	1.25	0.03	45	0.12

Events for Subcatchment DA-6: To Rain Garden (BMP-2)

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
1-yr	2.72	10.21	21,940	2.25
2-yr	3.28	12.43	27,083	2.78
5-yr	4.12	15.74	34,821	3.57
10-yr	4.82	18.50	41,283	4.23
25-yr	5.83	22.45	50,620	5.19
50-yr	6.68	25.78	58,484	6.00
100-yr	**7.60**	**29.37**	**67,001**	**6.87**
MRC	1.25	7.54	9,192	0.94

Events for Subcatchment DA-7: BYPASS TO DP-002

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
1-yr	2.72	2.40	4,533	1.46
2-yr	3.28	3.12	5,991	1.93
5-yr	4.12	4.22	8,259	2.65
10-yr	4.82	5.14	10,195	3.28
25-yr	5.83	6.46	13,037	4.19
50-yr	6.68	7.56	15,459	4.97
100-yr	**7.60**	**8.75**	**18,100**	**5.82**
MRC	1.25	1.11	1,269	0.41

Events for Subcatchment DA-8: Bypass to DP003

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
1-yr	2.72	0.21	398	0.70
2-yr	3.28	0.32	589	1.04
5-yr	4.12	0.49	910	1.61
10-yr	4.82	0.65	1,200	2.12
25-yr	5.83	0.88	1,643	2.90
50-yr	6.68	1.07	2,032	3.59
100-yr	**7.60**	**1.29**	**2,466**	**4.35**
MRC	1.25	0.03	49	0.09

Events for Pond 3P: MRC

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
1-yr	10.21	0.29	194.71	16,134
2-yr	12.43	0.38	194.98	19,779
5-yr	15.74	0.49	195.42	25,453
10-yr	18.50	0.56	195.81	30,259
25-yr	22.45	0.67	196.42	37,190
50-yr	25.78	0.76	197.05	42,925
100-yr	**29.37**	**0.88**	**197.97**	**48,945**
MRC	7.54	0.03	194.19	9,069

Events for Link Post DP001: Post-Development DP001

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)
1-yr	0.17	0.17	**0.00**
2-yr	0.24	0.24	0.00
5-yr	0.36	0.36	0.00
10-yr	0.47	0.47	0.00
25-yr	0.63	0.63	0.00
50-yr	0.76	0.76	0.00
100-yr	**0.91**	**0.91**	0.00
MRC	0.03	0.03	0.00

Events for Link Post DP002: Post-Development DP002

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)
1-yr	2.47	2.47	**0.00**
2-yr	3.33	3.33	0.00
5-yr	4.55	4.55	0.00
10-yr	5.54	5.54	0.00
25-yr	6.95	6.95	0.00
50-yr	8.12	8.12	0.00
100-yr	**9.37**	**9.37**	0.00
MRC	1.13	1.13	0.00

Events for Link Post DP003: Post-Development DP003

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)
1-yr	0.21	0.21	**0.00**
2-yr	0.32	0.32	0.00
5-yr	0.49	0.49	0.00
10-yr	0.65	0.65	0.00
25-yr	0.88	0.88	0.00
50-yr	1.07	1.07	0.00
100-yr	**1.29**	**1.29**	0.00
MRC	0.03	0.03	0.00

VII.

DP-001
TO PLYMOUTH CREEK
DESIGNATED USE: WWF
TOTAL=34,054 SF

DP-002
TO PLYMOUTH CREEK
DESIGNATED USE: WWF
TOTAL=108,099 SF

DP-003
TO PLYMOUTH CREEK
DESIGNATED USE: WWF
TOTAL=23,591 SF

DA-1

DA-2

DA-2

DA-3

PROJECT SERIAL NO.: 20241600920

CALL BEFORE YOU DIG!

PENNSYLVANIA LAW REQUIRES
3 WORKING DAYS NOTICE FOR
CONSTRUCTION PHASE AND 10 WORKING
DAYS IN DESIGN STAGE - STOP CALL
Pennsylvania One Call System, Inc.

1-800-242-1776

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(IN FEET)
1 inch = 40 ft

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10/17/2024 8:34 AM
USER: ----

Nave Newell

900 West Valley Road • Suite 1100
Wayne, PA 19087
p: 610.265.8323 f: 610.265.4299
www.navenewell.com

REVISIONS				
date:	no.	description	chk'd	by
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SEAL:

DRAWING NAME: PRE-DEVELOPMENT DRAINAGE AREA PLAN

GEMMA SERVICES

LOCATION: WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PA

project no.: 2024039.00	drawn by: JSD
date: 10/21/24	chk'd by: JPB
scale: 1"=40'	approv. by: JPB

sheet no.

D1.0

1 of 2

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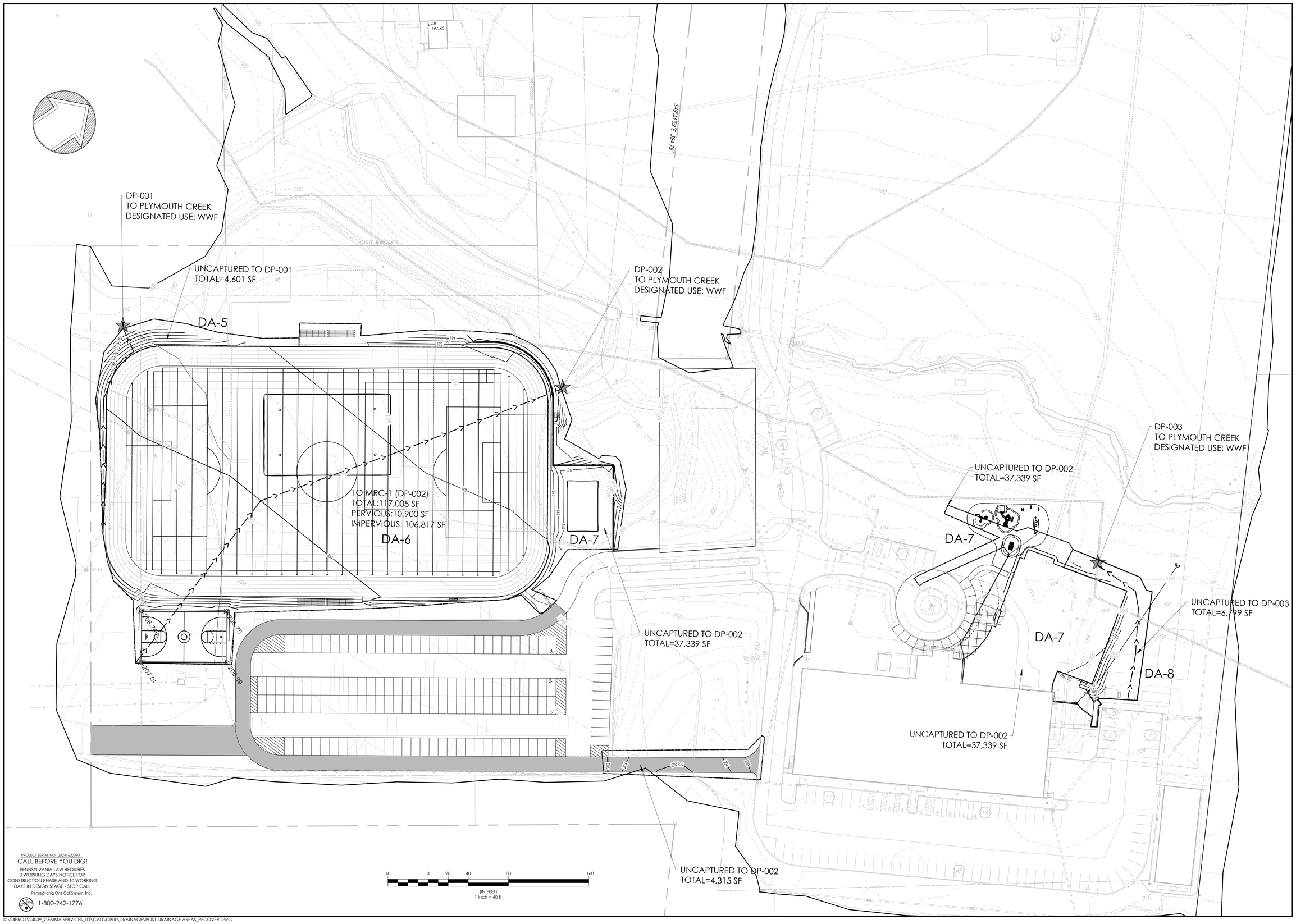

PROJECT SERIAL NO: 20241620090

CALL BEFORE YOU DIG!

PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - STOP CALL

Pennsylvania One Call System, Inc.

1-800-242-1776

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10/17/2024 8:37 AM

USER: ----

Nave Newell

900 West Valley Road • Suite 1100
Wayne, PA 19087
p: 610.265.8323 f: 610.265.4299
www.navenewell.com

REVISIONS				
date:	no.	description	chk'd	by
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SEAL:

DRAWING NAME: POST-DEVELOPMENT DRAINAGE AREA PLAN

GEMMA SERVICES

LOCATION: WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PA

project no.	drawn by:
2024039.00	JSD
date: 10/21/24	chk'd by: JPB
scale: 1"=40'	approv. by: JPB

sheet no.

D2.0

2 of 2

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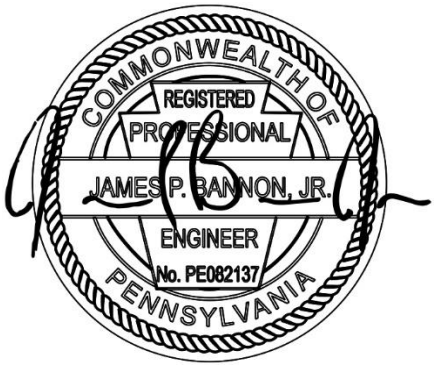
POST-CONSTRUCTION STORMWATER MANAGEMENT REPORT

APPENDICES

GEMMA SERVICES
WHITEMARSH TOWNSHIP
MONTGOMERY COUNTY, PENNSYLVANIA



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POST-CONSTRUCTION STORMWATER MANAGEMENT - APPENDICES (SEPARATE MATERIAL)

TABLE OF CONTENTS

Section	Title	Page
Appendix A	Supporting Environmental Results • NRCS Web Soil Survey • NOAA Atlas 14 Precipitation • Infiltration Testing Results	1
Appendix B	Pre-Development Routing Analysis • Routing Diagram • Drainage Areas Hydrographs and Tables • Discharge point Hydrographs and Tables	48
Appendix C	Post-Development Routing Analysis • Routing Diagram • Drainage Areas Hydrographs and Tables • Basin Hydrographs and Tables • Basin Stage-Storage Tables • Basing Stage-Discharge Tables • Discharge Point Hydrographs and Tables	152

Appendix A

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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

Custom Soil Resource Report for Montgomery County, Pennsylvania

Preface

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

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

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

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

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

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

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Contents

Preface.....2
How Soil Surveys Are Made.....5
Soil Map.....8
Soil Map.....9
Legend.....10
Map Unit Legend.....11
Map Unit Descriptions.....11
Montgomery County, Pennsylvania.....13
Bo—Bowmansville-Knauers silt loams.....13
BwA—Buckingham silt loam, 0 to 3 percent slopes.....15
PeB—Penn silt loam, 3 to 8 percent slopes.....16
ReB—Readington silt loam, 3 to 8 percent slopes.....18
Rt—Rowland silt loam, terrace.....19
UgB—Urban land, 0 to 8 percent slopes.....21
UrxB—Urban land-Penn complex, 0 to 8 percent slopes.....22
UusB—Urban land-Udorthents, shale and sandstone complex, 0 to 8 percent slopes.....24
W—Water.....25
References.....27

How Soil Surveys Are Made

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

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

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

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

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

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

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

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

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

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

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

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

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

Custom Soil Resource Report
Soil Map

Map Scale: 1:5,040 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

Feet
0 200 400 800 1200

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

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

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

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
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: Montgomery County, Pennsylvania
Survey Area Data: Version 18, Sep 8, 2023

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

Date(s) aerial images were photographed: Jun 3, 2022—Jul 20, 2022

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
Bo	Bowmansville-Knauers silt loams	5.6	11.7%
BwA	Buckingham silt loam, 0 to 3 percent slopes	3.3	6.9%
PeB	Penn silt loam, 3 to 8 percent slopes	2.9	6.1%
ReB	Readington silt loam, 3 to 8 percent slopes	24.8	52.0%
Rt	Rowland silt loam, terrace	3.3	6.9%
UgB	Urban land, 0 to 8 percent slopes	7.4	15.5%
UrxB	Urban land-Penn complex, 0 to 8 percent slopes	0.1	0.1%
UusB	Urban land-Udorthents, shale and sandstone complex, 0 to 8 percent slopes	0.1	0.3%
W	Water	0.3	0.6%
Totals for Area of Interest		**47.8**	**100.0%**

Map Unit Descriptions

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

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the

scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

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

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

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

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

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

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

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

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

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

Montgomery County, Pennsylvania

Bo—Bowmansville-Knauers silt loams

Map Unit Setting

National map unit symbol: 2lh87
Elevation: 150 to 900 feet
Mean annual precipitation: 36 to 50 inches
Mean annual air temperature: 45 to 57 degrees F
Frost-free period: 150 to 210 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Bowmansville and similar soils: 41 percent
Knauers and similar soils: 39 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bowmansville

Setting

Landform: Flood plains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Head slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Parent material: Recent alluvial deposits weathered from sandstone and siltstone

Typical profile

Ap - 0 to 7 inches: silt loam
Bg - 7 to 26 inches: silty clay loam
Cg - 26 to 43 inches: fine sandy loam
2Cg - 43 to 65 inches: stratified gravel to sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 72 to 99 inches to lithic bedrock
Drainage class: Somewhat poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 0 to 18 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: F148XY028PA - Moist, Triassic, Riparian Zone, Ecotonal Meadow-Shrub-Forest
Hydric soil rating: No

Description of Knauers

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Parent material: Recent alluvium derived from sandstone and shale

Typical profile

A - 0 to 8 inches: silt loam
Bg1 - 8 to 17 inches: silt loam
Bg2 - 17 to 24 inches: gravelly sandy loam
2Cg - 24 to 60 inches: stratified sand to gravelly sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 72 to 99 inches to lithic bedrock
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Occasional
Frequency of ponding: Frequent
Available water supply, 0 to 60 inches: Low (about 5.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: C/D
Ecological site: F148XY031PA - Hydric, Triassic, Riparian Zone, Swamp Meadow-Shrub-Forest
Hydric soil rating: Yes

Minor Components

Rowland

Percent of map unit: 20 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Head slope, base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: No

BwA—Buckingham silt loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2dvtx
Elevation: 150 to 950 feet
Mean annual precipitation: 38 to 48 inches
Mean annual air temperature: 46 to 57 degrees F
Frost-free period: 150 to 200 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

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

Description of Buckingham

Setting

Landform: Drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Head slope
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Parent material: Fine-loamy colluvium and old alluvium derived from shale and siltstone

Typical profile

A - 0 to 16 inches: silt loam
Bt - 16 to 40 inches: silt loam
Btx1 - 40 to 48 inches: silty clay loam
Btx2 - 48 to 62 inches: gravelly silt loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 20 to 40 inches to fragipan; 80 to 99 inches to lithic bedrock
Drainage class: Somewhat poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: B/D

Ecological site: F148XY025PA - Moist, Triassic, Upland, Mixed Oak - Hardwood - Conifer Forest
Hydric soil rating: No

Minor Components

Penn
Percent of map unit: 13 percent
Landform: Hillslopes
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope, nose slope
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

Croton
Percent of map unit: 5 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: Yes

Knauers
Percent of map unit: 2 percent
Landform: Flood plains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: Yes

PeB—Penn silt loam, 3 to 8 percent slopes

Map Unit Setting
National map unit symbol: 2v7gc
Elevation: 70 to 950 feet
Mean annual precipitation: 38 to 53 inches
Mean annual air temperature: 43 to 57 degrees F
Frost-free period: 170 to 240 days
Farmland classification: All areas are prime farmland

Map Unit Composition
Penn and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Penn

Setting

Landform: Hills, ridges
Landform position (two-dimensional): Shoulder, summit, backslope
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Triassic residuum weathered from shale and siltstone and/or triassic residuum weathered from mudstone and/or triassic residuum weathered from sandstone

Typical profile

Ap - 0 to 10 inches: silt loam
Bt1 - 10 to 15 inches: silt loam
Bt2 - 15 to 19 inches: silt loam
Bt3 - 19 to 22 inches: channery loam
Cr - 22 to 28 inches: bedrock
R - 28 to 38 inches: bedrock

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 20 to 27 inches to paralithic bedrock; 27 to 33 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.28 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F148XY022PA - Dry, Triassic, Upland, Mixed Oak Heath / Oak-Pine Woodland
Hydric soil rating: No

Minor Components

Reaville

Percent of map unit: 5 percent
Landform: Depressions, hills
Landform position (two-dimensional): Footslope, shoulder, backslope
Landform position (three-dimensional): Base slope, side slope
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: No

Klinesville

Percent of map unit: 5 percent
Landform: Hills, interfluves
Landform position (two-dimensional): Shoulder, backslope

Landform position (three-dimensional): Side slope
Down-slope shape: Linear, convex
Across-slope shape: Convex
Hydric soil rating: No

Readington

Percent of map unit: 5 percent
Landform: Hills
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Base slope, head slope, side slope
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: No

ReB—Readington silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2w05x
Elevation: 70 to 950 feet
Mean annual precipitation: 38 to 55 inches
Mean annual air temperature: 43 to 57 degrees F
Frost-free period: 170 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Readington and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Readington

Setting

Landform: Hills
Landform position (two-dimensional): Footslope, backslope
Landform position (three-dimensional): Base slope, head slope, side slope
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Parent material: Triassic colluvium derived from shale and siltstone and/or triassic residuum weathered from shale and siltstone

Typical profile

Ap - 0 to 10 inches: silt loam
Bt1 - 10 to 17 inches: silt loam
Bt2 - 17 to 34 inches: silty clay loam
Btx - 34 to 48 inches: clay loam
C - 48 to 58 inches: channery silt loam
R - 58 to 68 inches: bedrock

Properties and qualities

Slope: 3 to 8 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent

Depth to restrictive feature: 20 to 36 inches to fragipan; 40 to 60 inches to lithic bedrock
Drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: F148XY025PA - Moist, Triassic, Upland, Mixed Oak - Hardwood - Conifer Forest
Hydric soil rating: No

Minor Components

Penn

Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Reaville

Percent of map unit: 5 percent
Landform: Depressions
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: No

Abbottstown

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Head slope, base slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: No

Rt—Rowland silt loam, terrace

Map Unit Setting

National map unit symbol: l56t

Elevation: 150 to 1,000 feet
Mean annual precipitation: 36 to 50 inches
Mean annual air temperature: 48 to 57 degrees F
Frost-free period: 150 to 200 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Rowland and similar soils: 82 percent
Minor components: 14 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rowland

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Head slope, base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Parent material: Alluvium derived from sandstone and shale

Typical profile

A - 0 to 12 inches: silt loam
B - 12 to 34 inches: silty clay loam
Cg - 34 to 46 inches: silty clay loam
2Cg - 46 to 61 inches: stratified gravel to sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 60 to 99 inches to lithic bedrock
Drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: About 12 to 36 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C
Ecological site: F148XY028PA - Moist, Triassic, Riparian Zone, Ecotonal Meadow-Shrub-Forest
Hydric soil rating: No

Minor Components

Knauers

Percent of map unit: 8 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: Yes

Abbottstown

Percent of map unit: 6 percent
Landform: Hillslopes
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope, head slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: No

UgB—Urban land, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2dtyq
Elevation: 800 to 1,500 feet
Mean annual precipitation: 36 to 46 inches
Mean annual air temperature: 41 to 62 degrees F
Frost-free period: 130 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Parent material: Pavement, buildings and other artifically covered areas human transported material

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: No

Minor Components

Udorthents, unstable fill

Percent of map unit: 10 percent
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

UrxB—Urban land-Penn complex, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2dtz3
Elevation: 200 to 1,000 feet
Mean annual precipitation: 36 to 55 inches
Mean annual air temperature: 46 to 57 degrees F
Frost-free period: 160 to 215 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 65 percent
Penn and similar soils: 25 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Landform: Hills
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Pavement, buildings and other artifically covered areas

Typical profile

C - 0 to 6 inches: variable

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: 10 to 100 inches to lithic bedrock
Available water supply, 0 to 60 inches: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: No

Description of Penn

Setting

Landform: Hillslopes
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Parent material: Residuum weathered from shale and siltstone

Typical profile

Ap - 0 to 8 inches: channery silt loam
Bt - 8 to 21 inches: channery silt loam
C - 21 to 34 inches: very channery silt loam

R - 34 to 44 inches: bedrock

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F148XY022PA - Dry, Triassic, Upland, Mixed Oak Heath / Oak-Pine Woodland
Hydric soil rating: No

Minor Components

Croton

Percent of map unit: 4 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: Yes

Readington

Percent of map unit: 4 percent
Landform: Hillslopes
Landform position (two-dimensional): Footslope, backslope
Landform position (three-dimensional): Base slope, head slope, side slope
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: No

Reaville

Percent of map unit: 2 percent
Landform: Hillslopes
Landform position (two-dimensional): Footslope, summit
Landform position (three-dimensional): Interfluve, base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: No

UusB—Urban land-Udorthents, shale and sandstone complex, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2dtz9
Elevation: 50 to 950 feet
Mean annual precipitation: 38 to 48 inches
Mean annual air temperature: 48 to 57 degrees F
Frost-free period: 161 to 215 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 80 percent
Udorthents, shale and sandstone, and similar soils: 15 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Landform: Hills
Parent material: Pavement, buildings and other artifically covered areas

Typical profile

C - 0 to 6 inches: variable

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: 10 to 99 inches to lithic bedrock
Available water supply, 0 to 60 inches: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: No

Description of Udorthents, Shale And Sandstone

Setting

Landform: Ridges
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Side slope, nose slope, interfluve
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Parent material: Graded areas of sandstone and shale

Typical profile

A - 0 to 6 inches: very channery loam
C - 6 to 60 inches: very channery silt loam

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: 20 to 99 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Penn

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope, nose slope
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

W—Water

Map Unit Setting

National map unit symbol: 1nnv3
Mean annual precipitation: 36 to 50 inches
Mean annual air temperature: 46 to 59 degrees F
Frost-free period: 120 to 214 days
Farmland classification: Not prime farmland

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Water

Setting

Parent material: Rivers streams ponds

Properties and qualities

Frequency of ponding: Frequent

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NOAA Atlas 14, Volume 2, Version 3
Location name: Plymouth Meeting, Pennsylvania, USA*
Latitude: 40.1196°, Longitude: -75.2595°
Elevation: 196 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.345** (0.316-0.377)	**0.411** (0.377-0.448)	**0.483** (0.441-0.526)	**0.534** (0.487-0.582)	**0.595** (0.540-0.649)	**0.637** (0.575-0.695)	**0.678** (0.610-0.741)	**0.714** (0.639-0.783)	**0.756** (0.671-0.833)	**0.788** (0.693-0.871)
10-min	**0.551** (0.505-0.601)	**0.657** (0.602-0.717)	**0.773** (0.707-0.843)	**0.854** (0.779-0.931)	**0.948** (0.861-1.03)	**1.01** (0.916-1.11)	**1.08** (0.969-1.18)	**1.13** (1.01-1.24)	**1.20** (1.06-1.32)	**1.24** (1.09-1.37)
15-min	**0.689** (0.632-0.752)	**0.826** (0.757-0.901)	**0.978** (0.894-1.07)	**1.08** (0.986-1.18)	**1.20** (1.09-1.31)	**1.28** (1.16-1.40)	**1.36** (1.22-1.49)	**1.43** (1.28-1.57)	**1.51** (1.34-1.66)	**1.56** (1.37-1.72)
30-min	**0.944** (0.866-1.03)	**1.14** (1.05-1.24)	**1.39** (1.27-1.52)	**1.56** (1.43-1.71)	**1.78** (1.62-1.94)	**1.93** (1.75-2.11)	**2.08** (1.88-2.28)	**2.22** (1.99-2.44)	**2.40** (2.12-2.64)	**2.52** (2.22-2.79)
60-min	**1.18** (1.08-1.28)	**1.43** (1.31-1.56)	**1.78** (1.63-1.94)	**2.04** (1.86-2.22)	**2.37** (2.15-2.58)	**2.62** (2.37-2.86)	**2.87** (2.58-3.14)	**3.12** (2.79-3.42)	**3.44** (3.05-3.79)	**3.68** (3.24-4.07)
2-hr	**1.41** (1.28-1.54)	**1.71** (1.56-1.88)	**2.14** (1.95-2.34)	**2.47** (2.24-2.70)	**2.90** (2.62-3.17)	**3.25** (2.91-3.55)	**3.59** (3.20-3.93)	**3.94** (3.48-4.32)	**4.41** (3.86-4.86)	**4.77** (4.13-5.27)
3-hr	**1.54** (1.41-1.70)	**1.87** (1.71-2.06)	**2.34** (2.13-2.58)	**2.71** (2.46-2.97)	**3.20** (2.88-3.51)	**3.58** (3.21-3.93)	**3.98** (3.54-4.37)	**4.38** (3.86-4.82)	**4.92** (4.29-5.45)	**5.35** (4.61-5.94)
6-hr	**1.93** (1.77-2.12)	**2.34** (2.14-2.57)	**2.92** (2.66-3.21)	**3.39** (3.08-3.72)	**4.05** (3.64-4.44)	**4.58** (4.10-5.02)	**5.15** (4.56-5.65)	**5.75** (5.03-6.31)	**6.58** (5.67-7.28)	**7.27** (6.16-8.06)
12-hr	**2.35** (2.15-2.60)	**2.84** (2.60-3.14)	**3.56** (3.26-3.93)	**4.17** (3.79-4.60)	**5.06** (4.54-5.56)	**5.80** (5.17-6.38)	**6.62** (5.82-7.28)	**7.50** (6.50-8.28)	**8.78** (7.45-9.74)	**9.86** (8.22-11.0)
24-hr	**2.72** (2.50-2.97)	**3.28** (3.02-3.58)	**4.12** (3.78-4.49)	**4.82** (4.41-5.25)	**5.83** (5.31-6.34)	**6.68** (6.05-7.26)	**7.60** (6.84-8.25)	**8.60** (7.68-9.32)	**10.0** (8.88-10.9)	**11.3** (9.84-12.2)
2-day	**3.14** (2.88-3.44)	**3.79** (3.47-4.15)	**4.77** (4.36-5.22)	**5.57** (5.08-6.08)	**6.70** (6.09-7.30)	**7.64** (6.91-8.32)	**8.64** (7.76-9.41)	**9.70** (8.66-10.6)	**11.2** (9.93-12.2)	**12.5** (11.0-13.6)
3-day	**3.32** (3.05-3.63)	**4.00** (3.68-4.37)	**5.01** (4.60-5.48)	**5.84** (5.34-6.37)	**7.00** (6.38-7.63)	**7.97** (7.24-8.67)	**8.99** (8.12-9.79)	**10.1** (9.04-11.0)	**11.6** (10.3-12.7)	**12.9** (11.4-14.1)
4-day	**3.49** (3.22-3.82)	**4.21** (3.88-4.60)	**5.26** (4.84-5.74)	**6.10** (5.61-6.65)	**7.30** (6.68-7.95)	**8.30** (7.56-9.02)	**9.34** (8.47-10.2)	**10.4** (9.42-11.4)	**12.0** (10.7-13.1)	**13.3** (11.8-14.5)
7-day	**4.08** (3.79-4.44)	**4.90** (4.54-5.33)	**6.05** (5.61-6.59)	**7.00** (6.47-7.61)	**8.35** (7.68-9.06)	**9.47** (8.68-10.3)	**10.6** (9.70-11.5)	**11.9** (10.8-12.9)	**13.7** (12.3-14.9)	**15.2** (13.5-16.5)
10-day	**4.65** (4.33-5.02)	**5.55** (5.17-5.99)	**6.77** (6.29-7.30)	**7.74** (7.19-8.36)	**9.10** (8.41-9.81)	**10.2** (9.40-11.0)	**11.3** (10.4-12.2)	**12.5** (11.4-13.5)	**14.1** (12.8-15.3)	**15.5** (13.9-16.7)
20-day	**6.29** (5.89-6.72)	**7.46** (7.00-7.97)	**8.89** (8.34-9.50)	**10.0** (9.38-10.7)	**11.5** (10.8-12.3)	**12.7** (11.9-13.6)	**13.9** (12.9-14.9)	**15.1** (14.0-16.2)	**16.7** (15.4-17.9)	**18.0** (16.5-19.3)
30-day	**7.84** (7.41-8.28)	**9.23** (8.73-9.75)	**10.8** (10.2-11.4)	**11.9** (11.3-12.6)	**13.5** (12.7-14.2)	**14.7** (13.8-15.5)	**15.8** (14.8-16.7)	**16.9** (15.8-17.9)	**18.4** (17.1-19.5)	**19.5** (18.1-20.7)
45-day	**9.96** (9.46-10.5)	**11.7** (11.1-12.3)	**13.4** (12.8-14.1)	**14.8** (14.0-15.5)	**16.4** (15.6-17.3)	**17.7** (16.7-18.6)	**18.8** (17.8-19.8)	**19.9** (18.8-21.0)	**21.3** (20.0-22.4)	**22.2** (20.9-23.5)
60-day	**11.9** (11.4-12.5)	**14.0** (13.3-14.7)	**16.0** (15.2-16.8)	**17.4** (16.6-18.3)	**19.2** (18.3-20.2)	**20.6** (19.6-21.6)	**21.8** (20.7-22.9)	**23.0** (21.8-24.1)	**24.4** (23.1-25.7)	**25.4** (24.0-26.7)

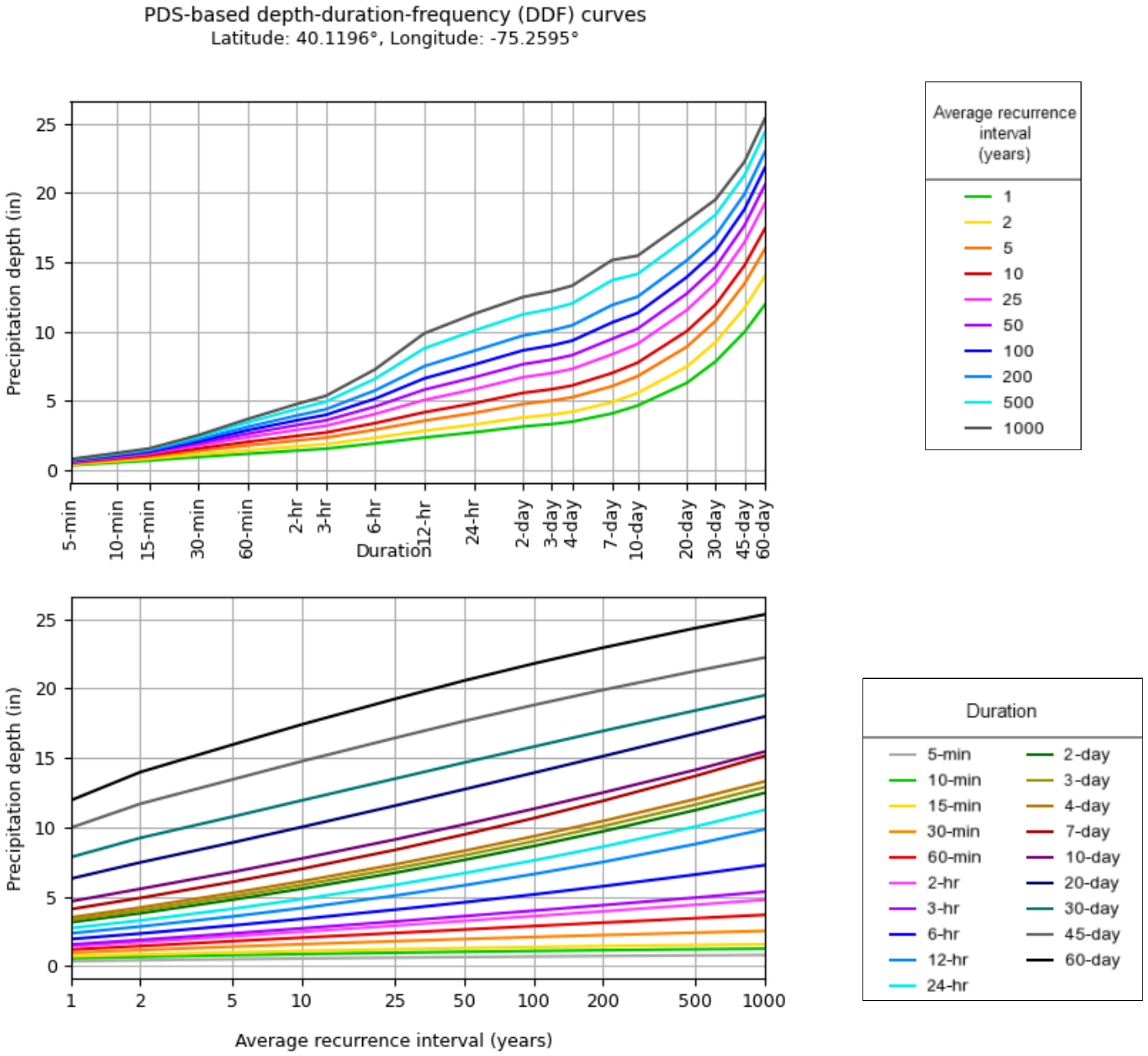
[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

Back to Top

PF graphical



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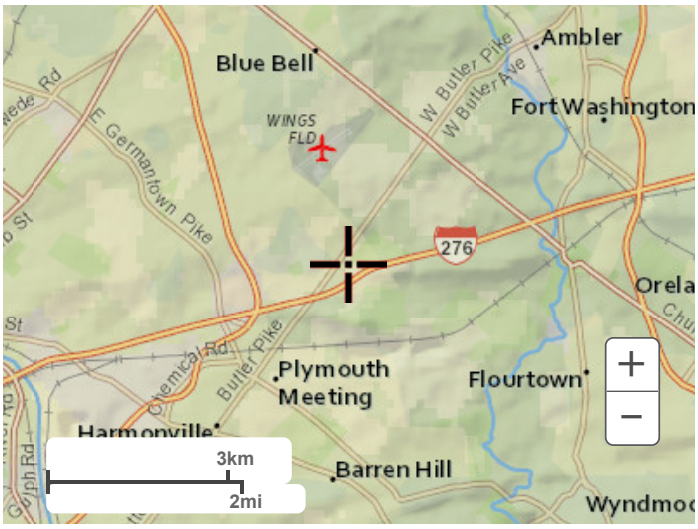
Created (GMT): Tue Oct 15 20:34:57 2024

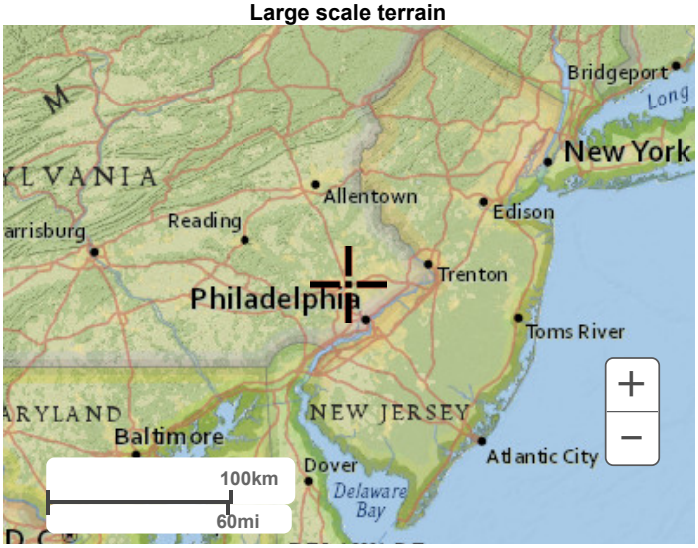
Back to Top

Maps & aerials

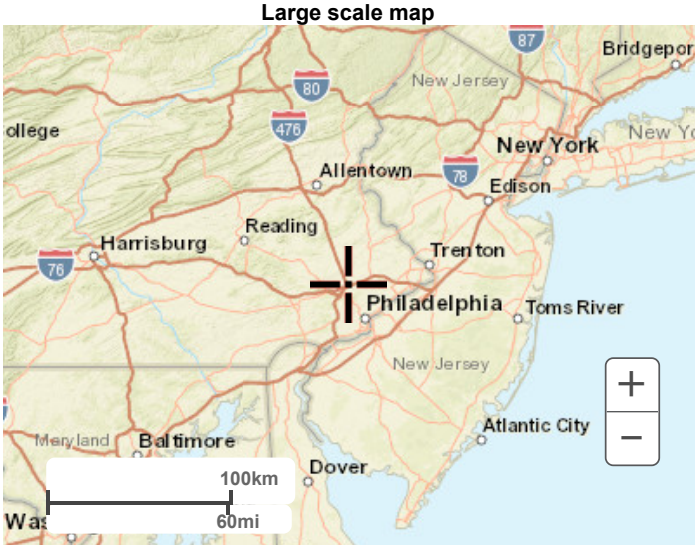
Small scale terrain



Large scale terrain



Large scale map



Large scale aerial

Back to Top

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National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

STORMWATER INFILTRATION REPORT

FOR

5200 BUTLER PIKE
WHITEMARSH TOWNSHIP
MONTGOMERY COUNTY

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October 2024

Stormwater Infiltration Test Report
5200 Butler Pike
Whitemarsh Township
Montgomery County

On Tuesday and Wednesday, October 8 and 9, 2024, Howell Engineering performed hydraulic conductivity tests for the proposed stormwater management areas for the property located at 5200 Butler Pike in Whitemarsh Township, Montgomery County. The purpose of the hydraulic conductivity testing was to determine site suitability for the proposed stormwater infiltration areas associated with proposed improvements at the site (see development plan).

Testing was conducted in general accordance with the Pennsylvania Department of Environmental Protection (PADEP)'s Pennsylvania Stormwater Best Management Practices Manual specifications, in a cased, sealed, borehole utilizing the falling head method designed to measure the vertical hydraulic conductivity of the soil. An approximate five-inch diameter borehole was hand dug to the depth of the proposed bottom elevation of the infiltration structure and a 3-inch diameter PVC casing was installed. A mixture of bentonite and soil was placed around the annulus of the casing and packed to seal the casing in place. The casing was presoaked immediately prior to the start of the test to simulate field saturated conditions. A measured amount of water was poured into the sealed casing to begin the 30-minute presoak. After the final 30-minute presoaking period, the water in the casing was adjusted to a known depth and consecutively re-adjusted after each reading and the drop of the water column is measured. The test continued until the readings became stabilized or for a maximum of eight readings. A stabilized rate of drop means a difference of ¼ inch or less of drop between the highest and lowest readings of four consecutive readings.

Within the site, four hydraulic conductivity tests were conducted at the elevations associated with the proposed bottom of the infiltration structures. One deep test pit was excavated at each infiltration test to identify limiting conditions such as mottling, depth of bedrock, and depth of groundwater. Testing was to be conducted within the footprint of the proposed infiltration structures.

- Infiltration Test 10-8-1 was conducted at approximately ± 3.0 feet below existing grade, which corresponds to an approximate infiltration elevation of 191.5. One deep test pit was excavated at this location to a depth of 7.0 feet below existing grade. No limiting conditions were identified at the time of excavation.

- Infiltration Test 10-8-2 was conducted at approximately ± 3.0 feet below existing grade, which corresponds to an approximate infiltration elevation of 191.5. No deep test pit was excavated at this location due to proximity of test 10-8-1 and to minimize property damage.

Based on the hydraulic conductivity testing located within the footprint of the infiltration structure, Howell Engineering recommends the following infiltration rate for the soils underlying Tests 10-8-1 & 10-8-2: an infiltration rate of 0.048 inches per hour shall be used. According to the Pennsylvania Stormwater BMP Manual, Appendix C, infiltration rates should fall between 0.1-10 in/hr. Therefore, soils underlying tests 10-8-1 and 10-8-2 are not recommended for use.

- Infiltration Test 10-9-1 was conducted at approximately ± 7.0 feet below existing grade, which corresponds to an approximate infiltration elevation of 191.5. One deep test pit was excavated at this location to a depth of 10.5 feet below existing grade. No limiting conditions were identified at the time of excavation.

- No hydraulic conductivity test was conducted at 10-9-2 due to proximity and similar soil profile as test 10-9-1. One deep test pit was excavated at this location to a depth of 10 feet below existing grade. No limiting conditions were identified at the time of excavation.

- Infiltration Test 10-9-3 was conducted at approximately ± 7.0 feet below existing grade, which corresponds to an approximate infiltration elevation of 191.5. One deep test pit was excavated at this location to a depth of 10 feet below existing grade. No limiting conditions were identified at the time of excavation.

- No hydraulic conductivity test was conducted at 10-9-4 due to proximity and similar soil profile as test 10-9-3. One deep test pit was excavated at this location to a depth of 9 feet below existing grade. Excavator resistance occurred at 9 feet due to large rock.

Based on the hydraulic conductivity testing located within the footprint of the infiltration structure, Howell Engineering recommends the following infiltration rate for the soils underlying Tests 10-9-1 & 10-9-3: an infiltration rate of 0.024 inches per hour shall be used. According to the Pennsylvania Stormwater BMP Manual, Appendix C, infiltration rates should fall between 0.1-10 in/hr. Therefore, soils underlying tests 10-9-1 and 10-9-3 are not recommended for use.

Please reference plan drawings for exact locations and visual representation of infiltration tests and test pits. Results of the hydraulic conductivity testing, and soil horizon descriptions can be found in the enclosed attachments.

Hydraulic Conductivity Calculation

Coefficient of Permeability: $K = [A/(F*D*t)] \times \ln (h1 / h2)$

Where: K = permeability (inches per hour)
A = cross sectional area of cased hole
F = shape factor (2.75 constant of flat bottom)

D = cased hole diameter
t = time for head change from h1 to h2
h1 = initial height of water column in casing
h2 = final height of water column in casing

*Reference *Soil Hydraulic Conductivity Analysis Form* for infiltration testing data and *Soil Morphology Form* for soil profile data.

Hydraulic Conductivity Testing Results

HOWELL ENGINEERING

Local Knowhow. Engineered.

Stormwater Infiltration Testing & Hydraulic Conductivity Calculations

JOB NO.: 1127E
DATE: 10/8/2024
LOCATION: 5200 Butler Pike
BY: CS
MUNICIPALITY: Whitemarsh Township, Montgomery County, PA.
DESCRIPTION: Stormwater Infiltration Testing

Field Test Results

WEATHER CONDITIONS: SUNNY
TEMPERATURE: 66 °F
PRECIPITATION IN LAST 24 HOURS: None

Hole #	Depth (Inches)	Readings								
		Pre-Soak	1st	2nd	3rd	4th	5th	6th	7th	8th
TP 10-8-1	36									
Time(min.)		*30*	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**
Drop(inches)		*0.50*	0.50	0.50	0.50	0.50	n/a	n/a	n/a	n/a
Initial Water Level Depth (inches)		*18*	18	18	18	18	n/a	n/a	n/a	n/a

Hole #	Depth (Inches)	Readings								
		Pre-Soak	1st	2nd	3rd	4th	5th	6th	7th	8th
TP 10-8-2	36									
Time(min.)		*30*	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**
Drop(inches)		*0.50*	0.50	0.50	0.50	0.50	n/a	n/a	n/a	n/a
Initial Water Level Depth (inches)		*18*	18	18	18	18	n/a	n/a	n/a	n/a

Detemination of Hydraulic Conductivity (Kv)

$$Kv = [A/F*D*t] * \ln(h1/h2)$$

		Test 1 Results		Test 2 Results	
Kv =	*Vertical Permeability*	0.0483	(in/hour)	0.0483	(in/hour)
A =	*Cross-sectional area of cased hole*	7.0686	(Sq.in.)	7.0686	(Sq.in.)
F =	*shape factor (2.75 constant for flat bottom)*	2.75	(Units)	2.75	(Units)
D =	*cased hole diameter*	3	(Inches)	3	(Inches)
t =	*time for head to change from h1 to h2*	0.5	(hrs.)	0.5	(hrs.)
h1 =	*initial height of water column in casing*	18	(Inches)	18	(Inches)
h2 =	*final height of water column in casing*	17.50	(Inches)	17.50	(Inches)

Average Permeability	0.048	(in./hr)
Geometric Mean	0.048	(in./hr)

HOWELL ENGINEERING

Local Knowhow. Engineered.

Stormwater Infiltration Testing & Hydraulic Conductivity Calculations

JOB NO.: 1127E
DATE: 10/9/2024
LOCATION: 5200 Butler Pike
BY: CS
MUNICIPALITY: Whitemarsh Township, Montgomery County, PA.
DESCRIPTION: Stormwater Infiltration Testing

Field Test Results

WEATHER CONDITIONS: SUNNY
TEMPERATURE: 70 °F
PRECIPITATION IN LAST 24 HOURS: None

Hole #	Depth (Inches)	Readings								
		Pre-Soak	1st	2nd	3rd	4th	5th	6th	7th	8th
TP 10-9-1	84									
Time(min.)		*30*	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**
Drop(inches)		*0.75*	0.50	0.25	0.25	0.25	n/a	n/a	n/a	n/a
Initial Water Level Depth (inches)		*18*	18	18	18	18	n/a	n/a	n/a	n/a

Hole #	Depth (Inches)	Readings								
		Pre-Soak	1st	2nd	3rd	4th	5th	6th	7th	8th
TP 10-9-3	84									
Time(min.)		*30*	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**
Drop(inches)		*0.75*	0.50	0.25	0.25	0.25	n/a	n/a	n/a	n/a
Initial Water Level Depth (inches)		*18*	18	18	18	18	n/a	n/a	n/a	n/a

Detemination of Hydraulic Conductivity (Kv)

$$Kv = [A/F*D*t] * \ln(h1/h2)$$

		TP 10-9-1 Results		TP 10-9-3 Results	
Kv =	*Vertical Permeability*	0.0239668	(in/hour)	0.023967	(in/hour)
A =	*Cross-sectional area of cased hole*	7.0685835	(Sq.in.)	7.068583	(Sq.in.)
F =	*shape factor (2.75 constant for flat bottom)*	2.75	(Units)	2.75	(Units)
D =	*cased hole diameter*	3	(Inches)	3	(Inches)
t =	*time for head to change from h1 to h2*	0.5	(hrs.)	0.5	(hrs.)
h1 =	*initial height of water column in casing*	18	(Inches)	18	(Inches)
h2 =	*final height of water column in casing*	17.75	(Inches)	17.75	(Inches)

Average Permeability	0.024 (in./hr)
Geometric Mean	0.024 (in./hr)

Soil Horizon Information

Soil Morphology Form

HOWELL ENGINEERING
Local Knowhow. Engineered.

PIT NUMBER: TP10-8-1 JOB NUMBER: 1127E INVESTIGATOR: CRS
DATE: 10/8/2024 STATE: PA COUNTY: MONTGOMERY
MUNICIPALITY: WHITEMARSH TOWNSHIP CLIENT: GEMMA SERVICES
SUBDIVISION: N/A SITE LOCATION: 5200 BUTLER PIKE
MORPHOLOGIC DETERMINATION: SEWAGE **STORMWATER** SHWT SOILS

Horizon	Depth		Boundary		Color	Texture	%CFs	REDOX			Structure	Consistence	NOTES	
	Upper	Lower	Distrnct	Topo				A	S	C				
	0	5	A	C	NA	MULCH	0							
	5	10	A	C	NA	GRAVEL	0							
	10	84			2.5 YR 4/6	CLAY LOAM	0				BLKY	VFIRM		

COMMENTS: This Deep Test Pit was conducted at Test 10-8-1.

SOIL TYPE:	Soil Drainage Class:	Soil Scientist Signature:
LIMITING CONDITION:	Excessively Drained Somewhat Poorly Drained	
Type: Water Rock Mottling	Well Drained Poorly Drained	
Depth: 84"	Moderately Well Drained **Very Poorly Drained**	

WEATHER: 66° SUNNY METHOD: Excavator
SLOPE: EXCAVATION DEPTH: 84"
COVER: GARDEN LANDSCAPE POSITION: SE

REDOX – Redoxymorphic features (Drainage Mottling) A/S/C – Abundance/Size/Contrast
Roots/Pores – f – few, c – common, m – many / f – fine, m – medium, c – coarse

1250 Wrights Lane
West Chester, PA 19380

P: (610) 918-9002
F: (610) 918-9003

Soil Morphology Form

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PIT NUMBER: TP10-9-1 JOB NUMBER: 1127E INVESTIGATOR: CRS
DATE: 10/9/2024 STATE: PA COUNTY: MONTGOMERY
MUNICIPALITY: WHITEMARSH TOWNSHIP CLIENT: GEMMA SERVICES
SUBDIVISION: N/A SITE LOCATION: 5200 BUTLER PIKE
MORPHOLOGIC DETERMINATION: SEWAGE **STORMWATER** SHWT SOILS

Horizon	Depth		Boundary		Color	Texture	%CFs	REDOX			Structure	Consistence	NOTES	
	Upper	Lower	Distrnct	Topo				A	S	C				
	0	32	A	C		FILL / GRAVEL	0							
	32	120	A	C	2.5 YR 3/4	CLAY LOAM	20				MA	VFIIRM		
	120	125			2.5 Y 4/4	CLAY	0				MA	FIRM		

COMMENTS: This Deep Test Pit was conducted at Test 10-9-1.

SOIL TYPE:	Soil Drainage Class:	Soil Scientist Signature:
LIMITING CONDITION:	Excessively Drained Somewhat Poorly Drained	
Type: Water Rock Mottling	Well Drained Poorly Drained	
Depth: 125"	Moderately Well Drained **Very Poorly Drained**	

WEATHER: 70° SUNNY METHOD: Excavator
SLOPE: EXCAVATION DEPTH: 125"
COVER: FIELD/TURF LANDSCAPE POSITION: W

REDOX – Redoxymorphic features (Drainage Mottling) A/S/C – Abundance/Size/Contrast
Roots/Pores – f – few, c – common, m – many / f – fine, m – medium, c – coarse

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F: (610) 918-9003

Soil Morphology Form

HOWELL ENGINEERING
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PIT NUMBER: TP10-9-2 JOB NUMBER: 1127E INVESTIGATOR: CRS
DATE: 10/9/2024 STATE: PA COUNTY: MONTGOMERY
MUNICIPALITY: WHITEMARSH TOWNSHIP CLIENT: GEMMA SERVICES
SUBDIVISION: N/A SITE LOCATION: 5200 BUTLER PIKE
MORPHOLOGIC DETERMINATION: SEWAGE **STORMWATER** SHWT SOILS

Horizon	Depth		Boundary		Color	Texture	%CFs	REDOX			Structure	Consistence	NOTES	
	Upper	Lower	Distrnct	Topo				A	S	C				
	0	22	A	C		FILL / GRAVEL	0							
	22	120			2.5 YR 3/4	CLAY LOAM	20					VFIIRM		

COMMENTS: This Deep Test Pit was conducted at Test 10-9-2. No test conducted at this location.

SOIL TYPE:	Soil Drainage Class: **NO TEST CONDUCTED**	Soil Scientist Signature:
LIMITING CONDITION:	Excessively Drained Somewhat Poorly Drained	
Type: Water Rock Mottling	Well Drained Poorly Drained	
Depth: 120"	Moderately Well Drained Very Poorly Drained	

WEATHER: 70° SUNNY METHOD: Excavator
SLOPE: EXCAVATION DEPTH: 120"
COVER: FIELD/TURF LANDSCAPE POSITION: W

REDOX – Redoxymorphic features (Drainage Mottling) A/S/C – Abundance/Size/Contrast
Roots/Pores – f – few, c – common, m – many / f – fine, m – medium, c – coarse

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P: (610) 918-9002
F: (610) 918-9003

Soil Morphology Form

HOWELL ENGINEERING
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PIT NUMBER: TP10-9-3 JOB NUMBER: 1127E INVESTIGATOR: CRS
DATE: 10/9/2024 STATE: PA COUNTY: MONTGOMERY
MUNICIPALITY: WHITEMARSH TOWNSHIP CLIENT: GEMMA SERVICES
SUBDIVISION: N/A SITE LOCATION: 5200 BUTLER PIKE
MORPHOLOGIC DETERMINATION: SEWAGE **STORMWATER** SHWT SOILS

Horizon	Depth		Boundary		Color	Texture	%CFs	REDOX			Structure	Consistence	NOTES	
	Upper	Lower	Distrnct	Topo				A	S	C				
	0	15	A	C		FILL / GRAVEL	0							
	15	30	A	C	2.5 YR 3/4	CLAY LOAM	20				MA	VFIIRM		
	30	57	A	C		FILL / GRAVEL	0							
	57	120			2.5 YR 3/4	CLAY LOAM	20				MA	VFIRM		

COMMENTS: This Deep Test Pit was conducted at Test 10-9-3.

SOIL TYPE:	Soil Drainage Class:		Soil Scientist Signature:
LIMITING CONDITION:	Excessively Drained	Somewhat Poorly Drained	
Type: Water Rock Mottling	Well Drained	Poorly Drained	
Depth: 120"	Moderately Well Drained	**Very Poorly Drained**	

WEATHER: 70° SUNNY METHOD: Excavator
SLOPE: EXCAVATION DEPTH: 120"
COVER: FIELD/TURF LANDSCAPE POSITION: W

REDOX – Redoxymorphic features (Drainage Mottling) A/S/C – Abundance/Size/Contrast
Roots/Pores – f – few, c – common, m – many / f – fine, m – medium, c – coarse

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F: (610) 918-9003

Soil Morphology Form

HOWELL ENGINEERING
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PIT NUMBER: TP10-9-4 JOB NUMBER: 1127E INVESTIGATOR: CRS
DATE: 10/9/2024 STATE: PA COUNTY: MONTGOMERY
MUNICIPALITY: WHITEMARSH TOWNSHIP CLIENT: GEMMA SERVICES
SUBDIVISION: N/A SITE LOCATION: 5200 BUTLER PIKE
MORPHOLOGIC DETERMINATION: SEWAGE **STORMWATER** SHWT SOILS

Horizon	Depth		Boundary		Color	Texture	%CFs	REDOX			Structure	Consistence	NOTES	
	Upper	Lower	Distrnct	Topo				A	S	C				
	0	36	A	C		FILL / GRAVEL	0							
	36	108			2.5 YR 3/4	CLAY LOAM	20				MA	VFIIRM	EX RESISTANCE	

COMMENTS: This Deep Test Pit was conducted at Test 10-9-4. No test conducted at this location. Additionally, excavator resistance was encountered approximatley 108 inches below existing grade due to large rock.

SOIL TYPE:	Soil Drainage Class: **NO TEST CONDUCTED**	Soil Scientist Signature:
LIMITING CONDITION:	Excessively Drained Somewhat Poorly Drained	
Type: Water **Rock** Mottling	Well Drained Poorly Drained	
Depth: 108"	Moderately Well Drained Very Poorly Drained	

WEATHER: 70° SUNNY METHOD: Excavator
SLOPE: EXCAVATION DEPTH: 120"
COVER: FIELD/TURF LANDSCAPE POSITION: W

REDOX – Redoxymorphic features (Drainage Mottling) A/S/C – Abundance/Size/Contrast
Roots/Pores – f – few, c – common, m – many / f – fine, m – medium, c – coarse

1250 Wrights Lane
West Chester, PA 19380

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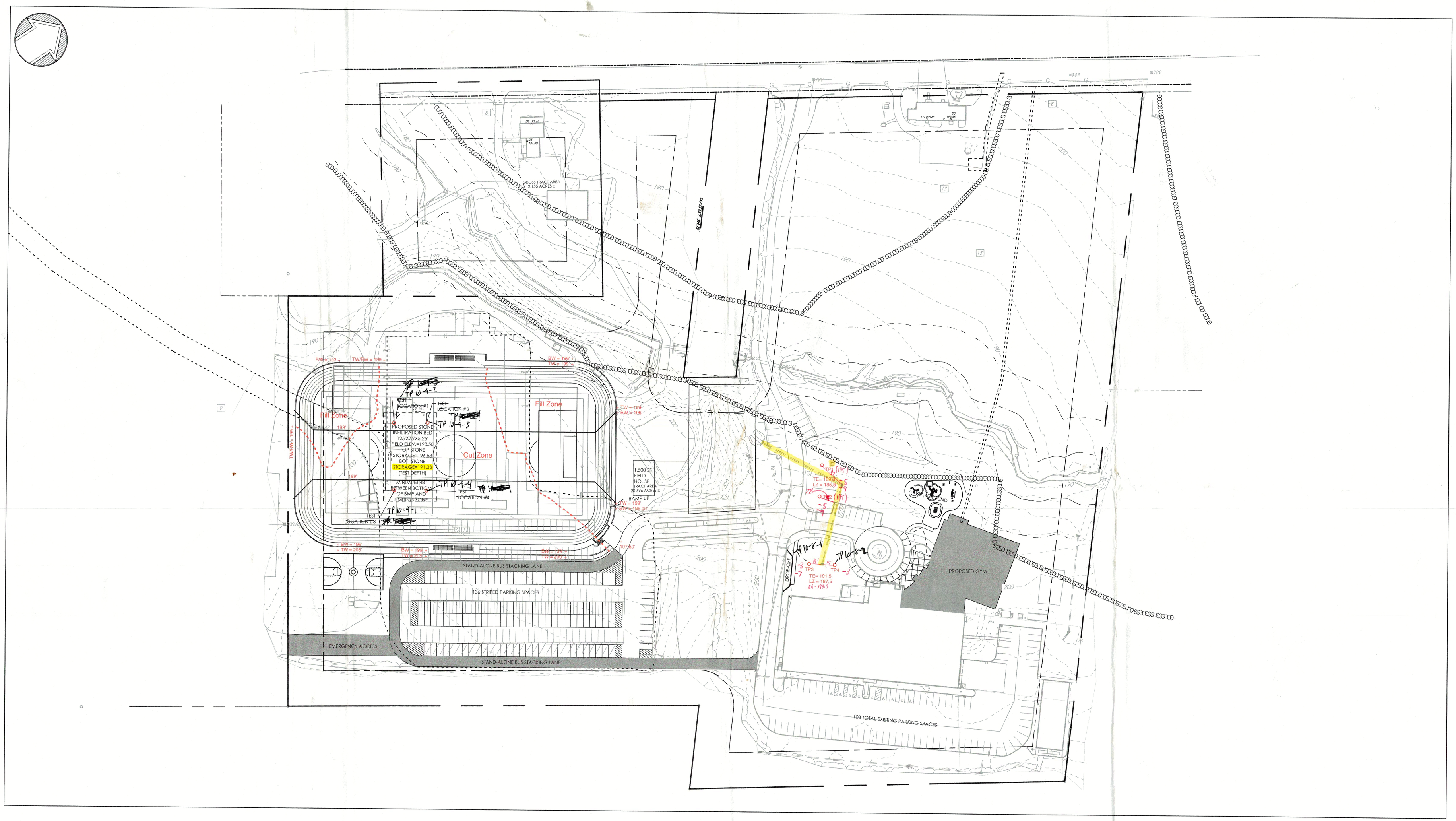


60 0 30 60 120 240
(IN FEET)
1 inch = 60 ft

GEMMA SERVICES:REVISED SITE PLAN

WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PA
SEPTEMBER 12, 2024

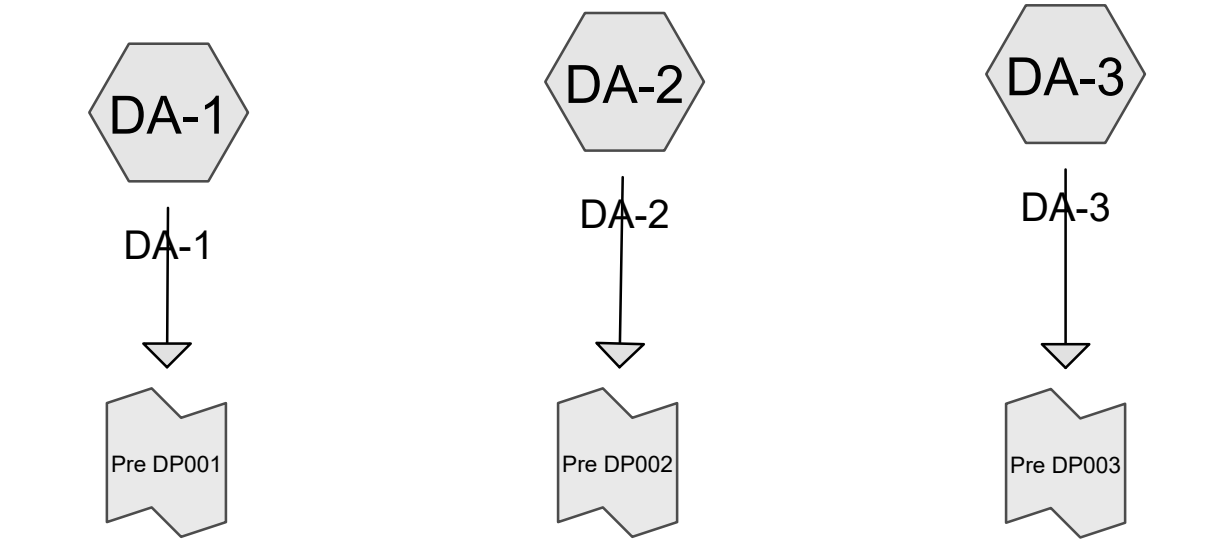
SCALE: 1" = 60'

900 WEST VALLEY ROAD, SUITE 1100, WAYNE, PA 19087 • 610.265.8323 • fax: 610.265.4299 • www.navenewell.com

PROJECT #2024-039.00

Nave NEWELL

Appendix B



Pre-Development
DP001

Pre-Development
DP002

Pre-Development
DP003

Subcat Reach Pond Link

Routing Diagram for 24039_Hydrocad
Prepared by Nave Newell Inc, Printed 10/17/2024
HydroCAD® 10.20-5a s/n 07511 © 2023 HydroCAD Software Solutions LLC

Summary for Subcatchment DA-1: DA-1

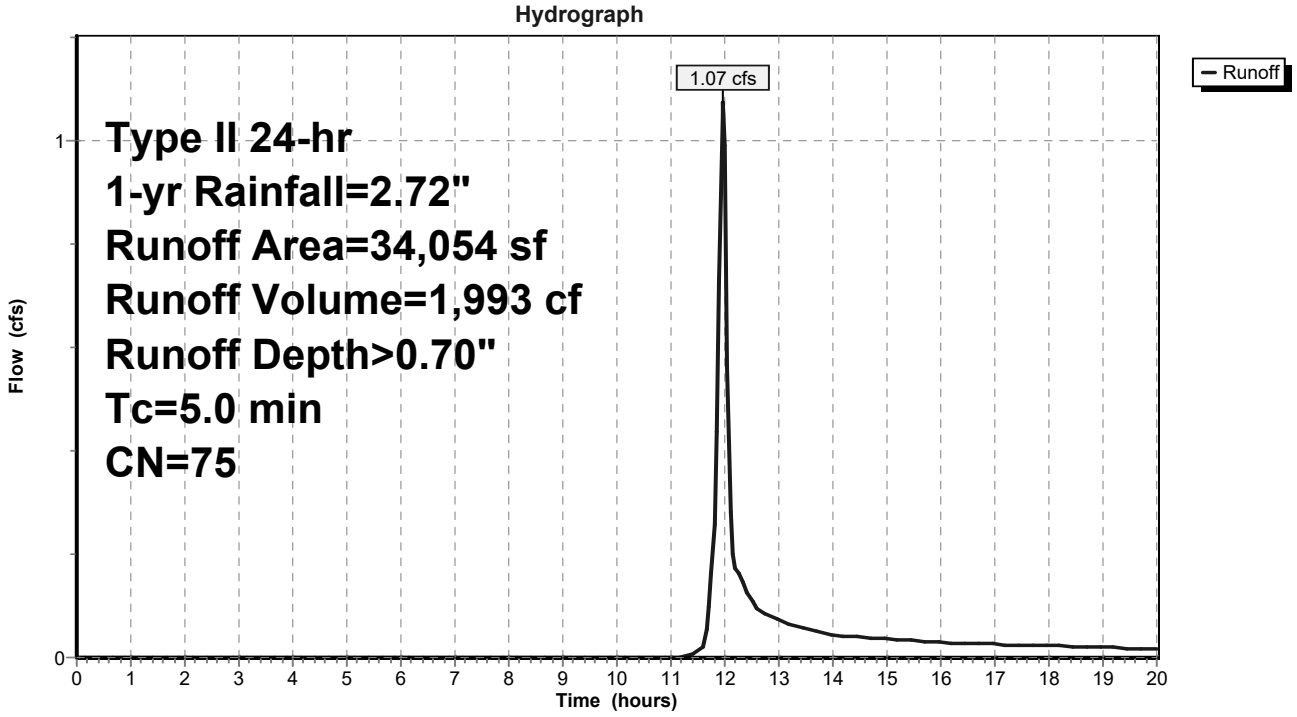
Runoff = 1.07 cfs @ 11.97 hrs, Volume= 1,993 cf, Depth> 0.70"
Routed to Link Pre DP001 : Pre-Development DP001

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-yr Rainfall=2.72"

	Area (sf)	CN	Description
	6,319	98	Paved parking, HSG C
	1,606	58	Meadow, non-grazed, HSG B
	582	60	Woods, Fair, HSG B
	23,967	71	Meadow, non-grazed, HSG C
*	1,580	71	20% Impervious as meadow
	34,054	75	Weighted Average
	27,735		81.44% Pervious Area
	6,319		18.56% Impervious Area

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

Subcatchment DA-1: DA-1



Hydrograph for Subcatchment DA-1: DA-1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.01	0.00	0.00
0.75	0.02	0.00	0.00
1.00	0.03	0.00	0.00
1.25	0.04	0.00	0.00
1.50	0.04	0.00	0.00
1.75	0.05	0.00	0.00
2.00	0.06	0.00	0.00
2.25	0.07	0.00	0.00
2.50	0.08	0.00	0.00
2.75	0.09	0.00	0.00
3.00	0.09	0.00	0.00
3.25	0.10	0.00	0.00
3.50	0.11	0.00	0.00
3.75	0.12	0.00	0.00
4.00	0.13	0.00	0.00
4.25	0.14	0.00	0.00
4.50	0.15	0.00	0.00
4.75	0.16	0.00	0.00
5.00	0.17	0.00	0.00
5.25	0.18	0.00	0.00
5.50	0.19	0.00	0.00
5.75	0.21	0.00	0.00
6.00	0.22	0.00	0.00
6.25	0.23	0.00	0.00
6.50	0.24	0.00	0.00
6.75	0.26	0.00	0.00
7.00	0.27	0.00	0.00
7.25	0.28	0.00	0.00
7.50	0.30	0.00	0.00
7.75	0.31	0.00	0.00
8.00	0.33	0.00	0.00
8.25	0.34	0.00	0.00
8.50	0.36	0.00	0.00
8.75	0.38	0.00	0.00
9.00	0.40	0.00	0.00
9.25	0.42	0.00	0.00
9.50	0.44	0.00	0.00
9.75	0.47	0.00	0.00
10.00	0.49	0.00	0.00
10.25	0.52	0.00	0.00
10.50	0.55	0.00	0.00
10.75	0.59	0.00	0.00
11.00	0.64	0.00	0.00
11.25	0.70	0.00	0.00
11.50	0.77	0.00	0.01
11.75	1.05	0.04	**0.16**
12.00	1.80	0.29	**0.99**
12.25	1.92	0.34	0.16
12.50	2.00	0.38	0.11
12.75	2.05	0.41	0.08
13.00	2.10	0.43	0.07
13.25	2.14	0.45	0.06
13.50	2.17	0.47	0.06
13.75	2.20	0.48	0.05
14.00	2.23	0.50	0.04
14.25	2.25	0.51	0.04
14.50	2.28	0.53	0.04
14.75	2.30	0.54	0.04
15.00	2.32	0.55	0.04
15.25	2.34	0.56	0.03
15.50	2.36	0.57	0.03
15.75	2.38	0.58	0.03
16.00	2.39	0.59	0.03
16.25	2.41	0.60	0.03
16.50	2.42	0.61	0.03
16.75	2.44	0.62	0.03
17.00	2.45	0.62	0.03
17.25	2.47	0.63	0.02
17.50	2.48	0.64	0.02
17.75	2.49	0.65	0.02
18.00	2.51	0.65	0.02
18.25	2.52	0.66	0.02
18.50	2.53	0.67	0.02
18.75	2.54	0.67	0.02
19.00	2.55	0.68	0.02
19.25	2.56	0.69	0.02
19.50	2.57	0.69	0.02
19.75	2.58	0.70	0.02
20.00	**2.59**	**0.70**	0.02

Summary for Subcatchment DA-2: DA-2

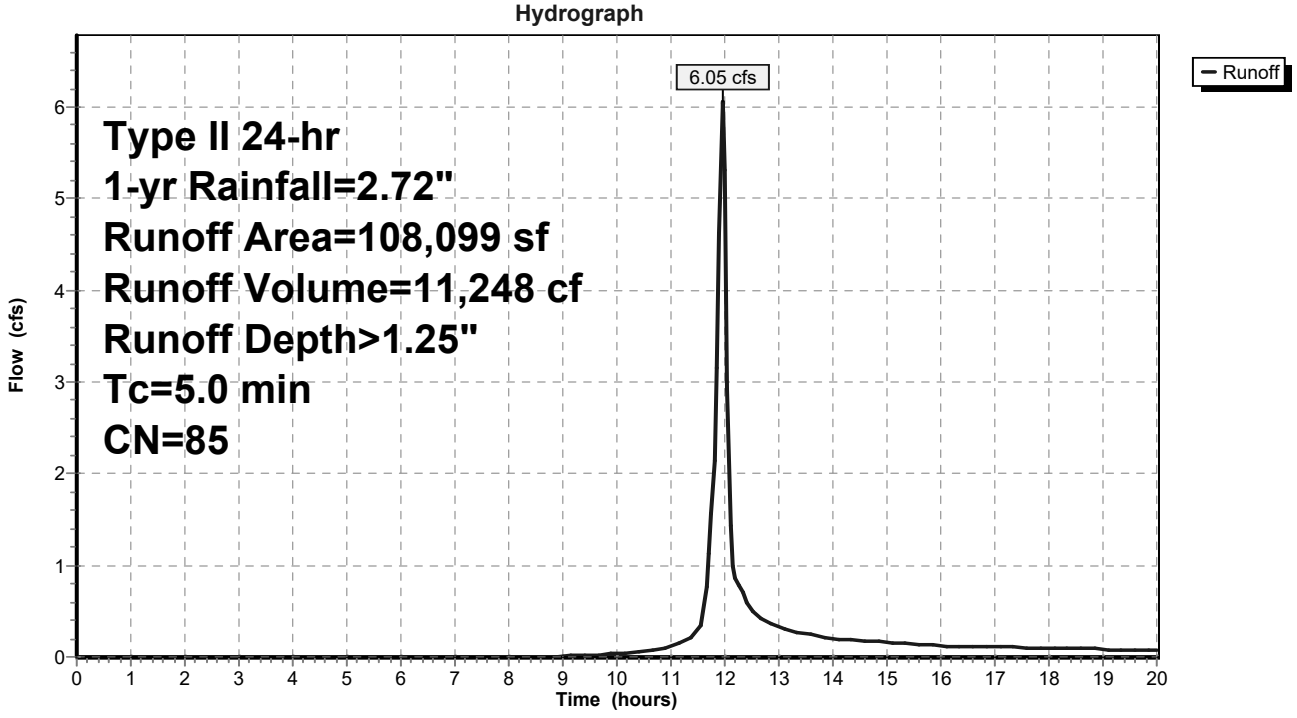
Runoff = 6.05 cfs @ 11.96 hrs, Volume= 11,248 cf, Depth> 1.25"
Routed to Link Pre DP002 : Pre-Development DP002

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-yr Rainfall=2.72"

	Area (sf)	CN	Description
	54,808	98	Paved parking, HSG C
*	13,702	71	20% Impervious as meadow
	1,400	58	Meadow, non-grazed, HSG B
	446	60	Woods, Fair, HSG B
	27,860	71	Meadow, non-grazed, HSG C
	9,883	73	Woods, Fair, HSG C
	108,099	85	Weighted Average
	53,291		49.30% Pervious Area
	54,808		50.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc-1**

Subcatchment DA-2: DA-2



Hydrograph for Subcatchment DA-2: DA-2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.01	0.00	0.00
0.75	0.02	0.00	0.00
1.00	0.03	0.00	0.00
1.25	0.04	0.00	0.00
1.50	0.04	0.00	0.00
1.75	0.05	0.00	0.00
2.00	0.06	0.00	0.00
2.25	0.07	0.00	0.00
2.50	0.08	0.00	0.00
2.75	0.09	0.00	0.00
3.00	0.09	0.00	0.00
3.25	0.10	0.00	0.00
3.50	0.11	0.00	0.00
3.75	0.12	0.00	0.00
4.00	0.13	0.00	0.00
4.25	0.14	0.00	0.00
4.50	0.15	0.00	0.00
4.75	0.16	0.00	0.00
5.00	0.17	0.00	0.00
5.25	0.18	0.00	0.00
5.50	0.19	0.00	0.00
5.75	0.21	0.00	0.00
6.00	0.22	0.00	0.00
6.25	0.23	0.00	0.00
6.50	0.24	0.00	0.00
6.75	0.26	0.00	0.00
7.00	0.27	0.00	0.00
7.25	0.28	0.00	0.00
7.50	0.30	0.00	0.00
7.75	0.31	0.00	0.00
8.00	0.33	0.00	0.00
8.25	0.34	0.00	0.00
8.50	0.36	0.00	0.00
8.75	0.38	0.00	0.00
9.00	0.40	0.00	0.01
9.25	0.42	0.00	0.01
9.50	0.44	0.00	0.02
9.75	0.47	0.01	0.03
10.00	0.49	0.01	0.04
10.25	0.52	0.01	0.05
10.50	0.55	0.02	0.06
10.75	0.59	0.03	0.09
11.00	0.64	0.04	0.12
11.25	0.70	0.06	0.17
11.50	0.77	0.08	0.25
11.75	1.05	0.20	**1.56**
12.00	1.80	0.65	**5.31**
12.25	1.92	0.74	0.79
12.50	2.00	0.79	0.52
12.75	2.05	0.83	0.39
13.00	2.10	0.87	0.33
13.25	2.14	0.90	0.29
13.50	2.17	0.92	0.25
13.75	2.20	0.95	0.23
14.00	2.23	0.97	0.20
14.25	2.25	0.99	0.19
14.50	2.28	1.00	0.18
14.75	2.30	1.02	0.17
15.00	2.32	1.04	0.16
15.25	2.34	1.05	0.15
15.50	2.36	1.07	0.14
15.75	2.38	1.08	0.13
16.00	2.39	1.09	0.13
16.25	2.41	1.11	0.12
16.50	2.42	1.12	0.12
16.75	2.44	1.13	0.11
17.00	2.45	1.14	0.11
17.25	2.47	1.15	0.11
17.50	2.48	1.16	0.11
17.75	2.49	1.17	0.10
18.00	2.51	1.18	0.10
18.25	2.52	1.19	0.10
18.50	2.53	1.20	0.09
18.75	2.54	1.21	0.09
19.00	2.55	1.22	0.09
19.25	2.56	1.23	0.08
19.50	2.57	1.24	0.08
19.75	2.58	1.24	0.08
20.00	**2.59**	**1.25**	0.07

Summary for Subcatchment DA-3: DA-3

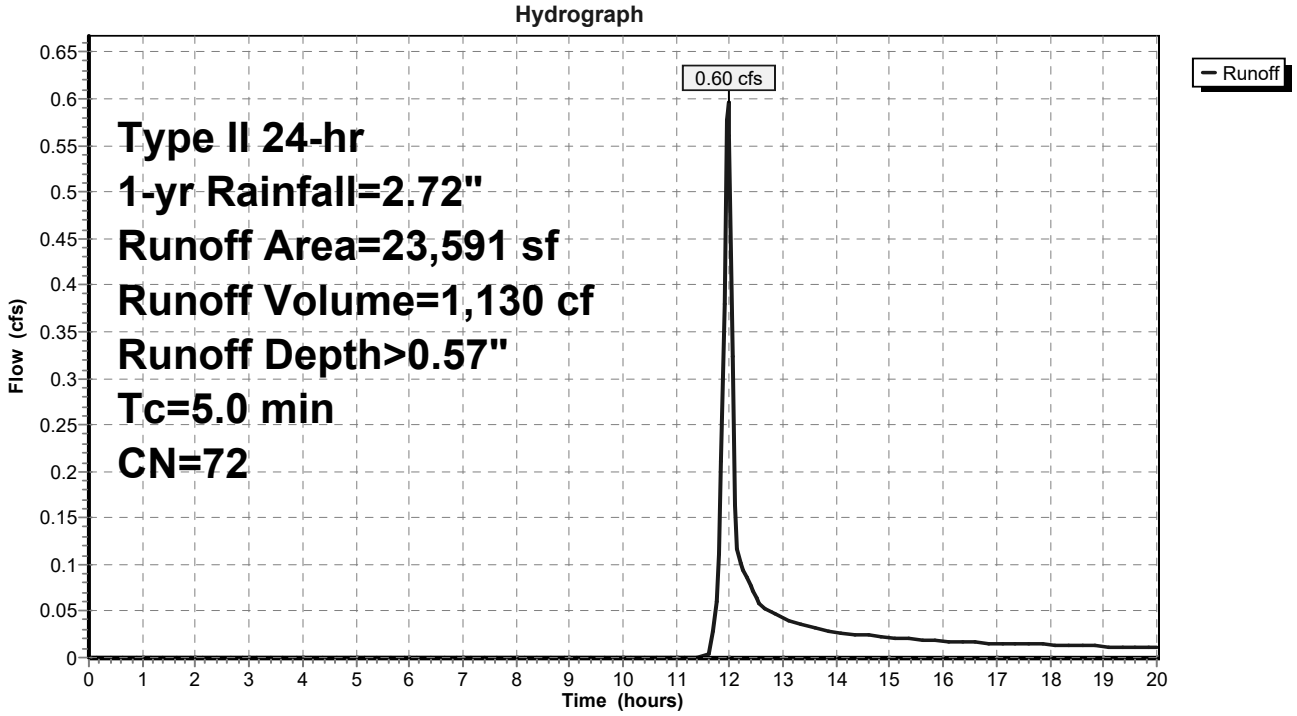
Runoff = 0.60 cfs @ 11.97 hrs, Volume= 1,130 cf, Depth> 0.57"
Routed to Link Pre DP003 : Pre-Development DP003

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-yr Rainfall=2.72"

	Area (sf)	CN	Description
	1,304	98	Paved parking, HSG C
*	326	71	20% impervious as meadow
	21,961	71	Meadow, non-grazed, HSG C
	23,591	72	Weighted Average
	22,222		94.20% Pervious Area
	1,369		5.80% Impervious Area

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

Subcatchment DA-3: DA-3



Hydrograph for Subcatchment DA-3: DA-3

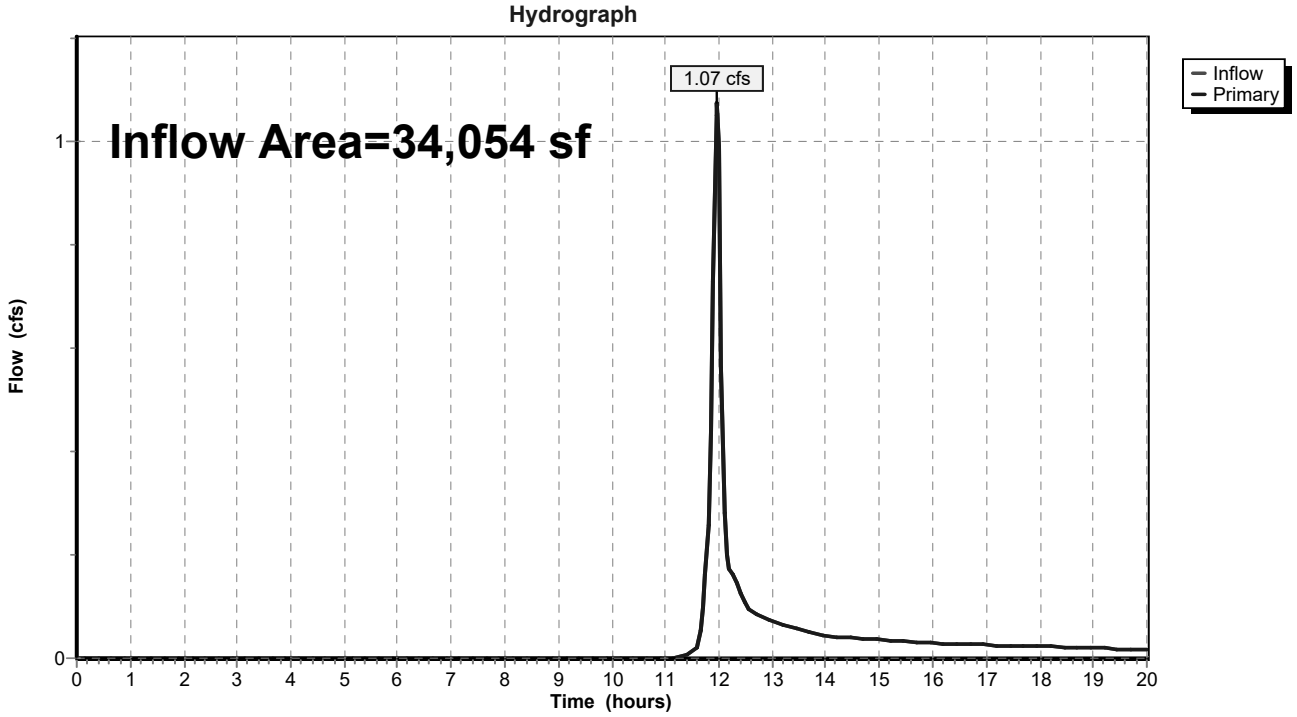
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.01	0.00	0.00
0.75	0.02	0.00	0.00
1.00	0.03	0.00	0.00
1.25	0.04	0.00	0.00
1.50	0.04	0.00	0.00
1.75	0.05	0.00	0.00
2.00	0.06	0.00	0.00
2.25	0.07	0.00	0.00
2.50	0.08	0.00	0.00
2.75	0.09	0.00	0.00
3.00	0.09	0.00	0.00
3.25	0.10	0.00	0.00
3.50	0.11	0.00	0.00
3.75	0.12	0.00	0.00
4.00	0.13	0.00	0.00
4.25	0.14	0.00	0.00
4.50	0.15	0.00	0.00
4.75	0.16	0.00	0.00
5.00	0.17	0.00	0.00
5.25	0.18	0.00	0.00
5.50	0.19	0.00	0.00
5.75	0.21	0.00	0.00
6.00	0.22	0.00	0.00
6.25	0.23	0.00	0.00
6.50	0.24	0.00	0.00
6.75	0.26	0.00	0.00
7.00	0.27	0.00	0.00
7.25	0.28	0.00	0.00
7.50	0.30	0.00	0.00
7.75	0.31	0.00	0.00
8.00	0.33	0.00	0.00
8.25	0.34	0.00	0.00
8.50	0.36	0.00	0.00
8.75	0.38	0.00	0.00
9.00	0.40	0.00	0.00
9.25	0.42	0.00	0.00
9.50	0.44	0.00	0.00
9.75	0.47	0.00	0.00
10.00	0.49	0.00	0.00
10.25	0.52	0.00	0.00
10.50	0.55	0.00	0.00
10.75	0.59	0.00	0.00
11.00	0.64	0.00	0.00
11.25	0.70	0.00	0.00
11.50	0.77	0.00	0.00
11.75	1.05	0.02	**0.06**
12.00	1.80	0.21	**0.56**
12.25	1.92	0.26	0.09
12.50	2.00	0.29	0.06
12.75	2.05	0.32	0.05
13.00	2.10	0.34	0.04
13.25	2.14	0.35	0.04
13.50	2.17	0.37	0.03
13.75	2.20	0.38	0.03
14.00	2.23	0.40	0.03
14.25	2.25	0.41	0.03
14.50	2.28	0.42	0.02
14.75	2.30	0.43	0.02
15.00	2.32	0.44	0.02
15.25	2.34	0.45	0.02
15.50	2.36	0.46	0.02
15.75	2.38	0.47	0.02
16.00	2.39	0.47	0.02
16.25	2.41	0.48	0.02
16.50	2.42	0.49	0.02
16.75	2.44	0.50	0.02
17.00	2.45	0.50	0.02
17.25	2.47	0.51	0.02
17.50	2.48	0.52	0.01
17.75	2.49	0.52	0.01
18.00	2.51	0.53	0.01
18.25	2.52	0.54	0.01
18.50	2.53	0.54	0.01
18.75	2.54	0.55	0.01
19.00	2.55	0.56	0.01
19.25	2.56	0.56	0.01
19.50	2.57	0.57	0.01
19.75	2.58	0.57	0.01
20.00	**2.59**	**0.58**	0.01

Summary for Link Pre DP001: Pre-Development DP001

Inflow Area = 34,054 sf, 18.56% Impervious, Inflow Depth > 0.70" for 1-yr event
Inflow = 1.07 cfs @ 11.97 hrs, Volume= 1,993 cf
Primary = 1.07 cfs @ 11.97 hrs, Volume= 1,993 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Pre DP001: Pre-Development DP001



Hydrograph for Link Pre DP001: Pre-Development DP001

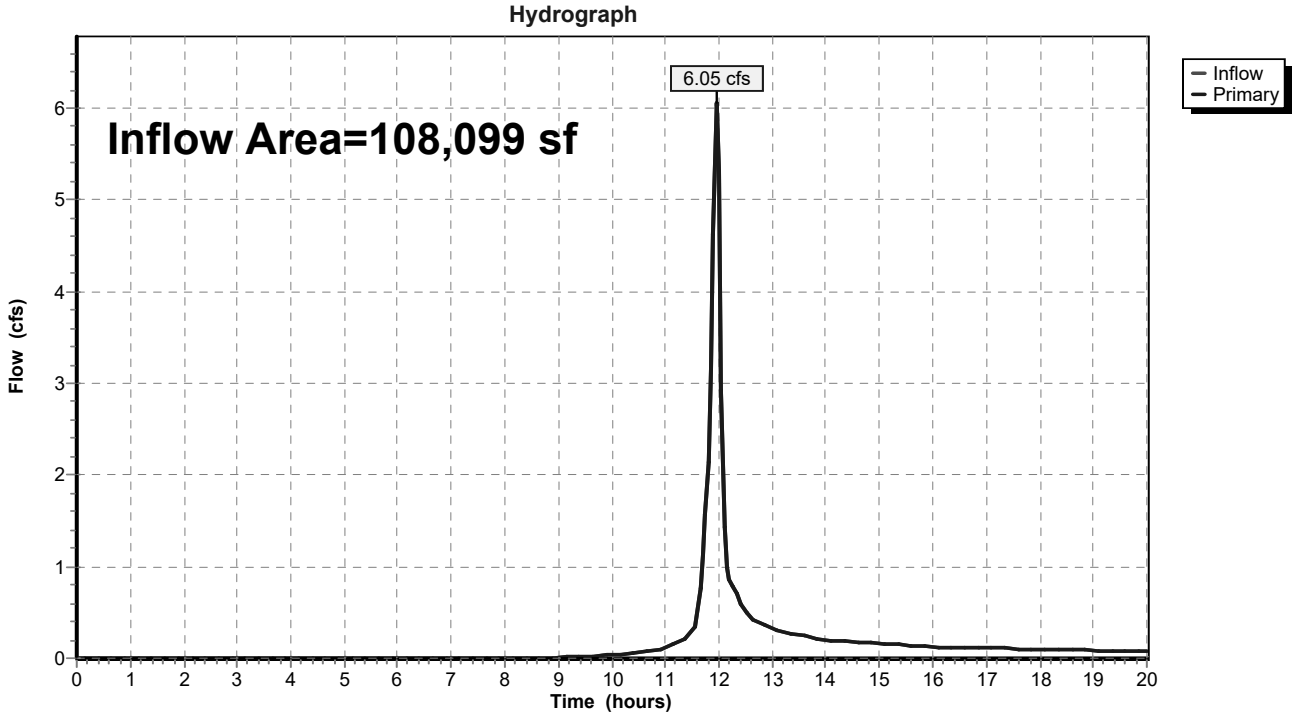
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	13.00	0.07	0.00	0.07
0.25	0.00	0.00	0.00	13.25	0.06	0.00	0.06
0.50	0.00	0.00	0.00	13.50	0.06	0.00	0.06
0.75	0.00	0.00	0.00	13.75	0.05	0.00	0.05
1.00	0.00	0.00	0.00	14.00	0.04	0.00	0.04
1.25	0.00	0.00	0.00	14.25	0.04	0.00	0.04
1.50	0.00	0.00	0.00	14.50	0.04	0.00	0.04
1.75	0.00	0.00	0.00	14.75	0.04	0.00	0.04
2.00	0.00	0.00	0.00	15.00	0.04	0.00	0.04
2.25	0.00	0.00	0.00	15.25	0.03	0.00	0.03
2.50	0.00	0.00	0.00	15.50	0.03	0.00	0.03
2.75	0.00	0.00	0.00	15.75	0.03	0.00	0.03
3.00	0.00	0.00	0.00	16.00	0.03	0.00	0.03
3.25	0.00	0.00	0.00	16.25	0.03	0.00	0.03
3.50	0.00	0.00	0.00	16.50	0.03	0.00	0.03
3.75	0.00	0.00	0.00	16.75	0.03	0.00	0.03
4.00	0.00	0.00	0.00	17.00	0.03	0.00	0.03
4.25	0.00	0.00	0.00	17.25	0.02	0.00	0.02
4.50	0.00	0.00	0.00	17.50	0.02	0.00	0.02
4.75	0.00	0.00	0.00	17.75	0.02	0.00	0.02
5.00	0.00	0.00	0.00	18.00	0.02	0.00	0.02
5.25	0.00	0.00	0.00	18.25	0.02	0.00	0.02
5.50	0.00	0.00	0.00	18.50	0.02	0.00	0.02
5.75	0.00	0.00	0.00	18.75	0.02	0.00	0.02
6.00	0.00	0.00	0.00	19.00	0.02	0.00	0.02
6.25	0.00	0.00	0.00	19.25	0.02	0.00	0.02
6.50	0.00	0.00	0.00	19.50	0.02	0.00	0.02
6.75	0.00	0.00	0.00	19.75	0.02	0.00	0.02
7.00	0.00	0.00	0.00	20.00	0.02	0.00	0.02
7.25	0.00	0.00	0.00				
7.50	0.00	0.00	0.00				
7.75	0.00	0.00	0.00				
8.00	0.00	0.00	0.00				
8.25	0.00	0.00	0.00				
8.50	0.00	0.00	0.00				
8.75	0.00	0.00	0.00				
9.00	0.00	0.00	0.00				
9.25	0.00	0.00	0.00				
9.50	0.00	0.00	0.00				
9.75	0.00	0.00	0.00				
10.00	0.00	0.00	0.00				
10.25	0.00	0.00	0.00				
10.50	0.00	0.00	0.00				
10.75	0.00	0.00	0.00				
11.00	0.00	0.00	0.00				
11.25	0.00	0.00	0.00				
11.50	0.01	0.00	0.01				
11.75	**0.16**	0.00	**0.16**				
12.00	**0.99**	0.00	**0.99**				
12.25	0.16	0.00	0.16				
12.50	0.11	0.00	0.11				
12.75	0.08	0.00	0.08				

Summary for Link Pre DP002: Pre-Development DP002

Inflow Area = 108,099 sf, 50.70% Impervious, Inflow Depth > 1.25" for 1-yr event
Inflow = 6.05 cfs @ 11.96 hrs, Volume= 11,248 cf
Primary = 6.05 cfs @ 11.96 hrs, Volume= 11,248 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Pre DP002: Pre-Development DP002



Hydrograph for Link Pre DP002: Pre-Development DP002

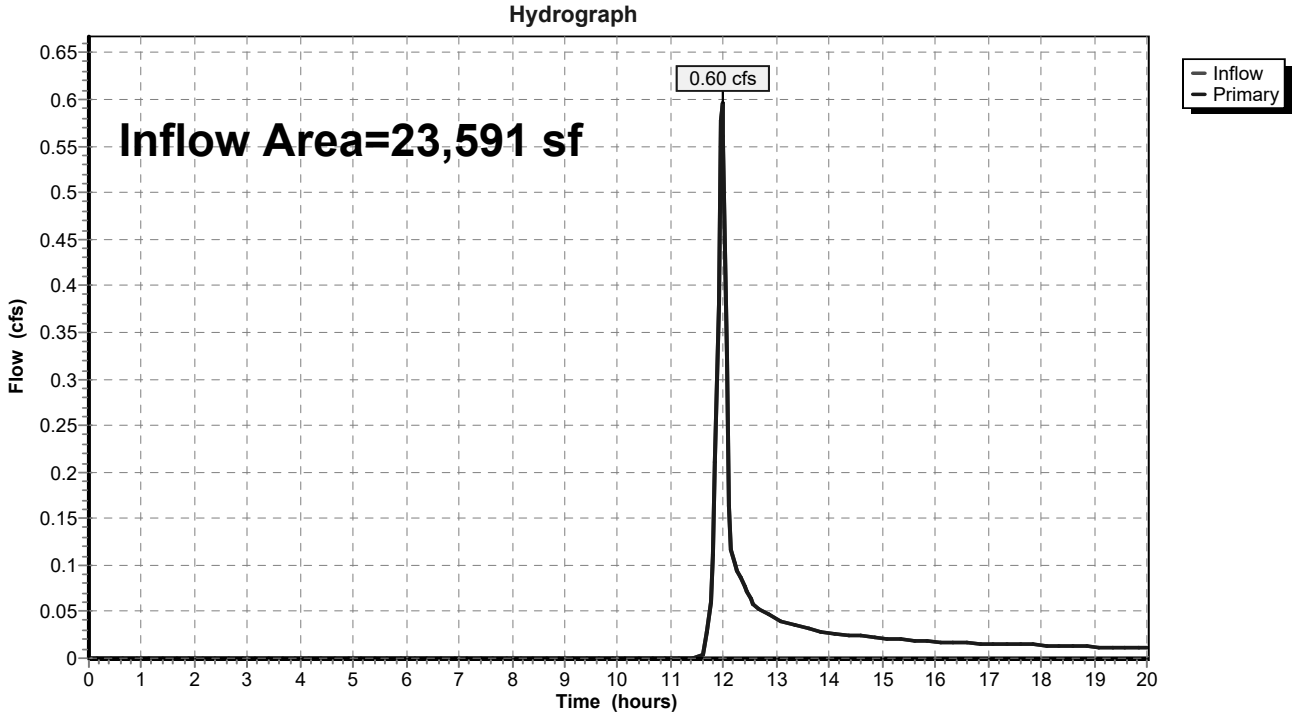
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	13.00	0.33	0.00	0.33
0.25	0.00	0.00	0.00	13.25	0.29	0.00	0.29
0.50	0.00	0.00	0.00	13.50	0.25	0.00	0.25
0.75	0.00	0.00	0.00	13.75	0.23	0.00	0.23
1.00	0.00	0.00	0.00	14.00	0.20	0.00	0.20
1.25	0.00	0.00	0.00	14.25	0.19	0.00	0.19
1.50	0.00	0.00	0.00	14.50	0.18	0.00	0.18
1.75	0.00	0.00	0.00	14.75	0.17	0.00	0.17
2.00	0.00	0.00	0.00	15.00	0.16	0.00	0.16
2.25	0.00	0.00	0.00	15.25	0.15	0.00	0.15
2.50	0.00	0.00	0.00	15.50	0.14	0.00	0.14
2.75	0.00	0.00	0.00	15.75	0.13	0.00	0.13
3.00	0.00	0.00	0.00	16.00	0.13	0.00	0.13
3.25	0.00	0.00	0.00	16.25	0.12	0.00	0.12
3.50	0.00	0.00	0.00	16.50	0.12	0.00	0.12
3.75	0.00	0.00	0.00	16.75	0.11	0.00	0.11
4.00	0.00	0.00	0.00	17.00	0.11	0.00	0.11
4.25	0.00	0.00	0.00	17.25	0.11	0.00	0.11
4.50	0.00	0.00	0.00	17.50	0.11	0.00	0.11
4.75	0.00	0.00	0.00	17.75	0.10	0.00	0.10
5.00	0.00	0.00	0.00	18.00	0.10	0.00	0.10
5.25	0.00	0.00	0.00	18.25	0.10	0.00	0.10
5.50	0.00	0.00	0.00	18.50	0.09	0.00	0.09
5.75	0.00	0.00	0.00	18.75	0.09	0.00	0.09
6.00	0.00	0.00	0.00	19.00	0.09	0.00	0.09
6.25	0.00	0.00	0.00	19.25	0.08	0.00	0.08
6.50	0.00	0.00	0.00	19.50	0.08	0.00	0.08
6.75	0.00	0.00	0.00	19.75	0.08	0.00	0.08
7.00	0.00	0.00	0.00	20.00	0.07	0.00	0.07
7.25	0.00	0.00	0.00				
7.50	0.00	0.00	0.00				
7.75	0.00	0.00	0.00				
8.00	0.00	0.00	0.00				
8.25	0.00	0.00	0.00				
8.50	0.00	0.00	0.00				
8.75	0.00	0.00	0.00				
9.00	0.01	0.00	0.01				
9.25	0.01	0.00	0.01				
9.50	0.02	0.00	0.02				
9.75	0.03	0.00	0.03				
10.00	0.04	0.00	0.04				
10.25	0.05	0.00	0.05				
10.50	0.06	0.00	0.06				
10.75	0.09	0.00	0.09				
11.00	0.12	0.00	0.12				
11.25	0.17	0.00	0.17				
11.50	0.25	0.00	0.25				
11.75	**1.56**	0.00	**1.56**				
12.00	**5.31**	0.00	**5.31**				
12.25	0.79	0.00	0.79				
12.50	0.52	0.00	0.52				
12.75	0.39	0.00	0.39				

Summary for Link Pre DP003: Pre-Development DP003

Inflow Area = 23,591 sf, 5.80% Impervious, Inflow Depth > 0.57" for 1-yr event
Inflow = 0.60 cfs @ 11.97 hrs, Volume= 1,130 cf
Primary = 0.60 cfs @ 11.97 hrs, Volume= 1,130 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Pre DP003: Pre-Development DP003



Hydrograph for Link Pre DP003: Pre-Development DP003

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
0.25	0.00	0.00	0.00
0.50	0.00	0.00	0.00
0.75	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00
1.50	0.00	0.00	0.00
1.75	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00
2.50	0.00	0.00	0.00
2.75	0.00	0.00	0.00
3.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00
3.50	0.00	0.00	0.00
3.75	0.00	0.00	0.00
4.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00
4.50	0.00	0.00	0.00
4.75	0.00	0.00	0.00
5.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00
5.50	0.00	0.00	0.00
5.75	0.00	0.00	0.00
6.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00
6.50	0.00	0.00	0.00
6.75	0.00	0.00	0.00
7.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00
7.50	0.00	0.00	0.00
7.75	0.00	0.00	0.00
8.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00
8.50	0.00	0.00	0.00
8.75	0.00	0.00	0.00
9.00	0.00	0.00	0.00
9.25	0.00	0.00	0.00
9.50	0.00	0.00	0.00
9.75	0.00	0.00	0.00
10.00	0.00	0.00	0.00
10.25	0.00	0.00	0.00
10.50	0.00	0.00	0.00
10.75	0.00	0.00	0.00
11.00	0.00	0.00	0.00
11.25	0.00	0.00	0.00
11.50	0.00	0.00	0.00
11.75	**0.06**	0.00	**0.06**
12.00	**0.56**	0.00	**0.56**
12.25	0.09	0.00	0.09
12.50	0.06	0.00	0.06
12.75	0.05	0.00	0.05
13.00	0.04	0.00	0.04
13.25	0.04	0.00	0.04
13.50	0.03	0.00	0.03
13.75	0.03	0.00	0.03
14.00	0.03	0.00	0.03
14.25	0.03	0.00	0.03
14.50	0.02	0.00	0.02
14.75	0.02	0.00	0.02
15.00	0.02	0.00	0.02
15.25	0.02	0.00	0.02
15.50	0.02	0.00	0.02
15.75	0.02	0.00	0.02
16.00	0.02	0.00	0.02
16.25	0.02	0.00	0.02
16.50	0.02	0.00	0.02
16.75	0.02	0.00	0.02
17.00	0.02	0.00	0.02
17.25	0.02	0.00	0.02
17.50	0.01	0.00	0.01
17.75	0.01	0.00	0.01
18.00	0.01	0.00	0.01
18.25	0.01	0.00	0.01
18.50	0.01	0.00	0.01
18.75	0.01	0.00	0.01
19.00	0.01	0.00	0.01
19.25	0.01	0.00	0.01
19.50	0.01	0.00	0.01
19.75	0.01	0.00	0.01
20.00	0.01	0.00	0.01

Summary for Subcatchment DA-1: DA-1

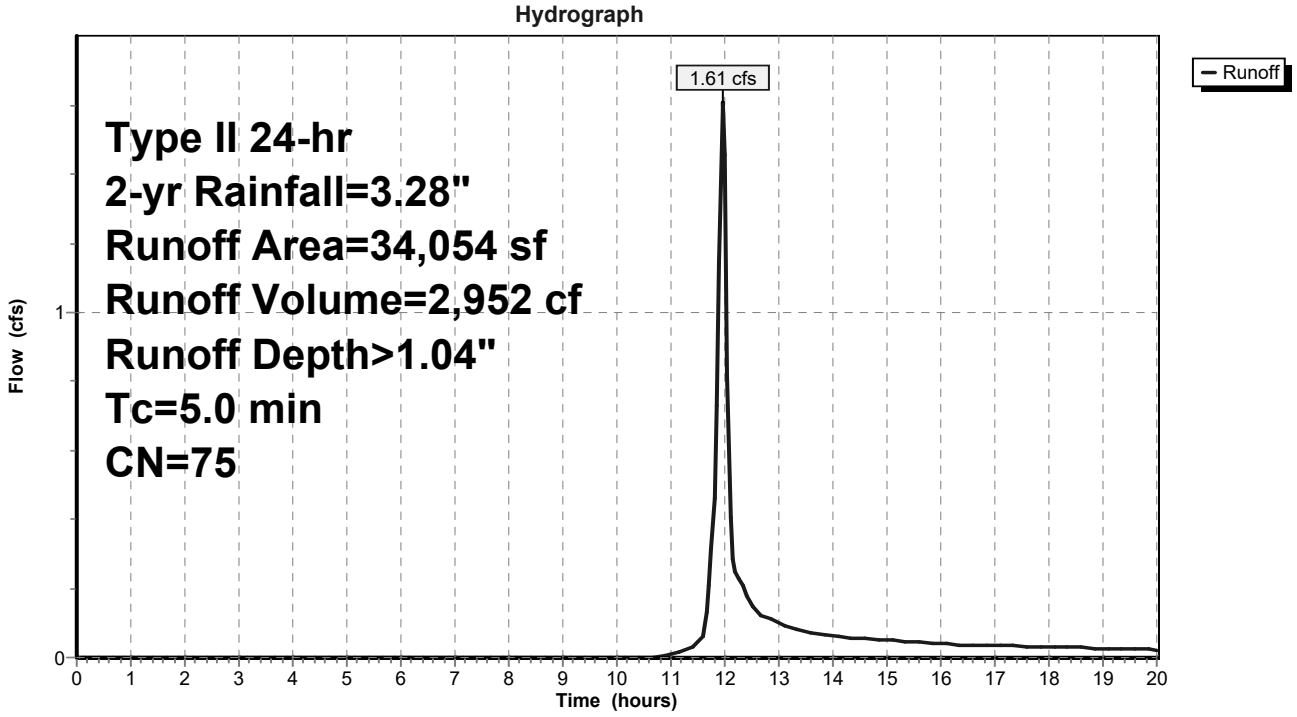
Runoff = 1.61 cfs @ 11.96 hrs, Volume= 2,952 cf, Depth> 1.04"
Routed to Link Pre DP001 : Pre-Development DP001

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.28"

	Area (sf)	CN	Description
	6,319	98	Paved parking, HSG C
	1,606	58	Meadow, non-grazed, HSG B
	582	60	Woods, Fair, HSG B
	23,967	71	Meadow, non-grazed, HSG C
*	1,580	71	20% Impervious as meadow
	34,054	75	Weighted Average
	27,735		81.44% Pervious Area
	6,319		18.56% Impervious Area

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

Subcatchment DA-1: DA-1



Hydrograph for Subcatchment DA-1: DA-1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.02	0.00	0.00
0.75	0.03	0.00	0.00
1.00	0.03	0.00	0.00
1.25	0.04	0.00	0.00
1.50	0.05	0.00	0.00
1.75	0.06	0.00	0.00
2.00	0.07	0.00	0.00
2.25	0.08	0.00	0.00
2.50	0.09	0.00	0.00
2.75	0.10	0.00	0.00
3.00	0.11	0.00	0.00
3.25	0.12	0.00	0.00
3.50	0.13	0.00	0.00
3.75	0.15	0.00	0.00
4.00	0.16	0.00	0.00
4.25	0.17	0.00	0.00
4.50	0.18	0.00	0.00
4.75	0.19	0.00	0.00
5.00	0.21	0.00	0.00
5.25	0.22	0.00	0.00
5.50	0.23	0.00	0.00
5.75	0.25	0.00	0.00
6.00	0.26	0.00	0.00
6.25	0.28	0.00	0.00
6.50	0.29	0.00	0.00
6.75	0.31	0.00	0.00
7.00	0.32	0.00	0.00
7.25	0.34	0.00	0.00
7.50	0.36	0.00	0.00
7.75	0.38	0.00	0.00
8.00	0.39	0.00	0.00
8.25	0.41	0.00	0.00
8.50	0.43	0.00	0.00
8.75	0.46	0.00	0.00
9.00	0.48	0.00	0.00
9.25	0.51	0.00	0.00
9.50	0.53	0.00	0.00
9.75	0.56	0.00	0.00
10.00	0.59	0.00	0.00
10.25	0.63	0.00	0.00
10.50	0.67	0.00	0.00
10.75	0.72	0.00	0.00
11.00	0.77	0.00	0.01
11.25	0.84	0.01	0.02
11.50	0.93	0.02	0.04
11.75	1.27	0.09	**0.31**
12.00	2.17	0.47	**1.45**
12.25	2.32	0.55	0.23
12.50	2.41	0.60	0.15
12.75	2.48	0.64	0.12
13.00	2.53	0.67	0.10
13.25	2.58	0.70	0.09
13.50	2.62	0.72	0.08
13.75	2.66	0.74	0.07
14.00	2.69	0.76	0.06
14.25	2.72	0.78	0.06
14.50	2.75	0.80	0.05
14.75	2.77	0.82	0.05
15.00	2.80	0.83	0.05
15.25	2.82	0.85	0.05
15.50	2.85	0.86	0.04
15.75	2.87	0.87	0.04
16.00	2.89	0.89	0.04
16.25	2.91	0.90	0.04
16.50	2.92	0.91	0.04
16.75	2.94	0.92	0.04
17.00	2.96	0.93	0.03
17.25	2.97	0.94	0.03
17.50	2.99	0.95	0.03
17.75	3.01	0.96	0.03
18.00	3.02	0.97	0.03
18.25	3.04	0.98	0.03
18.50	3.05	0.99	0.03
18.75	3.06	1.00	0.03
19.00	3.08	1.01	0.03
19.25	3.09	1.02	0.03
19.50	3.10	1.03	0.02
19.75	3.11	1.03	0.02
20.00	**3.12**	**1.04**	0.02

Summary for Subcatchment DA-2: DA-2

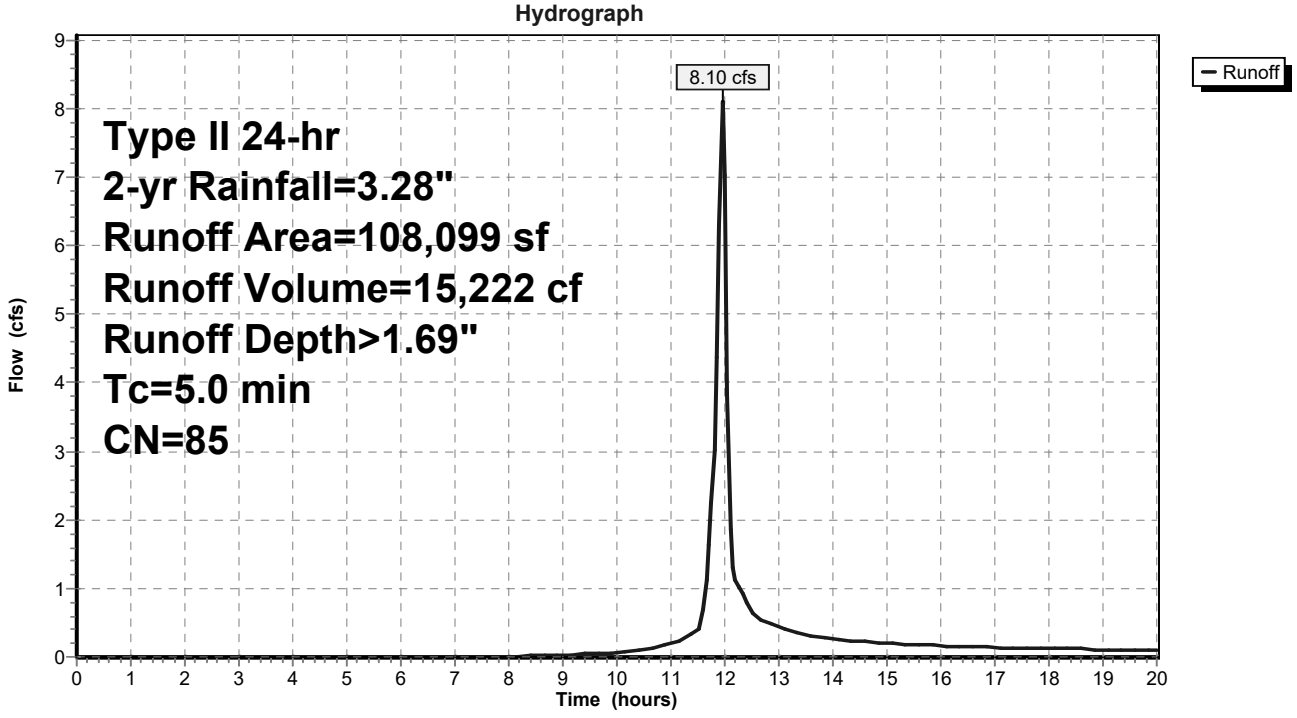
Runoff = 8.10 cfs @ 11.96 hrs, Volume= 15,222 cf, Depth> 1.69"
Routed to Link Pre DP002 : Pre-Development DP002

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.28"

	Area (sf)	CN	Description
	54,808	98	Paved parking, HSG C
*	13,702	71	20% Impervious as meadow
	1,400	58	Meadow, non-grazed, HSG B
	446	60	Woods, Fair, HSG B
	27,860	71	Meadow, non-grazed, HSG C
	9,883	73	Woods, Fair, HSG C
	108,099	85	Weighted Average
	53,291		49.30% Pervious Area
	54,808		50.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc-1**

Subcatchment DA-2: DA-2



Hydrograph for Subcatchment DA-2: DA-2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.02	0.00	0.00
0.75	0.03	0.00	0.00
1.00	0.03	0.00	0.00
1.25	0.04	0.00	0.00
1.50	0.05	0.00	0.00
1.75	0.06	0.00	0.00
2.00	0.07	0.00	0.00
2.25	0.08	0.00	0.00
2.50	0.09	0.00	0.00
2.75	0.10	0.00	0.00
3.00	0.11	0.00	0.00
3.25	0.12	0.00	0.00
3.50	0.13	0.00	0.00
3.75	0.15	0.00	0.00
4.00	0.16	0.00	0.00
4.25	0.17	0.00	0.00
4.50	0.18	0.00	0.00
4.75	0.19	0.00	0.00
5.00	0.21	0.00	0.00
5.25	0.22	0.00	0.00
5.50	0.23	0.00	0.00
5.75	0.25	0.00	0.00
6.00	0.26	0.00	0.00
6.25	0.28	0.00	0.00
6.50	0.29	0.00	0.00
6.75	0.31	0.00	0.00
7.00	0.32	0.00	0.00
7.25	0.34	0.00	0.00
7.50	0.36	0.00	0.00
7.75	0.38	0.00	0.00
8.00	0.39	0.00	0.01
8.25	0.41	0.00	0.01
8.50	0.43	0.00	0.02
8.75	0.46	0.01	0.02
9.00	0.48	0.01	0.03
9.25	0.51	0.01	0.04
9.50	0.53	0.02	0.04
9.75	0.56	0.02	0.06
10.00	0.59	0.03	0.07
10.25	0.63	0.04	0.09
10.50	0.67	0.05	0.11
10.75	0.72	0.06	0.15
11.00	0.77	0.08	0.19
11.25	0.84	0.11	0.27
11.50	0.93	0.14	0.39
11.75	1.27	0.31	**2.24**
12.00	2.17	0.93	**7.04**
12.25	2.32	1.03	1.02
12.50	2.41	1.11	0.67
12.75	2.48	1.16	0.51
13.00	2.53	1.20	0.43
13.25	2.58	1.24	0.37
13.50	2.62	1.28	0.33
13.75	2.66	1.30	0.29
14.00	2.69	1.33	0.26
14.25	2.72	1.36	0.24
14.50	2.75	1.38	0.23
14.75	2.77	1.40	0.22
15.00	2.80	1.42	0.21
15.25	2.82	1.44	0.20
15.50	2.85	1.46	0.18
15.75	2.87	1.48	0.17
16.00	2.89	1.49	0.16
16.25	2.91	1.51	0.15
16.50	2.92	1.52	0.15
16.75	2.94	1.54	0.15
17.00	2.96	1.55	0.14
17.25	2.97	1.57	0.14
17.50	2.99	1.58	0.13
17.75	3.01	1.59	0.13
18.00	3.02	1.61	0.13
18.25	3.04	1.62	0.12
18.50	3.05	1.63	0.12
18.75	3.06	1.64	0.11
19.00	3.08	1.65	0.11
19.25	3.09	1.66	0.10
19.50	3.10	1.67	0.10
19.75	3.11	1.68	0.10
20.00	**3.12**	**1.69**	0.09

Summary for Subcatchment DA-3: DA-3

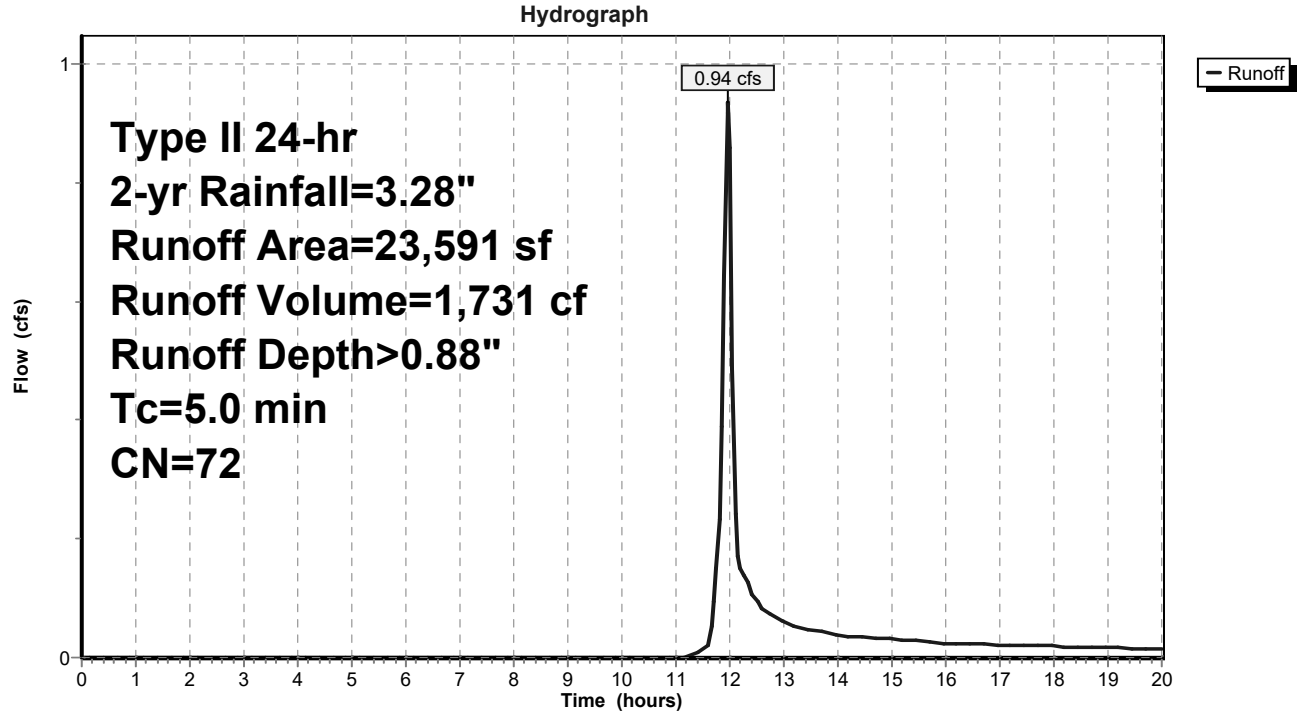
Runoff = 0.94 cfs @ 11.97 hrs, Volume= 1,731 cf, Depth> 0.88"
Routed to Link Pre DP003 : Pre-Development DP003

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.28"

	Area (sf)	CN	Description
	1,304	98	Paved parking, HSG C
*	326	71	20% impervious as meadow
	21,961	71	Meadow, non-grazed, HSG C
	23,591	72	Weighted Average
	22,222		94.20% Pervious Area
	1,369		5.80% Impervious Area

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

Subcatchment DA-3: DA-3



Hydrograph for Subcatchment DA-3: DA-3

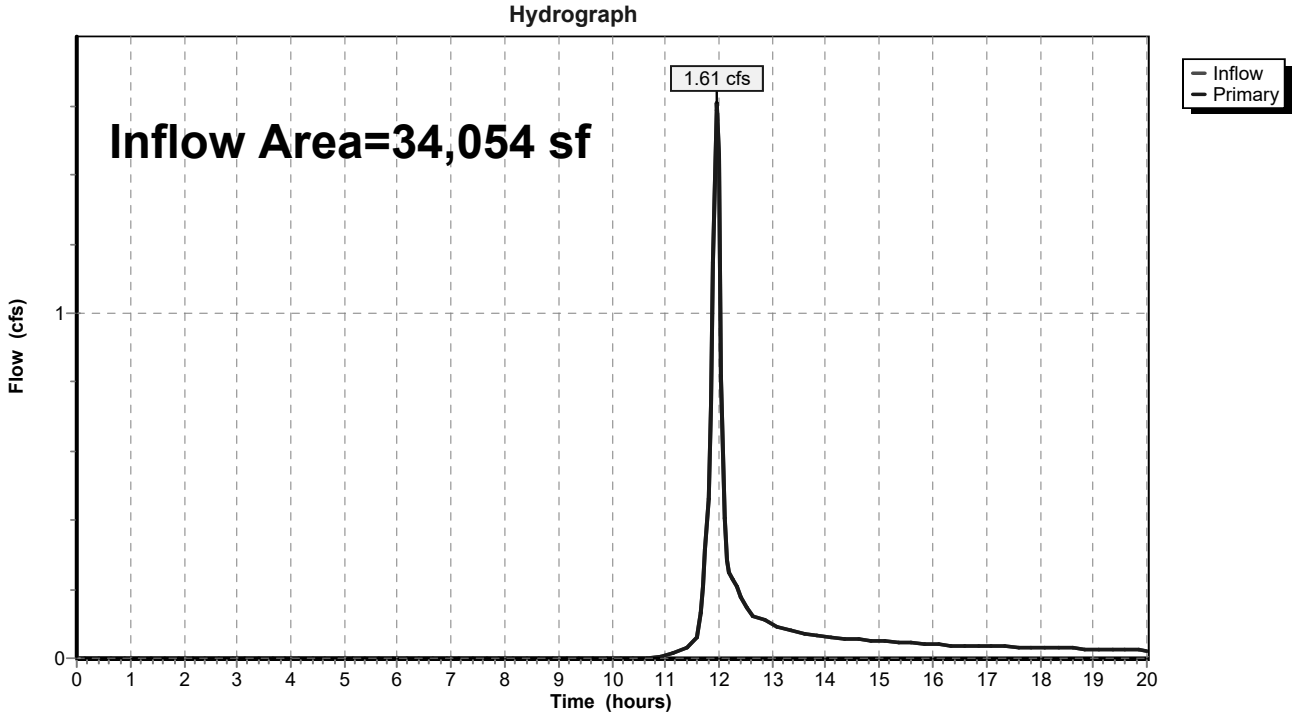
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.02	0.00	0.00
0.75	0.03	0.00	0.00
1.00	0.03	0.00	0.00
1.25	0.04	0.00	0.00
1.50	0.05	0.00	0.00
1.75	0.06	0.00	0.00
2.00	0.07	0.00	0.00
2.25	0.08	0.00	0.00
2.50	0.09	0.00	0.00
2.75	0.10	0.00	0.00
3.00	0.11	0.00	0.00
3.25	0.12	0.00	0.00
3.50	0.13	0.00	0.00
3.75	0.15	0.00	0.00
4.00	0.16	0.00	0.00
4.25	0.17	0.00	0.00
4.50	0.18	0.00	0.00
4.75	0.19	0.00	0.00
5.00	0.21	0.00	0.00
5.25	0.22	0.00	0.00
5.50	0.23	0.00	0.00
5.75	0.25	0.00	0.00
6.00	0.26	0.00	0.00
6.25	0.28	0.00	0.00
6.50	0.29	0.00	0.00
6.75	0.31	0.00	0.00
7.00	0.32	0.00	0.00
7.25	0.34	0.00	0.00
7.50	0.36	0.00	0.00
7.75	0.38	0.00	0.00
8.00	0.39	0.00	0.00
8.25	0.41	0.00	0.00
8.50	0.43	0.00	0.00
8.75	0.46	0.00	0.00
9.00	0.48	0.00	0.00
9.25	0.51	0.00	0.00
9.50	0.53	0.00	0.00
9.75	0.56	0.00	0.00
10.00	0.59	0.00	0.00
10.25	0.63	0.00	0.00
10.50	0.67	0.00	0.00
10.75	0.72	0.00	0.00
11.00	0.77	0.00	0.00
11.25	0.84	0.00	0.00
11.50	0.93	0.01	0.01
11.75	1.27	0.06	**0.15**
12.00	2.17	0.37	**0.86**
12.25	2.32	0.44	0.14
12.50	2.41	0.48	0.09
12.75	2.48	0.52	0.07
13.00	2.53	0.55	0.06
13.25	2.58	0.57	0.05
13.50	2.62	0.59	0.05
13.75	2.66	0.61	0.04
14.00	2.69	0.63	0.04
14.25	2.72	0.65	0.04
14.50	2.75	0.66	0.03
14.75	2.77	0.68	0.03
15.00	2.80	0.69	0.03
15.25	2.82	0.71	0.03
15.50	2.85	0.72	0.03
15.75	2.87	0.73	0.03
16.00	2.89	0.74	0.02
16.25	2.91	0.75	0.02
16.50	2.92	0.76	0.02
16.75	2.94	0.77	0.02
17.00	2.96	0.78	0.02
17.25	2.97	0.79	0.02
17.50	2.99	0.80	0.02
17.75	3.01	0.81	0.02
18.00	3.02	0.82	0.02
18.25	3.04	0.83	0.02
18.50	3.05	0.84	0.02
18.75	3.06	0.85	0.02
19.00	3.08	0.85	0.02
19.25	3.09	0.86	0.02
19.50	3.10	0.87	0.02
19.75	3.11	0.88	0.02
20.00	**3.12**	**0.88**	0.01

Summary for Link Pre DP001: Pre-Development DP001

Inflow Area = 34,054 sf, 18.56% Impervious, Inflow Depth > 1.04" for 2-yr event
Inflow = 1.61 cfs @ 11.96 hrs, Volume= 2,952 cf
Primary = 1.61 cfs @ 11.96 hrs, Volume= 2,952 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Pre DP001: Pre-Development DP001



Hydrograph for Link Pre DP001: Pre-Development DP001

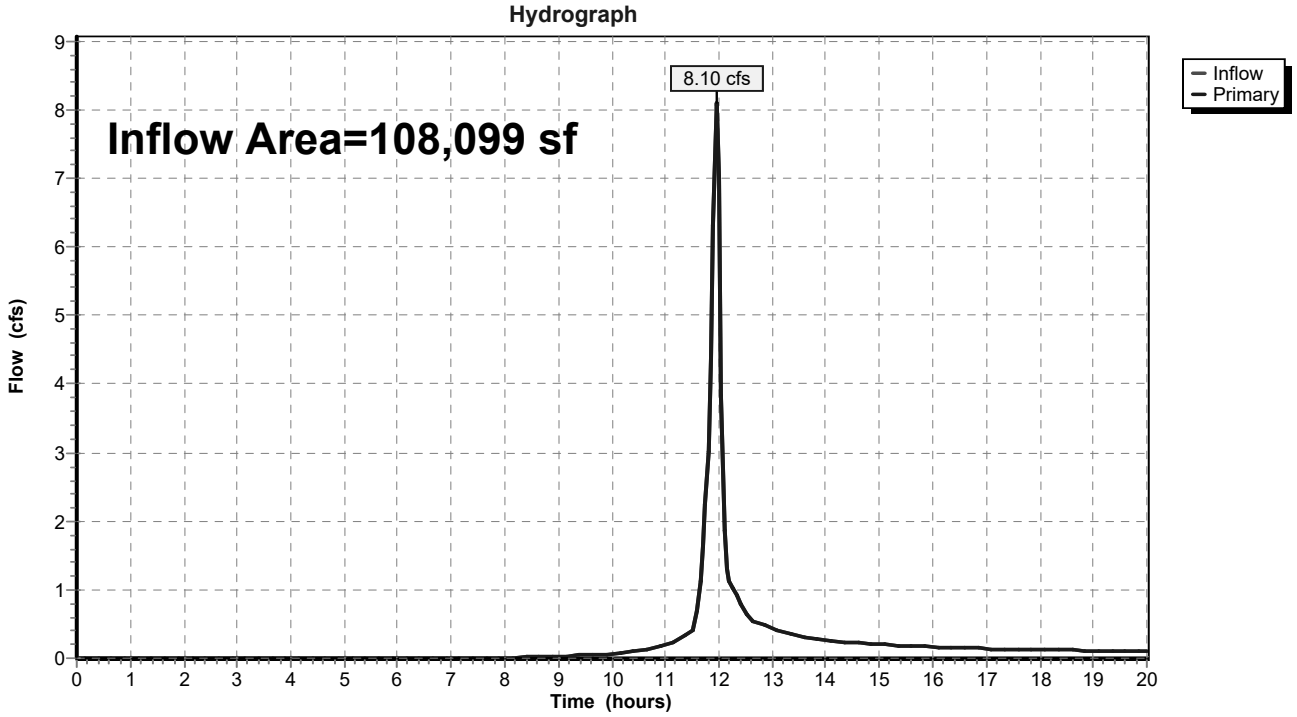
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	13.00	0.10	0.00	0.10
0.25	0.00	0.00	0.00	13.25	0.09	0.00	0.09
0.50	0.00	0.00	0.00	13.50	0.08	0.00	0.08
0.75	0.00	0.00	0.00	13.75	0.07	0.00	0.07
1.00	0.00	0.00	0.00	14.00	0.06	0.00	0.06
1.25	0.00	0.00	0.00	14.25	0.06	0.00	0.06
1.50	0.00	0.00	0.00	14.50	0.05	0.00	0.05
1.75	0.00	0.00	0.00	14.75	0.05	0.00	0.05
2.00	0.00	0.00	0.00	15.00	0.05	0.00	0.05
2.25	0.00	0.00	0.00	15.25	0.05	0.00	0.05
2.50	0.00	0.00	0.00	15.50	0.04	0.00	0.04
2.75	0.00	0.00	0.00	15.75	0.04	0.00	0.04
3.00	0.00	0.00	0.00	16.00	0.04	0.00	0.04
3.25	0.00	0.00	0.00	16.25	0.04	0.00	0.04
3.50	0.00	0.00	0.00	16.50	0.04	0.00	0.04
3.75	0.00	0.00	0.00	16.75	0.04	0.00	0.04
4.00	0.00	0.00	0.00	17.00	0.03	0.00	0.03
4.25	0.00	0.00	0.00	17.25	0.03	0.00	0.03
4.50	0.00	0.00	0.00	17.50	0.03	0.00	0.03
4.75	0.00	0.00	0.00	17.75	0.03	0.00	0.03
5.00	0.00	0.00	0.00	18.00	0.03	0.00	0.03
5.25	0.00	0.00	0.00	18.25	0.03	0.00	0.03
5.50	0.00	0.00	0.00	18.50	0.03	0.00	0.03
5.75	0.00	0.00	0.00	18.75	0.03	0.00	0.03
6.00	0.00	0.00	0.00	19.00	0.03	0.00	0.03
6.25	0.00	0.00	0.00	19.25	0.03	0.00	0.03
6.50	0.00	0.00	0.00	19.50	0.02	0.00	0.02
6.75	0.00	0.00	0.00	19.75	0.02	0.00	0.02
7.00	0.00	0.00	0.00	20.00	0.02	0.00	0.02
7.25	0.00	0.00	0.00				
7.50	0.00	0.00	0.00				
7.75	0.00	0.00	0.00				
8.00	0.00	0.00	0.00				
8.25	0.00	0.00	0.00				
8.50	0.00	0.00	0.00				
8.75	0.00	0.00	0.00				
9.00	0.00	0.00	0.00				
9.25	0.00	0.00	0.00				
9.50	0.00	0.00	0.00				
9.75	0.00	0.00	0.00				
10.00	0.00	0.00	0.00				
10.25	0.00	0.00	0.00				
10.50	0.00	0.00	0.00				
10.75	0.00	0.00	0.00				
11.00	0.01	0.00	0.01				
11.25	0.02	0.00	0.02				
11.50	0.04	0.00	0.04				
11.75	**0.31**	0.00	**0.31**				
12.00	**1.45**	0.00	**1.45**				
12.25	0.23	0.00	0.23				
12.50	0.15	0.00	0.15				
12.75	0.12	0.00	0.12				

Summary for Link Pre DP002: Pre-Development DP002

Inflow Area = 108,099 sf, 50.70% Impervious, Inflow Depth > 1.69" for 2-yr event
Inflow = 8.10 cfs @ 11.96 hrs, Volume= 15,222 cf
Primary = 8.10 cfs @ 11.96 hrs, Volume= 15,222 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Pre DP002: Pre-Development DP002



Hydrograph for Link Pre DP002: Pre-Development DP002

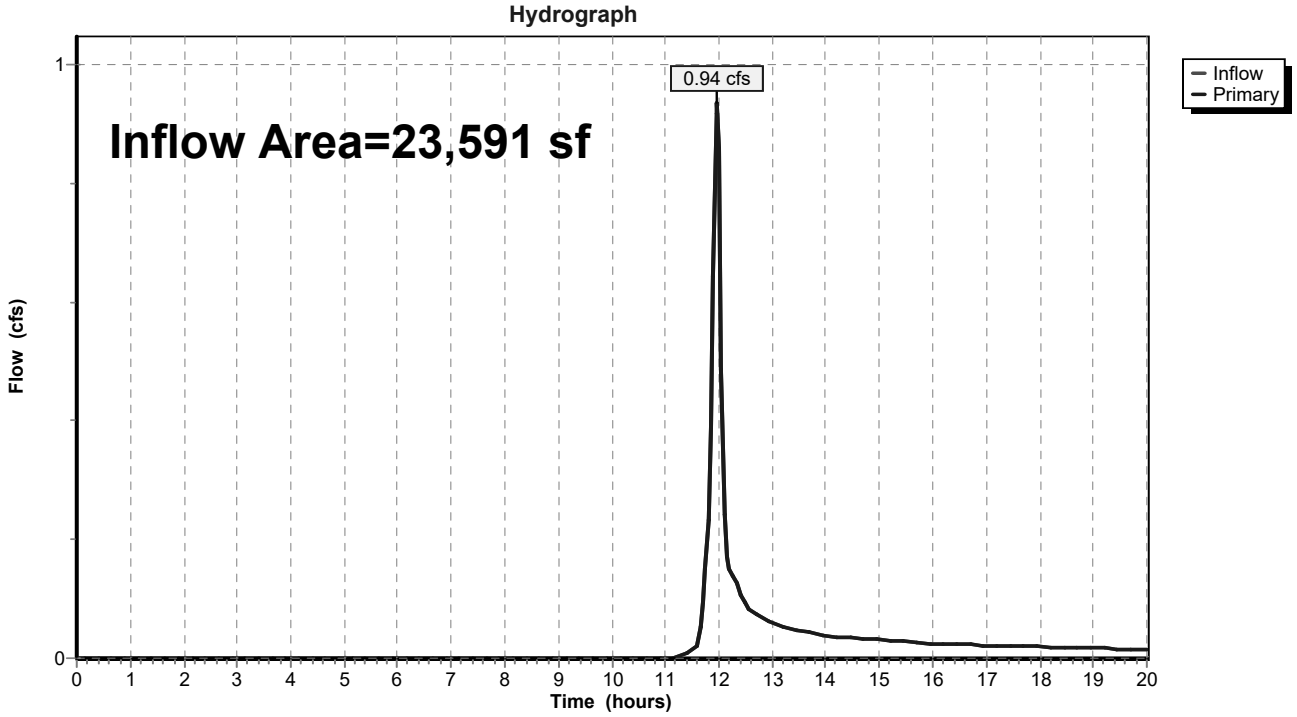
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	13.00	0.43	0.00	0.43
0.25	0.00	0.00	0.00	13.25	0.37	0.00	0.37
0.50	0.00	0.00	0.00	13.50	0.33	0.00	0.33
0.75	0.00	0.00	0.00	13.75	0.29	0.00	0.29
1.00	0.00	0.00	0.00	14.00	0.26	0.00	0.26
1.25	0.00	0.00	0.00	14.25	0.24	0.00	0.24
1.50	0.00	0.00	0.00	14.50	0.23	0.00	0.23
1.75	0.00	0.00	0.00	14.75	0.22	0.00	0.22
2.00	0.00	0.00	0.00	15.00	0.21	0.00	0.21
2.25	0.00	0.00	0.00	15.25	0.20	0.00	0.20
2.50	0.00	0.00	0.00	15.50	0.18	0.00	0.18
2.75	0.00	0.00	0.00	15.75	0.17	0.00	0.17
3.00	0.00	0.00	0.00	16.00	0.16	0.00	0.16
3.25	0.00	0.00	0.00	16.25	0.15	0.00	0.15
3.50	0.00	0.00	0.00	16.50	0.15	0.00	0.15
3.75	0.00	0.00	0.00	16.75	0.15	0.00	0.15
4.00	0.00	0.00	0.00	17.00	0.14	0.00	0.14
4.25	0.00	0.00	0.00	17.25	0.14	0.00	0.14
4.50	0.00	0.00	0.00	17.50	0.13	0.00	0.13
4.75	0.00	0.00	0.00	17.75	0.13	0.00	0.13
5.00	0.00	0.00	0.00	18.00	0.13	0.00	0.13
5.25	0.00	0.00	0.00	18.25	0.12	0.00	0.12
5.50	0.00	0.00	0.00	18.50	0.12	0.00	0.12
5.75	0.00	0.00	0.00	18.75	0.11	0.00	0.11
6.00	0.00	0.00	0.00	19.00	0.11	0.00	0.11
6.25	0.00	0.00	0.00	19.25	0.10	0.00	0.10
6.50	0.00	0.00	0.00	19.50	0.10	0.00	0.10
6.75	0.00	0.00	0.00	19.75	0.10	0.00	0.10
7.00	0.00	0.00	0.00	20.00	0.09	0.00	0.09
7.25	0.00	0.00	0.00				
7.50	0.00	0.00	0.00				
7.75	0.00	0.00	0.00				
8.00	0.01	0.00	0.01				
8.25	0.01	0.00	0.01				
8.50	0.02	0.00	0.02				
8.75	0.02	0.00	0.02				
9.00	0.03	0.00	0.03				
9.25	0.04	0.00	0.04				
9.50	0.04	0.00	0.04				
9.75	0.06	0.00	0.06				
10.00	0.07	0.00	0.07				
10.25	0.09	0.00	0.09				
10.50	0.11	0.00	0.11				
10.75	0.15	0.00	0.15				
11.00	0.19	0.00	0.19				
11.25	0.27	0.00	0.27				
11.50	0.39	0.00	0.39				
11.75	**2.24**	0.00	**2.24**				
12.00	**7.04**	0.00	**7.04**				
12.25	1.02	0.00	1.02				
12.50	0.67	0.00	0.67				
12.75	0.51	0.00	0.51				

Summary for Link Pre DP003: Pre-Development DP003

Inflow Area = 23,591 sf, 5.80% Impervious, Inflow Depth > 0.88" for 2-yr event
Inflow = 0.94 cfs @ 11.97 hrs, Volume= 1,731 cf
Primary = 0.94 cfs @ 11.97 hrs, Volume= 1,731 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Pre DP003: Pre-Development DP003



Hydrograph for Link Pre DP003: Pre-Development DP003

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
0.25	0.00	0.00	0.00
0.50	0.00	0.00	0.00
0.75	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00
1.50	0.00	0.00	0.00
1.75	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00
2.50	0.00	0.00	0.00
2.75	0.00	0.00	0.00
3.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00
3.50	0.00	0.00	0.00
3.75	0.00	0.00	0.00
4.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00
4.50	0.00	0.00	0.00
4.75	0.00	0.00	0.00
5.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00
5.50	0.00	0.00	0.00
5.75	0.00	0.00	0.00
6.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00
6.50	0.00	0.00	0.00
6.75	0.00	0.00	0.00
7.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00
7.50	0.00	0.00	0.00
7.75	0.00	0.00	0.00
8.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00
8.50	0.00	0.00	0.00
8.75	0.00	0.00	0.00
9.00	0.00	0.00	0.00
9.25	0.00	0.00	0.00
9.50	0.00	0.00	0.00
9.75	0.00	0.00	0.00
10.00	0.00	0.00	0.00
10.25	0.00	0.00	0.00
10.50	0.00	0.00	0.00
10.75	0.00	0.00	0.00
11.00	0.00	0.00	0.00
11.25	0.00	0.00	0.00
11.50	0.01	0.00	0.01
11.75	**0.15**	0.00	**0.15**
12.00	**0.86**	0.00	**0.86**
12.25	0.14	0.00	0.14
12.50	0.09	0.00	0.09
12.75	0.07	0.00	0.07
13.00	0.06	0.00	0.06
13.25	0.05	0.00	0.05
13.50	0.05	0.00	0.05
13.75	0.04	0.00	0.04
14.00	0.04	0.00	0.04
14.25	0.04	0.00	0.04
14.50	0.03	0.00	0.03
14.75	0.03	0.00	0.03
15.00	0.03	0.00	0.03
15.25	0.03	0.00	0.03
15.50	0.03	0.00	0.03
15.75	0.03	0.00	0.03
16.00	0.02	0.00	0.02
16.25	0.02	0.00	0.02
16.50	0.02	0.00	0.02
16.75	0.02	0.00	0.02
17.00	0.02	0.00	0.02
17.25	0.02	0.00	0.02
17.50	0.02	0.00	0.02
17.75	0.02	0.00	0.02
18.00	0.02	0.00	0.02
18.25	0.02	0.00	0.02
18.50	0.02	0.00	0.02
18.75	0.02	0.00	0.02
19.00	0.02	0.00	0.02
19.25	0.02	0.00	0.02
19.50	0.02	0.00	0.02
19.75	0.02	0.00	0.02
20.00	0.01	0.00	0.01

Summary for Subcatchment DA-1: DA-1

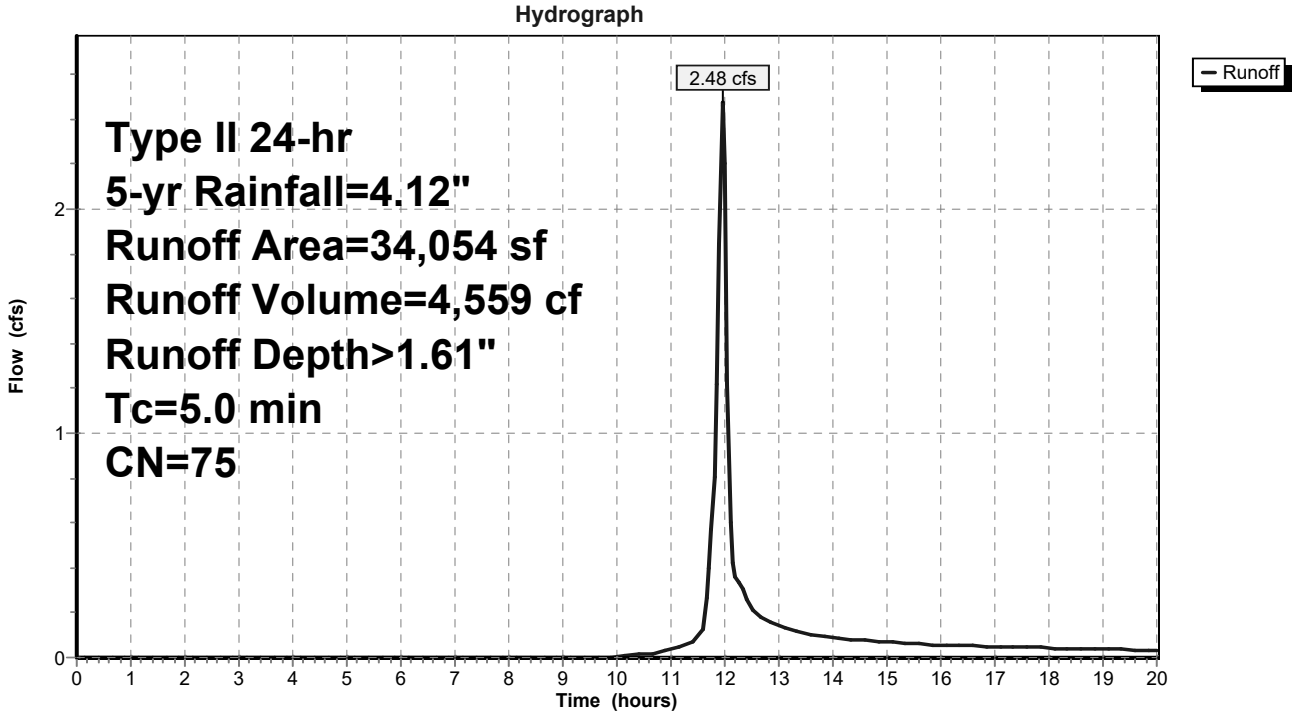
Runoff = 2.48 cfs @ 11.96 hrs, Volume= 4,559 cf, Depth> 1.61"
Routed to Link Pre DP001 : Pre-Development DP001

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 5-yr Rainfall=4.12"

	Area (sf)	CN	Description
	6,319	98	Paved parking, HSG C
	1,606	58	Meadow, non-grazed, HSG B
	582	60	Woods, Fair, HSG B
	23,967	71	Meadow, non-grazed, HSG C
*	1,580	71	20% Impervious as meadow
	34,054	75	Weighted Average
	27,735		81.44% Pervious Area
	6,319		18.56% Impervious Area

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

Subcatchment DA-1: DA-1



Hydrograph for Subcatchment DA-1: DA-1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.02	0.00	0.00
0.75	0.03	0.00	0.00
1.00	0.04	0.00	0.00
1.25	0.05	0.00	0.00
1.50	0.07	0.00	0.00
1.75	0.08	0.00	0.00
2.00	0.09	0.00	0.00
2.25	0.10	0.00	0.00
2.50	0.12	0.00	0.00
2.75	0.13	0.00	0.00
3.00	0.14	0.00	0.00
3.25	0.16	0.00	0.00
3.50	0.17	0.00	0.00
3.75	0.18	0.00	0.00
4.00	0.20	0.00	0.00
4.25	0.21	0.00	0.00
4.50	0.23	0.00	0.00
4.75	0.24	0.00	0.00
5.00	0.26	0.00	0.00
5.25	0.28	0.00	0.00
5.50	0.29	0.00	0.00
5.75	0.31	0.00	0.00
6.00	0.33	0.00	0.00
6.25	0.35	0.00	0.00
6.50	0.37	0.00	0.00
6.75	0.39	0.00	0.00
7.00	0.41	0.00	0.00
7.25	0.43	0.00	0.00
7.50	0.45	0.00	0.00
7.75	0.47	0.00	0.00
8.00	0.49	0.00	0.00
8.25	0.52	0.00	0.00
8.50	0.54	0.00	0.00
8.75	0.57	0.00	0.00
9.00	0.61	0.00	0.00
9.25	0.64	0.00	0.00
9.50	0.67	0.00	0.00
9.75	0.71	0.00	0.00
10.00	0.75	0.00	0.00
10.25	0.79	0.00	0.01
10.50	0.84	0.01	0.01
10.75	0.90	0.02	0.02
11.00	0.97	0.03	0.03
11.25	1.05	0.04	0.05
11.50	1.17	0.07	0.08
11.75	1.59	0.20	**0.57**
12.00	2.73	0.79	**2.20**
12.25	2.91	0.90	0.33
12.50	3.03	0.98	0.22
12.75	3.11	1.03	0.17
13.00	3.18	1.08	0.14
13.25	3.24	1.12	0.12
13.50	3.29	1.16	0.11
13.75	3.34	1.19	0.10
14.00	3.38	1.22	0.09
14.25	3.42	1.24	0.08
14.50	3.45	1.27	0.08
14.75	3.48	1.29	0.07
15.00	3.52	1.31	0.07
15.25	3.55	1.33	0.07
15.50	3.57	1.35	0.06
15.75	3.60	1.37	0.06
16.00	3.63	1.39	0.05
16.25	3.65	1.41	0.05
16.50	3.67	1.42	0.05
16.75	3.69	1.44	0.05
17.00	3.72	1.46	0.05
17.25	3.74	1.47	0.05
17.50	3.76	1.49	0.05
17.75	3.78	1.50	0.04
18.00	3.79	1.51	0.04
18.25	3.81	1.53	0.04
18.50	3.83	1.54	0.04
18.75	3.85	1.55	0.04
19.00	3.86	1.57	0.04
19.25	3.88	1.58	0.04
19.50	3.89	1.59	0.03
19.75	3.91	1.60	0.03
20.00	**3.92**	**1.61**	0.03

Summary for Subcatchment DA-2: DA-2

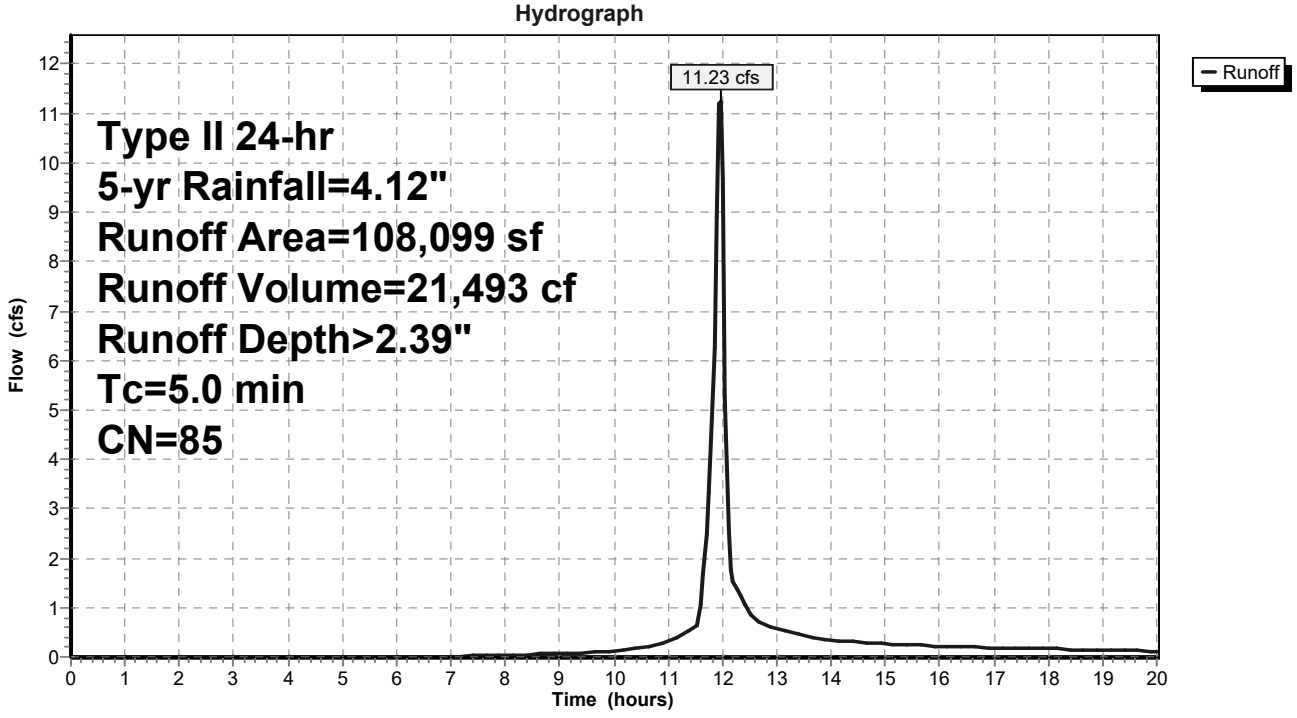
Runoff = 11.23 cfs @ 11.96 hrs, Volume= 21,493 cf, Depth> 2.39"
Routed to Link Pre DP002 : Pre-Development DP002

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 5-yr Rainfall=4.12"

	Area (sf)	CN	Description
	54,808	98	Paved parking, HSG C
*	13,702	71	20% Impervious as meadow
	1,400	58	Meadow, non-grazed, HSG B
	446	60	Woods, Fair, HSG B
	27,860	71	Meadow, non-grazed, HSG C
	9,883	73	Woods, Fair, HSG C
	108,099	85	Weighted Average
	53,291		49.30% Pervious Area
	54,808		50.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc-1**

Subcatchment DA-2: DA-2



Hydrograph for Subcatchment DA-2: DA-2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.02	0.00	0.00
0.75	0.03	0.00	0.00
1.00	0.04	0.00	0.00
1.25	0.05	0.00	0.00
1.50	0.07	0.00	0.00
1.75	0.08	0.00	0.00
2.00	0.09	0.00	0.00
2.25	0.10	0.00	0.00
2.50	0.12	0.00	0.00
2.75	0.13	0.00	0.00
3.00	0.14	0.00	0.00
3.25	0.16	0.00	0.00
3.50	0.17	0.00	0.00
3.75	0.18	0.00	0.00
4.00	0.20	0.00	0.00
4.25	0.21	0.00	0.00
4.50	0.23	0.00	0.00
4.75	0.24	0.00	0.00
5.00	0.26	0.00	0.00
5.25	0.28	0.00	0.00
5.50	0.29	0.00	0.00
5.75	0.31	0.00	0.00
6.00	0.33	0.00	0.00
6.25	0.35	0.00	0.00
6.50	0.37	0.00	0.00
6.75	0.39	0.00	0.01
7.00	0.41	0.00	0.01
7.25	0.43	0.00	0.02
7.50	0.45	0.01	0.02
7.75	0.47	0.01	0.03
8.00	0.49	0.01	0.03
8.25	0.52	0.01	0.04
8.50	0.54	0.02	0.05
8.75	0.57	0.02	0.06
9.00	0.61	0.03	0.07
9.25	0.64	0.04	0.08
9.50	0.67	0.05	0.09
9.75	0.71	0.06	0.11
10.00	0.75	0.07	0.13
10.25	0.79	0.09	0.16
10.50	0.84	0.11	0.20
10.75	0.90	0.13	0.25
11.00	0.97	0.16	0.31
11.25	1.05	0.20	0.43
11.50	1.17	0.26	0.60
11.75	1.59	0.51	**3.33**
12.00	2.73	1.37	**9.67**
12.25	2.91	1.51	1.38
12.50	3.03	1.61	0.91
12.75	3.11	1.68	0.68
13.00	3.18	1.74	0.57
13.25	3.24	1.79	0.50
13.50	3.29	1.84	0.44
13.75	3.34	1.88	0.39
14.00	3.38	1.91	0.34
14.25	3.42	1.94	0.32
14.50	3.45	1.97	0.30
14.75	3.48	2.00	0.29
15.00	3.52	2.03	0.27
15.25	3.55	2.06	0.26
15.50	3.57	2.08	0.24
15.75	3.60	2.10	0.23
16.00	3.63	2.13	0.21
16.25	3.65	2.15	0.20
16.50	3.67	2.17	0.20
16.75	3.69	2.19	0.19
17.00	3.72	2.20	0.19
17.25	3.74	2.22	0.18
17.50	3.76	2.24	0.18
17.75	3.78	2.26	0.17
18.00	3.79	2.28	0.17
18.25	3.81	2.29	0.16
18.50	3.83	2.31	0.15
18.75	3.85	2.32	0.15
19.00	3.86	2.34	0.14
19.25	3.88	2.35	0.14
19.50	3.89	2.36	0.13
19.75	3.91	2.38	0.13
20.00	**3.92**	**2.39**	0.12

Summary for Subcatchment DA-3: DA-3

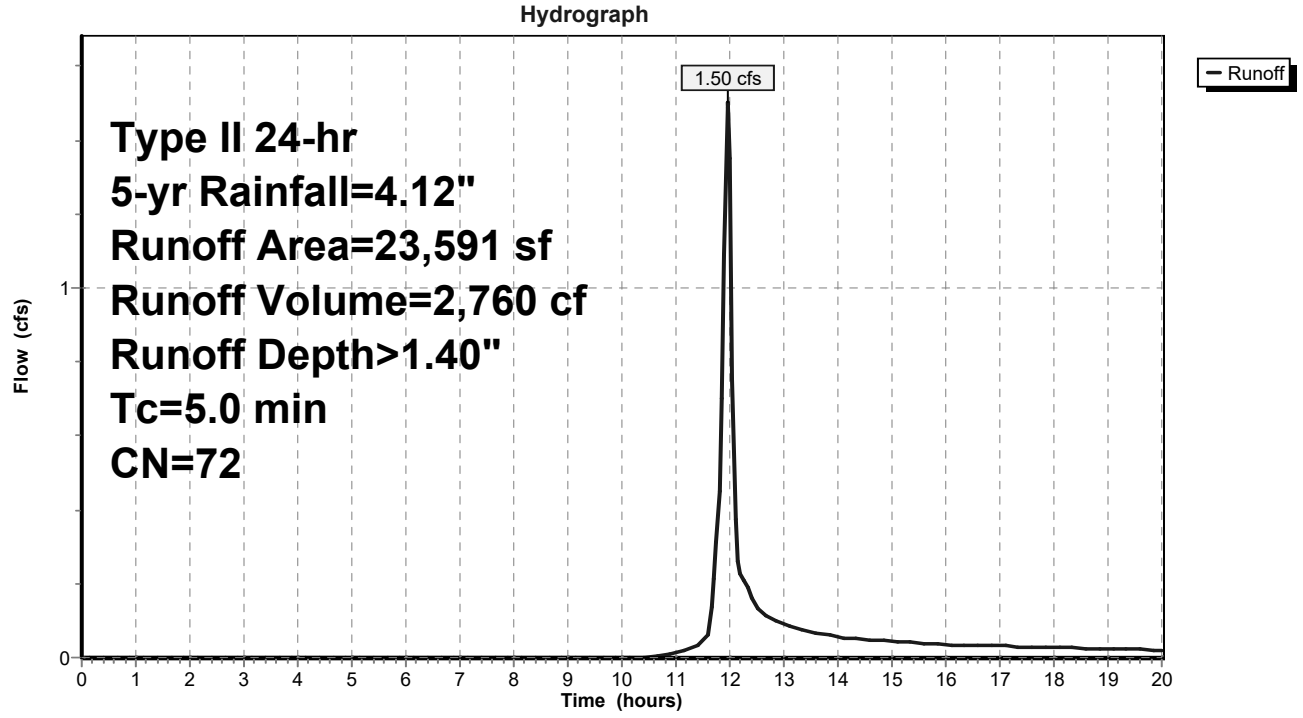
Runoff = 1.50 cfs @ 11.96 hrs, Volume= 2,760 cf, Depth> 1.40"
Routed to Link Pre DP003 : Pre-Development DP003

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 5-yr Rainfall=4.12"

	Area (sf)	CN	Description
	1,304	98	Paved parking, HSG C
*	326	71	20% impervious as meadow
	21,961	71	Meadow, non-grazed, HSG C
	23,591	72	Weighted Average
	22,222		94.20% Pervious Area
	1,369		5.80% Impervious Area

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

Subcatchment DA-3: DA-3



Hydrograph for Subcatchment DA-3: DA-3

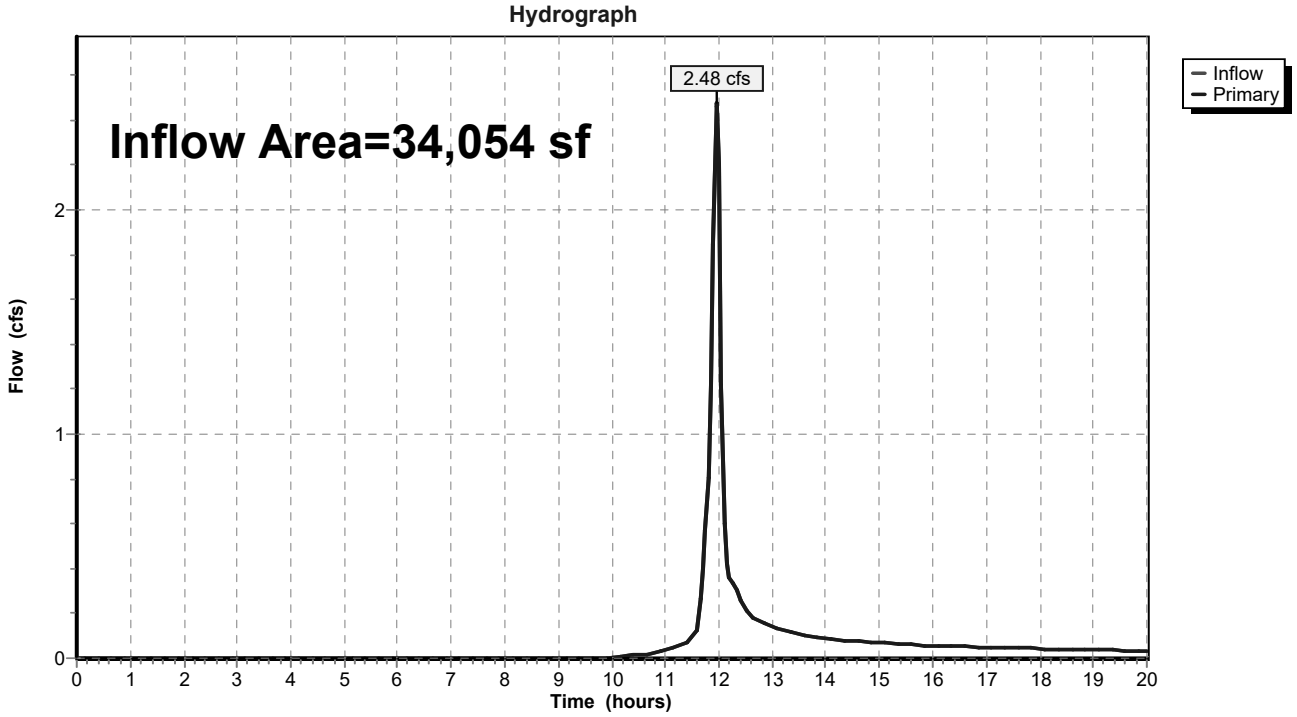
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.02	0.00	0.00
0.75	0.03	0.00	0.00
1.00	0.04	0.00	0.00
1.25	0.05	0.00	0.00
1.50	0.07	0.00	0.00
1.75	0.08	0.00	0.00
2.00	0.09	0.00	0.00
2.25	0.10	0.00	0.00
2.50	0.12	0.00	0.00
2.75	0.13	0.00	0.00
3.00	0.14	0.00	0.00
3.25	0.16	0.00	0.00
3.50	0.17	0.00	0.00
3.75	0.18	0.00	0.00
4.00	0.20	0.00	0.00
4.25	0.21	0.00	0.00
4.50	0.23	0.00	0.00
4.75	0.24	0.00	0.00
5.00	0.26	0.00	0.00
5.25	0.28	0.00	0.00
5.50	0.29	0.00	0.00
5.75	0.31	0.00	0.00
6.00	0.33	0.00	0.00
6.25	0.35	0.00	0.00
6.50	0.37	0.00	0.00
6.75	0.39	0.00	0.00
7.00	0.41	0.00	0.00
7.25	0.43	0.00	0.00
7.50	0.45	0.00	0.00
7.75	0.47	0.00	0.00
8.00	0.49	0.00	0.00
8.25	0.52	0.00	0.00
8.50	0.54	0.00	0.00
8.75	0.57	0.00	0.00
9.00	0.61	0.00	0.00
9.25	0.64	0.00	0.00
9.50	0.67	0.00	0.00
9.75	0.71	0.00	0.00
10.00	0.75	0.00	0.00
10.25	0.79	0.00	0.00
10.50	0.84	0.00	0.00
10.75	0.90	0.00	0.01
11.00	0.97	0.01	0.01
11.25	1.05	0.02	0.02
11.50	1.17	0.04	0.04
11.75	1.59	0.14	**0.31**
12.00	2.73	0.65	**1.35**
12.25	2.91	0.75	0.21
12.50	3.03	0.82	0.14
12.75	3.11	0.88	0.11
13.00	3.18	0.92	0.09
13.25	3.24	0.95	0.08
13.50	3.29	0.99	0.07
13.75	3.34	1.02	0.06
14.00	3.38	1.04	0.06
14.25	3.42	1.07	0.05
14.50	3.45	1.09	0.05
14.75	3.48	1.11	0.05
15.00	3.52	1.13	0.04
15.25	3.55	1.15	0.04
15.50	3.57	1.17	0.04
15.75	3.60	1.19	0.04
16.00	3.63	1.20	0.04
16.25	3.65	1.22	0.03
16.50	3.67	1.23	0.03
16.75	3.69	1.25	0.03
17.00	3.72	1.26	0.03
17.25	3.74	1.28	0.03
17.50	3.76	1.29	0.03
17.75	3.78	1.31	0.03
18.00	3.79	1.32	0.03
18.25	3.81	1.33	0.03
18.50	3.83	1.34	0.03
18.75	3.85	1.35	0.03
19.00	3.86	1.37	0.02
19.25	3.88	1.38	0.02
19.50	3.89	1.39	0.02
19.75	3.91	1.40	0.02
20.00	**3.92**	**1.41**	0.02

Summary for Link Pre DP001: Pre-Development DP001

Inflow Area = 34,054 sf, 18.56% Impervious, Inflow Depth > 1.61" for 5-yr event
Inflow = 2.48 cfs @ 11.96 hrs, Volume= 4,559 cf
Primary = 2.48 cfs @ 11.96 hrs, Volume= 4,559 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Pre DP001: Pre-Development DP001



Hydrograph for Link Pre DP001: Pre-Development DP001

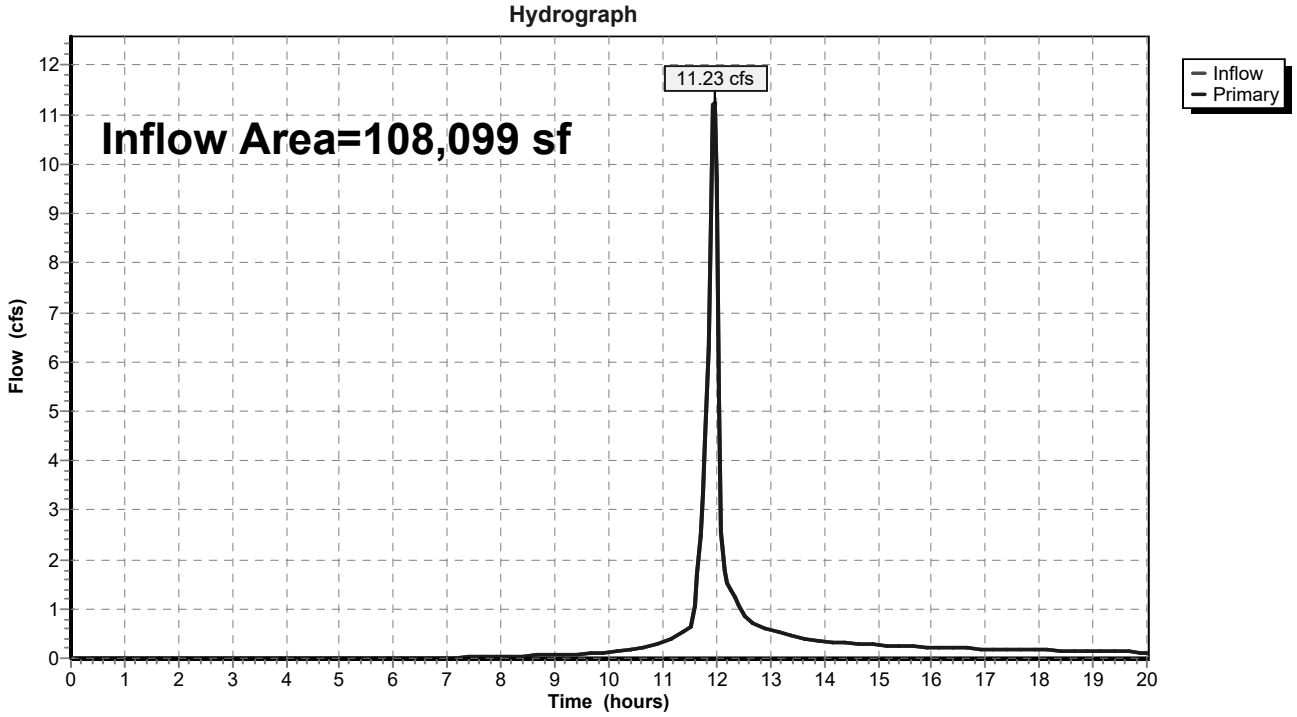
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
0.25	0.00	0.00	0.00
0.50	0.00	0.00	0.00
0.75	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00
1.50	0.00	0.00	0.00
1.75	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00
2.50	0.00	0.00	0.00
2.75	0.00	0.00	0.00
3.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00
3.50	0.00	0.00	0.00
3.75	0.00	0.00	0.00
4.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00
4.50	0.00	0.00	0.00
4.75	0.00	0.00	0.00
5.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00
5.50	0.00	0.00	0.00
5.75	0.00	0.00	0.00
6.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00
6.50	0.00	0.00	0.00
6.75	0.00	0.00	0.00
7.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00
7.50	0.00	0.00	0.00
7.75	0.00	0.00	0.00
8.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00
8.50	0.00	0.00	0.00
8.75	0.00	0.00	0.00
9.00	0.00	0.00	0.00
9.25	0.00	0.00	0.00
9.50	0.00	0.00	0.00
9.75	0.00	0.00	0.00
10.00	0.00	0.00	0.00
10.25	0.01	0.00	0.01
10.50	0.01	0.00	0.01
10.75	0.02	0.00	0.02
11.00	0.03	0.00	0.03
11.25	0.05	0.00	0.05
11.50	0.08	0.00	0.08
11.75	**0.57**	0.00	**0.57**
12.00	**2.20**	0.00	**2.20**
12.25	0.33	0.00	0.33
12.50	0.22	0.00	0.22
12.75	0.17	0.00	0.17
13.00	0.14	0.00	0.14
13.25	0.12	0.00	0.12
13.50	0.11	0.00	0.11
13.75	0.10	0.00	0.10
14.00	0.09	0.00	0.09
14.25	0.08	0.00	0.08
14.50	0.08	0.00	0.08
14.75	0.07	0.00	0.07
15.00	0.07	0.00	0.07
15.25	0.07	0.00	0.07
15.50	0.06	0.00	0.06
15.75	0.06	0.00	0.06
16.00	0.05	0.00	0.05
16.25	0.05	0.00	0.05
16.50	0.05	0.00	0.05
16.75	0.05	0.00	0.05
17.00	0.05	0.00	0.05
17.25	0.05	0.00	0.05
17.50	0.05	0.00	0.05
17.75	0.04	0.00	0.04
18.00	0.04	0.00	0.04
18.25	0.04	0.00	0.04
18.50	0.04	0.00	0.04
18.75	0.04	0.00	0.04
19.00	0.04	0.00	0.04
19.25	0.04	0.00	0.04
19.50	0.03	0.00	0.03
19.75	0.03	0.00	0.03
20.00	0.03	0.00	0.03

Summary for Link Pre DP002: Pre-Development DP002

Inflow Area = 108,099 sf, 50.70% Impervious, Inflow Depth > 2.39" for 5-yr event
Inflow = 11.23 cfs @ 11.96 hrs, Volume= 21,493 cf
Primary = 11.23 cfs @ 11.96 hrs, Volume= 21,493 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Pre DP002: Pre-Development DP002



Hydrograph for Link Pre DP002: Pre-Development DP002

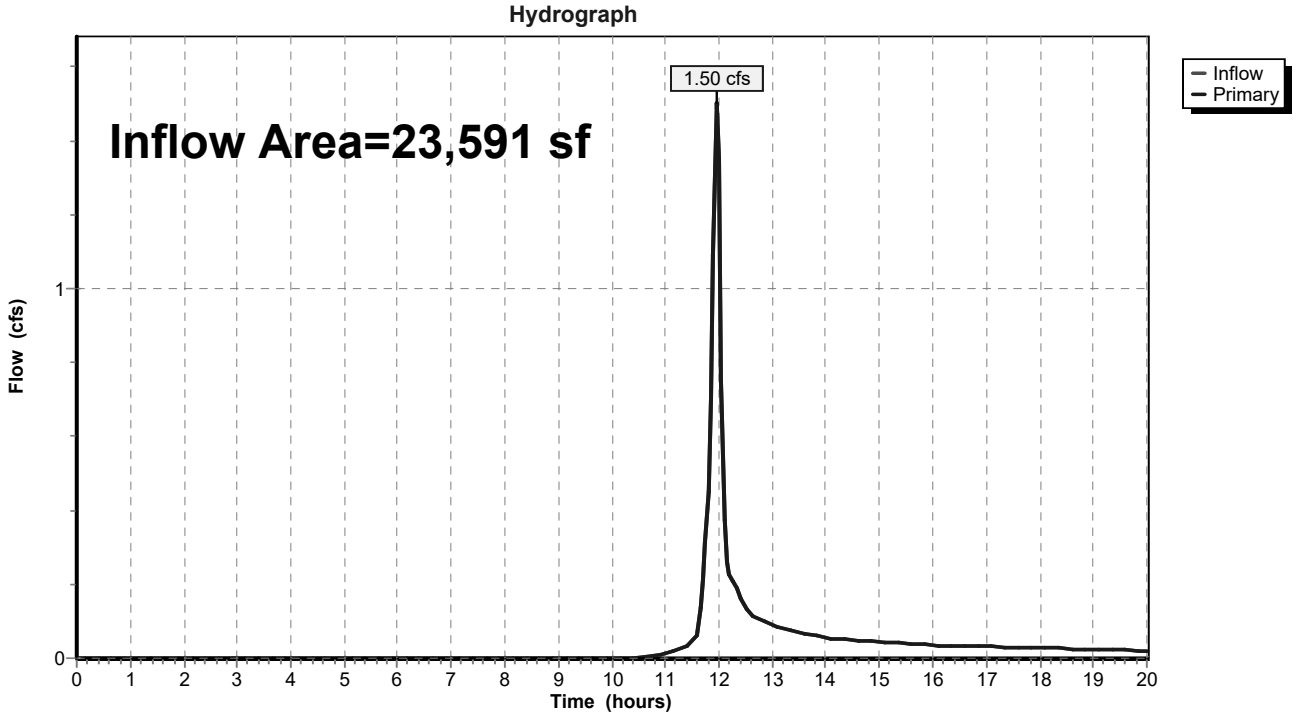
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
0.25	0.00	0.00	0.00
0.50	0.00	0.00	0.00
0.75	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00
1.50	0.00	0.00	0.00
1.75	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00
2.50	0.00	0.00	0.00
2.75	0.00	0.00	0.00
3.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00
3.50	0.00	0.00	0.00
3.75	0.00	0.00	0.00
4.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00
4.50	0.00	0.00	0.00
4.75	0.00	0.00	0.00
5.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00
5.50	0.00	0.00	0.00
5.75	0.00	0.00	0.00
6.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00
6.50	0.00	0.00	0.00
6.75	0.01	0.00	0.01
7.00	0.01	0.00	0.01
7.25	0.02	0.00	0.02
7.50	0.02	0.00	0.02
7.75	0.03	0.00	0.03
8.00	0.03	0.00	0.03
8.25	0.04	0.00	0.04
8.50	0.05	0.00	0.05
8.75	0.06	0.00	0.06
9.00	0.07	0.00	0.07
9.25	0.08	0.00	0.08
9.50	0.09	0.00	0.09
9.75	0.11	0.00	0.11
10.00	0.13	0.00	0.13
10.25	0.16	0.00	0.16
10.50	0.20	0.00	0.20
10.75	0.25	0.00	0.25
11.00	0.31	0.00	0.31
11.25	0.43	0.00	0.43
11.50	0.60	0.00	0.60
11.75	**3.33**	0.00	**3.33**
12.00	**9.67**	0.00	**9.67**
12.25	1.38	0.00	1.38
12.50	0.91	0.00	0.91
12.75	0.68	0.00	0.68
13.00	0.57	0.00	0.57
13.25	0.50	0.00	0.50
13.50	0.44	0.00	0.44
13.75	0.39	0.00	0.39
14.00	0.34	0.00	0.34
14.25	0.32	0.00	0.32
14.50	0.30	0.00	0.30
14.75	0.29	0.00	0.29
15.00	0.27	0.00	0.27
15.25	0.26	0.00	0.26
15.50	0.24	0.00	0.24
15.75	0.23	0.00	0.23
16.00	0.21	0.00	0.21
16.25	0.20	0.00	0.20
16.50	0.20	0.00	0.20
16.75	0.19	0.00	0.19
17.00	0.19	0.00	0.19
17.25	0.18	0.00	0.18
17.50	0.18	0.00	0.18
17.75	0.17	0.00	0.17
18.00	0.17	0.00	0.17
18.25	0.16	0.00	0.16
18.50	0.15	0.00	0.15
18.75	0.15	0.00	0.15
19.00	0.14	0.00	0.14
19.25	0.14	0.00	0.14
19.50	0.13	0.00	0.13
19.75	0.13	0.00	0.13
20.00	0.12	0.00	0.12

Summary for Link Pre DP003: Pre-Development DP003

Inflow Area = 23,591 sf, 5.80% Impervious, Inflow Depth > 1.40" for 5-yr event
Inflow = 1.50 cfs @ 11.96 hrs, Volume= 2,760 cf
Primary = 1.50 cfs @ 11.96 hrs, Volume= 2,760 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Pre DP003: Pre-Development DP003



Hydrograph for Link Pre DP003: Pre-Development DP003

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
0.25	0.00	0.00	0.00
0.50	0.00	0.00	0.00
0.75	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00
1.50	0.00	0.00	0.00
1.75	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00
2.50	0.00	0.00	0.00
2.75	0.00	0.00	0.00
3.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00
3.50	0.00	0.00	0.00
3.75	0.00	0.00	0.00
4.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00
4.50	0.00	0.00	0.00
4.75	0.00	0.00	0.00
5.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00
5.50	0.00	0.00	0.00
5.75	0.00	0.00	0.00
6.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00
6.50	0.00	0.00	0.00
6.75	0.00	0.00	0.00
7.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00
7.50	0.00	0.00	0.00
7.75	0.00	0.00	0.00
8.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00
8.50	0.00	0.00	0.00
8.75	0.00	0.00	0.00
9.00	0.00	0.00	0.00
9.25	0.00	0.00	0.00
9.50	0.00	0.00	0.00
9.75	0.00	0.00	0.00
10.00	0.00	0.00	0.00
10.25	0.00	0.00	0.00
10.50	0.00	0.00	0.00
10.75	0.01	0.00	0.01
11.00	0.01	0.00	0.01
11.25	0.02	0.00	0.02
11.50	0.04	0.00	0.04
11.75	**0.31**	0.00	**0.31**
12.00	**1.35**	0.00	**1.35**
12.25	0.21	0.00	0.21
12.50	0.14	0.00	0.14
12.75	0.11	0.00	0.11
13.00	0.09	0.00	0.09
13.25	0.08	0.00	0.08
13.50	0.07	0.00	0.07
13.75	0.06	0.00	0.06
14.00	0.06	0.00	0.06
14.25	0.05	0.00	0.05
14.50	0.05	0.00	0.05
14.75	0.05	0.00	0.05
15.00	0.04	0.00	0.04
15.25	0.04	0.00	0.04
15.50	0.04	0.00	0.04
15.75	0.04	0.00	0.04
16.00	0.04	0.00	0.04
16.25	0.03	0.00	0.03
16.50	0.03	0.00	0.03
16.75	0.03	0.00	0.03
17.00	0.03	0.00	0.03
17.25	0.03	0.00	0.03
17.50	0.03	0.00	0.03
17.75	0.03	0.00	0.03
18.00	0.03	0.00	0.03
18.25	0.03	0.00	0.03
18.50	0.03	0.00	0.03
18.75	0.03	0.00	0.03
19.00	0.02	0.00	0.02
19.25	0.02	0.00	0.02
19.50	0.02	0.00	0.02
19.75	0.02	0.00	0.02
20.00	0.02	0.00	0.02

Summary for Subcatchment DA-1: DA-1

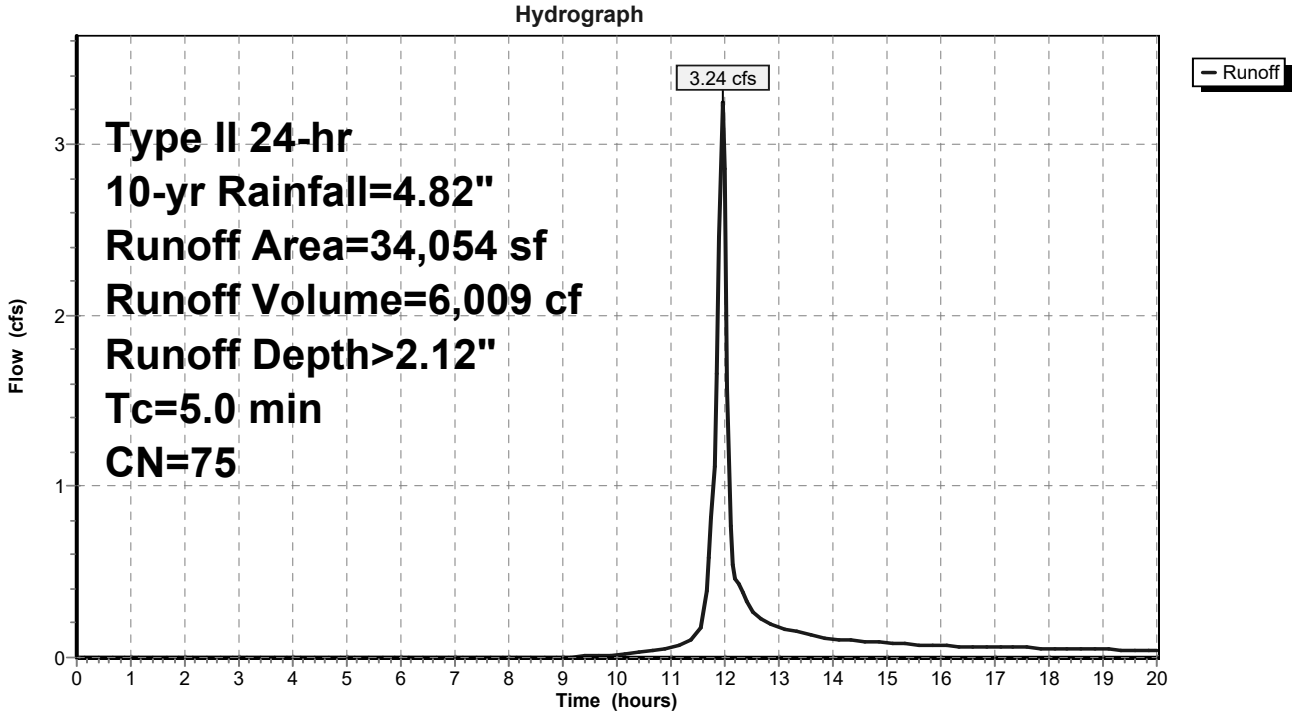
Runoff = 3.24 cfs @ 11.96 hrs, Volume= 6,009 cf, Depth> 2.12"
Routed to Link Pre DP001 : Pre-Development DP001

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=4.82"

	Area (sf)	CN	Description
	6,319	98	Paved parking, HSG C
	1,606	58	Meadow, non-grazed, HSG B
	582	60	Woods, Fair, HSG B
	23,967	71	Meadow, non-grazed, HSG C
*	1,580	71	20% Impervious as meadow
	34,054	75	Weighted Average
	27,735		81.44% Pervious Area
	6,319		18.56% Impervious Area

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

Subcatchment DA-1: DA-1



Hydrograph for Subcatchment DA-1: DA-1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.02	0.00	0.00
0.75	0.04	0.00	0.00
1.00	0.05	0.00	0.00
1.25	0.06	0.00	0.00
1.50	0.08	0.00	0.00
1.75	0.09	0.00	0.00
2.00	0.11	0.00	0.00
2.25	0.12	0.00	0.00
2.50	0.14	0.00	0.00
2.75	0.15	0.00	0.00
3.00	0.17	0.00	0.00
3.25	0.18	0.00	0.00
3.50	0.20	0.00	0.00
3.75	0.21	0.00	0.00
4.00	0.23	0.00	0.00
4.25	0.25	0.00	0.00
4.50	0.27	0.00	0.00
4.75	0.28	0.00	0.00
5.00	0.30	0.00	0.00
5.25	0.32	0.00	0.00
5.50	0.34	0.00	0.00
5.75	0.36	0.00	0.00
6.00	0.39	0.00	0.00
6.25	0.41	0.00	0.00
6.50	0.43	0.00	0.00
6.75	0.45	0.00	0.00
7.00	0.48	0.00	0.00
7.25	0.50	0.00	0.00
7.50	0.53	0.00	0.00
7.75	0.55	0.00	0.00
8.00	0.58	0.00	0.00
8.25	0.61	0.00	0.00
8.50	0.64	0.00	0.00
8.75	0.67	0.00	0.00
9.00	0.71	0.00	0.00
9.25	0.75	0.00	0.00
9.50	0.79	0.00	0.01
9.75	0.83	0.01	0.01
10.00	0.87	0.01	0.02
10.25	0.92	0.02	0.02
10.50	0.98	0.03	0.03
10.75	1.05	0.04	0.04
11.00	1.13	0.06	0.06
11.25	1.23	0.08	0.09
11.50	1.36	0.12	0.13
11.75	1.87	0.32	**0.82**
12.00	3.20	1.09	**2.86**
12.25	3.40	1.23	0.43
12.50	3.54	1.33	0.28
12.75	3.64	1.40	0.21
13.00	3.72	1.46	0.18
13.25	3.79	1.51	0.16
13.50	3.85	1.56	0.14
13.75	3.90	1.60	0.12
14.00	3.95	1.63	0.11
14.25	4.00	1.66	0.10
14.50	4.04	1.69	0.10
14.75	4.08	1.72	0.09
15.00	4.11	1.75	0.09
15.25	4.15	1.78	0.08
15.50	4.18	1.80	0.08
15.75	4.21	1.83	0.07
16.00	4.24	1.85	0.07
16.25	4.27	1.87	0.07
16.50	4.30	1.89	0.06
16.75	4.32	1.91	0.06
17.00	4.35	1.93	0.06
17.25	4.37	1.95	0.06
17.50	4.39	1.97	0.06
17.75	4.42	1.99	0.06
18.00	4.44	2.00	0.05
18.25	4.46	2.02	0.05
18.50	4.48	2.04	0.05
18.75	4.50	2.05	0.05
19.00	4.52	2.07	0.05
19.25	4.54	2.08	0.04
19.50	4.56	2.09	0.04
19.75	4.57	2.11	0.04
20.00	**4.59**	**2.12**	0.04

Summary for Subcatchment DA-2: DA-2

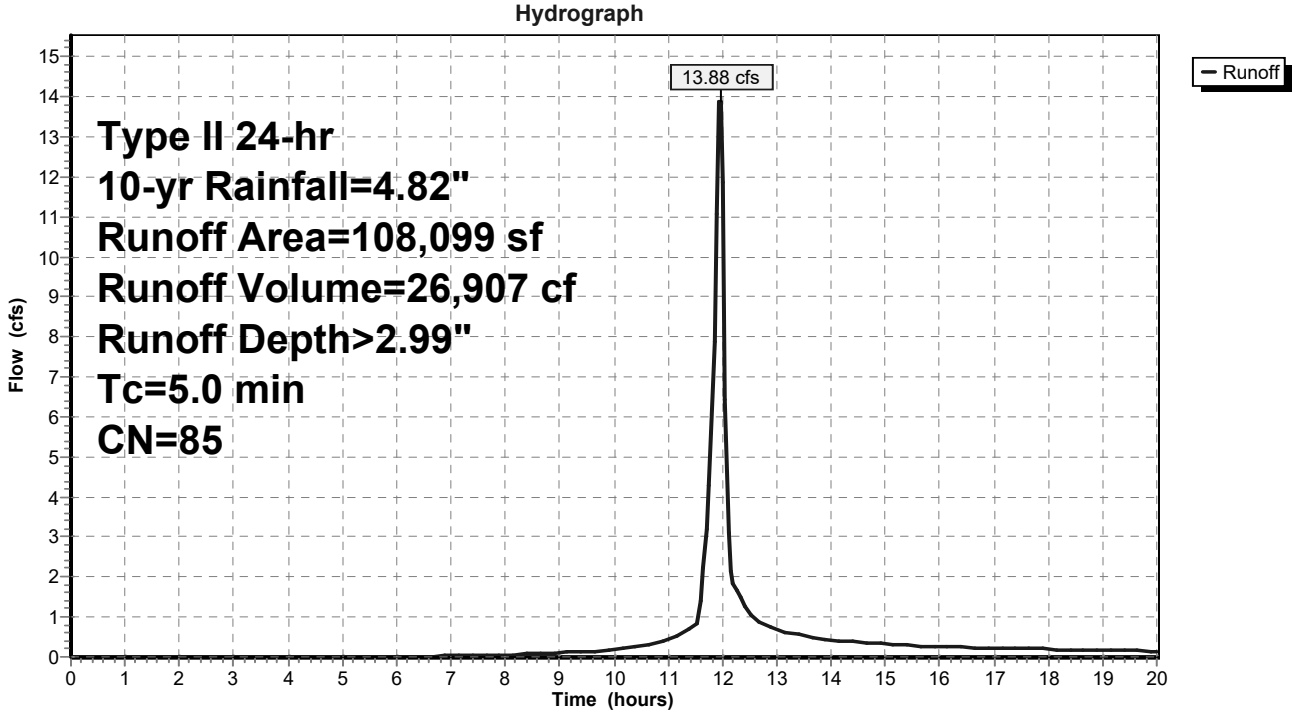
Runoff = 13.88 cfs @ 11.95 hrs, Volume= 26,907 cf, Depth> 2.99"
Routed to Link Pre DP002 : Pre-Development DP002

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=4.82"

	Area (sf)	CN	Description
	54,808	98	Paved parking, HSG C
*	13,702	71	20% Impervious as meadow
	1,400	58	Meadow, non-grazed, HSG B
	446	60	Woods, Fair, HSG B
	27,860	71	Meadow, non-grazed, HSG C
	9,883	73	Woods, Fair, HSG C
	108,099	85	Weighted Average
	53,291		49.30% Pervious Area
	54,808		50.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc-1**

Subcatchment DA-2: DA-2



Hydrograph for Subcatchment DA-2: DA-2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.02	0.00	0.00
0.75	0.04	0.00	0.00
1.00	0.05	0.00	0.00
1.25	0.06	0.00	0.00
1.50	0.08	0.00	0.00
1.75	0.09	0.00	0.00
2.00	0.11	0.00	0.00
2.25	0.12	0.00	0.00
2.50	0.14	0.00	0.00
2.75	0.15	0.00	0.00
3.00	0.17	0.00	0.00
3.25	0.18	0.00	0.00
3.50	0.20	0.00	0.00
3.75	0.21	0.00	0.00
4.00	0.23	0.00	0.00
4.25	0.25	0.00	0.00
4.50	0.27	0.00	0.00
4.75	0.28	0.00	0.00
5.00	0.30	0.00	0.00
5.25	0.32	0.00	0.00
5.50	0.34	0.00	0.00
5.75	0.36	0.00	0.00
6.00	0.39	0.00	0.01
6.25	0.41	0.00	0.01
6.50	0.43	0.00	0.02
6.75	0.45	0.01	0.02
7.00	0.48	0.01	0.03
7.25	0.50	0.01	0.03
7.50	0.53	0.02	0.04
7.75	0.55	0.02	0.05
8.00	0.58	0.03	0.05
8.25	0.61	0.03	0.07
8.50	0.64	0.04	0.08
8.75	0.67	0.05	0.10
9.00	0.71	0.06	0.11
9.25	0.75	0.07	0.13
9.50	0.79	0.09	0.13
9.75	0.83	0.10	0.16
10.00	0.87	0.12	0.18
10.25	0.92	0.14	0.22
10.50	0.98	0.17	0.27
10.75	1.05	0.20	0.34
11.00	1.13	0.24	0.42
11.25	1.23	0.29	0.58
11.50	1.36	0.37	0.79
11.75	1.87	0.70	**4.27**
12.00	3.20	1.75	**11.88**
12.25	3.40	1.93	1.68
12.50	3.54	2.05	1.10
12.75	3.64	2.14	0.82
13.00	3.72	2.21	0.69
13.25	3.79	2.27	0.60
13.50	3.85	2.33	0.53
13.75	3.90	2.37	0.47
14.00	3.95	2.42	0.41
14.25	4.00	2.45	0.39
14.50	4.04	2.49	0.37
14.75	4.08	2.53	0.35
15.00	4.11	2.56	0.33
15.25	4.15	2.59	0.31
15.50	4.18	2.62	0.29
15.75	4.21	2.65	0.27
16.00	4.24	2.67	0.26
16.25	4.27	2.70	0.25
16.50	4.30	2.72	0.24
16.75	4.32	2.75	0.23
17.00	4.35	2.77	0.23
17.25	4.37	2.79	0.22
17.50	4.39	2.81	0.21
17.75	4.42	2.83	0.21
18.00	4.44	2.85	0.20
18.25	4.46	2.87	0.19
18.50	4.48	2.89	0.19
18.75	4.50	2.91	0.18
19.00	4.52	2.93	0.17
19.25	4.54	2.94	0.17
19.50	4.56	2.96	0.16
19.75	4.57	2.98	0.15
20.00	**4.59**	**2.99**	0.15

Summary for Subcatchment DA-3: DA-3

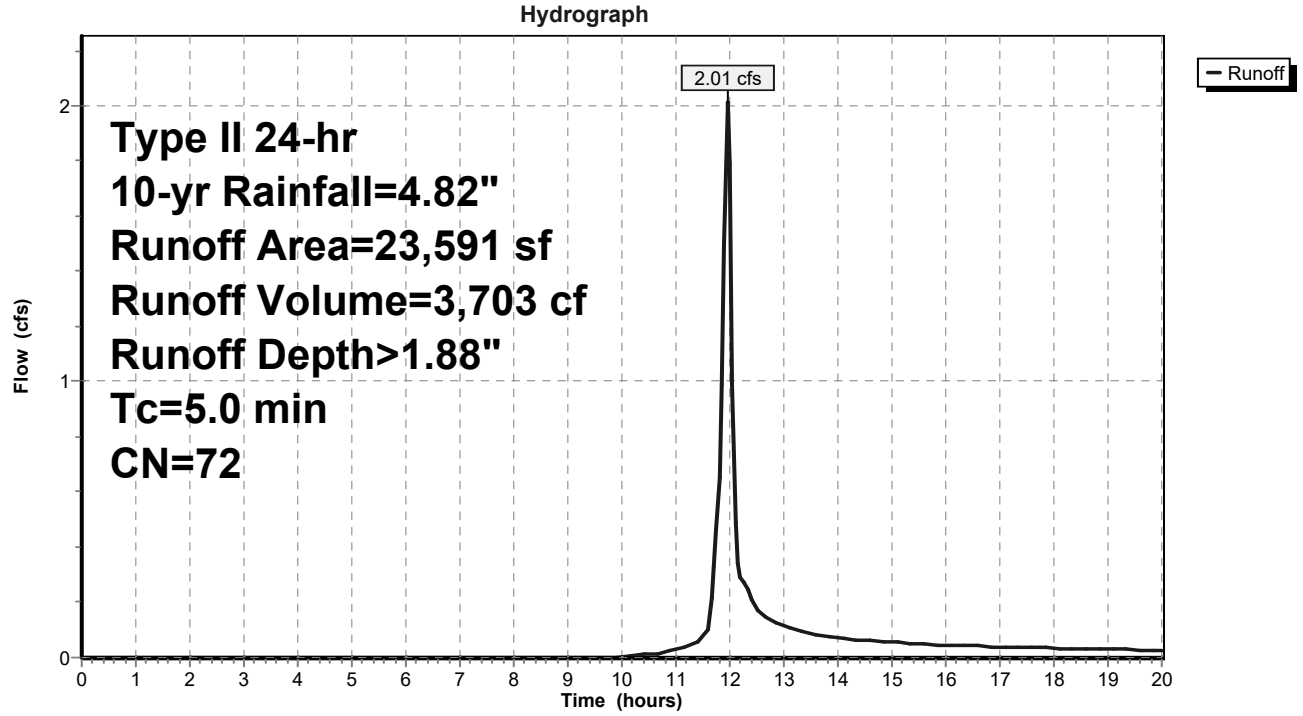
Runoff = 2.01 cfs @ 11.96 hrs, Volume= 3,703 cf, Depth> 1.88"
Routed to Link Pre DP003 : Pre-Development DP003

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=4.82"

	Area (sf)	CN	Description
	1,304	98	Paved parking, HSG C
*	326	71	20% impervious as meadow
	21,961	71	Meadow, non-grazed, HSG C
	23,591	72	Weighted Average
	22,222		94.20% Pervious Area
	1,369		5.80% Impervious Area

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

Subcatchment DA-3: DA-3



Hydrograph for Subcatchment DA-3: DA-3

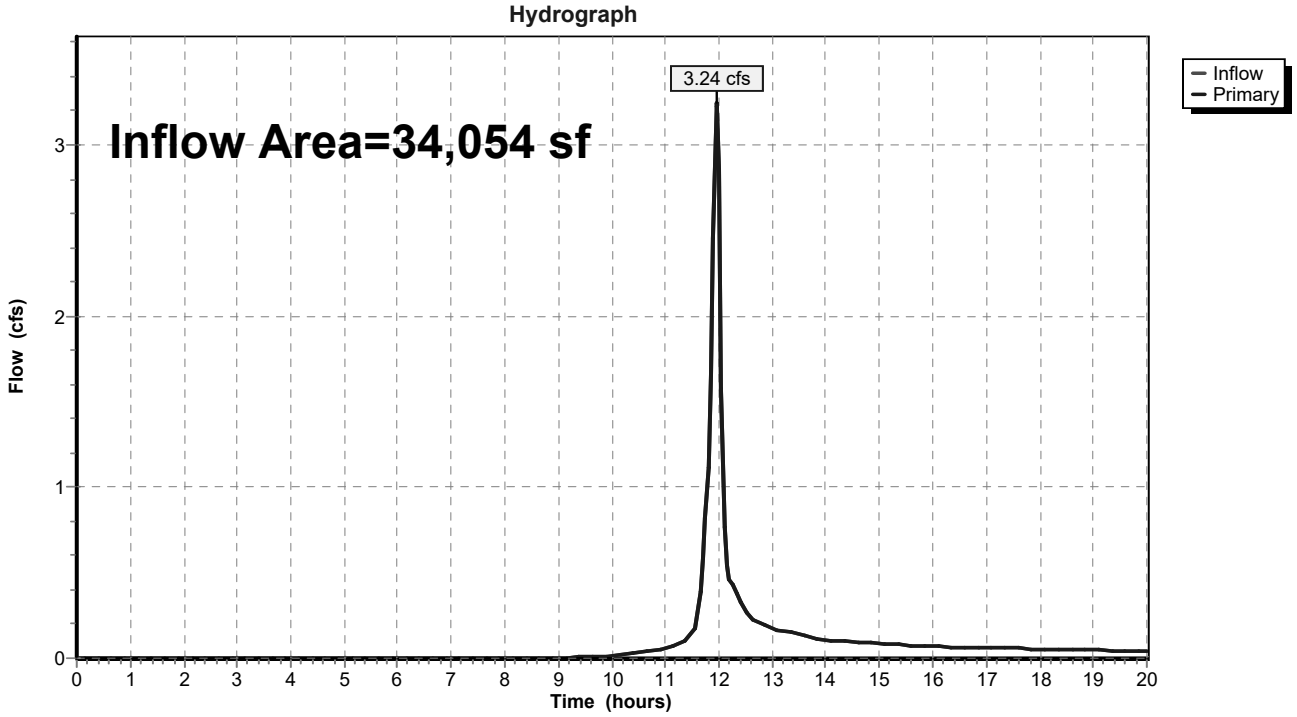
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.02	0.00	0.00
0.75	0.04	0.00	0.00
1.00	0.05	0.00	0.00
1.25	0.06	0.00	0.00
1.50	0.08	0.00	0.00
1.75	0.09	0.00	0.00
2.00	0.11	0.00	0.00
2.25	0.12	0.00	0.00
2.50	0.14	0.00	0.00
2.75	0.15	0.00	0.00
3.00	0.17	0.00	0.00
3.25	0.18	0.00	0.00
3.50	0.20	0.00	0.00
3.75	0.21	0.00	0.00
4.00	0.23	0.00	0.00
4.25	0.25	0.00	0.00
4.50	0.27	0.00	0.00
4.75	0.28	0.00	0.00
5.00	0.30	0.00	0.00
5.25	0.32	0.00	0.00
5.50	0.34	0.00	0.00
5.75	0.36	0.00	0.00
6.00	0.39	0.00	0.00
6.25	0.41	0.00	0.00
6.50	0.43	0.00	0.00
6.75	0.45	0.00	0.00
7.00	0.48	0.00	0.00
7.25	0.50	0.00	0.00
7.50	0.53	0.00	0.00
7.75	0.55	0.00	0.00
8.00	0.58	0.00	0.00
8.25	0.61	0.00	0.00
8.50	0.64	0.00	0.00
8.75	0.67	0.00	0.00
9.00	0.71	0.00	0.00
9.25	0.75	0.00	0.00
9.50	0.79	0.00	0.00
9.75	0.83	0.00	0.00
10.00	0.87	0.00	0.00
10.25	0.92	0.01	0.01
10.50	0.98	0.01	0.01
10.75	1.05	0.02	0.02
11.00	1.13	0.03	0.03
11.25	1.23	0.05	0.04
11.50	1.36	0.08	0.07
11.75	1.87	0.24	**0.47**
12.00	3.20	0.93	**1.79**
12.25	3.40	1.06	0.27
12.50	3.54	1.15	0.18
12.75	3.64	1.21	0.14
13.00	3.72	1.27	0.12
13.25	3.79	1.32	0.10
13.50	3.85	1.36	0.09
13.75	3.90	1.39	0.08
14.00	3.95	1.43	0.07
14.25	4.00	1.46	0.07
14.50	4.04	1.49	0.06
14.75	4.08	1.51	0.06
15.00	4.11	1.54	0.06
15.25	4.15	1.57	0.05
15.50	4.18	1.59	0.05
15.75	4.21	1.61	0.05
16.00	4.24	1.63	0.04
16.25	4.27	1.65	0.04
16.50	4.30	1.67	0.04
16.75	4.32	1.69	0.04
17.00	4.35	1.71	0.04
17.25	4.37	1.73	0.04
17.50	4.39	1.74	0.04
17.75	4.42	1.76	0.04
18.00	4.44	1.78	0.04
18.25	4.46	1.79	0.03
18.50	4.48	1.81	0.03
18.75	4.50	1.82	0.03
19.00	4.52	1.84	0.03
19.25	4.54	1.85	0.03
19.50	4.56	1.86	0.03
19.75	4.57	1.87	0.03
20.00	**4.59**	**1.89**	0.03

Summary for Link Pre DP001: Pre-Development DP001

Inflow Area = 34,054 sf, 18.56% Impervious, Inflow Depth > 2.12" for 10-yr event
Inflow = 3.24 cfs @ 11.96 hrs, Volume= 6,009 cf
Primary = 3.24 cfs @ 11.96 hrs, Volume= 6,009 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Pre DP001: Pre-Development DP001



Hydrograph for Link Pre DP001: Pre-Development DP001

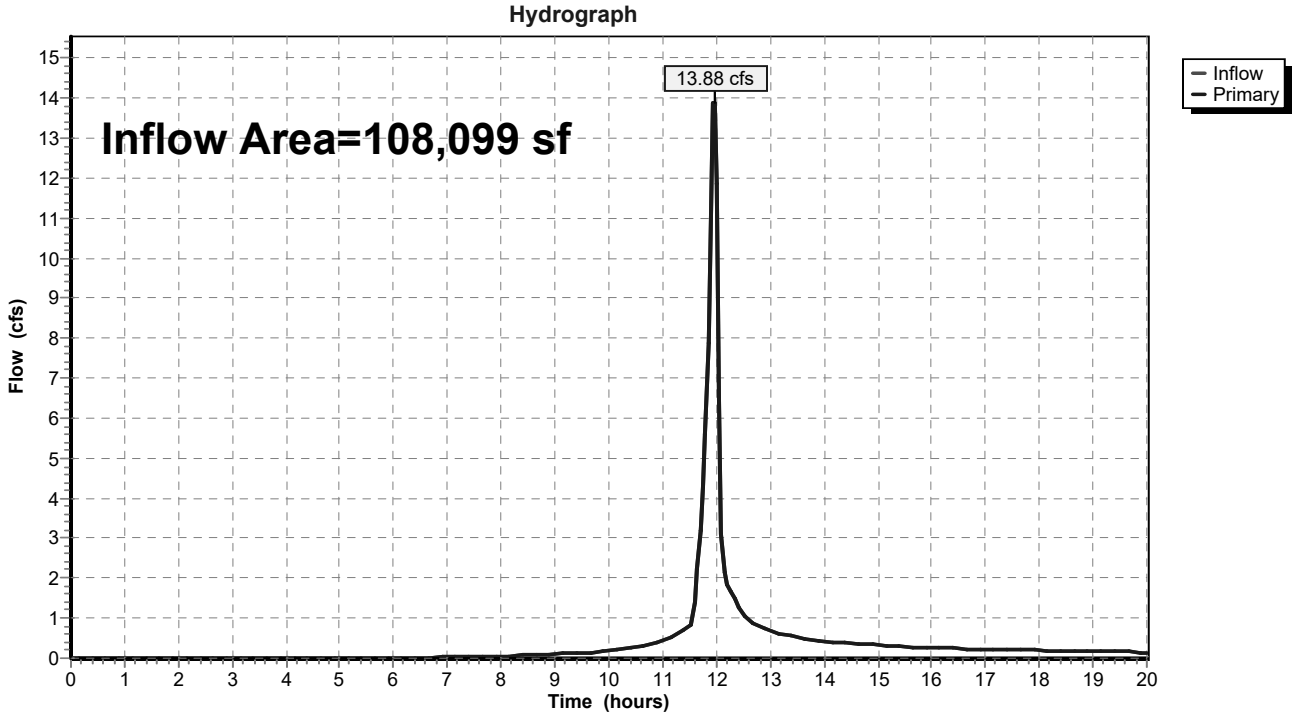
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
0.25	0.00	0.00	0.00
0.50	0.00	0.00	0.00
0.75	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00
1.50	0.00	0.00	0.00
1.75	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00
2.50	0.00	0.00	0.00
2.75	0.00	0.00	0.00
3.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00
3.50	0.00	0.00	0.00
3.75	0.00	0.00	0.00
4.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00
4.50	0.00	0.00	0.00
4.75	0.00	0.00	0.00
5.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00
5.50	0.00	0.00	0.00
5.75	0.00	0.00	0.00
6.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00
6.50	0.00	0.00	0.00
6.75	0.00	0.00	0.00
7.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00
7.50	0.00	0.00	0.00
7.75	0.00	0.00	0.00
8.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00
8.50	0.00	0.00	0.00
8.75	0.00	0.00	0.00
9.00	0.00	0.00	0.00
9.25	0.00	0.00	0.00
9.50	0.01	0.00	0.01
9.75	0.01	0.00	0.01
10.00	0.02	0.00	0.02
10.25	0.02	0.00	0.02
10.50	0.03	0.00	0.03
10.75	0.04	0.00	0.04
11.00	0.06	0.00	0.06
11.25	0.09	0.00	0.09
11.50	0.13	0.00	0.13
11.75	**0.82**	0.00	**0.82**
12.00	**2.86**	0.00	**2.86**
12.25	0.43	0.00	0.43
12.50	0.28	0.00	0.28
12.75	0.21	0.00	0.21
13.00	0.18	0.00	0.18
13.25	0.16	0.00	0.16
13.50	0.14	0.00	0.14
13.75	0.12	0.00	0.12
14.00	0.11	0.00	0.11
14.25	0.10	0.00	0.10
14.50	0.10	0.00	0.10
14.75	0.09	0.00	0.09
15.00	0.09	0.00	0.09
15.25	0.08	0.00	0.08
15.50	0.08	0.00	0.08
15.75	0.07	0.00	0.07
16.00	0.07	0.00	0.07
16.25	0.07	0.00	0.07
16.50	0.06	0.00	0.06
16.75	0.06	0.00	0.06
17.00	0.06	0.00	0.06
17.25	0.06	0.00	0.06
17.50	0.06	0.00	0.06
17.75	0.06	0.00	0.06
18.00	0.05	0.00	0.05
18.25	0.05	0.00	0.05
18.50	0.05	0.00	0.05
18.75	0.05	0.00	0.05
19.00	0.05	0.00	0.05
19.25	0.04	0.00	0.04
19.50	0.04	0.00	0.04
19.75	0.04	0.00	0.04
20.00	0.04	0.00	0.04

Summary for Link Pre DP002: Pre-Development DP002

Inflow Area = 108,099 sf, 50.70% Impervious, Inflow Depth > 2.99" for 10-yr event
Inflow = 13.88 cfs @ 11.95 hrs, Volume= 26,907 cf
Primary = 13.88 cfs @ 11.95 hrs, Volume= 26,907 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Pre DP002: Pre-Development DP002



Hydrograph for Link Pre DP002: Pre-Development DP002

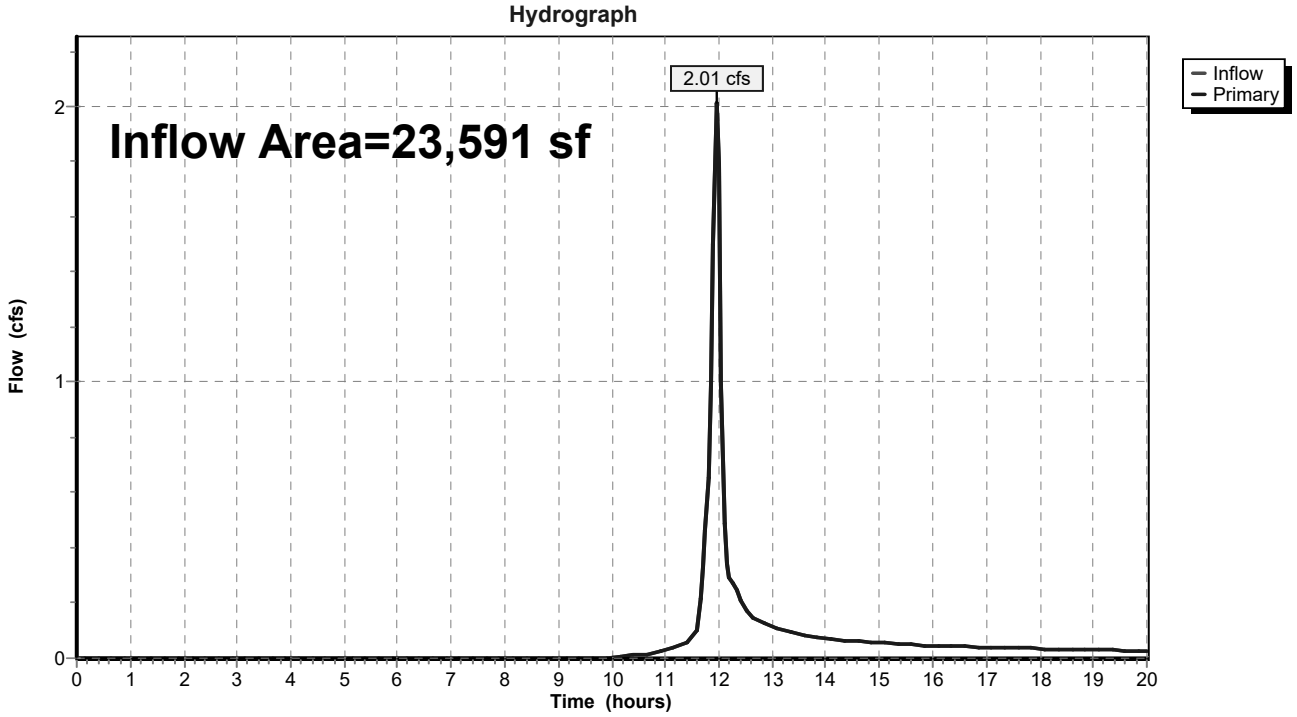
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
0.25	0.00	0.00	0.00
0.50	0.00	0.00	0.00
0.75	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00
1.50	0.00	0.00	0.00
1.75	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00
2.50	0.00	0.00	0.00
2.75	0.00	0.00	0.00
3.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00
3.50	0.00	0.00	0.00
3.75	0.00	0.00	0.00
4.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00
4.50	0.00	0.00	0.00
4.75	0.00	0.00	0.00
5.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00
5.50	0.00	0.00	0.00
5.75	0.00	0.00	0.00
6.00	0.01	0.00	0.01
6.25	0.01	0.00	0.01
6.50	0.02	0.00	0.02
6.75	0.02	0.00	0.02
7.00	0.03	0.00	0.03
7.25	0.03	0.00	0.03
7.50	0.04	0.00	0.04
7.75	0.05	0.00	0.05
8.00	0.05	0.00	0.05
8.25	0.07	0.00	0.07
8.50	0.08	0.00	0.08
8.75	0.10	0.00	0.10
9.00	0.11	0.00	0.11
9.25	0.13	0.00	0.13
9.50	0.13	0.00	0.13
9.75	0.16	0.00	0.16
10.00	0.18	0.00	0.18
10.25	0.22	0.00	0.22
10.50	0.27	0.00	0.27
10.75	0.34	0.00	0.34
11.00	0.42	0.00	0.42
11.25	0.58	0.00	0.58
11.50	0.79	0.00	0.79
11.75	**4.27**	0.00	**4.27**
12.00	**11.88**	0.00	**11.88**
12.25	1.68	0.00	1.68
12.50	1.10	0.00	1.10
12.75	0.82	0.00	0.82
13.00	0.69	0.00	0.69
13.25	0.60	0.00	0.60
13.50	0.53	0.00	0.53
13.75	0.47	0.00	0.47
14.00	0.41	0.00	0.41
14.25	0.39	0.00	0.39
14.50	0.37	0.00	0.37
14.75	0.35	0.00	0.35
15.00	0.33	0.00	0.33
15.25	0.31	0.00	0.31
15.50	0.29	0.00	0.29
15.75	0.27	0.00	0.27
16.00	0.26	0.00	0.26
16.25	0.25	0.00	0.25
16.50	0.24	0.00	0.24
16.75	0.23	0.00	0.23
17.00	0.23	0.00	0.23
17.25	0.22	0.00	0.22
17.50	0.21	0.00	0.21
17.75	0.21	0.00	0.21
18.00	0.20	0.00	0.20
18.25	0.19	0.00	0.19
18.50	0.19	0.00	0.19
18.75	0.18	0.00	0.18
19.00	0.17	0.00	0.17
19.25	0.17	0.00	0.17
19.50	0.16	0.00	0.16
19.75	0.15	0.00	0.15
20.00	0.15	0.00	0.15

Summary for Link Pre DP003: Pre-Development DP003

Inflow Area = 23,591 sf, 5.80% Impervious, Inflow Depth > 1.88" for 10-yr event
Inflow = 2.01 cfs @ 11.96 hrs, Volume= 3,703 cf
Primary = 2.01 cfs @ 11.96 hrs, Volume= 3,703 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Pre DP003: Pre-Development DP003



Hydrograph for Link Pre DP003: Pre-Development DP003

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
0.25	0.00	0.00	0.00
0.50	0.00	0.00	0.00
0.75	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00
1.50	0.00	0.00	0.00
1.75	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00
2.50	0.00	0.00	0.00
2.75	0.00	0.00	0.00
3.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00
3.50	0.00	0.00	0.00
3.75	0.00	0.00	0.00
4.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00
4.50	0.00	0.00	0.00
4.75	0.00	0.00	0.00
5.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00
5.50	0.00	0.00	0.00
5.75	0.00	0.00	0.00
6.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00
6.50	0.00	0.00	0.00
6.75	0.00	0.00	0.00
7.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00
7.50	0.00	0.00	0.00
7.75	0.00	0.00	0.00
8.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00
8.50	0.00	0.00	0.00
8.75	0.00	0.00	0.00
9.00	0.00	0.00	0.00
9.25	0.00	0.00	0.00
9.50	0.00	0.00	0.00
9.75	0.00	0.00	0.00
10.00	0.00	0.00	0.00
10.25	0.01	0.00	0.01
10.50	0.01	0.00	0.01
10.75	0.02	0.00	0.02
11.00	0.03	0.00	0.03
11.25	0.04	0.00	0.04
11.50	0.07	0.00	0.07
11.75	**0.47**	0.00	**0.47**
12.00	**1.79**	0.00	**1.79**
12.25	0.27	0.00	0.27
12.50	0.18	0.00	0.18
12.75	0.14	0.00	0.14
13.00	0.12	0.00	0.12
13.25	0.10	0.00	0.10
13.50	0.09	0.00	0.09
13.75	0.08	0.00	0.08
14.00	0.07	0.00	0.07
14.25	0.07	0.00	0.07
14.50	0.06	0.00	0.06
14.75	0.06	0.00	0.06
15.00	0.06	0.00	0.06
15.25	0.05	0.00	0.05
15.50	0.05	0.00	0.05
15.75	0.05	0.00	0.05
16.00	0.04	0.00	0.04
16.25	0.04	0.00	0.04
16.50	0.04	0.00	0.04
16.75	0.04	0.00	0.04
17.00	0.04	0.00	0.04
17.25	0.04	0.00	0.04
17.50	0.04	0.00	0.04
17.75	0.04	0.00	0.04
18.00	0.04	0.00	0.04
18.25	0.03	0.00	0.03
18.50	0.03	0.00	0.03
18.75	0.03	0.00	0.03
19.00	0.03	0.00	0.03
19.25	0.03	0.00	0.03
19.50	0.03	0.00	0.03
19.75	0.03	0.00	0.03
20.00	0.03	0.00	0.03

Summary for Subcatchment DA-1: DA-1

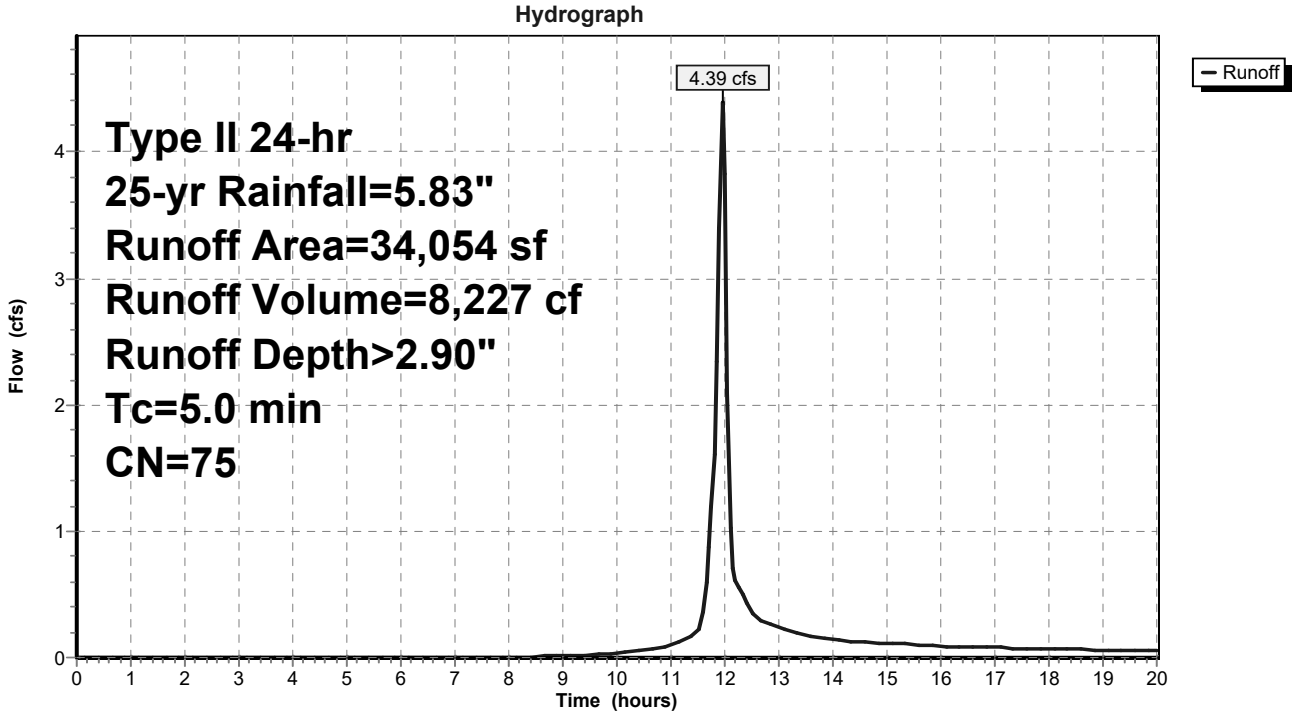
Runoff = 4.39 cfs @ 11.96 hrs, Volume= 8,227 cf, Depth> 2.90"
Routed to Link Pre DP001 : Pre-Development DP001

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=5.83"

	Area (sf)	CN	Description
	6,319	98	Paved parking, HSG C
	1,606	58	Meadow, non-grazed, HSG B
	582	60	Woods, Fair, HSG B
	23,967	71	Meadow, non-grazed, HSG C
*	1,580	71	20% Impervious as meadow
	34,054	75	Weighted Average
	27,735		81.44% Pervious Area
	6,319		18.56% Impervious Area

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

Subcatchment DA-1: DA-1



Hydrograph for Subcatchment DA-1: DA-1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.05	0.00	0.00
1.00	0.06	0.00	0.00
1.25	0.08	0.00	0.00
1.50	0.09	0.00	0.00
1.75	0.11	0.00	0.00
2.00	0.13	0.00	0.00
2.25	0.15	0.00	0.00
2.50	0.16	0.00	0.00
2.75	0.18	0.00	0.00
3.00	0.20	0.00	0.00
3.25	0.22	0.00	0.00
3.50	0.24	0.00	0.00
3.75	0.26	0.00	0.00
4.00	0.28	0.00	0.00
4.25	0.30	0.00	0.00
4.50	0.32	0.00	0.00
4.75	0.34	0.00	0.00
5.00	0.37	0.00	0.00
5.25	0.39	0.00	0.00
5.50	0.42	0.00	0.00
5.75	0.44	0.00	0.00
6.00	0.47	0.00	0.00
6.25	0.49	0.00	0.00
6.50	0.52	0.00	0.00
6.75	0.55	0.00	0.00
7.00	0.58	0.00	0.00
7.25	0.61	0.00	0.00
7.50	0.64	0.00	0.00
7.75	0.67	0.00	0.00
8.00	0.70	0.00	0.00
8.25	0.73	0.00	0.00
8.50	0.77	0.00	0.01
8.75	0.81	0.01	0.01
9.00	0.86	0.01	0.01
9.25	0.90	0.02	0.02
9.50	0.95	0.02	0.02
9.75	1.00	0.03	0.03
10.00	1.06	0.04	0.03
10.25	1.12	0.05	0.04
10.50	1.19	0.07	0.06
10.75	1.27	0.09	0.07
11.00	1.37	0.12	0.10
11.25	1.49	0.16	0.14
11.50	1.65	0.22	0.20
11.75	2.26	0.51	**1.19**
12.00	3.87	1.57	**3.83**
12.25	4.12	1.75	0.56
12.50	4.29	1.88	0.37
12.75	4.40	1.97	0.28
13.00	4.50	2.05	0.23
13.25	4.58	2.12	0.20
13.50	4.66	2.18	0.18
13.75	4.72	2.23	0.16
14.00	4.78	2.27	0.14
14.25	4.83	2.31	0.13
14.50	4.88	2.36	0.13
14.75	4.93	2.39	0.12
15.00	4.98	2.43	0.11
15.25	5.02	2.46	0.11
15.50	5.06	2.50	0.10
15.75	5.10	2.53	0.09
16.00	5.13	2.56	0.09
16.25	5.16	2.58	0.08
16.50	5.20	2.61	0.08
16.75	5.23	2.63	0.08
17.00	5.26	2.66	0.08
17.25	5.29	2.68	0.08
17.50	5.32	2.71	0.07
17.75	5.34	2.73	0.07
18.00	5.37	2.75	0.07
18.25	5.40	2.77	0.07
18.50	5.42	2.79	0.06
18.75	5.44	2.81	0.06
19.00	5.47	2.83	0.06
19.25	5.49	2.85	0.06
19.50	5.51	2.87	0.06
19.75	5.53	2.89	0.05
20.00	**5.55**	**2.90**	0.05

Summary for Subcatchment DA-2: DA-2

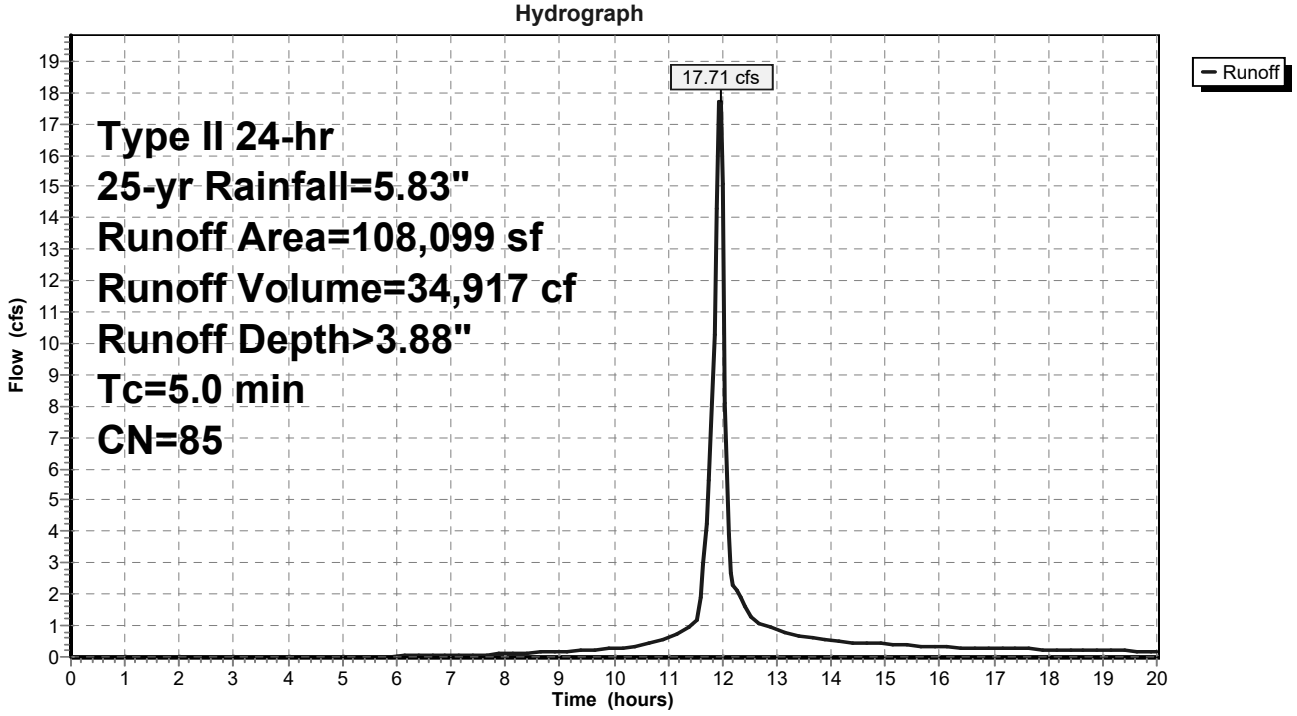
Runoff = 17.71 cfs @ 11.95 hrs, Volume= 34,917 cf, Depth> 3.88"
Routed to Link Pre DP002 : Pre-Development DP002

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=5.83"

	Area (sf)	CN	Description
	54,808	98	Paved parking, HSG C
*	13,702	71	20% Impervious as meadow
	1,400	58	Meadow, non-grazed, HSG B
	446	60	Woods, Fair, HSG B
	27,860	71	Meadow, non-grazed, HSG C
	9,883	73	Woods, Fair, HSG C
	108,099	85	Weighted Average
	53,291		49.30% Pervious Area
	54,808		50.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc-1**

Subcatchment DA-2: DA-2



Hydrograph for Subcatchment DA-2: DA-2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.05	0.00	0.00
1.00	0.06	0.00	0.00
1.25	0.08	0.00	0.00
1.50	0.09	0.00	0.00
1.75	0.11	0.00	0.00
2.00	0.13	0.00	0.00
2.25	0.15	0.00	0.00
2.50	0.16	0.00	0.00
2.75	0.18	0.00	0.00
3.00	0.20	0.00	0.00
3.25	0.22	0.00	0.00
3.50	0.24	0.00	0.00
3.75	0.26	0.00	0.00
4.00	0.28	0.00	0.00
4.25	0.30	0.00	0.00
4.50	0.32	0.00	0.00
4.75	0.34	0.00	0.00
5.00	0.37	0.00	0.00
5.25	0.39	0.00	0.01
5.50	0.42	0.00	0.01
5.75	0.44	0.00	0.02
6.00	0.47	0.01	0.03
6.25	0.49	0.01	0.04
6.50	0.52	0.01	0.04
6.75	0.55	0.02	0.05
7.00	0.58	0.03	0.06
7.25	0.61	0.03	0.07
7.50	0.64	0.04	0.08
7.75	0.67	0.05	0.09
8.00	0.70	0.06	0.09
8.25	0.73	0.07	0.11
8.50	0.77	0.08	0.13
8.75	0.81	0.09	0.15
9.00	0.86	0.11	0.18
9.25	0.90	0.13	0.19
9.50	0.95	0.15	0.20
9.75	1.00	0.17	0.23
10.00	1.06	0.20	0.27
10.25	1.12	0.23	0.33
10.50	1.19	0.27	0.39
10.75	1.27	0.31	0.48
11.00	1.37	0.37	0.59
11.25	1.49	0.45	0.80
11.50	1.65	0.55	1.08
11.75	2.26	0.99	**5.66**
12.00	3.87	2.34	**15.07**
12.25	4.12	2.56	2.12
12.50	4.29	2.71	1.38
12.75	4.40	2.82	1.03
13.00	4.50	2.91	0.86
13.25	4.58	2.99	0.75
13.50	4.66	3.05	0.66
13.75	4.72	3.11	0.58
14.00	4.78	3.17	0.52
14.25	4.83	3.21	0.48
14.50	4.88	3.26	0.46
14.75	4.93	3.30	0.43
15.00	4.98	3.35	0.41
15.25	5.02	3.39	0.39
15.50	5.06	3.42	0.37
15.75	5.10	3.46	0.34
16.00	5.13	3.49	0.32
16.25	5.16	3.52	0.31
16.50	5.20	3.55	0.30
16.75	5.23	3.58	0.29
17.00	5.26	3.61	0.28
17.25	5.29	3.63	0.27
17.50	5.32	3.66	0.26
17.75	5.34	3.69	0.26
18.00	5.37	3.71	0.25
18.25	5.40	3.74	0.24
18.50	5.42	3.76	0.23
18.75	5.44	3.78	0.22
19.00	5.47	3.80	0.21
19.25	5.49	3.82	0.21
19.50	5.51	3.84	0.20
19.75	5.53	3.86	0.19
20.00	**5.55**	**3.88**	0.18

Summary for Subcatchment DA-3: DA-3

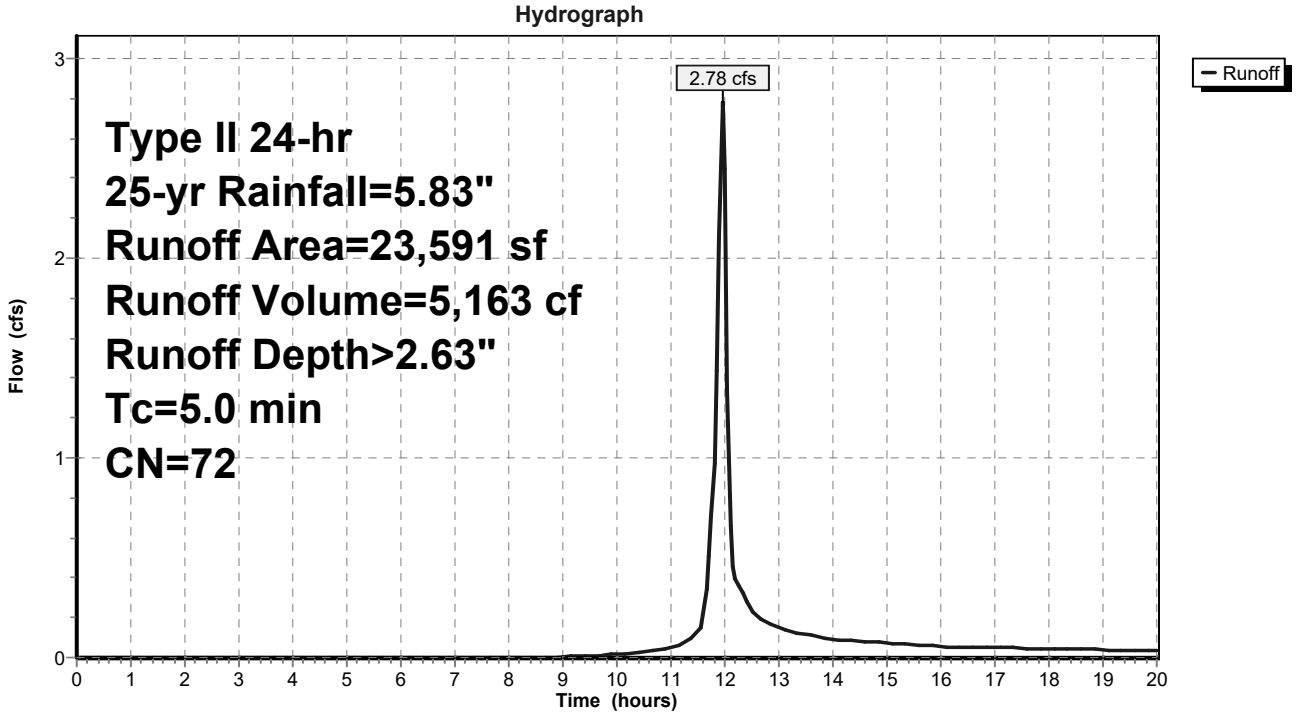
Runoff = 2.78 cfs @ 11.96 hrs, Volume= 5,163 cf, Depth> 2.63"
Routed to Link Pre DP003 : Pre-Development DP003

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=5.83"

	Area (sf)	CN	Description
	1,304	98	Paved parking, HSG C
*	326	71	20% impervious as meadow
	21,961	71	Meadow, non-grazed, HSG C
	23,591	72	Weighted Average
	22,222		94.20% Pervious Area
	1,369		5.80% Impervious Area

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

Subcatchment DA-3: DA-3



Hydrograph for Subcatchment DA-3: DA-3

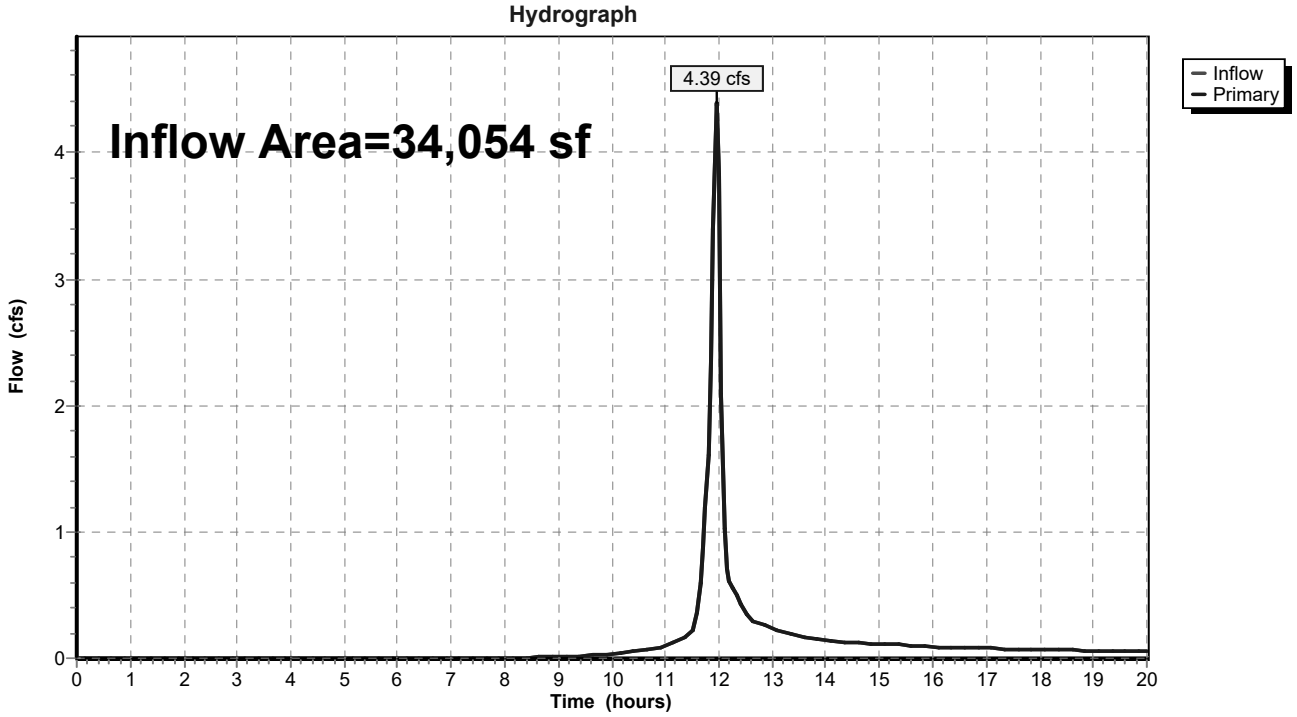
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.05	0.00	0.00
1.00	0.06	0.00	0.00
1.25	0.08	0.00	0.00
1.50	0.09	0.00	0.00
1.75	0.11	0.00	0.00
2.00	0.13	0.00	0.00
2.25	0.15	0.00	0.00
2.50	0.16	0.00	0.00
2.75	0.18	0.00	0.00
3.00	0.20	0.00	0.00
3.25	0.22	0.00	0.00
3.50	0.24	0.00	0.00
3.75	0.26	0.00	0.00
4.00	0.28	0.00	0.00
4.25	0.30	0.00	0.00
4.50	0.32	0.00	0.00
4.75	0.34	0.00	0.00
5.00	0.37	0.00	0.00
5.25	0.39	0.00	0.00
5.50	0.42	0.00	0.00
5.75	0.44	0.00	0.00
6.00	0.47	0.00	0.00
6.25	0.49	0.00	0.00
6.50	0.52	0.00	0.00
6.75	0.55	0.00	0.00
7.00	0.58	0.00	0.00
7.25	0.61	0.00	0.00
7.50	0.64	0.00	0.00
7.75	0.67	0.00	0.00
8.00	0.70	0.00	0.00
8.25	0.73	0.00	0.00
8.50	0.77	0.00	0.00
8.75	0.81	0.00	0.00
9.00	0.86	0.00	0.00
9.25	0.90	0.00	0.01
9.50	0.95	0.01	0.01
9.75	1.00	0.01	0.01
10.00	1.06	0.02	0.01
10.25	1.12	0.03	0.02
10.50	1.19	0.04	0.03
10.75	1.27	0.06	0.04
11.00	1.37	0.08	0.05
11.25	1.49	0.11	0.08
11.50	1.65	0.16	0.11
11.75	2.26	0.41	**0.71**
12.00	3.87	1.37	**2.45**
12.25	4.12	1.54	0.36
12.50	4.29	1.66	0.24
12.75	4.40	1.75	0.18
13.00	4.50	1.82	0.15
13.25	4.58	1.88	0.13
13.50	4.66	1.94	0.12
13.75	4.72	1.99	0.10
14.00	4.78	2.03	0.09
14.25	4.83	2.07	0.09
14.50	4.88	2.11	0.08
14.75	4.93	2.14	0.08
15.00	4.98	2.18	0.07
15.25	5.02	2.21	0.07
15.50	5.06	2.24	0.07
15.75	5.10	2.27	0.06
16.00	5.13	2.30	0.06
16.25	5.16	2.32	0.06
16.50	5.20	2.35	0.05
16.75	5.23	2.37	0.05
17.00	5.26	2.40	0.05
17.25	5.29	2.42	0.05
17.50	5.32	2.44	0.05
17.75	5.34	2.47	0.05
18.00	5.37	2.49	0.05
18.25	5.40	2.51	0.04
18.50	5.42	2.53	0.04
18.75	5.44	2.55	0.04
19.00	5.47	2.56	0.04
19.25	5.49	2.58	0.04
19.50	5.51	2.60	0.04
19.75	5.53	2.61	0.04
20.00	**5.55**	**2.63**	0.03

Summary for Link Pre DP001: Pre-Development DP001

Inflow Area = 34,054 sf, 18.56% Impervious, Inflow Depth > 2.90" for 25-yr event
Inflow = 4.39 cfs @ 11.96 hrs, Volume= 8,227 cf
Primary = 4.39 cfs @ 11.96 hrs, Volume= 8,227 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Pre DP001: Pre-Development DP001



Hydrograph for Link Pre DP001: Pre-Development DP001

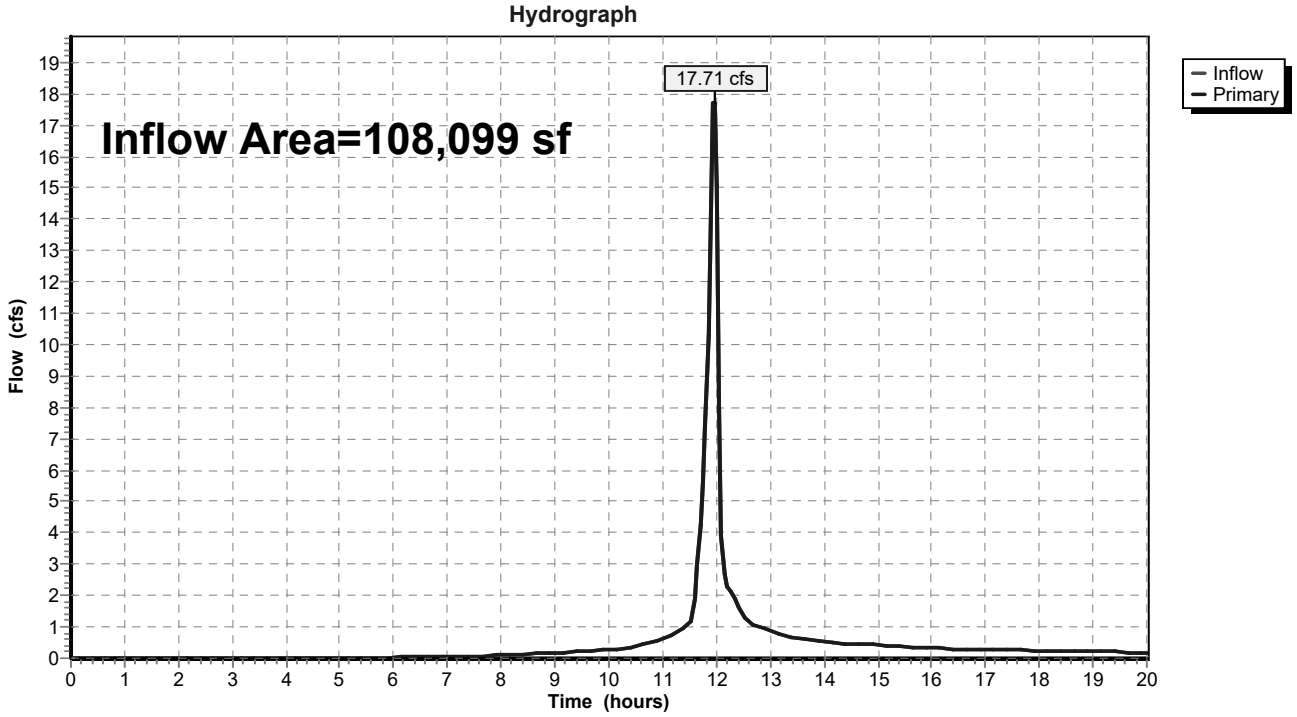
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
0.25	0.00	0.00	0.00
0.50	0.00	0.00	0.00
0.75	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00
1.50	0.00	0.00	0.00
1.75	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00
2.50	0.00	0.00	0.00
2.75	0.00	0.00	0.00
3.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00
3.50	0.00	0.00	0.00
3.75	0.00	0.00	0.00
4.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00
4.50	0.00	0.00	0.00
4.75	0.00	0.00	0.00
5.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00
5.50	0.00	0.00	0.00
5.75	0.00	0.00	0.00
6.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00
6.50	0.00	0.00	0.00
6.75	0.00	0.00	0.00
7.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00
7.50	0.00	0.00	0.00
7.75	0.00	0.00	0.00
8.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00
8.50	0.01	0.00	0.01
8.75	0.01	0.00	0.01
9.00	0.01	0.00	0.01
9.25	0.02	0.00	0.02
9.50	0.02	0.00	0.02
9.75	0.03	0.00	0.03
10.00	0.03	0.00	0.03
10.25	0.04	0.00	0.04
10.50	0.06	0.00	0.06
10.75	0.07	0.00	0.07
11.00	0.10	0.00	0.10
11.25	0.14	0.00	0.14
11.50	0.20	0.00	0.20
11.75	**1.19**	0.00	**1.19**
12.00	**3.83**	0.00	**3.83**
12.25	0.56	0.00	0.56
12.50	0.37	0.00	0.37
12.75	0.28	0.00	0.28
13.00	0.23	0.00	0.23
13.25	0.20	0.00	0.20
13.50	0.18	0.00	0.18
13.75	0.16	0.00	0.16
14.00	0.14	0.00	0.14
14.25	0.13	0.00	0.13
14.50	0.13	0.00	0.13
14.75	0.12	0.00	0.12
15.00	0.11	0.00	0.11
15.25	0.11	0.00	0.11
15.50	0.10	0.00	0.10
15.75	0.09	0.00	0.09
16.00	0.09	0.00	0.09
16.25	0.08	0.00	0.08
16.50	0.08	0.00	0.08
16.75	0.08	0.00	0.08
17.00	0.08	0.00	0.08
17.25	0.08	0.00	0.08
17.50	0.07	0.00	0.07
17.75	0.07	0.00	0.07
18.00	0.07	0.00	0.07
18.25	0.07	0.00	0.07
18.50	0.06	0.00	0.06
18.75	0.06	0.00	0.06
19.00	0.06	0.00	0.06
19.25	0.06	0.00	0.06
19.50	0.06	0.00	0.06
19.75	0.05	0.00	0.05
20.00	0.05	0.00	0.05

Summary for Link Pre DP002: Pre-Development DP002

Inflow Area = 108,099 sf, 50.70% Impervious, Inflow Depth > 3.88" for 25-yr event
Inflow = 17.71 cfs @ 11.95 hrs, Volume= 34,917 cf
Primary = 17.71 cfs @ 11.95 hrs, Volume= 34,917 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Pre DP002: Pre-Development DP002



Hydrograph for Link Pre DP002: Pre-Development DP002

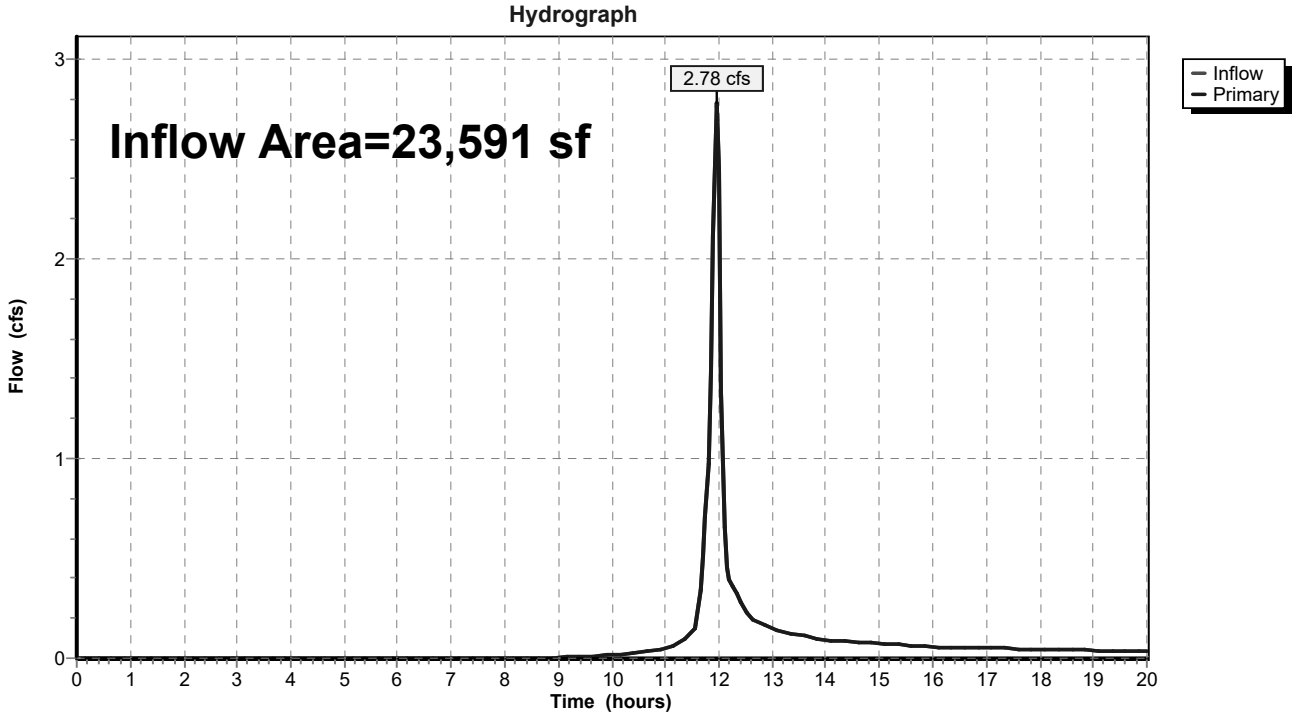
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
0.25	0.00	0.00	0.00
0.50	0.00	0.00	0.00
0.75	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00
1.50	0.00	0.00	0.00
1.75	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00
2.50	0.00	0.00	0.00
2.75	0.00	0.00	0.00
3.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00
3.50	0.00	0.00	0.00
3.75	0.00	0.00	0.00
4.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00
4.50	0.00	0.00	0.00
4.75	0.00	0.00	0.00
5.00	0.00	0.00	0.00
5.25	0.01	0.00	0.01
5.50	0.01	0.00	0.01
5.75	0.02	0.00	0.02
6.00	0.03	0.00	0.03
6.25	0.04	0.00	0.04
6.50	0.04	0.00	0.04
6.75	0.05	0.00	0.05
7.00	0.06	0.00	0.06
7.25	0.07	0.00	0.07
7.50	0.08	0.00	0.08
7.75	0.09	0.00	0.09
8.00	0.09	0.00	0.09
8.25	0.11	0.00	0.11
8.50	0.13	0.00	0.13
8.75	0.15	0.00	0.15
9.00	0.18	0.00	0.18
9.25	0.19	0.00	0.19
9.50	0.20	0.00	0.20
9.75	0.23	0.00	0.23
10.00	0.27	0.00	0.27
10.25	0.33	0.00	0.33
10.50	0.39	0.00	0.39
10.75	0.48	0.00	0.48
11.00	0.59	0.00	0.59
11.25	0.80	0.00	0.80
11.50	1.08	0.00	1.08
11.75	**5.66**	0.00	**5.66**
12.00	**15.07**	0.00	**15.07**
12.25	2.12	0.00	2.12
12.50	1.38	0.00	1.38
12.75	1.03	0.00	1.03
13.00	0.86	0.00	0.86
13.25	0.75	0.00	0.75
13.50	0.66	0.00	0.66
13.75	0.58	0.00	0.58
14.00	0.52	0.00	0.52
14.25	0.48	0.00	0.48
14.50	0.46	0.00	0.46
14.75	0.43	0.00	0.43
15.00	0.41	0.00	0.41
15.25	0.39	0.00	0.39
15.50	0.37	0.00	0.37
15.75	0.34	0.00	0.34
16.00	0.32	0.00	0.32
16.25	0.31	0.00	0.31
16.50	0.30	0.00	0.30
16.75	0.29	0.00	0.29
17.00	0.28	0.00	0.28
17.25	0.27	0.00	0.27
17.50	0.26	0.00	0.26
17.75	0.26	0.00	0.26
18.00	0.25	0.00	0.25
18.25	0.24	0.00	0.24
18.50	0.23	0.00	0.23
18.75	0.22	0.00	0.22
19.00	0.21	0.00	0.21
19.25	0.21	0.00	0.21
19.50	0.20	0.00	0.20
19.75	0.19	0.00	0.19
20.00	0.18	0.00	0.18

Summary for Link Pre DP003: Pre-Development DP003

Inflow Area = 23,591 sf, 5.80% Impervious, Inflow Depth > 2.63" for 25-yr event
Inflow = 2.78 cfs @ 11.96 hrs, Volume= 5,163 cf
Primary = 2.78 cfs @ 11.96 hrs, Volume= 5,163 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Pre DP003: Pre-Development DP003



Hydrograph for Link Pre DP003: Pre-Development DP003

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
0.25	0.00	0.00	0.00
0.50	0.00	0.00	0.00
0.75	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00
1.50	0.00	0.00	0.00
1.75	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00
2.50	0.00	0.00	0.00
2.75	0.00	0.00	0.00
3.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00
3.50	0.00	0.00	0.00
3.75	0.00	0.00	0.00
4.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00
4.50	0.00	0.00	0.00
4.75	0.00	0.00	0.00
5.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00
5.50	0.00	0.00	0.00
5.75	0.00	0.00	0.00
6.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00
6.50	0.00	0.00	0.00
6.75	0.00	0.00	0.00
7.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00
7.50	0.00	0.00	0.00
7.75	0.00	0.00	0.00
8.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00
8.50	0.00	0.00	0.00
8.75	0.00	0.00	0.00
9.00	0.00	0.00	0.00
9.25	0.01	0.00	0.01
9.50	0.01	0.00	0.01
9.75	0.01	0.00	0.01
10.00	0.01	0.00	0.01
10.25	0.02	0.00	0.02
10.50	0.03	0.00	0.03
10.75	0.04	0.00	0.04
11.00	0.05	0.00	0.05
11.25	0.08	0.00	0.08
11.50	0.11	0.00	0.11
11.75	**0.71**	0.00	**0.71**
12.00	**2.45**	0.00	**2.45**
12.25	0.36	0.00	0.36
12.50	0.24	0.00	0.24
12.75	0.18	0.00	0.18
13.00	0.15	0.00	0.15
13.25	0.13	0.00	0.13
13.50	0.12	0.00	0.12
13.75	0.10	0.00	0.10
14.00	0.09	0.00	0.09
14.25	0.09	0.00	0.09
14.50	0.08	0.00	0.08
14.75	0.08	0.00	0.08
15.00	0.07	0.00	0.07
15.25	0.07	0.00	0.07
15.50	0.07	0.00	0.07
15.75	0.06	0.00	0.06
16.00	0.06	0.00	0.06
16.25	0.06	0.00	0.06
16.50	0.05	0.00	0.05
16.75	0.05	0.00	0.05
17.00	0.05	0.00	0.05
17.25	0.05	0.00	0.05
17.50	0.05	0.00	0.05
17.75	0.05	0.00	0.05
18.00	0.05	0.00	0.05
18.25	0.04	0.00	0.04
18.50	0.04	0.00	0.04
18.75	0.04	0.00	0.04
19.00	0.04	0.00	0.04
19.25	0.04	0.00	0.04
19.50	0.04	0.00	0.04
19.75	0.04	0.00	0.04
20.00	0.03	0.00	0.03

Summary for Subcatchment DA-1: DA-1

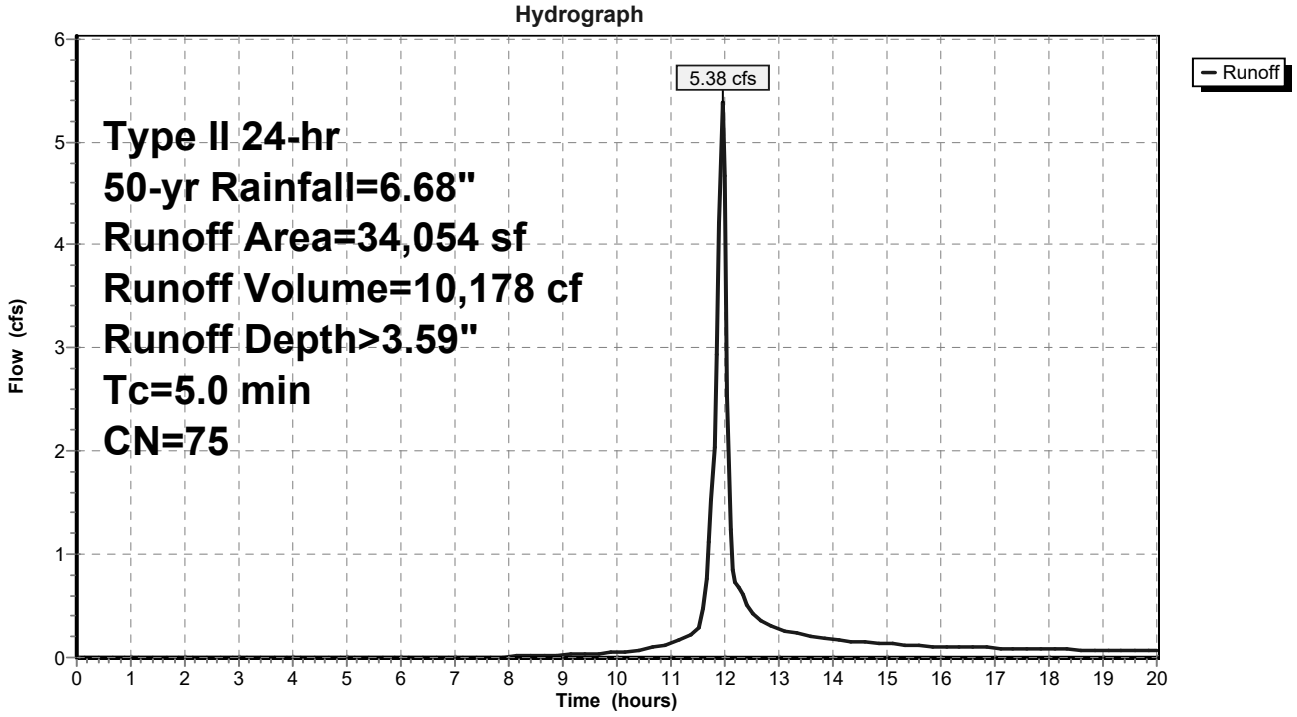
Runoff = 5.38 cfs @ 11.96 hrs, Volume= 10,178 cf, Depth> 3.59"
Routed to Link Pre DP001 : Pre-Development DP001

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=6.68"

	Area (sf)	CN	Description
	6,319	98	Paved parking, HSG C
	1,606	58	Meadow, non-grazed, HSG B
	582	60	Woods, Fair, HSG B
	23,967	71	Meadow, non-grazed, HSG C
*	1,580	71	20% Impervious as meadow
	34,054	75	Weighted Average
	27,735		81.44% Pervious Area
	6,319		18.56% Impervious Area

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

Subcatchment DA-1: DA-1



Hydrograph for Subcatchment DA-1: DA-1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.02	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.05	0.00	0.00
1.00	0.07	0.00	0.00
1.25	0.09	0.00	0.00
1.50	0.11	0.00	0.00
1.75	0.13	0.00	0.00
2.00	0.15	0.00	0.00
2.25	0.17	0.00	0.00
2.50	0.19	0.00	0.00
2.75	0.21	0.00	0.00
3.00	0.23	0.00	0.00
3.25	0.25	0.00	0.00
3.50	0.27	0.00	0.00
3.75	0.30	0.00	0.00
4.00	0.32	0.00	0.00
4.25	0.34	0.00	0.00
4.50	0.37	0.00	0.00
4.75	0.39	0.00	0.00
5.00	0.42	0.00	0.00
5.25	0.45	0.00	0.00
5.50	0.48	0.00	0.00
5.75	0.50	0.00	0.00
6.00	0.53	0.00	0.00
6.25	0.56	0.00	0.00
6.50	0.60	0.00	0.00
6.75	0.63	0.00	0.00
7.00	0.66	0.00	0.00
7.25	0.70	0.00	0.00
7.50	0.73	0.00	0.00
7.75	0.77	0.00	0.01
8.00	0.80	0.01	0.01
8.25	0.84	0.01	0.01
8.50	0.88	0.01	0.02
8.75	0.93	0.02	0.02
9.00	0.98	0.03	0.03
9.25	1.04	0.04	0.03
9.50	1.09	0.05	0.03
9.75	1.15	0.06	0.04
10.00	1.21	0.08	0.05
10.25	1.28	0.10	0.06
10.50	1.36	0.12	0.08
10.75	1.46	0.15	0.10
11.00	1.57	0.19	0.13
11.25	1.71	0.25	0.19
11.50	1.89	0.33	0.27
11.75	2.59	0.70	**1.53**
12.00	4.43	1.99	**4.66**
12.25	4.72	2.22	0.68
12.50	4.91	2.38	0.44
12.75	5.04	2.49	0.33
13.00	5.16	2.58	0.28
13.25	5.25	2.66	0.24
13.50	5.34	2.73	0.21
13.75	5.41	2.79	0.19
14.00	5.48	2.84	0.17
14.25	5.54	2.89	0.16
14.50	5.60	2.94	0.15
14.75	5.65	2.99	0.14
15.00	5.70	3.03	0.14
15.25	5.75	3.07	0.13
15.50	5.80	3.11	0.12
15.75	5.84	3.14	0.11
16.00	5.88	3.18	0.11
16.25	5.92	3.21	0.10
16.50	5.95	3.24	0.10
16.75	5.99	3.27	0.10
17.00	6.02	3.30	0.09
17.25	6.06	3.33	0.09
17.50	6.09	3.36	0.09
17.75	6.12	3.39	0.08
18.00	6.15	3.41	0.08
18.25	6.18	3.44	0.08
18.50	6.21	3.46	0.08
18.75	6.24	3.49	0.07
19.00	6.26	3.51	0.07
19.25	6.29	3.53	0.07
19.50	6.31	3.55	0.07
19.75	6.34	3.57	0.06
20.00	**6.36**	**3.59**	0.06

Summary for Subcatchment DA-2: DA-2

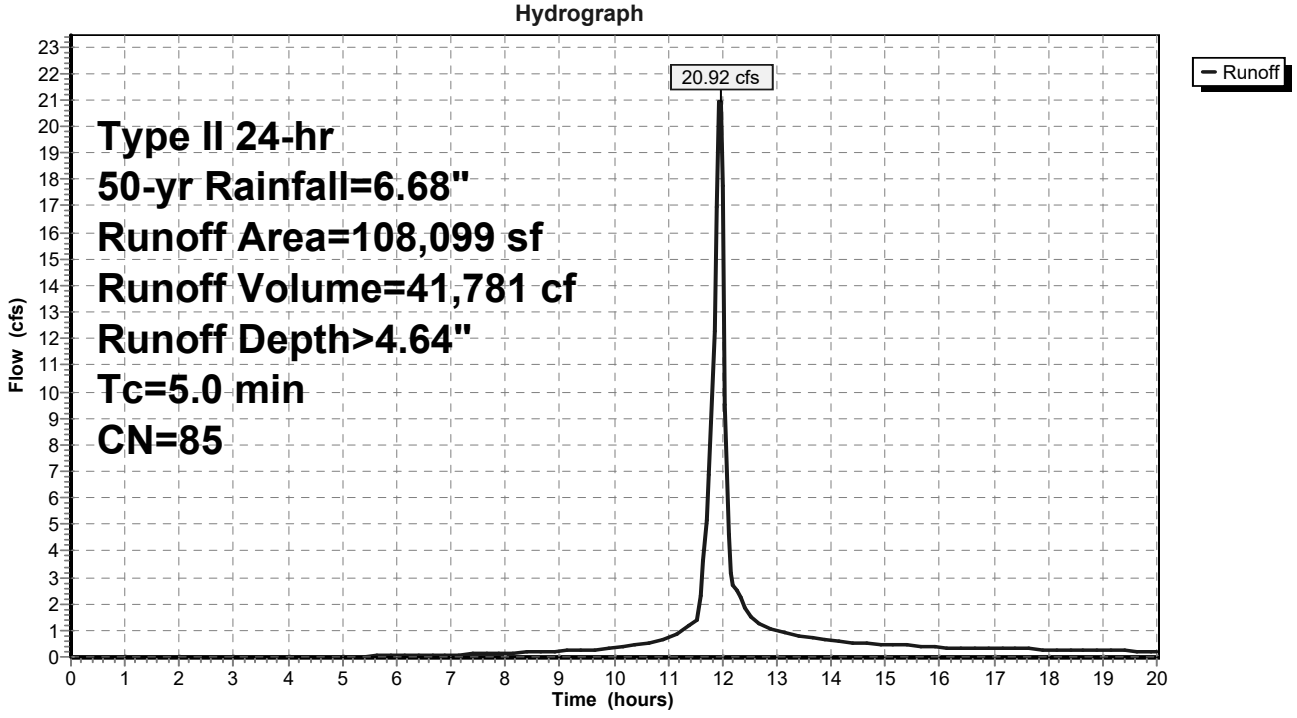
Runoff = 20.92 cfs @ 11.95 hrs, Volume= 41,781 cf, Depth> 4.64"
Routed to Link Pre DP002 : Pre-Development DP002

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=6.68"

	Area (sf)	CN	Description
	54,808	98	Paved parking, HSG C
*	13,702	71	20% Impervious as meadow
	1,400	58	Meadow, non-grazed, HSG B
	446	60	Woods, Fair, HSG B
	27,860	71	Meadow, non-grazed, HSG C
	9,883	73	Woods, Fair, HSG C
	108,099	85	Weighted Average
	53,291		49.30% Pervious Area
	54,808		50.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc-1**

Subcatchment DA-2: DA-2



Hydrograph for Subcatchment DA-2: DA-2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.02	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.05	0.00	0.00
1.00	0.07	0.00	0.00
1.25	0.09	0.00	0.00
1.50	0.11	0.00	0.00
1.75	0.13	0.00	0.00
2.00	0.15	0.00	0.00
2.25	0.17	0.00	0.00
2.50	0.19	0.00	0.00
2.75	0.21	0.00	0.00
3.00	0.23	0.00	0.00
3.25	0.25	0.00	0.00
3.50	0.27	0.00	0.00
3.75	0.30	0.00	0.00
4.00	0.32	0.00	0.00
4.25	0.34	0.00	0.00
4.50	0.37	0.00	0.00
4.75	0.39	0.00	0.01
5.00	0.42	0.00	0.02
5.25	0.45	0.00	0.02
5.50	0.48	0.01	0.03
5.75	0.50	0.01	0.04
6.00	0.53	0.02	0.05
6.25	0.56	0.02	0.06
6.50	0.60	0.03	0.07
6.75	0.63	0.04	0.08
7.00	0.66	0.05	0.09
7.25	0.70	0.06	0.10
7.50	0.73	0.07	0.11
7.75	0.77	0.08	0.12
8.00	0.80	0.09	0.13
8.25	0.84	0.11	0.15
8.50	0.88	0.12	0.18
8.75	0.93	0.14	0.20
9.00	0.98	0.17	0.23
9.25	1.04	0.19	0.25
9.50	1.09	0.22	0.26
9.75	1.15	0.25	0.30
10.00	1.21	0.28	0.35
10.25	1.28	0.32	0.42
10.50	1.36	0.37	0.49
10.75	1.46	0.43	0.60
11.00	1.57	0.50	0.74
11.25	1.71	0.59	0.99
11.50	1.89	0.72	1.33
11.75	2.59	1.25	**6.84**
12.00	4.43	2.84	**17.74**
12.25	4.72	3.11	2.48
12.50	4.91	3.28	1.61
12.75	5.04	3.41	1.21
13.00	5.16	3.51	1.01
13.25	5.25	3.60	0.87
13.50	5.34	3.68	0.77
13.75	5.41	3.75	0.68
14.00	5.48	3.81	0.60
14.25	5.54	3.87	0.56
14.50	5.60	3.92	0.53
14.75	5.65	3.97	0.51
15.00	5.70	4.02	0.48
15.25	5.75	4.07	0.45
15.50	5.80	4.11	0.42
15.75	5.84	4.15	0.40
16.00	5.88	4.19	0.37
16.25	5.92	4.22	0.36
16.50	5.95	4.26	0.35
16.75	5.99	4.29	0.34
17.00	6.02	4.32	0.33
17.25	6.06	4.36	0.32
17.50	6.09	4.39	0.31
17.75	6.12	4.42	0.30
18.00	6.15	4.45	0.29
18.25	6.18	4.47	0.28
18.50	6.21	4.50	0.27
18.75	6.24	4.53	0.26
19.00	6.26	4.55	0.25
19.25	6.29	4.58	0.24
19.50	6.31	4.60	0.23
19.75	6.34	4.62	0.22
20.00	**6.36**	**4.64**	0.21

Summary for Subcatchment DA-3: DA-3

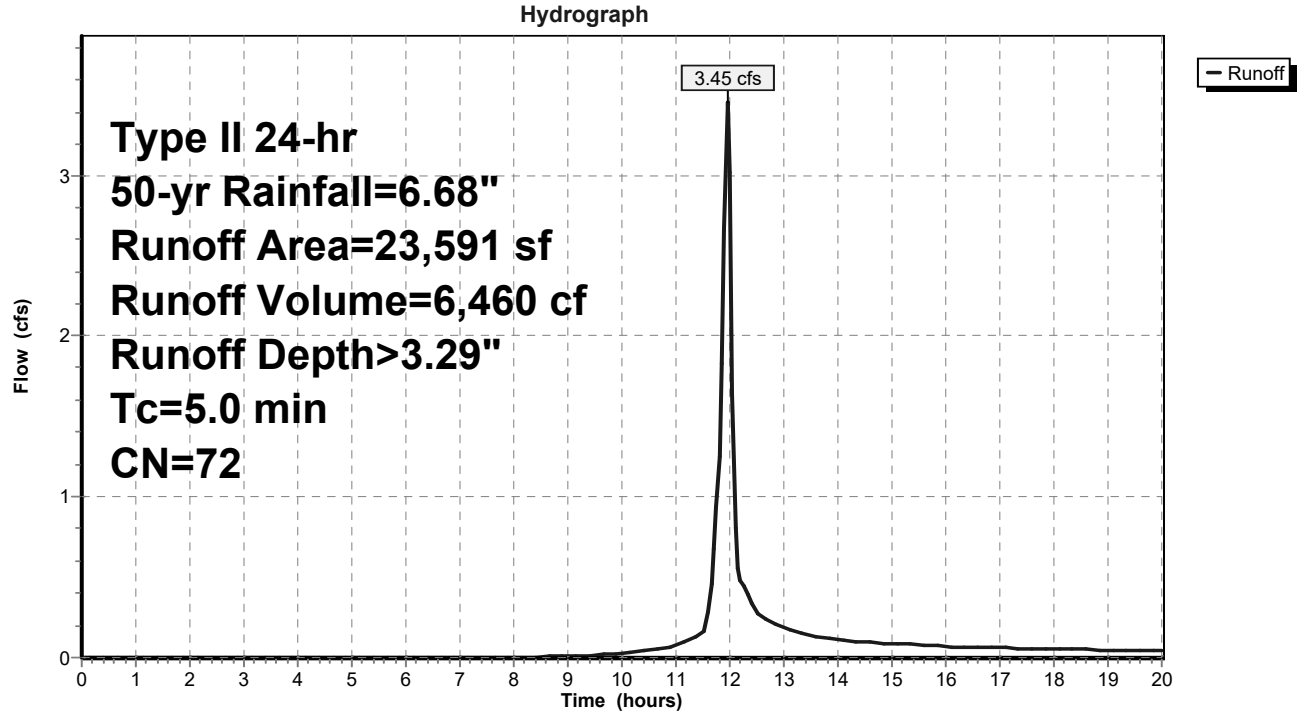
Runoff = 3.45 cfs @ 11.96 hrs, Volume= 6,460 cf, Depth> 3.29"
Routed to Link Pre DP003 : Pre-Development DP003

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=6.68"

	Area (sf)	CN	Description
	1,304	98	Paved parking, HSG C
*	326	71	20% impervious as meadow
	21,961	71	Meadow, non-grazed, HSG C
	23,591	72	Weighted Average
	22,222		94.20% Pervious Area
	1,369		5.80% Impervious Area

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

Subcatchment DA-3: DA-3



Hydrograph for Subcatchment DA-3: DA-3

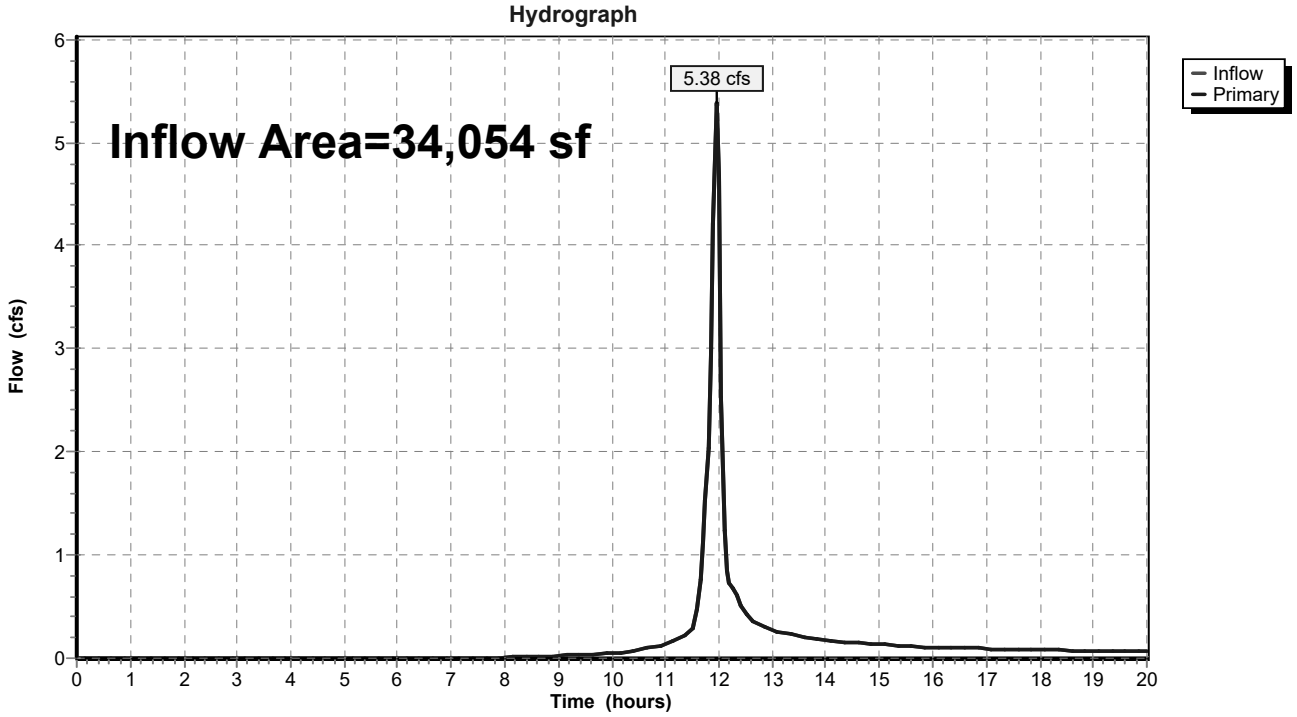
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.02	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.05	0.00	0.00
1.00	0.07	0.00	0.00
1.25	0.09	0.00	0.00
1.50	0.11	0.00	0.00
1.75	0.13	0.00	0.00
2.00	0.15	0.00	0.00
2.25	0.17	0.00	0.00
2.50	0.19	0.00	0.00
2.75	0.21	0.00	0.00
3.00	0.23	0.00	0.00
3.25	0.25	0.00	0.00
3.50	0.27	0.00	0.00
3.75	0.30	0.00	0.00
4.00	0.32	0.00	0.00
4.25	0.34	0.00	0.00
4.50	0.37	0.00	0.00
4.75	0.39	0.00	0.00
5.00	0.42	0.00	0.00
5.25	0.45	0.00	0.00
5.50	0.48	0.00	0.00
5.75	0.50	0.00	0.00
6.00	0.53	0.00	0.00
6.25	0.56	0.00	0.00
6.50	0.60	0.00	0.00
6.75	0.63	0.00	0.00
7.00	0.66	0.00	0.00
7.25	0.70	0.00	0.00
7.50	0.73	0.00	0.00
7.75	0.77	0.00	0.00
8.00	0.80	0.00	0.00
8.25	0.84	0.00	0.00
8.50	0.88	0.00	0.00
8.75	0.93	0.01	0.01
9.00	0.98	0.01	0.01
9.25	1.04	0.02	0.01
9.50	1.09	0.02	0.02
9.75	1.15	0.03	0.02
10.00	1.21	0.04	0.03
10.25	1.28	0.06	0.03
10.50	1.36	0.08	0.04
10.75	1.46	0.10	0.06
11.00	1.57	0.13	0.08
11.25	1.71	0.18	0.11
11.50	1.89	0.25	0.16
11.75	2.59	0.57	**0.93**
12.00	4.43	1.77	**3.01**
12.25	4.72	1.98	0.44
12.50	4.91	2.13	0.29
12.75	5.04	2.23	0.22
13.00	5.16	2.32	0.18
13.25	5.25	2.39	0.16
13.50	5.34	2.46	0.14
13.75	5.41	2.52	0.13
14.00	5.48	2.57	0.11
14.25	5.54	2.62	0.10
14.50	5.60	2.67	0.10
14.75	5.65	2.71	0.09
15.00	5.70	2.75	0.09
15.25	5.75	2.79	0.08
15.50	5.80	2.83	0.08
15.75	5.84	2.86	0.07
16.00	5.88	2.89	0.07
16.25	5.92	2.92	0.07
16.50	5.95	2.95	0.07
16.75	5.99	2.98	0.06
17.00	6.02	3.01	0.06
17.25	6.06	3.04	0.06
17.50	6.09	3.07	0.06
17.75	6.12	3.09	0.06
18.00	6.15	3.12	0.05
18.25	6.18	3.14	0.05
18.50	6.21	3.17	0.05
18.75	6.24	3.19	0.05
19.00	6.26	3.21	0.05
19.25	6.29	3.23	0.05
19.50	6.31	3.25	0.04
19.75	6.34	3.27	0.04
20.00	**6.36**	**3.29**	0.04

Summary for Link Pre DP001: Pre-Development DP001

Inflow Area = 34,054 sf, 18.56% Impervious, Inflow Depth > 3.59" for 50-yr event
Inflow = 5.38 cfs @ 11.96 hrs, Volume= 10,178 cf
Primary = 5.38 cfs @ 11.96 hrs, Volume= 10,178 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Pre DP001: Pre-Development DP001



Hydrograph for Link Pre DP001: Pre-Development DP001

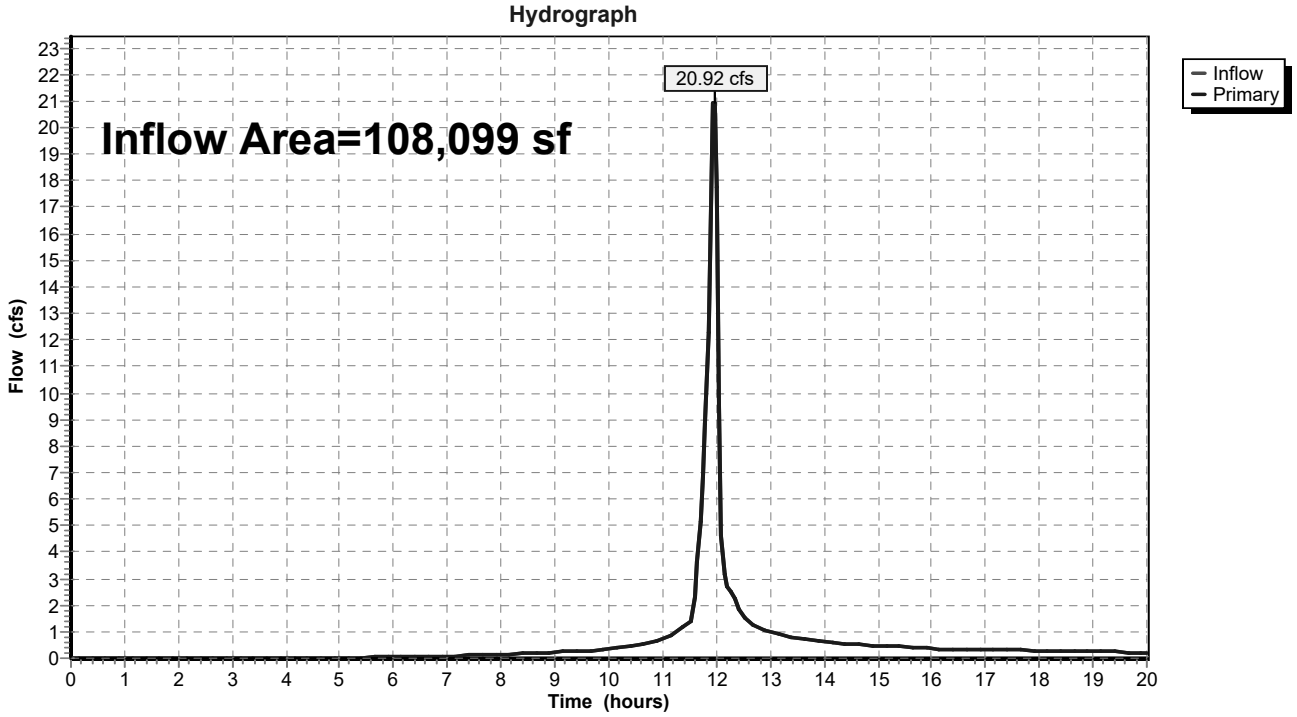
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	13.00	0.28	0.00	0.28
0.25	0.00	0.00	0.00	13.25	0.24	0.00	0.24
0.50	0.00	0.00	0.00	13.50	0.21	0.00	0.21
0.75	0.00	0.00	0.00	13.75	0.19	0.00	0.19
1.00	0.00	0.00	0.00	14.00	0.17	0.00	0.17
1.25	0.00	0.00	0.00	14.25	0.16	0.00	0.16
1.50	0.00	0.00	0.00	14.50	0.15	0.00	0.15
1.75	0.00	0.00	0.00	14.75	0.14	0.00	0.14
2.00	0.00	0.00	0.00	15.00	0.14	0.00	0.14
2.25	0.00	0.00	0.00	15.25	0.13	0.00	0.13
2.50	0.00	0.00	0.00	15.50	0.12	0.00	0.12
2.75	0.00	0.00	0.00	15.75	0.11	0.00	0.11
3.00	0.00	0.00	0.00	16.00	0.11	0.00	0.11
3.25	0.00	0.00	0.00	16.25	0.10	0.00	0.10
3.50	0.00	0.00	0.00	16.50	0.10	0.00	0.10
3.75	0.00	0.00	0.00	16.75	0.10	0.00	0.10
4.00	0.00	0.00	0.00	17.00	0.09	0.00	0.09
4.25	0.00	0.00	0.00	17.25	0.09	0.00	0.09
4.50	0.00	0.00	0.00	17.50	0.09	0.00	0.09
4.75	0.00	0.00	0.00	17.75	0.08	0.00	0.08
5.00	0.00	0.00	0.00	18.00	0.08	0.00	0.08
5.25	0.00	0.00	0.00	18.25	0.08	0.00	0.08
5.50	0.00	0.00	0.00	18.50	0.08	0.00	0.08
5.75	0.00	0.00	0.00	18.75	0.07	0.00	0.07
6.00	0.00	0.00	0.00	19.00	0.07	0.00	0.07
6.25	0.00	0.00	0.00	19.25	0.07	0.00	0.07
6.50	0.00	0.00	0.00	19.50	0.07	0.00	0.07
6.75	0.00	0.00	0.00	19.75	0.06	0.00	0.06
7.00	0.00	0.00	0.00	20.00	0.06	0.00	0.06
7.25	0.00	0.00	0.00				
7.50	0.00	0.00	0.00				
7.75	0.01	0.00	0.01				
8.00	0.01	0.00	0.01				
8.25	0.01	0.00	0.01				
8.50	0.02	0.00	0.02				
8.75	0.02	0.00	0.02				
9.00	0.03	0.00	0.03				
9.25	0.03	0.00	0.03				
9.50	0.03	0.00	0.03				
9.75	0.04	0.00	0.04				
10.00	0.05	0.00	0.05				
10.25	0.06	0.00	0.06				
10.50	0.08	0.00	0.08				
10.75	0.10	0.00	0.10				
11.00	0.13	0.00	0.13				
11.25	0.19	0.00	0.19				
11.50	0.27	0.00	0.27				
11.75	**1.53**	0.00	**1.53**				
12.00	**4.66**	0.00	**4.66**				
12.25	0.68	0.00	0.68				
12.50	0.44	0.00	0.44				
12.75	0.33	0.00	0.33				

Summary for Link Pre DP002: Pre-Development DP002

Inflow Area = 108,099 sf, 50.70% Impervious, Inflow Depth > 4.64" for 50-yr event
Inflow = 20.92 cfs @ 11.95 hrs, Volume= 41,781 cf
Primary = 20.92 cfs @ 11.95 hrs, Volume= 41,781 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Pre DP002: Pre-Development DP002



Hydrograph for Link Pre DP002: Pre-Development DP002

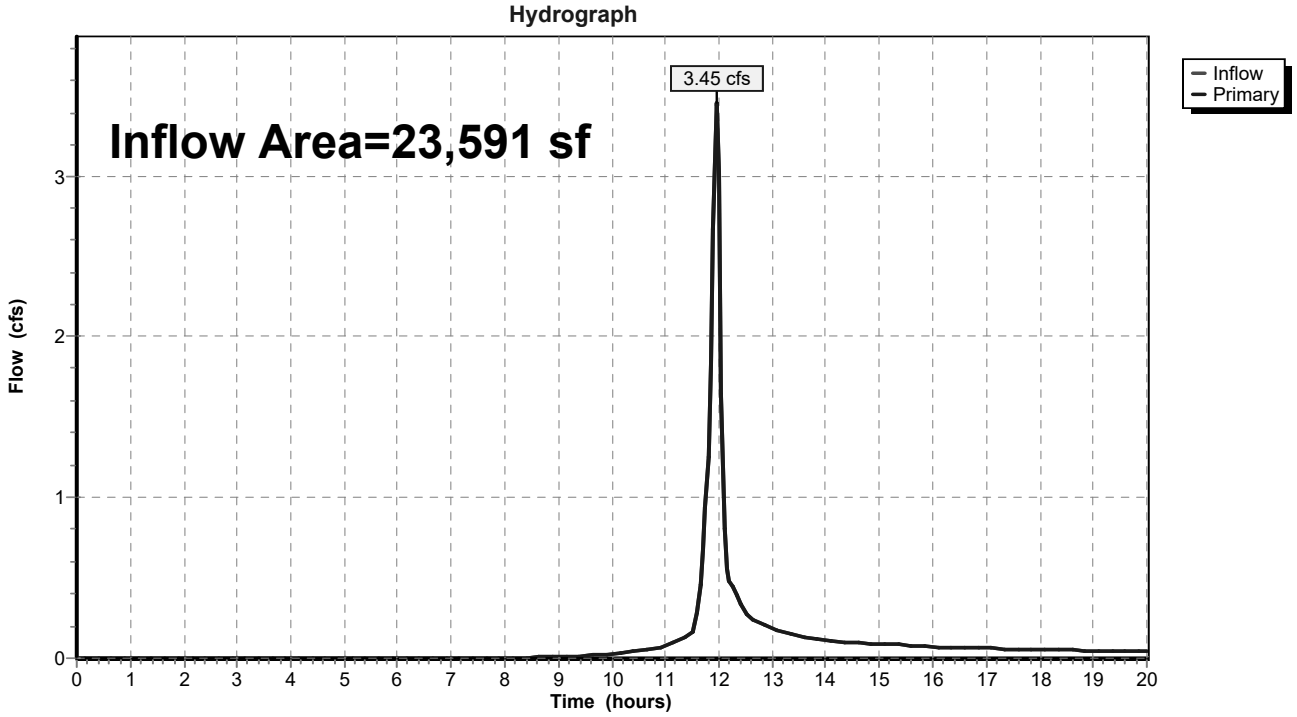
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
0.25	0.00	0.00	0.00
0.50	0.00	0.00	0.00
0.75	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00
1.50	0.00	0.00	0.00
1.75	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00
2.50	0.00	0.00	0.00
2.75	0.00	0.00	0.00
3.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00
3.50	0.00	0.00	0.00
3.75	0.00	0.00	0.00
4.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00
4.50	0.00	0.00	0.00
4.75	0.01	0.00	0.01
5.00	0.02	0.00	0.02
5.25	0.02	0.00	0.02
5.50	0.03	0.00	0.03
5.75	0.04	0.00	0.04
6.00	0.05	0.00	0.05
6.25	0.06	0.00	0.06
6.50	0.07	0.00	0.07
6.75	0.08	0.00	0.08
7.00	0.09	0.00	0.09
7.25	0.10	0.00	0.10
7.50	0.11	0.00	0.11
7.75	0.12	0.00	0.12
8.00	0.13	0.00	0.13
8.25	0.15	0.00	0.15
8.50	0.18	0.00	0.18
8.75	0.20	0.00	0.20
9.00	0.23	0.00	0.23
9.25	0.25	0.00	0.25
9.50	0.26	0.00	0.26
9.75	0.30	0.00	0.30
10.00	0.35	0.00	0.35
10.25	0.42	0.00	0.42
10.50	0.49	0.00	0.49
10.75	0.60	0.00	0.60
11.00	0.74	0.00	0.74
11.25	0.99	0.00	0.99
11.50	1.33	0.00	1.33
11.75	**6.84**	0.00	**6.84**
12.00	**17.74**	0.00	**17.74**
12.25	2.48	0.00	2.48
12.50	1.61	0.00	1.61
12.75	1.21	0.00	1.21
13.00	1.01	0.00	1.01
13.25	0.87	0.00	0.87
13.50	0.77	0.00	0.77
13.75	0.68	0.00	0.68
14.00	0.60	0.00	0.60
14.25	0.56	0.00	0.56
14.50	0.53	0.00	0.53
14.75	0.51	0.00	0.51
15.00	0.48	0.00	0.48
15.25	0.45	0.00	0.45
15.50	0.42	0.00	0.42
15.75	0.40	0.00	0.40
16.00	0.37	0.00	0.37
16.25	0.36	0.00	0.36
16.50	0.35	0.00	0.35
16.75	0.34	0.00	0.34
17.00	0.33	0.00	0.33
17.25	0.32	0.00	0.32
17.50	0.31	0.00	0.31
17.75	0.30	0.00	0.30
18.00	0.29	0.00	0.29
18.25	0.28	0.00	0.28
18.50	0.27	0.00	0.27
18.75	0.26	0.00	0.26
19.00	0.25	0.00	0.25
19.25	0.24	0.00	0.24
19.50	0.23	0.00	0.23
19.75	0.22	0.00	0.22
20.00	0.21	0.00	0.21

Summary for Link Pre DP003: Pre-Development DP003

Inflow Area = 23,591 sf, 5.80% Impervious, Inflow Depth > 3.29" for 50-yr event
Inflow = 3.45 cfs @ 11.96 hrs, Volume= 6,460 cf
Primary = 3.45 cfs @ 11.96 hrs, Volume= 6,460 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Pre DP003: Pre-Development DP003



Hydrograph for Link Pre DP003: Pre-Development DP003

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
0.25	0.00	0.00	0.00
0.50	0.00	0.00	0.00
0.75	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00
1.50	0.00	0.00	0.00
1.75	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00
2.50	0.00	0.00	0.00
2.75	0.00	0.00	0.00
3.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00
3.50	0.00	0.00	0.00
3.75	0.00	0.00	0.00
4.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00
4.50	0.00	0.00	0.00
4.75	0.00	0.00	0.00
5.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00
5.50	0.00	0.00	0.00
5.75	0.00	0.00	0.00
6.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00
6.50	0.00	0.00	0.00
6.75	0.00	0.00	0.00
7.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00
7.50	0.00	0.00	0.00
7.75	0.00	0.00	0.00
8.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00
8.50	0.00	0.00	0.00
8.75	0.01	0.00	0.01
9.00	0.01	0.00	0.01
9.25	0.01	0.00	0.01
9.50	0.02	0.00	0.02
9.75	0.02	0.00	0.02
10.00	0.03	0.00	0.03
10.25	0.03	0.00	0.03
10.50	0.04	0.00	0.04
10.75	0.06	0.00	0.06
11.00	0.08	0.00	0.08
11.25	0.11	0.00	0.11
11.50	0.16	0.00	0.16
11.75	**0.93**	0.00	**0.93**
12.00	**3.01**	0.00	**3.01**
12.25	0.44	0.00	0.44
12.50	0.29	0.00	0.29
12.75	0.22	0.00	0.22
13.00	0.18	0.00	0.18
13.25	0.16	0.00	0.16
13.50	0.14	0.00	0.14
13.75	0.13	0.00	0.13
14.00	0.11	0.00	0.11
14.25	0.10	0.00	0.10
14.50	0.10	0.00	0.10
14.75	0.09	0.00	0.09
15.00	0.09	0.00	0.09
15.25	0.08	0.00	0.08
15.50	0.08	0.00	0.08
15.75	0.07	0.00	0.07
16.00	0.07	0.00	0.07
16.25	0.07	0.00	0.07
16.50	0.07	0.00	0.07
16.75	0.06	0.00	0.06
17.00	0.06	0.00	0.06
17.25	0.06	0.00	0.06
17.50	0.06	0.00	0.06
17.75	0.06	0.00	0.06
18.00	0.05	0.00	0.05
18.25	0.05	0.00	0.05
18.50	0.05	0.00	0.05
18.75	0.05	0.00	0.05
19.00	0.05	0.00	0.05
19.25	0.05	0.00	0.05
19.50	0.04	0.00	0.04
19.75	0.04	0.00	0.04
20.00	0.04	0.00	0.04

Summary for Subcatchment DA-1: DA-1

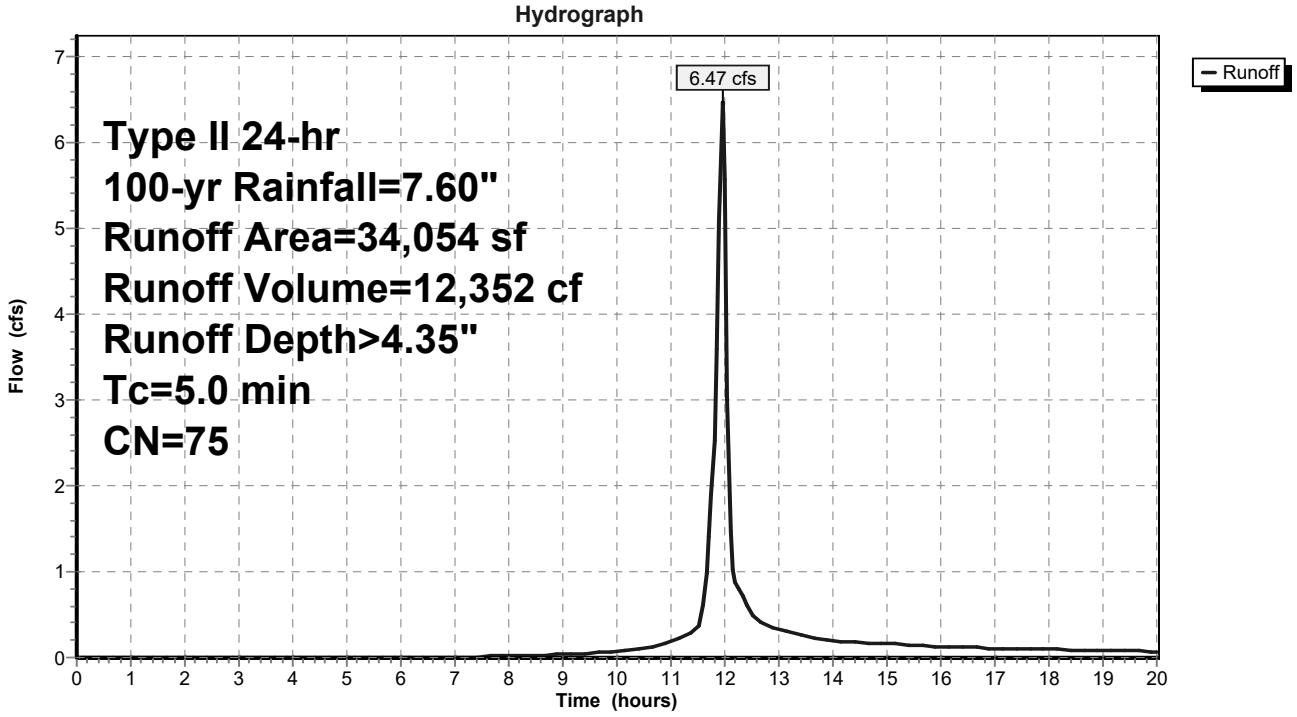
Runoff = 6.47 cfs @ 11.96 hrs, Volume= 12,352 cf, Depth> 4.35"
Routed to Link Pre DP001 : Pre-Development DP001

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

	Area (sf)	CN	Description
	6,319	98	Paved parking, HSG C
	1,606	58	Meadow, non-grazed, HSG B
	582	60	Woods, Fair, HSG B
	23,967	71	Meadow, non-grazed, HSG C
*	1,580	71	20% Impervious as meadow
	34,054	75	Weighted Average
	27,735		81.44% Pervious Area
	6,319		18.56% Impervious Area

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

Subcatchment DA-1: DA-1



Hydrograph for Subcatchment DA-1: DA-1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.02	0.00	0.00
0.50	0.04	0.00	0.00
0.75	0.06	0.00	0.00
1.00	0.08	0.00	0.00
1.25	0.10	0.00	0.00
1.50	0.12	0.00	0.00
1.75	0.14	0.00	0.00
2.00	0.17	0.00	0.00
2.25	0.19	0.00	0.00
2.50	0.21	0.00	0.00
2.75	0.24	0.00	0.00
3.00	0.26	0.00	0.00
3.25	0.29	0.00	0.00
3.50	0.31	0.00	0.00
3.75	0.34	0.00	0.00
4.00	0.36	0.00	0.00
4.25	0.39	0.00	0.00
4.50	0.42	0.00	0.00
4.75	0.45	0.00	0.00
5.00	0.48	0.00	0.00
5.25	0.51	0.00	0.00
5.50	0.54	0.00	0.00
5.75	0.57	0.00	0.00
6.00	0.61	0.00	0.00
6.25	0.64	0.00	0.00
6.50	0.68	0.00	0.00
6.75	0.71	0.00	0.00
7.00	0.75	0.00	0.01
7.25	0.79	0.00	0.01
7.50	0.83	0.01	0.01
7.75	0.87	0.01	0.01
8.00	0.91	0.02	0.02
8.25	0.96	0.02	0.02
8.50	1.01	0.03	0.03
8.75	1.06	0.04	0.03
9.00	1.12	0.05	0.04
9.25	1.18	0.07	0.05
9.50	1.24	0.08	0.05
9.75	1.30	0.10	0.06
10.00	1.38	0.12	0.07
10.25	1.46	0.15	0.09
10.50	1.55	0.19	0.11
10.75	1.66	0.23	0.14
11.00	1.79	0.28	0.18
11.25	1.95	0.35	0.25
11.50	2.15	0.46	0.34
11.75	2.94	0.92	**1.91**
12.00	5.04	2.48	**5.57**
12.25	5.37	2.75	0.80
12.50	5.59	2.93	0.52
12.75	5.74	3.06	0.39
13.00	5.87	3.17	0.33
13.25	5.98	3.26	0.29
13.50	6.07	3.34	0.25
13.75	6.16	3.42	0.22
14.00	6.23	3.48	0.20
14.25	6.30	3.54	0.18
14.50	6.37	3.60	0.18
14.75	6.43	3.65	0.17
15.00	6.49	3.70	0.16
15.25	6.54	3.75	0.15
15.50	6.59	3.79	0.14
15.75	6.64	3.84	0.13
16.00	6.69	3.88	0.12
16.25	6.73	3.91	0.12
16.50	6.77	3.95	0.12
16.75	6.81	3.99	0.11
17.00	6.85	4.02	0.11
17.25	6.89	4.05	0.11
17.50	6.93	4.09	0.10
17.75	6.96	4.12	0.10
18.00	7.00	4.15	0.10
18.25	7.03	4.18	0.09
18.50	7.07	4.21	0.09
18.75	7.10	4.23	0.09
19.00	7.13	4.26	0.08
19.25	7.16	4.29	0.08
19.50	7.18	4.31	0.08
19.75	7.21	4.33	0.07
20.00	**7.24**	**4.36**	0.07

Summary for Subcatchment DA-2: DA-2

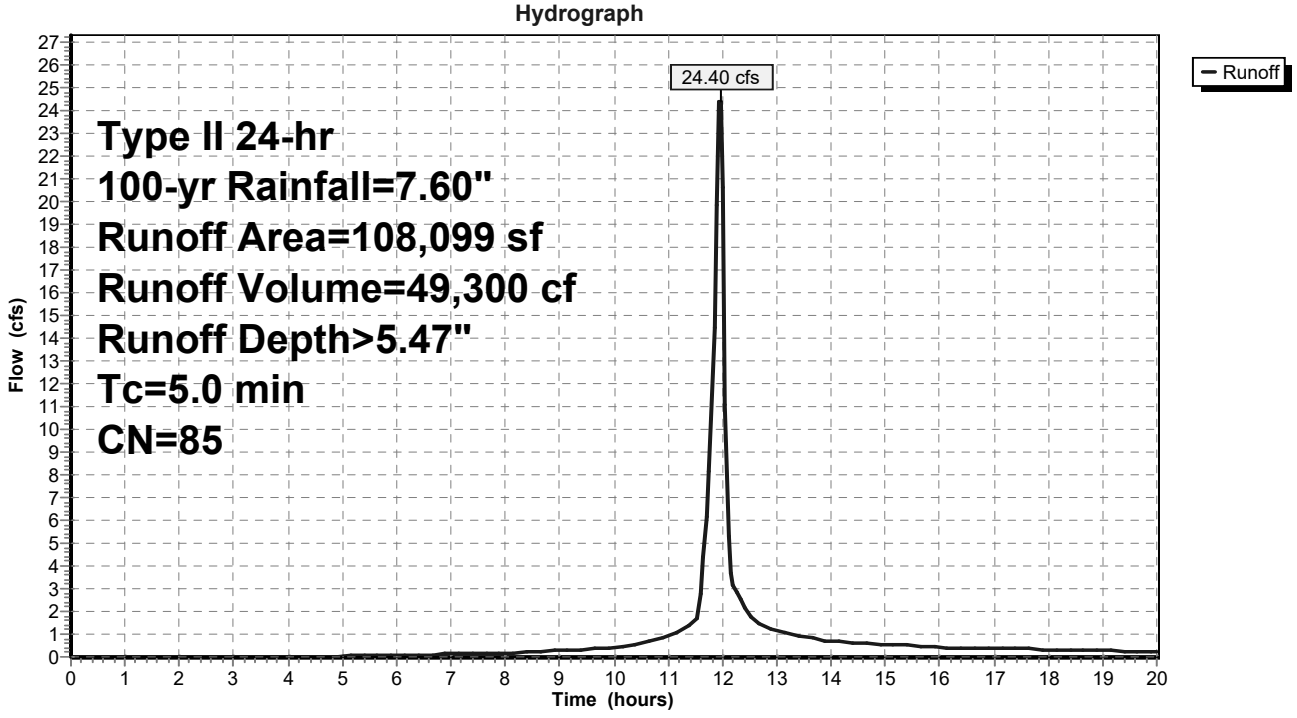
Runoff = 24.40 cfs @ 11.95 hrs, Volume= 49,300 cf, Depth> 5.47"
Routed to Link Pre DP002 : Pre-Development DP002

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

	Area (sf)	CN	Description
	54,808	98	Paved parking, HSG C
*	13,702	71	20% Impervious as meadow
	1,400	58	Meadow, non-grazed, HSG B
	446	60	Woods, Fair, HSG B
	27,860	71	Meadow, non-grazed, HSG C
	9,883	73	Woods, Fair, HSG C
	108,099	85	Weighted Average
	53,291		49.30% Pervious Area
	54,808		50.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc-1**

Subcatchment DA-2: DA-2



Hydrograph for Subcatchment DA-2: DA-2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.02	0.00	0.00
0.50	0.04	0.00	0.00
0.75	0.06	0.00	0.00
1.00	0.08	0.00	0.00
1.25	0.10	0.00	0.00
1.50	0.12	0.00	0.00
1.75	0.14	0.00	0.00
2.00	0.17	0.00	0.00
2.25	0.19	0.00	0.00
2.50	0.21	0.00	0.00
2.75	0.24	0.00	0.00
3.00	0.26	0.00	0.00
3.25	0.29	0.00	0.00
3.50	0.31	0.00	0.00
3.75	0.34	0.00	0.00
4.00	0.36	0.00	0.00
4.25	0.39	0.00	0.01
4.50	0.42	0.00	0.02
4.75	0.45	0.00	0.03
5.00	0.48	0.01	0.04
5.25	0.51	0.01	0.05
5.50	0.54	0.02	0.06
5.75	0.57	0.02	0.07
6.00	0.61	0.03	0.08
6.25	0.64	0.04	0.09
6.50	0.68	0.05	0.10
6.75	0.71	0.06	0.11
7.00	0.75	0.07	0.12
7.25	0.79	0.09	0.14
7.50	0.83	0.10	0.15
7.75	0.87	0.12	0.16
8.00	0.91	0.13	0.17
8.25	0.96	0.15	0.20
8.50	1.01	0.18	0.23
8.75	1.06	0.20	0.26
9.00	1.12	0.23	0.30
9.25	1.18	0.26	0.32
9.50	1.24	0.30	0.33
9.75	1.30	0.33	0.38
10.00	1.38	0.38	0.44
10.25	1.46	0.43	0.52
10.50	1.55	0.48	0.61
10.75	1.66	0.56	0.74
11.00	1.79	0.64	0.90
11.25	1.95	0.76	1.20
11.50	2.15	0.91	1.60
11.75	2.94	1.54	**8.12**
12.00	5.04	3.40	**20.63**
12.25	5.37	3.71	2.87
12.50	5.59	3.91	1.86
12.75	5.74	4.06	1.39
13.00	5.87	4.18	1.16
13.25	5.98	4.28	1.01
13.50	6.07	4.37	0.88
13.75	6.16	4.45	0.78
14.00	6.23	4.52	0.69
14.25	6.30	4.59	0.64
14.50	6.37	4.65	0.61
14.75	6.43	4.71	0.58
15.00	6.49	4.76	0.55
15.25	6.54	4.82	0.52
15.50	6.59	4.87	0.49
15.75	6.64	4.91	0.46
16.00	6.69	4.95	0.43
16.25	6.73	5.00	0.41
16.50	6.77	5.04	0.40
16.75	6.81	5.07	0.39
17.00	6.85	5.11	0.38
17.25	6.89	5.15	0.36
17.50	6.93	5.18	0.35
17.75	6.96	5.22	0.34
18.00	7.00	5.25	0.33
18.25	7.03	5.28	0.32
18.50	7.07	5.32	0.31
18.75	7.10	5.35	0.30
19.00	7.13	5.37	0.29
19.25	7.16	5.40	0.27
19.50	7.18	5.43	0.26
19.75	7.21	5.45	0.25
20.00	**7.24**	**5.48**	0.24

Summary for Subcatchment DA-3: DA-3

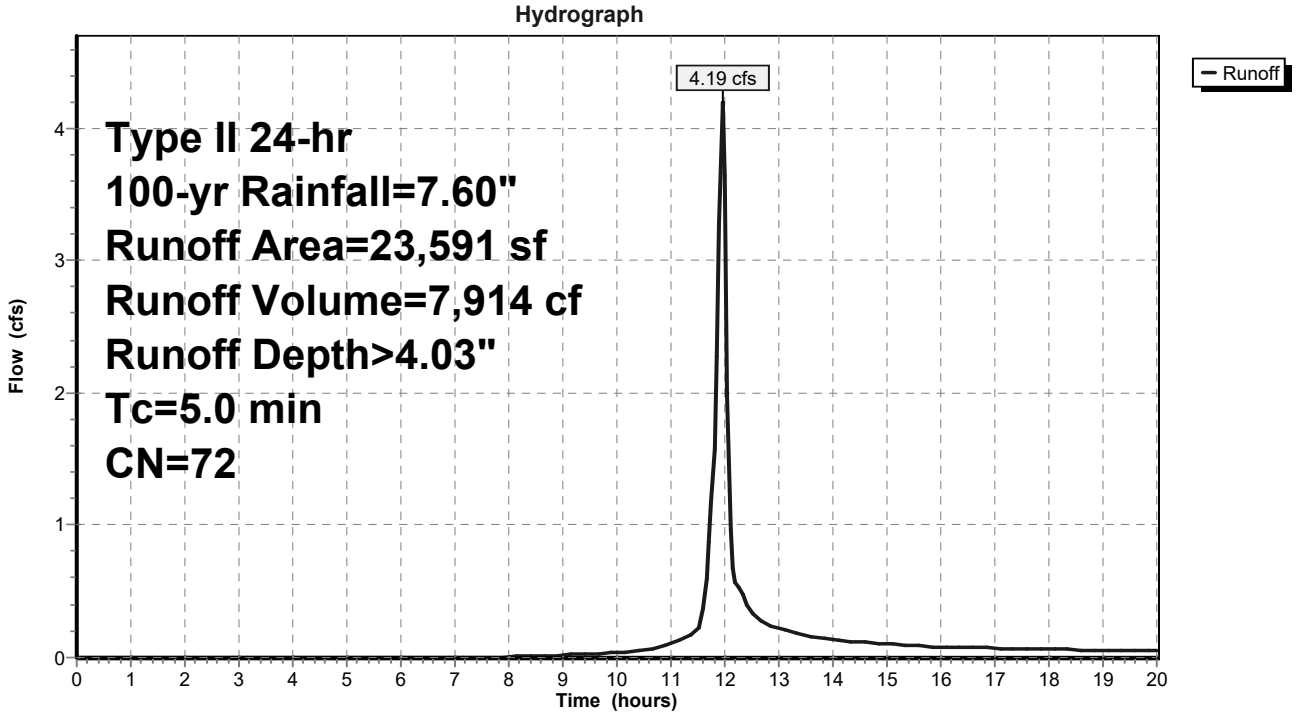
Runoff = 4.19 cfs @ 11.96 hrs, Volume= 7,914 cf, Depth> 4.03"
Routed to Link Pre DP003 : Pre-Development DP003

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

	Area (sf)	CN	Description
	1,304	98	Paved parking, HSG C
*	326	71	20% impervious as meadow
	21,961	71	Meadow, non-grazed, HSG C
	23,591	72	Weighted Average
	22,222		94.20% Pervious Area
	1,369		5.80% Impervious Area

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

Subcatchment DA-3: DA-3



Hydrograph for Subcatchment DA-3: DA-3

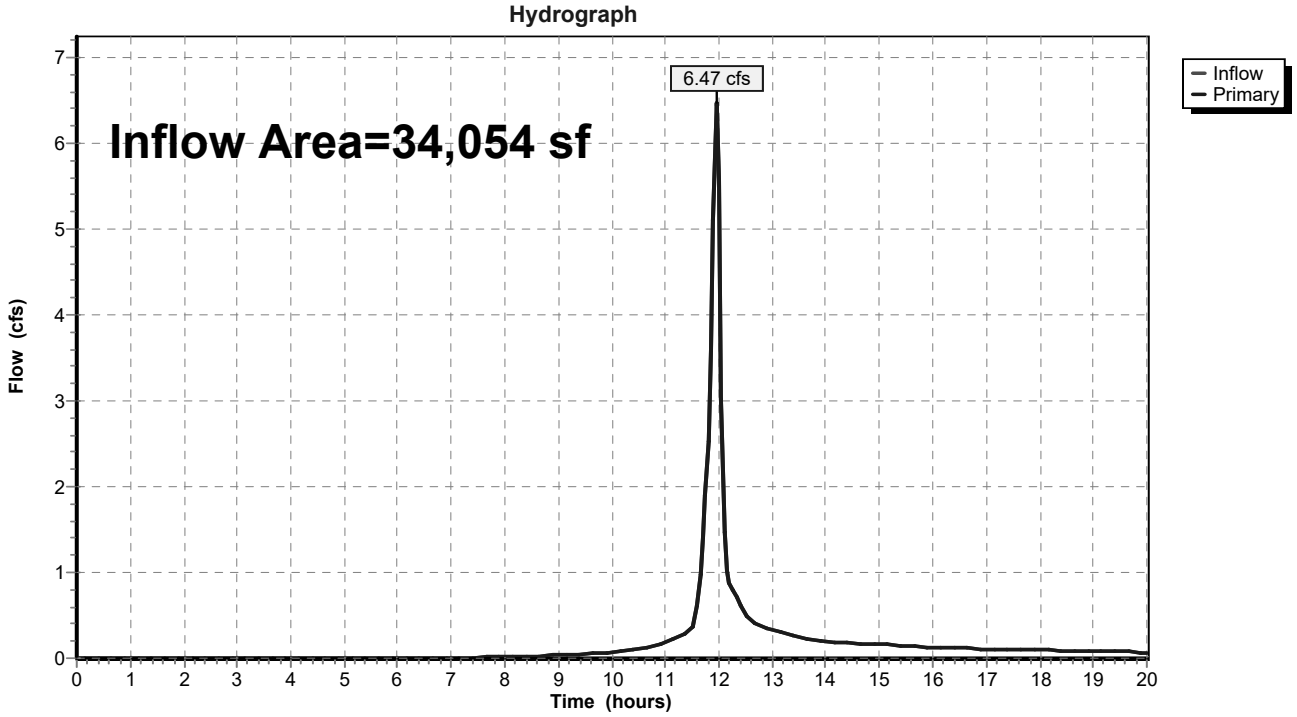
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.02	0.00	0.00
0.50	0.04	0.00	0.00
0.75	0.06	0.00	0.00
1.00	0.08	0.00	0.00
1.25	0.10	0.00	0.00
1.50	0.12	0.00	0.00
1.75	0.14	0.00	0.00
2.00	0.17	0.00	0.00
2.25	0.19	0.00	0.00
2.50	0.21	0.00	0.00
2.75	0.24	0.00	0.00
3.00	0.26	0.00	0.00
3.25	0.29	0.00	0.00
3.50	0.31	0.00	0.00
3.75	0.34	0.00	0.00
4.00	0.36	0.00	0.00
4.25	0.39	0.00	0.00
4.50	0.42	0.00	0.00
4.75	0.45	0.00	0.00
5.00	0.48	0.00	0.00
5.25	0.51	0.00	0.00
5.50	0.54	0.00	0.00
5.75	0.57	0.00	0.00
6.00	0.61	0.00	0.00
6.25	0.64	0.00	0.00
6.50	0.68	0.00	0.00
6.75	0.71	0.00	0.00
7.00	0.75	0.00	0.00
7.25	0.79	0.00	0.00
7.50	0.83	0.00	0.00
7.75	0.87	0.00	0.00
8.00	0.91	0.00	0.01
8.25	0.96	0.01	0.01
8.50	1.01	0.01	0.01
8.75	1.06	0.02	0.01
9.00	1.12	0.03	0.02
9.25	1.18	0.04	0.02
9.50	1.24	0.05	0.03
9.75	1.30	0.06	0.03
10.00	1.38	0.08	0.04
10.25	1.46	0.10	0.05
10.50	1.55	0.13	0.06
10.75	1.66	0.16	0.08
11.00	1.79	0.21	0.10
11.25	1.95	0.27	0.15
11.50	2.15	0.36	0.21
11.75	2.94	0.77	**1.18**
12.00	5.04	2.23	**3.64**
12.25	5.37	2.48	0.53
12.50	5.59	2.66	0.35
12.75	5.74	2.78	0.26
13.00	5.87	2.88	0.22
13.25	5.98	2.97	0.19
13.50	6.07	3.05	0.17
13.75	6.16	3.12	0.15
14.00	6.23	3.18	0.13
14.25	6.30	3.24	0.12
14.50	6.37	3.30	0.12
14.75	6.43	3.35	0.11
15.00	6.49	3.40	0.11
15.25	6.54	3.44	0.10
15.50	6.59	3.49	0.09
15.75	6.64	3.53	0.09
16.00	6.69	3.56	0.08
16.25	6.73	3.60	0.08
16.50	6.77	3.64	0.08
16.75	6.81	3.67	0.07
17.00	6.85	3.70	0.07
17.25	6.89	3.74	0.07
17.50	6.93	3.77	0.07
17.75	6.96	3.80	0.07
18.00	7.00	3.83	0.06
18.25	7.03	3.86	0.06
18.50	7.07	3.89	0.06
18.75	7.10	3.91	0.06
19.00	7.13	3.94	0.06
19.25	7.16	3.96	0.05
19.50	7.18	3.99	0.05
19.75	7.21	4.01	0.05
20.00	**7.24**	**4.03**	0.05

Summary for Link Pre DP001: Pre-Development DP001

Inflow Area = 34,054 sf, 18.56% Impervious, Inflow Depth > 4.35" for 100-yr event
Inflow = 6.47 cfs @ 11.96 hrs, Volume= 12,352 cf
Primary = 6.47 cfs @ 11.96 hrs, Volume= 12,352 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Pre DP001: Pre-Development DP001



Hydrograph for Link Pre DP001: Pre-Development DP001

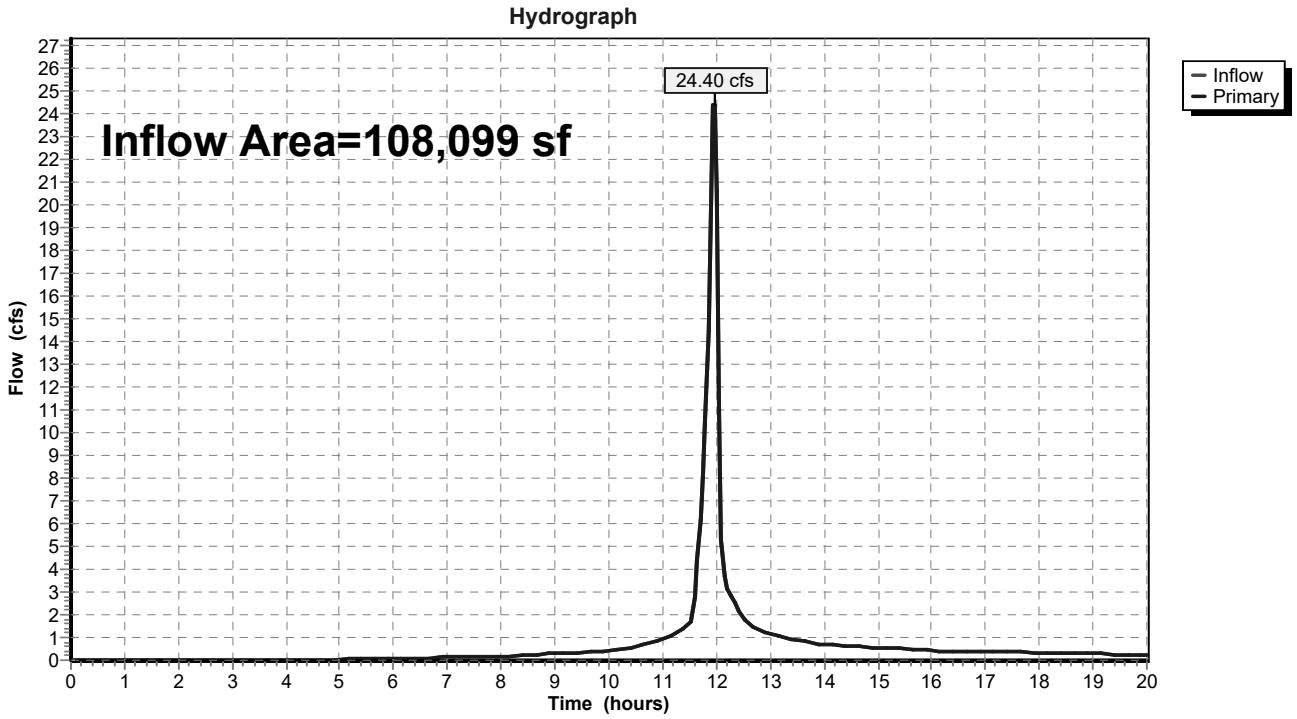
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
0.25	0.00	0.00	0.00
0.50	0.00	0.00	0.00
0.75	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00
1.50	0.00	0.00	0.00
1.75	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00
2.50	0.00	0.00	0.00
2.75	0.00	0.00	0.00
3.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00
3.50	0.00	0.00	0.00
3.75	0.00	0.00	0.00
4.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00
4.50	0.00	0.00	0.00
4.75	0.00	0.00	0.00
5.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00
5.50	0.00	0.00	0.00
5.75	0.00	0.00	0.00
6.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00
6.50	0.00	0.00	0.00
6.75	0.00	0.00	0.00
7.00	0.01	0.00	0.01
7.25	0.01	0.00	0.01
7.50	0.01	0.00	0.01
7.75	0.01	0.00	0.01
8.00	0.02	0.00	0.02
8.25	0.02	0.00	0.02
8.50	0.03	0.00	0.03
8.75	0.03	0.00	0.03
9.00	0.04	0.00	0.04
9.25	0.05	0.00	0.05
9.50	0.05	0.00	0.05
9.75	0.06	0.00	0.06
10.00	0.07	0.00	0.07
10.25	0.09	0.00	0.09
10.50	0.11	0.00	0.11
10.75	0.14	0.00	0.14
11.00	0.18	0.00	0.18
11.25	0.25	0.00	0.25
11.50	0.34	0.00	0.34
11.75	**1.91**	0.00	**1.91**
12.00	**5.57**	0.00	**5.57**
12.25	0.80	0.00	0.80
12.50	0.52	0.00	0.52
12.75	0.39	0.00	0.39
13.00	0.33	0.00	0.33
13.25	0.29	0.00	0.29
13.50	0.25	0.00	0.25
13.75	0.22	0.00	0.22
14.00	0.20	0.00	0.20
14.25	0.18	0.00	0.18
14.50	0.18	0.00	0.18
14.75	0.17	0.00	0.17
15.00	0.16	0.00	0.16
15.25	0.15	0.00	0.15
15.50	0.14	0.00	0.14
15.75	0.13	0.00	0.13
16.00	0.12	0.00	0.12
16.25	0.12	0.00	0.12
16.50	0.12	0.00	0.12
16.75	0.11	0.00	0.11
17.00	0.11	0.00	0.11
17.25	0.11	0.00	0.11
17.50	0.10	0.00	0.10
17.75	0.10	0.00	0.10
18.00	0.10	0.00	0.10
18.25	0.09	0.00	0.09
18.50	0.09	0.00	0.09
18.75	0.09	0.00	0.09
19.00	0.08	0.00	0.08
19.25	0.08	0.00	0.08
19.50	0.08	0.00	0.08
19.75	0.07	0.00	0.07
20.00	0.07	0.00	0.07

Summary for Link Pre DP002: Pre-Development DP002

Inflow Area = 108,099 sf, 50.70% Impervious, Inflow Depth > 5.47" for 100-yr event
Inflow = 24.40 cfs @ 11.95 hrs, Volume= 49,300 cf
Primary = 24.40 cfs @ 11.95 hrs, Volume= 49,300 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Pre DP002: Pre-Development DP002



Hydrograph for Link Pre DP002: Pre-Development DP002

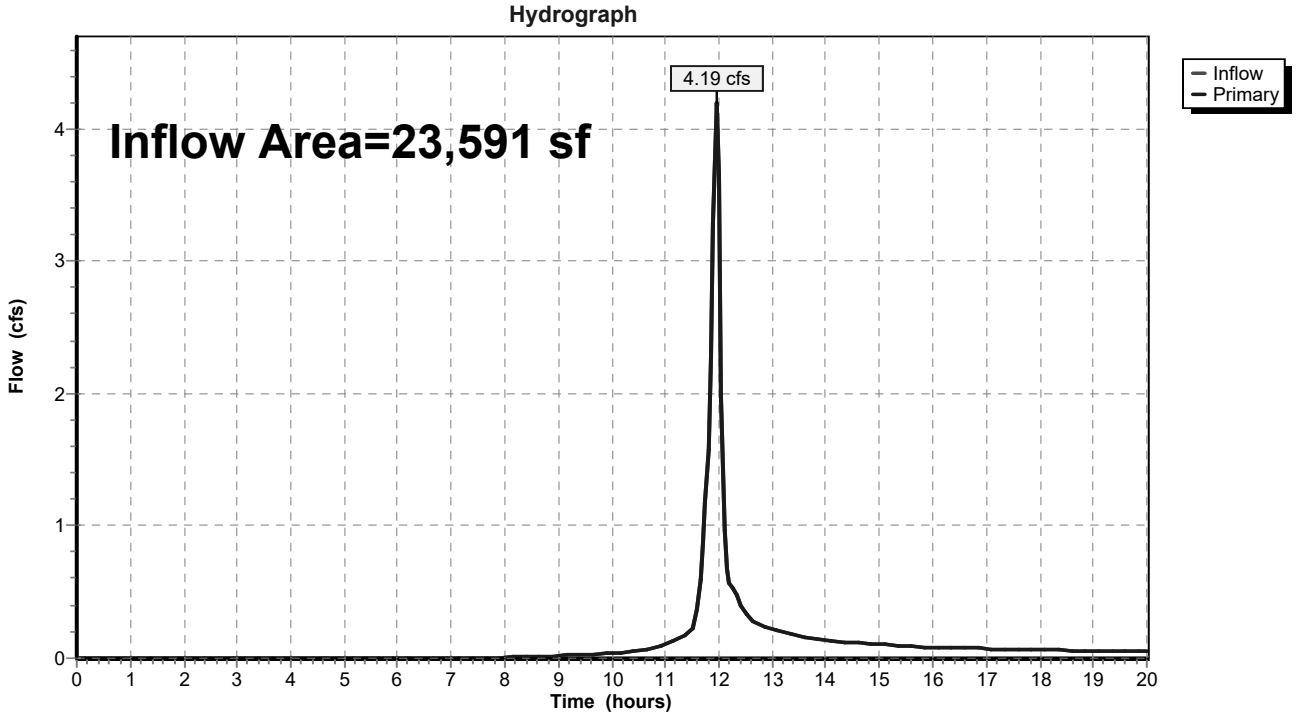
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
0.25	0.00	0.00	0.00
0.50	0.00	0.00	0.00
0.75	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00
1.50	0.00	0.00	0.00
1.75	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00
2.50	0.00	0.00	0.00
2.75	0.00	0.00	0.00
3.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00
3.50	0.00	0.00	0.00
3.75	0.00	0.00	0.00
4.00	0.00	0.00	0.00
4.25	0.01	0.00	0.01
4.50	0.02	0.00	0.02
4.75	0.03	0.00	0.03
5.00	0.04	0.00	0.04
5.25	0.05	0.00	0.05
5.50	0.06	0.00	0.06
5.75	0.07	0.00	0.07
6.00	0.08	0.00	0.08
6.25	0.09	0.00	0.09
6.50	0.10	0.00	0.10
6.75	0.11	0.00	0.11
7.00	0.12	0.00	0.12
7.25	0.14	0.00	0.14
7.50	0.15	0.00	0.15
7.75	0.16	0.00	0.16
8.00	0.17	0.00	0.17
8.25	0.20	0.00	0.20
8.50	0.23	0.00	0.23
8.75	0.26	0.00	0.26
9.00	0.30	0.00	0.30
9.25	0.32	0.00	0.32
9.50	0.33	0.00	0.33
9.75	0.38	0.00	0.38
10.00	0.44	0.00	0.44
10.25	0.52	0.00	0.52
10.50	0.61	0.00	0.61
10.75	0.74	0.00	0.74
11.00	0.90	0.00	0.90
11.25	1.20	0.00	1.20
11.50	1.60	0.00	1.60
11.75	**8.12**	0.00	**8.12**
12.00	**20.63**	0.00	**20.63**
12.25	2.87	0.00	2.87
12.50	1.86	0.00	1.86
12.75	1.39	0.00	1.39
13.00	1.16	0.00	1.16
13.25	1.01	0.00	1.01
13.50	0.88	0.00	0.88
13.75	0.78	0.00	0.78
14.00	0.69	0.00	0.69
14.25	0.64	0.00	0.64
14.50	0.61	0.00	0.61
14.75	0.58	0.00	0.58
15.00	0.55	0.00	0.55
15.25	0.52	0.00	0.52
15.50	0.49	0.00	0.49
15.75	0.46	0.00	0.46
16.00	0.43	0.00	0.43
16.25	0.41	0.00	0.41
16.50	0.40	0.00	0.40
16.75	0.39	0.00	0.39
17.00	0.38	0.00	0.38
17.25	0.36	0.00	0.36
17.50	0.35	0.00	0.35
17.75	0.34	0.00	0.34
18.00	0.33	0.00	0.33
18.25	0.32	0.00	0.32
18.50	0.31	0.00	0.31
18.75	0.30	0.00	0.30
19.00	0.29	0.00	0.29
19.25	0.27	0.00	0.27
19.50	0.26	0.00	0.26
19.75	0.25	0.00	0.25
20.00	0.24	0.00	0.24

Summary for Link Pre DP003: Pre-Development DP003

Inflow Area = 23,591 sf, 5.80% Impervious, Inflow Depth > 4.03" for 100-yr event
Inflow = 4.19 cfs @ 11.96 hrs, Volume= 7,914 cf
Primary = 4.19 cfs @ 11.96 hrs, Volume= 7,914 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Pre DP003: Pre-Development DP003



Hydrograph for Link Pre DP003: Pre-Development DP003

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	13.00	0.22	0.00	0.22
0.25	0.00	0.00	0.00	13.25	0.19	0.00	0.19
0.50	0.00	0.00	0.00	13.50	0.17	0.00	0.17
0.75	0.00	0.00	0.00	13.75	0.15	0.00	0.15
1.00	0.00	0.00	0.00	14.00	0.13	0.00	0.13
1.25	0.00	0.00	0.00	14.25	0.12	0.00	0.12
1.50	0.00	0.00	0.00	14.50	0.12	0.00	0.12
1.75	0.00	0.00	0.00	14.75	0.11	0.00	0.11
2.00	0.00	0.00	0.00	15.00	0.11	0.00	0.11
2.25	0.00	0.00	0.00	15.25	0.10	0.00	0.10
2.50	0.00	0.00	0.00	15.50	0.09	0.00	0.09
2.75	0.00	0.00	0.00	15.75	0.09	0.00	0.09
3.00	0.00	0.00	0.00	16.00	0.08	0.00	0.08
3.25	0.00	0.00	0.00	16.25	0.08	0.00	0.08
3.50	0.00	0.00	0.00	16.50	0.08	0.00	0.08
3.75	0.00	0.00	0.00	16.75	0.07	0.00	0.07
4.00	0.00	0.00	0.00	17.00	0.07	0.00	0.07
4.25	0.00	0.00	0.00	17.25	0.07	0.00	0.07
4.50	0.00	0.00	0.00	17.50	0.07	0.00	0.07
4.75	0.00	0.00	0.00	17.75	0.07	0.00	0.07
5.00	0.00	0.00	0.00	18.00	0.06	0.00	0.06
5.25	0.00	0.00	0.00	18.25	0.06	0.00	0.06
5.50	0.00	0.00	0.00	18.50	0.06	0.00	0.06
5.75	0.00	0.00	0.00	18.75	0.06	0.00	0.06
6.00	0.00	0.00	0.00	19.00	0.06	0.00	0.06
6.25	0.00	0.00	0.00	19.25	0.05	0.00	0.05
6.50	0.00	0.00	0.00	19.50	0.05	0.00	0.05
6.75	0.00	0.00	0.00	19.75	0.05	0.00	0.05
7.00	0.00	0.00	0.00	20.00	0.05	0.00	0.05
7.25	0.00	0.00	0.00				
7.50	0.00	0.00	0.00				
7.75	0.00	0.00	0.00				
8.00	0.01	0.00	0.01				
8.25	0.01	0.00	0.01				
8.50	0.01	0.00	0.01				
8.75	0.01	0.00	0.01				
9.00	0.02	0.00	0.02				
9.25	0.02	0.00	0.02				
9.50	0.03	0.00	0.03				
9.75	0.03	0.00	0.03				
10.00	0.04	0.00	0.04				
10.25	0.05	0.00	0.05				
10.50	0.06	0.00	0.06				
10.75	0.08	0.00	0.08				
11.00	0.10	0.00	0.10				
11.25	0.15	0.00	0.15				
11.50	0.21	0.00	0.21				
11.75	**1.18**	0.00	**1.18**				
12.00	**3.64**	0.00	**3.64**				
12.25	0.53	0.00	0.53				
12.50	0.35	0.00	0.35				
12.75	0.26	0.00	0.26				

Summary for Subcatchment DA-1: DA-1

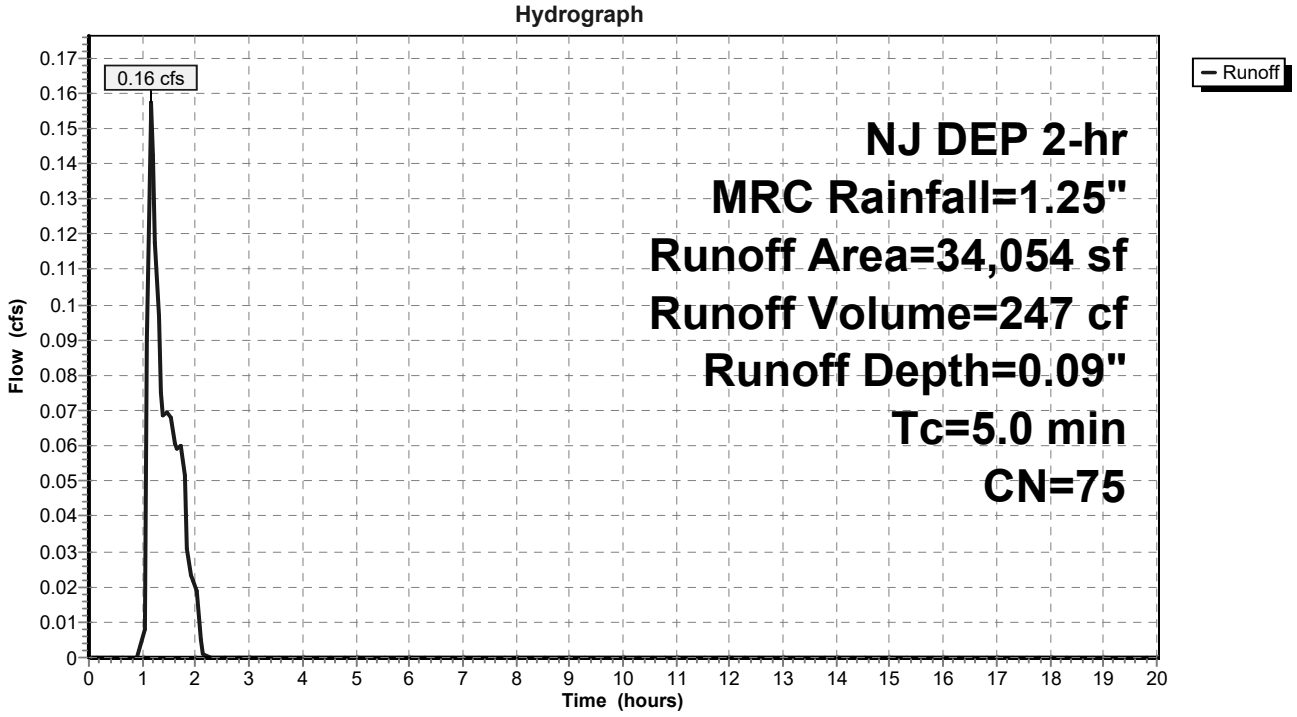
Runoff = 0.16 cfs @ 1.17 hrs, Volume= 247 cf, Depth= 0.09"
Routed to Link Pre DP001 : Pre-Development DP001

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr MRC Rainfall=1.25"

	Area (sf)	CN	Description
	6,319	98	Paved parking, HSG C
	1,606	58	Meadow, non-grazed, HSG B
	582	60	Woods, Fair, HSG B
	23,967	71	Meadow, non-grazed, HSG C
*	1,580	71	20% Impervious as meadow
	34,054	75	Weighted Average
	27,735		81.44% Pervious Area
	6,319		18.56% Impervious Area

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

Subcatchment DA-1: DA-1



Hydrograph for Subcatchment DA-1: DA-1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.03	0.00	0.00
0.50	0.10	0.00	0.00
0.75	0.20	0.00	0.00
1.00	0.63	0.00	**0.00**
1.25	1.05	0.04	**0.12**
1.50	1.15	0.06	0.07
1.75	1.23	0.08	0.06
2.00	**1.25**	**0.09**	0.02
2.25	1.25	0.09	0.00
2.50	1.25	0.09	0.00
2.75	1.25	0.09	0.00
3.00	1.25	0.09	0.00
3.25	1.25	0.09	0.00
3.50	1.25	0.09	0.00
3.75	1.25	0.09	0.00
4.00	1.25	0.09	0.00
4.25	1.25	0.09	0.00
4.50	1.25	0.09	0.00
4.75	1.25	0.09	0.00
5.00	1.25	0.09	0.00
5.25	1.25	0.09	0.00
5.50	1.25	0.09	0.00
5.75	1.25	0.09	0.00
6.00	1.25	0.09	0.00
6.25	1.25	0.09	0.00
6.50	1.25	0.09	0.00
6.75	1.25	0.09	0.00
7.00	1.25	0.09	0.00
7.25	1.25	0.09	0.00
7.50	1.25	0.09	0.00
7.75	1.25	0.09	0.00
8.00	1.25	0.09	0.00
8.25	1.25	0.09	0.00
8.50	1.25	0.09	0.00
8.75	1.25	0.09	0.00
9.00	1.25	0.09	0.00
9.25	1.25	0.09	0.00
9.50	1.25	0.09	0.00
9.75	1.25	0.09	0.00
10.00	1.25	0.09	0.00
10.25	1.25	0.09	0.00
10.50	1.25	0.09	0.00
10.75	1.25	0.09	0.00
11.00	1.25	0.09	0.00
11.25	1.25	0.09	0.00
11.50	1.25	0.09	0.00
11.75	1.25	0.09	0.00
12.00	1.25	0.09	0.00
12.25	1.25	0.09	0.00
12.50	1.25	0.09	0.00
12.75	1.25	0.09	0.00
13.00	1.25	0.09	0.00
13.25	1.25	0.09	0.00
13.50	1.25	0.09	0.00
13.75	1.25	0.09	0.00
14.00	1.25	0.09	0.00
14.25	1.25	0.09	0.00
14.50	1.25	0.09	0.00
14.75	1.25	0.09	0.00
15.00	1.25	0.09	0.00
15.25	1.25	0.09	0.00
15.50	1.25	0.09	0.00
15.75	1.25	0.09	0.00
16.00	1.25	0.09	0.00
16.25	1.25	0.09	0.00
16.50	1.25	0.09	0.00
16.75	1.25	0.09	0.00
17.00	1.25	0.09	0.00
17.25	1.25	0.09	0.00
17.50	1.25	0.09	0.00
17.75	1.25	0.09	0.00
18.00	1.25	0.09	0.00
18.25	1.25	0.09	0.00
18.50	1.25	0.09	0.00
18.75	1.25	0.09	0.00
19.00	1.25	0.09	0.00
19.25	1.25	0.09	0.00
19.50	1.25	0.09	0.00
19.75	1.25	0.09	0.00
20.00	1.25	0.09	0.00

Summary for Subcatchment DA-2: DA-2

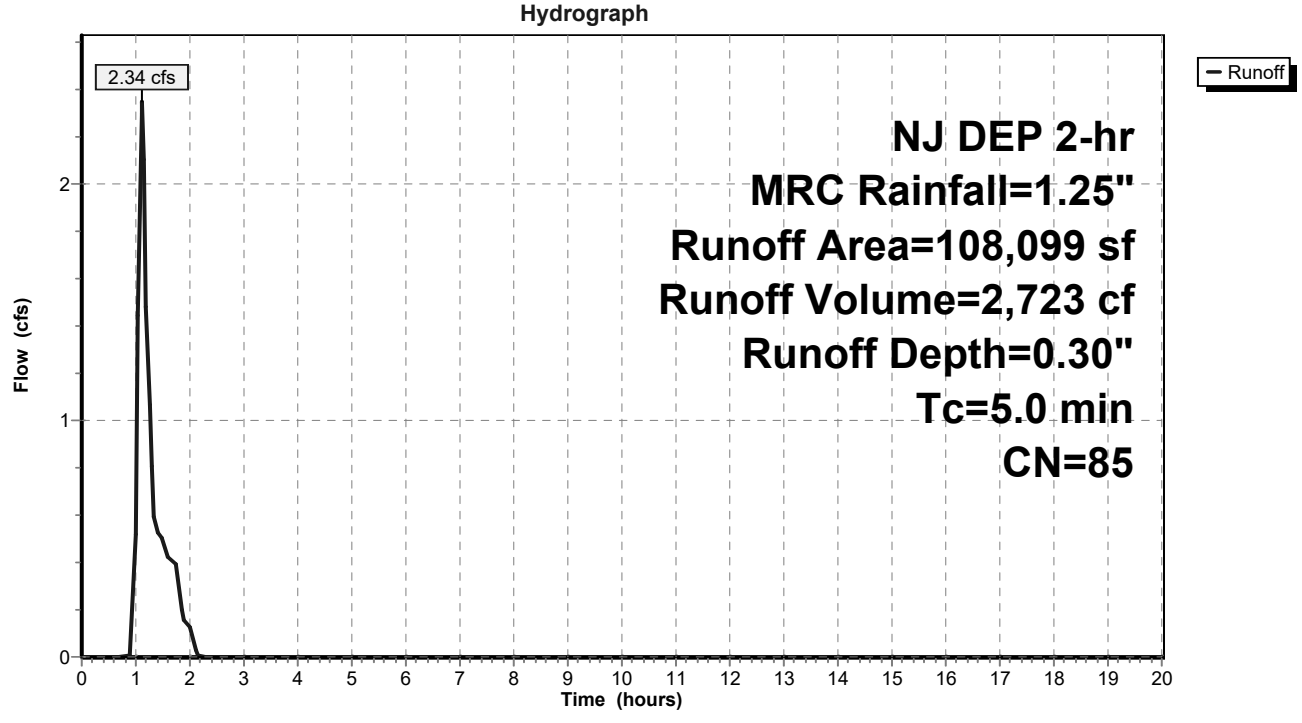
Runoff = 2.34 cfs @ 1.12 hrs, Volume= 2,723 cf, Depth= 0.30"
Routed to Link Pre DP002 : Pre-Development DP002

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr MRC Rainfall=1.25"

	Area (sf)	CN	Description
	54,808	98	Paved parking, HSG C
*	13,702	71	20% Impervious as meadow
	1,400	58	Meadow, non-grazed, HSG B
	446	60	Woods, Fair, HSG B
	27,860	71	Meadow, non-grazed, HSG C
	9,883	73	Woods, Fair, HSG C
	108,099	85	Weighted Average
	53,291		49.30% Pervious Area
	54,808		50.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc-1**

Subcatchment DA-2: DA-2



Hydrograph for Subcatchment DA-2: DA-2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.03	0.00	0.00
0.50	0.10	0.00	0.00
0.75	0.20	0.00	0.00
1.00	0.63	0.04	**0.52**
1.25	1.05	0.20	**1.06**
1.50	1.15	0.25	0.51
1.75	1.23	0.29	0.41
2.00	**1.25**	**0.30**	0.14
2.25	1.25	0.30	0.00
2.50	1.25	0.30	0.00
2.75	1.25	0.30	0.00
3.00	1.25	0.30	0.00
3.25	1.25	0.30	0.00
3.50	1.25	0.30	0.00
3.75	1.25	0.30	0.00
4.00	1.25	0.30	0.00
4.25	1.25	0.30	0.00
4.50	1.25	0.30	0.00
4.75	1.25	0.30	0.00
5.00	1.25	0.30	0.00
5.25	1.25	0.30	0.00
5.50	1.25	0.30	0.00
5.75	1.25	0.30	0.00
6.00	1.25	0.30	0.00
6.25	1.25	0.30	0.00
6.50	1.25	0.30	0.00
6.75	1.25	0.30	0.00
7.00	1.25	0.30	0.00
7.25	1.25	0.30	0.00
7.50	1.25	0.30	0.00
7.75	1.25	0.30	0.00
8.00	1.25	0.30	0.00
8.25	1.25	0.30	0.00
8.50	1.25	0.30	0.00
8.75	1.25	0.30	0.00
9.00	1.25	0.30	0.00
9.25	1.25	0.30	0.00
9.50	1.25	0.30	0.00
9.75	1.25	0.30	0.00
10.00	1.25	0.30	0.00
10.25	1.25	0.30	0.00
10.50	1.25	0.30	0.00
10.75	1.25	0.30	0.00
11.00	1.25	0.30	0.00
11.25	1.25	0.30	0.00
11.50	1.25	0.30	0.00
11.75	1.25	0.30	0.00
12.00	1.25	0.30	0.00
12.25	1.25	0.30	0.00
12.50	1.25	0.30	0.00
12.75	1.25	0.30	0.00
13.00	1.25	0.30	0.00
13.25	1.25	0.30	0.00
13.50	1.25	0.30	0.00
13.75	1.25	0.30	0.00
14.00	1.25	0.30	0.00
14.25	1.25	0.30	0.00
14.50	1.25	0.30	0.00
14.75	1.25	0.30	0.00
15.00	1.25	0.30	0.00
15.25	1.25	0.30	0.00
15.50	1.25	0.30	0.00
15.75	1.25	0.30	0.00
16.00	1.25	0.30	0.00
16.25	1.25	0.30	0.00
16.50	1.25	0.30	0.00
16.75	1.25	0.30	0.00
17.00	1.25	0.30	0.00
17.25	1.25	0.30	0.00
17.50	1.25	0.30	0.00
17.75	1.25	0.30	0.00
18.00	1.25	0.30	0.00
18.25	1.25	0.30	0.00
18.50	1.25	0.30	0.00
18.75	1.25	0.30	0.00
19.00	1.25	0.30	0.00
19.25	1.25	0.30	0.00
19.50	1.25	0.30	0.00
19.75	1.25	0.30	0.00
20.00	1.25	0.30	0.00

Summary for Subcatchment DA-3: DA-3

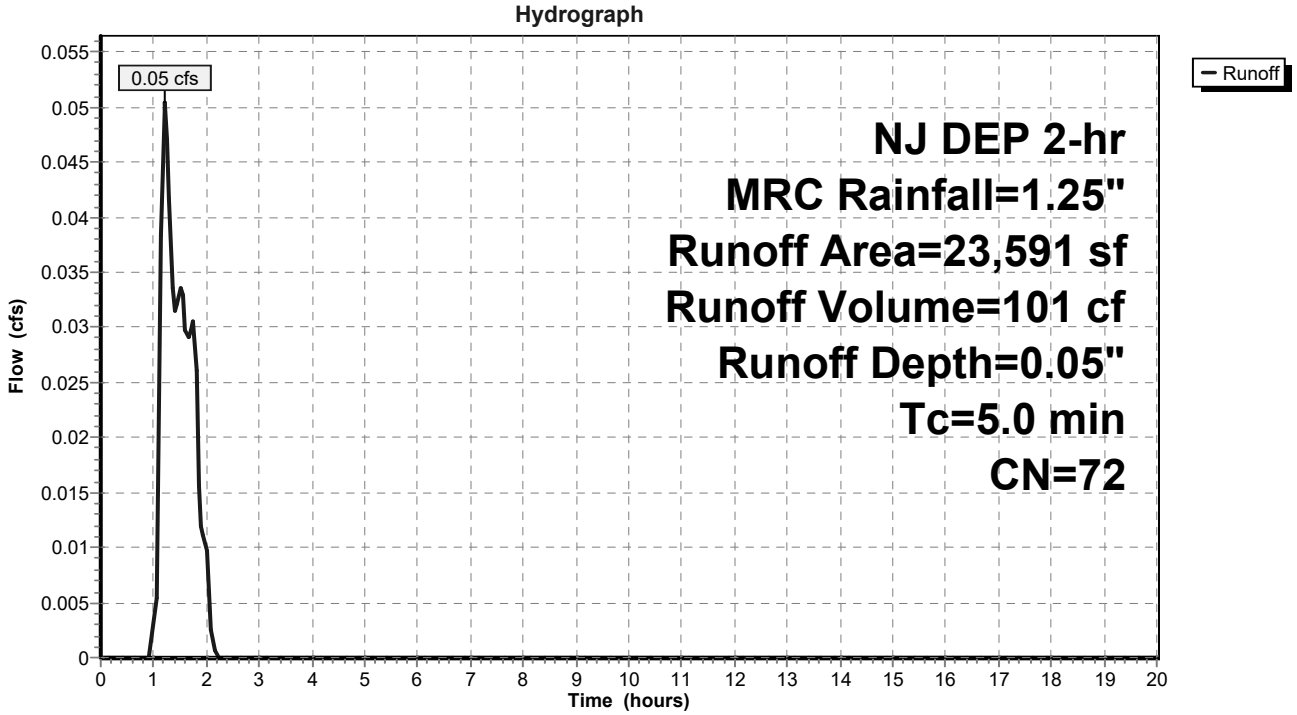
Runoff = 0.05 cfs @ 1.22 hrs, Volume= 101 cf, Depth= 0.05"
Routed to Link Pre DP003 : Pre-Development DP003

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr MRC Rainfall=1.25"

	Area (sf)	CN	Description
	1,304	98	Paved parking, HSG C
*	326	71	20% impervious as meadow
	21,961	71	Meadow, non-grazed, HSG C
	23,591	72	Weighted Average
	22,222		94.20% Pervious Area
	1,369		5.80% Impervious Area

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

Subcatchment DA-3: DA-3



Hydrograph for Subcatchment DA-3: DA-3

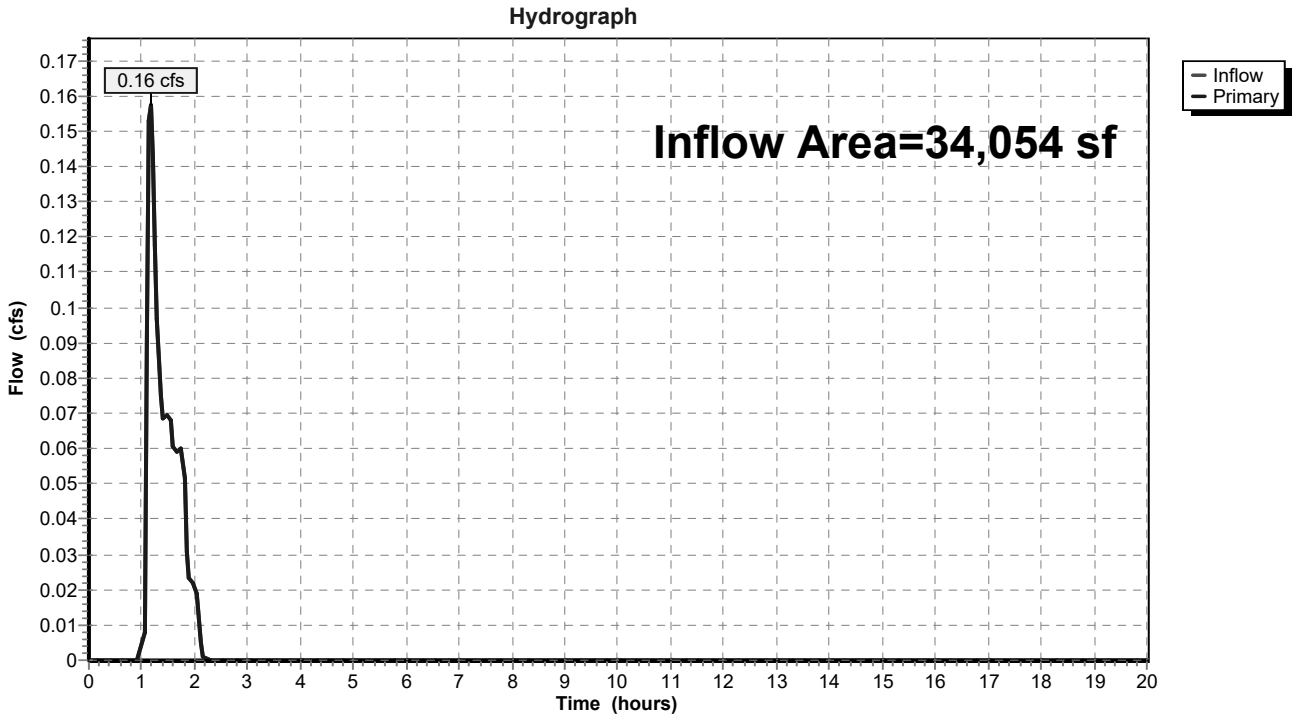
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.03	0.00	0.00
0.50	0.10	0.00	0.00
0.75	0.20	0.00	0.00
1.00	0.63	0.00	**0.00**
1.25	1.05	0.02	**0.05**
1.50	1.15	0.03	0.03
1.75	1.23	0.05	0.03
2.00	**1.25**	**0.05**	0.01
2.25	1.25	0.05	0.00
2.50	1.25	0.05	0.00
2.75	1.25	0.05	0.00
3.00	1.25	0.05	0.00
3.25	1.25	0.05	0.00
3.50	1.25	0.05	0.00
3.75	1.25	0.05	0.00
4.00	1.25	0.05	0.00
4.25	1.25	0.05	0.00
4.50	1.25	0.05	0.00
4.75	1.25	0.05	0.00
5.00	1.25	0.05	0.00
5.25	1.25	0.05	0.00
5.50	1.25	0.05	0.00
5.75	1.25	0.05	0.00
6.00	1.25	0.05	0.00
6.25	1.25	0.05	0.00
6.50	1.25	0.05	0.00
6.75	1.25	0.05	0.00
7.00	1.25	0.05	0.00
7.25	1.25	0.05	0.00
7.50	1.25	0.05	0.00
7.75	1.25	0.05	0.00
8.00	1.25	0.05	0.00
8.25	1.25	0.05	0.00
8.50	1.25	0.05	0.00
8.75	1.25	0.05	0.00
9.00	1.25	0.05	0.00
9.25	1.25	0.05	0.00
9.50	1.25	0.05	0.00
9.75	1.25	0.05	0.00
10.00	1.25	0.05	0.00
10.25	1.25	0.05	0.00
10.50	1.25	0.05	0.00
10.75	1.25	0.05	0.00
11.00	1.25	0.05	0.00
11.25	1.25	0.05	0.00
11.50	1.25	0.05	0.00
11.75	1.25	0.05	0.00
12.00	1.25	0.05	0.00
12.25	1.25	0.05	0.00
12.50	1.25	0.05	0.00
12.75	1.25	0.05	0.00
13.00	1.25	0.05	0.00
13.25	1.25	0.05	0.00
13.50	1.25	0.05	0.00
13.75	1.25	0.05	0.00
14.00	1.25	0.05	0.00
14.25	1.25	0.05	0.00
14.50	1.25	0.05	0.00
14.75	1.25	0.05	0.00
15.00	1.25	0.05	0.00
15.25	1.25	0.05	0.00
15.50	1.25	0.05	0.00
15.75	1.25	0.05	0.00
16.00	1.25	0.05	0.00
16.25	1.25	0.05	0.00
16.50	1.25	0.05	0.00
16.75	1.25	0.05	0.00
17.00	1.25	0.05	0.00
17.25	1.25	0.05	0.00
17.50	1.25	0.05	0.00
17.75	1.25	0.05	0.00
18.00	1.25	0.05	0.00
18.25	1.25	0.05	0.00
18.50	1.25	0.05	0.00
18.75	1.25	0.05	0.00
19.00	1.25	0.05	0.00
19.25	1.25	0.05	0.00
19.50	1.25	0.05	0.00
19.75	1.25	0.05	0.00
20.00	1.25	0.05	0.00

Summary for Link Pre DP001: Pre-Development DP001

Inflow Area = 34,054 sf, 18.56% Impervious, Inflow Depth = 0.09" for MRC event
Inflow = 0.16 cfs @ 1.17 hrs, Volume= 247 cf
Primary = 0.16 cfs @ 1.17 hrs, Volume= 247 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Pre DP001: Pre-Development DP001



Hydrograph for Link Pre DP001: Pre-Development DP001

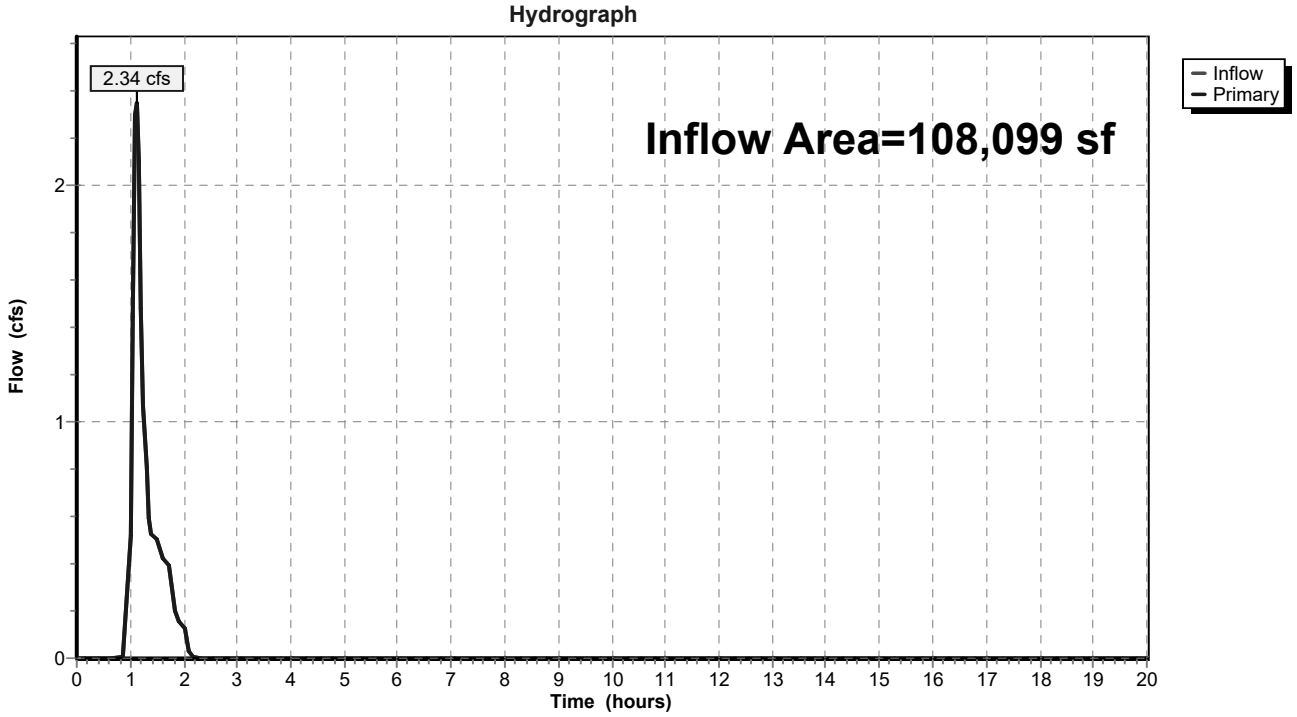
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	13.00	0.00	0.00	0.00
0.25	0.00	0.00	0.00	13.25	0.00	0.00	0.00
0.50	0.00	0.00	0.00	13.50	0.00	0.00	0.00
0.75	0.00	0.00	0.00	13.75	0.00	0.00	0.00
1.00	**0.00**	0.00	**0.00**	14.00	0.00	0.00	0.00
1.25	**0.12**	0.00	**0.12**	14.25	0.00	0.00	0.00
1.50	0.07	0.00	0.07	14.50	0.00	0.00	0.00
1.75	0.06	0.00	0.06	14.75	0.00	0.00	0.00
2.00	0.02	0.00	0.02	15.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00	15.25	0.00	0.00	0.00
2.50	0.00	0.00	0.00	15.50	0.00	0.00	0.00
2.75	0.00	0.00	0.00	15.75	0.00	0.00	0.00
3.00	0.00	0.00	0.00	16.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00	16.25	0.00	0.00	0.00
3.50	0.00	0.00	0.00	16.50	0.00	0.00	0.00
3.75	0.00	0.00	0.00	16.75	0.00	0.00	0.00
4.00	0.00	0.00	0.00	17.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00	17.25	0.00	0.00	0.00
4.50	0.00	0.00	0.00	17.50	0.00	0.00	0.00
4.75	0.00	0.00	0.00	17.75	0.00	0.00	0.00
5.00	0.00	0.00	0.00	18.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00	18.25	0.00	0.00	0.00
5.50	0.00	0.00	0.00	18.50	0.00	0.00	0.00
5.75	0.00	0.00	0.00	18.75	0.00	0.00	0.00
6.00	0.00	0.00	0.00	19.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00	19.25	0.00	0.00	0.00
6.50	0.00	0.00	0.00	19.50	0.00	0.00	0.00
6.75	0.00	0.00	0.00	19.75	0.00	0.00	0.00
7.00	0.00	0.00	0.00	20.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00				
7.50	0.00	0.00	0.00				
7.75	0.00	0.00	0.00				
8.00	0.00	0.00	0.00				
8.25	0.00	0.00	0.00				
8.50	0.00	0.00	0.00				
8.75	0.00	0.00	0.00				
9.00	0.00	0.00	0.00				
9.25	0.00	0.00	0.00				
9.50	0.00	0.00	0.00				
9.75	0.00	0.00	0.00				
10.00	0.00	0.00	0.00				
10.25	0.00	0.00	0.00				
10.50	0.00	0.00	0.00				
10.75	0.00	0.00	0.00				
11.00	0.00	0.00	0.00				
11.25	0.00	0.00	0.00				
11.50	0.00	0.00	0.00				
11.75	0.00	0.00	0.00				
12.00	0.00	0.00	0.00				
12.25	0.00	0.00	0.00				
12.50	0.00	0.00	0.00				
12.75	0.00	0.00	0.00				

Summary for Link Pre DP002: Pre-Development DP002

Inflow Area = 108,099 sf, 50.70% Impervious, Inflow Depth = 0.30" for MRC event
Inflow = 2.34 cfs @ 1.12 hrs, Volume= 2,723 cf
Primary = 2.34 cfs @ 1.12 hrs, Volume= 2,723 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Pre DP002: Pre-Development DP002



Hydrograph for Link Pre DP002: Pre-Development DP002

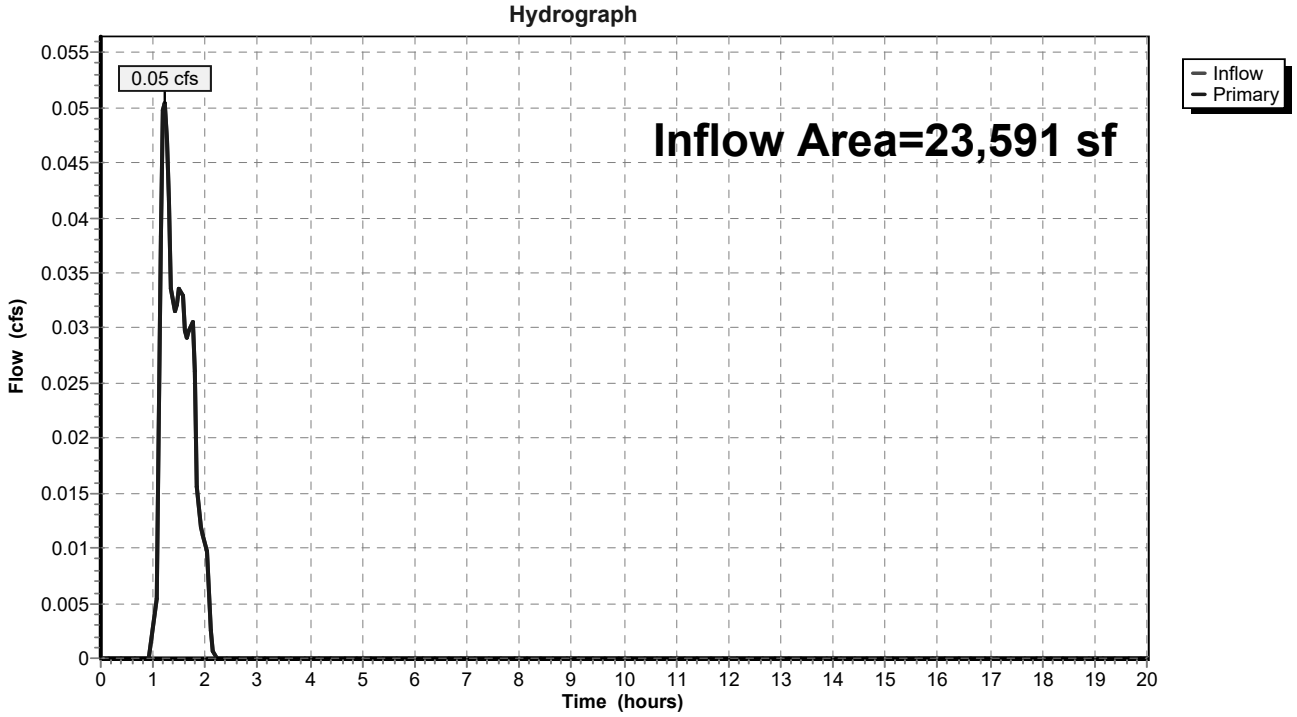
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	13.00	0.00	0.00	0.00
0.25	0.00	0.00	0.00	13.25	0.00	0.00	0.00
0.50	0.00	0.00	0.00	13.50	0.00	0.00	0.00
0.75	0.00	0.00	0.00	13.75	0.00	0.00	0.00
1.00	**0.52**	0.00	**0.52**	14.00	0.00	0.00	0.00
1.25	**1.06**	0.00	**1.06**	14.25	0.00	0.00	0.00
1.50	0.51	0.00	0.51	14.50	0.00	0.00	0.00
1.75	0.41	0.00	0.41	14.75	0.00	0.00	0.00
2.00	0.14	0.00	0.14	15.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00	15.25	0.00	0.00	0.00
2.50	0.00	0.00	0.00	15.50	0.00	0.00	0.00
2.75	0.00	0.00	0.00	15.75	0.00	0.00	0.00
3.00	0.00	0.00	0.00	16.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00	16.25	0.00	0.00	0.00
3.50	0.00	0.00	0.00	16.50	0.00	0.00	0.00
3.75	0.00	0.00	0.00	16.75	0.00	0.00	0.00
4.00	0.00	0.00	0.00	17.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00	17.25	0.00	0.00	0.00
4.50	0.00	0.00	0.00	17.50	0.00	0.00	0.00
4.75	0.00	0.00	0.00	17.75	0.00	0.00	0.00
5.00	0.00	0.00	0.00	18.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00	18.25	0.00	0.00	0.00
5.50	0.00	0.00	0.00	18.50	0.00	0.00	0.00
5.75	0.00	0.00	0.00	18.75	0.00	0.00	0.00
6.00	0.00	0.00	0.00	19.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00	19.25	0.00	0.00	0.00
6.50	0.00	0.00	0.00	19.50	0.00	0.00	0.00
6.75	0.00	0.00	0.00	19.75	0.00	0.00	0.00
7.00	0.00	0.00	0.00	20.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00				
7.50	0.00	0.00	0.00				
7.75	0.00	0.00	0.00				
8.00	0.00	0.00	0.00				
8.25	0.00	0.00	0.00				
8.50	0.00	0.00	0.00				
8.75	0.00	0.00	0.00				
9.00	0.00	0.00	0.00				
9.25	0.00	0.00	0.00				
9.50	0.00	0.00	0.00				
9.75	0.00	0.00	0.00				
10.00	0.00	0.00	0.00				
10.25	0.00	0.00	0.00				
10.50	0.00	0.00	0.00				
10.75	0.00	0.00	0.00				
11.00	0.00	0.00	0.00				
11.25	0.00	0.00	0.00				
11.50	0.00	0.00	0.00				
11.75	0.00	0.00	0.00				
12.00	0.00	0.00	0.00				
12.25	0.00	0.00	0.00				
12.50	0.00	0.00	0.00				
12.75	0.00	0.00	0.00				

Summary for Link Pre DP003: Pre-Development DP003

Inflow Area = 23,591 sf, 5.80% Impervious, Inflow Depth = 0.05" for MRC event
Inflow = 0.05 cfs @ 1.22 hrs, Volume= 101 cf
Primary = 0.05 cfs @ 1.22 hrs, Volume= 101 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Pre DP003: Pre-Development DP003



Hydrograph for Link Pre DP003: Pre-Development DP003

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	13.00	0.00	0.00	0.00
0.25	0.00	0.00	0.00	13.25	0.00	0.00	0.00
0.50	0.00	0.00	0.00	13.50	0.00	0.00	0.00
0.75	0.00	0.00	0.00	13.75	0.00	0.00	0.00
1.00	**0.00**	0.00	**0.00**	14.00	0.00	0.00	0.00
1.25	**0.05**	0.00	**0.05**	14.25	0.00	0.00	0.00
1.50	0.03	0.00	0.03	14.50	0.00	0.00	0.00
1.75	0.03	0.00	0.03	14.75	0.00	0.00	0.00
2.00	0.01	0.00	0.01	15.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00	15.25	0.00	0.00	0.00
2.50	0.00	0.00	0.00	15.50	0.00	0.00	0.00
2.75	0.00	0.00	0.00	15.75	0.00	0.00	0.00
3.00	0.00	0.00	0.00	16.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00	16.25	0.00	0.00	0.00
3.50	0.00	0.00	0.00	16.50	0.00	0.00	0.00
3.75	0.00	0.00	0.00	16.75	0.00	0.00	0.00
4.00	0.00	0.00	0.00	17.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00	17.25	0.00	0.00	0.00
4.50	0.00	0.00	0.00	17.50	0.00	0.00	0.00
4.75	0.00	0.00	0.00	17.75	0.00	0.00	0.00
5.00	0.00	0.00	0.00	18.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00	18.25	0.00	0.00	0.00
5.50	0.00	0.00	0.00	18.50	0.00	0.00	0.00
5.75	0.00	0.00	0.00	18.75	0.00	0.00	0.00
6.00	0.00	0.00	0.00	19.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00	19.25	0.00	0.00	0.00
6.50	0.00	0.00	0.00	19.50	0.00	0.00	0.00
6.75	0.00	0.00	0.00	19.75	0.00	0.00	0.00
7.00	0.00	0.00	0.00	20.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00				
7.50	0.00	0.00	0.00				
7.75	0.00	0.00	0.00				
8.00	0.00	0.00	0.00				
8.25	0.00	0.00	0.00				
8.50	0.00	0.00	0.00				
8.75	0.00	0.00	0.00				
9.00	0.00	0.00	0.00				
9.25	0.00	0.00	0.00				
9.50	0.00	0.00	0.00				
9.75	0.00	0.00	0.00				
10.00	0.00	0.00	0.00				
10.25	0.00	0.00	0.00				
10.50	0.00	0.00	0.00				
10.75	0.00	0.00	0.00				
11.00	0.00	0.00	0.00				
11.25	0.00	0.00	0.00				
11.50	0.00	0.00	0.00				
11.75	0.00	0.00	0.00				
12.00	0.00	0.00	0.00				
12.25	0.00	0.00	0.00				
12.50	0.00	0.00	0.00				
12.75	0.00	0.00	0.00				

Events for Subcatchment DA-1: DA-1

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
1-yr	2.72	1.07	1,993	0.70
2-yr	3.28	1.61	2,952	1.04
5-yr	4.12	2.48	4,559	1.61
10-yr	4.82	3.24	6,009	2.12
25-yr	5.83	4.39	8,227	2.90
50-yr	6.68	5.38	10,178	3.59
100-yr	**7.60**	**6.47**	**12,352**	**4.35**
MRC	1.25	0.16	247	0.09

Events for Subcatchment DA-2: DA-2

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
1-yr	2.72	6.05	11,248	1.25
2-yr	3.28	8.10	15,222	1.69
5-yr	4.12	11.23	21,493	2.39
10-yr	4.82	13.88	26,907	2.99
25-yr	5.83	17.71	34,917	3.88
50-yr	6.68	20.92	41,781	4.64
100-yr	**7.60**	**24.40**	**49,300**	**5.47**
MRC	1.25	2.34	2,723	0.30

Events for Subcatchment DA-3: DA-3

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
1-yr	2.72	0.60	1,130	0.57
2-yr	3.28	0.94	1,731	0.88
5-yr	4.12	1.50	2,760	1.40
10-yr	4.82	2.01	3,703	1.88
25-yr	5.83	2.78	5,163	2.63
50-yr	6.68	3.45	6,460	3.29
100-yr	**7.60**	**4.19**	**7,914**	**4.03**
MRC	1.25	0.05	101	0.05

Events for Link Pre DP001: Pre-Development DP001

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)
1-yr	1.07	1.07	**0.00**
2-yr	1.61	1.61	0.00
5-yr	2.48	2.48	0.00
10-yr	3.24	3.24	0.00
25-yr	4.39	4.39	0.00
50-yr	5.38	5.38	0.00
100-yr	**6.47**	**6.47**	0.00
MRC	0.16	0.16	0.00

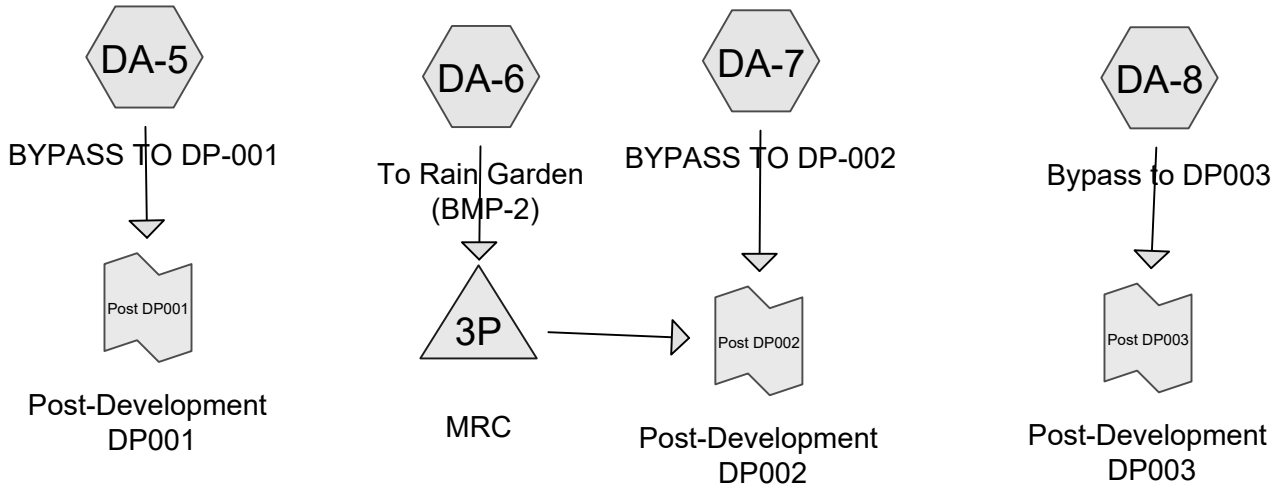
Events for Link Pre DP002: Pre-Development DP002

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)
1-yr	6.05	6.05	**0.00**
2-yr	8.10	8.10	0.00
5-yr	11.23	11.23	0.00
10-yr	13.88	13.88	0.00
25-yr	17.71	17.71	0.00
50-yr	20.92	20.92	0.00
100-yr	**24.40**	**24.40**	0.00
MRC	2.34	2.34	0.00

Events for Link Pre DP003: Pre-Development DP003

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)
1-yr	0.60	0.60	**0.00**
2-yr	0.94	0.94	0.00
5-yr	1.50	1.50	0.00
10-yr	2.01	2.01	0.00
25-yr	2.78	2.78	0.00
50-yr	3.45	3.45	0.00
100-yr	**4.19**	**4.19**	0.00
MRC	0.05	0.05	0.00

Appendix C



Subcat Reach Pond Link

Routing Diagram for 24039_Hydrocad
Prepared by Nave Newell Inc, Printed 10/17/2024
HydroCAD® 10.20-5a s/n 07511 © 2023 HydroCAD Software Solutions LLC

Summary for Subcatchment DA-5: BYPASS TO DP-001

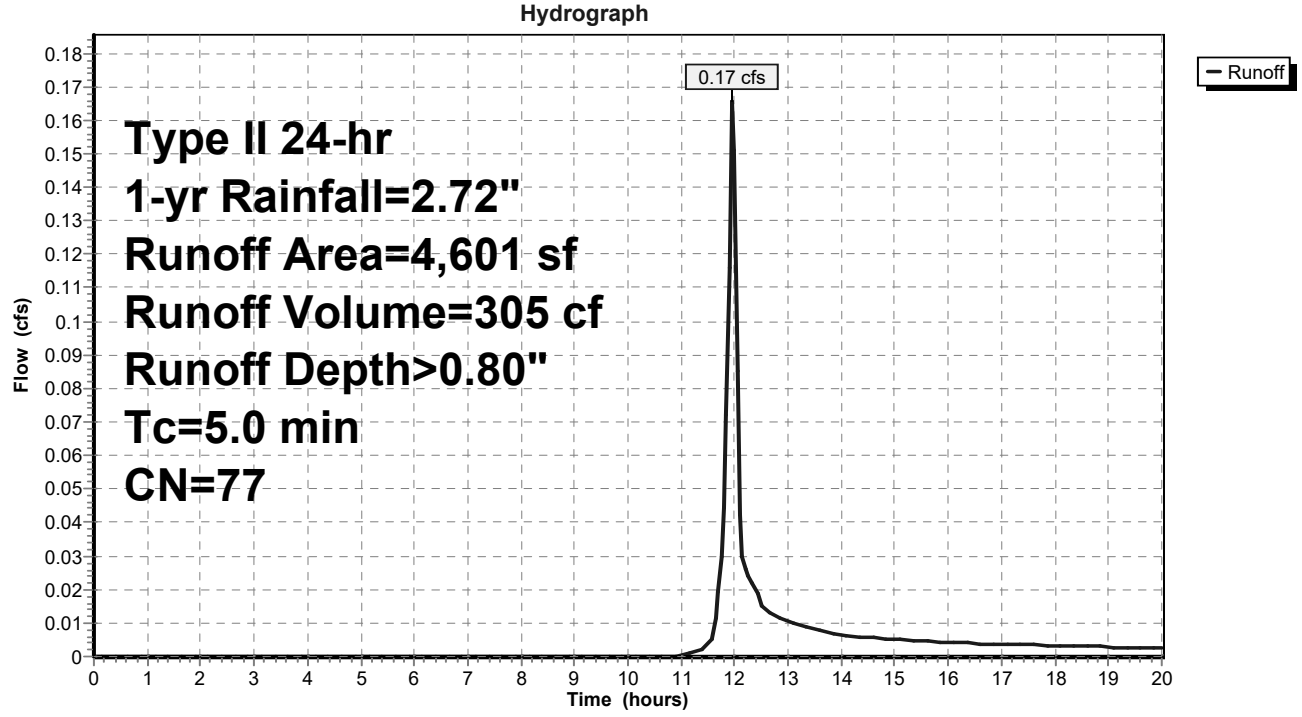
Runoff = 0.17 cfs @ 11.96 hrs, Volume= 305 cf, Depth> 0.80"
Routed to Link Post DP001 : Post-Development DP001

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-yr Rainfall=2.72"

Area (sf)	CN	Description
1,989	74	>75% Grass cover, Good, HSG C
2,612	80	>75% Grass cover, Good, HSG D
4,601	77	Weighted Average
4,601		100.00% Pervious Area

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

Subcatchment DA-5: BYPASS TO DP-001



Hydrograph for Subcatchment DA-5: BYPASS TO DP-001

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.01	0.00	0.00
0.75	0.02	0.00	0.00
1.00	0.03	0.00	0.00
1.25	0.04	0.00	0.00
1.50	0.04	0.00	0.00
1.75	0.05	0.00	0.00
2.00	0.06	0.00	0.00
2.25	0.07	0.00	0.00
2.50	0.08	0.00	0.00
2.75	0.09	0.00	0.00
3.00	0.09	0.00	0.00
3.25	0.10	0.00	0.00
3.50	0.11	0.00	0.00
3.75	0.12	0.00	0.00
4.00	0.13	0.00	0.00
4.25	0.14	0.00	0.00
4.50	0.15	0.00	0.00
4.75	0.16	0.00	0.00
5.00	0.17	0.00	0.00
5.25	0.18	0.00	0.00
5.50	0.19	0.00	0.00
5.75	0.21	0.00	0.00
6.00	0.22	0.00	0.00
6.25	0.23	0.00	0.00
6.50	0.24	0.00	0.00
6.75	0.26	0.00	0.00
7.00	0.27	0.00	0.00
7.25	0.28	0.00	0.00
7.50	0.30	0.00	0.00
7.75	0.31	0.00	0.00
8.00	0.33	0.00	0.00
8.25	0.34	0.00	0.00
8.50	0.36	0.00	0.00
8.75	0.38	0.00	0.00
9.00	0.40	0.00	0.00
9.25	0.42	0.00	0.00
9.50	0.44	0.00	0.00
9.75	0.47	0.00	0.00
10.00	0.49	0.00	0.00
10.25	0.52	0.00	0.00
10.50	0.55	0.00	0.00
10.75	0.59	0.00	0.00
11.00	0.64	0.00	0.00
11.25	0.70	0.00	0.00
11.50	0.77	0.01	0.00
11.75	1.05	0.06	**0.03**
12.00	1.80	0.35	**0.15**
12.25	1.92	0.41	0.02
12.50	2.00	0.45	0.02
12.75	2.05	0.48	0.01
13.00	2.10	0.50	0.01
13.25	2.14	0.52	0.01
13.50	2.17	0.54	0.01
13.75	2.20	0.56	0.01
14.00	2.23	0.58	0.01
14.25	2.25	0.59	0.01
14.50	2.28	0.61	0.01
14.75	2.30	0.62	0.01
15.00	2.32	0.63	0.01
15.25	2.34	0.64	0.01
15.50	2.36	0.65	0.00
15.75	2.38	0.66	0.00
16.00	2.39	0.67	0.00
16.25	2.41	0.68	0.00
16.50	2.42	0.69	0.00
16.75	2.44	0.70	0.00
17.00	2.45	0.71	0.00
17.25	2.47	0.72	0.00
17.50	2.48	0.73	0.00
17.75	2.49	0.74	0.00
18.00	2.51	0.74	0.00
18.25	2.52	0.75	0.00
18.50	2.53	0.76	0.00
18.75	2.54	0.77	0.00
19.00	2.55	0.77	0.00
19.25	2.56	0.78	0.00
19.50	2.57	0.79	0.00
19.75	2.58	0.79	0.00
20.00	**2.59**	**0.80**	0.00

Summary for Subcatchment DA-6: To Rain Garden (BMP-2)

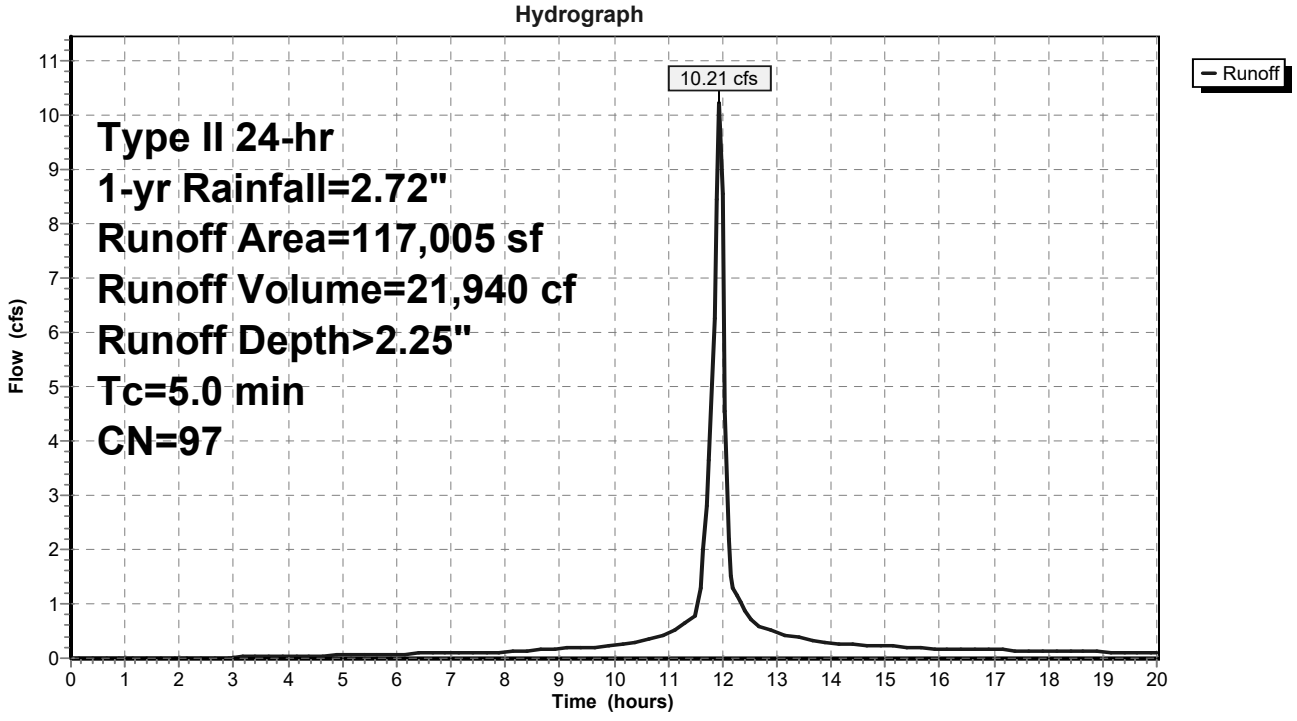
Runoff = 10.21 cfs @ 11.95 hrs, Volume= 21,940 cf, Depth> 2.25"
Routed to Pond 3P : MRC

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-yr Rainfall=2.72"

	Area (sf)	CN	Description
*	111,197	98	Paved parking, All HSGs
	5,808	74	>75% Grass cover, Good, HSG C
	117,005	97	Weighted Average
	5,808		4.96% Pervious Area
	111,197		95.04% Impervious Area

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

Subcatchment DA-6: To Rain Garden (BMP-2)



Hydrograph for Subcatchment DA-6: To Rain Garden (BMP-2)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.01	0.00	0.00
0.75	0.02	0.00	0.00
1.00	0.03	0.00	0.00
1.25	0.04	0.00	0.00
1.50	0.04	0.00	0.00
1.75	0.05	0.00	0.00
2.00	0.06	0.00	0.00
2.25	0.07	0.00	0.00
2.50	0.08	0.00	0.01
2.75	0.09	0.00	0.01
3.00	0.09	0.00	0.02
3.25	0.10	0.00	0.02
3.50	0.11	0.01	0.02
3.75	0.12	0.01	0.03
4.00	0.13	0.01	0.03
4.25	0.14	0.02	0.04
4.50	0.15	0.02	0.04
4.75	0.16	0.02	0.05
5.00	0.17	0.03	0.05
5.25	0.18	0.03	0.06
5.50	0.19	0.04	0.06
5.75	0.21	0.05	0.07
6.00	0.22	0.05	0.07
6.25	0.23	0.06	0.08
6.50	0.24	0.07	0.08
6.75	0.26	0.07	0.09
7.00	0.27	0.08	0.09
7.25	0.28	0.09	0.10
7.50	0.30	0.10	0.10
7.75	0.31	0.11	0.11
8.00	0.33	0.12	0.11
8.25	0.34	0.13	0.13
8.50	0.36	0.15	0.14
8.75	0.38	0.16	0.16
9.00	0.40	0.18	0.18
9.25	0.42	0.19	0.18
9.50	0.44	0.21	0.19
9.75	0.47	0.23	0.21
10.00	0.49	0.25	0.23
10.25	0.52	0.27	0.27
10.50	0.55	0.30	0.31
10.75	0.59	0.34	0.37
11.00	0.64	0.38	0.44
11.25	0.70	0.43	0.58
11.50	0.77	0.49	0.75
11.75	1.05	0.76	**3.63**
12.00	1.80	1.48	**8.54**
12.25	1.92	1.59	1.17
12.50	2.00	1.67	0.76
12.75	2.05	1.72	0.56
13.00	2.10	1.77	0.47
13.25	2.14	1.81	0.41
13.50	2.17	1.84	0.36
13.75	2.20	1.87	0.32
14.00	2.23	1.90	0.28
14.25	2.25	1.92	0.26
14.50	2.28	1.95	0.25
14.75	2.30	1.97	0.23
15.00	2.32	1.99	0.22
15.25	2.34	2.01	0.21
15.50	2.36	2.03	0.20
15.75	2.38	2.04	0.18
16.00	2.39	2.06	0.17
16.25	2.41	2.07	0.16
16.50	2.42	2.09	0.16
16.75	2.44	2.10	0.15
17.00	2.45	2.12	0.15
17.25	2.47	2.13	0.15
17.50	2.48	2.14	0.14
17.75	2.49	2.16	0.14
18.00	2.51	2.17	0.13
18.25	2.52	2.18	0.13
18.50	2.53	2.19	0.12
18.75	2.54	2.20	0.12
19.00	2.55	2.21	0.11
19.25	2.56	2.22	0.11
19.50	2.57	2.23	0.11
19.75	2.58	2.24	0.10
20.00	**2.59**	**2.25**	0.10

Summary for Subcatchment DA-7: BYPASS TO DP-002

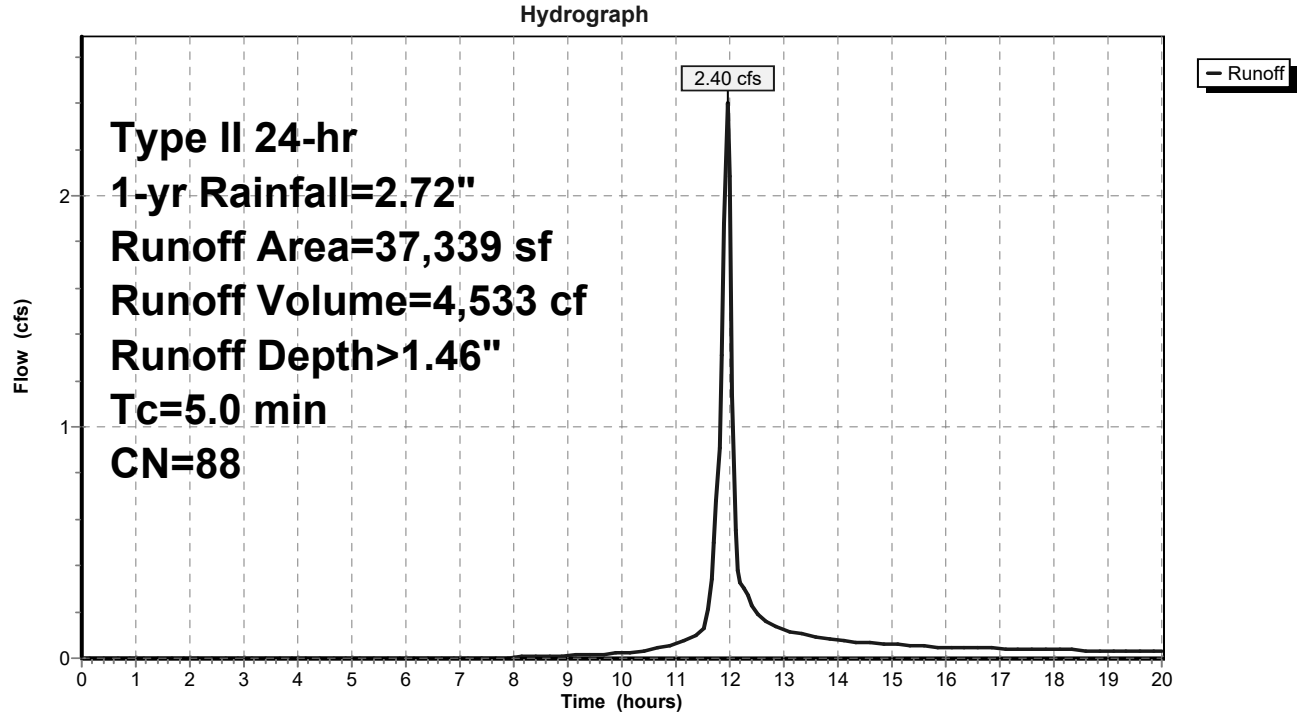
Runoff = 2.40 cfs @ 11.96 hrs, Volume= 4,533 cf, Depth> 1.46"
Routed to Link Post DP002 : Post-Development DP002

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-yr Rainfall=2.72"

Area (sf)	CN	Description
15,016	74	>75% Grass cover, Good, HSG C
22,323	98	Paved parking, HSG C
37,339	88	Weighted Average
15,016		40.22% Pervious Area
22,323		59.78% Impervious Area

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

Subcatchment DA-7: BYPASS TO DP-002



Hydrograph for Subcatchment DA-7: BYPASS TO DP-002

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.01	0.00	0.00
0.75	0.02	0.00	0.00
1.00	0.03	0.00	0.00
1.25	0.04	0.00	0.00
1.50	0.04	0.00	0.00
1.75	0.05	0.00	0.00
2.00	0.06	0.00	0.00
2.25	0.07	0.00	0.00
2.50	0.08	0.00	0.00
2.75	0.09	0.00	0.00
3.00	0.09	0.00	0.00
3.25	0.10	0.00	0.00
3.50	0.11	0.00	0.00
3.75	0.12	0.00	0.00
4.00	0.13	0.00	0.00
4.25	0.14	0.00	0.00
4.50	0.15	0.00	0.00
4.75	0.16	0.00	0.00
5.00	0.17	0.00	0.00
5.25	0.18	0.00	0.00
5.50	0.19	0.00	0.00
5.75	0.21	0.00	0.00
6.00	0.22	0.00	0.00
6.25	0.23	0.00	0.00
6.50	0.24	0.00	0.00
6.75	0.26	0.00	0.00
7.00	0.27	0.00	0.00
7.25	0.28	0.00	0.00
7.50	0.30	0.00	0.00
7.75	0.31	0.00	0.00
8.00	0.33	0.00	0.00
8.25	0.34	0.00	0.00
8.50	0.36	0.01	0.01
8.75	0.38	0.01	0.01
9.00	0.40	0.01	0.01
9.25	0.42	0.01	0.01
9.50	0.44	0.02	0.02
9.75	0.47	0.02	0.02
10.00	0.49	0.03	0.02
10.25	0.52	0.04	0.03
10.50	0.55	0.05	0.04
10.75	0.59	0.06	0.05
11.00	0.64	0.08	0.06
11.25	0.70	0.10	0.08
11.50	0.77	0.13	0.12
11.75	1.05	0.28	**0.68**
12.00	1.80	0.81	**2.08**
12.25	1.92	0.90	0.30
12.50	2.00	0.96	0.20
12.75	2.05	1.01	0.15
13.00	2.10	1.05	0.12
13.25	2.14	1.08	0.11
13.50	2.17	1.11	0.10
13.75	2.20	1.13	0.08
14.00	2.23	1.15	0.08
14.25	2.25	1.17	0.07
14.50	2.28	1.19	0.07
14.75	2.30	1.21	0.06
15.00	2.32	1.23	0.06
15.25	2.34	1.25	0.06
15.50	2.36	1.26	0.05
15.75	2.38	1.28	0.05
16.00	2.39	1.29	0.05
16.25	2.41	1.30	0.04
16.50	2.42	1.32	0.04
16.75	2.44	1.33	0.04
17.00	2.45	1.34	0.04
17.25	2.47	1.35	0.04
17.50	2.48	1.36	0.04
17.75	2.49	1.38	0.04
18.00	2.51	1.39	0.04
18.25	2.52	1.40	0.04
18.50	2.53	1.41	0.03
18.75	2.54	1.42	0.03
19.00	2.55	1.42	0.03
19.25	2.56	1.43	0.03
19.50	2.57	1.44	0.03
19.75	2.58	1.45	0.03
20.00	**2.59**	**1.46**	0.03

Summary for Subcatchment DA-8: Bypass to DP003

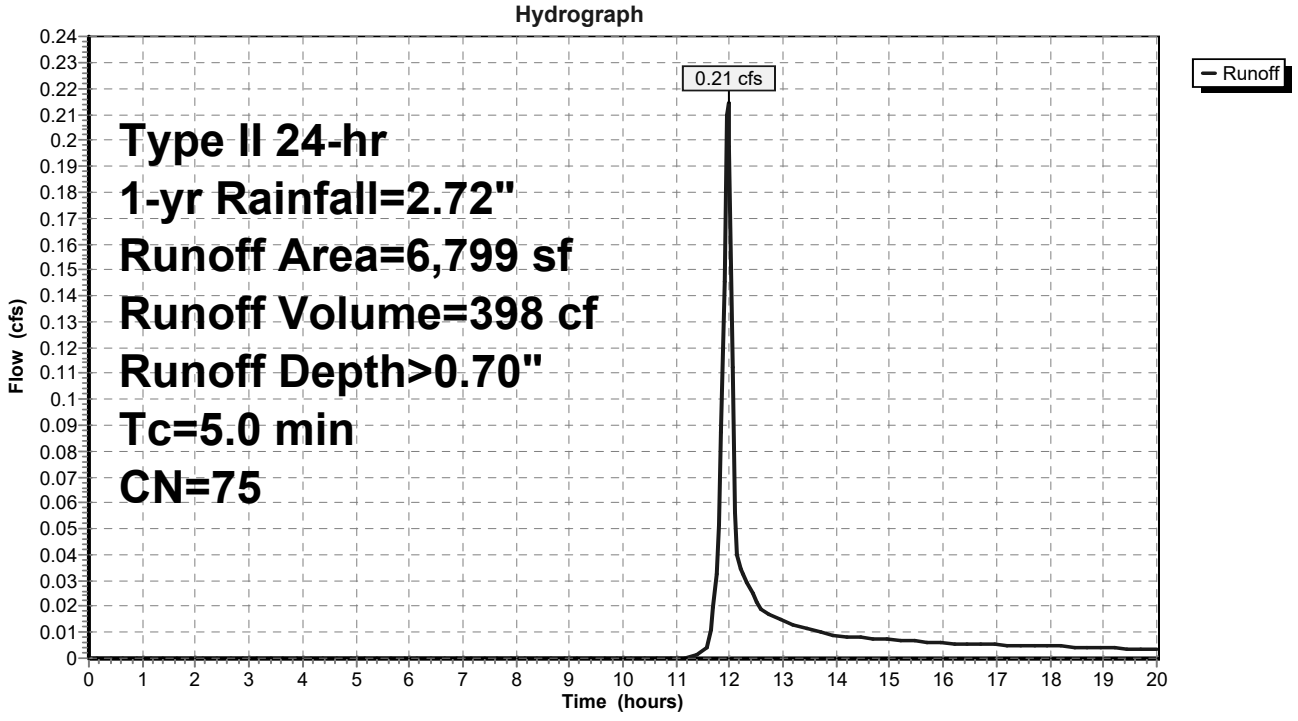
Runoff = 0.21 cfs @ 11.97 hrs, Volume= 398 cf, Depth> 0.70"
Routed to Link Post DP003 : Post-Development DP003

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-yr Rainfall=2.72"

Area (sf)	CN	Description
6,532	74	>75% Grass cover, Good, HSG C
267	98	Paved parking, HSG C
6,799	75	Weighted Average
6,532		96.07% Pervious Area
267		3.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc-1**

Subcatchment DA-8: Bypass to DP003



Hydrograph for Subcatchment DA-8: Bypass to DP003

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.01	0.00	0.00
0.75	0.02	0.00	0.00
1.00	0.03	0.00	0.00
1.25	0.04	0.00	0.00
1.50	0.04	0.00	0.00
1.75	0.05	0.00	0.00
2.00	0.06	0.00	0.00
2.25	0.07	0.00	0.00
2.50	0.08	0.00	0.00
2.75	0.09	0.00	0.00
3.00	0.09	0.00	0.00
3.25	0.10	0.00	0.00
3.50	0.11	0.00	0.00
3.75	0.12	0.00	0.00
4.00	0.13	0.00	0.00
4.25	0.14	0.00	0.00
4.50	0.15	0.00	0.00
4.75	0.16	0.00	0.00
5.00	0.17	0.00	0.00
5.25	0.18	0.00	0.00
5.50	0.19	0.00	0.00
5.75	0.21	0.00	0.00
6.00	0.22	0.00	0.00
6.25	0.23	0.00	0.00
6.50	0.24	0.00	0.00
6.75	0.26	0.00	0.00
7.00	0.27	0.00	0.00
7.25	0.28	0.00	0.00
7.50	0.30	0.00	0.00
7.75	0.31	0.00	0.00
8.00	0.33	0.00	0.00
8.25	0.34	0.00	0.00
8.50	0.36	0.00	0.00
8.75	0.38	0.00	0.00
9.00	0.40	0.00	0.00
9.25	0.42	0.00	0.00
9.50	0.44	0.00	0.00
9.75	0.47	0.00	0.00
10.00	0.49	0.00	0.00
10.25	0.52	0.00	0.00
10.50	0.55	0.00	0.00
10.75	0.59	0.00	0.00
11.00	0.64	0.00	0.00
11.25	0.70	0.00	0.00
11.50	0.77	0.00	0.00
11.75	1.05	0.04	**0.03**
12.00	1.80	0.29	**0.20**
12.25	1.92	0.34	0.03
12.50	2.00	0.38	0.02
12.75	2.05	0.41	0.02
13.00	2.10	0.43	0.01
13.25	2.14	0.45	0.01
13.50	2.17	0.47	0.01
13.75	2.20	0.48	0.01
14.00	2.23	0.50	0.01
14.25	2.25	0.51	0.01
14.50	2.28	0.53	0.01
14.75	2.30	0.54	0.01
15.00	2.32	0.55	0.01
15.25	2.34	0.56	0.01
15.50	2.36	0.57	0.01
15.75	2.38	0.58	0.01
16.00	2.39	0.59	0.01
16.25	2.41	0.60	0.01
16.50	2.42	0.61	0.01
16.75	2.44	0.62	0.01
17.00	2.45	0.62	0.01
17.25	2.47	0.63	0.00
17.50	2.48	0.64	0.00
17.75	2.49	0.65	0.00
18.00	2.51	0.65	0.00
18.25	2.52	0.66	0.00
18.50	2.53	0.67	0.00
18.75	2.54	0.67	0.00
19.00	2.55	0.68	0.00
19.25	2.56	0.69	0.00
19.50	2.57	0.69	0.00
19.75	2.58	0.70	0.00
20.00	**2.59**	**0.70**	0.00

Summary for Pond 3P: MRC

Inflow Area = 117,005 sf, 95.04% Impervious, Inflow Depth > 2.25" for 1-yr event
Inflow = 10.21 cfs @ 11.95 hrs, Volume= 21,940 cf
Outflow = 0.29 cfs @ 13.93 hrs, Volume= 7,983 cf, Atten= 97%, Lag= 118.7 min
Primary = 0.29 cfs @ 13.93 hrs, Volume= 7,983 cf
Routed to Link Post DP002 : Post-Development DP002

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 194.71' @ 13.93 hrs Surf.Area= 31,076 sf Storage= 16,134 cf

Plug-Flow detention time= 319.7 min calculated for 7,963 cf (36% of inflow)
Center-of-Mass det. time= 203.6 min (937.2 - 733.6)

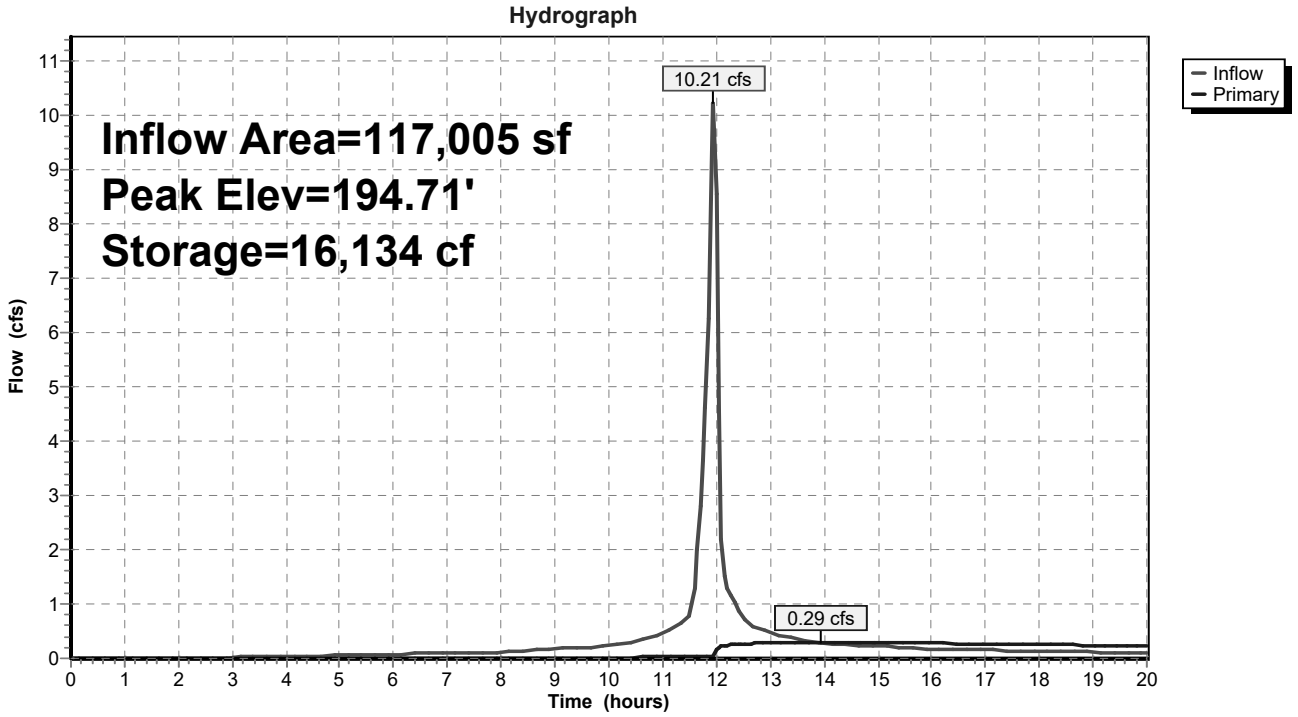
Volume	Invert	Avail.Storage	Storage Description
#1	192.55'	0 cf	**100.00'W x 150.00'L x 1.00'H Prismatoid** 15,000 cf Overall x 0.0% Voids
#2A	193.55'	16,872 cf	**126.00'W x 127.59'L x 4.75'H Field A** 76,363 cf Overall - 34,182 cf Embedded = 42,181 cf x 40.0% Voids
#3A	193.55'	34,182 cf	**ADS_StormTech MC-3500 d +Cap**x 306 Inside #2 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 306 Chambers in 18 Rows Cap Storage= 14.9 cf x 2 x 18 rows = 536.4 cf
		51,054 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	193.55'	**18.0" Round 18" Outlet** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 193.55' / 192.00' S= 0.0775 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	192.55'	**1.2" Vert. MRC Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	194.19'	**4.0" Vert. 4" Circular Orifice** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.29 cfs @ 13.93 hrs HW=194.71' (Free Discharge)
└**1=18" Outlet** (Passes 0.29 cfs of 5.37 cfs potential flow)
  ├**2=MRC Orifice** (Orifice Controls 0.04 cfs @ 5.18 fps)
  └**3=4" Circular Orifice** (Orifice Controls 0.25 cfs @ 2.86 fps)

Pond 3P: MRC


Hydrograph
Inflow Area=117,005 sf
Peak Elev=194.71'
Storage=16,134 cf
10.21 cfs
0.29 cfs
Inflow
Primary
Flow (cfs)
Time (hours)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
0 1 2 3 4 5 6 7 8 9 10 11

Hydrograph for Pond 3P: MRC

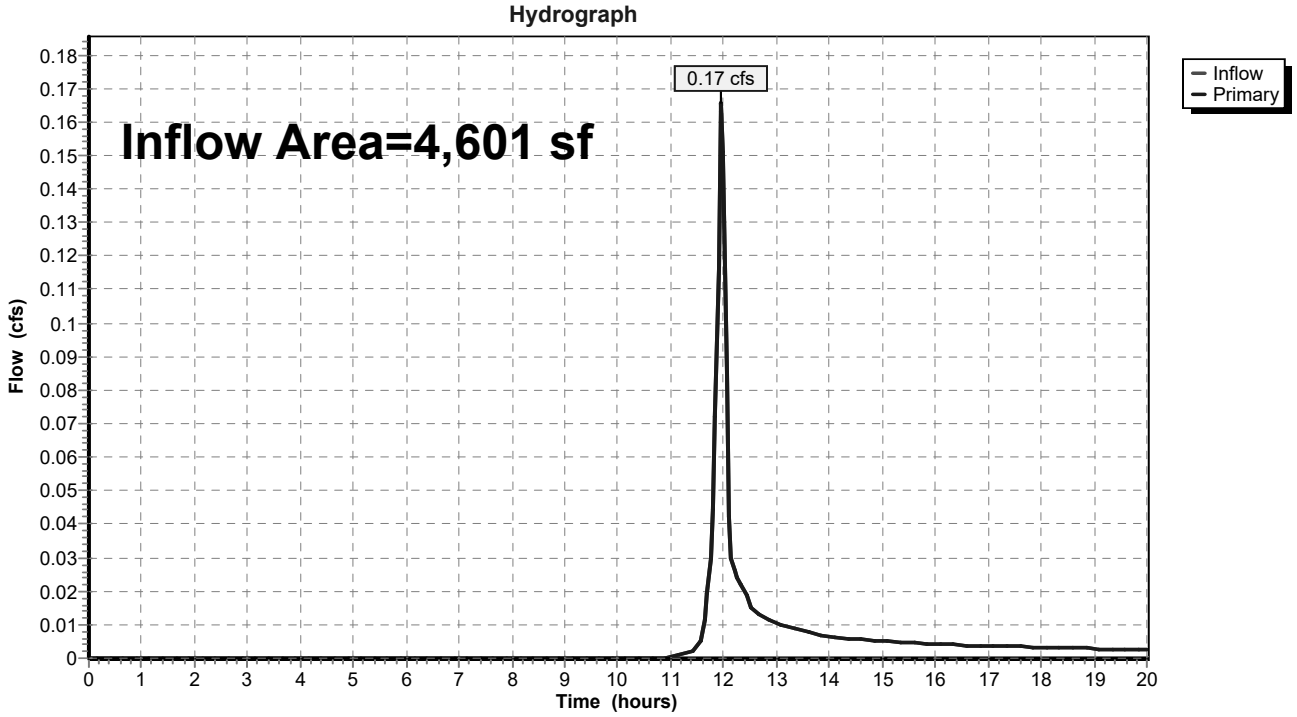
Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	192.55	0.00
0.50	0.00	0	192.55	0.00
1.00	0.00	0	192.55	0.00
1.50	0.00	0	192.55	0.00
2.00	0.00	0	192.55	0.00
2.50	0.01	4	193.55	0.00
3.00	0.02	24	193.55	0.00
3.50	0.02	60	193.55	0.00
4.00	0.03	109	193.56	0.00
4.50	0.04	173	193.56	0.00
5.00	0.05	253	193.57	0.00
5.50	0.06	348	193.57	0.00
6.00	0.07	459	193.58	0.01
6.50	0.08	586	193.59	0.01
7.00	0.09	731	193.60	0.01
7.50	0.10	892	193.61	0.01
8.00	0.11	1,069	193.62	0.01
8.50	0.14	1,277	193.64	0.01
9.00	0.18	1,542	193.66	0.01
9.50	0.19	1,850	193.68	0.01
10.00	0.23	2,199	193.70	0.01
10.50	0.31	2,660	193.74	0.02
11.00	0.44	3,303	193.78	0.02
11.50	**0.75**	4,319	193.85	0.02
12.00	**8.54**	12,305	194.43	0.15
12.50	0.76	15,328	194.65	0.27
13.00	0.47	15,865	194.69	0.28
13.50	0.36	**16,085**	**194.70**	**0.29**
14.00	0.28	**16,133**	**194.71**	**0.29**
14.50	0.25	16,081	194.70	0.29
15.00	0.22	15,986	194.70	0.29
15.50	0.20	15,851	194.69	0.28
16.00	0.17	15,679	194.67	0.28
16.50	0.16	15,481	194.66	0.27
17.00	0.15	15,277	194.65	0.27
17.50	0.14	15,068	194.63	0.26
18.00	0.13	14,855	194.61	0.25
18.50	0.12	14,638	194.60	0.24
19.00	0.11	14,417	194.58	0.24
19.50	0.11	14,194	194.57	0.23
20.00	0.10	13,968	194.55	0.22

Summary for Link Post DP001: Post-Development DP001

Inflow Area = 4,601 sf, 0.00% Impervious, Inflow Depth > 0.80" for 1-yr event
Inflow = 0.17 cfs @ 11.96 hrs, Volume= 305 cf
Primary = 0.17 cfs @ 11.96 hrs, Volume= 305 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Post DP001: Post-Development DP001



Hydrograph for Link Post DP001: Post-Development DP001

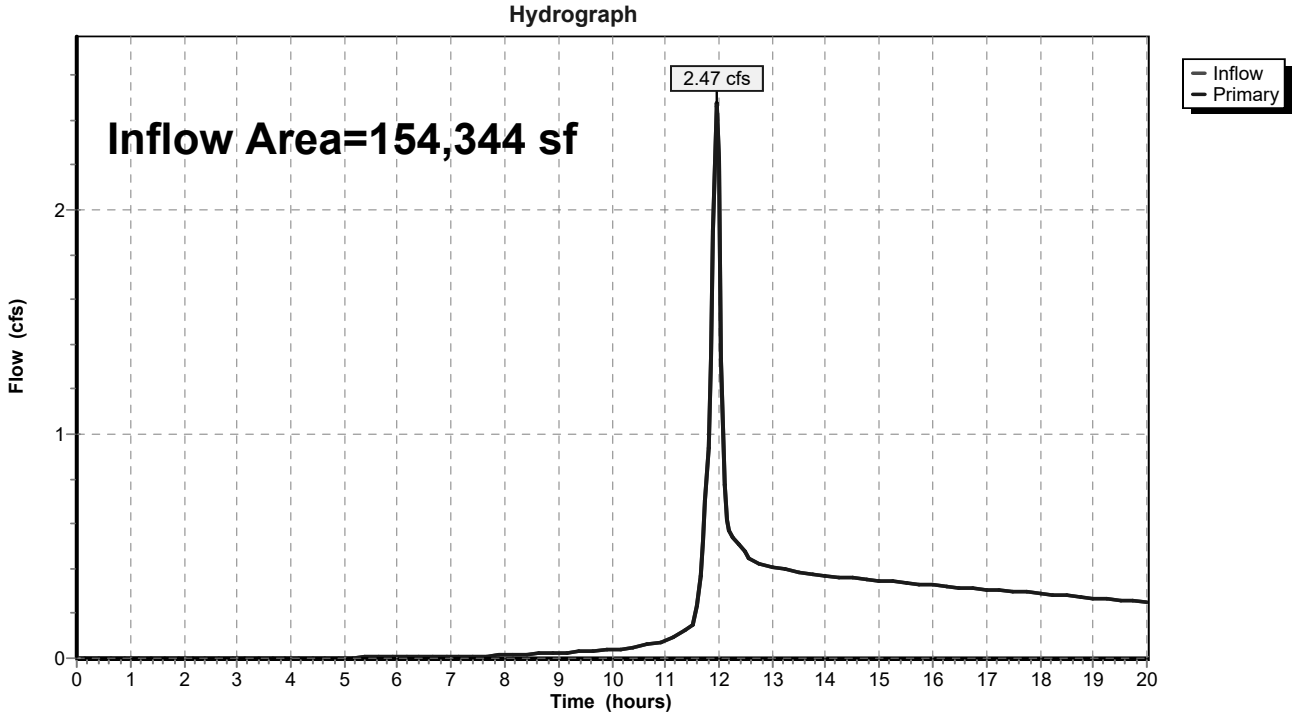
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
0.25	0.00	0.00	0.00
0.50	0.00	0.00	0.00
0.75	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00
1.50	0.00	0.00	0.00
1.75	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00
2.50	0.00	0.00	0.00
2.75	0.00	0.00	0.00
3.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00
3.50	0.00	0.00	0.00
3.75	0.00	0.00	0.00
4.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00
4.50	0.00	0.00	0.00
4.75	0.00	0.00	0.00
5.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00
5.50	0.00	0.00	0.00
5.75	0.00	0.00	0.00
6.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00
6.50	0.00	0.00	0.00
6.75	0.00	0.00	0.00
7.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00
7.50	0.00	0.00	0.00
7.75	0.00	0.00	0.00
8.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00
8.50	0.00	0.00	0.00
8.75	0.00	0.00	0.00
9.00	0.00	0.00	0.00
9.25	0.00	0.00	0.00
9.50	0.00	0.00	0.00
9.75	0.00	0.00	0.00
10.00	0.00	0.00	0.00
10.25	0.00	0.00	0.00
10.50	0.00	0.00	0.00
10.75	0.00	0.00	0.00
11.00	0.00	0.00	0.00
11.25	0.00	0.00	0.00
11.50	0.00	0.00	0.00
11.75	**0.03**	0.00	**0.03**
12.00	**0.15**	0.00	**0.15**
12.25	0.02	0.00	0.02
12.50	0.02	0.00	0.02
12.75	0.01	0.00	0.01
13.00	0.01	0.00	0.01
13.25	0.01	0.00	0.01
13.50	0.01	0.00	0.01
13.75	0.01	0.00	0.01
14.00	0.01	0.00	0.01
14.25	0.01	0.00	0.01
14.50	0.01	0.00	0.01
14.75	0.01	0.00	0.01
15.00	0.01	0.00	0.01
15.25	0.01	0.00	0.01
15.50	0.00	0.00	0.00
15.75	0.00	0.00	0.00
16.00	0.00	0.00	0.00
16.25	0.00	0.00	0.00
16.50	0.00	0.00	0.00
16.75	0.00	0.00	0.00
17.00	0.00	0.00	0.00
17.25	0.00	0.00	0.00
17.50	0.00	0.00	0.00
17.75	0.00	0.00	0.00
18.00	0.00	0.00	0.00
18.25	0.00	0.00	0.00
18.50	0.00	0.00	0.00
18.75	0.00	0.00	0.00
19.00	0.00	0.00	0.00
19.25	0.00	0.00	0.00
19.50	0.00	0.00	0.00
19.75	0.00	0.00	0.00
20.00	0.00	0.00	0.00

Summary for Link Post DP002: Post-Development DP002

Inflow Area = 154,344 sf, 86.51% Impervious, Inflow Depth > 0.97" for 1-yr event
Inflow = 2.47 cfs @ 11.96 hrs, Volume= 12,516 cf
Primary = 2.47 cfs @ 11.96 hrs, Volume= 12,516 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Post DP002: Post-Development DP002



Hydrograph for Link Post DP002: Post-Development DP002

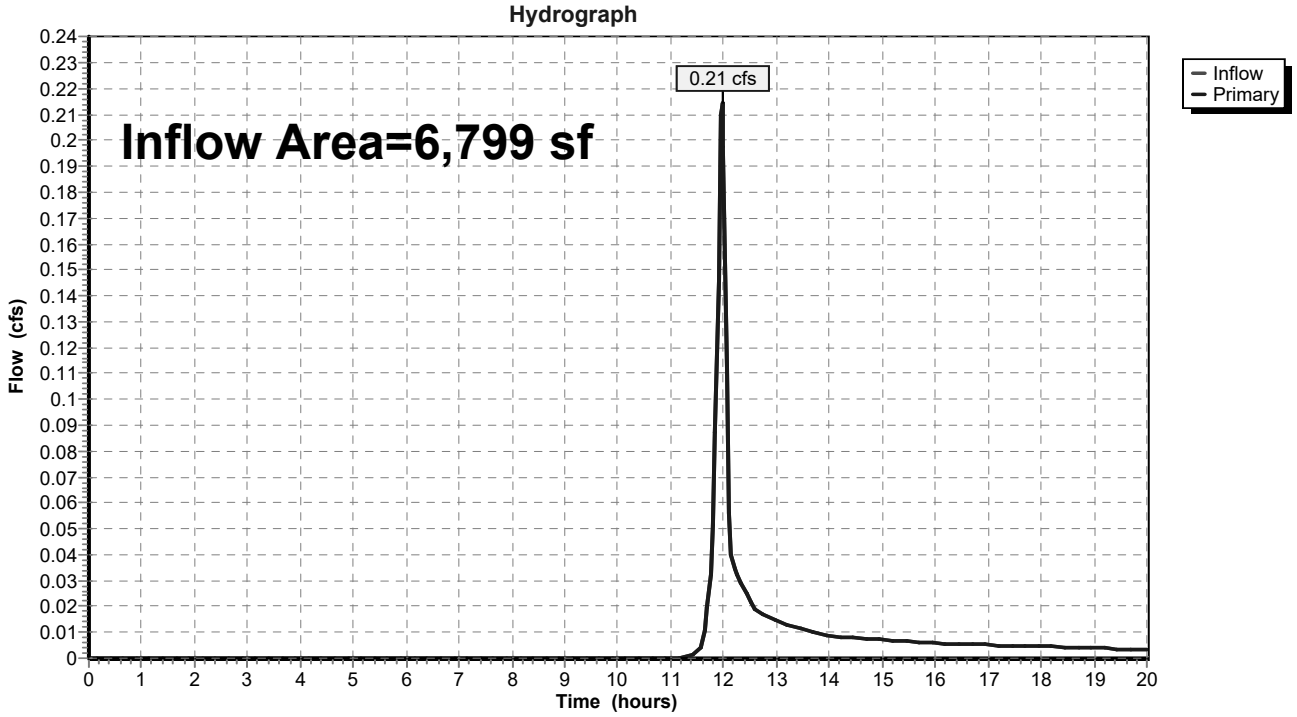
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
0.25	0.00	0.00	0.00
0.50	0.00	0.00	0.00
0.75	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00
1.50	0.00	0.00	0.00
1.75	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00
2.50	0.00	0.00	0.00
2.75	0.00	0.00	0.00
3.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00
3.50	0.00	0.00	0.00
3.75	0.00	0.00	0.00
4.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00
4.50	0.00	0.00	0.00
4.75	0.00	0.00	0.00
5.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00
5.50	0.00	0.00	0.00
5.75	0.01	0.00	0.01
6.00	0.01	0.00	0.01
6.25	0.01	0.00	0.01
6.50	0.01	0.00	0.01
6.75	0.01	0.00	0.01
7.00	0.01	0.00	0.01
7.25	0.01	0.00	0.01
7.50	0.01	0.00	0.01
7.75	0.01	0.00	0.01
8.00	0.01	0.00	0.01
8.25	0.02	0.00	0.02
8.50	0.02	0.00	0.02
8.75	0.02	0.00	0.02
9.00	0.02	0.00	0.02
9.25	0.03	0.00	0.03
9.50	0.03	0.00	0.03
9.75	0.03	0.00	0.03
10.00	0.04	0.00	0.04
10.25	0.04	0.00	0.04
10.50	0.05	0.00	0.05
10.75	0.06	0.00	0.06
11.00	0.08	0.00	0.08
11.25	0.10	0.00	0.10
11.50	0.14	0.00	0.14
11.75	**0.70**	0.00	**0.70**
12.00	**2.22**	0.00	**2.22**
12.25	0.55	0.00	0.55
12.50	0.46	0.00	0.46
12.75	0.42	0.00	0.42
13.00	0.41	0.00	0.41
13.25	0.39	0.00	0.39
13.50	0.38	0.00	0.38
13.75	0.37	0.00	0.37
14.00	0.37	0.00	0.37
14.25	0.36	0.00	0.36
14.50	0.36	0.00	0.36
14.75	0.35	0.00	0.35
15.00	0.35	0.00	0.35
15.25	0.34	0.00	0.34
15.50	0.34	0.00	0.34
15.75	0.33	0.00	0.33
16.00	0.32	0.00	0.32
16.25	0.32	0.00	0.32
16.50	0.31	0.00	0.31
16.75	0.31	0.00	0.31
17.00	0.31	0.00	0.31
17.25	0.30	0.00	0.30
17.50	0.30	0.00	0.30
17.75	0.29	0.00	0.29
18.00	0.29	0.00	0.29
18.25	0.28	0.00	0.28
18.50	0.28	0.00	0.28
18.75	0.27	0.00	0.27
19.00	0.27	0.00	0.27
19.25	0.26	0.00	0.26
19.50	0.26	0.00	0.26
19.75	0.25	0.00	0.25
20.00	0.25	0.00	0.25

Summary for Link Post DP003: Post-Development DP003

Inflow Area = 6,799 sf, 3.93% Impervious, Inflow Depth > 0.70" for 1-yr event
Inflow = 0.21 cfs @ 11.97 hrs, Volume= 398 cf
Primary = 0.21 cfs @ 11.97 hrs, Volume= 398 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Post DP003: Post-Development DP003



Hydrograph for Link Post DP003: Post-Development DP003

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
0.25	0.00	0.00	0.00
0.50	0.00	0.00	0.00
0.75	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00
1.50	0.00	0.00	0.00
1.75	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00
2.50	0.00	0.00	0.00
2.75	0.00	0.00	0.00
3.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00
3.50	0.00	0.00	0.00
3.75	0.00	0.00	0.00
4.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00
4.50	0.00	0.00	0.00
4.75	0.00	0.00	0.00
5.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00
5.50	0.00	0.00	0.00
5.75	0.00	0.00	0.00
6.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00
6.50	0.00	0.00	0.00
6.75	0.00	0.00	0.00
7.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00
7.50	0.00	0.00	0.00
7.75	0.00	0.00	0.00
8.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00
8.50	0.00	0.00	0.00
8.75	0.00	0.00	0.00
9.00	0.00	0.00	0.00
9.25	0.00	0.00	0.00
9.50	0.00	0.00	0.00
9.75	0.00	0.00	0.00
10.00	0.00	0.00	0.00
10.25	0.00	0.00	0.00
10.50	0.00	0.00	0.00
10.75	0.00	0.00	0.00
11.00	0.00	0.00	0.00
11.25	0.00	0.00	0.00
11.50	0.00	0.00	0.00
11.75	**0.03**	0.00	**0.03**
12.00	**0.20**	0.00	**0.20**
12.25	0.03	0.00	0.03
12.50	0.02	0.00	0.02
12.75	0.02	0.00	0.02
13.00	0.01	0.00	0.01
13.25	0.01	0.00	0.01
13.50	0.01	0.00	0.01
13.75	0.01	0.00	0.01
14.00	0.01	0.00	0.01
14.25	0.01	0.00	0.01
14.50	0.01	0.00	0.01
14.75	0.01	0.00	0.01
15.00	0.01	0.00	0.01
15.25	0.01	0.00	0.01
15.50	0.01	0.00	0.01
15.75	0.01	0.00	0.01
16.00	0.01	0.00	0.01
16.25	0.01	0.00	0.01
16.50	0.01	0.00	0.01
16.75	0.01	0.00	0.01
17.00	0.01	0.00	0.01
17.25	0.00	0.00	0.00
17.50	0.00	0.00	0.00
17.75	0.00	0.00	0.00
18.00	0.00	0.00	0.00
18.25	0.00	0.00	0.00
18.50	0.00	0.00	0.00
18.75	0.00	0.00	0.00
19.00	0.00	0.00	0.00
19.25	0.00	0.00	0.00
19.50	0.00	0.00	0.00
19.75	0.00	0.00	0.00
20.00	0.00	0.00	0.00

Summary for Subcatchment DA-5: BYPASS TO DP-001

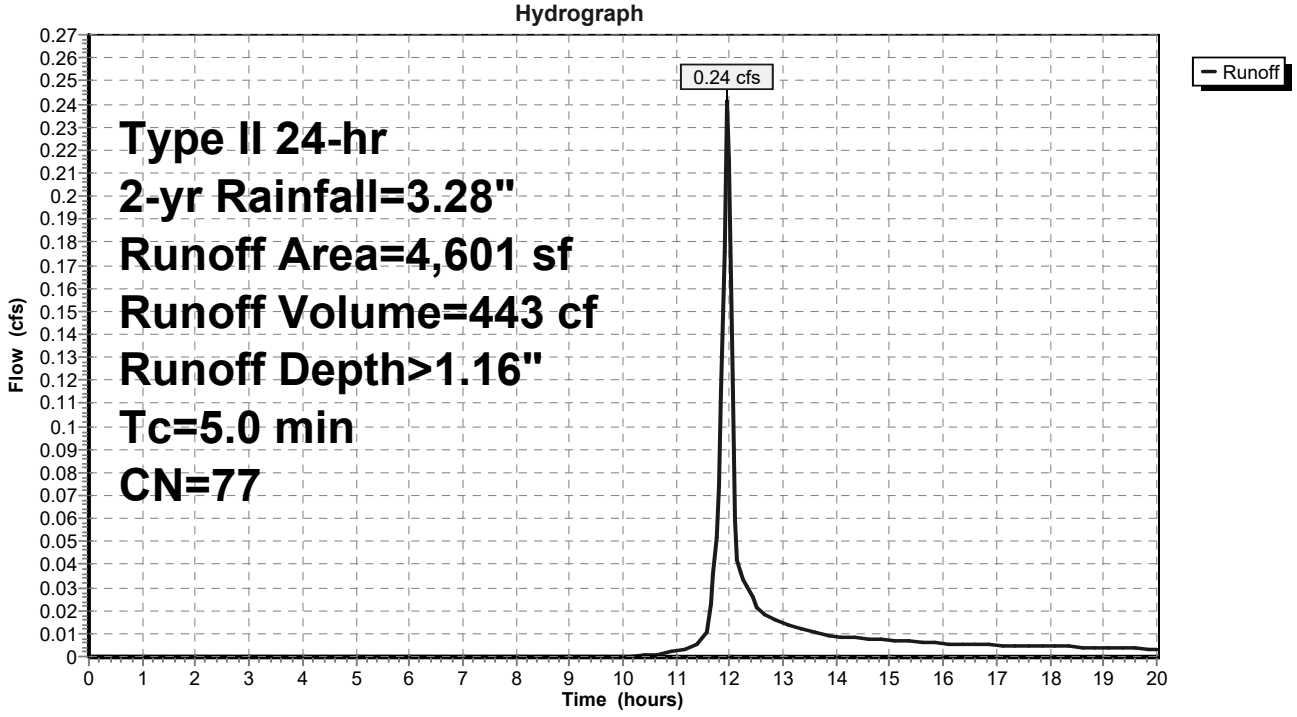
Runoff = 0.24 cfs @ 11.96 hrs, Volume= 443 cf, Depth> 1.16"
Routed to Link Post DP001 : Post-Development DP001

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
1,989	74	>75% Grass cover, Good, HSG C
2,612	80	>75% Grass cover, Good, HSG D
4,601	77	Weighted Average
4,601		100.00% Pervious Area

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

Subcatchment DA-5: BYPASS TO DP-001



Hydrograph for Subcatchment DA-5: BYPASS TO DP-001

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.02	0.00	0.00
0.75	0.03	0.00	0.00
1.00	0.03	0.00	0.00
1.25	0.04	0.00	0.00
1.50	0.05	0.00	0.00
1.75	0.06	0.00	0.00
2.00	0.07	0.00	0.00
2.25	0.08	0.00	0.00
2.50	0.09	0.00	0.00
2.75	0.10	0.00	0.00
3.00	0.11	0.00	0.00
3.25	0.12	0.00	0.00
3.50	0.13	0.00	0.00
3.75	0.15	0.00	0.00
4.00	0.16	0.00	0.00
4.25	0.17	0.00	0.00
4.50	0.18	0.00	0.00
4.75	0.19	0.00	0.00
5.00	0.21	0.00	0.00
5.25	0.22	0.00	0.00
5.50	0.23	0.00	0.00
5.75	0.25	0.00	0.00
6.00	0.26	0.00	0.00
6.25	0.28	0.00	0.00
6.50	0.29	0.00	0.00
6.75	0.31	0.00	0.00
7.00	0.32	0.00	0.00
7.25	0.34	0.00	0.00
7.50	0.36	0.00	0.00
7.75	0.38	0.00	0.00
8.00	0.39	0.00	0.00
8.25	0.41	0.00	0.00
8.50	0.43	0.00	0.00
8.75	0.46	0.00	0.00
9.00	0.48	0.00	0.00
9.25	0.51	0.00	0.00
9.50	0.53	0.00	0.00
9.75	0.56	0.00	0.00
10.00	0.59	0.00	0.00
10.25	0.63	0.00	0.00
10.50	0.67	0.00	0.00
10.75	0.72	0.00	0.00
11.00	0.77	0.01	0.00
11.25	0.84	0.02	0.00
11.50	0.93	0.03	0.01
11.75	1.27	0.12	**0.05**
12.00	2.17	0.55	**0.22**
12.25	2.32	0.63	0.03
12.50	2.41	0.69	0.02
12.75	2.48	0.73	0.02
13.00	2.53	0.76	0.01
13.25	2.58	0.79	0.01
13.50	2.62	0.82	0.01
13.75	2.66	0.84	0.01
14.00	2.69	0.86	0.01
14.25	2.72	0.88	0.01
14.50	2.75	0.90	0.01
14.75	2.77	0.92	0.01
15.00	2.80	0.93	0.01
15.25	2.82	0.95	0.01
15.50	2.85	0.97	0.01
15.75	2.87	0.98	0.01
16.00	2.89	0.99	0.01
16.25	2.91	1.01	0.01
16.50	2.92	1.02	0.01
16.75	2.94	1.03	0.01
17.00	2.96	1.04	0.00
17.25	2.97	1.05	0.00
17.50	2.99	1.06	0.00
17.75	3.01	1.08	0.00
18.00	3.02	1.09	0.00
18.25	3.04	1.10	0.00
18.50	3.05	1.11	0.00
18.75	3.06	1.11	0.00
19.00	3.08	1.12	0.00
19.25	3.09	1.13	0.00
19.50	3.10	1.14	0.00
19.75	3.11	1.15	0.00
20.00	**3.12**	**1.16**	0.00

Summary for Subcatchment DA-6: To Rain Garden (BMP-2)

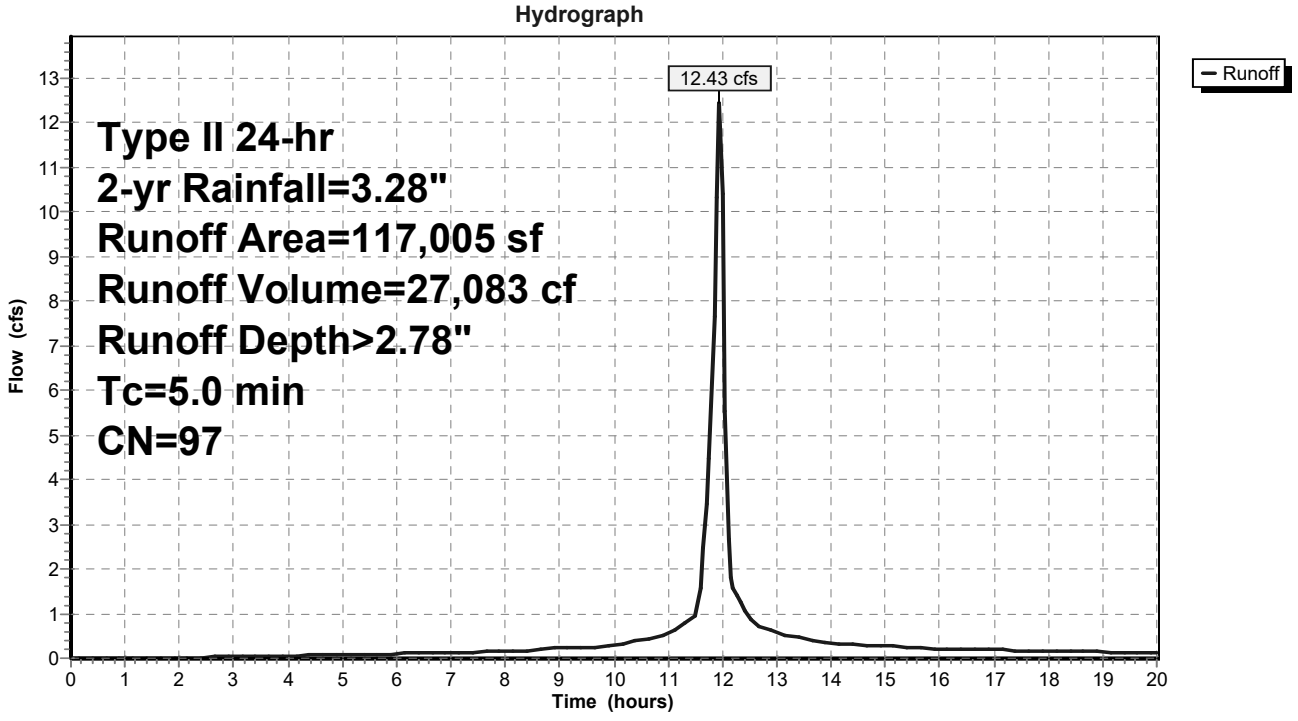
Runoff = 12.43 cfs @ 11.95 hrs, Volume= 27,083 cf, Depth> 2.78"
Routed to Pond 3P : MRC

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.28"

	Area (sf)	CN	Description
*	111,197	98	Paved parking, All HSGs
	5,808	74	>75% Grass cover, Good, HSG C
	117,005	97	Weighted Average
	5,808		4.96% Pervious Area
	111,197		95.04% Impervious Area

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

Subcatchment DA-6: To Rain Garden (BMP-2)



Hydrograph for Subcatchment DA-6: To Rain Garden (BMP-2)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.02	0.00	0.00
0.75	0.03	0.00	0.00
1.00	0.03	0.00	0.00
1.25	0.04	0.00	0.00
1.50	0.05	0.00	0.00
1.75	0.06	0.00	0.00
2.00	0.07	0.00	0.00
2.25	0.08	0.00	0.01
2.50	0.09	0.00	0.02
2.75	0.10	0.00	0.02
3.00	0.11	0.01	0.03
3.25	0.12	0.01	0.03
3.50	0.13	0.01	0.04
3.75	0.15	0.02	0.05
4.00	0.16	0.02	0.05
4.25	0.17	0.03	0.06
4.50	0.18	0.03	0.06
4.75	0.19	0.04	0.07
5.00	0.21	0.05	0.07
5.25	0.22	0.05	0.08
5.50	0.23	0.06	0.09
5.75	0.25	0.07	0.09
6.00	0.26	0.08	0.10
6.25	0.28	0.09	0.11
6.50	0.29	0.10	0.11
6.75	0.31	0.11	0.12
7.00	0.32	0.12	0.12
7.25	0.34	0.13	0.13
7.50	0.36	0.15	0.14
7.75	0.38	0.16	0.14
8.00	0.39	0.17	0.15
8.25	0.41	0.19	0.16
8.50	0.43	0.20	0.18
8.75	0.46	0.22	0.20
9.00	0.48	0.24	0.23
9.25	0.51	0.26	0.24
9.50	0.53	0.29	0.24
9.75	0.56	0.31	0.26
10.00	0.59	0.34	0.30
10.25	0.63	0.37	0.34
10.50	0.67	0.40	0.39
10.75	0.72	0.44	0.47
11.00	0.77	0.49	0.55
11.25	0.84	0.56	0.72
11.50	0.93	0.64	0.93
11.75	1.27	0.96	**4.46**
12.00	2.17	1.84	**10.39**
12.25	2.32	1.98	1.42
12.50	2.41	2.08	0.92
12.75	2.48	2.14	0.68
13.00	2.53	2.20	0.57
13.25	2.58	2.24	0.49
13.50	2.62	2.28	0.43
13.75	2.66	2.32	0.38
14.00	2.69	2.35	0.34
14.25	2.72	2.38	0.31
14.50	2.75	2.41	0.30
14.75	2.77	2.43	0.28
15.00	2.80	2.46	0.27
15.25	2.82	2.48	0.25
15.50	2.85	2.51	0.24
15.75	2.87	2.53	0.22
16.00	2.89	2.55	0.21
16.25	2.91	2.56	0.20
16.50	2.92	2.58	0.19
16.75	2.94	2.60	0.19
17.00	2.96	2.62	0.18
17.25	2.97	2.63	0.18
17.50	2.99	2.65	0.17
17.75	3.01	2.66	0.17
18.00	3.02	2.68	0.16
18.25	3.04	2.69	0.15
18.50	3.05	2.71	0.15
18.75	3.06	2.72	0.14
19.00	3.08	2.73	0.14
19.25	3.09	2.75	0.13
19.50	3.10	2.76	0.13
19.75	3.11	2.77	0.12
20.00	**3.12**	**2.78**	0.12

Summary for Subcatchment DA-7: BYPASS TO DP-002

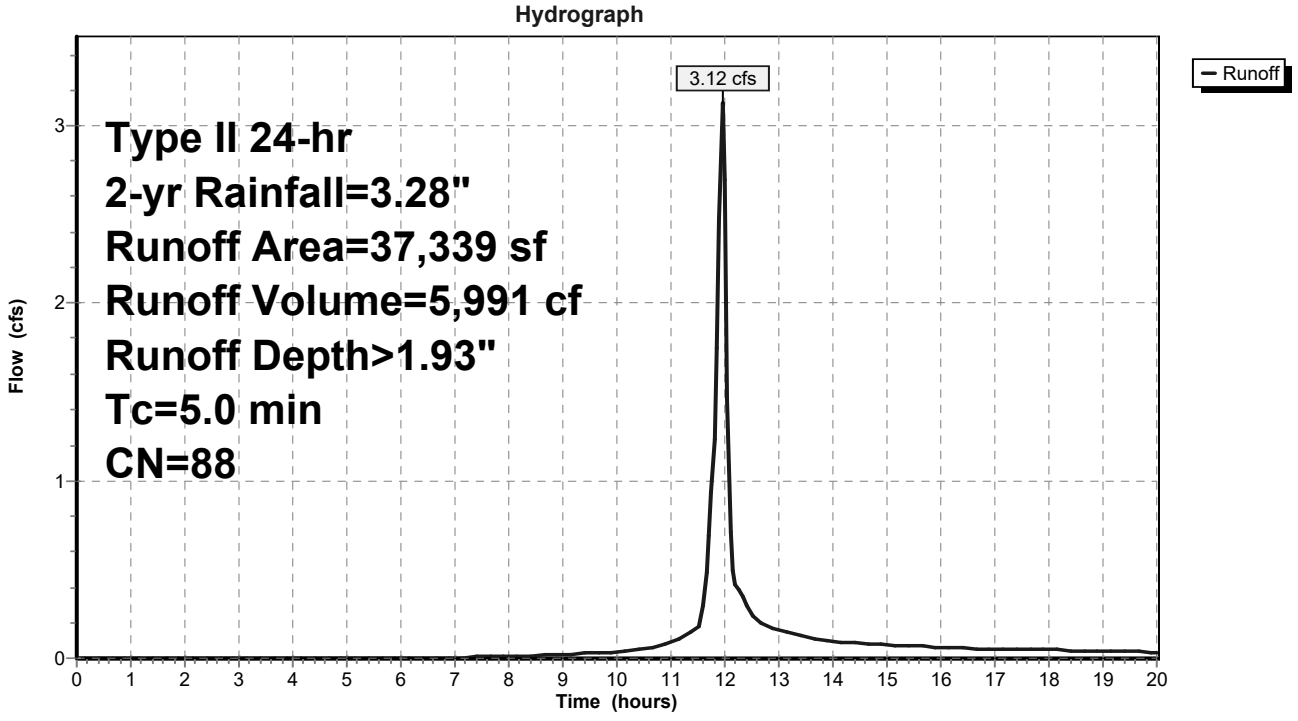
Runoff = 3.12 cfs @ 11.95 hrs, Volume= 5,991 cf, Depth> 1.93"
Routed to Link Post DP002 : Post-Development DP002

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
15,016	74	>75% Grass cover, Good, HSG C
22,323	98	Paved parking, HSG C
37,339	88	Weighted Average
15,016		40.22% Pervious Area
22,323		59.78% Impervious Area

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

Subcatchment DA-7: BYPASS TO DP-002



Hydrograph for Subcatchment DA-7: BYPASS TO DP-002

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.02	0.00	0.00
0.75	0.03	0.00	0.00
1.00	0.03	0.00	0.00
1.25	0.04	0.00	0.00
1.50	0.05	0.00	0.00
1.75	0.06	0.00	0.00
2.00	0.07	0.00	0.00
2.25	0.08	0.00	0.00
2.50	0.09	0.00	0.00
2.75	0.10	0.00	0.00
3.00	0.11	0.00	0.00
3.25	0.12	0.00	0.00
3.50	0.13	0.00	0.00
3.75	0.15	0.00	0.00
4.00	0.16	0.00	0.00
4.25	0.17	0.00	0.00
4.50	0.18	0.00	0.00
4.75	0.19	0.00	0.00
5.00	0.21	0.00	0.00
5.25	0.22	0.00	0.00
5.50	0.23	0.00	0.00
5.75	0.25	0.00	0.00
6.00	0.26	0.00	0.00
6.25	0.28	0.00	0.00
6.50	0.29	0.00	0.00
6.75	0.31	0.00	0.00
7.00	0.32	0.00	0.00
7.25	0.34	0.00	0.01
7.50	0.36	0.01	0.01
7.75	0.38	0.01	0.01
8.00	0.39	0.01	0.01
8.25	0.41	0.01	0.01
8.50	0.43	0.02	0.01
8.75	0.46	0.02	0.02
9.00	0.48	0.03	0.02
9.25	0.51	0.03	0.02
9.50	0.53	0.04	0.03
9.75	0.56	0.05	0.03
10.00	0.59	0.06	0.04
10.25	0.63	0.07	0.05
10.50	0.67	0.09	0.06
10.75	0.72	0.11	0.07
11.00	0.77	0.13	0.09
11.25	0.84	0.17	0.12
11.50	0.93	0.21	0.17
11.75	1.27	0.42	**0.93**
12.00	2.17	1.11	**2.69**
12.25	2.32	1.23	0.38
12.50	2.41	1.31	0.25
12.75	2.48	1.36	0.19
13.00	2.53	1.41	0.16
13.25	2.58	1.45	0.14
13.50	2.62	1.49	0.12
13.75	2.66	1.52	0.11
14.00	2.69	1.55	0.09
14.25	2.72	1.57	0.09
14.50	2.75	1.60	0.08
14.75	2.77	1.62	0.08
15.00	2.80	1.64	0.08
15.25	2.82	1.66	0.07
15.50	2.85	1.68	0.07
15.75	2.87	1.70	0.06
16.00	2.89	1.72	0.06
16.25	2.91	1.73	0.06
16.50	2.92	1.75	0.06
16.75	2.94	1.77	0.05
17.00	2.96	1.78	0.05
17.25	2.97	1.80	0.05
17.50	2.99	1.81	0.05
17.75	3.01	1.82	0.05
18.00	3.02	1.84	0.05
18.25	3.04	1.85	0.04
18.50	3.05	1.86	0.04
18.75	3.06	1.87	0.04
19.00	3.08	1.89	0.04
19.25	3.09	1.90	0.04
19.50	3.10	1.91	0.04
19.75	3.11	1.92	0.04
20.00	**3.12**	**1.93**	0.03

Summary for Subcatchment DA-8: Bypass to DP003

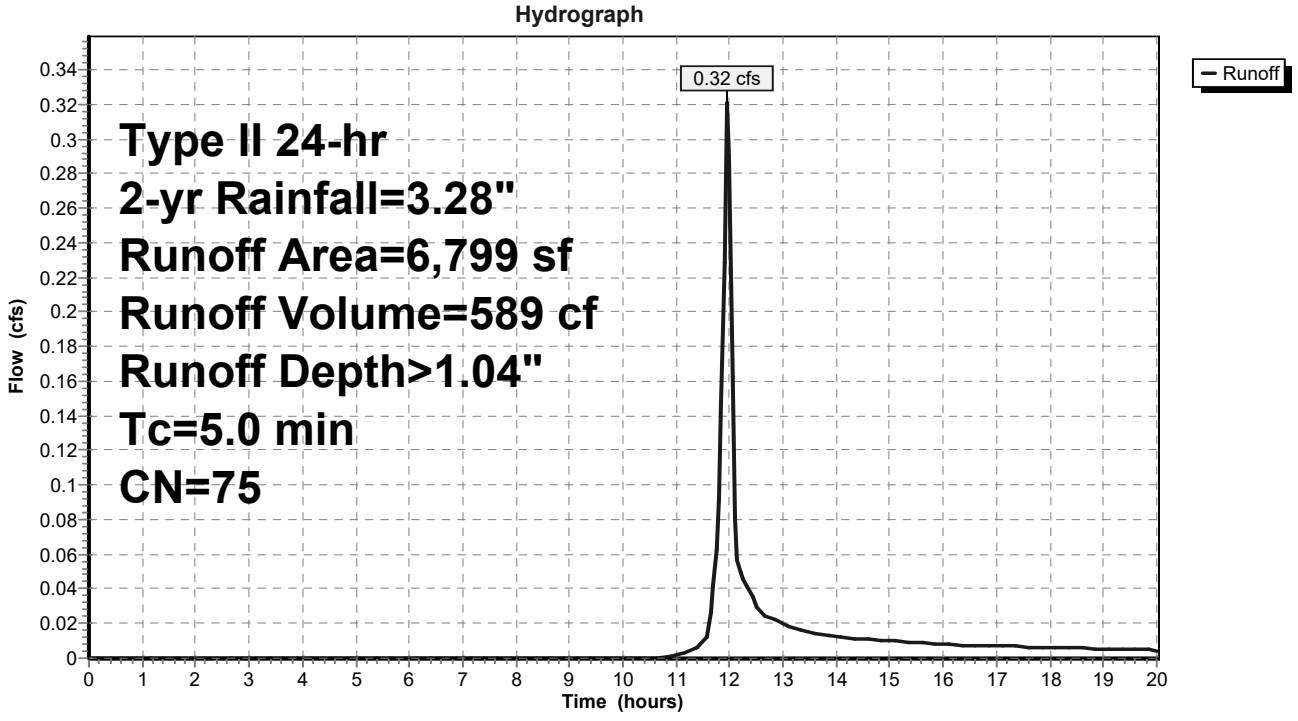
Runoff = 0.32 cfs @ 11.96 hrs, Volume= 589 cf, Depth> 1.04"
Routed to Link Post DP003 : Post-Development DP003

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
6,532	74	>75% Grass cover, Good, HSG C
267	98	Paved parking, HSG C
6,799	75	Weighted Average
6,532		96.07% Pervious Area
267		3.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc-1**

Subcatchment DA-8: Bypass to DP003



Hydrograph for Subcatchment DA-8: Bypass to DP003

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.02	0.00	0.00
0.75	0.03	0.00	0.00
1.00	0.03	0.00	0.00
1.25	0.04	0.00	0.00
1.50	0.05	0.00	0.00
1.75	0.06	0.00	0.00
2.00	0.07	0.00	0.00
2.25	0.08	0.00	0.00
2.50	0.09	0.00	0.00
2.75	0.10	0.00	0.00
3.00	0.11	0.00	0.00
3.25	0.12	0.00	0.00
3.50	0.13	0.00	0.00
3.75	0.15	0.00	0.00
4.00	0.16	0.00	0.00
4.25	0.17	0.00	0.00
4.50	0.18	0.00	0.00
4.75	0.19	0.00	0.00
5.00	0.21	0.00	0.00
5.25	0.22	0.00	0.00
5.50	0.23	0.00	0.00
5.75	0.25	0.00	0.00
6.00	0.26	0.00	0.00
6.25	0.28	0.00	0.00
6.50	0.29	0.00	0.00
6.75	0.31	0.00	0.00
7.00	0.32	0.00	0.00
7.25	0.34	0.00	0.00
7.50	0.36	0.00	0.00
7.75	0.38	0.00	0.00
8.00	0.39	0.00	0.00
8.25	0.41	0.00	0.00
8.50	0.43	0.00	0.00
8.75	0.46	0.00	0.00
9.00	0.48	0.00	0.00
9.25	0.51	0.00	0.00
9.50	0.53	0.00	0.00
9.75	0.56	0.00	0.00
10.00	0.59	0.00	0.00
10.25	0.63	0.00	0.00
10.50	0.67	0.00	0.00
10.75	0.72	0.00	0.00
11.00	0.77	0.00	0.00
11.25	0.84	0.01	0.00
11.50	0.93	0.02	0.01
11.75	1.27	0.09	**0.06**
12.00	2.17	0.47	**0.29**
12.25	2.32	0.55	0.05
12.50	2.41	0.60	0.03
12.75	2.48	0.64	0.02
13.00	2.53	0.67	0.02
13.25	2.58	0.70	0.02
13.50	2.62	0.72	0.02
13.75	2.66	0.74	0.01
14.00	2.69	0.76	0.01
14.25	2.72	0.78	0.01
14.50	2.75	0.80	0.01
14.75	2.77	0.82	0.01
15.00	2.80	0.83	0.01
15.25	2.82	0.85	0.01
15.50	2.85	0.86	0.01
15.75	2.87	0.87	0.01
16.00	2.89	0.89	0.01
16.25	2.91	0.90	0.01
16.50	2.92	0.91	0.01
16.75	2.94	0.92	0.01
17.00	2.96	0.93	0.01
17.25	2.97	0.94	0.01
17.50	2.99	0.95	0.01
17.75	3.01	0.96	0.01
18.00	3.02	0.97	0.01
18.25	3.04	0.98	0.01
18.50	3.05	0.99	0.01
18.75	3.06	1.00	0.01
19.00	3.08	1.01	0.01
19.25	3.09	1.02	0.01
19.50	3.10	1.03	0.00
19.75	3.11	1.03	0.00
20.00	**3.12**	**1.04**	0.00

Summary for Pond 3P: MRC

Inflow Area = 117,005 sf, 95.04% Impervious, Inflow Depth > 2.78" for 2-yr event
Inflow = 12.43 cfs @ 11.95 hrs, Volume= 27,083 cf
Outflow = 0.38 cfs @ 13.78 hrs, Volume= 10,553 cf, Atten= 97%, Lag= 109.7 min
Primary = 0.38 cfs @ 13.78 hrs, Volume= 10,553 cf
Routed to Link Post DP002 : Post-Development DP002

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 194.98' @ 13.78 hrs Surf.Area= 31,076 sf Storage= 19,779 cf

Plug-Flow detention time= 323.1 min calculated for 10,553 cf (39% of inflow)
Center-of-Mass det. time= 208.3 min (937.2 - 728.9)

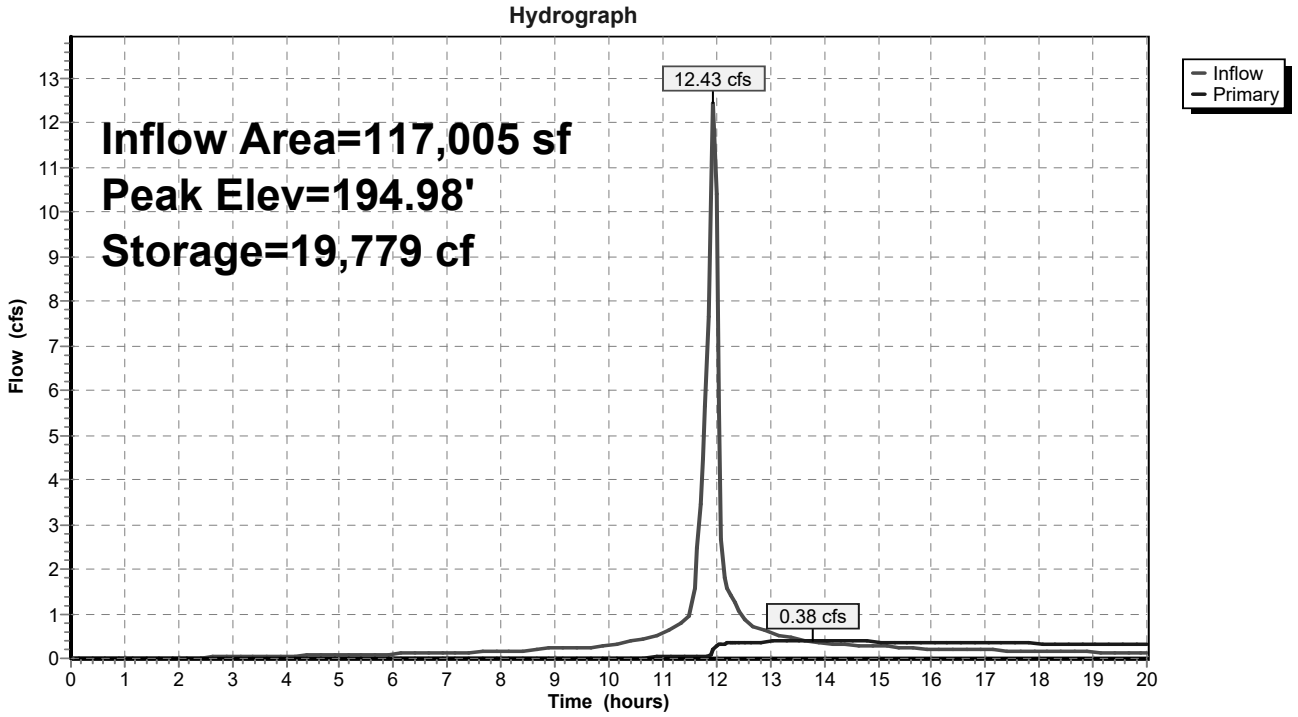
Volume	Invert	Avail.Storage	Storage Description
#1	192.55'	0 cf	**100.00'W x 150.00'L x 1.00'H Prismatoid** 15,000 cf Overall x 0.0% Voids
#2A	193.55'	16,872 cf	**126.00'W x 127.59'L x 4.75'H Field A** 76,363 cf Overall - 34,182 cf Embedded = 42,181 cf x 40.0% Voids
#3A	193.55'	34,182 cf	**ADS_StormTech MC-3500 d +Cap**x 306 Inside #2 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 306 Chambers in 18 Rows Cap Storage= 14.9 cf x 2 x 18 rows = 536.4 cf
		51,054 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	193.55'	**18.0" Round 18" Outlet** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 193.55' / 192.00' S= 0.0775 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	192.55'	**1.2" Vert. MRC Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	194.19'	**4.0" Vert. 4" Circular Orifice** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.38 cfs @ 13.78 hrs HW=194.98' (Free Discharge)
└**1=18" Outlet** (Passes 0.38 cfs of 7.08 cfs potential flow)
  ├**2=MRC Orifice** (Orifice Controls 0.05 cfs @ 5.76 fps)
  └**3=4" Circular Orifice** (Orifice Controls 0.33 cfs @ 3.81 fps)

Pond 3P: MRC


Hydrograph
Inflow Area=117,005 sf
Peak Elev=194.98'
Storage=19,779 cf
12.43 cfs
0.38 cfs
Inflow
Primary
Flow (cfs)
Time (hours)
0 1 2 3 4 5 6 7 8 9 10 11 12 13
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

Hydrograph for Pond 3P: MRC

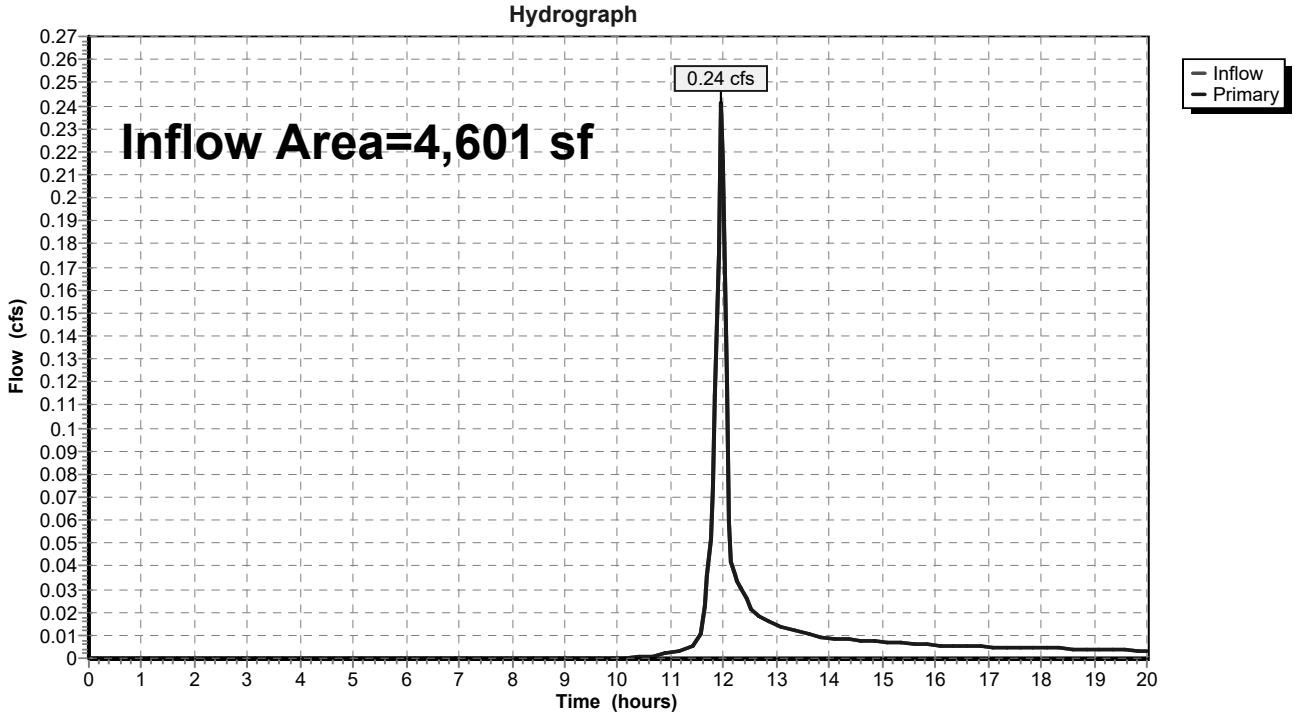
Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	192.55	0.00
0.50	0.00	0	192.55	0.00
1.00	0.00	0	192.55	0.00
1.50	0.00	0	192.55	0.00
2.00	0.00	2	193.55	0.00
2.50	0.02	21	193.55	0.00
3.00	0.03	62	193.55	0.00
3.50	0.04	121	193.56	0.00
4.00	0.05	199	193.56	0.00
4.50	0.06	293	193.57	0.00
5.00	0.07	408	193.58	0.01
5.50	0.09	541	193.59	0.01
6.00	0.10	695	193.60	0.01
6.50	0.11	869	193.61	0.01
7.00	0.12	1,064	193.62	0.01
7.50	0.14	1,278	193.64	0.01
8.00	0.15	1,513	193.66	0.01
8.50	0.18	1,786	193.68	0.01
9.00	0.23	2,130	193.70	0.01
9.50	0.24	2,525	193.73	0.02
10.00	0.30	2,970	193.76	0.02
10.50	0.39	3,555	193.80	0.02
11.00	0.55	4,363	193.86	0.02
11.50	**0.93**	5,628	193.95	0.02
12.00	**10.39**	15,358	194.65	0.27
12.50	0.92	18,945	194.92	0.36
13.00	0.57	19,538	194.96	0.37
13.50	0.43	**19,753**	**194.98**	**0.38**
14.00	0.34	**19,764**	**194.98**	**0.38**
14.50	0.30	19,655	194.97	0.37
15.00	0.27	19,494	194.96	0.37
15.50	0.24	19,286	194.94	0.37
16.00	0.21	19,031	194.92	0.36
16.50	0.19	18,745	194.90	0.35
17.00	0.18	18,450	194.88	0.35
17.50	0.17	18,148	194.86	0.34
18.00	0.16	17,839	194.84	0.33
18.50	0.15	17,524	194.81	0.33
19.00	0.14	17,203	194.79	0.32
19.50	0.13	16,877	194.76	0.31
20.00	0.12	16,547	194.74	0.30

Summary for Link Post DP001: Post-Development DP001

Inflow Area = 4,601 sf, 0.00% Impervious, Inflow Depth > 1.16" for 2-yr event
Inflow = 0.24 cfs @ 11.96 hrs, Volume= 443 cf
Primary = 0.24 cfs @ 11.96 hrs, Volume= 443 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Post DP001: Post-Development DP001



Hydrograph for Link Post DP001: Post-Development DP001

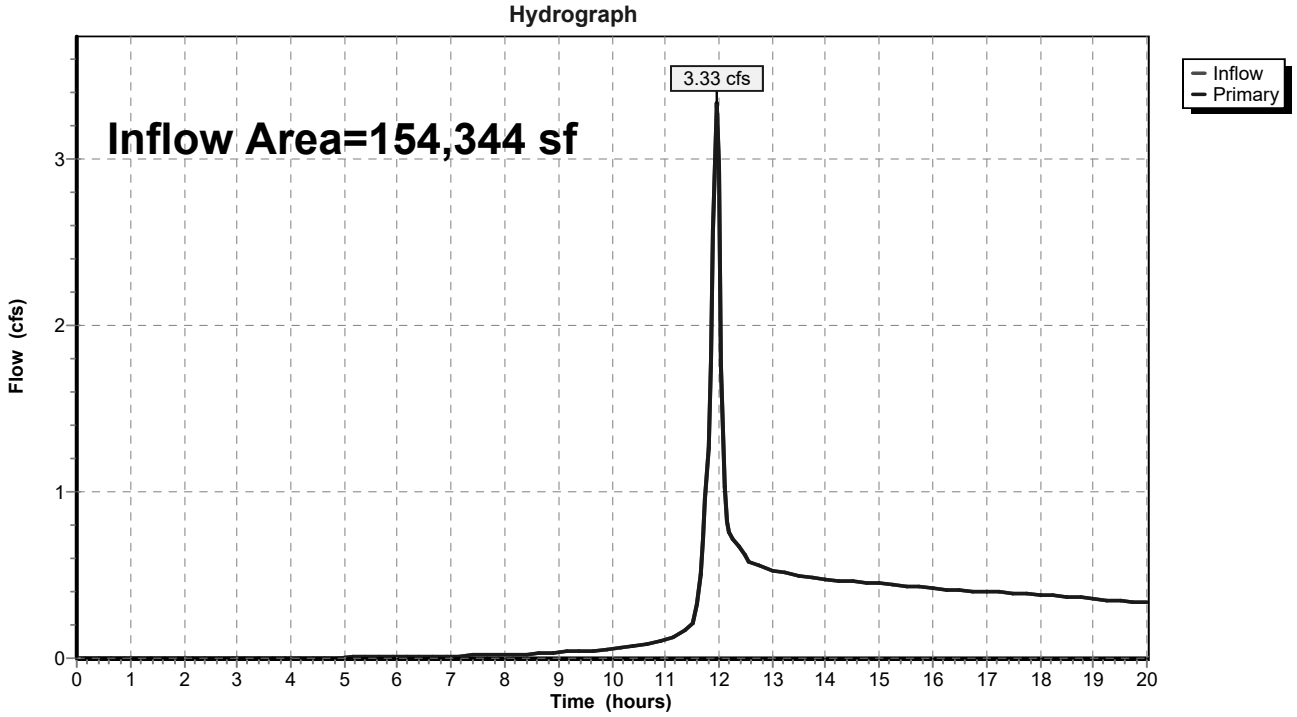
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
0.25	0.00	0.00	0.00
0.50	0.00	0.00	0.00
0.75	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00
1.50	0.00	0.00	0.00
1.75	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00
2.50	0.00	0.00	0.00
2.75	0.00	0.00	0.00
3.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00
3.50	0.00	0.00	0.00
3.75	0.00	0.00	0.00
4.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00
4.50	0.00	0.00	0.00
4.75	0.00	0.00	0.00
5.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00
5.50	0.00	0.00	0.00
5.75	0.00	0.00	0.00
6.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00
6.50	0.00	0.00	0.00
6.75	0.00	0.00	0.00
7.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00
7.50	0.00	0.00	0.00
7.75	0.00	0.00	0.00
8.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00
8.50	0.00	0.00	0.00
8.75	0.00	0.00	0.00
9.00	0.00	0.00	0.00
9.25	0.00	0.00	0.00
9.50	0.00	0.00	0.00
9.75	0.00	0.00	0.00
10.00	0.00	0.00	0.00
10.25	0.00	0.00	0.00
10.50	0.00	0.00	0.00
10.75	0.00	0.00	0.00
11.00	0.00	0.00	0.00
11.25	0.00	0.00	0.00
11.50	0.01	0.00	0.01
11.75	**0.05**	0.00	**0.05**
12.00	**0.22**	0.00	**0.22**
12.25	0.03	0.00	0.03
12.50	0.02	0.00	0.02
12.75	0.02	0.00	0.02
13.00	0.01	0.00	0.01
13.25	0.01	0.00	0.01
13.50	0.01	0.00	0.01
13.75	0.01	0.00	0.01
14.00	0.01	0.00	0.01
14.25	0.01	0.00	0.01
14.50	0.01	0.00	0.01
14.75	0.01	0.00	0.01
15.00	0.01	0.00	0.01
15.25	0.01	0.00	0.01
15.50	0.01	0.00	0.01
15.75	0.01	0.00	0.01
16.00	0.01	0.00	0.01
16.25	0.01	0.00	0.01
16.50	0.01	0.00	0.01
16.75	0.01	0.00	0.01
17.00	0.00	0.00	0.00
17.25	0.00	0.00	0.00
17.50	0.00	0.00	0.00
17.75	0.00	0.00	0.00
18.00	0.00	0.00	0.00
18.25	0.00	0.00	0.00
18.50	0.00	0.00	0.00
18.75	0.00	0.00	0.00
19.00	0.00	0.00	0.00
19.25	0.00	0.00	0.00
19.50	0.00	0.00	0.00
19.75	0.00	0.00	0.00
20.00	0.00	0.00	0.00

Summary for Link Post DP002: Post-Development DP002

Inflow Area = 154,344 sf, 86.51% Impervious, Inflow Depth > 1.29" for 2-yr event
Inflow = 3.33 cfs @ 11.96 hrs, Volume= 16,544 cf
Primary = 3.33 cfs @ 11.96 hrs, Volume= 16,544 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Post DP002: Post-Development DP002



Hydrograph for Link Post DP002: Post-Development DP002

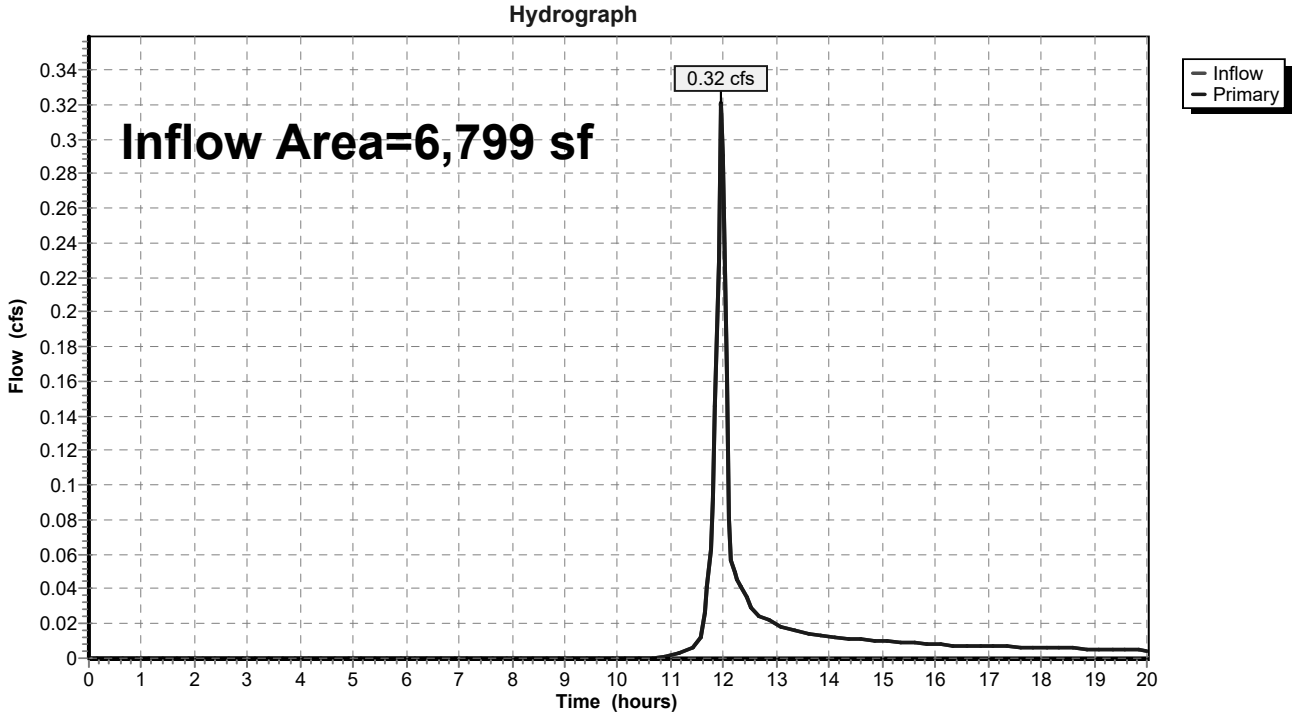
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
0.25	0.00	0.00	0.00
0.50	0.00	0.00	0.00
0.75	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00
1.50	0.00	0.00	0.00
1.75	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00
2.50	0.00	0.00	0.00
2.75	0.00	0.00	0.00
3.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00
3.50	0.00	0.00	0.00
3.75	0.00	0.00	0.00
4.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00
4.50	0.00	0.00	0.00
4.75	0.00	0.00	0.00
5.00	0.01	0.00	0.01
5.25	0.01	0.00	0.01
5.50	0.01	0.00	0.01
5.75	0.01	0.00	0.01
6.00	0.01	0.00	0.01
6.25	0.01	0.00	0.01
6.50	0.01	0.00	0.01
6.75	0.01	0.00	0.01
7.00	0.01	0.00	0.01
7.25	0.02	0.00	0.02
7.50	0.02	0.00	0.02
7.75	0.02	0.00	0.02
8.00	0.02	0.00	0.02
8.25	0.02	0.00	0.02
8.50	0.03	0.00	0.03
8.75	0.03	0.00	0.03
9.00	0.04	0.00	0.04
9.25	0.04	0.00	0.04
9.50	0.04	0.00	0.04
9.75	0.05	0.00	0.05
10.00	0.05	0.00	0.05
10.25	0.06	0.00	0.06
10.50	0.07	0.00	0.07
10.75	0.09	0.00	0.09
11.00	0.11	0.00	0.11
11.25	0.15	0.00	0.15
11.50	0.19	0.00	0.19
11.75	**0.96**	0.00	**0.96**
12.00	**2.95**	0.00	**2.95**
12.25	0.73	0.00	0.73
12.50	0.61	0.00	0.61
12.75	0.56	0.00	0.56
13.00	0.53	0.00	0.53
13.25	0.51	0.00	0.51
13.50	0.50	0.00	0.50
13.75	0.48	0.00	0.48
14.00	0.47	0.00	0.47
14.25	0.46	0.00	0.46
14.50	0.46	0.00	0.46
14.75	0.45	0.00	0.45
15.00	0.45	0.00	0.45
15.25	0.44	0.00	0.44
15.50	0.43	0.00	0.43
15.75	0.43	0.00	0.43
16.00	0.42	0.00	0.42
16.25	0.41	0.00	0.41
16.50	0.41	0.00	0.41
16.75	0.40	0.00	0.40
17.00	0.40	0.00	0.40
17.25	0.39	0.00	0.39
17.50	0.39	0.00	0.39
17.75	0.38	0.00	0.38
18.00	0.38	0.00	0.38
18.25	0.37	0.00	0.37
18.50	0.37	0.00	0.37
18.75	0.36	0.00	0.36
19.00	0.36	0.00	0.36
19.25	0.35	0.00	0.35
19.50	0.35	0.00	0.35
19.75	0.34	0.00	0.34
20.00	0.33	0.00	0.33

Summary for Link Post DP003: Post-Development DP003

Inflow Area = 6,799 sf, 3.93% Impervious, Inflow Depth > 1.04" for 2-yr event
Inflow = 0.32 cfs @ 11.96 hrs, Volume= 589 cf
Primary = 0.32 cfs @ 11.96 hrs, Volume= 589 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Post DP003: Post-Development DP003



Hydrograph for Link Post DP003: Post-Development DP003

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
0.25	0.00	0.00	0.00
0.50	0.00	0.00	0.00
0.75	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00
1.50	0.00	0.00	0.00
1.75	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00
2.50	0.00	0.00	0.00
2.75	0.00	0.00	0.00
3.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00
3.50	0.00	0.00	0.00
3.75	0.00	0.00	0.00
4.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00
4.50	0.00	0.00	0.00
4.75	0.00	0.00	0.00
5.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00
5.50	0.00	0.00	0.00
5.75	0.00	0.00	0.00
6.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00
6.50	0.00	0.00	0.00
6.75	0.00	0.00	0.00
7.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00
7.50	0.00	0.00	0.00
7.75	0.00	0.00	0.00
8.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00
8.50	0.00	0.00	0.00
8.75	0.00	0.00	0.00
9.00	0.00	0.00	0.00
9.25	0.00	0.00	0.00
9.50	0.00	0.00	0.00
9.75	0.00	0.00	0.00
10.00	0.00	0.00	0.00
10.25	0.00	0.00	0.00
10.50	0.00	0.00	0.00
10.75	0.00	0.00	0.00
11.00	0.00	0.00	0.00
11.25	0.00	0.00	0.00
11.50	0.01	0.00	0.01
11.75	**0.06**	0.00	**0.06**
12.00	**0.29**	0.00	**0.29**
12.25	0.05	0.00	0.05
12.50	0.03	0.00	0.03
12.75	0.02	0.00	0.02
13.00	0.02	0.00	0.02
13.25	0.02	0.00	0.02
13.50	0.02	0.00	0.02
13.75	0.01	0.00	0.01
14.00	0.01	0.00	0.01
14.25	0.01	0.00	0.01
14.50	0.01	0.00	0.01
14.75	0.01	0.00	0.01
15.00	0.01	0.00	0.01
15.25	0.01	0.00	0.01
15.50	0.01	0.00	0.01
15.75	0.01	0.00	0.01
16.00	0.01	0.00	0.01
16.25	0.01	0.00	0.01
16.50	0.01	0.00	0.01
16.75	0.01	0.00	0.01
17.00	0.01	0.00	0.01
17.25	0.01	0.00	0.01
17.50	0.01	0.00	0.01
17.75	0.01	0.00	0.01
18.00	0.01	0.00	0.01
18.25	0.01	0.00	0.01
18.50	0.01	0.00	0.01
18.75	0.01	0.00	0.01
19.00	0.01	0.00	0.01
19.25	0.01	0.00	0.01
19.50	0.00	0.00	0.00
19.75	0.00	0.00	0.00
20.00	0.00	0.00	0.00

Summary for Subcatchment DA-5: BYPASS TO DP-001

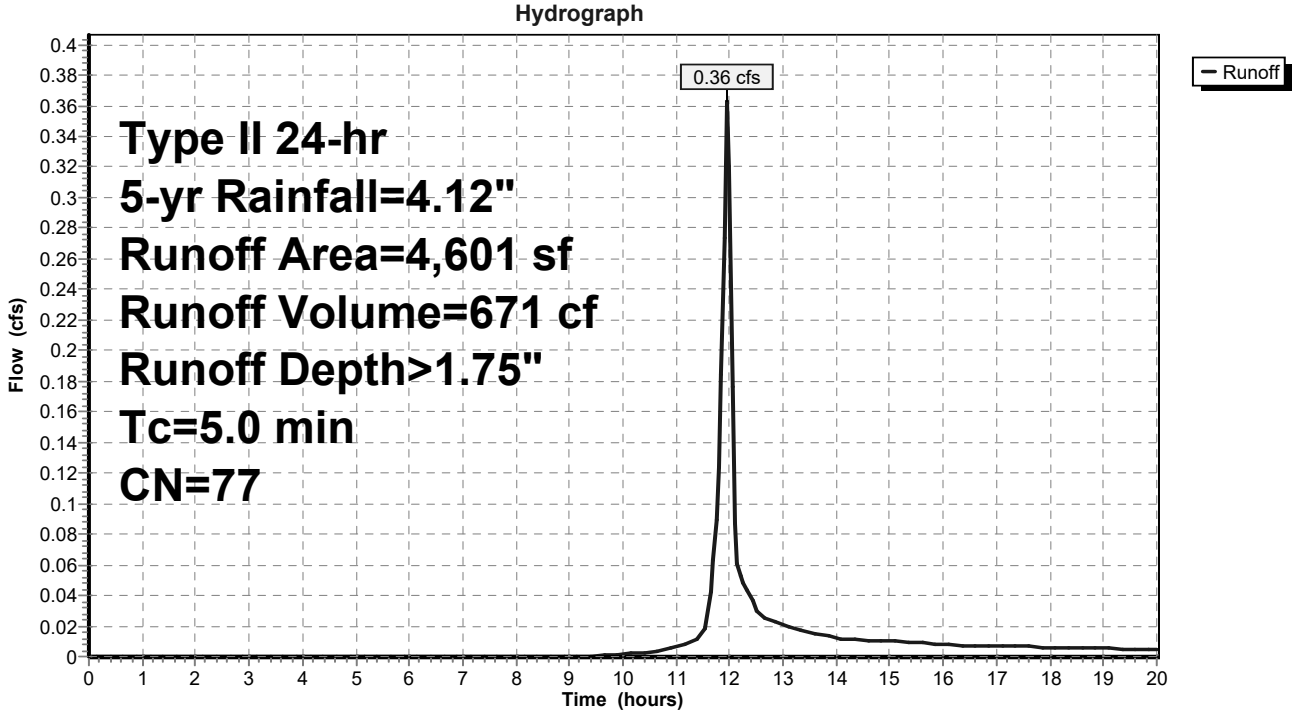
Runoff = 0.36 cfs @ 11.96 hrs, Volume= 671 cf, Depth> 1.75"
Routed to Link Post DP001 : Post-Development DP001

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 5-yr Rainfall=4.12"

Area (sf)	CN	Description
1,989	74	>75% Grass cover, Good, HSG C
2,612	80	>75% Grass cover, Good, HSG D
4,601	77	Weighted Average
4,601		100.00% Pervious Area

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

Subcatchment DA-5: BYPASS TO DP-001



Hydrograph for Subcatchment DA-5: BYPASS TO DP-001

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.02	0.00	0.00
0.75	0.03	0.00	0.00
1.00	0.04	0.00	0.00
1.25	0.05	0.00	0.00
1.50	0.07	0.00	0.00
1.75	0.08	0.00	0.00
2.00	0.09	0.00	0.00
2.25	0.10	0.00	0.00
2.50	0.12	0.00	0.00
2.75	0.13	0.00	0.00
3.00	0.14	0.00	0.00
3.25	0.16	0.00	0.00
3.50	0.17	0.00	0.00
3.75	0.18	0.00	0.00
4.00	0.20	0.00	0.00
4.25	0.21	0.00	0.00
4.50	0.23	0.00	0.00
4.75	0.24	0.00	0.00
5.00	0.26	0.00	0.00
5.25	0.28	0.00	0.00
5.50	0.29	0.00	0.00
5.75	0.31	0.00	0.00
6.00	0.33	0.00	0.00
6.25	0.35	0.00	0.00
6.50	0.37	0.00	0.00
6.75	0.39	0.00	0.00
7.00	0.41	0.00	0.00
7.25	0.43	0.00	0.00
7.50	0.45	0.00	0.00
7.75	0.47	0.00	0.00
8.00	0.49	0.00	0.00
8.25	0.52	0.00	0.00
8.50	0.54	0.00	0.00
8.75	0.57	0.00	0.00
9.00	0.61	0.00	0.00
9.25	0.64	0.00	0.00
9.50	0.67	0.00	0.00
9.75	0.71	0.00	0.00
10.00	0.75	0.01	0.00
10.25	0.79	0.01	0.00
10.50	0.84	0.02	0.00
10.75	0.90	0.03	0.00
11.00	0.97	0.04	0.01
11.25	1.05	0.06	0.01
11.50	1.17	0.09	0.01
11.75	1.59	0.25	**0.09**
12.00	2.73	0.89	**0.32**
12.25	2.91	1.01	0.05
12.50	3.03	1.09	0.03
12.75	3.11	1.15	0.02
13.00	3.18	1.20	0.02
13.25	3.24	1.24	0.02
13.50	3.29	1.28	0.02
13.75	3.34	1.31	0.01
14.00	3.38	1.34	0.01
14.25	3.42	1.37	0.01
14.50	3.45	1.39	0.01
14.75	3.48	1.42	0.01
15.00	3.52	1.44	0.01
15.25	3.55	1.47	0.01
15.50	3.57	1.49	0.01
15.75	3.60	1.51	0.01
16.00	3.63	1.52	0.01
16.25	3.65	1.54	0.01
16.50	3.67	1.56	0.01
16.75	3.69	1.58	0.01
17.00	3.72	1.59	0.01
17.25	3.74	1.61	0.01
17.50	3.76	1.62	0.01
17.75	3.78	1.64	0.01
18.00	3.79	1.65	0.01
18.25	3.81	1.67	0.01
18.50	3.83	1.68	0.01
18.75	3.85	1.69	0.01
19.00	3.86	1.71	0.01
19.25	3.88	1.72	0.01
19.50	3.89	1.73	0.00
19.75	3.91	1.74	0.00
20.00	**3.92**	**1.75**	0.00

Summary for Subcatchment DA-6: To Rain Garden (BMP-2)

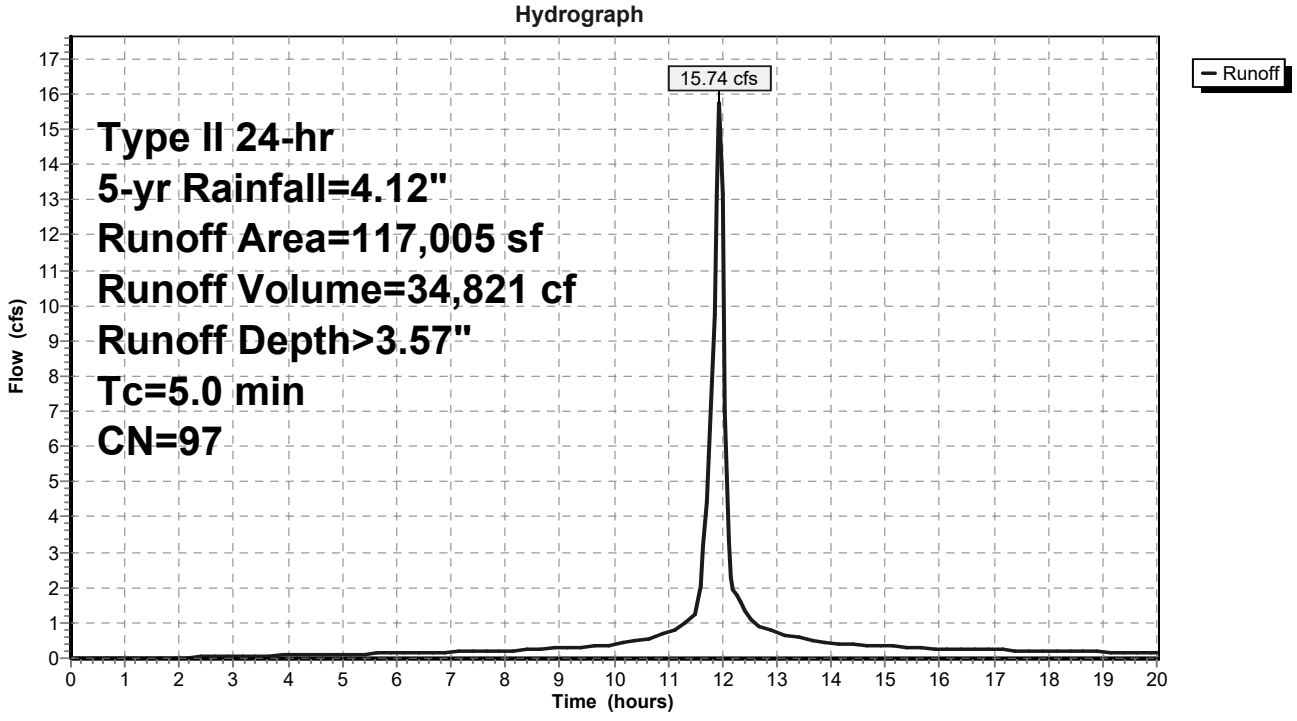
Runoff = 15.74 cfs @ 11.95 hrs, Volume= 34,821 cf, Depth> 3.57"
Routed to Pond 3P : MRC

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 5-yr Rainfall=4.12"

	Area (sf)	CN	Description
*	111,197	98	Paved parking, All HSGs
	5,808	74	>75% Grass cover, Good, HSG C
	117,005	97	Weighted Average
	5,808		4.96% Pervious Area
	111,197		95.04% Impervious Area

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

Subcatchment DA-6: To Rain Garden (BMP-2)



Hydrograph for Subcatchment DA-6: To Rain Garden (BMP-2)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.02	0.00	0.00
0.75	0.03	0.00	0.00
1.00	0.04	0.00	0.00
1.25	0.05	0.00	0.00
1.50	0.07	0.00	0.00
1.75	0.08	0.00	0.01
2.00	0.09	0.00	0.02
2.25	0.10	0.00	0.03
2.50	0.12	0.01	0.04
2.75	0.13	0.01	0.04
3.00	0.14	0.02	0.05
3.25	0.16	0.02	0.06
3.50	0.17	0.03	0.07
3.75	0.18	0.03	0.07
4.00	0.20	0.04	0.08
4.25	0.21	0.05	0.09
4.50	0.23	0.06	0.09
4.75	0.24	0.07	0.10
5.00	0.26	0.08	0.11
5.25	0.28	0.09	0.12
5.50	0.29	0.10	0.13
5.75	0.31	0.11	0.13
6.00	0.33	0.12	0.14
6.25	0.35	0.14	0.15
6.50	0.37	0.15	0.16
6.75	0.39	0.17	0.16
7.00	0.41	0.18	0.17
7.25	0.43	0.20	0.18
7.50	0.45	0.22	0.19
7.75	0.47	0.23	0.19
8.00	0.49	0.25	0.20
8.25	0.52	0.27	0.22
8.50	0.54	0.29	0.25
8.75	0.57	0.32	0.27
9.00	0.61	0.35	0.30
9.25	0.64	0.38	0.31
9.50	0.67	0.40	0.32
9.75	0.71	0.44	0.35
10.00	0.75	0.47	0.39
10.25	0.79	0.51	0.45
10.50	0.84	0.56	0.51
10.75	0.90	0.61	0.61
11.00	0.97	0.68	0.72
11.25	1.05	0.76	0.93
11.50	1.17	0.86	1.19
11.75	1.59	1.28	**5.70**
12.00	2.73	2.39	**13.14**
12.25	2.91	2.57	1.79
12.50	3.03	2.69	1.16
12.75	3.11	2.77	0.86
13.00	3.18	2.84	0.72
13.25	3.24	2.90	0.62
13.50	3.29	2.95	0.54
13.75	3.34	2.99	0.48
14.00	3.38	3.03	0.43
14.25	3.42	3.07	0.40
14.50	3.45	3.11	0.38
14.75	3.48	3.14	0.36
15.00	3.52	3.17	0.34
15.25	3.55	3.20	0.32
15.50	3.57	3.23	0.30
15.75	3.60	3.25	0.28
16.00	3.63	3.28	0.26
16.25	3.65	3.30	0.25
16.50	3.67	3.32	0.24
16.75	3.69	3.35	0.24
17.00	3.72	3.37	0.23
17.25	3.74	3.39	0.22
17.50	3.76	3.41	0.22
17.75	3.78	3.43	0.21
18.00	3.79	3.45	0.20
18.25	3.81	3.47	0.19
18.50	3.83	3.48	0.19
18.75	3.85	3.50	0.18
19.00	3.86	3.52	0.17
19.25	3.88	3.53	0.17
19.50	3.89	3.55	0.16
19.75	3.91	3.56	0.15
20.00	**3.92**	**3.57**	0.15

Summary for Subcatchment DA-7: BYPASS TO DP-002

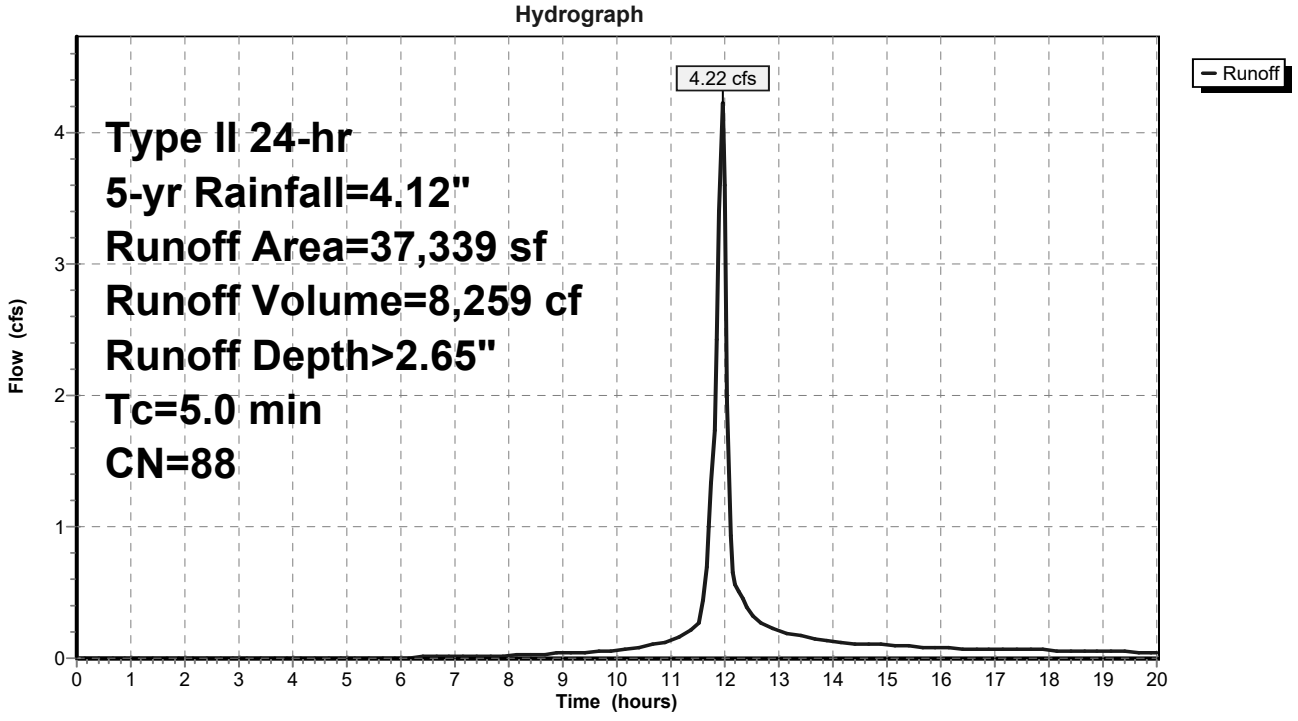
Runoff = 4.22 cfs @ 11.95 hrs, Volume= 8,259 cf, Depth> 2.65"
Routed to Link Post DP002 : Post-Development DP002

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 5-yr Rainfall=4.12"

Area (sf)	CN	Description
15,016	74	>75% Grass cover, Good, HSG C
22,323	98	Paved parking, HSG C
37,339	88	Weighted Average
15,016		40.22% Pervious Area
22,323		59.78% Impervious Area

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

Subcatchment DA-7: BYPASS TO DP-002



Hydrograph for Subcatchment DA-7: BYPASS TO DP-002

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.02	0.00	0.00
0.75	0.03	0.00	0.00
1.00	0.04	0.00	0.00
1.25	0.05	0.00	0.00
1.50	0.07	0.00	0.00
1.75	0.08	0.00	0.00
2.00	0.09	0.00	0.00
2.25	0.10	0.00	0.00
2.50	0.12	0.00	0.00
2.75	0.13	0.00	0.00
3.00	0.14	0.00	0.00
3.25	0.16	0.00	0.00
3.50	0.17	0.00	0.00
3.75	0.18	0.00	0.00
4.00	0.20	0.00	0.00
4.25	0.21	0.00	0.00
4.50	0.23	0.00	0.00
4.75	0.24	0.00	0.00
5.00	0.26	0.00	0.00
5.25	0.28	0.00	0.00
5.50	0.29	0.00	0.00
5.75	0.31	0.00	0.00
6.00	0.33	0.00	0.00
6.25	0.35	0.00	0.01
6.50	0.37	0.01	0.01
6.75	0.39	0.01	0.01
7.00	0.41	0.01	0.01
7.25	0.43	0.02	0.01
7.50	0.45	0.02	0.02
7.75	0.47	0.03	0.02
8.00	0.49	0.03	0.02
8.25	0.52	0.04	0.02
8.50	0.54	0.05	0.03
8.75	0.57	0.05	0.03
9.00	0.61	0.07	0.04
9.25	0.64	0.08	0.04
9.50	0.67	0.09	0.04
9.75	0.71	0.10	0.05
10.00	0.75	0.12	0.06
10.25	0.79	0.14	0.07
10.50	0.84	0.17	0.09
10.75	0.90	0.20	0.11
11.00	0.97	0.23	0.14
11.25	1.05	0.29	0.18
11.50	1.17	0.35	0.25
11.75	1.59	0.65	**1.33**
12.00	2.73	1.58	**3.60**
12.25	2.91	1.74	0.51
12.50	3.03	1.84	0.33
12.75	3.11	1.92	0.25
13.00	3.18	1.98	0.21
13.25	3.24	2.03	0.18
13.50	3.29	2.08	0.16
13.75	3.34	2.12	0.14
14.00	3.38	2.16	0.12
14.25	3.42	2.19	0.12
14.50	3.45	2.22	0.11
14.75	3.48	2.25	0.10
15.00	3.52	2.28	0.10
15.25	3.55	2.31	0.09
15.50	3.57	2.34	0.09
15.75	3.60	2.36	0.08
16.00	3.63	2.38	0.08
16.25	3.65	2.40	0.07
16.50	3.67	2.43	0.07
16.75	3.69	2.45	0.07
17.00	3.72	2.47	0.07
17.25	3.74	2.48	0.07
17.50	3.76	2.50	0.06
17.75	3.78	2.52	0.06
18.00	3.79	2.54	0.06
18.25	3.81	2.56	0.06
18.50	3.83	2.57	0.06
18.75	3.85	2.59	0.05
19.00	3.86	2.60	0.05
19.25	3.88	2.62	0.05
19.50	3.89	2.63	0.05
19.75	3.91	2.64	0.05
20.00	**3.92**	**2.66**	0.04

Summary for Subcatchment DA-8: Bypass to DP003

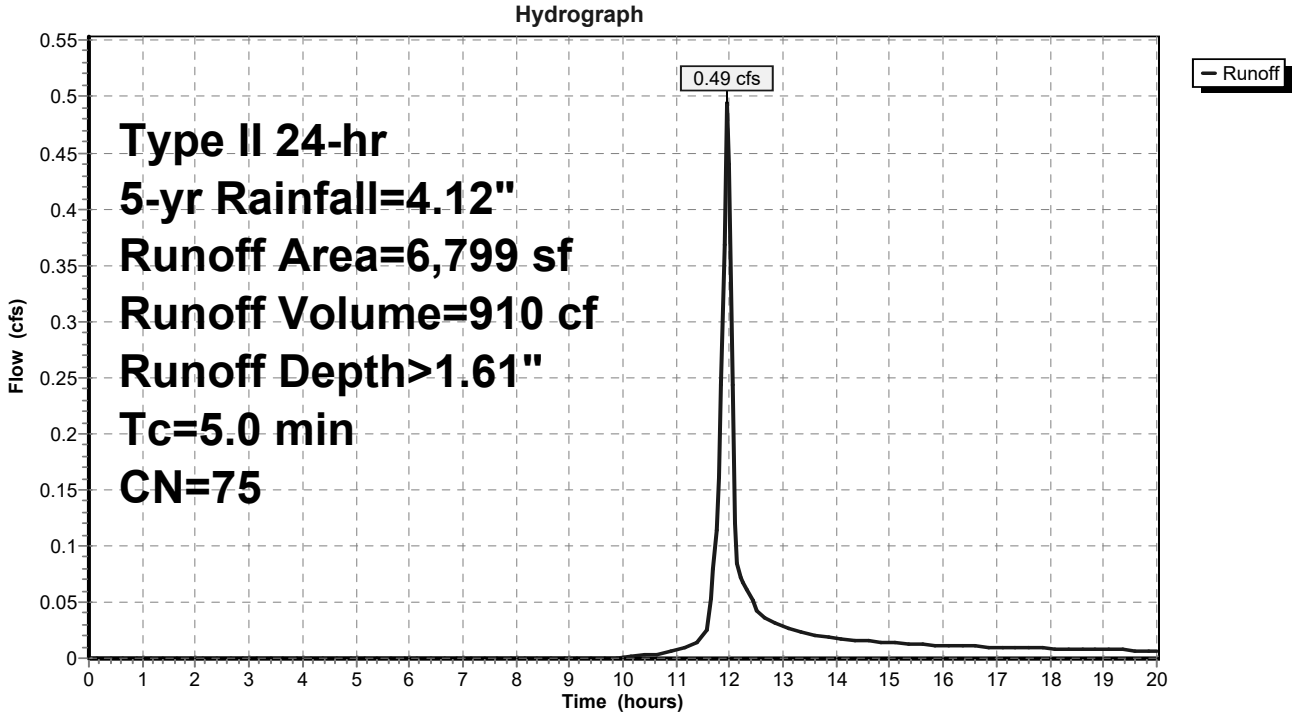
Runoff = 0.49 cfs @ 11.96 hrs, Volume= 910 cf, Depth> 1.61"
Routed to Link Post DP003 : Post-Development DP003

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 5-yr Rainfall=4.12"

Area (sf)	CN	Description
6,532	74	>75% Grass cover, Good, HSG C
267	98	Paved parking, HSG C
6,799	75	Weighted Average
6,532		96.07% Pervious Area
267		3.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc-1**

Subcatchment DA-8: Bypass to DP003



Hydrograph for Subcatchment DA-8: Bypass to DP003

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.02	0.00	0.00
0.75	0.03	0.00	0.00
1.00	0.04	0.00	0.00
1.25	0.05	0.00	0.00
1.50	0.07	0.00	0.00
1.75	0.08	0.00	0.00
2.00	0.09	0.00	0.00
2.25	0.10	0.00	0.00
2.50	0.12	0.00	0.00
2.75	0.13	0.00	0.00
3.00	0.14	0.00	0.00
3.25	0.16	0.00	0.00
3.50	0.17	0.00	0.00
3.75	0.18	0.00	0.00
4.00	0.20	0.00	0.00
4.25	0.21	0.00	0.00
4.50	0.23	0.00	0.00
4.75	0.24	0.00	0.00
5.00	0.26	0.00	0.00
5.25	0.28	0.00	0.00
5.50	0.29	0.00	0.00
5.75	0.31	0.00	0.00
6.00	0.33	0.00	0.00
6.25	0.35	0.00	0.00
6.50	0.37	0.00	0.00
6.75	0.39	0.00	0.00
7.00	0.41	0.00	0.00
7.25	0.43	0.00	0.00
7.50	0.45	0.00	0.00
7.75	0.47	0.00	0.00
8.00	0.49	0.00	0.00
8.25	0.52	0.00	0.00
8.50	0.54	0.00	0.00
8.75	0.57	0.00	0.00
9.00	0.61	0.00	0.00
9.25	0.64	0.00	0.00
9.50	0.67	0.00	0.00
9.75	0.71	0.00	0.00
10.00	0.75	0.00	0.00
10.25	0.79	0.00	0.00
10.50	0.84	0.01	0.00
10.75	0.90	0.02	0.00
11.00	0.97	0.03	0.01
11.25	1.05	0.04	0.01
11.50	1.17	0.07	0.02
11.75	1.59	0.20	**0.11**
12.00	2.73	0.79	**0.44**
12.25	2.91	0.90	0.07
12.50	3.03	0.98	0.04
12.75	3.11	1.03	0.03
13.00	3.18	1.08	0.03
13.25	3.24	1.12	0.02
13.50	3.29	1.16	0.02
13.75	3.34	1.19	0.02
14.00	3.38	1.22	0.02
14.25	3.42	1.24	0.02
14.50	3.45	1.27	0.02
14.75	3.48	1.29	0.01
15.00	3.52	1.31	0.01
15.25	3.55	1.33	0.01
15.50	3.57	1.35	0.01
15.75	3.60	1.37	0.01
16.00	3.63	1.39	0.01
16.25	3.65	1.41	0.01
16.50	3.67	1.42	0.01
16.75	3.69	1.44	0.01
17.00	3.72	1.46	0.01
17.25	3.74	1.47	0.01
17.50	3.76	1.49	0.01
17.75	3.78	1.50	0.01
18.00	3.79	1.51	0.01
18.25	3.81	1.53	0.01
18.50	3.83	1.54	0.01
18.75	3.85	1.55	0.01
19.00	3.86	1.57	0.01
19.25	3.88	1.58	0.01
19.50	3.89	1.59	0.01
19.75	3.91	1.60	0.01
20.00	**3.92**	**1.61**	0.01

Summary for Pond 3P: MRC

Inflow Area = 117,005 sf, 95.04% Impervious, Inflow Depth > 3.57" for 5-yr event
Inflow = 15.74 cfs @ 11.95 hrs, Volume= 34,821 cf
Outflow = 0.49 cfs @ 13.74 hrs, Volume= 13,802 cf, Atten= 97%, Lag= 107.2 min
Primary = 0.49 cfs @ 13.74 hrs, Volume= 13,802 cf
Routed to Link Post DP002 : Post-Development DP002

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 195.42' @ 13.74 hrs Surf.Area= 31,076 sf Storage= 25,453 cf

Plug-Flow detention time= 331.9 min calculated for 13,802 cf (40% of inflow)
Center-of-Mass det. time= 213.5 min (937.2 - 723.7)

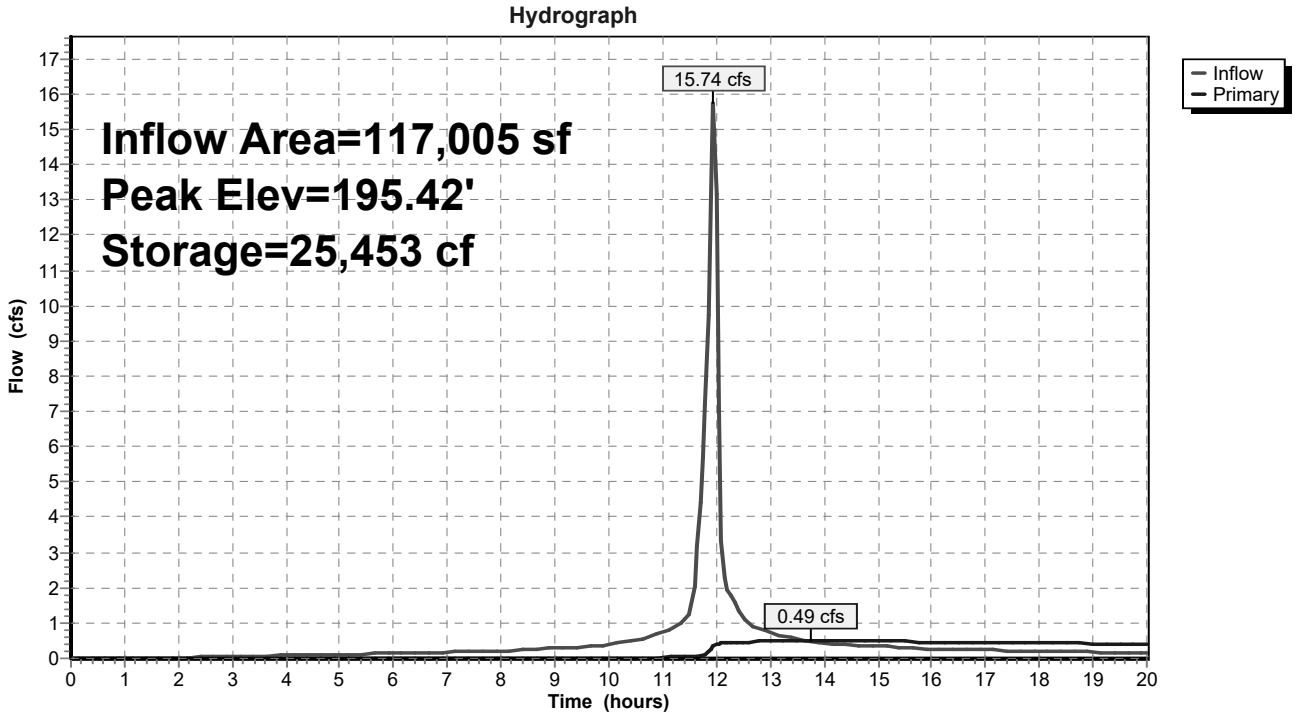
Volume	Invert	Avail.Storage	Storage Description
#1	192.55'	0 cf	**100.00'W x 150.00'L x 1.00'H Prismatoid** 15,000 cf Overall x 0.0% Voids
#2A	193.55'	16,872 cf	**126.00'W x 127.59'L x 4.75'H Field A** 76,363 cf Overall - 34,182 cf Embedded = 42,181 cf x 40.0% Voids
#3A	193.55'	34,182 cf	**ADS_StormTech MC-3500 d +Cap**x 306 Inside #2 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 306 Chambers in 18 Rows Cap Storage= 14.9 cf x 2 x 18 rows = 536.4 cf
		51,054 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	193.55'	**18.0" Round 18" Outlet** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 193.55' / 192.00' S= 0.0775 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	192.55'	**1.2" Vert. MRC Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	194.19'	**4.0" Vert. 4" Circular Orifice** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.49 cfs @ 13.74 hrs HW=195.42' (Free Discharge)
└**1=18" Outlet** (Passes 0.49 cfs of 9.01 cfs potential flow)
  ├**2=MRC Orifice** (Orifice Controls 0.05 cfs @ 6.58 fps)
  └**3=4" Circular Orifice** (Orifice Controls 0.43 cfs @ 4.97 fps)

Pond 3P: MRC


Hydrograph
Inflow Area=117,005 sf
Peak Elev=195.42'
Storage=25,453 cf
15.74 cfs
0.49 cfs
Inflow
Primary
Flow (cfs)
Time (hours)

Hydrograph for Pond 3P: MRC

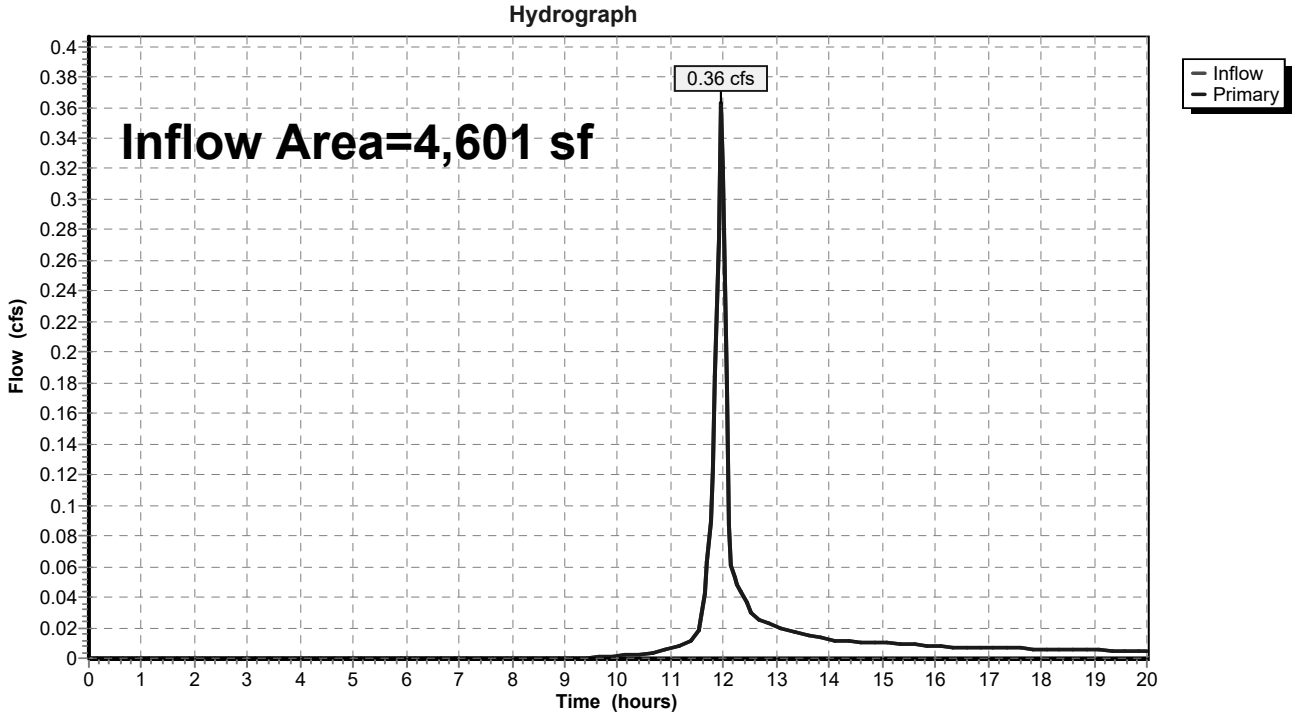
Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	192.55	0.00
0.50	0.00	0	192.55	0.00
1.00	0.00	0	192.55	0.00
1.50	0.00	0	193.55	0.00
2.00	0.02	18	193.55	0.00
2.50	0.04	67	193.55	0.00
3.00	0.05	143	193.56	0.00
3.50	0.07	244	193.57	0.00
4.00	0.08	367	193.58	0.00
4.50	0.09	511	193.59	0.01
5.00	0.11	681	193.60	0.01
5.50	0.13	878	193.61	0.01
6.00	0.14	1,100	193.63	0.01
6.50	0.16	1,347	193.64	0.01
7.00	0.17	1,620	193.66	0.01
7.50	0.19	1,917	193.68	0.01
8.00	0.20	2,240	193.71	0.01
8.50	0.25	2,610	193.73	0.02
9.00	0.30	3,073	193.77	0.02
9.50	0.32	3,601	193.80	0.02
10.00	0.39	4,191	193.85	0.02
10.50	0.51	4,960	193.90	0.02
11.00	0.72	6,015	193.97	0.02
11.50	**1.19**	7,652	194.09	0.03
12.00	**13.14**	19,954	194.99	0.38
12.50	1.16	24,449	195.34	0.47
13.00	0.72	25,175	195.40	0.48
13.50	0.54	**25,429**	**195.42**	**0.48**
14.00	0.43	**25,426**	**195.42**	**0.48**
14.50	0.38	25,272	195.41	0.48
15.00	0.34	25,052	195.39	0.48
15.50	0.30	24,770	195.37	0.47
16.00	0.26	24,428	195.34	0.47
16.50	0.24	24,045	195.31	0.46
17.00	0.23	23,648	195.28	0.45
17.50	0.22	23,240	195.25	0.45
18.00	0.20	22,820	195.21	0.44
18.50	0.19	22,390	195.18	0.43
19.00	0.17	21,950	195.15	0.42
19.50	0.16	21,500	195.11	0.41
20.00	0.15	21,042	195.08	0.40

Summary for Link Post DP001: Post-Development DP001

Inflow Area = 4,601 sf, 0.00% Impervious, Inflow Depth > 1.75" for 5-yr event
Inflow = 0.36 cfs @ 11.96 hrs, Volume= 671 cf
Primary = 0.36 cfs @ 11.96 hrs, Volume= 671 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Post DP001: Post-Development DP001



Hydrograph for Link Post DP001: Post-Development DP001

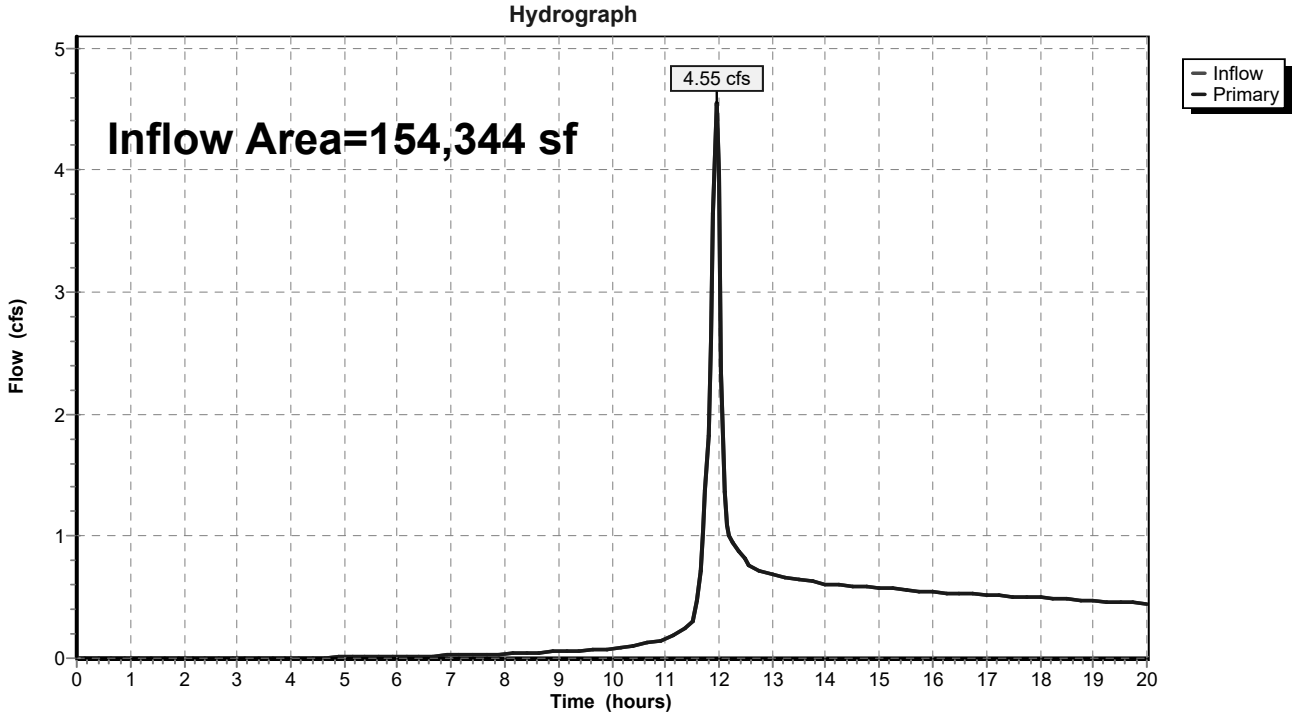
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
0.25	0.00	0.00	0.00
0.50	0.00	0.00	0.00
0.75	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00
1.50	0.00	0.00	0.00
1.75	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00
2.50	0.00	0.00	0.00
2.75	0.00	0.00	0.00
3.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00
3.50	0.00	0.00	0.00
3.75	0.00	0.00	0.00
4.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00
4.50	0.00	0.00	0.00
4.75	0.00	0.00	0.00
5.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00
5.50	0.00	0.00	0.00
5.75	0.00	0.00	0.00
6.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00
6.50	0.00	0.00	0.00
6.75	0.00	0.00	0.00
7.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00
7.50	0.00	0.00	0.00
7.75	0.00	0.00	0.00
8.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00
8.50	0.00	0.00	0.00
8.75	0.00	0.00	0.00
9.00	0.00	0.00	0.00
9.25	0.00	0.00	0.00
9.50	0.00	0.00	0.00
9.75	0.00	0.00	0.00
10.00	0.00	0.00	0.00
10.25	0.00	0.00	0.00
10.50	0.00	0.00	0.00
10.75	0.00	0.00	0.00
11.00	0.01	0.00	0.01
11.25	0.01	0.00	0.01
11.50	0.01	0.00	0.01
11.75	**0.09**	0.00	**0.09**
12.00	**0.32**	0.00	**0.32**
12.25	0.05	0.00	0.05
12.50	0.03	0.00	0.03
12.75	0.02	0.00	0.02
13.00	0.02	0.00	0.02
13.25	0.02	0.00	0.02
13.50	0.02	0.00	0.02
13.75	0.01	0.00	0.01
14.00	0.01	0.00	0.01
14.25	0.01	0.00	0.01
14.50	0.01	0.00	0.01
14.75	0.01	0.00	0.01
15.00	0.01	0.00	0.01
15.25	0.01	0.00	0.01
15.50	0.01	0.00	0.01
15.75	0.01	0.00	0.01
16.00	0.01	0.00	0.01
16.25	0.01	0.00	0.01
16.50	0.01	0.00	0.01
16.75	0.01	0.00	0.01
17.00	0.01	0.00	0.01
17.25	0.01	0.00	0.01
17.50	0.01	0.00	0.01
17.75	0.01	0.00	0.01
18.00	0.01	0.00	0.01
18.25	0.01	0.00	0.01
18.50	0.01	0.00	0.01
18.75	0.01	0.00	0.01
19.00	0.01	0.00	0.01
19.25	0.01	0.00	0.01
19.50	0.00	0.00	0.00
19.75	0.00	0.00	0.00
20.00	0.00	0.00	0.00

Summary for Link Post DP002: Post-Development DP002

Inflow Area = 154,344 sf, 86.51% Impervious, Inflow Depth > 1.72" for 5-yr event
Inflow = 4.55 cfs @ 11.96 hrs, Volume= 22,061 cf
Primary = 4.55 cfs @ 11.96 hrs, Volume= 22,061 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Post DP002: Post-Development DP002



Hydrograph for Link Post DP002: Post-Development DP002

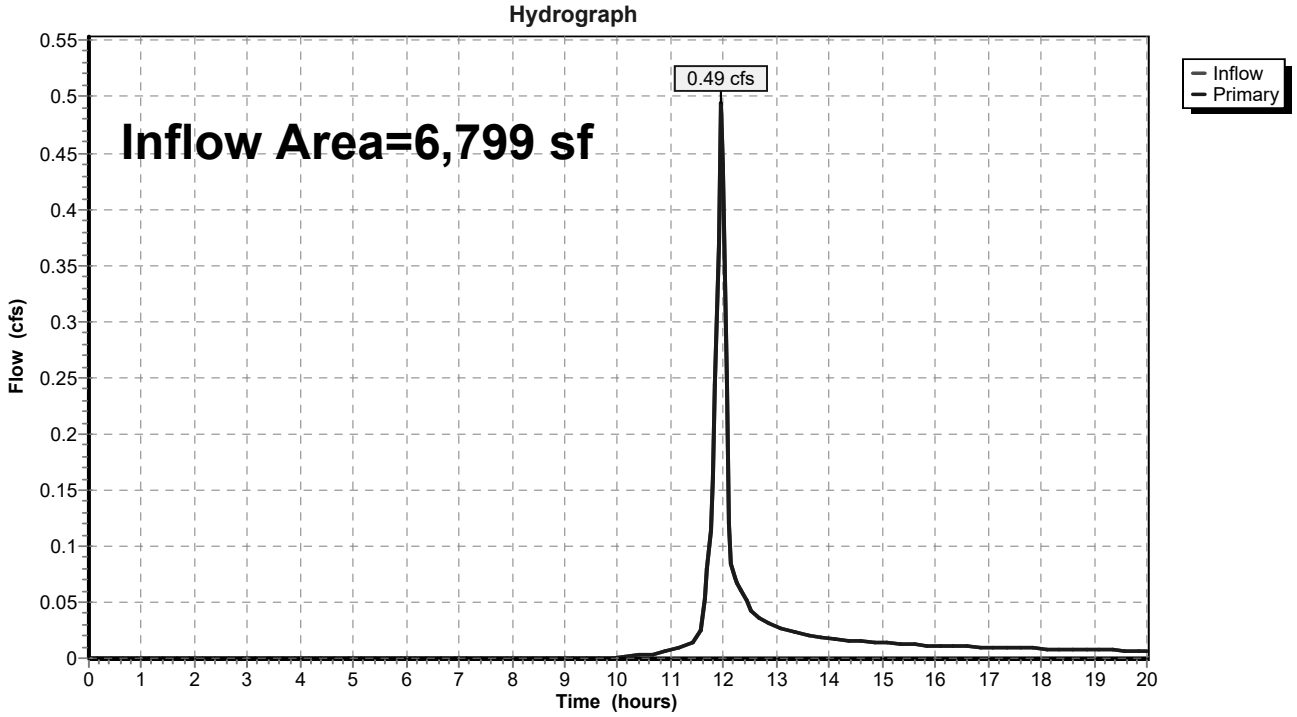
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
0.25	0.00	0.00	0.00
0.50	0.00	0.00	0.00
0.75	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00
1.50	0.00	0.00	0.00
1.75	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00
2.50	0.00	0.00	0.00
2.75	0.00	0.00	0.00
3.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00
3.50	0.00	0.00	0.00
3.75	0.00	0.00	0.00
4.00	0.00	0.00	0.00
4.25	0.01	0.00	0.01
4.50	0.01	0.00	0.01
4.75	0.01	0.00	0.01
5.00	0.01	0.00	0.01
5.25	0.01	0.00	0.01
5.50	0.01	0.00	0.01
5.75	0.01	0.00	0.01
6.00	0.01	0.00	0.01
6.25	0.02	0.00	0.02
6.50	0.02	0.00	0.02
6.75	0.02	0.00	0.02
7.00	0.02	0.00	0.02
7.25	0.03	0.00	0.03
7.50	0.03	0.00	0.03
7.75	0.03	0.00	0.03
8.00	0.03	0.00	0.03
8.25	0.04	0.00	0.04
8.50	0.04	0.00	0.04
8.75	0.05	0.00	0.05
9.00	0.06	0.00	0.06
9.25	0.06	0.00	0.06
9.50	0.06	0.00	0.06
9.75	0.07	0.00	0.07
10.00	0.08	0.00	0.08
10.25	0.09	0.00	0.09
10.50	0.11	0.00	0.11
10.75	0.13	0.00	0.13
11.00	0.16	0.00	0.16
11.25	0.21	0.00	0.21
11.50	0.28	0.00	0.28
11.75	**1.38**	0.00	**1.38**
12.00	**3.98**	0.00	**3.98**
12.25	0.96	0.00	0.96
12.50	0.80	0.00	0.80
12.75	0.72	0.00	0.72
13.00	0.69	0.00	0.69
13.25	0.66	0.00	0.66
13.50	0.64	0.00	0.64
13.75	0.63	0.00	0.63
14.00	0.61	0.00	0.61
14.25	0.60	0.00	0.60
14.50	0.59	0.00	0.59
14.75	0.58	0.00	0.58
15.00	0.58	0.00	0.58
15.25	0.57	0.00	0.57
15.50	0.56	0.00	0.56
15.75	0.55	0.00	0.55
16.00	0.54	0.00	0.54
16.25	0.54	0.00	0.54
16.50	0.53	0.00	0.53
16.75	0.53	0.00	0.53
17.00	0.52	0.00	0.52
17.25	0.52	0.00	0.52
17.50	0.51	0.00	0.51
17.75	0.50	0.00	0.50
18.00	0.50	0.00	0.50
18.25	0.49	0.00	0.49
18.50	0.49	0.00	0.49
18.75	0.48	0.00	0.48
19.00	0.47	0.00	0.47
19.25	0.47	0.00	0.47
19.50	0.46	0.00	0.46
19.75	0.45	0.00	0.45
20.00	0.45	0.00	0.45

Summary for Link Post DP003: Post-Development DP003

Inflow Area = 6,799 sf, 3.93% Impervious, Inflow Depth > 1.61" for 5-yr event
Inflow = 0.49 cfs @ 11.96 hrs, Volume= 910 cf
Primary = 0.49 cfs @ 11.96 hrs, Volume= 910 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Post DP003: Post-Development DP003



Hydrograph for Link Post DP003: Post-Development DP003

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
0.25	0.00	0.00	0.00
0.50	0.00	0.00	0.00
0.75	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00
1.50	0.00	0.00	0.00
1.75	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00
2.50	0.00	0.00	0.00
2.75	0.00	0.00	0.00
3.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00
3.50	0.00	0.00	0.00
3.75	0.00	0.00	0.00
4.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00
4.50	0.00	0.00	0.00
4.75	0.00	0.00	0.00
5.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00
5.50	0.00	0.00	0.00
5.75	0.00	0.00	0.00
6.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00
6.50	0.00	0.00	0.00
6.75	0.00	0.00	0.00
7.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00
7.50	0.00	0.00	0.00
7.75	0.00	0.00	0.00
8.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00
8.50	0.00	0.00	0.00
8.75	0.00	0.00	0.00
9.00	0.00	0.00	0.00
9.25	0.00	0.00	0.00
9.50	0.00	0.00	0.00
9.75	0.00	0.00	0.00
10.00	0.00	0.00	0.00
10.25	0.00	0.00	0.00
10.50	0.00	0.00	0.00
10.75	0.00	0.00	0.00
11.00	0.01	0.00	0.01
11.25	0.01	0.00	0.01
11.50	0.02	0.00	0.02
11.75	**0.11**	0.00	**0.11**
12.00	**0.44**	0.00	**0.44**
12.25	0.07	0.00	0.07
12.50	0.04	0.00	0.04
12.75	0.03	0.00	0.03
13.00	0.03	0.00	0.03
13.25	0.02	0.00	0.02
13.50	0.02	0.00	0.02
13.75	0.02	0.00	0.02
14.00	0.02	0.00	0.02
14.25	0.02	0.00	0.02
14.50	0.02	0.00	0.02
14.75	0.01	0.00	0.01
15.00	0.01	0.00	0.01
15.25	0.01	0.00	0.01
15.50	0.01	0.00	0.01
15.75	0.01	0.00	0.01
16.00	0.01	0.00	0.01
16.25	0.01	0.00	0.01
16.50	0.01	0.00	0.01
16.75	0.01	0.00	0.01
17.00	0.01	0.00	0.01
17.25	0.01	0.00	0.01
17.50	0.01	0.00	0.01
17.75	0.01	0.00	0.01
18.00	0.01	0.00	0.01
18.25	0.01	0.00	0.01
18.50	0.01	0.00	0.01
18.75	0.01	0.00	0.01
19.00	0.01	0.00	0.01
19.25	0.01	0.00	0.01
19.50	0.01	0.00	0.01
19.75	0.01	0.00	0.01
20.00	0.01	0.00	0.01

Summary for Subcatchment DA-5: BYPASS TO DP-001

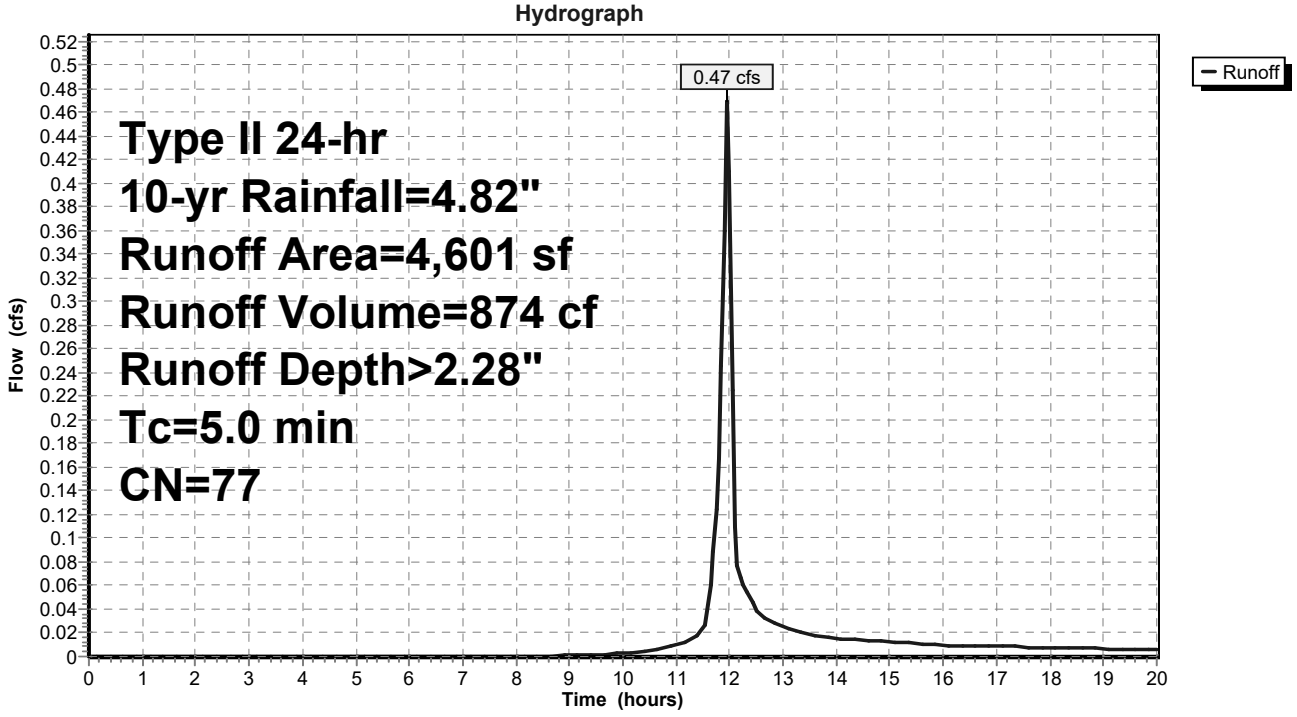
Runoff = 0.47 cfs @ 11.96 hrs, Volume= 874 cf, Depth> 2.28"
Routed to Link Post DP001 : Post-Development DP001

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=4.82"

Area (sf)	CN	Description
1,989	74	>75% Grass cover, Good, HSG C
2,612	80	>75% Grass cover, Good, HSG D
4,601	77	Weighted Average
4,601		100.00% Pervious Area

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

Subcatchment DA-5: BYPASS TO DP-001



Hydrograph for Subcatchment DA-5: BYPASS TO DP-001

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.02	0.00	0.00
0.75	0.04	0.00	0.00
1.00	0.05	0.00	0.00
1.25	0.06	0.00	0.00
1.50	0.08	0.00	0.00
1.75	0.09	0.00	0.00
2.00	0.11	0.00	0.00
2.25	0.12	0.00	0.00
2.50	0.14	0.00	0.00
2.75	0.15	0.00	0.00
3.00	0.17	0.00	0.00
3.25	0.18	0.00	0.00
3.50	0.20	0.00	0.00
3.75	0.21	0.00	0.00
4.00	0.23	0.00	0.00
4.25	0.25	0.00	0.00
4.50	0.27	0.00	0.00
4.75	0.28	0.00	0.00
5.00	0.30	0.00	0.00
5.25	0.32	0.00	0.00
5.50	0.34	0.00	0.00
5.75	0.36	0.00	0.00
6.00	0.39	0.00	0.00
6.25	0.41	0.00	0.00
6.50	0.43	0.00	0.00
6.75	0.45	0.00	0.00
7.00	0.48	0.00	0.00
7.25	0.50	0.00	0.00
7.50	0.53	0.00	0.00
7.75	0.55	0.00	0.00
8.00	0.58	0.00	0.00
8.25	0.61	0.00	0.00
8.50	0.64	0.00	0.00
8.75	0.67	0.00	0.00
9.00	0.71	0.00	0.00
9.25	0.75	0.01	0.00
9.50	0.79	0.01	0.00
9.75	0.83	0.02	0.00
10.00	0.87	0.02	0.00
10.25	0.92	0.03	0.00
10.50	0.98	0.04	0.01
10.75	1.05	0.06	0.01
11.00	1.13	0.08	0.01
11.25	1.23	0.11	0.01
11.50	1.36	0.16	0.02
11.75	1.87	0.38	**0.12**
12.00	3.20	1.21	**0.41**
12.25	3.40	1.36	0.06
12.50	3.54	1.46	0.04
12.75	3.64	1.54	0.03
13.00	3.72	1.60	0.03
13.25	3.79	1.65	0.02
13.50	3.85	1.70	0.02
13.75	3.90	1.74	0.02
14.00	3.95	1.77	0.02
14.25	4.00	1.81	0.01
14.50	4.04	1.84	0.01
14.75	4.08	1.87	0.01
15.00	4.11	1.90	0.01
15.25	4.15	1.93	0.01
15.50	4.18	1.96	0.01
15.75	4.21	1.98	0.01
16.00	4.24	2.00	0.01
16.25	4.27	2.02	0.01
16.50	4.30	2.05	0.01
16.75	4.32	2.07	0.01
17.00	4.35	2.09	0.01
17.25	4.37	2.11	0.01
17.50	4.39	2.13	0.01
17.75	4.42	2.14	0.01
18.00	4.44	2.16	0.01
18.25	4.46	2.18	0.01
18.50	4.48	2.20	0.01
18.75	4.50	2.21	0.01
19.00	4.52	2.23	0.01
19.25	4.54	2.24	0.01
19.50	4.56	2.26	0.01
19.75	4.57	2.27	0.01
20.00	**4.59**	**2.28**	0.01

Summary for Subcatchment DA-6: To Rain Garden (BMP-2)

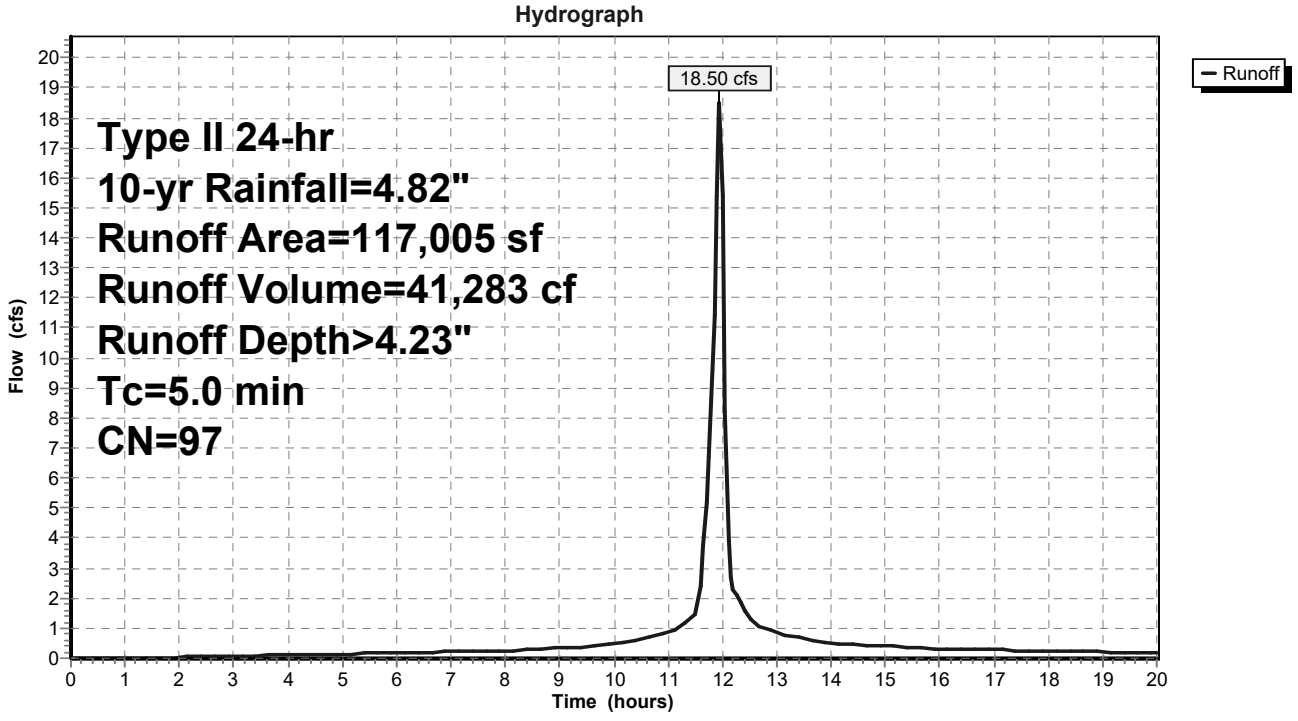
Runoff = 18.50 cfs @ 11.95 hrs, Volume= 41,283 cf, Depth> 4.23"
Routed to Pond 3P : MRC

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=4.82"

	Area (sf)	CN	Description
*	111,197	98	Paved parking, All HSGs
	5,808	74	>75% Grass cover, Good, HSG C
	117,005	97	Weighted Average
	5,808		4.96% Pervious Area
	111,197		95.04% Impervious Area

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

Subcatchment DA-6: To Rain Garden (BMP-2)



Hydrograph for Subcatchment DA-6: To Rain Garden (BMP-2)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.02	0.00	0.00
0.75	0.04	0.00	0.00
1.00	0.05	0.00	0.00
1.25	0.06	0.00	0.00
1.50	0.08	0.00	0.01
1.75	0.09	0.00	0.02
2.00	0.11	0.01	0.03
2.25	0.12	0.01	0.04
2.50	0.14	0.01	0.05
2.75	0.15	0.02	0.06
3.00	0.17	0.03	0.07
3.25	0.18	0.03	0.08
3.50	0.20	0.04	0.09
3.75	0.21	0.05	0.10
4.00	0.23	0.06	0.10
4.25	0.25	0.07	0.11
4.50	0.27	0.08	0.12
4.75	0.28	0.09	0.13
5.00	0.30	0.11	0.14
5.25	0.32	0.12	0.15
5.50	0.34	0.13	0.16
5.75	0.36	0.15	0.17
6.00	0.39	0.17	0.18
6.25	0.41	0.18	0.18
6.50	0.43	0.20	0.19
6.75	0.45	0.22	0.20
7.00	0.48	0.24	0.21
7.25	0.50	0.26	0.22
7.50	0.53	0.28	0.23
7.75	0.55	0.30	0.24
8.00	0.58	0.32	0.24
8.25	0.61	0.35	0.27
8.50	0.64	0.37	0.30
8.75	0.67	0.40	0.33
9.00	0.71	0.44	0.36
9.25	0.75	0.47	0.38
9.50	0.79	0.51	0.38
9.75	0.83	0.54	0.42
10.00	0.87	0.59	0.47
10.25	0.92	0.63	0.54
10.50	0.98	0.69	0.61
10.75	1.05	0.75	0.72
11.00	1.13	0.83	0.85
11.25	1.23	0.93	1.10
11.50	1.36	1.05	1.41
11.75	1.87	1.54	**6.72**
12.00	3.20	2.85	**15.42**
12.25	3.40	3.06	2.10
12.50	3.54	3.20	1.36
12.75	3.64	3.29	1.01
13.00	3.72	3.37	0.84
13.25	3.79	3.44	0.73
13.50	3.85	3.50	0.64
13.75	3.90	3.56	0.57
14.00	3.95	3.60	0.50
14.25	4.00	3.65	0.46
14.50	4.04	3.69	0.44
14.75	4.08	3.73	0.42
15.00	4.11	3.76	0.40
15.25	4.15	3.80	0.37
15.50	4.18	3.83	0.35
15.75	4.21	3.86	0.33
16.00	4.24	3.89	0.31
16.25	4.27	3.92	0.29
16.50	4.30	3.95	0.29
16.75	4.32	3.97	0.28
17.00	4.35	4.00	0.27
17.25	4.37	4.02	0.26
17.50	4.39	4.04	0.25
17.75	4.42	4.07	0.24
18.00	4.44	4.09	0.24
18.25	4.46	4.11	0.23
18.50	4.48	4.13	0.22
18.75	4.50	4.15	0.21
19.00	4.52	4.17	0.20
19.25	4.54	4.19	0.20
19.50	4.56	4.20	0.19
19.75	4.57	4.22	0.18
20.00	**4.59**	**4.24**	0.17

Summary for Subcatchment DA-7: BYPASS TO DP-002

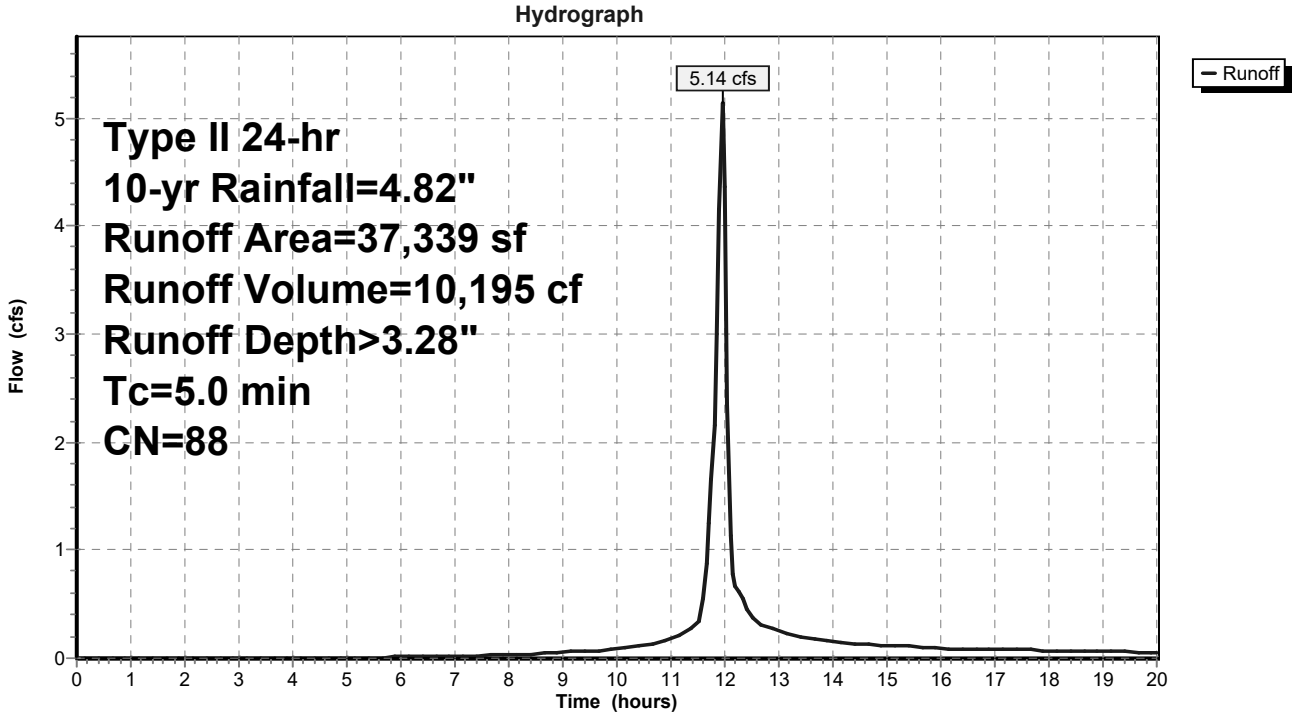
Runoff = 5.14 cfs @ 11.95 hrs, Volume= 10,195 cf, Depth> 3.28"
Routed to Link Post DP002 : Post-Development DP002

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=4.82"

Area (sf)	CN	Description
15,016	74	>75% Grass cover, Good, HSG C
22,323	98	Paved parking, HSG C
37,339	88	Weighted Average
15,016		40.22% Pervious Area
22,323		59.78% Impervious Area

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

Subcatchment DA-7: BYPASS TO DP-002



Hydrograph for Subcatchment DA-7: BYPASS TO DP-002

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.02	0.00	0.00
0.75	0.04	0.00	0.00
1.00	0.05	0.00	0.00
1.25	0.06	0.00	0.00
1.50	0.08	0.00	0.00
1.75	0.09	0.00	0.00
2.00	0.11	0.00	0.00
2.25	0.12	0.00	0.00
2.50	0.14	0.00	0.00
2.75	0.15	0.00	0.00
3.00	0.17	0.00	0.00
3.25	0.18	0.00	0.00
3.50	0.20	0.00	0.00
3.75	0.21	0.00	0.00
4.00	0.23	0.00	0.00
4.25	0.25	0.00	0.00
4.50	0.27	0.00	0.00
4.75	0.28	0.00	0.00
5.00	0.30	0.00	0.00
5.25	0.32	0.00	0.00
5.50	0.34	0.00	0.01
5.75	0.36	0.01	0.01
6.00	0.39	0.01	0.01
6.25	0.41	0.01	0.01
6.50	0.43	0.02	0.01
6.75	0.45	0.02	0.02
7.00	0.48	0.03	0.02
7.25	0.50	0.03	0.02
7.50	0.53	0.04	0.02
7.75	0.55	0.05	0.03
8.00	0.58	0.06	0.03
8.25	0.61	0.07	0.03
8.50	0.64	0.08	0.04
8.75	0.67	0.09	0.05
9.00	0.71	0.11	0.05
9.25	0.75	0.12	0.06
9.50	0.79	0.14	0.06
9.75	0.83	0.16	0.07
10.00	0.87	0.18	0.08
10.25	0.92	0.21	0.10
10.50	0.98	0.24	0.12
10.75	1.05	0.28	0.14
11.00	1.13	0.33	0.18
11.25	1.23	0.40	0.24
11.50	1.36	0.49	0.32
11.75	1.87	0.86	**1.66**
12.00	3.20	1.99	**4.36**
12.25	3.40	2.18	0.61
12.50	3.54	2.31	0.40
12.75	3.64	2.40	0.30
13.00	3.72	2.47	0.25
13.25	3.79	2.53	0.22
13.50	3.85	2.59	0.19
13.75	3.90	2.64	0.17
14.00	3.95	2.68	0.15
14.25	4.00	2.73	0.14
14.50	4.04	2.76	0.13
14.75	4.08	2.80	0.13
15.00	4.11	2.83	0.12
15.25	4.15	2.87	0.11
15.50	4.18	2.90	0.11
15.75	4.21	2.93	0.10
16.00	4.24	2.95	0.09
16.25	4.27	2.98	0.09
16.50	4.30	3.00	0.09
16.75	4.32	3.03	0.08
17.00	4.35	3.05	0.08
17.25	4.37	3.07	0.08
17.50	4.39	3.10	0.08
17.75	4.42	3.12	0.07
18.00	4.44	3.14	0.07
18.25	4.46	3.16	0.07
18.50	4.48	3.18	0.07
18.75	4.50	3.20	0.06
19.00	4.52	3.22	0.06
19.25	4.54	3.23	0.06
19.50	4.56	3.25	0.06
19.75	4.57	3.26	0.05
20.00	**4.59**	**3.28**	0.05

Summary for Subcatchment DA-8: Bypass to DP003

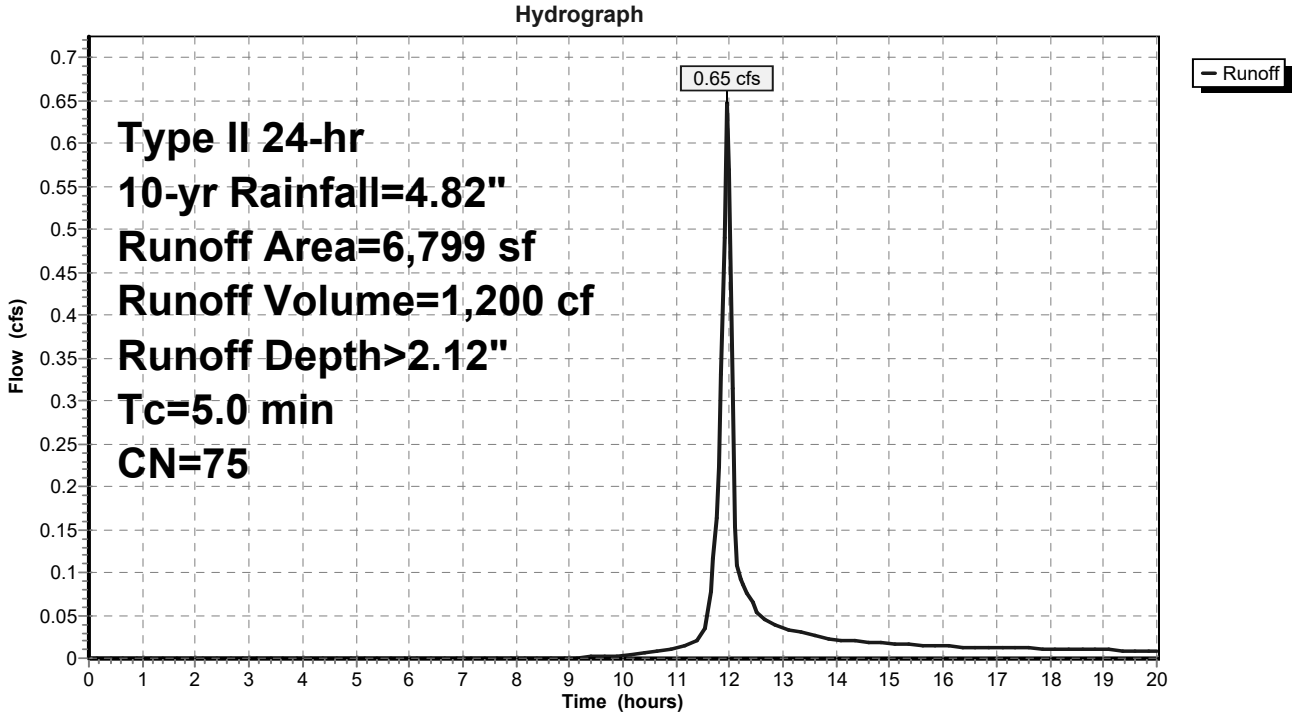
Runoff = 0.65 cfs @ 11.96 hrs, Volume= 1,200 cf, Depth> 2.12"
Routed to Link Post DP003 : Post-Development DP003

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=4.82"

Area (sf)	CN	Description
6,532	74	>75% Grass cover, Good, HSG C
267	98	Paved parking, HSG C
6,799	75	Weighted Average
6,532		96.07% Pervious Area
267		3.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc-1**

Subcatchment DA-8: Bypass to DP003



Hydrograph for Subcatchment DA-8: Bypass to DP003

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.02	0.00	0.00
0.75	0.04	0.00	0.00
1.00	0.05	0.00	0.00
1.25	0.06	0.00	0.00
1.50	0.08	0.00	0.00
1.75	0.09	0.00	0.00
2.00	0.11	0.00	0.00
2.25	0.12	0.00	0.00
2.50	0.14	0.00	0.00
2.75	0.15	0.00	0.00
3.00	0.17	0.00	0.00
3.25	0.18	0.00	0.00
3.50	0.20	0.00	0.00
3.75	0.21	0.00	0.00
4.00	0.23	0.00	0.00
4.25	0.25	0.00	0.00
4.50	0.27	0.00	0.00
4.75	0.28	0.00	0.00
5.00	0.30	0.00	0.00
5.25	0.32	0.00	0.00
5.50	0.34	0.00	0.00
5.75	0.36	0.00	0.00
6.00	0.39	0.00	0.00
6.25	0.41	0.00	0.00
6.50	0.43	0.00	0.00
6.75	0.45	0.00	0.00
7.00	0.48	0.00	0.00
7.25	0.50	0.00	0.00
7.50	0.53	0.00	0.00
7.75	0.55	0.00	0.00
8.00	0.58	0.00	0.00
8.25	0.61	0.00	0.00
8.50	0.64	0.00	0.00
8.75	0.67	0.00	0.00
9.00	0.71	0.00	0.00
9.25	0.75	0.00	0.00
9.50	0.79	0.00	0.00
9.75	0.83	0.01	0.00
10.00	0.87	0.01	0.00
10.25	0.92	0.02	0.00
10.50	0.98	0.03	0.01
10.75	1.05	0.04	0.01
11.00	1.13	0.06	0.01
11.25	1.23	0.08	0.02
11.50	1.36	0.12	0.03
11.75	1.87	0.32	**0.16**
12.00	3.20	1.09	**0.57**
12.25	3.40	1.23	0.09
12.50	3.54	1.33	0.06
12.75	3.64	1.40	0.04
13.00	3.72	1.46	0.04
13.25	3.79	1.51	0.03
13.50	3.85	1.56	0.03
13.75	3.90	1.60	0.02
14.00	3.95	1.63	0.02
14.25	4.00	1.66	0.02
14.50	4.04	1.69	0.02
14.75	4.08	1.72	0.02
15.00	4.11	1.75	0.02
15.25	4.15	1.78	0.02
15.50	4.18	1.80	0.02
15.75	4.21	1.83	0.01
16.00	4.24	1.85	0.01
16.25	4.27	1.87	0.01
16.50	4.30	1.89	0.01
16.75	4.32	1.91	0.01
17.00	4.35	1.93	0.01
17.25	4.37	1.95	0.01
17.50	4.39	1.97	0.01
17.75	4.42	1.99	0.01
18.00	4.44	2.00	0.01
18.25	4.46	2.02	0.01
18.50	4.48	2.04	0.01
18.75	4.50	2.05	0.01
19.00	4.52	2.07	0.01
19.25	4.54	2.08	0.01
19.50	4.56	2.09	0.01
19.75	4.57	2.11	0.01
20.00	**4.59**	**2.12**	0.01

Summary for Pond 3P: MRC

Inflow Area = 117,005 sf, 95.04% Impervious, Inflow Depth > 4.23" for 10-yr event
Inflow = 18.50 cfs @ 11.95 hrs, Volume= 41,283 cf
Outflow = 0.56 cfs @ 13.76 hrs, Volume= 16,212 cf, Atten= 97%, Lag= 108.4 min
Primary = 0.56 cfs @ 13.76 hrs, Volume= 16,212 cf
Routed to Link Post DP002 : Post-Development DP002

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 195.81' @ 13.76 hrs Surf.Area= 31,076 sf Storage= 30,259 cf

Plug-Flow detention time= 339.0 min calculated for 16,172 cf (39% of inflow)
Center-of-Mass det. time= 216.4 min (936.7 - 720.3)

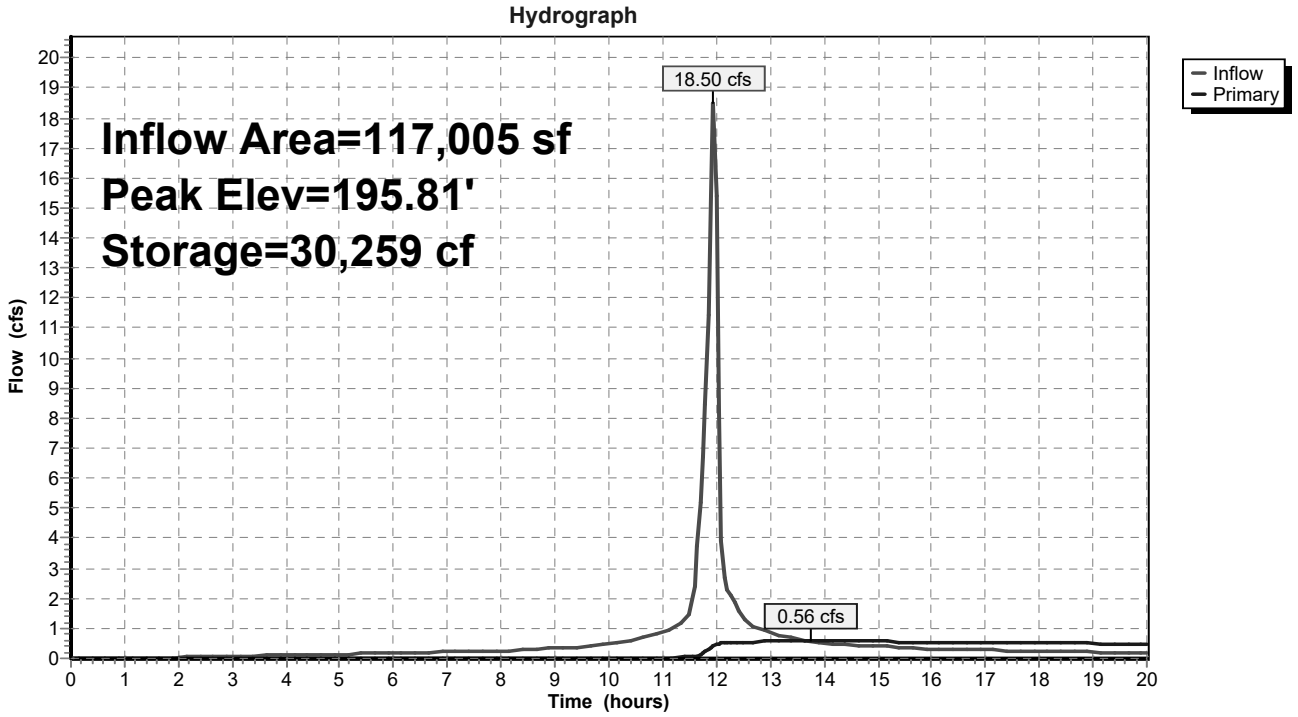
Volume	Invert	Avail.Storage	Storage Description
#1	192.55'	0 cf	**100.00'W x 150.00'L x 1.00'H Prismatoid** 15,000 cf Overall x 0.0% Voids
#2A	193.55'	16,872 cf	**126.00'W x 127.59'L x 4.75'H Field A** 76,363 cf Overall - 34,182 cf Embedded = 42,181 cf x 40.0% Voids
#3A	193.55'	34,182 cf	**ADS_StormTech MC-3500 d +Cap**x 306 Inside #2 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 306 Chambers in 18 Rows Cap Storage= 14.9 cf x 2 x 18 rows = 536.4 cf
		51,054 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	193.55'	**18.0" Round 18" Outlet** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 193.55' / 192.00' S= 0.0775 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	192.55'	**1.2" Vert. MRC Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	194.19'	**4.0" Vert. 4" Circular Orifice** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.56 cfs @ 13.76 hrs HW=195.81' (Free Discharge)
└**1=18" Outlet** (Passes 0.56 cfs of 10.45 cfs potential flow)
  ├**2=MRC Orifice** (Orifice Controls 0.06 cfs @ 7.24 fps)
  └**3=4" Circular Orifice** (Orifice Controls 0.51 cfs @ 5.80 fps)

Pond 3P: MRC


Hydrograph
Inflow Area=117,005 sf
Peak Elev=195.81'
Storage=30,259 cf
18.50 cfs
0.56 cfs
Inflow
Primary
Flow (cfs)
Time (hours)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

Hydrograph for Pond 3P: MRC

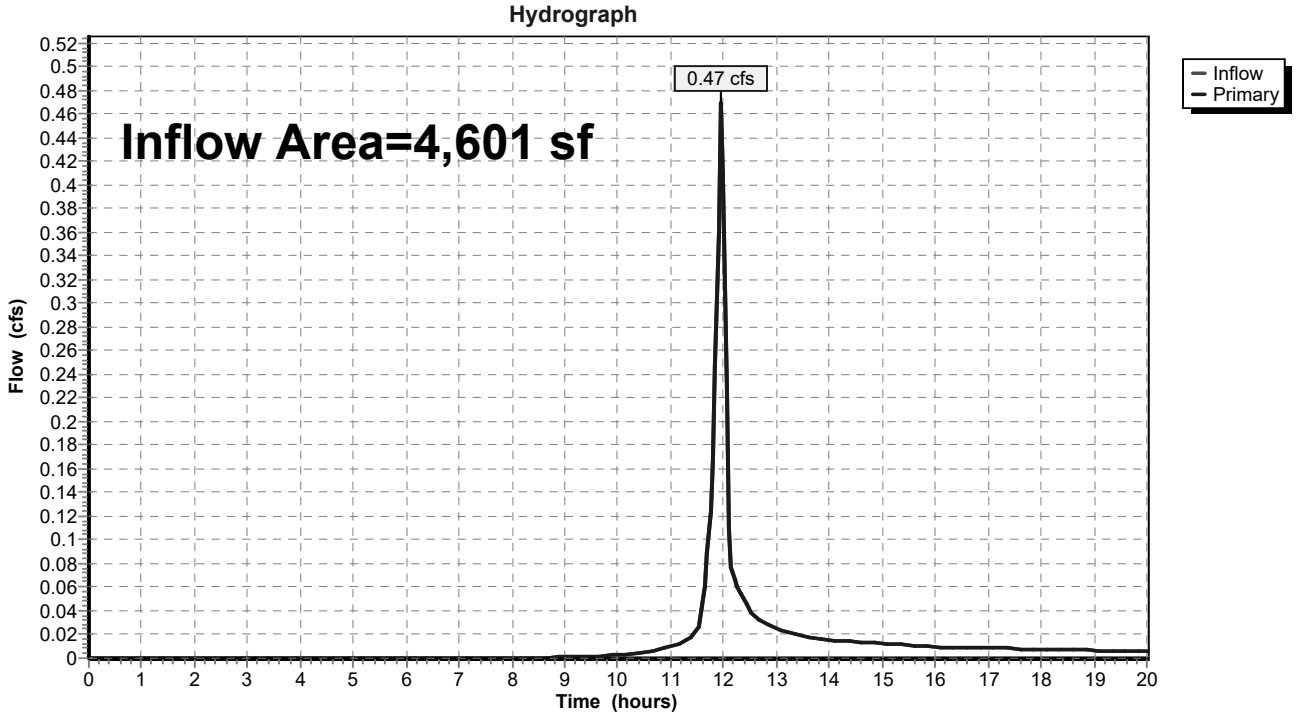
Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	192.55	0.00
0.50	0.00	0	192.55	0.00
1.00	0.00	0	192.55	0.00
1.50	0.01	4	193.55	0.00
2.00	0.03	44	193.55	0.00
2.50	0.05	121	193.56	0.00
3.00	0.07	230	193.57	0.00
3.50	0.09	368	193.58	0.00
4.00	0.10	531	193.59	0.01
4.50	0.12	721	193.60	0.01
5.00	0.14	941	193.62	0.01
5.50	0.16	1,192	193.63	0.01
6.00	0.18	1,472	193.65	0.01
6.50	0.19	1,782	193.68	0.01
7.00	0.21	2,121	193.70	0.01
7.50	0.23	2,489	193.72	0.02
8.00	0.24	2,884	193.75	0.02
8.50	0.30	3,337	193.78	0.02
9.00	0.36	3,899	193.82	0.02
9.50	0.38	4,538	193.87	0.02
10.00	0.47	5,249	193.92	0.02
10.50	0.61	6,170	193.99	0.02
11.00	0.85	7,430	194.08	0.03
11.50	**1.41**	9,375	194.22	0.03
12.00	**15.42**	23,784	195.29	0.46
12.50	1.36	29,060	195.71	0.54
13.00	0.84	29,920	195.78	0.56
13.50	0.64	**30,226**	**195.81**	**0.56**
14.00	0.50	**30,232**	**195.81**	**0.56**
14.50	0.44	30,060	195.79	0.56
15.00	0.40	29,809	195.77	0.56
15.50	0.35	29,486	195.75	0.55
16.00	0.31	29,090	195.71	0.54
16.50	0.29	28,644	195.68	0.54
17.00	0.27	28,181	195.64	0.53
17.50	0.25	27,703	195.60	0.52
18.00	0.24	27,210	195.56	0.51
18.50	0.22	26,702	195.52	0.51
19.00	0.20	26,181	195.48	0.50
19.50	0.19	25,646	195.44	0.49
20.00	0.17	25,099	195.39	0.48

Summary for Link Post DP001: Post-Development DP001

Inflow Area = 4,601 sf, 0.00% Impervious, Inflow Depth > 2.28" for 10-yr event
Inflow = 0.47 cfs @ 11.96 hrs, Volume= 874 cf
Primary = 0.47 cfs @ 11.96 hrs, Volume= 874 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Post DP001: Post-Development DP001



Hydrograph for Link Post DP001: Post-Development DP001

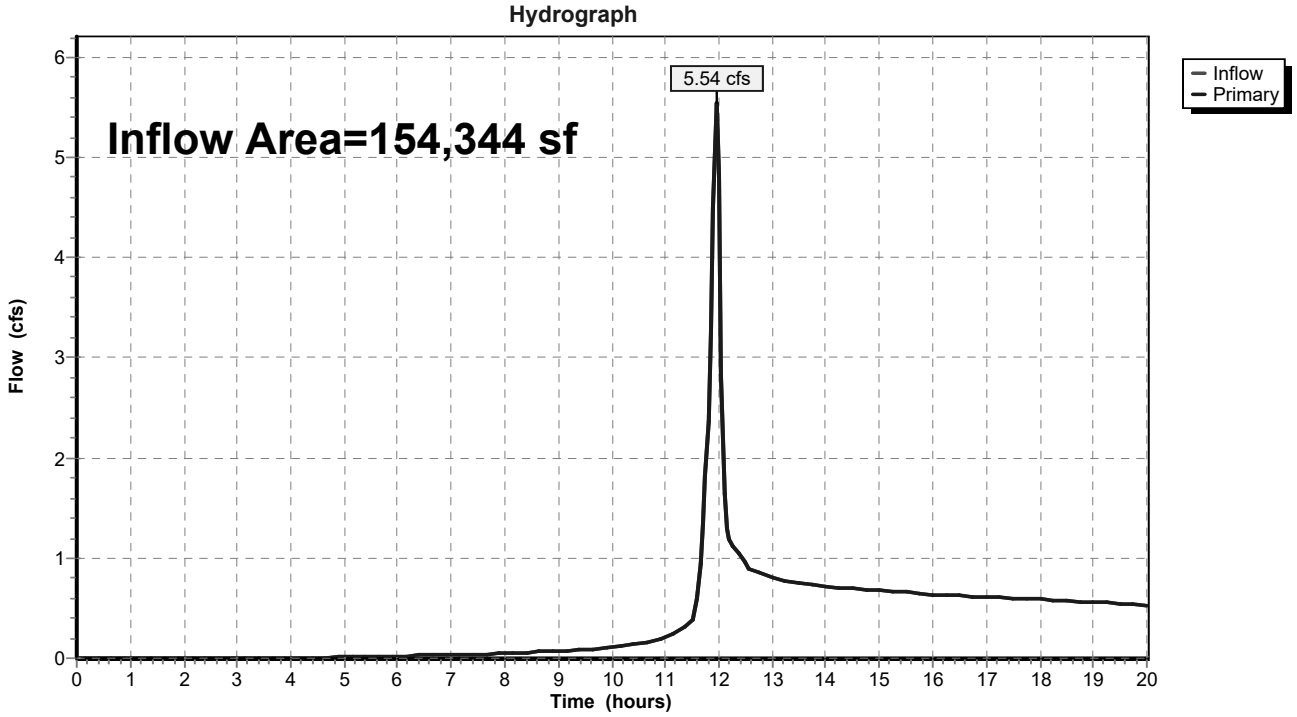
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
0.25	0.00	0.00	0.00
0.50	0.00	0.00	0.00
0.75	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00
1.50	0.00	0.00	0.00
1.75	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00
2.50	0.00	0.00	0.00
2.75	0.00	0.00	0.00
3.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00
3.50	0.00	0.00	0.00
3.75	0.00	0.00	0.00
4.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00
4.50	0.00	0.00	0.00
4.75	0.00	0.00	0.00
5.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00
5.50	0.00	0.00	0.00
5.75	0.00	0.00	0.00
6.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00
6.50	0.00	0.00	0.00
6.75	0.00	0.00	0.00
7.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00
7.50	0.00	0.00	0.00
7.75	0.00	0.00	0.00
8.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00
8.50	0.00	0.00	0.00
8.75	0.00	0.00	0.00
9.00	0.00	0.00	0.00
9.25	0.00	0.00	0.00
9.50	0.00	0.00	0.00
9.75	0.00	0.00	0.00
10.00	0.00	0.00	0.00
10.25	0.00	0.00	0.00
10.50	0.01	0.00	0.01
10.75	0.01	0.00	0.01
11.00	0.01	0.00	0.01
11.25	0.01	0.00	0.01
11.50	0.02	0.00	0.02
11.75	**0.12**	0.00	**0.12**
12.00	**0.41**	0.00	**0.41**
12.25	0.06	0.00	0.06
12.50	0.04	0.00	0.04
12.75	0.03	0.00	0.03
13.00	0.03	0.00	0.03
13.25	0.02	0.00	0.02
13.50	0.02	0.00	0.02
13.75	0.02	0.00	0.02
14.00	0.02	0.00	0.02
14.25	0.01	0.00	0.01
14.50	0.01	0.00	0.01
14.75	0.01	0.00	0.01
15.00	0.01	0.00	0.01
15.25	0.01	0.00	0.01
15.50	0.01	0.00	0.01
15.75	0.01	0.00	0.01
16.00	0.01	0.00	0.01
16.25	0.01	0.00	0.01
16.50	0.01	0.00	0.01
16.75	0.01	0.00	0.01
17.00	0.01	0.00	0.01
17.25	0.01	0.00	0.01
17.50	0.01	0.00	0.01
17.75	0.01	0.00	0.01
18.00	0.01	0.00	0.01
18.25	0.01	0.00	0.01
18.50	0.01	0.00	0.01
18.75	0.01	0.00	0.01
19.00	0.01	0.00	0.01
19.25	0.01	0.00	0.01
19.50	0.01	0.00	0.01
19.75	0.01	0.00	0.01
20.00	0.01	0.00	0.01

Summary for Link Post DP002: Post-Development DP002

Inflow Area = 154,344 sf, 86.51% Impervious, Inflow Depth > 2.05" for 10-yr event
Inflow = 5.54 cfs @ 11.95 hrs, Volume= 26,407 cf
Primary = 5.54 cfs @ 11.95 hrs, Volume= 26,407 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Post DP002: Post-Development DP002



Hydrograph for Link Post DP002: Post-Development DP002

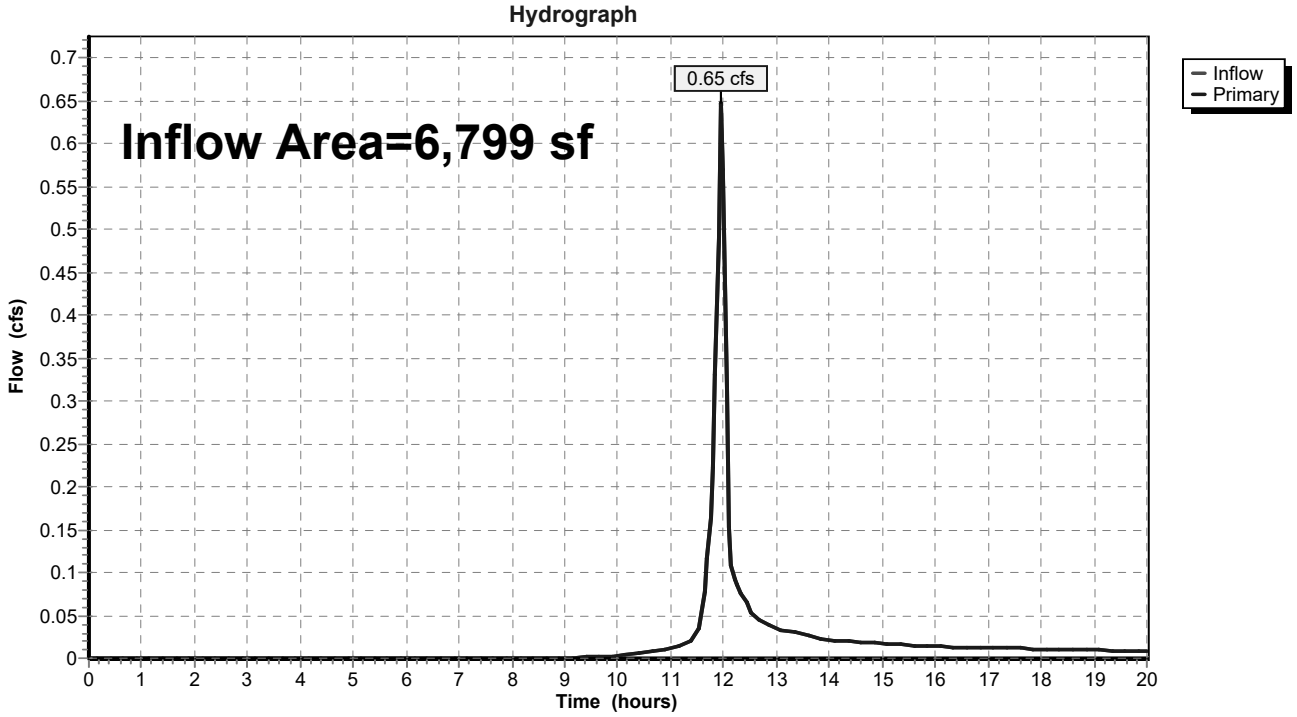
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
0.25	0.00	0.00	0.00
0.50	0.00	0.00	0.00
0.75	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00
1.50	0.00	0.00	0.00
1.75	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00
2.50	0.00	0.00	0.00
2.75	0.00	0.00	0.00
3.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00
3.50	0.00	0.00	0.00
3.75	0.01	0.00	0.01
4.00	0.01	0.00	0.01
4.25	0.01	0.00	0.01
4.50	0.01	0.00	0.01
4.75	0.01	0.00	0.01
5.00	0.01	0.00	0.01
5.25	0.01	0.00	0.01
5.50	0.02	0.00	0.02
5.75	0.02	0.00	0.02
6.00	0.02	0.00	0.02
6.25	0.03	0.00	0.03
6.50	0.03	0.00	0.03
6.75	0.03	0.00	0.03
7.00	0.03	0.00	0.03
7.25	0.04	0.00	0.04
7.50	0.04	0.00	0.04
7.75	0.04	0.00	0.04
8.00	0.05	0.00	0.05
8.25	0.05	0.00	0.05
8.50	0.06	0.00	0.06
8.75	0.07	0.00	0.07
9.00	0.07	0.00	0.07
9.25	0.08	0.00	0.08
9.50	0.08	0.00	0.08
9.75	0.09	0.00	0.09
10.00	0.11	0.00	0.11
10.25	0.12	0.00	0.12
10.50	0.14	0.00	0.14
10.75	0.17	0.00	0.17
11.00	0.20	0.00	0.20
11.25	0.27	0.00	0.27
11.50	0.35	0.00	0.35
11.75	**1.81**	0.00	**1.81**
12.00	**4.82**	0.00	**4.82**
12.25	1.14	0.00	1.14
12.50	0.94	0.00	0.94
12.75	0.85	0.00	0.85
13.00	0.81	0.00	0.81
13.25	0.78	0.00	0.78
13.50	0.75	0.00	0.75
13.75	0.73	0.00	0.73
14.00	0.71	0.00	0.71
14.25	0.70	0.00	0.70
14.50	0.69	0.00	0.69
14.75	0.68	0.00	0.68
15.00	0.67	0.00	0.67
15.25	0.67	0.00	0.67
15.50	0.66	0.00	0.66
15.75	0.65	0.00	0.65
16.00	0.64	0.00	0.64
16.25	0.63	0.00	0.63
16.50	0.62	0.00	0.62
16.75	0.62	0.00	0.62
17.00	0.61	0.00	0.61
17.25	0.60	0.00	0.60
17.50	0.60	0.00	0.60
17.75	0.59	0.00	0.59
18.00	0.59	0.00	0.59
18.25	0.58	0.00	0.58
18.50	0.57	0.00	0.57
18.75	0.57	0.00	0.57
19.00	0.56	0.00	0.56
19.25	0.55	0.00	0.55
19.50	0.54	0.00	0.54
19.75	0.54	0.00	0.54
20.00	0.53	0.00	0.53

Summary for Link Post DP003: Post-Development DP003

Inflow Area = 6,799 sf, 3.93% Impervious, Inflow Depth > 2.12" for 10-yr event
Inflow = 0.65 cfs @ 11.96 hrs, Volume= 1,200 cf
Primary = 0.65 cfs @ 11.96 hrs, Volume= 1,200 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Post DP003: Post-Development DP003



Hydrograph for Link Post DP003: Post-Development DP003

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
0.25	0.00	0.00	0.00
0.50	0.00	0.00	0.00
0.75	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00
1.50	0.00	0.00	0.00
1.75	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00
2.50	0.00	0.00	0.00
2.75	0.00	0.00	0.00
3.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00
3.50	0.00	0.00	0.00
3.75	0.00	0.00	0.00
4.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00
4.50	0.00	0.00	0.00
4.75	0.00	0.00	0.00
5.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00
5.50	0.00	0.00	0.00
5.75	0.00	0.00	0.00
6.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00
6.50	0.00	0.00	0.00
6.75	0.00	0.00	0.00
7.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00
7.50	0.00	0.00	0.00
7.75	0.00	0.00	0.00
8.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00
8.50	0.00	0.00	0.00
8.75	0.00	0.00	0.00
9.00	0.00	0.00	0.00
9.25	0.00	0.00	0.00
9.50	0.00	0.00	0.00
9.75	0.00	0.00	0.00
10.00	0.00	0.00	0.00
10.25	0.00	0.00	0.00
10.50	0.01	0.00	0.01
10.75	0.01	0.00	0.01
11.00	0.01	0.00	0.01
11.25	0.02	0.00	0.02
11.50	0.03	0.00	0.03
11.75	**0.16**	0.00	**0.16**
12.00	**0.57**	0.00	**0.57**
12.25	0.09	0.00	0.09
12.50	0.06	0.00	0.06
12.75	0.04	0.00	0.04
13.00	0.04	0.00	0.04
13.25	0.03	0.00	0.03
13.50	0.03	0.00	0.03
13.75	0.02	0.00	0.02
14.00	0.02	0.00	0.02
14.25	0.02	0.00	0.02
14.50	0.02	0.00	0.02
14.75	0.02	0.00	0.02
15.00	0.02	0.00	0.02
15.25	0.02	0.00	0.02
15.50	0.02	0.00	0.02
15.75	0.01	0.00	0.01
16.00	0.01	0.00	0.01
16.25	0.01	0.00	0.01
16.50	0.01	0.00	0.01
16.75	0.01	0.00	0.01
17.00	0.01	0.00	0.01
17.25	0.01	0.00	0.01
17.50	0.01	0.00	0.01
17.75	0.01	0.00	0.01
18.00	0.01	0.00	0.01
18.25	0.01	0.00	0.01
18.50	0.01	0.00	0.01
18.75	0.01	0.00	0.01
19.00	0.01	0.00	0.01
19.25	0.01	0.00	0.01
19.50	0.01	0.00	0.01
19.75	0.01	0.00	0.01
20.00	0.01	0.00	0.01

Summary for Subcatchment DA-5: BYPASS TO DP-001

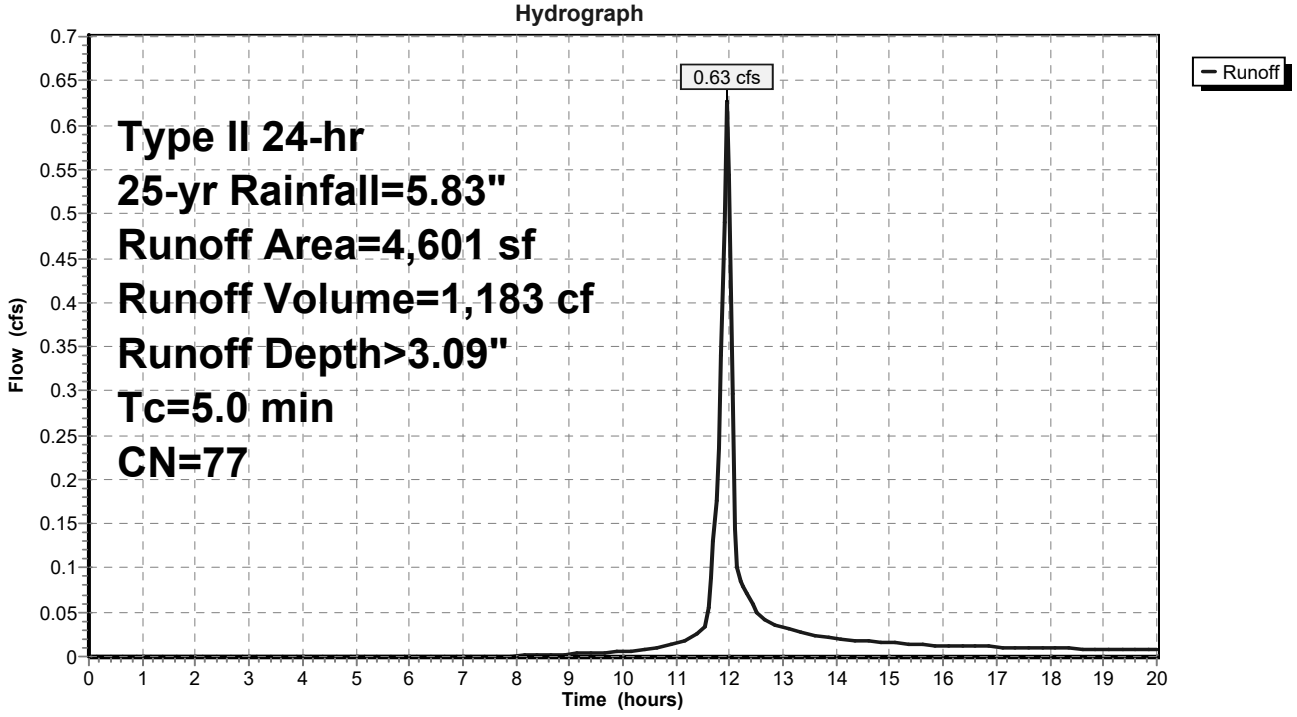
Runoff = 0.63 cfs @ 11.96 hrs, Volume= 1,183 cf, Depth> 3.09"
Routed to Link Post DP001 : Post-Development DP001

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=5.83"

Area (sf)	CN	Description
1,989	74	>75% Grass cover, Good, HSG C
2,612	80	>75% Grass cover, Good, HSG D
4,601	77	Weighted Average
4,601		100.00% Pervious Area

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

Subcatchment DA-5: BYPASS TO DP-001



Hydrograph for Subcatchment DA-5: BYPASS TO DP-001

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.05	0.00	0.00
1.00	0.06	0.00	0.00
1.25	0.08	0.00	0.00
1.50	0.09	0.00	0.00
1.75	0.11	0.00	0.00
2.00	0.13	0.00	0.00
2.25	0.15	0.00	0.00
2.50	0.16	0.00	0.00
2.75	0.18	0.00	0.00
3.00	0.20	0.00	0.00
3.25	0.22	0.00	0.00
3.50	0.24	0.00	0.00
3.75	0.26	0.00	0.00
4.00	0.28	0.00	0.00
4.25	0.30	0.00	0.00
4.50	0.32	0.00	0.00
4.75	0.34	0.00	0.00
5.00	0.37	0.00	0.00
5.25	0.39	0.00	0.00
5.50	0.42	0.00	0.00
5.75	0.44	0.00	0.00
6.00	0.47	0.00	0.00
6.25	0.49	0.00	0.00
6.50	0.52	0.00	0.00
6.75	0.55	0.00	0.00
7.00	0.58	0.00	0.00
7.25	0.61	0.00	0.00
7.50	0.64	0.00	0.00
7.75	0.67	0.00	0.00
8.00	0.70	0.00	0.00
8.25	0.73	0.01	0.00
8.50	0.77	0.01	0.00
8.75	0.81	0.01	0.00
9.00	0.86	0.02	0.00
9.25	0.90	0.03	0.00
9.50	0.95	0.04	0.00
9.75	1.00	0.05	0.00
10.00	1.06	0.06	0.01
10.25	1.12	0.08	0.01
10.50	1.19	0.10	0.01
10.75	1.27	0.12	0.01
11.00	1.37	0.16	0.02
11.25	1.49	0.21	0.02
11.50	1.65	0.27	0.03
11.75	2.26	0.59	**0.18**
12.00	3.87	1.71	**0.54**
12.25	4.12	1.90	0.08
12.50	4.29	2.04	0.05
12.75	4.40	2.13	0.04
13.00	4.50	2.21	0.03
13.25	4.58	2.28	0.03
13.50	4.66	2.34	0.03
13.75	4.72	2.39	0.02
14.00	4.78	2.44	0.02
14.25	4.83	2.48	0.02
14.50	4.88	2.53	0.02
14.75	4.93	2.57	0.02
15.00	4.98	2.60	0.02
15.25	5.02	2.64	0.01
15.50	5.06	2.67	0.01
15.75	5.10	2.70	0.01
16.00	5.13	2.73	0.01
16.25	5.16	2.76	0.01
16.50	5.20	2.79	0.01
16.75	5.23	2.81	0.01
17.00	5.26	2.84	0.01
17.25	5.29	2.86	0.01
17.50	5.32	2.89	0.01
17.75	5.34	2.91	0.01
18.00	5.37	2.93	0.01
18.25	5.40	2.96	0.01
18.50	5.42	2.98	0.01
18.75	5.44	3.00	0.01
19.00	5.47	3.02	0.01
19.25	5.49	3.04	0.01
19.50	5.51	3.06	0.01
19.75	5.53	3.07	0.01
20.00	**5.55**	**3.09**	0.01

Summary for Subcatchment DA-6: To Rain Garden (BMP-2)

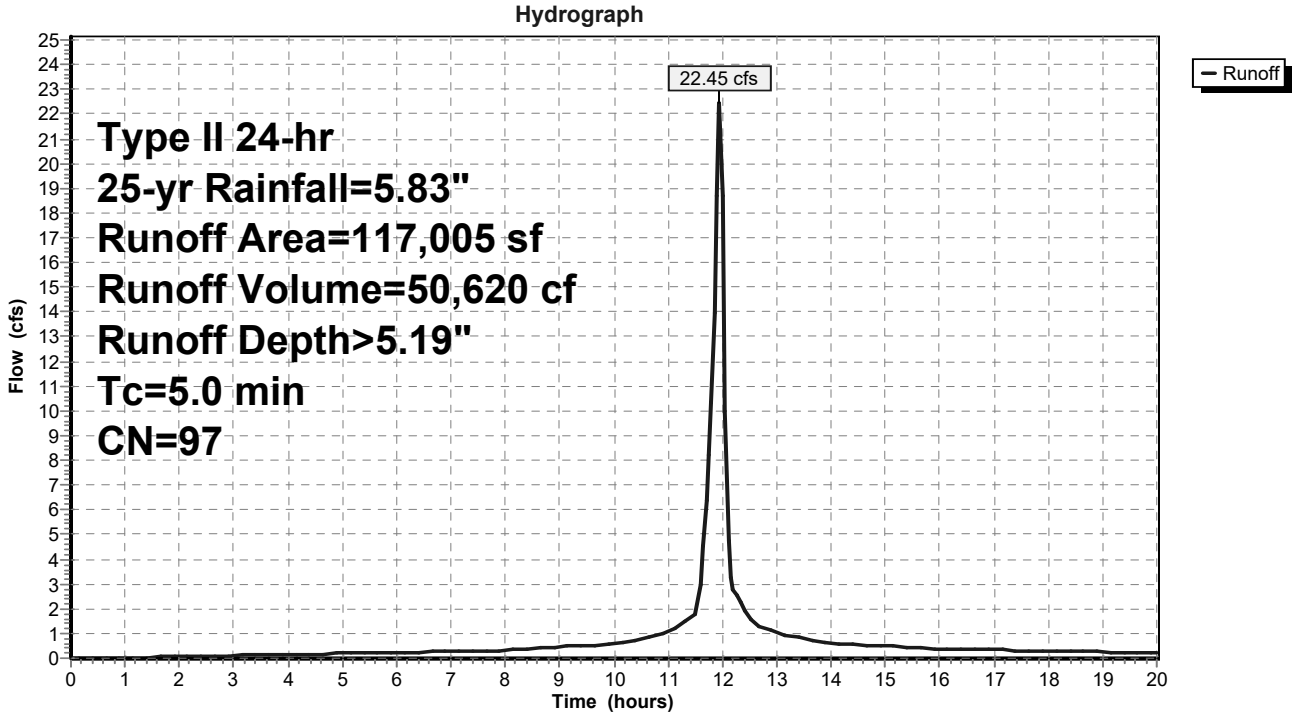
Runoff = 22.45 cfs @ 11.95 hrs, Volume= 50,620 cf, Depth> 5.19"
Routed to Pond 3P : MRC

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=5.83"

	Area (sf)	CN	Description
*	111,197	98	Paved parking, All HSGs
	5,808	74	>75% Grass cover, Good, HSG C
	117,005	97	Weighted Average
	5,808		4.96% Pervious Area
	111,197		95.04% Impervious Area

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

Subcatchment DA-6: To Rain Garden (BMP-2)



Hydrograph for Subcatchment DA-6: To Rain Garden (BMP-2)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.05	0.00	0.00
1.00	0.06	0.00	0.00
1.25	0.08	0.00	0.01
1.50	0.09	0.00	0.03
1.75	0.11	0.01	0.04
2.00	0.13	0.01	0.06
2.25	0.15	0.02	0.07
2.50	0.16	0.03	0.08
2.75	0.18	0.03	0.09
3.00	0.20	0.04	0.10
3.25	0.22	0.05	0.11
3.50	0.24	0.06	0.12
3.75	0.26	0.08	0.13
4.00	0.28	0.09	0.14
4.25	0.30	0.10	0.15
4.50	0.32	0.12	0.16
4.75	0.34	0.13	0.17
5.00	0.37	0.15	0.19
5.25	0.39	0.17	0.20
5.50	0.42	0.19	0.21
5.75	0.44	0.21	0.22
6.00	0.47	0.23	0.23
6.25	0.49	0.25	0.24
6.50	0.52	0.27	0.25
6.75	0.55	0.30	0.26
7.00	0.58	0.32	0.27
7.25	0.61	0.35	0.28
7.50	0.64	0.37	0.29
7.75	0.67	0.40	0.30
8.00	0.70	0.43	0.31
8.25	0.73	0.46	0.34
8.50	0.77	0.49	0.38
8.75	0.81	0.53	0.41
9.00	0.86	0.57	0.45
9.25	0.90	0.62	0.47
9.50	0.95	0.66	0.47
9.75	1.00	0.71	0.51
10.00	1.06	0.76	0.58
10.25	1.12	0.82	0.66
10.50	1.19	0.88	0.75
10.75	1.27	0.96	0.89
11.00	1.37	1.06	1.05
11.25	1.49	1.18	1.35
11.50	1.65	1.33	1.73
11.75	2.26	1.92	**8.20**
12.00	3.87	3.52	**18.71**
12.25	4.12	3.77	2.54
12.50	4.29	3.94	1.64
12.75	4.40	4.05	1.23
13.00	4.50	4.15	1.02
13.25	4.58	4.23	0.88
13.50	4.66	4.31	0.77
13.75	4.72	4.37	0.68
14.00	4.78	4.43	0.61
14.25	4.83	4.48	0.56
14.50	4.88	4.53	0.54
14.75	4.93	4.58	0.51
15.00	4.98	4.62	0.48
15.25	5.02	4.67	0.45
15.50	5.06	4.71	0.43
15.75	5.10	4.74	0.40
16.00	5.13	4.78	0.37
16.25	5.16	4.81	0.36
16.50	5.20	4.84	0.35
16.75	5.23	4.87	0.34
17.00	5.26	4.90	0.33
17.25	5.29	4.93	0.32
17.50	5.32	4.96	0.31
17.75	5.34	4.99	0.30
18.00	5.37	5.02	0.29
18.25	5.40	5.04	0.28
18.50	5.42	5.07	0.27
18.75	5.44	5.09	0.26
19.00	5.47	5.11	0.25
19.25	5.49	5.13	0.24
19.50	5.51	5.16	0.23
19.75	5.53	5.18	0.22
20.00	**5.55**	**5.20**	0.21

Summary for Subcatchment DA-7: BYPASS TO DP-002

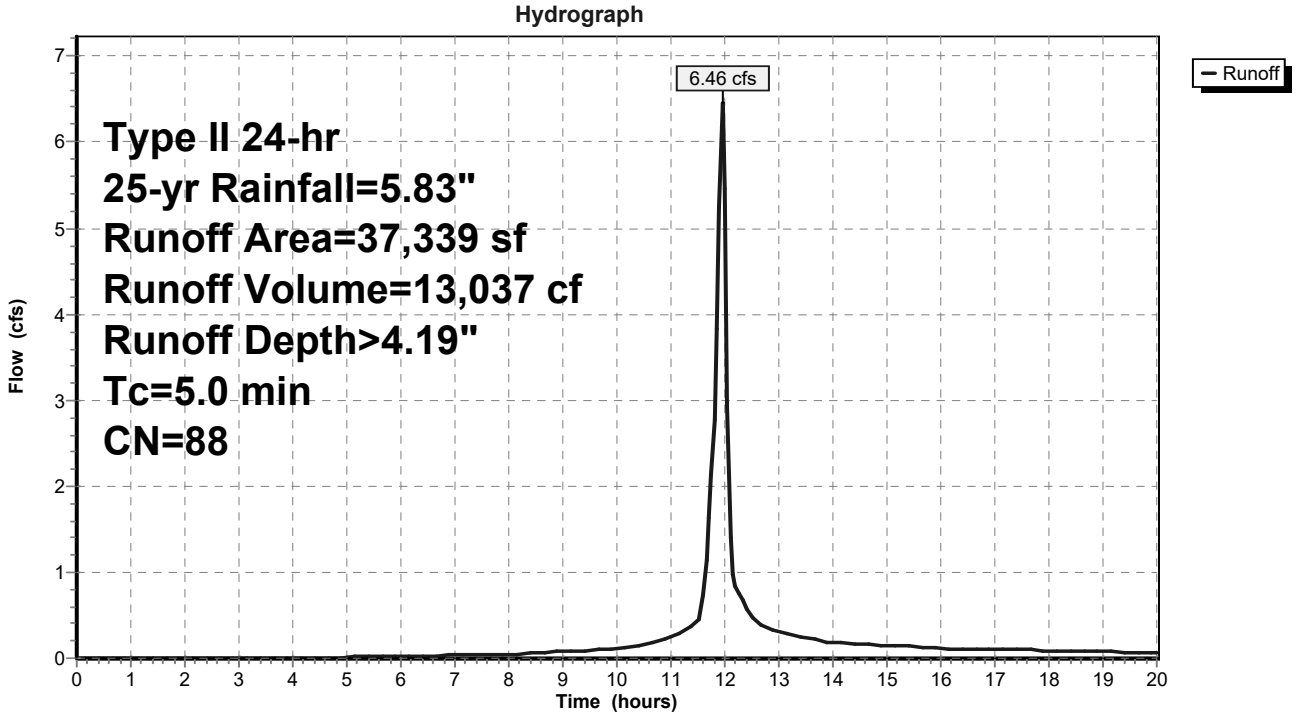
Runoff = 6.46 cfs @ 11.95 hrs, Volume= 13,037 cf, Depth> 4.19"
Routed to Link Post DP002 : Post-Development DP002

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=5.83"

Area (sf)	CN	Description
15,016	74	>75% Grass cover, Good, HSG C
22,323	98	Paved parking, HSG C
37,339	88	Weighted Average
15,016		40.22% Pervious Area
22,323		59.78% Impervious Area

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

Subcatchment DA-7: BYPASS TO DP-002



Hydrograph for Subcatchment DA-7: BYPASS TO DP-002

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.05	0.00	0.00
1.00	0.06	0.00	0.00
1.25	0.08	0.00	0.00
1.50	0.09	0.00	0.00
1.75	0.11	0.00	0.00
2.00	0.13	0.00	0.00
2.25	0.15	0.00	0.00
2.50	0.16	0.00	0.00
2.75	0.18	0.00	0.00
3.00	0.20	0.00	0.00
3.25	0.22	0.00	0.00
3.50	0.24	0.00	0.00
3.75	0.26	0.00	0.00
4.00	0.28	0.00	0.00
4.25	0.30	0.00	0.00
4.50	0.32	0.00	0.00
4.75	0.34	0.00	0.01
5.00	0.37	0.01	0.01
5.25	0.39	0.01	0.01
5.50	0.42	0.01	0.01
5.75	0.44	0.02	0.02
6.00	0.47	0.02	0.02
6.25	0.49	0.03	0.02
6.50	0.52	0.04	0.03
6.75	0.55	0.05	0.03
7.00	0.58	0.06	0.03
7.25	0.61	0.07	0.04
7.50	0.64	0.08	0.04
7.75	0.67	0.09	0.04
8.00	0.70	0.10	0.05
8.25	0.73	0.12	0.05
8.50	0.77	0.13	0.06
8.75	0.81	0.15	0.07
9.00	0.86	0.18	0.08
9.25	0.90	0.20	0.08
9.50	0.95	0.22	0.09
9.75	1.00	0.25	0.10
10.00	1.06	0.29	0.12
10.25	1.12	0.32	0.14
10.50	1.19	0.37	0.16
10.75	1.27	0.42	0.20
11.00	1.37	0.49	0.24
11.25	1.49	0.58	0.32
11.50	1.65	0.69	0.42
11.75	2.26	1.18	**2.15**
12.00	3.87	2.60	**5.46**
12.25	4.12	2.84	0.76
12.50	4.29	2.99	0.49
12.75	4.40	3.10	0.37
13.00	4.50	3.20	0.31
13.25	4.58	3.28	0.27
13.50	4.66	3.35	0.23
13.75	4.72	3.41	0.21
14.00	4.78	3.46	0.18
14.25	4.83	3.51	0.17
14.50	4.88	3.56	0.16
14.75	4.93	3.60	0.15
15.00	4.98	3.65	0.15
15.25	5.02	3.69	0.14
15.50	5.06	3.72	0.13
15.75	5.10	3.76	0.12
16.00	5.13	3.79	0.11
16.25	5.16	3.82	0.11
16.50	5.20	3.86	0.11
16.75	5.23	3.88	0.10
17.00	5.26	3.91	0.10
17.25	5.29	3.94	0.10
17.50	5.32	3.97	0.09
17.75	5.34	4.00	0.09
18.00	5.37	4.02	0.09
18.25	5.40	4.05	0.08
18.50	5.42	4.07	0.08
18.75	5.44	4.09	0.08
19.00	5.47	4.11	0.08
19.25	5.49	4.14	0.07
19.50	5.51	4.16	0.07
19.75	5.53	4.18	0.07
20.00	**5.55**	**4.19**	0.06

Summary for Subcatchment DA-8: Bypass to DP003

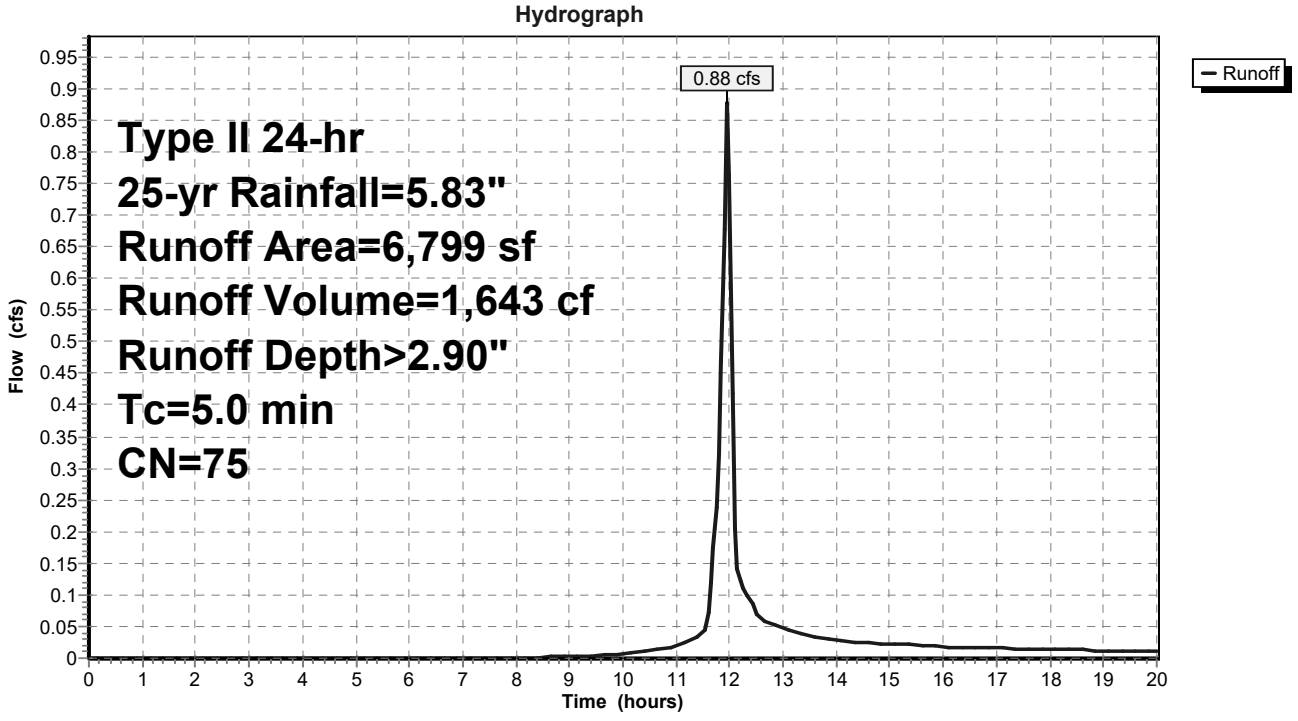
Runoff = 0.88 cfs @ 11.96 hrs, Volume= 1,643 cf, Depth> 2.90"
Routed to Link Post DP003 : Post-Development DP003

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=5.83"

Area (sf)	CN	Description
6,532	74	>75% Grass cover, Good, HSG C
267	98	Paved parking, HSG C
6,799	75	Weighted Average
6,532		96.07% Pervious Area
267		3.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc-1**

Subcatchment DA-8: Bypass to DP003



Hydrograph for Subcatchment DA-8: Bypass to DP003

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.05	0.00	0.00
1.00	0.06	0.00	0.00
1.25	0.08	0.00	0.00
1.50	0.09	0.00	0.00
1.75	0.11	0.00	0.00
2.00	0.13	0.00	0.00
2.25	0.15	0.00	0.00
2.50	0.16	0.00	0.00
2.75	0.18	0.00	0.00
3.00	0.20	0.00	0.00
3.25	0.22	0.00	0.00
3.50	0.24	0.00	0.00
3.75	0.26	0.00	0.00
4.00	0.28	0.00	0.00
4.25	0.30	0.00	0.00
4.50	0.32	0.00	0.00
4.75	0.34	0.00	0.00
5.00	0.37	0.00	0.00
5.25	0.39	0.00	0.00
5.50	0.42	0.00	0.00
5.75	0.44	0.00	0.00
6.00	0.47	0.00	0.00
6.25	0.49	0.00	0.00
6.50	0.52	0.00	0.00
6.75	0.55	0.00	0.00
7.00	0.58	0.00	0.00
7.25	0.61	0.00	0.00
7.50	0.64	0.00	0.00
7.75	0.67	0.00	0.00
8.00	0.70	0.00	0.00
8.25	0.73	0.00	0.00
8.50	0.77	0.00	0.00
8.75	0.81	0.01	0.00
9.00	0.86	0.01	0.00
9.25	0.90	0.02	0.00
9.50	0.95	0.02	0.00
9.75	1.00	0.03	0.01
10.00	1.06	0.04	0.01
10.25	1.12	0.05	0.01
10.50	1.19	0.07	0.01
10.75	1.27	0.09	0.01
11.00	1.37	0.12	0.02
11.25	1.49	0.16	0.03
11.50	1.65	0.22	0.04
11.75	2.26	0.51	**0.24**
12.00	3.87	1.57	**0.76**
12.25	4.12	1.75	0.11
12.50	4.29	1.88	0.07
12.75	4.40	1.97	0.06
13.00	4.50	2.05	0.05
13.25	4.58	2.12	0.04
13.50	4.66	2.18	0.04
13.75	4.72	2.23	0.03
14.00	4.78	2.27	0.03
14.25	4.83	2.31	0.03
14.50	4.88	2.36	0.03
14.75	4.93	2.39	0.02
15.00	4.98	2.43	0.02
15.25	5.02	2.46	0.02
15.50	5.06	2.50	0.02
15.75	5.10	2.53	0.02
16.00	5.13	2.56	0.02
16.25	5.16	2.58	0.02
16.50	5.20	2.61	0.02
16.75	5.23	2.63	0.02
17.00	5.26	2.66	0.02
17.25	5.29	2.68	0.02
17.50	5.32	2.71	0.01
17.75	5.34	2.73	0.01
18.00	5.37	2.75	0.01
18.25	5.40	2.77	0.01
18.50	5.42	2.79	0.01
18.75	5.44	2.81	0.01
19.00	5.47	2.83	0.01
19.25	5.49	2.85	0.01
19.50	5.51	2.87	0.01
19.75	5.53	2.89	0.01
20.00	**5.55**	**2.90**	0.01

Summary for Pond 3P: MRC

Inflow Area = 117,005 sf, 95.04% Impervious, Inflow Depth > 5.19" for 25-yr event
Inflow = 22.45 cfs @ 11.95 hrs, Volume= 50,620 cf
Outflow = 0.67 cfs @ 13.80 hrs, Volume= 19,498 cf, Atten= 97%, Lag= 111.2 min
Primary = 0.67 cfs @ 13.80 hrs, Volume= 19,498 cf
Routed to Link Post DP002 : Post-Development DP002

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 196.42' @ 13.80 hrs Surf.Area= 31,076 sf Storage= 37,190 cf

Plug-Flow detention time= 347.8 min calculated for 19,498 cf (39% of inflow)
Center-of-Mass det. time= 218.3 min (934.9 - 716.6)

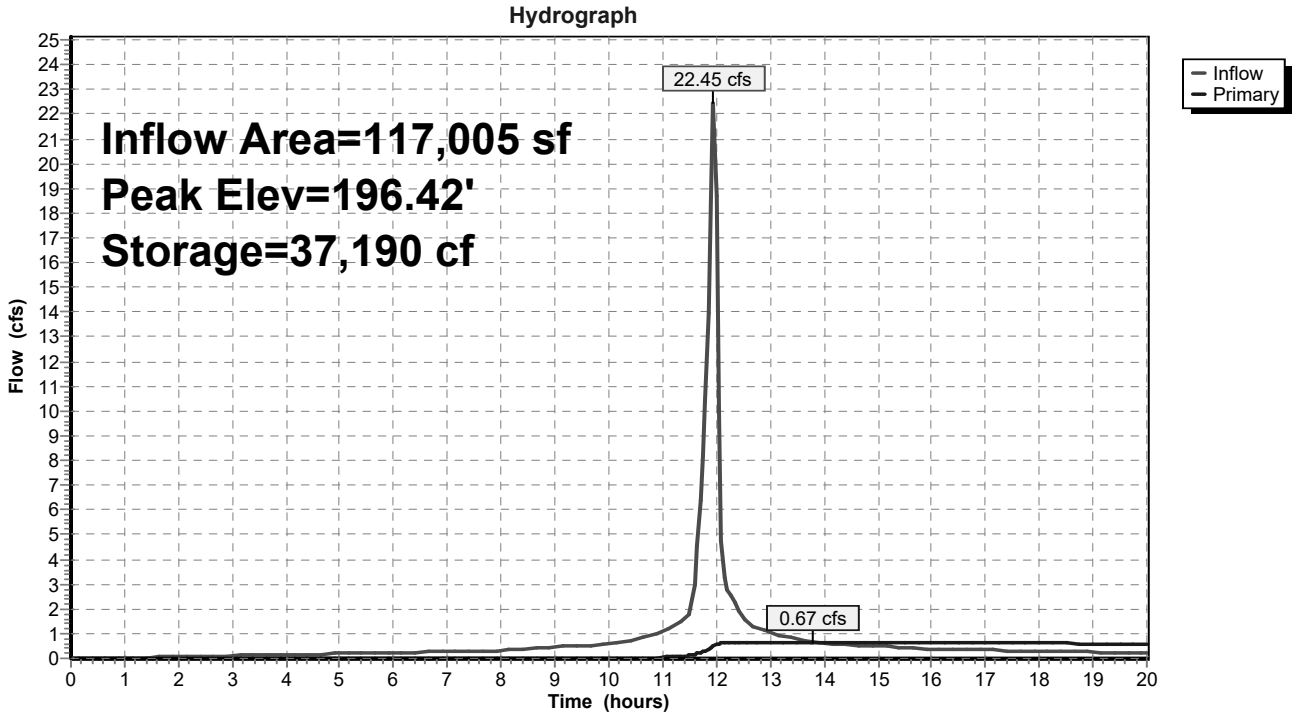
Volume	Invert	Avail.Storage	Storage Description
#1	192.55'	0 cf	**100.00'W x 150.00'L x 1.00'H Prismatoid** 15,000 cf Overall x 0.0% Voids
#2A	193.55'	16,872 cf	**126.00'W x 127.59'L x 4.75'H Field A** 76,363 cf Overall - 34,182 cf Embedded = 42,181 cf x 40.0% Voids
#3A	193.55'	34,182 cf	**ADS_StormTech MC-3500 d +Cap**x 306 Inside #2 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 306 Chambers in 18 Rows Cap Storage= 14.9 cf x 2 x 18 rows = 536.4 cf
		51,054 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	193.55'	**18.0" Round 18" Outlet** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 193.55' / 192.00' S= 0.0775 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	192.55'	**1.2" Vert. MRC Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	194.19'	**4.0" Vert. 4" Circular Orifice** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.67 cfs @ 13.80 hrs HW=196.42' (Free Discharge)
└**1=18" Outlet** (Passes 0.67 cfs of 12.39 cfs potential flow)
  ├**2=MRC Orifice** (Orifice Controls 0.06 cfs @ 8.16 fps)
  └**3=4" Circular Orifice** (Orifice Controls 0.60 cfs @ 6.92 fps)

Pond 3P: MRC


Hydrograph
Inflow Area=117,005 sf
Peak Elev=196.42'
Storage=37,190 cf
22.45 cfs
0.67 cfs
Inflow
Primary
Flow (cfs)
Time (hours)

Hydrograph for Pond 3P: MRC

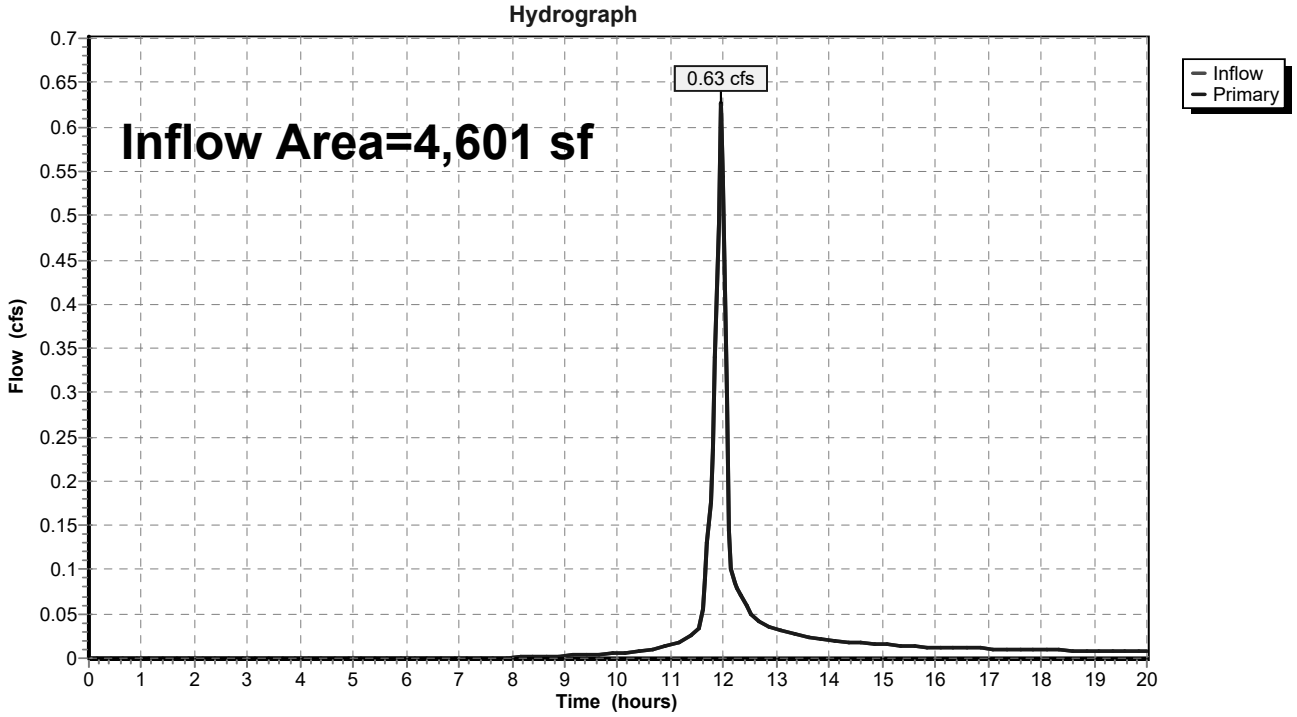
Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	192.55	0.00
0.50	0.00	0	192.55	0.00
1.00	0.00	0	193.55	0.00
1.50	0.03	21	193.55	0.00
2.00	0.06	97	193.56	0.00
2.50	0.08	219	193.57	0.00
3.00	0.10	380	193.58	0.01
3.50	0.12	575	193.59	0.01
4.00	0.14	801	193.61	0.01
4.50	0.16	1,059	193.62	0.01
5.00	0.19	1,353	193.64	0.01
5.50	0.21	1,684	193.67	0.01
6.00	0.23	2,051	193.69	0.01
6.50	0.25	2,452	193.72	0.02
7.00	0.27	2,888	193.75	0.02
7.50	0.29	3,356	193.79	0.02
8.00	0.31	3,858	193.82	0.02
8.50	0.38	4,429	193.86	0.02
9.00	0.45	5,135	193.91	0.02
9.50	0.47	5,932	193.97	0.02
10.00	0.58	6,816	194.03	0.03
10.50	0.75	7,957	194.11	0.03
11.00	1.05	9,510	194.22	0.03
11.50	**1.73**	11,837	194.39	0.12
12.00	**18.71**	29,246	195.73	0.55
12.50	1.64	35,667	196.28	0.65
13.00	1.02	36,736	196.38	0.66
13.50	0.77	**37,135**	**196.42**	**0.67**
14.00	0.61	**37,168**	**196.42**	**0.67**
14.50	0.54	36,985	196.40	0.66
15.00	0.48	36,706	196.38	0.66
15.50	0.43	36,337	196.34	0.66
16.00	0.37	35,880	196.30	0.65
16.50	0.35	35,360	196.25	0.64
17.00	0.33	34,818	196.20	0.63
17.50	0.31	34,256	196.15	0.62
18.00	0.29	33,673	196.10	0.62
18.50	0.27	33,071	196.05	0.61
19.00	0.25	32,451	196.00	0.60
19.50	0.23	31,812	195.94	0.59
20.00	0.21	31,155	195.88	0.58

Summary for Link Post DP001: Post-Development DP001

Inflow Area = 4,601 sf, 0.00% Impervious, Inflow Depth > 3.09" for 25-yr event
Inflow = 0.63 cfs @ 11.96 hrs, Volume= 1,183 cf
Primary = 0.63 cfs @ 11.96 hrs, Volume= 1,183 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Post DP001: Post-Development DP001



Hydrograph for Link Post DP001: Post-Development DP001

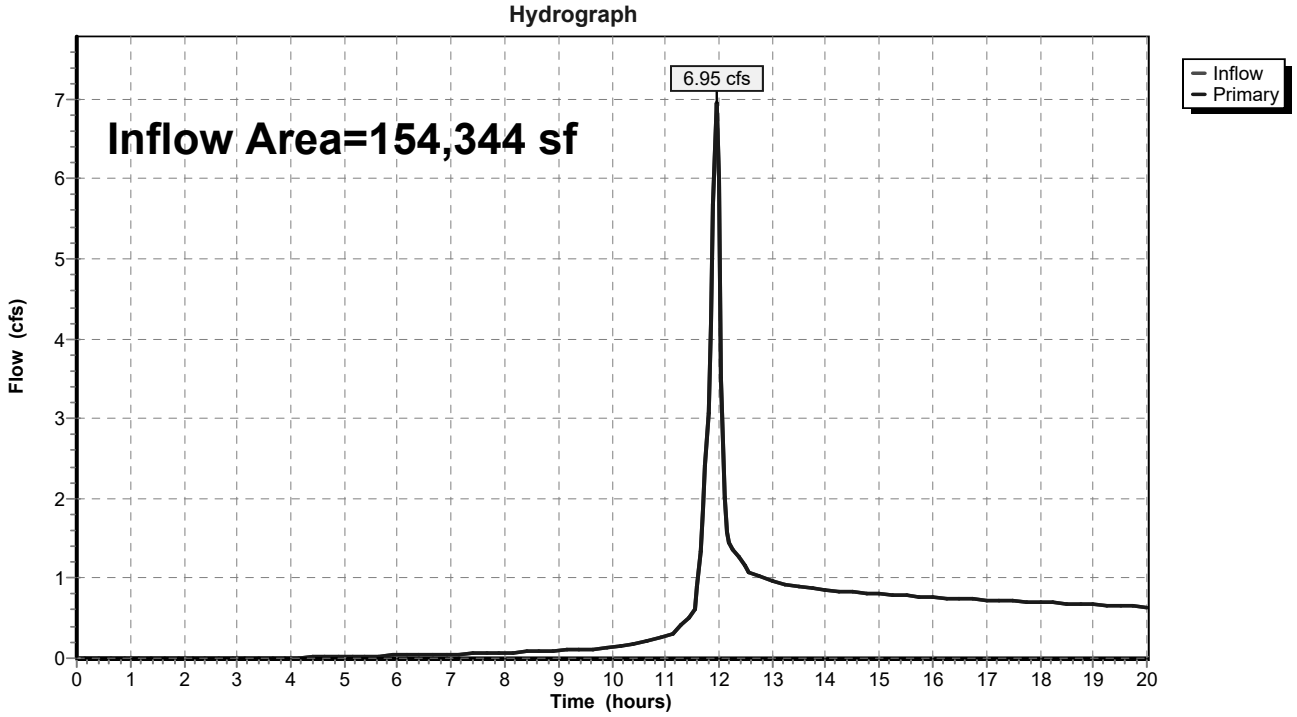
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
0.25	0.00	0.00	0.00
0.50	0.00	0.00	0.00
0.75	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00
1.50	0.00	0.00	0.00
1.75	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00
2.50	0.00	0.00	0.00
2.75	0.00	0.00	0.00
3.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00
3.50	0.00	0.00	0.00
3.75	0.00	0.00	0.00
4.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00
4.50	0.00	0.00	0.00
4.75	0.00	0.00	0.00
5.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00
5.50	0.00	0.00	0.00
5.75	0.00	0.00	0.00
6.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00
6.50	0.00	0.00	0.00
6.75	0.00	0.00	0.00
7.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00
7.50	0.00	0.00	0.00
7.75	0.00	0.00	0.00
8.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00
8.50	0.00	0.00	0.00
8.75	0.00	0.00	0.00
9.00	0.00	0.00	0.00
9.25	0.00	0.00	0.00
9.50	0.00	0.00	0.00
9.75	0.00	0.00	0.00
10.00	0.01	0.00	0.01
10.25	0.01	0.00	0.01
10.50	0.01	0.00	0.01
10.75	0.01	0.00	0.01
11.00	0.02	0.00	0.02
11.25	0.02	0.00	0.02
11.50	0.03	0.00	0.03
11.75	**0.18**	0.00	**0.18**
12.00	**0.54**	0.00	**0.54**
12.25	0.08	0.00	0.08
12.50	0.05	0.00	0.05
12.75	0.04	0.00	0.04
13.00	0.03	0.00	0.03
13.25	0.03	0.00	0.03
13.50	0.03	0.00	0.03
13.75	0.02	0.00	0.02
14.00	0.02	0.00	0.02
14.25	0.02	0.00	0.02
14.50	0.02	0.00	0.02
14.75	0.02	0.00	0.02
15.00	0.02	0.00	0.02
15.25	0.01	0.00	0.01
15.50	0.01	0.00	0.01
15.75	0.01	0.00	0.01
16.00	0.01	0.00	0.01
16.25	0.01	0.00	0.01
16.50	0.01	0.00	0.01
16.75	0.01	0.00	0.01
17.00	0.01	0.00	0.01
17.25	0.01	0.00	0.01
17.50	0.01	0.00	0.01
17.75	0.01	0.00	0.01
18.00	0.01	0.00	0.01
18.25	0.01	0.00	0.01
18.50	0.01	0.00	0.01
18.75	0.01	0.00	0.01
19.00	0.01	0.00	0.01
19.25	0.01	0.00	0.01
19.50	0.01	0.00	0.01
19.75	0.01	0.00	0.01
20.00	0.01	0.00	0.01

Summary for Link Post DP002: Post-Development DP002

Inflow Area = 154,344 sf, 86.51% Impervious, Inflow Depth > 2.53" for 25-yr event
Inflow = 6.95 cfs @ 11.95 hrs, Volume= 32,535 cf
Primary = 6.95 cfs @ 11.95 hrs, Volume= 32,535 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Post DP002: Post-Development DP002



Hydrograph for Link Post DP002: Post-Development DP002

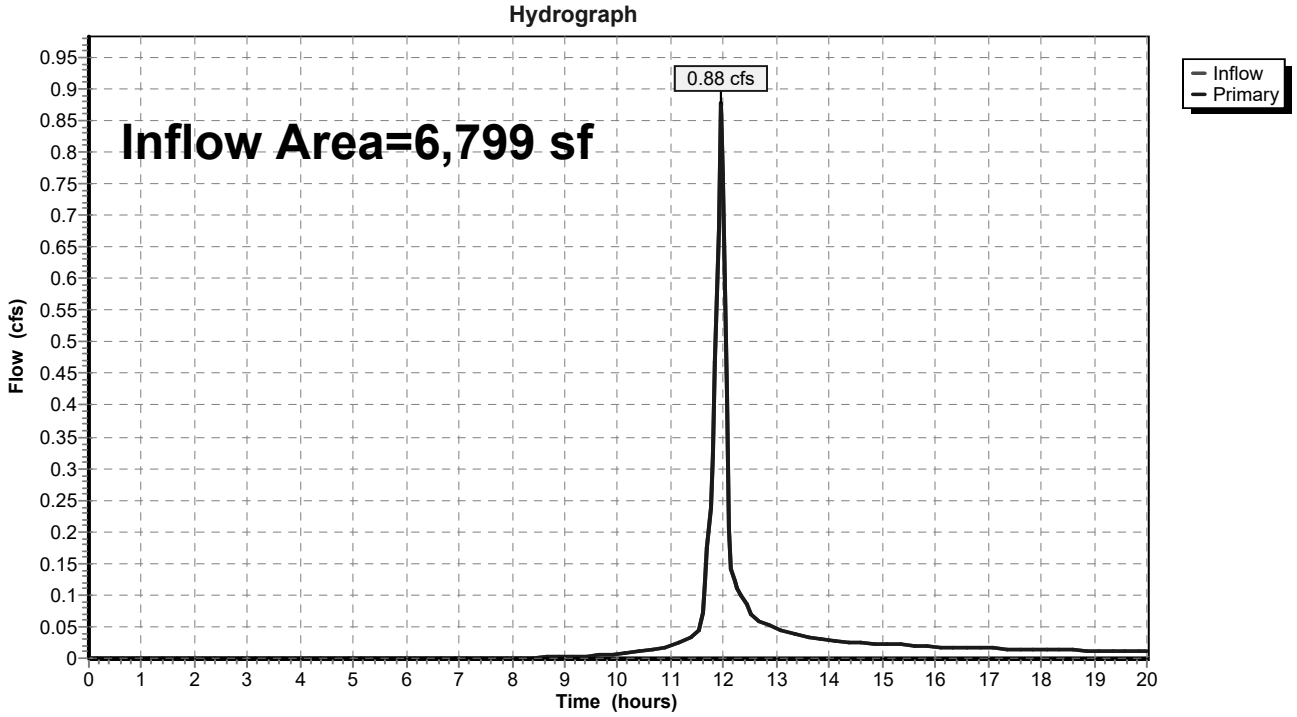
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
0.25	0.00	0.00	0.00
0.50	0.00	0.00	0.00
0.75	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00
1.50	0.00	0.00	0.00
1.75	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00
2.50	0.00	0.00	0.00
2.75	0.00	0.00	0.00
3.00	0.01	0.00	0.01
3.25	0.01	0.00	0.01
3.50	0.01	0.00	0.01
3.75	0.01	0.00	0.01
4.00	0.01	0.00	0.01
4.25	0.01	0.00	0.01
4.50	0.01	0.00	0.01
4.75	0.02	0.00	0.02
5.00	0.02	0.00	0.02
5.25	0.02	0.00	0.02
5.50	0.03	0.00	0.03
5.75	0.03	0.00	0.03
6.00	0.03	0.00	0.03
6.25	0.04	0.00	0.04
6.50	0.04	0.00	0.04
6.75	0.05	0.00	0.05
7.00	0.05	0.00	0.05
7.25	0.05	0.00	0.05
7.50	0.06	0.00	0.06
7.75	0.06	0.00	0.06
8.00	0.07	0.00	0.07
8.25	0.07	0.00	0.07
8.50	0.08	0.00	0.08
8.75	0.09	0.00	0.09
9.00	0.10	0.00	0.10
9.25	0.11	0.00	0.11
9.50	0.11	0.00	0.11
9.75	0.12	0.00	0.12
10.00	0.14	0.00	0.14
10.25	0.16	0.00	0.16
10.50	0.19	0.00	0.19
10.75	0.23	0.00	0.23
11.00	0.27	0.00	0.27
11.25	0.38	0.00	0.38
11.50	0.54	0.00	0.54
11.75	**2.42**	0.00	**2.42**
12.00	**6.01**	0.00	**6.01**
12.25	1.38	0.00	1.38
12.50	1.14	0.00	1.14
12.75	1.02	0.00	1.02
13.00	0.97	0.00	0.97
13.25	0.93	0.00	0.93
13.50	0.90	0.00	0.90
13.75	0.88	0.00	0.88
14.00	0.85	0.00	0.85
14.25	0.84	0.00	0.84
14.50	0.83	0.00	0.83
14.75	0.82	0.00	0.82
15.00	0.81	0.00	0.81
15.25	0.80	0.00	0.80
15.50	0.78	0.00	0.78
15.75	0.77	0.00	0.77
16.00	0.76	0.00	0.76
16.25	0.75	0.00	0.75
16.50	0.75	0.00	0.75
16.75	0.74	0.00	0.74
17.00	0.73	0.00	0.73
17.25	0.72	0.00	0.72
17.50	0.72	0.00	0.72
17.75	0.71	0.00	0.71
18.00	0.70	0.00	0.70
18.25	0.70	0.00	0.70
18.50	0.69	0.00	0.69
18.75	0.68	0.00	0.68
19.00	0.67	0.00	0.67
19.25	0.66	0.00	0.66
19.50	0.66	0.00	0.66
19.75	0.65	0.00	0.65
20.00	0.64	0.00	0.64

Summary for Link Post DP003: Post-Development DP003

Inflow Area = 6,799 sf, 3.93% Impervious, Inflow Depth > 2.90" for 25-yr event
Inflow = 0.88 cfs @ 11.96 hrs, Volume= 1,643 cf
Primary = 0.88 cfs @ 11.96 hrs, Volume= 1,643 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Post DP003: Post-Development DP003



Hydrograph for Link Post DP003: Post-Development DP003

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
0.25	0.00	0.00	0.00
0.50	0.00	0.00	0.00
0.75	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00
1.50	0.00	0.00	0.00
1.75	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00
2.50	0.00	0.00	0.00
2.75	0.00	0.00	0.00
3.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00
3.50	0.00	0.00	0.00
3.75	0.00	0.00	0.00
4.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00
4.50	0.00	0.00	0.00
4.75	0.00	0.00	0.00
5.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00
5.50	0.00	0.00	0.00
5.75	0.00	0.00	0.00
6.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00
6.50	0.00	0.00	0.00
6.75	0.00	0.00	0.00
7.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00
7.50	0.00	0.00	0.00
7.75	0.00	0.00	0.00
8.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00
8.50	0.00	0.00	0.00
8.75	0.00	0.00	0.00
9.00	0.00	0.00	0.00
9.25	0.00	0.00	0.00
9.50	0.00	0.00	0.00
9.75	0.01	0.00	0.01
10.00	0.01	0.00	0.01
10.25	0.01	0.00	0.01
10.50	0.01	0.00	0.01
10.75	0.01	0.00	0.01
11.00	0.02	0.00	0.02
11.25	0.03	0.00	0.03
11.50	0.04	0.00	0.04
11.75	**0.24**	0.00	**0.24**
12.00	**0.76**	0.00	**0.76**
12.25	0.11	0.00	0.11
12.50	0.07	0.00	0.07
12.75	0.06	0.00	0.06
13.00	0.05	0.00	0.05
13.25	0.04	0.00	0.04
13.50	0.04	0.00	0.04
13.75	0.03	0.00	0.03
14.00	0.03	0.00	0.03
14.25	0.03	0.00	0.03
14.50	0.03	0.00	0.03
14.75	0.02	0.00	0.02
15.00	0.02	0.00	0.02
15.25	0.02	0.00	0.02
15.50	0.02	0.00	0.02
15.75	0.02	0.00	0.02
16.00	0.02	0.00	0.02
16.25	0.02	0.00	0.02
16.50	0.02	0.00	0.02
16.75	0.02	0.00	0.02
17.00	0.02	0.00	0.02
17.25	0.02	0.00	0.02
17.50	0.01	0.00	0.01
17.75	0.01	0.00	0.01
18.00	0.01	0.00	0.01
18.25	0.01	0.00	0.01
18.50	0.01	0.00	0.01
18.75	0.01	0.00	0.01
19.00	0.01	0.00	0.01
19.25	0.01	0.00	0.01
19.50	0.01	0.00	0.01
19.75	0.01	0.00	0.01
20.00	0.01	0.00	0.01

Summary for Subcatchment DA-5: BYPASS TO DP-001

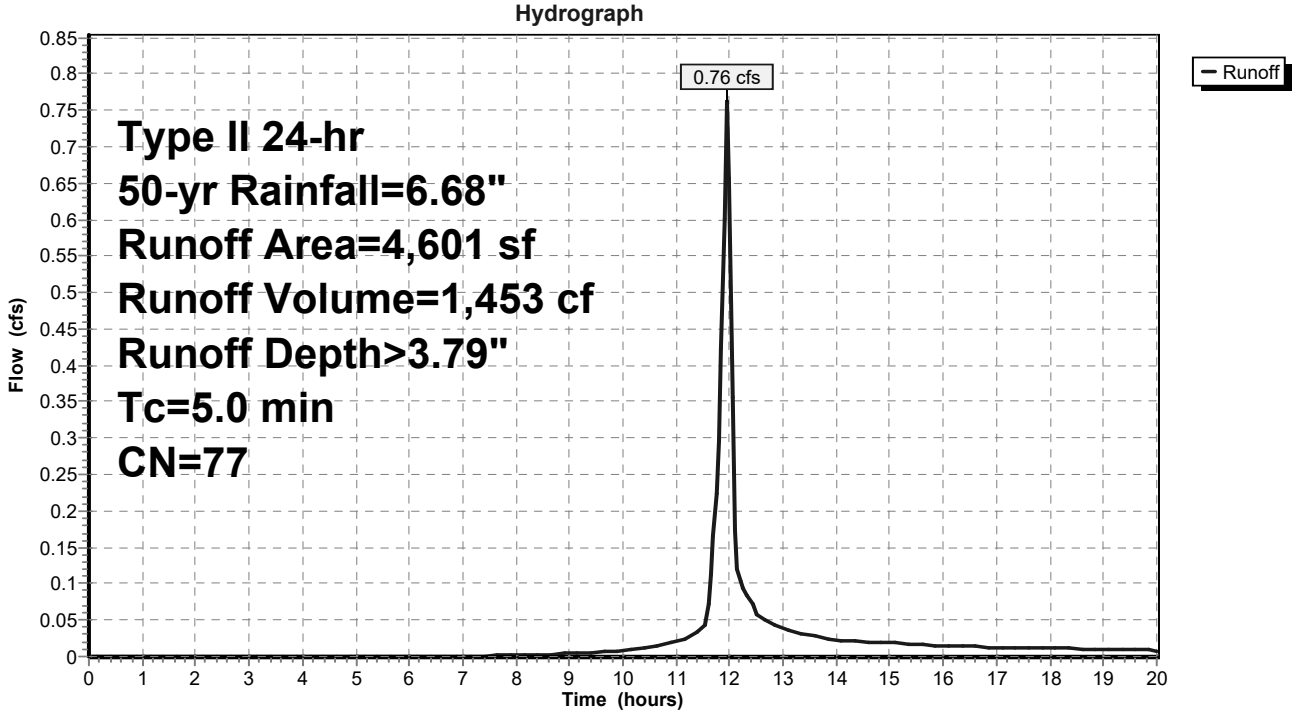
Runoff = 0.76 cfs @ 11.96 hrs, Volume= 1,453 cf, Depth> 3.79"
Routed to Link Post DP001 : Post-Development DP001

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=6.68"

Area (sf)	CN	Description
1,989	74	>75% Grass cover, Good, HSG C
2,612	80	>75% Grass cover, Good, HSG D
4,601	77	Weighted Average
4,601		100.00% Pervious Area

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

Subcatchment DA-5: BYPASS TO DP-001



Hydrograph for Subcatchment DA-5: BYPASS TO DP-001

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.02	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.05	0.00	0.00
1.00	0.07	0.00	0.00
1.25	0.09	0.00	0.00
1.50	0.11	0.00	0.00
1.75	0.13	0.00	0.00
2.00	0.15	0.00	0.00
2.25	0.17	0.00	0.00
2.50	0.19	0.00	0.00
2.75	0.21	0.00	0.00
3.00	0.23	0.00	0.00
3.25	0.25	0.00	0.00
3.50	0.27	0.00	0.00
3.75	0.30	0.00	0.00
4.00	0.32	0.00	0.00
4.25	0.34	0.00	0.00
4.50	0.37	0.00	0.00
4.75	0.39	0.00	0.00
5.00	0.42	0.00	0.00
5.25	0.45	0.00	0.00
5.50	0.48	0.00	0.00
5.75	0.50	0.00	0.00
6.00	0.53	0.00	0.00
6.25	0.56	0.00	0.00
6.50	0.60	0.00	0.00
6.75	0.63	0.00	0.00
7.00	0.66	0.00	0.00
7.25	0.70	0.00	0.00
7.50	0.73	0.01	0.00
7.75	0.77	0.01	0.00
8.00	0.80	0.01	0.00
8.25	0.84	0.02	0.00
8.50	0.88	0.02	0.00
8.75	0.93	0.03	0.00
9.00	0.98	0.04	0.00
9.25	1.04	0.06	0.01
9.50	1.09	0.07	0.01
9.75	1.15	0.09	0.01
10.00	1.21	0.10	0.01
10.25	1.28	0.13	0.01
10.50	1.36	0.16	0.01
10.75	1.46	0.19	0.02
11.00	1.57	0.24	0.02
11.25	1.71	0.30	0.03
11.50	1.89	0.39	0.04
11.75	2.59	0.79	**0.22**
12.00	4.43	2.15	**0.66**
12.25	4.72	2.39	0.09
12.50	4.91	2.55	0.06
12.75	5.04	2.66	0.05
13.00	5.16	2.75	0.04
13.25	5.25	2.84	0.03
13.50	5.34	2.91	0.03
13.75	5.41	2.97	0.03
14.00	5.48	3.03	0.02
14.25	5.54	3.08	0.02
14.50	5.60	3.13	0.02
14.75	5.65	3.18	0.02
15.00	5.70	3.22	0.02
15.25	5.75	3.26	0.02
15.50	5.80	3.30	0.02
15.75	5.84	3.34	0.02
16.00	5.88	3.37	0.01
16.25	5.92	3.41	0.01
16.50	5.95	3.44	0.01
16.75	5.99	3.47	0.01
17.00	6.02	3.50	0.01
17.25	6.06	3.53	0.01
17.50	6.09	3.56	0.01
17.75	6.12	3.59	0.01
18.00	6.15	3.61	0.01
18.25	6.18	3.64	0.01
18.50	6.21	3.66	0.01
18.75	6.24	3.69	0.01
19.00	6.26	3.71	0.01
19.25	6.29	3.73	0.01
19.50	6.31	3.75	0.01
19.75	6.34	3.78	0.01
20.00	**6.36**	**3.79**	0.01

Summary for Subcatchment DA-6: To Rain Garden (BMP-2)

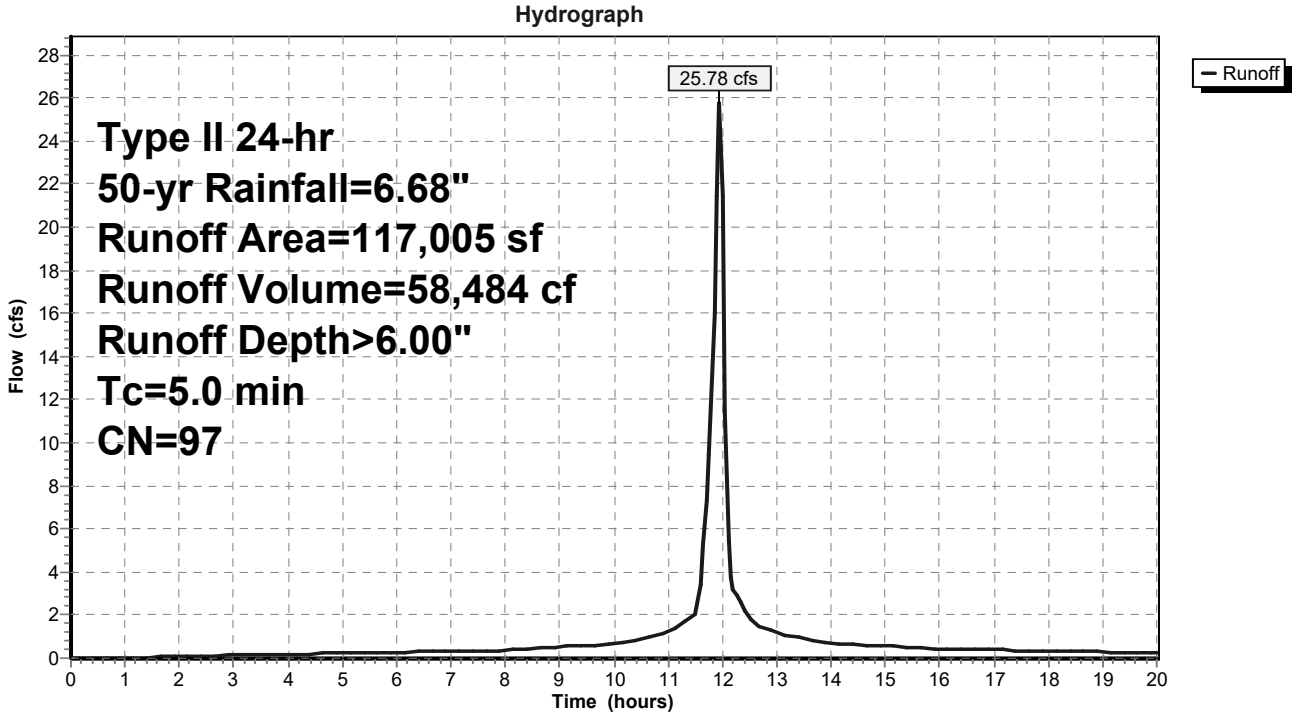
Runoff = 25.78 cfs @ 11.95 hrs, Volume= 58,484 cf, Depth> 6.00"
Routed to Pond 3P : MRC

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=6.68"

	Area (sf)	CN	Description
*	111,197	98	Paved parking, All HSGs
	5,808	74	>75% Grass cover, Good, HSG C
	117,005	97	Weighted Average
	5,808		4.96% Pervious Area
	111,197		95.04% Impervious Area

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

Subcatchment DA-6: To Rain Garden (BMP-2)



Hydrograph for Subcatchment DA-6: To Rain Garden (BMP-2)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.02	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.05	0.00	0.00
1.00	0.07	0.00	0.00
1.25	0.09	0.00	0.02
1.50	0.11	0.01	0.04
1.75	0.13	0.01	0.06
2.00	0.15	0.02	0.08
2.25	0.17	0.03	0.09
2.50	0.19	0.04	0.11
2.75	0.21	0.05	0.12
3.00	0.23	0.06	0.13
3.25	0.25	0.07	0.14
3.50	0.27	0.09	0.16
3.75	0.30	0.10	0.17
4.00	0.32	0.12	0.18
4.25	0.34	0.13	0.19
4.50	0.37	0.15	0.20
4.75	0.39	0.17	0.21
5.00	0.42	0.19	0.22
5.25	0.45	0.21	0.24
5.50	0.48	0.24	0.25
5.75	0.50	0.26	0.26
6.00	0.53	0.29	0.27
6.25	0.56	0.31	0.28
6.50	0.60	0.34	0.29
6.75	0.63	0.37	0.31
7.00	0.66	0.40	0.32
7.25	0.70	0.43	0.33
7.50	0.73	0.46	0.34
7.75	0.77	0.49	0.35
8.00	0.80	0.52	0.36
8.25	0.84	0.56	0.39
8.50	0.88	0.60	0.44
8.75	0.93	0.64	0.48
9.00	0.98	0.69	0.53
9.25	1.04	0.74	0.54
9.50	1.09	0.79	0.55
9.75	1.15	0.84	0.60
10.00	1.21	0.90	0.67
10.25	1.28	0.97	0.77
10.50	1.36	1.05	0.87
10.75	1.46	1.14	1.03
11.00	1.57	1.25	1.21
11.25	1.71	1.39	1.56
11.50	1.89	1.56	1.99
11.75	2.59	2.25	**9.43**
12.00	4.43	4.08	**21.48**
12.25	4.72	4.37	2.92
12.50	4.91	4.56	1.89
12.75	5.04	4.69	1.41
13.00	5.16	4.80	1.17
13.25	5.25	4.90	1.01
13.50	5.34	4.98	0.89
13.75	5.41	5.06	0.79
14.00	5.48	5.12	0.70
14.25	5.54	5.18	0.65
14.50	5.60	5.24	0.61
14.75	5.65	5.29	0.58
15.00	5.70	5.35	0.55
15.25	5.75	5.39	0.52
15.50	5.80	5.44	0.49
15.75	5.84	5.48	0.46
16.00	5.88	5.52	0.42
16.25	5.92	5.56	0.41
16.50	5.95	5.60	0.40
16.75	5.99	5.63	0.38
17.00	6.02	5.67	0.37
17.25	6.06	5.70	0.36
17.50	6.09	5.73	0.35
17.75	6.12	5.77	0.34
18.00	6.15	5.80	0.33
18.25	6.18	5.83	0.32
18.50	6.21	5.85	0.31
18.75	6.24	5.88	0.29
19.00	6.26	5.91	0.28
19.25	6.29	5.93	0.27
19.50	6.31	5.96	0.26
19.75	6.34	5.98	0.25
20.00	**6.36**	**6.00**	0.24

Summary for Subcatchment DA-7: BYPASS TO DP-002

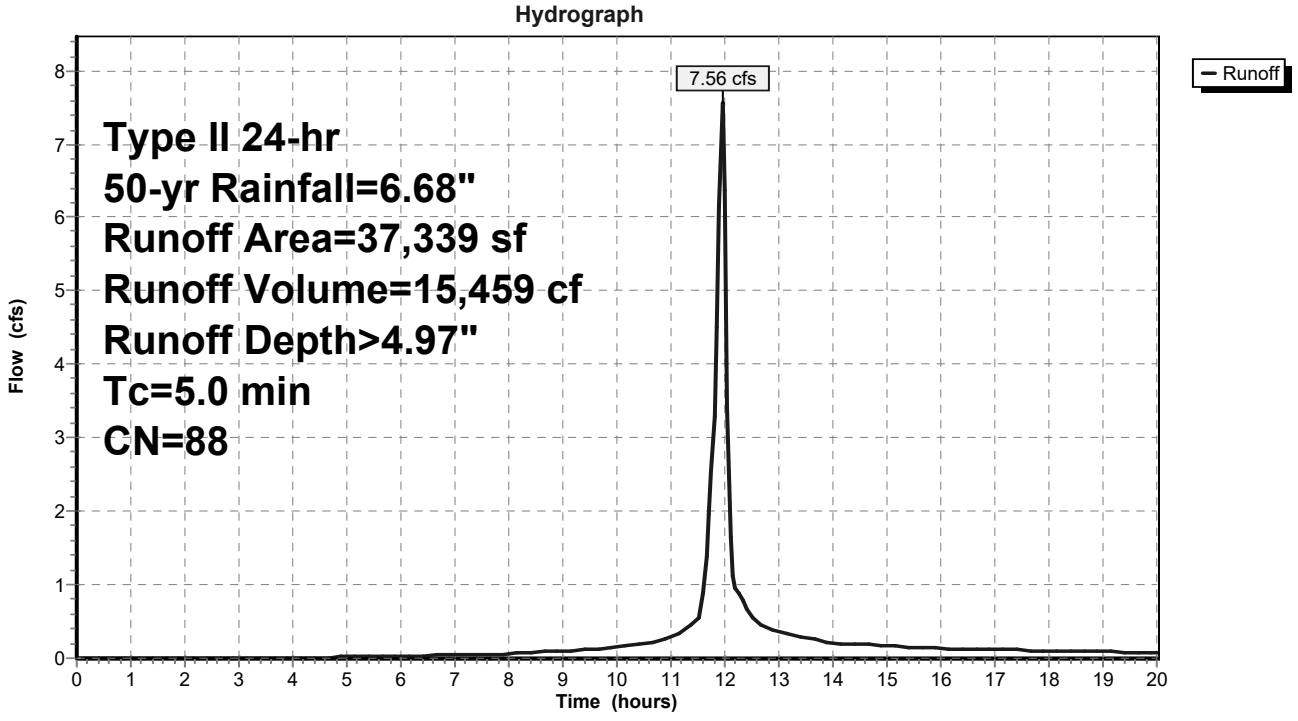
Runoff = 7.56 cfs @ 11.95 hrs, Volume= 15,459 cf, Depth> 4.97"
Routed to Link Post DP002 : Post-Development DP002

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=6.68"

Area (sf)	CN	Description
15,016	74	>75% Grass cover, Good, HSG C
22,323	98	Paved parking, HSG C
37,339	88	Weighted Average
15,016		40.22% Pervious Area
22,323		59.78% Impervious Area

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

Subcatchment DA-7: BYPASS TO DP-002



Hydrograph for Subcatchment DA-7: BYPASS TO DP-002

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.02	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.05	0.00	0.00
1.00	0.07	0.00	0.00
1.25	0.09	0.00	0.00
1.50	0.11	0.00	0.00
1.75	0.13	0.00	0.00
2.00	0.15	0.00	0.00
2.25	0.17	0.00	0.00
2.50	0.19	0.00	0.00
2.75	0.21	0.00	0.00
3.00	0.23	0.00	0.00
3.25	0.25	0.00	0.00
3.50	0.27	0.00	0.00
3.75	0.30	0.00	0.00
4.00	0.32	0.00	0.00
4.25	0.34	0.00	0.01
4.50	0.37	0.01	0.01
4.75	0.39	0.01	0.01
5.00	0.42	0.01	0.02
5.25	0.45	0.02	0.02
5.50	0.48	0.03	0.02
5.75	0.50	0.03	0.03
6.00	0.53	0.04	0.03
6.25	0.56	0.05	0.03
6.50	0.60	0.06	0.04
6.75	0.63	0.07	0.04
7.00	0.66	0.09	0.04
7.25	0.70	0.10	0.05
7.50	0.73	0.11	0.05
7.75	0.77	0.13	0.06
8.00	0.80	0.15	0.06
8.25	0.84	0.17	0.07
8.50	0.88	0.19	0.08
8.75	0.93	0.21	0.09
9.00	0.98	0.24	0.10
9.25	1.04	0.27	0.11
9.50	1.09	0.31	0.11
9.75	1.15	0.34	0.12
10.00	1.21	0.38	0.14
10.25	1.28	0.43	0.17
10.50	1.36	0.48	0.20
10.75	1.46	0.55	0.24
11.00	1.57	0.63	0.29
11.25	1.71	0.74	0.39
11.50	1.89	0.88	0.51
11.75	2.59	1.45	**2.56**
12.00	4.43	3.13	**6.38**
12.25	4.72	3.40	0.88
12.50	4.91	3.58	0.57
12.75	5.04	3.71	0.43
13.00	5.16	3.82	0.36
13.25	5.25	3.91	0.31
13.50	5.34	3.99	0.27
13.75	5.41	4.06	0.24
14.00	5.48	4.12	0.21
14.25	5.54	4.18	0.20
14.50	5.60	4.24	0.19
14.75	5.65	4.29	0.18
15.00	5.70	4.34	0.17
15.25	5.75	4.39	0.16
15.50	5.80	4.43	0.15
15.75	5.84	4.47	0.14
16.00	5.88	4.51	0.13
16.25	5.92	4.55	0.13
16.50	5.95	4.58	0.12
16.75	5.99	4.62	0.12
17.00	6.02	4.65	0.12
17.25	6.06	4.68	0.11
17.50	6.09	4.71	0.11
17.75	6.12	4.74	0.10
18.00	6.15	4.77	0.10
18.25	6.18	4.80	0.10
18.50	6.21	4.83	0.09
18.75	6.24	4.86	0.09
19.00	6.26	4.88	0.09
19.25	6.29	4.91	0.08
19.50	6.31	4.93	0.08
19.75	6.34	4.95	0.08
20.00	**6.36**	**4.97**	0.07

Summary for Subcatchment DA-8: Bypass to DP003

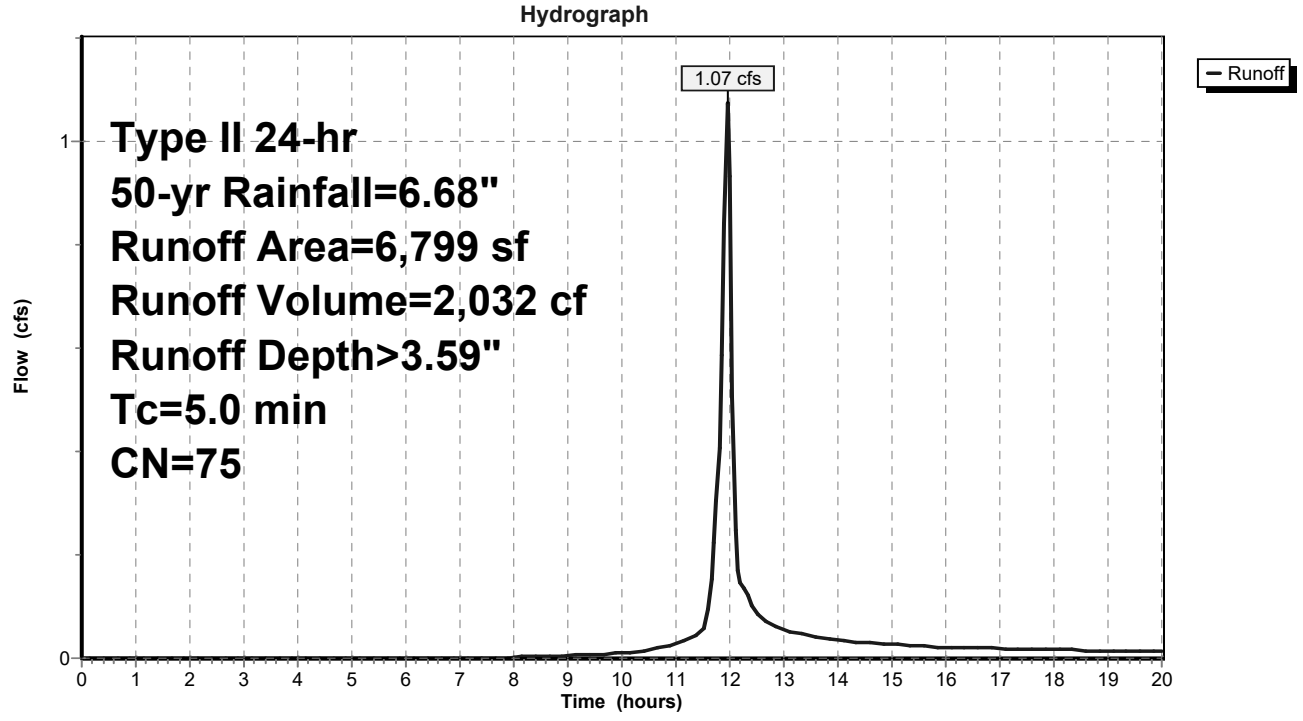
Runoff = 1.07 cfs @ 11.96 hrs, Volume= 2,032 cf, Depth> 3.59"
Routed to Link Post DP003 : Post-Development DP003

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=6.68"

Area (sf)	CN	Description
6,532	74	>75% Grass cover, Good, HSG C
267	98	Paved parking, HSG C
6,799	75	Weighted Average
6,532		96.07% Pervious Area
267		3.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc-1**

Subcatchment DA-8: Bypass to DP003



Hydrograph for Subcatchment DA-8: Bypass to DP003

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.02	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.05	0.00	0.00
1.00	0.07	0.00	0.00
1.25	0.09	0.00	0.00
1.50	0.11	0.00	0.00
1.75	0.13	0.00	0.00
2.00	0.15	0.00	0.00
2.25	0.17	0.00	0.00
2.50	0.19	0.00	0.00
2.75	0.21	0.00	0.00
3.00	0.23	0.00	0.00
3.25	0.25	0.00	0.00
3.50	0.27	0.00	0.00
3.75	0.30	0.00	0.00
4.00	0.32	0.00	0.00
4.25	0.34	0.00	0.00
4.50	0.37	0.00	0.00
4.75	0.39	0.00	0.00
5.00	0.42	0.00	0.00
5.25	0.45	0.00	0.00
5.50	0.48	0.00	0.00
5.75	0.50	0.00	0.00
6.00	0.53	0.00	0.00
6.25	0.56	0.00	0.00
6.50	0.60	0.00	0.00
6.75	0.63	0.00	0.00
7.00	0.66	0.00	0.00
7.25	0.70	0.00	0.00
7.50	0.73	0.00	0.00
7.75	0.77	0.00	0.00
8.00	0.80	0.01	0.00
8.25	0.84	0.01	0.00
8.50	0.88	0.01	0.00
8.75	0.93	0.02	0.00
9.00	0.98	0.03	0.01
9.25	1.04	0.04	0.01
9.50	1.09	0.05	0.01
9.75	1.15	0.06	0.01
10.00	1.21	0.08	0.01
10.25	1.28	0.10	0.01
10.50	1.36	0.12	0.02
10.75	1.46	0.15	0.02
11.00	1.57	0.19	0.03
11.25	1.71	0.25	0.04
11.50	1.89	0.33	0.05
11.75	2.59	0.70	**0.31**
12.00	4.43	1.99	**0.93**
12.25	4.72	2.22	0.13
12.50	4.91	2.38	0.09
12.75	5.04	2.49	0.07
13.00	5.16	2.58	0.06
13.25	5.25	2.66	0.05
13.50	5.34	2.73	0.04
13.75	5.41	2.79	0.04
14.00	5.48	2.84	0.03
14.25	5.54	2.89	0.03
14.50	5.60	2.94	0.03
14.75	5.65	2.99	0.03
15.00	5.70	3.03	0.03
15.25	5.75	3.07	0.03
15.50	5.80	3.11	0.02
15.75	5.84	3.14	0.02
16.00	5.88	3.18	0.02
16.25	5.92	3.21	0.02
16.50	5.95	3.24	0.02
16.75	5.99	3.27	0.02
17.00	6.02	3.30	0.02
17.25	6.06	3.33	0.02
17.50	6.09	3.36	0.02
17.75	6.12	3.39	0.02
18.00	6.15	3.41	0.02
18.25	6.18	3.44	0.02
18.50	6.21	3.46	0.02
18.75	6.24	3.49	0.01
19.00	6.26	3.51	0.01
19.25	6.29	3.53	0.01
19.50	6.31	3.55	0.01
19.75	6.34	3.57	0.01
20.00	**6.36**	**3.59**	0.01

Summary for Pond 3P: MRC

Inflow Area = 117,005 sf, 95.04% Impervious, Inflow Depth > 6.00" for 50-yr event
Inflow = 25.78 cfs @ 11.95 hrs, Volume= 58,484 cf
Outflow = 0.76 cfs @ 13.82 hrs, Volume= 22,320 cf, Atten= 97%, Lag= 112.2 min
Primary = 0.76 cfs @ 13.82 hrs, Volume= 22,320 cf
Routed to Link Post DP002 : Post-Development DP002

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 197.05' @ 13.82 hrs Surf.Area= 31,076 sf Storage= 42,925 cf

Plug-Flow detention time= 351.1 min calculated for 22,265 cf (38% of inflow)
Center-of-Mass det. time= 217.9 min (932.0 - 714.1)

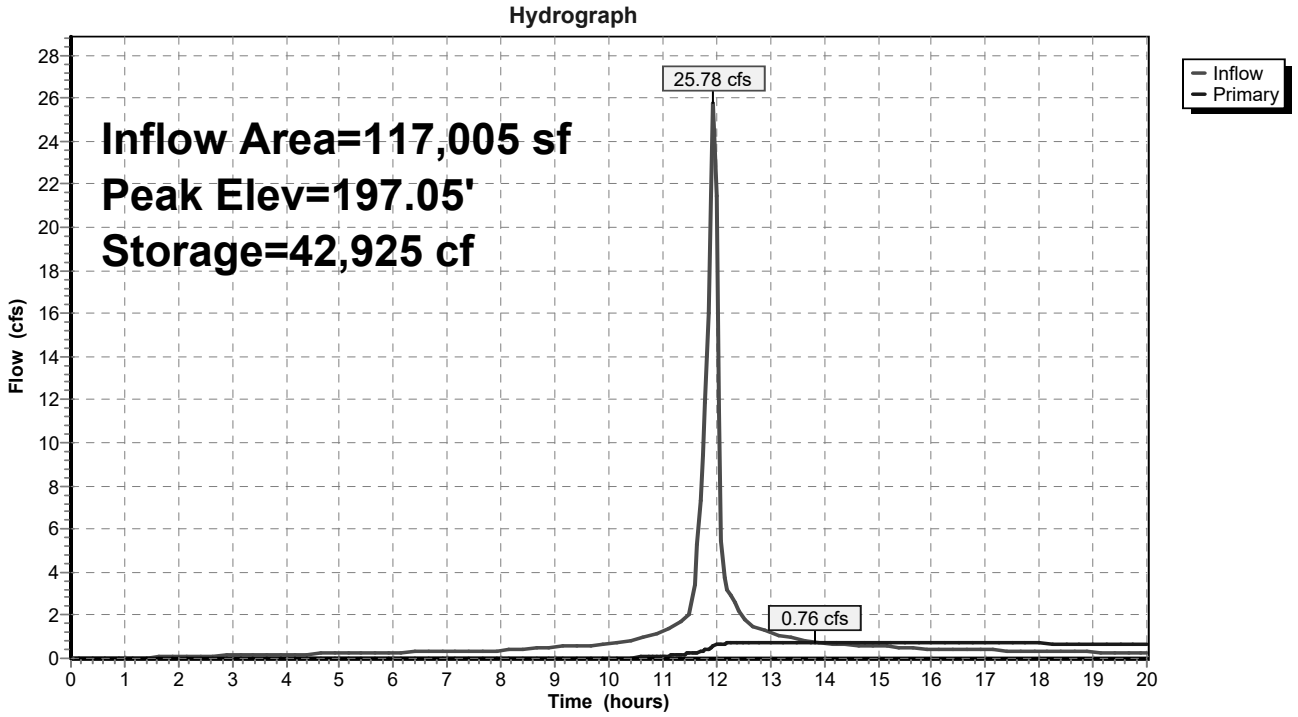
Volume	Invert	Avail.Storage	Storage Description
#1	192.55'	0 cf	**100.00'W x 150.00'L x 1.00'H Prismatoid** 15,000 cf Overall x 0.0% Voids
#2A	193.55'	16,872 cf	**126.00'W x 127.59'L x 4.75'H Field A** 76,363 cf Overall - 34,182 cf Embedded = 42,181 cf x 40.0% Voids
#3A	193.55'	34,182 cf	**ADS_StormTech MC-3500 d +Cap**x 306 Inside #2 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 306 Chambers in 18 Rows Cap Storage= 14.9 cf x 2 x 18 rows = 536.4 cf
		51,054 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	193.55'	**18.0" Round 18" Outlet** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 193.55' / 192.00' S= 0.0775 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	192.55'	**1.2" Vert. MRC Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	194.19'	**4.0" Vert. 4" Circular Orifice** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.76 cfs @ 13.82 hrs HW=197.05' (Free Discharge)
└**1=18" Outlet** (Passes 0.76 cfs of 14.11 cfs potential flow)
  ├**2=MRC Orifice** (Orifice Controls 0.07 cfs @ 9.01 fps)
  └**3=4" Circular Orifice** (Orifice Controls 0.69 cfs @ 7.90 fps)

Pond 3P: MRC


Hydrograph
Inflow Area=117,005 sf
Peak Elev=197.05'
Storage=42,925 cf
25.78 cfs
0.76 cfs
Inflow
Primary
Flow (cfs)
Time (hours)
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

Hydrograph for Pond 3P: MRC

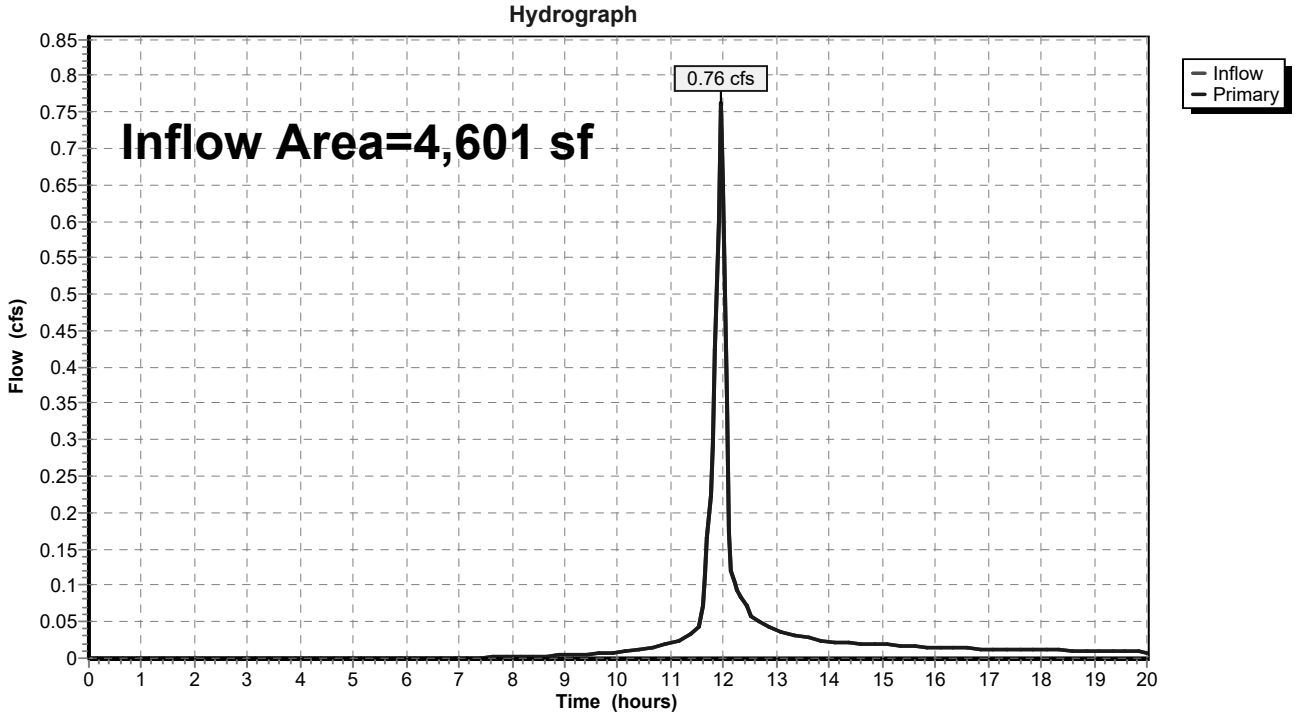
Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	192.55	0.00
0.50	0.00	0	192.55	0.00
1.00	0.00	0	193.55	0.00
1.50	0.04	44	193.55	0.00
2.00	0.08	154	193.56	0.00
2.50	0.11	317	193.57	0.00
3.00	0.13	524	193.59	0.01
3.50	0.16	770	193.60	0.01
4.00	0.18	1,052	193.62	0.01
4.50	0.20	1,368	193.65	0.01
5.00	0.22	1,727	193.67	0.01
5.50	0.25	2,126	193.70	0.01
6.00	0.27	2,566	193.73	0.02
6.50	0.29	3,044	193.76	0.02
7.00	0.32	3,561	193.80	0.02
7.50	0.34	4,115	193.84	0.02
8.00	0.36	4,706	193.88	0.02
8.50	0.44	5,377	193.93	0.02
9.00	0.53	6,203	193.99	0.03
9.50	0.55	7,134	194.05	0.03
10.00	0.67	8,162	194.13	0.03
10.50	0.87	9,487	194.22	0.03
11.00	1.21	11,243	194.35	0.09
11.50	**1.99**	13,796	194.54	0.22
12.00	**21.48**	33,753	196.11	0.62
12.50	1.89	41,143	196.83	0.73
13.00	1.17	42,387	196.98	0.75
13.50	0.89	**42,856**	**197.04**	**0.76**
14.00	0.70	**42,904**	**197.05**	**0.76**
14.50	0.61	42,704	197.02	0.76
15.00	0.55	42,396	196.98	0.75
15.50	0.49	41,987	196.93	0.74
16.00	0.42	41,478	196.87	0.73
16.50	0.40	40,899	196.80	0.72
17.00	0.37	40,296	196.73	0.72
17.50	0.35	39,669	196.67	0.71
18.00	0.33	39,019	196.60	0.70
18.50	0.31	38,347	196.53	0.69
19.00	0.28	37,653	196.47	0.67
19.50	0.26	36,938	196.40	0.66
20.00	0.24	36,201	196.33	0.65

Summary for Link Post DP001: Post-Development DP001

Inflow Area = 4,601 sf, 0.00% Impervious, Inflow Depth > 3.79" for 50-yr event
Inflow = 0.76 cfs @ 11.96 hrs, Volume= 1,453 cf
Primary = 0.76 cfs @ 11.96 hrs, Volume= 1,453 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Post DP001: Post-Development DP001



Hydrograph for Link Post DP001: Post-Development DP001

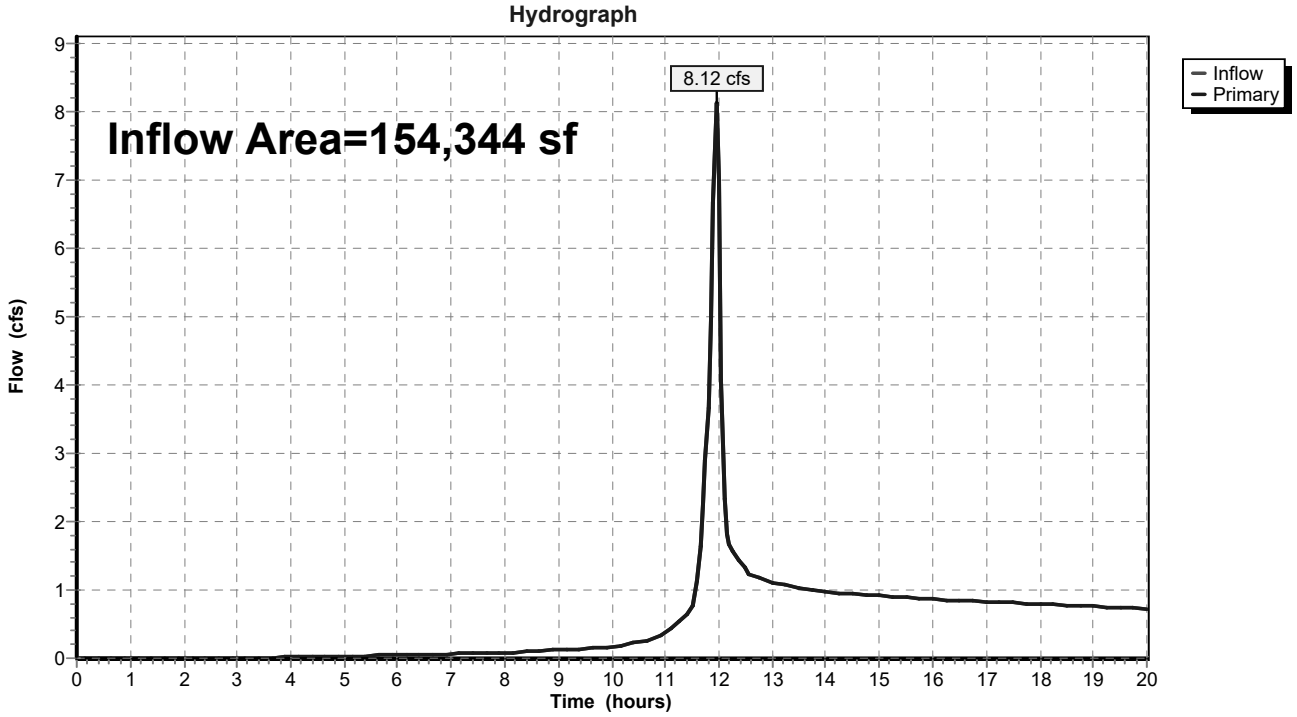
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
0.25	0.00	0.00	0.00
0.50	0.00	0.00	0.00
0.75	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00
1.50	0.00	0.00	0.00
1.75	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00
2.50	0.00	0.00	0.00
2.75	0.00	0.00	0.00
3.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00
3.50	0.00	0.00	0.00
3.75	0.00	0.00	0.00
4.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00
4.50	0.00	0.00	0.00
4.75	0.00	0.00	0.00
5.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00
5.50	0.00	0.00	0.00
5.75	0.00	0.00	0.00
6.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00
6.50	0.00	0.00	0.00
6.75	0.00	0.00	0.00
7.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00
7.50	0.00	0.00	0.00
7.75	0.00	0.00	0.00
8.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00
8.50	0.00	0.00	0.00
8.75	0.00	0.00	0.00
9.00	0.00	0.00	0.00
9.25	0.01	0.00	0.01
9.50	0.01	0.00	0.01
9.75	0.01	0.00	0.01
10.00	0.01	0.00	0.01
10.25	0.01	0.00	0.01
10.50	0.01	0.00	0.01
10.75	0.02	0.00	0.02
11.00	0.02	0.00	0.02
11.25	0.03	0.00	0.03
11.50	0.04	0.00	0.04
11.75	**0.22**	0.00	**0.22**
12.00	**0.66**	0.00	**0.66**
12.25	0.09	0.00	0.09
12.50	0.06	0.00	0.06
12.75	0.05	0.00	0.05
13.00	0.04	0.00	0.04
13.25	0.03	0.00	0.03
13.50	0.03	0.00	0.03
13.75	0.03	0.00	0.03
14.00	0.02	0.00	0.02
14.25	0.02	0.00	0.02
14.50	0.02	0.00	0.02
14.75	0.02	0.00	0.02
15.00	0.02	0.00	0.02
15.25	0.02	0.00	0.02
15.50	0.02	0.00	0.02
15.75	0.02	0.00	0.02
16.00	0.01	0.00	0.01
16.25	0.01	0.00	0.01
16.50	0.01	0.00	0.01
16.75	0.01	0.00	0.01
17.00	0.01	0.00	0.01
17.25	0.01	0.00	0.01
17.50	0.01	0.00	0.01
17.75	0.01	0.00	0.01
18.00	0.01	0.00	0.01
18.25	0.01	0.00	0.01
18.50	0.01	0.00	0.01
18.75	0.01	0.00	0.01
19.00	0.01	0.00	0.01
19.25	0.01	0.00	0.01
19.50	0.01	0.00	0.01
19.75	0.01	0.00	0.01
20.00	0.01	0.00	0.01

Summary for Link Post DP002: Post-Development DP002

Inflow Area = 154,344 sf, 86.51% Impervious, Inflow Depth > 2.94" for 50-yr event
Inflow = 8.12 cfs @ 11.95 hrs, Volume= 37,779 cf
Primary = 8.12 cfs @ 11.95 hrs, Volume= 37,779 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Post DP002: Post-Development DP002



Hydrograph for Link Post DP002: Post-Development DP002

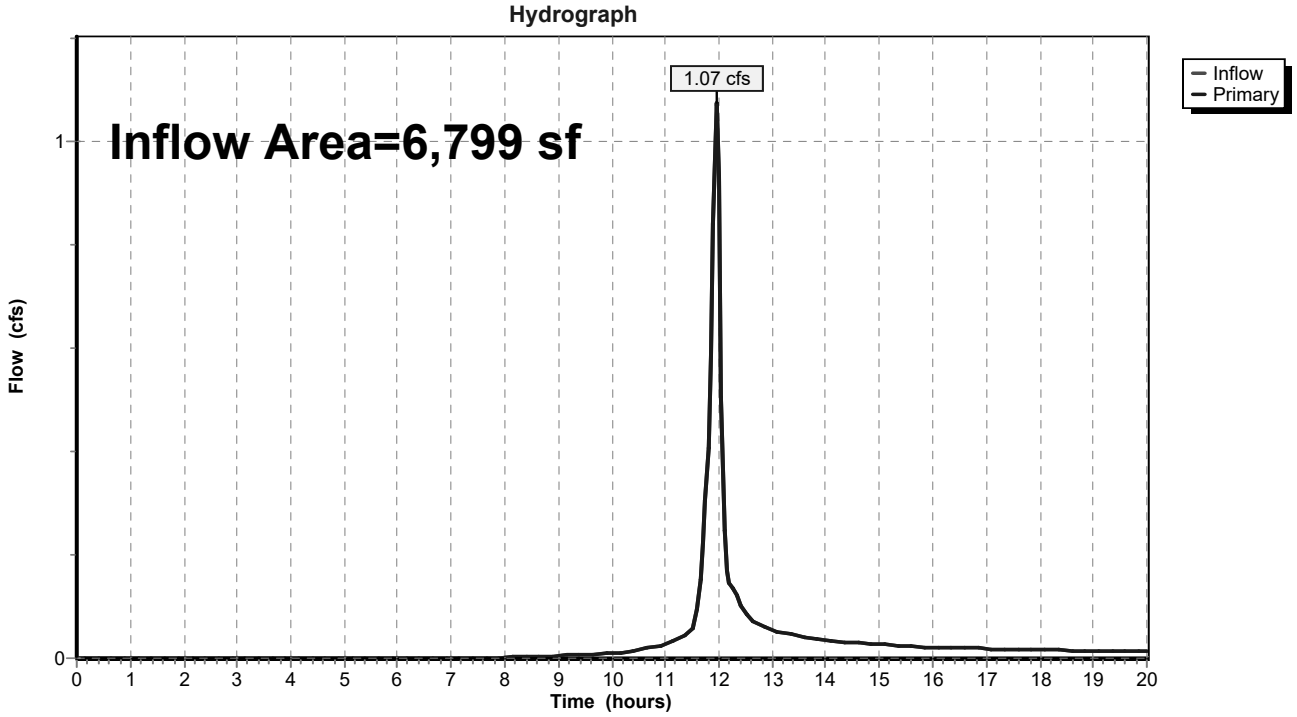
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
0.25	0.00	0.00	0.00
0.50	0.00	0.00	0.00
0.75	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00
1.50	0.00	0.00	0.00
1.75	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00
2.50	0.00	0.00	0.00
2.75	0.01	0.00	0.01
3.00	0.01	0.00	0.01
3.25	0.01	0.00	0.01
3.50	0.01	0.00	0.01
3.75	0.01	0.00	0.01
4.00	0.01	0.00	0.01
4.25	0.02	0.00	0.02
4.50	0.02	0.00	0.02
4.75	0.03	0.00	0.03
5.00	0.03	0.00	0.03
5.25	0.03	0.00	0.03
5.50	0.04	0.00	0.04
5.75	0.04	0.00	0.04
6.00	0.05	0.00	0.05
6.25	0.05	0.00	0.05
6.50	0.05	0.00	0.05
6.75	0.06	0.00	0.06
7.00	0.06	0.00	0.06
7.25	0.07	0.00	0.07
7.50	0.07	0.00	0.07
7.75	0.08	0.00	0.08
8.00	0.08	0.00	0.08
8.25	0.09	0.00	0.09
8.50	0.10	0.00	0.10
8.75	0.11	0.00	0.11
9.00	0.13	0.00	0.13
9.25	0.13	0.00	0.13
9.50	0.14	0.00	0.14
9.75	0.15	0.00	0.15
10.00	0.17	0.00	0.17
10.25	0.20	0.00	0.20
10.50	0.23	0.00	0.23
10.75	0.29	0.00	0.29
11.00	0.38	0.00	0.38
11.25	0.53	0.00	0.53
11.50	0.72	0.00	0.72
11.75	**2.89**	0.00	**2.89**
12.00	**6.99**	0.00	**6.99**
12.25	1.59	0.00	1.59
12.50	1.30	0.00	1.30
12.75	1.17	0.00	1.17
13.00	1.11	0.00	1.11
13.25	1.07	0.00	1.07
13.50	1.03	0.00	1.03
13.75	1.00	0.00	1.00
14.00	0.97	0.00	0.97
14.25	0.96	0.00	0.96
14.50	0.94	0.00	0.94
14.75	0.93	0.00	0.93
15.00	0.92	0.00	0.92
15.25	0.91	0.00	0.91
15.50	0.89	0.00	0.89
15.75	0.88	0.00	0.88
16.00	0.87	0.00	0.87
16.25	0.86	0.00	0.86
16.50	0.85	0.00	0.85
16.75	0.84	0.00	0.84
17.00	0.83	0.00	0.83
17.25	0.82	0.00	0.82
17.50	0.81	0.00	0.81
17.75	0.81	0.00	0.81
18.00	0.80	0.00	0.80
18.25	0.79	0.00	0.79
18.50	0.78	0.00	0.78
18.75	0.77	0.00	0.77
19.00	0.76	0.00	0.76
19.25	0.75	0.00	0.75
19.50	0.74	0.00	0.74
19.75	0.74	0.00	0.74
20.00	0.73	0.00	0.73

Summary for Link Post DP003: Post-Development DP003

Inflow Area = 6,799 sf, 3.93% Impervious, Inflow Depth > 3.59" for 50-yr event
Inflow = 1.07 cfs @ 11.96 hrs, Volume= 2,032 cf
Primary = 1.07 cfs @ 11.96 hrs, Volume= 2,032 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Post DP003: Post-Development DP003



Hydrograph for Link Post DP003: Post-Development DP003

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
0.25	0.00	0.00	0.00
0.50	0.00	0.00	0.00
0.75	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00
1.50	0.00	0.00	0.00
1.75	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00
2.50	0.00	0.00	0.00
2.75	0.00	0.00	0.00
3.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00
3.50	0.00	0.00	0.00
3.75	0.00	0.00	0.00
4.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00
4.50	0.00	0.00	0.00
4.75	0.00	0.00	0.00
5.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00
5.50	0.00	0.00	0.00
5.75	0.00	0.00	0.00
6.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00
6.50	0.00	0.00	0.00
6.75	0.00	0.00	0.00
7.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00
7.50	0.00	0.00	0.00
7.75	0.00	0.00	0.00
8.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00
8.50	0.00	0.00	0.00
8.75	0.00	0.00	0.00
9.00	0.01	0.00	0.01
9.25	0.01	0.00	0.01
9.50	0.01	0.00	0.01
9.75	0.01	0.00	0.01
10.00	0.01	0.00	0.01
10.25	0.01	0.00	0.01
10.50	0.02	0.00	0.02
10.75	0.02	0.00	0.02
11.00	0.03	0.00	0.03
11.25	0.04	0.00	0.04
11.50	0.05	0.00	0.05
11.75	**0.31**	0.00	**0.31**
12.00	**0.93**	0.00	**0.93**
12.25	0.13	0.00	0.13
12.50	0.09	0.00	0.09
12.75	0.07	0.00	0.07
13.00	0.06	0.00	0.06
13.25	0.05	0.00	0.05
13.50	0.04	0.00	0.04
13.75	0.04	0.00	0.04
14.00	0.03	0.00	0.03
14.25	0.03	0.00	0.03
14.50	0.03	0.00	0.03
14.75	0.03	0.00	0.03
15.00	0.03	0.00	0.03
15.25	0.03	0.00	0.03
15.50	0.02	0.00	0.02
15.75	0.02	0.00	0.02
16.00	0.02	0.00	0.02
16.25	0.02	0.00	0.02
16.50	0.02	0.00	0.02
16.75	0.02	0.00	0.02
17.00	0.02	0.00	0.02
17.25	0.02	0.00	0.02
17.50	0.02	0.00	0.02
17.75	0.02	0.00	0.02
18.00	0.02	0.00	0.02
18.25	0.02	0.00	0.02
18.50	0.02	0.00	0.02
18.75	0.01	0.00	0.01
19.00	0.01	0.00	0.01
19.25	0.01	0.00	0.01
19.50	0.01	0.00	0.01
19.75	0.01	0.00	0.01
20.00	0.01	0.00	0.01

Summary for Subcatchment DA-5: BYPASS TO DP-001

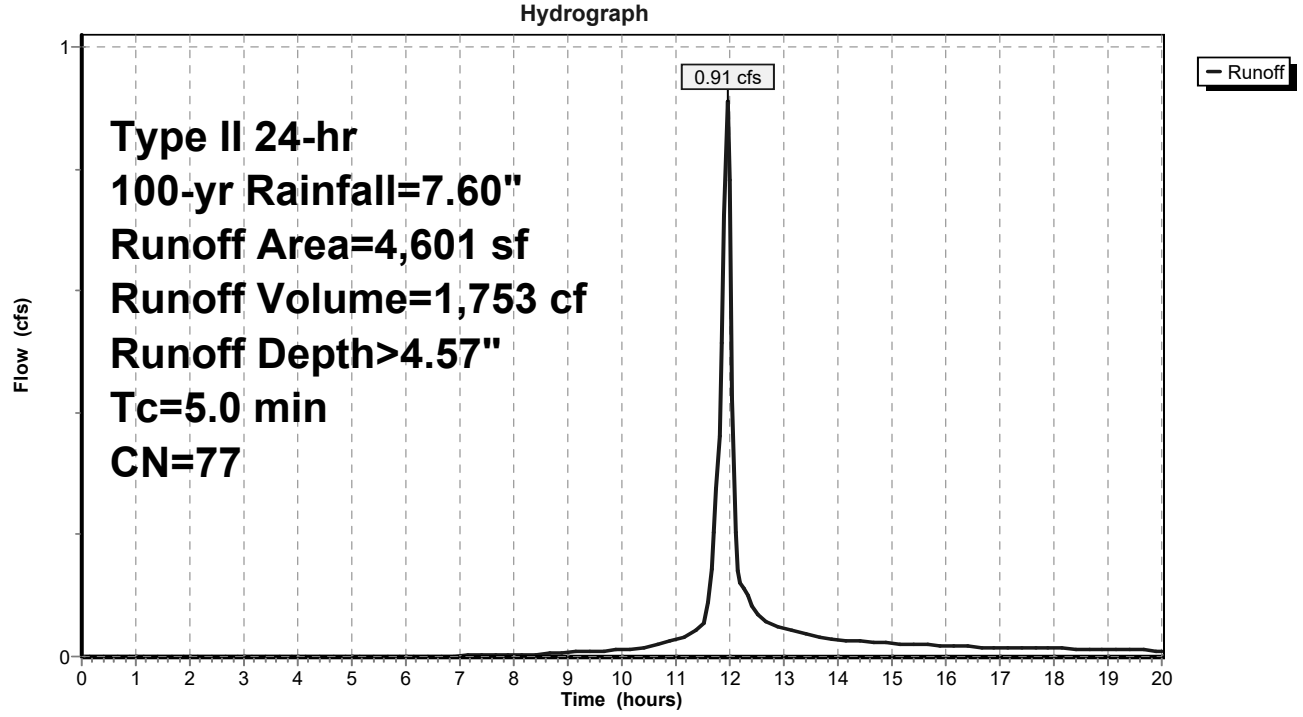
Runoff = 0.91 cfs @ 11.95 hrs, Volume= 1,753 cf, Depth> 4.57"
Routed to Link Post DP001 : Post-Development DP001

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

Area (sf)	CN	Description
1,989	74	>75% Grass cover, Good, HSG C
2,612	80	>75% Grass cover, Good, HSG D
4,601	77	Weighted Average
4,601		100.00% Pervious Area

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

Subcatchment DA-5: BYPASS TO DP-001



Hydrograph for Subcatchment DA-5: BYPASS TO DP-001

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.02	0.00	0.00
0.50	0.04	0.00	0.00
0.75	0.06	0.00	0.00
1.00	0.08	0.00	0.00
1.25	0.10	0.00	0.00
1.50	0.12	0.00	0.00
1.75	0.14	0.00	0.00
2.00	0.17	0.00	0.00
2.25	0.19	0.00	0.00
2.50	0.21	0.00	0.00
2.75	0.24	0.00	0.00
3.00	0.26	0.00	0.00
3.25	0.29	0.00	0.00
3.50	0.31	0.00	0.00
3.75	0.34	0.00	0.00
4.00	0.36	0.00	0.00
4.25	0.39	0.00	0.00
4.50	0.42	0.00	0.00
4.75	0.45	0.00	0.00
5.00	0.48	0.00	0.00
5.25	0.51	0.00	0.00
5.50	0.54	0.00	0.00
5.75	0.57	0.00	0.00
6.00	0.61	0.00	0.00
6.25	0.64	0.00	0.00
6.50	0.68	0.00	0.00
6.75	0.71	0.00	0.00
7.00	0.75	0.01	0.00
7.25	0.79	0.01	0.00
7.50	0.83	0.02	0.00
7.75	0.87	0.02	0.00
8.00	0.91	0.03	0.00
8.25	0.96	0.04	0.00
8.50	1.01	0.05	0.00
8.75	1.06	0.06	0.01
9.00	1.12	0.08	0.01
9.25	1.18	0.09	0.01
9.50	1.24	0.11	0.01
9.75	1.30	0.13	0.01
10.00	1.38	0.16	0.01
10.25	1.46	0.19	0.01
10.50	1.55	0.23	0.02
10.75	1.66	0.28	0.02
11.00	1.79	0.34	0.03
11.25	1.95	0.42	0.04
11.50	2.15	0.53	0.05
11.75	2.94	1.03	**0.28**
12.00	5.04	2.66	**0.78**
12.25	5.37	2.93	0.11
12.50	5.59	3.12	0.07
12.75	5.74	3.25	0.05
13.00	5.87	3.36	0.05
13.25	5.98	3.46	0.04
13.50	6.07	3.54	0.03
13.75	6.16	3.62	0.03
14.00	6.23	3.68	0.03
14.25	6.30	3.74	0.03
14.50	6.37	3.80	0.02
14.75	6.43	3.86	0.02
15.00	6.49	3.91	0.02
15.25	6.54	3.96	0.02
15.50	6.59	4.00	0.02
15.75	6.64	4.05	0.02
16.00	6.69	4.09	0.02
16.25	6.73	4.12	0.02
16.50	6.77	4.16	0.02
16.75	6.81	4.20	0.02
17.00	6.85	4.23	0.01
17.25	6.89	4.27	0.01
17.50	6.93	4.30	0.01
17.75	6.96	4.33	0.01
18.00	7.00	4.37	0.01
18.25	7.03	4.40	0.01
18.50	7.07	4.42	0.01
18.75	7.10	4.45	0.01
19.00	7.13	4.48	0.01
19.25	7.16	4.51	0.01
19.50	7.18	4.53	0.01
19.75	7.21	4.55	0.01
20.00	**7.24**	**4.58**	0.01

Summary for Subcatchment DA-6: To Rain Garden (BMP-2)

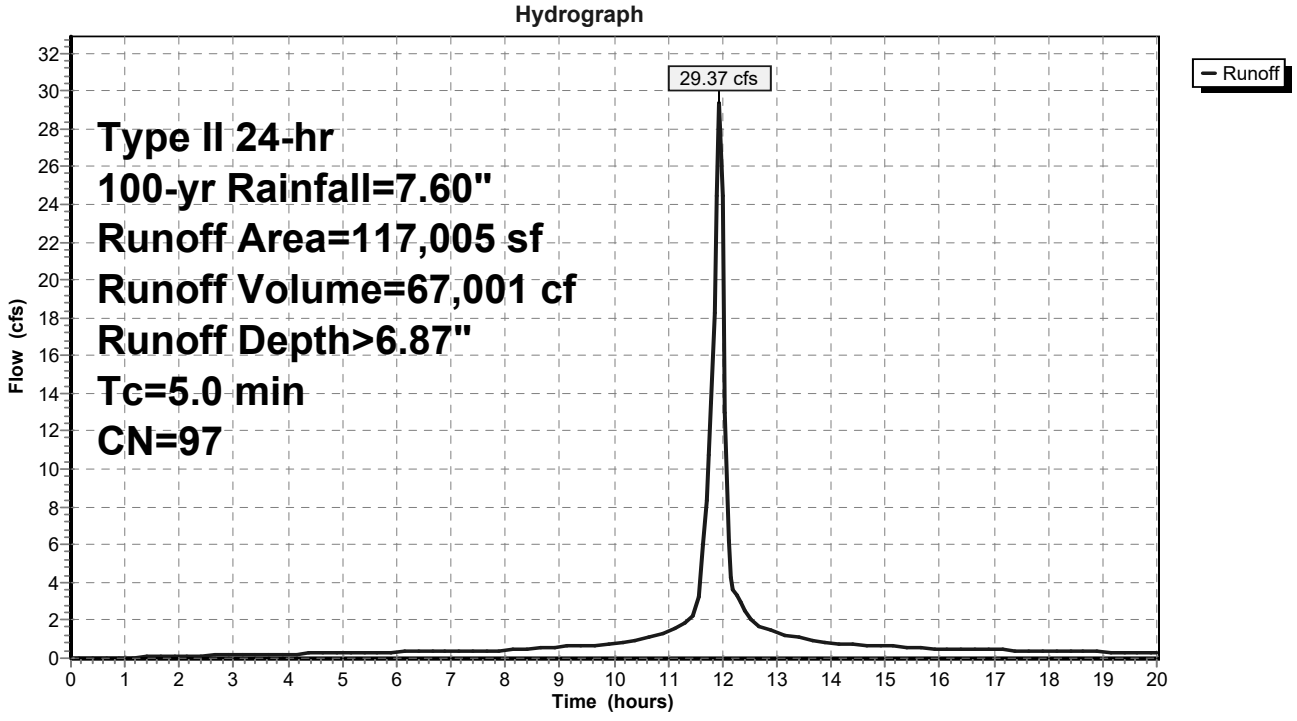
Runoff = 29.37 cfs @ 11.95 hrs, Volume= 67,001 cf, Depth> 6.87"
Routed to Pond 3P : MRC

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

	Area (sf)	CN	Description
*	111,197	98	Paved parking, All HSGs
	5,808	74	>75% Grass cover, Good, HSG C
	117,005	97	Weighted Average
	5,808		4.96% Pervious Area
	111,197		95.04% Impervious Area

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

Subcatchment DA-6: To Rain Garden (BMP-2)



Hydrograph for Subcatchment DA-6: To Rain Garden (BMP-2)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.02	0.00	0.00
0.50	0.04	0.00	0.00
0.75	0.06	0.00	0.00
1.00	0.08	0.00	0.02
1.25	0.10	0.00	0.04
1.50	0.12	0.01	0.06
1.75	0.14	0.02	0.09
2.00	0.17	0.03	0.10
2.25	0.19	0.04	0.12
2.50	0.21	0.05	0.14
2.75	0.24	0.06	0.15
3.00	0.26	0.08	0.17
3.25	0.29	0.09	0.18
3.50	0.31	0.11	0.19
3.75	0.34	0.13	0.20
4.00	0.36	0.15	0.21
4.25	0.39	0.17	0.22
4.50	0.42	0.19	0.24
4.75	0.45	0.22	0.25
5.00	0.48	0.24	0.27
5.25	0.51	0.26	0.28
5.50	0.54	0.29	0.29
5.75	0.57	0.32	0.31
6.00	0.61	0.35	0.32
6.25	0.64	0.38	0.33
6.50	0.68	0.41	0.34
6.75	0.71	0.44	0.36
7.00	0.75	0.48	0.37
7.25	0.79	0.51	0.38
7.50	0.83	0.55	0.39
7.75	0.87	0.59	0.41
8.00	0.91	0.62	0.42
8.25	0.96	0.66	0.46
8.50	1.01	0.71	0.51
8.75	1.06	0.76	0.56
9.00	1.12	0.82	0.61
9.25	1.18	0.87	0.63
9.50	1.24	0.93	0.63
9.75	1.30	0.99	0.69
10.00	1.38	1.06	0.77
10.25	1.46	1.14	0.88
10.50	1.55	1.23	1.00
10.75	1.66	1.34	1.18
11.00	1.79	1.46	1.38
11.25	1.95	1.62	1.79
11.50	2.15	1.82	2.28
11.75	2.94	2.60	**10.76**
12.00	5.04	4.69	**24.47**
12.25	5.37	5.01	3.32
12.50	5.59	5.23	2.15
12.75	5.74	5.38	1.60
13.00	5.87	5.51	1.33
13.25	5.98	5.62	1.15
13.50	6.07	5.72	1.01
13.75	6.16	5.80	0.89
14.00	6.23	5.88	0.79
14.25	6.30	5.94	0.74
14.50	6.37	6.01	0.70
14.75	6.43	6.07	0.66
15.00	6.49	6.13	0.63
15.25	6.54	6.18	0.59
15.50	6.59	6.24	0.56
15.75	6.64	6.29	0.52
16.00	6.69	6.33	0.48
16.25	6.73	6.37	0.46
16.50	6.77	6.42	0.45
16.75	6.81	6.46	0.44
17.00	6.85	6.50	0.43
17.25	6.89	6.53	0.41
17.50	6.93	6.57	0.40
17.75	6.96	6.61	0.39
18.00	7.00	6.64	0.37
18.25	7.03	6.68	0.36
18.50	7.07	6.71	0.35
18.75	7.10	6.74	0.34
19.00	7.13	6.77	0.32
19.25	7.16	6.80	0.31
19.50	7.18	6.83	0.30
19.75	7.21	6.85	0.28
20.00	**7.24**	**6.88**	0.27

Summary for Subcatchment DA-7: BYPASS TO DP-002

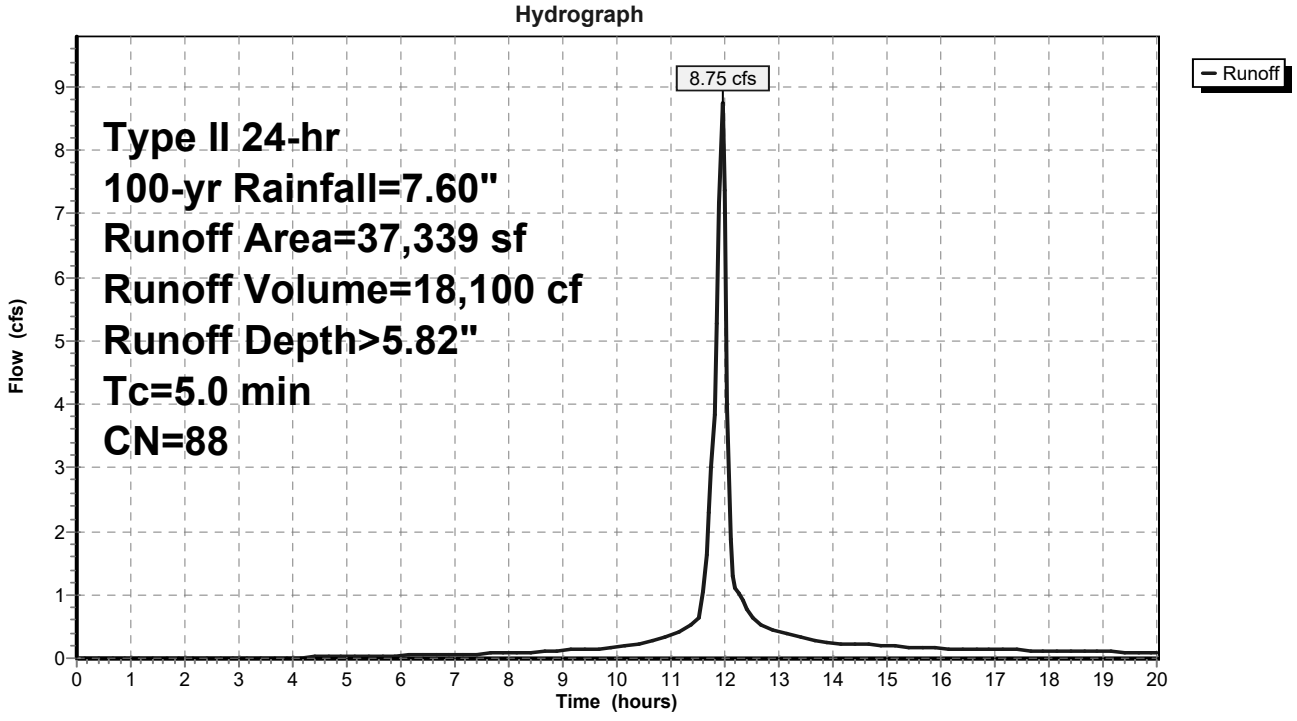
Runoff = 8.75 cfs @ 11.95 hrs, Volume= 18,100 cf, Depth> 5.82"
Routed to Link Post DP002 : Post-Development DP002

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

Area (sf)	CN	Description
15,016	74	>75% Grass cover, Good, HSG C
22,323	98	Paved parking, HSG C
37,339	88	Weighted Average
15,016		40.22% Pervious Area
22,323		59.78% Impervious Area

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

Subcatchment DA-7: BYPASS TO DP-002



Hydrograph for Subcatchment DA-7: BYPASS TO DP-002

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.02	0.00	0.00
0.50	0.04	0.00	0.00
0.75	0.06	0.00	0.00
1.00	0.08	0.00	0.00
1.25	0.10	0.00	0.00
1.50	0.12	0.00	0.00
1.75	0.14	0.00	0.00
2.00	0.17	0.00	0.00
2.25	0.19	0.00	0.00
2.50	0.21	0.00	0.00
2.75	0.24	0.00	0.00
3.00	0.26	0.00	0.00
3.25	0.29	0.00	0.00
3.50	0.31	0.00	0.00
3.75	0.34	0.00	0.01
4.00	0.36	0.01	0.01
4.25	0.39	0.01	0.01
4.50	0.42	0.01	0.02
4.75	0.45	0.02	0.02
5.00	0.48	0.03	0.02
5.25	0.51	0.04	0.03
5.50	0.54	0.04	0.03
5.75	0.57	0.05	0.04
6.00	0.61	0.07	0.04
6.25	0.64	0.08	0.05
6.50	0.68	0.09	0.05
6.75	0.71	0.11	0.05
7.00	0.75	0.12	0.06
7.25	0.79	0.14	0.06
7.50	0.83	0.16	0.07
7.75	0.87	0.18	0.07
8.00	0.91	0.20	0.08
8.25	0.96	0.23	0.09
8.50	1.01	0.26	0.10
8.75	1.06	0.29	0.11
9.00	1.12	0.32	0.13
9.25	1.18	0.36	0.13
9.50	1.24	0.40	0.14
9.75	1.30	0.44	0.15
10.00	1.38	0.49	0.18
10.25	1.46	0.55	0.21
10.50	1.55	0.62	0.24
10.75	1.66	0.70	0.29
11.00	1.79	0.80	0.35
11.25	1.95	0.92	0.46
11.50	2.15	1.09	0.60
11.75	2.94	1.77	**3.00**
12.00	5.04	3.71	**7.36**
12.25	5.37	4.02	1.02
12.50	5.59	4.23	0.66
12.75	5.74	4.37	0.49
13.00	5.87	4.50	0.41
13.25	5.98	4.60	0.36
13.50	6.07	4.70	0.31
13.75	6.16	4.78	0.28
14.00	6.23	4.85	0.24
14.25	6.30	4.92	0.23
14.50	6.37	4.98	0.22
14.75	6.43	5.04	0.21
15.00	6.49	5.10	0.19
15.25	6.54	5.15	0.18
15.50	6.59	5.20	0.17
15.75	6.64	5.25	0.16
16.00	6.69	5.29	0.15
16.25	6.73	5.33	0.14
16.50	6.77	5.37	0.14
16.75	6.81	5.41	0.14
17.00	6.85	5.45	0.13
17.25	6.89	5.49	0.13
17.50	6.93	5.52	0.12
17.75	6.96	5.56	0.12
18.00	7.00	5.59	0.12
18.25	7.03	5.63	0.11
18.50	7.07	5.66	0.11
18.75	7.10	5.69	0.10
19.00	7.13	5.72	0.10
19.25	7.16	5.74	0.10
19.50	7.18	5.77	0.09
19.75	7.21	5.80	0.09
20.00	**7.24**	**5.82**	0.08

Summary for Subcatchment DA-8: Bypass to DP003

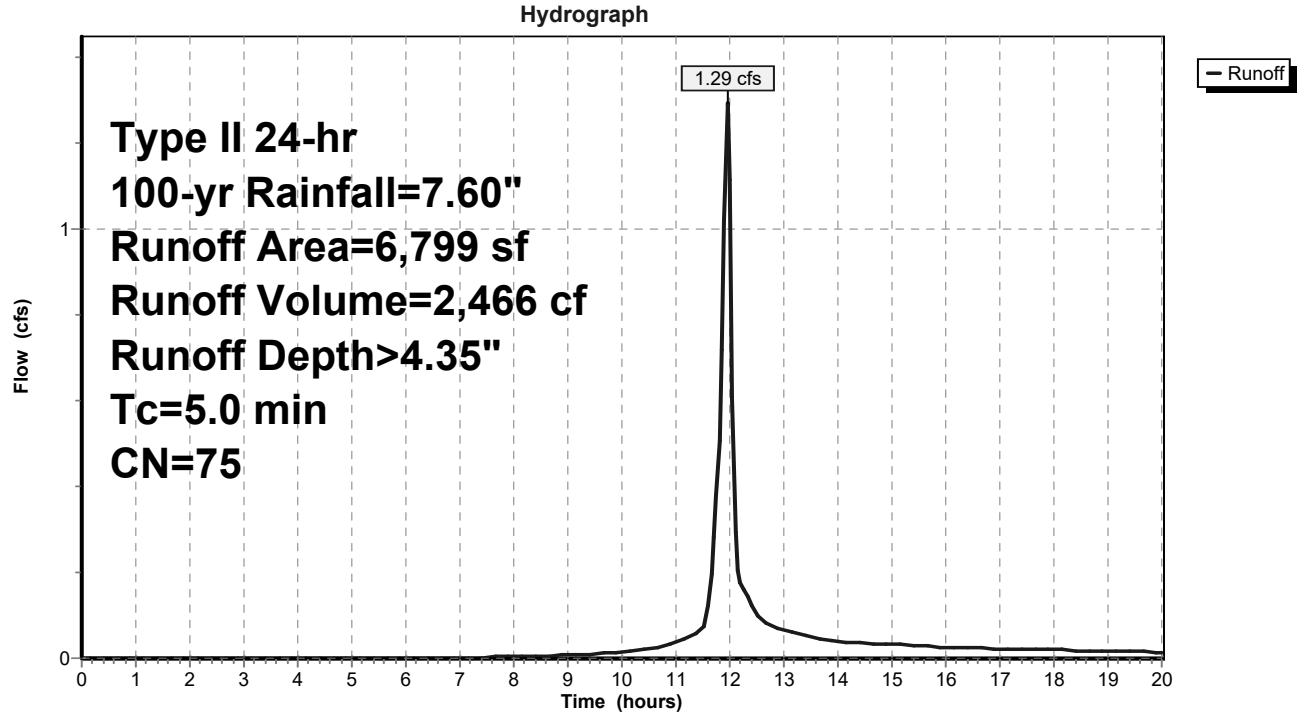
Runoff = 1.29 cfs @ 11.96 hrs, Volume= 2,466 cf, Depth> 4.35"
Routed to Link Post DP003 : Post-Development DP003

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

Area (sf)	CN	Description
6,532	74	>75% Grass cover, Good, HSG C
267	98	Paved parking, HSG C
6,799	75	Weighted Average
6,532		96.07% Pervious Area
267		3.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc-1**

Subcatchment DA-8: Bypass to DP003



Hydrograph for Subcatchment DA-8: Bypass to DP003

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.02	0.00	0.00
0.50	0.04	0.00	0.00
0.75	0.06	0.00	0.00
1.00	0.08	0.00	0.00
1.25	0.10	0.00	0.00
1.50	0.12	0.00	0.00
1.75	0.14	0.00	0.00
2.00	0.17	0.00	0.00
2.25	0.19	0.00	0.00
2.50	0.21	0.00	0.00
2.75	0.24	0.00	0.00
3.00	0.26	0.00	0.00
3.25	0.29	0.00	0.00
3.50	0.31	0.00	0.00
3.75	0.34	0.00	0.00
4.00	0.36	0.00	0.00
4.25	0.39	0.00	0.00
4.50	0.42	0.00	0.00
4.75	0.45	0.00	0.00
5.00	0.48	0.00	0.00
5.25	0.51	0.00	0.00
5.50	0.54	0.00	0.00
5.75	0.57	0.00	0.00
6.00	0.61	0.00	0.00
6.25	0.64	0.00	0.00
6.50	0.68	0.00	0.00
6.75	0.71	0.00	0.00
7.00	0.75	0.00	0.00
7.25	0.79	0.00	0.00
7.50	0.83	0.01	0.00
7.75	0.87	0.01	0.00
8.00	0.91	0.02	0.00
8.25	0.96	0.02	0.00
8.50	1.01	0.03	0.01
8.75	1.06	0.04	0.01
9.00	1.12	0.05	0.01
9.25	1.18	0.07	0.01
9.50	1.24	0.08	0.01
9.75	1.30	0.10	0.01
10.00	1.38	0.12	0.01
10.25	1.46	0.15	0.02
10.50	1.55	0.19	0.02
10.75	1.66	0.23	0.03
11.00	1.79	0.28	0.04
11.25	1.95	0.35	0.05
11.50	2.15	0.46	0.07
11.75	2.94	0.92	**0.38**
12.00	5.04	2.48	**1.11**
12.25	5.37	2.75	0.16
12.50	5.59	2.93	0.10
12.75	5.74	3.06	0.08
13.00	5.87	3.17	0.07
13.25	5.98	3.26	0.06
13.50	6.07	3.34	0.05
13.75	6.16	3.42	0.04
14.00	6.23	3.48	0.04
14.25	6.30	3.54	0.04
14.50	6.37	3.60	0.04
14.75	6.43	3.65	0.03
15.00	6.49	3.70	0.03
15.25	6.54	3.75	0.03
15.50	6.59	3.79	0.03
15.75	6.64	3.84	0.03
16.00	6.69	3.88	0.02
16.25	6.73	3.91	0.02
16.50	6.77	3.95	0.02
16.75	6.81	3.99	0.02
17.00	6.85	4.02	0.02
17.25	6.89	4.05	0.02
17.50	6.93	4.09	0.02
17.75	6.96	4.12	0.02
18.00	7.00	4.15	0.02
18.25	7.03	4.18	0.02
18.50	7.07	4.21	0.02
18.75	7.10	4.23	0.02
19.00	7.13	4.26	0.02
19.25	7.16	4.29	0.02
19.50	7.18	4.31	0.02
19.75	7.21	4.33	0.01
20.00	**7.24**	**4.36**	0.01

Summary for Pond 3P: MRC

Inflow Area = 117,005 sf, 95.04% Impervious, Inflow Depth > 6.87" for 100-yr event
Inflow = 29.37 cfs @ 11.95 hrs, Volume= 67,001 cf
Outflow = 0.88 cfs @ 13.79 hrs, Volume= 25,810 cf, Atten= 97%, Lag= 110.3 min
Primary = 0.88 cfs @ 13.79 hrs, Volume= 25,810 cf
Routed to Link Post DP002 : Post-Development DP002

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 197.97' @ 13.79 hrs Surf.Area= 31,076 sf Storage= 48,945 cf

Plug-Flow detention time= 350.7 min calculated for 25,745 cf (38% of inflow)
Center-of-Mass det. time= 216.1 min (928.0 - 711.9)

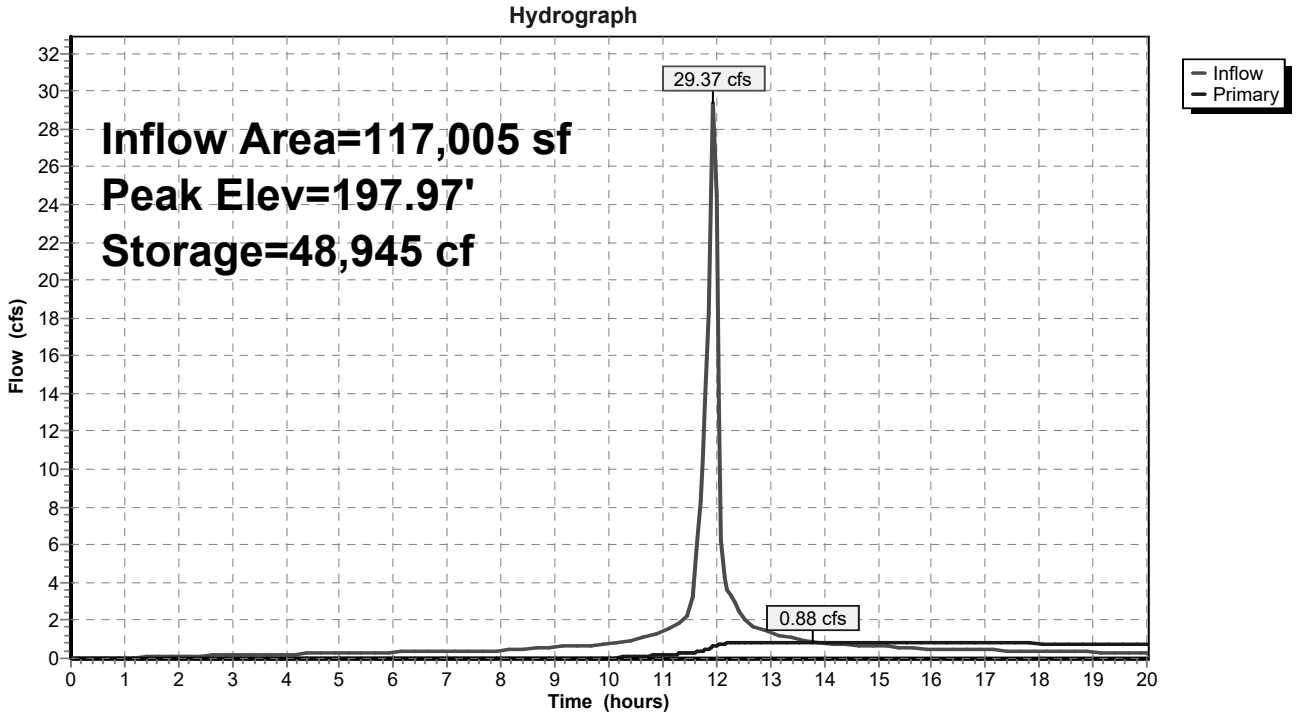
Volume	Invert	Avail.Storage	Storage Description
#1	192.55'	0 cf	**100.00'W x 150.00'L x 1.00'H Prismatoid** 15,000 cf Overall x 0.0% Voids
#2A	193.55'	16,872 cf	**126.00'W x 127.59'L x 4.75'H Field A** 76,363 cf Overall - 34,182 cf Embedded = 42,181 cf x 40.0% Voids
#3A	193.55'	34,182 cf	**ADS_StormTech MC-3500 d +Cap**x 306 Inside #2 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 306 Chambers in 18 Rows Cap Storage= 14.9 cf x 2 x 18 rows = 536.4 cf
		51,054 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	193.55'	**18.0" Round 18" Outlet** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 193.55' / 192.00' S= 0.0775 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	192.55'	**1.2" Vert. MRC Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	194.19'	**4.0" Vert. 4" Circular Orifice** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.88 cfs @ 13.79 hrs HW=197.97' (Free Discharge)
└**1=18" Outlet** (Passes 0.88 cfs of 16.30 cfs potential flow)
  ├**2=MRC Orifice** (Orifice Controls 0.08 cfs @ 10.13 fps)
  └**3=4" Circular Orifice** (Orifice Controls 0.80 cfs @ 9.16 fps)

Pond 3P: MRC


Hydrograph
Inflow Area=117,005 sf
Peak Elev=197.97'
Storage=48,945 cf
29.37 cfs
0.88 cfs
Inflow
Primary
Flow (cfs)
Time (hours)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32

Hydrograph for Pond 3P: MRC

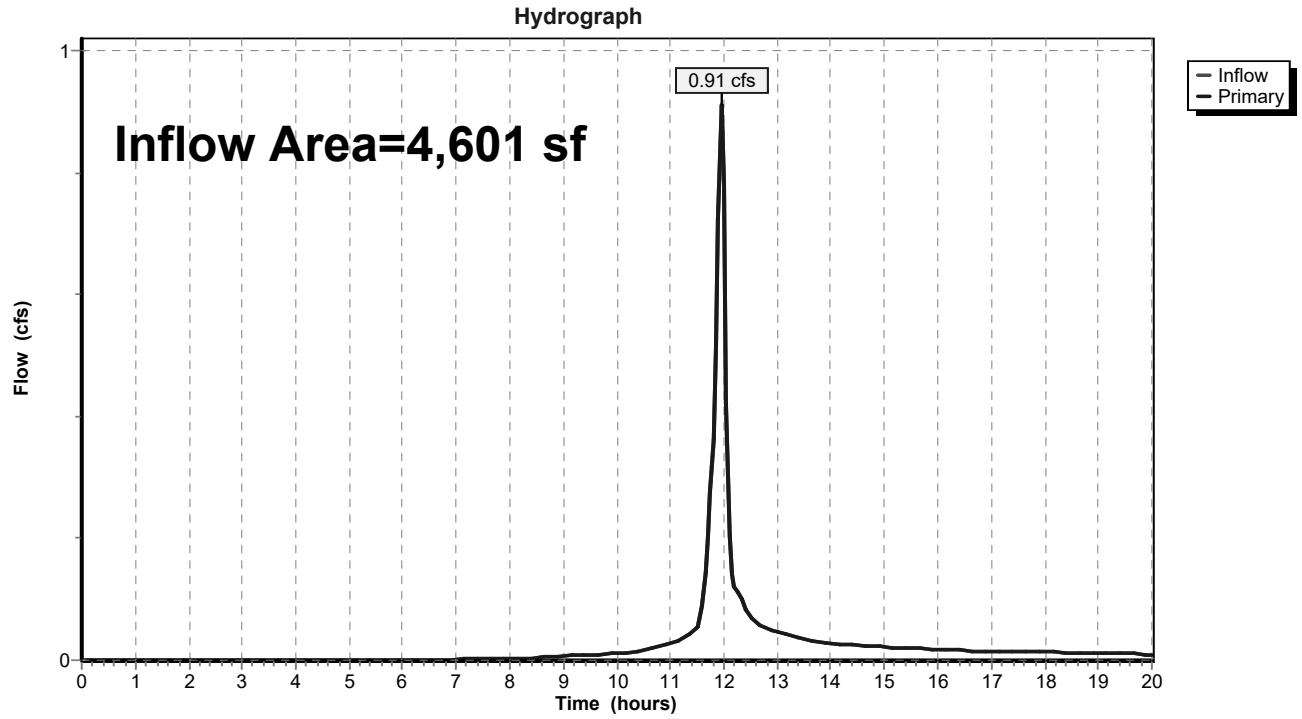
Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	192.55	0.00
0.50	0.00	0	192.55	0.00
1.00	0.02	4	193.55	0.00
1.50	0.06	78	193.56	0.00
2.00	0.10	227	193.57	0.00
2.50	0.14	437	193.58	0.01
3.00	0.17	697	193.60	0.01
3.50	0.19	1,000	193.62	0.01
4.00	0.21	1,342	193.64	0.01
4.50	0.24	1,724	193.67	0.01
5.00	0.27	2,152	193.70	0.01
5.50	0.29	2,626	193.73	0.02
6.00	0.32	3,145	193.77	0.02
6.50	0.34	3,707	193.81	0.02
7.00	0.37	4,312	193.85	0.02
7.50	0.39	4,959	193.90	0.02
8.00	0.42	5,646	193.95	0.02
8.50	0.51	6,424	194.00	0.03
9.00	0.61	7,379	194.07	0.03
9.50	0.63	8,454	194.15	0.03
10.00	0.77	9,638	194.23	0.04
10.50	1.00	11,118	194.34	0.08
11.00	1.38	13,011	194.48	0.18
11.50	**2.28**	15,825	194.69	0.28
12.00	**24.47**	38,564	196.56	0.69
12.50	2.15	46,977	197.67	0.84
13.00	1.33	48,370	197.88	0.87
13.50	1.01	**48,880**	**197.96**	**0.88**
14.00	0.79	**48,912**	**197.97**	**0.88**
14.50	0.70	48,662	197.93	0.87
15.00	0.63	48,290	197.87	0.87
15.50	0.56	47,804	197.79	0.86
16.00	0.48	47,206	197.70	0.85
16.50	0.45	46,532	197.60	0.83
17.00	0.43	45,834	197.49	0.82
17.50	0.40	45,116	197.38	0.80
18.00	0.37	44,378	197.26	0.79
18.50	0.35	43,621	197.15	0.77
19.00	0.32	42,845	197.04	0.76
19.50	0.30	42,049	196.94	0.74
20.00	0.27	41,233	196.84	0.73

Summary for Link Post DP001: Post-Development DP001

Inflow Area = 4,601 sf, 0.00% Impervious, Inflow Depth > 4.57" for 100-yr event
Inflow = 0.91 cfs @ 11.95 hrs, Volume= 1,753 cf
Primary = 0.91 cfs @ 11.95 hrs, Volume= 1,753 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Post DP001: Post-Development DP001



Hydrograph for Link Post DP001: Post-Development DP001

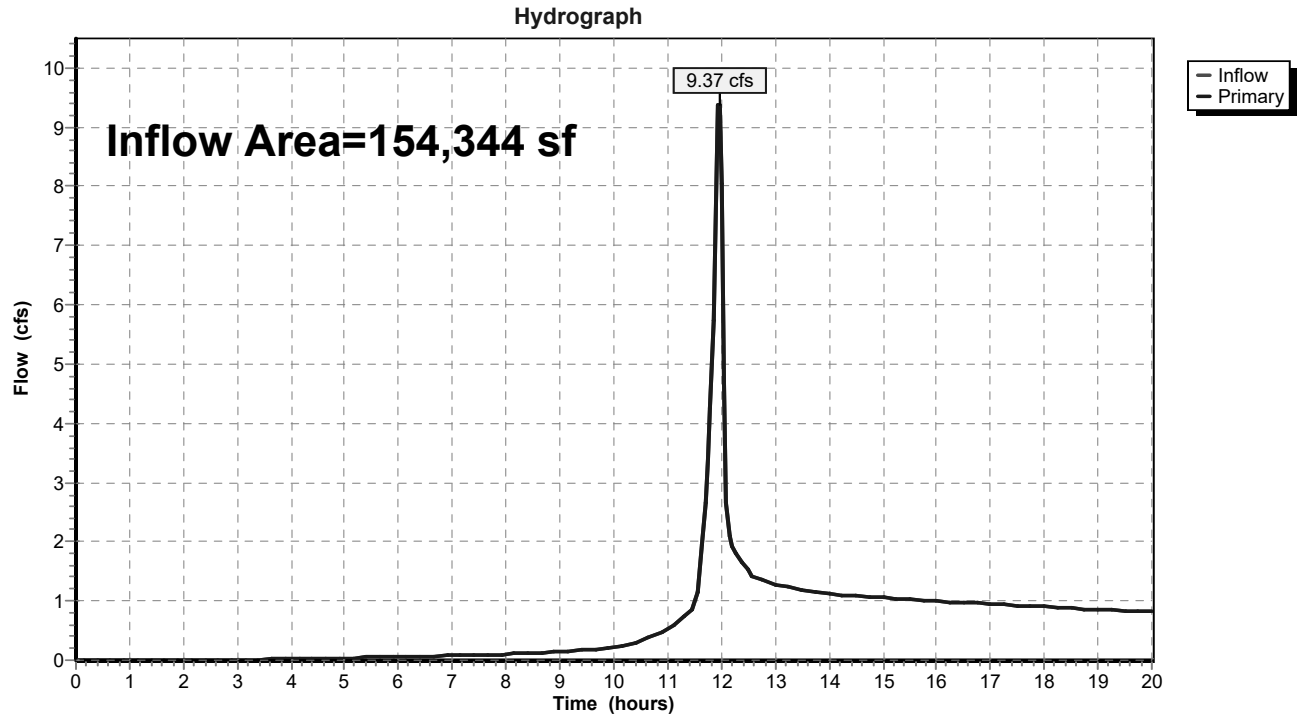
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
0.25	0.00	0.00	0.00
0.50	0.00	0.00	0.00
0.75	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00
1.50	0.00	0.00	0.00
1.75	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00
2.50	0.00	0.00	0.00
2.75	0.00	0.00	0.00
3.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00
3.50	0.00	0.00	0.00
3.75	0.00	0.00	0.00
4.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00
4.50	0.00	0.00	0.00
4.75	0.00	0.00	0.00
5.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00
5.50	0.00	0.00	0.00
5.75	0.00	0.00	0.00
6.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00
6.50	0.00	0.00	0.00
6.75	0.00	0.00	0.00
7.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00
7.50	0.00	0.00	0.00
7.75	0.00	0.00	0.00
8.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00
8.50	0.00	0.00	0.00
8.75	0.01	0.00	0.01
9.00	0.01	0.00	0.01
9.25	0.01	0.00	0.01
9.50	0.01	0.00	0.01
9.75	0.01	0.00	0.01
10.00	0.01	0.00	0.01
10.25	0.01	0.00	0.01
10.50	0.02	0.00	0.02
10.75	0.02	0.00	0.02
11.00	0.03	0.00	0.03
11.25	0.04	0.00	0.04
11.50	0.05	0.00	0.05
11.75	**0.28**	0.00	**0.28**
12.00	**0.78**	0.00	**0.78**
12.25	0.11	0.00	0.11
12.50	0.07	0.00	0.07
12.75	0.05	0.00	0.05
13.00	0.05	0.00	0.05
13.25	0.04	0.00	0.04
13.50	0.03	0.00	0.03
13.75	0.03	0.00	0.03
14.00	0.03	0.00	0.03
14.25	0.03	0.00	0.03
14.50	0.02	0.00	0.02
14.75	0.02	0.00	0.02
15.00	0.02	0.00	0.02
15.25	0.02	0.00	0.02
15.50	0.02	0.00	0.02
15.75	0.02	0.00	0.02
16.00	0.02	0.00	0.02
16.25	0.02	0.00	0.02
16.50	0.02	0.00	0.02
16.75	0.02	0.00	0.02
17.00	0.01	0.00	0.01
17.25	0.01	0.00	0.01
17.50	0.01	0.00	0.01
17.75	0.01	0.00	0.01
18.00	0.01	0.00	0.01
18.25	0.01	0.00	0.01
18.50	0.01	0.00	0.01
18.75	0.01	0.00	0.01
19.00	0.01	0.00	0.01
19.25	0.01	0.00	0.01
19.50	0.01	0.00	0.01
19.75	0.01	0.00	0.01
20.00	0.01	0.00	0.01

Summary for Link Post DP002: Post-Development DP002

Inflow Area = 154,344 sf, 86.51% Impervious, Inflow Depth > 3.41" for 100-yr event
Inflow = 9.37 cfs @ 11.95 hrs, Volume= 43,910 cf
Primary = 9.37 cfs @ 11.95 hrs, Volume= 43,910 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Post DP002: Post-Development DP002



Hydrograph for Link Post DP002: Post-Development DP002

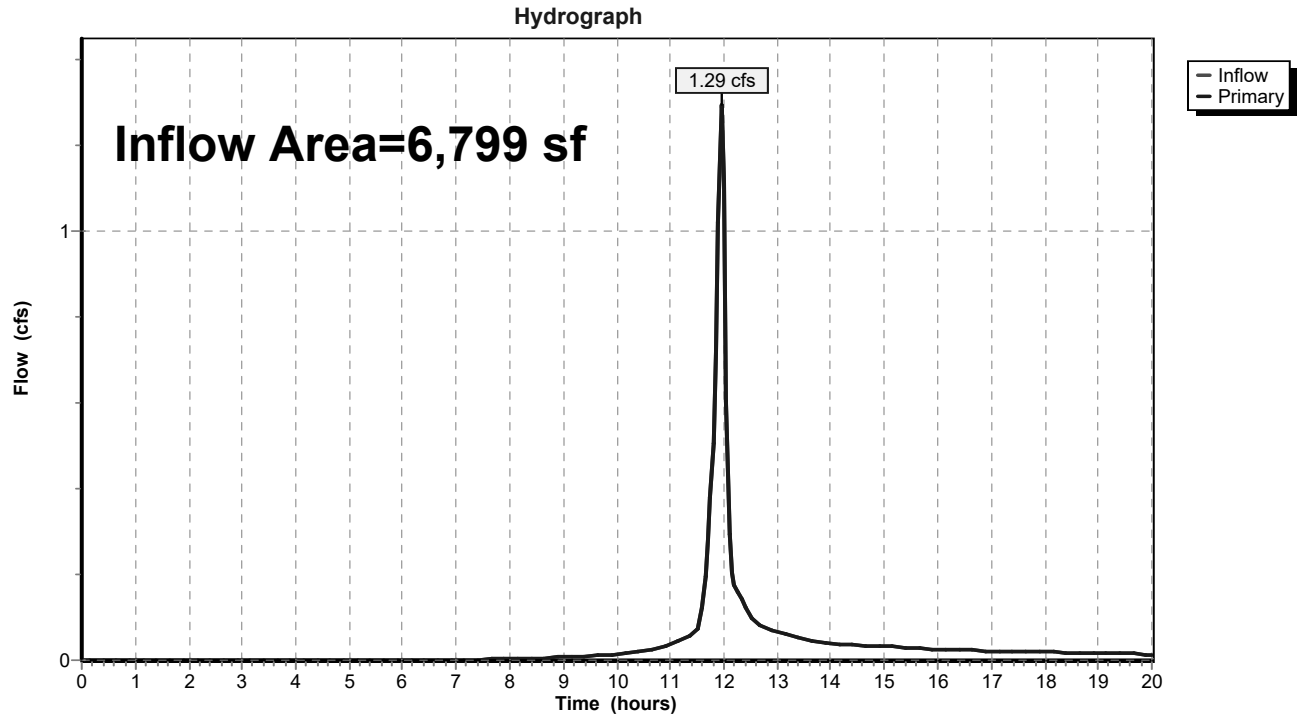
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
0.25	0.00	0.00	0.00
0.50	0.00	0.00	0.00
0.75	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00
1.50	0.00	0.00	0.00
1.75	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00
2.50	0.01	0.00	0.01
2.75	0.01	0.00	0.01
3.00	0.01	0.00	0.01
3.25	0.01	0.00	0.01
3.50	0.01	0.00	0.01
3.75	0.02	0.00	0.02
4.00	0.02	0.00	0.02
4.25	0.03	0.00	0.03
4.50	0.03	0.00	0.03
4.75	0.03	0.00	0.03
5.00	0.04	0.00	0.04
5.25	0.04	0.00	0.04
5.50	0.05	0.00	0.05
5.75	0.05	0.00	0.05
6.00	0.06	0.00	0.06
6.25	0.06	0.00	0.06
6.50	0.07	0.00	0.07
6.75	0.07	0.00	0.07
7.00	0.08	0.00	0.08
7.25	0.08	0.00	0.08
7.50	0.09	0.00	0.09
7.75	0.09	0.00	0.09
8.00	0.10	0.00	0.10
8.25	0.11	0.00	0.11
8.50	0.12	0.00	0.12
8.75	0.14	0.00	0.14
9.00	0.15	0.00	0.15
9.25	0.16	0.00	0.16
9.50	0.17	0.00	0.17
9.75	0.18	0.00	0.18
10.00	0.21	0.00	0.21
10.25	0.26	0.00	0.26
10.50	0.32	0.00	0.32
10.75	0.42	0.00	0.42
11.00	0.53	0.00	0.53
11.25	0.69	0.00	0.69
11.50	0.88	0.00	0.88
11.75	**3.40**	0.00	**3.40**
12.00	**8.05**	0.00	**8.05**
12.25	1.82	0.00	1.82
12.50	1.50	0.00	1.50
12.75	1.35	0.00	1.35
13.00	1.28	0.00	1.28
13.25	1.23	0.00	1.23
13.50	1.19	0.00	1.19
13.75	1.15	0.00	1.15
14.00	1.12	0.00	1.12
14.25	1.10	0.00	1.10
14.50	1.09	0.00	1.09
14.75	1.08	0.00	1.08
15.00	1.06	0.00	1.06
15.25	1.04	0.00	1.04
15.50	1.03	0.00	1.03
15.75	1.01	0.00	1.01
16.00	1.00	0.00	1.00
16.25	0.98	0.00	0.98
16.50	0.97	0.00	0.97
16.75	0.96	0.00	0.96
17.00	0.95	0.00	0.95
17.25	0.94	0.00	0.94
17.50	0.93	0.00	0.93
17.75	0.92	0.00	0.92
18.00	0.91	0.00	0.91
18.25	0.89	0.00	0.89
18.50	0.88	0.00	0.88
18.75	0.87	0.00	0.87
19.00	0.86	0.00	0.86
19.25	0.85	0.00	0.85
19.50	0.84	0.00	0.84
19.75	0.83	0.00	0.83
20.00	0.81	0.00	0.81

Summary for Link Post DP003: Post-Development DP003

Inflow Area = 6,799 sf, 3.93% Impervious, Inflow Depth > 4.35" for 100-yr event
Inflow = 1.29 cfs @ 11.96 hrs, Volume= 2,466 cf
Primary = 1.29 cfs @ 11.96 hrs, Volume= 2,466 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Post DP003: Post-Development DP003



Hydrograph for Link Post DP003: Post-Development DP003

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
0.25	0.00	0.00	0.00
0.50	0.00	0.00	0.00
0.75	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.25	0.00	0.00	0.00
1.50	0.00	0.00	0.00
1.75	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00
2.50	0.00	0.00	0.00
2.75	0.00	0.00	0.00
3.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00
3.50	0.00	0.00	0.00
3.75	0.00	0.00	0.00
4.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00
4.50	0.00	0.00	0.00
4.75	0.00	0.00	0.00
5.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00
5.50	0.00	0.00	0.00
5.75	0.00	0.00	0.00
6.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00
6.50	0.00	0.00	0.00
6.75	0.00	0.00	0.00
7.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00
7.50	0.00	0.00	0.00
7.75	0.00	0.00	0.00
8.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00
8.50	0.01	0.00	0.01
8.75	0.01	0.00	0.01
9.00	0.01	0.00	0.01
9.25	0.01	0.00	0.01
9.50	0.01	0.00	0.01
9.75	0.01	0.00	0.01
10.00	0.01	0.00	0.01
10.25	0.02	0.00	0.02
10.50	0.02	0.00	0.02
10.75	0.03	0.00	0.03
11.00	0.04	0.00	0.04
11.25	0.05	0.00	0.05
11.50	0.07	0.00	0.07
11.75	**0.38**	0.00	**0.38**
12.00	**1.11**	0.00	**1.11**
12.25	0.16	0.00	0.16
12.50	0.10	0.00	0.10
12.75	0.08	0.00	0.08
13.00	0.07	0.00	0.07
13.25	0.06	0.00	0.06
13.50	0.05	0.00	0.05
13.75	0.04	0.00	0.04
14.00	0.04	0.00	0.04
14.25	0.04	0.00	0.04
14.50	0.04	0.00	0.04
14.75	0.03	0.00	0.03
15.00	0.03	0.00	0.03
15.25	0.03	0.00	0.03
15.50	0.03	0.00	0.03
15.75	0.03	0.00	0.03
16.00	0.02	0.00	0.02
16.25	0.02	0.00	0.02
16.50	0.02	0.00	0.02
16.75	0.02	0.00	0.02
17.00	0.02	0.00	0.02
17.25	0.02	0.00	0.02
17.50	0.02	0.00	0.02
17.75	0.02	0.00	0.02
18.00	0.02	0.00	0.02
18.25	0.02	0.00	0.02
18.50	0.02	0.00	0.02
18.75	0.02	0.00	0.02
19.00	0.02	0.00	0.02
19.25	0.02	0.00	0.02
19.50	0.02	0.00	0.02
19.75	0.01	0.00	0.01
20.00	0.01	0.00	0.01

Summary for Subcatchment DA-5: BYPASS TO DP-001

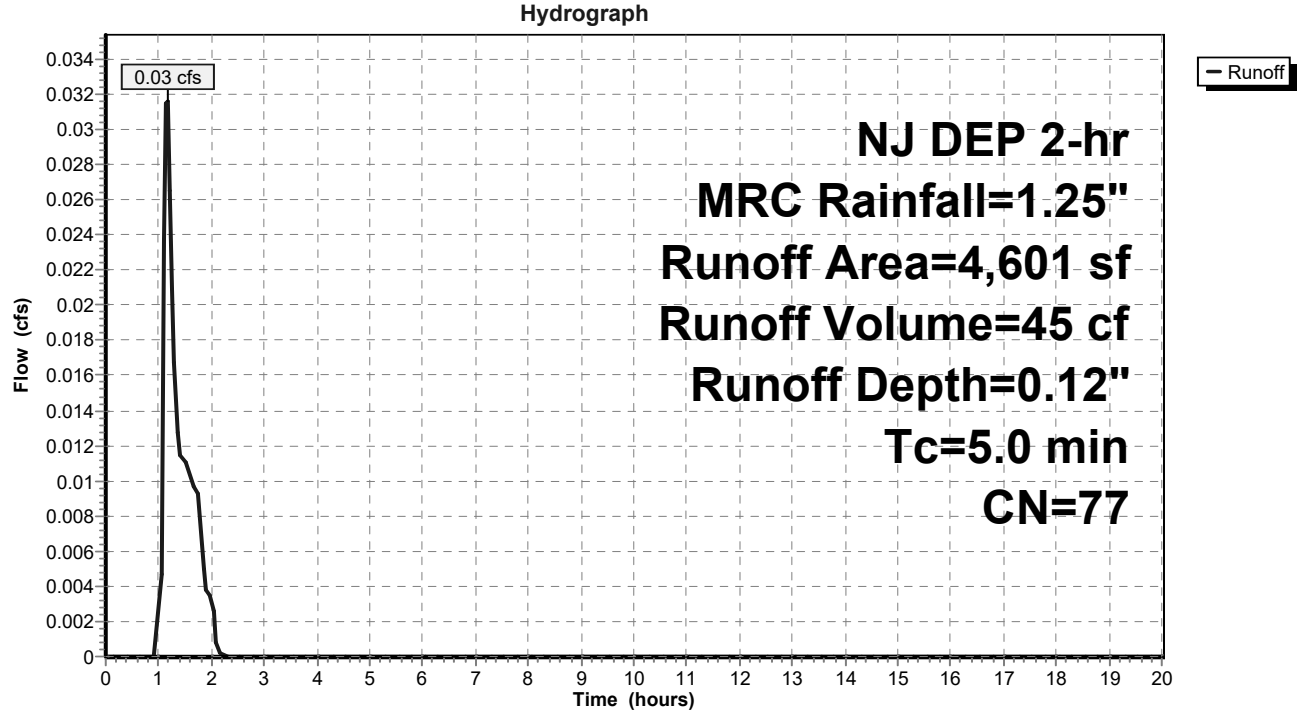
Runoff = 0.03 cfs @ 1.16 hrs, Volume= 45 cf, Depth= 0.12"
Routed to Link Post DP001 : Post-Development DP001

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr MRC Rainfall=1.25"

Area (sf)	CN	Description
1,989	74	>75% Grass cover, Good, HSG C
2,612	80	>75% Grass cover, Good, HSG D
4,601	77	Weighted Average
4,601		100.00% Pervious Area

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

Subcatchment DA-5: BYPASS TO DP-001



Hydrograph for Subcatchment DA-5: BYPASS TO DP-001

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.03	0.00	0.00
0.50	0.10	0.00	0.00
0.75	0.20	0.00	0.00
1.00	0.63	0.00	**0.00**
1.25	1.05	0.06	**0.02**
1.50	1.15	0.09	0.01
1.75	1.23	0.11	0.01
2.00	**1.25**	**0.12**	0.00
2.25	1.25	0.12	0.00
2.50	1.25	0.12	0.00
2.75	1.25	0.12	0.00
3.00	1.25	0.12	0.00
3.25	1.25	0.12	0.00
3.50	1.25	0.12	0.00
3.75	1.25	0.12	0.00
4.00	1.25	0.12	0.00
4.25	1.25	0.12	0.00
4.50	1.25	0.12	0.00
4.75	1.25	0.12	0.00
5.00	1.25	0.12	0.00
5.25	1.25	0.12	0.00
5.50	1.25	0.12	0.00
5.75	1.25	0.12	0.00
6.00	1.25	0.12	0.00
6.25	1.25	0.12	0.00
6.50	1.25	0.12	0.00
6.75	1.25	0.12	0.00
7.00	1.25	0.12	0.00
7.25	1.25	0.12	0.00
7.50	1.25	0.12	0.00
7.75	1.25	0.12	0.00
8.00	1.25	0.12	0.00
8.25	1.25	0.12	0.00
8.50	1.25	0.12	0.00
8.75	1.25	0.12	0.00
9.00	1.25	0.12	0.00
9.25	1.25	0.12	0.00
9.50	1.25	0.12	0.00
9.75	1.25	0.12	0.00
10.00	1.25	0.12	0.00
10.25	1.25	0.12	0.00
10.50	1.25	0.12	0.00
10.75	1.25	0.12	0.00
11.00	1.25	0.12	0.00
11.25	1.25	0.12	0.00
11.50	1.25	0.12	0.00
11.75	1.25	0.12	0.00
12.00	1.25	0.12	0.00
12.25	1.25	0.12	0.00
12.50	1.25	0.12	0.00
12.75	1.25	0.12	0.00
13.00	1.25	0.12	0.00
13.25	1.25	0.12	0.00
13.50	1.25	0.12	0.00
13.75	1.25	0.12	0.00
14.00	1.25	0.12	0.00
14.25	1.25	0.12	0.00
14.50	1.25	0.12	0.00
14.75	1.25	0.12	0.00
15.00	1.25	0.12	0.00
15.25	1.25	0.12	0.00
15.50	1.25	0.12	0.00
15.75	1.25	0.12	0.00
16.00	1.25	0.12	0.00
16.25	1.25	0.12	0.00
16.50	1.25	0.12	0.00
16.75	1.25	0.12	0.00
17.00	1.25	0.12	0.00
17.25	1.25	0.12	0.00
17.50	1.25	0.12	0.00
17.75	1.25	0.12	0.00
18.00	1.25	0.12	0.00
18.25	1.25	0.12	0.00
18.50	1.25	0.12	0.00
18.75	1.25	0.12	0.00
19.00	1.25	0.12	0.00
19.25	1.25	0.12	0.00
19.50	1.25	0.12	0.00
19.75	1.25	0.12	0.00
20.00	1.25	0.12	0.00

Summary for Subcatchment DA-6: To Rain Garden (BMP-2)

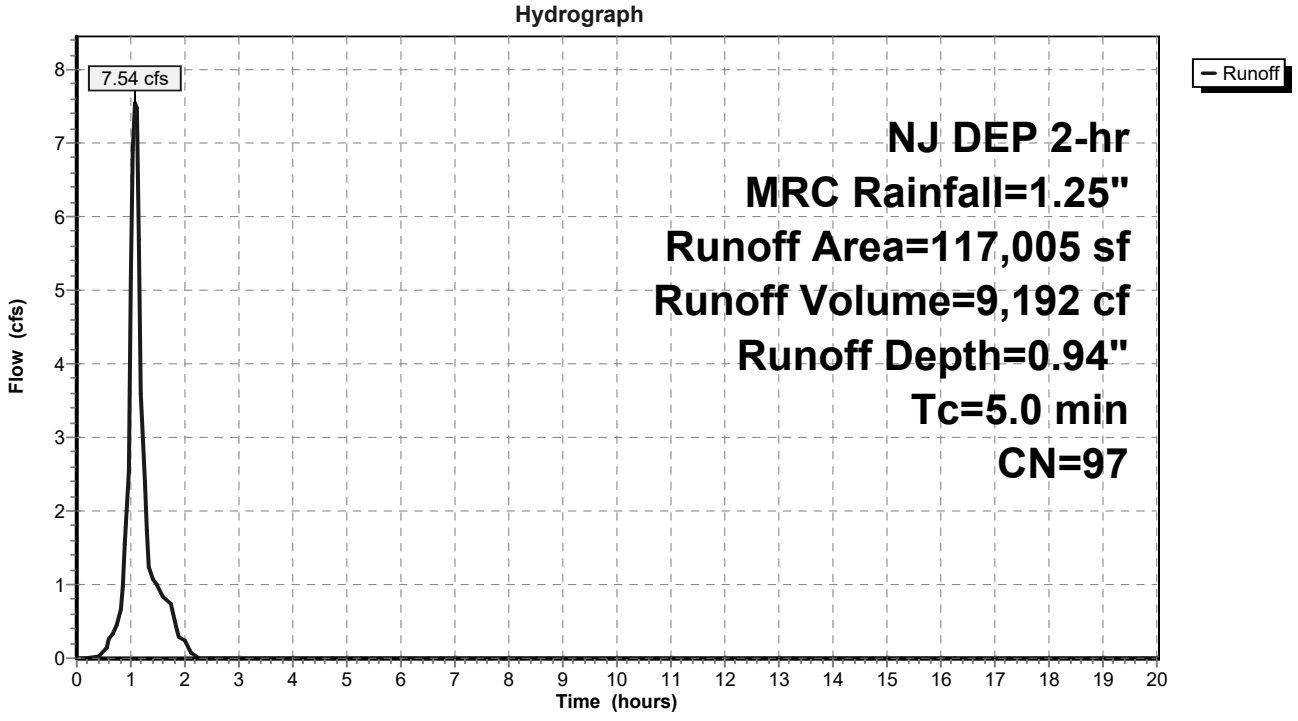
Runoff = 7.54 cfs @ 1.09 hrs, Volume= 9,192 cf, Depth= 0.94"
Routed to Pond 3P : MRC

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr MRC Rainfall=1.25"

	Area (sf)	CN	Description
*	111,197	98	Paved parking, All HSGs
	5,808	74	>75% Grass cover, Good, HSG C
	117,005	97	Weighted Average
	5,808		4.96% Pervious Area
	111,197		95.04% Impervious Area

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

Subcatchment DA-6: To Rain Garden (BMP-2)



Hydrograph for Subcatchment DA-6: To Rain Garden (BMP-2)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.03	0.00	0.00
0.50	0.10	0.00	0.08
0.75	0.20	0.04	0.49
1.00	0.63	0.36	**5.17**
1.25	1.05	0.75	**2.40**
1.50	1.15	0.85	1.02
1.75	1.23	0.92	0.77
2.00	**1.25**	**0.94**	0.26
2.25	1.25	0.94	0.00
2.50	1.25	0.94	0.00
2.75	1.25	0.94	0.00
3.00	1.25	0.94	0.00
3.25	1.25	0.94	0.00
3.50	1.25	0.94	0.00
3.75	1.25	0.94	0.00
4.00	1.25	0.94	0.00
4.25	1.25	0.94	0.00
4.50	1.25	0.94	0.00
4.75	1.25	0.94	0.00
5.00	1.25	0.94	0.00
5.25	1.25	0.94	0.00
5.50	1.25	0.94	0.00
5.75	1.25	0.94	0.00
6.00	1.25	0.94	0.00
6.25	1.25	0.94	0.00
6.50	1.25	0.94	0.00
6.75	1.25	0.94	0.00
7.00	1.25	0.94	0.00
7.25	1.25	0.94	0.00
7.50	1.25	0.94	0.00
7.75	1.25	0.94	0.00
8.00	1.25	0.94	0.00
8.25	1.25	0.94	0.00
8.50	1.25	0.94	0.00
8.75	1.25	0.94	0.00
9.00	1.25	0.94	0.00
9.25	1.25	0.94	0.00
9.50	1.25	0.94	0.00
9.75	1.25	0.94	0.00
10.00	1.25	0.94	0.00
10.25	1.25	0.94	0.00
10.50	1.25	0.94	0.00
10.75	1.25	0.94	0.00
11.00	1.25	0.94	0.00
11.25	1.25	0.94	0.00
11.50	1.25	0.94	0.00
11.75	1.25	0.94	0.00
12.00	1.25	0.94	0.00
12.25	1.25	0.94	0.00
12.50	1.25	0.94	0.00
12.75	1.25	0.94	0.00
13.00	1.25	0.94	0.00
13.25	1.25	0.94	0.00
13.50	1.25	0.94	0.00
13.75	1.25	0.94	0.00
14.00	1.25	0.94	0.00
14.25	1.25	0.94	0.00
14.50	1.25	0.94	0.00
14.75	1.25	0.94	0.00
15.00	1.25	0.94	0.00
15.25	1.25	0.94	0.00
15.50	1.25	0.94	0.00
15.75	1.25	0.94	0.00
16.00	1.25	0.94	0.00
16.25	1.25	0.94	0.00
16.50	1.25	0.94	0.00
16.75	1.25	0.94	0.00
17.00	1.25	0.94	0.00
17.25	1.25	0.94	0.00
17.50	1.25	0.94	0.00
17.75	1.25	0.94	0.00
18.00	1.25	0.94	0.00
18.25	1.25	0.94	0.00
18.50	1.25	0.94	0.00
18.75	1.25	0.94	0.00
19.00	1.25	0.94	0.00
19.25	1.25	0.94	0.00
19.50	1.25	0.94	0.00
19.75	1.25	0.94	0.00
20.00	1.25	0.94	0.00

Summary for Subcatchment DA-7: BYPASS TO DP-002

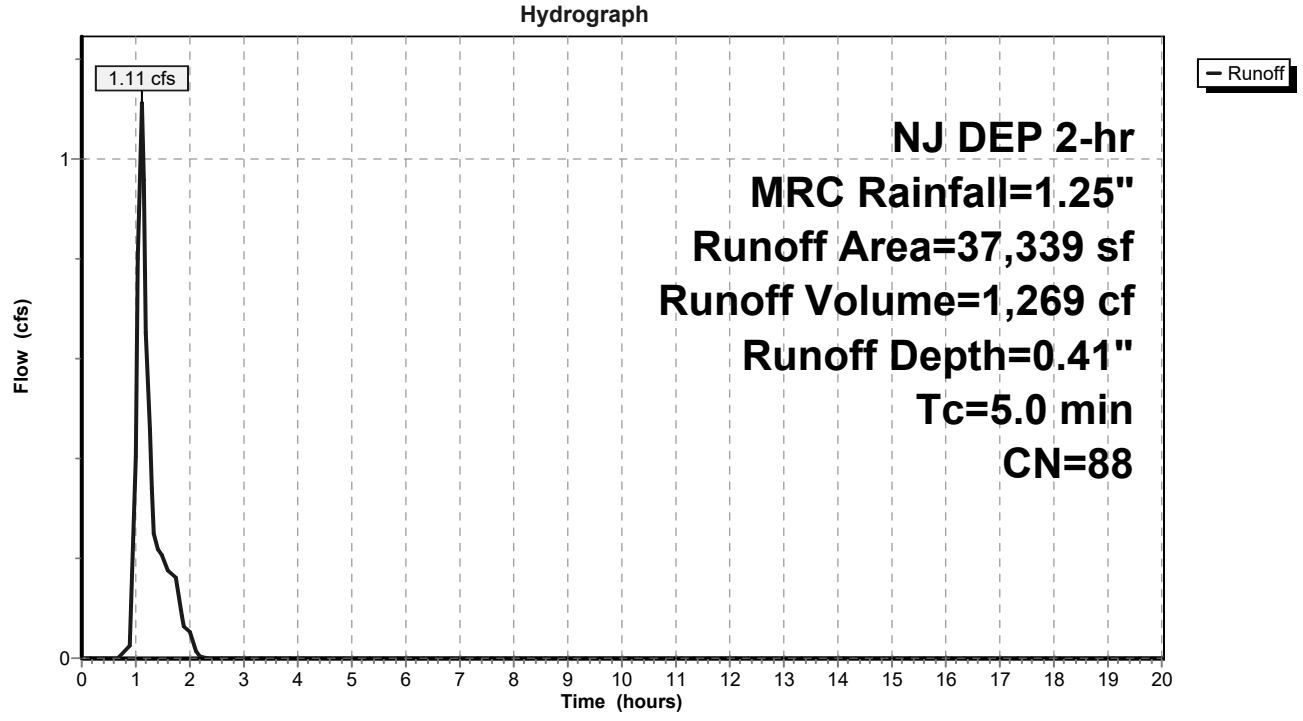
Runoff = 1.11 cfs @ 1.11 hrs, Volume= 1,269 cf, Depth= 0.41"
Routed to Link Post DP002 : Post-Development DP002

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr MRC Rainfall=1.25"

Area (sf)	CN	Description
15,016	74	>75% Grass cover, Good, HSG C
22,323	98	Paved parking, HSG C
37,339	88	Weighted Average
15,016		40.22% Pervious Area
22,323		59.78% Impervious Area

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

Subcatchment DA-7: BYPASS TO DP-002



Hydrograph for Subcatchment DA-7: BYPASS TO DP-002

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.03	0.00	0.00
0.50	0.10	0.00	0.00
0.75	0.20	0.00	0.00
1.00	0.63	0.07	**0.40**
1.25	1.05	0.28	**0.46**
1.50	1.15	0.34	0.21
1.75	1.23	0.39	0.17
2.00	**1.25**	**0.41**	0.06
2.25	1.25	0.41	0.00
2.50	1.25	0.41	0.00
2.75	1.25	0.41	0.00
3.00	1.25	0.41	0.00
3.25	1.25	0.41	0.00
3.50	1.25	0.41	0.00
3.75	1.25	0.41	0.00
4.00	1.25	0.41	0.00
4.25	1.25	0.41	0.00
4.50	1.25	0.41	0.00
4.75	1.25	0.41	0.00
5.00	1.25	0.41	0.00
5.25	1.25	0.41	0.00
5.50	1.25	0.41	0.00
5.75	1.25	0.41	0.00
6.00	1.25	0.41	0.00
6.25	1.25	0.41	0.00
6.50	1.25	0.41	0.00
6.75	1.25	0.41	0.00
7.00	1.25	0.41	0.00
7.25	1.25	0.41	0.00
7.50	1.25	0.41	0.00
7.75	1.25	0.41	0.00
8.00	1.25	0.41	0.00
8.25	1.25	0.41	0.00
8.50	1.25	0.41	0.00
8.75	1.25	0.41	0.00
9.00	1.25	0.41	0.00
9.25	1.25	0.41	0.00
9.50	1.25	0.41	0.00
9.75	1.25	0.41	0.00
10.00	1.25	0.41	0.00
10.25	1.25	0.41	0.00
10.50	1.25	0.41	0.00
10.75	1.25	0.41	0.00
11.00	1.25	0.41	0.00
11.25	1.25	0.41	0.00
11.50	1.25	0.41	0.00
11.75	1.25	0.41	0.00
12.00	1.25	0.41	0.00
12.25	1.25	0.41	0.00
12.50	1.25	0.41	0.00
12.75	1.25	0.41	0.00
13.00	1.25	0.41	0.00
13.25	1.25	0.41	0.00
13.50	1.25	0.41	0.00
13.75	1.25	0.41	0.00
14.00	1.25	0.41	0.00
14.25	1.25	0.41	0.00
14.50	1.25	0.41	0.00
14.75	1.25	0.41	0.00
15.00	1.25	0.41	0.00
15.25	1.25	0.41	0.00
15.50	1.25	0.41	0.00
15.75	1.25	0.41	0.00
16.00	1.25	0.41	0.00
16.25	1.25	0.41	0.00
16.50	1.25	0.41	0.00
16.75	1.25	0.41	0.00
17.00	1.25	0.41	0.00
17.25	1.25	0.41	0.00
17.50	1.25	0.41	0.00
17.75	1.25	0.41	0.00
18.00	1.25	0.41	0.00
18.25	1.25	0.41	0.00
18.50	1.25	0.41	0.00
18.75	1.25	0.41	0.00
19.00	1.25	0.41	0.00
19.25	1.25	0.41	0.00
19.50	1.25	0.41	0.00
19.75	1.25	0.41	0.00
20.00	1.25	0.41	0.00

Summary for Subcatchment DA-8: Bypass to DP003

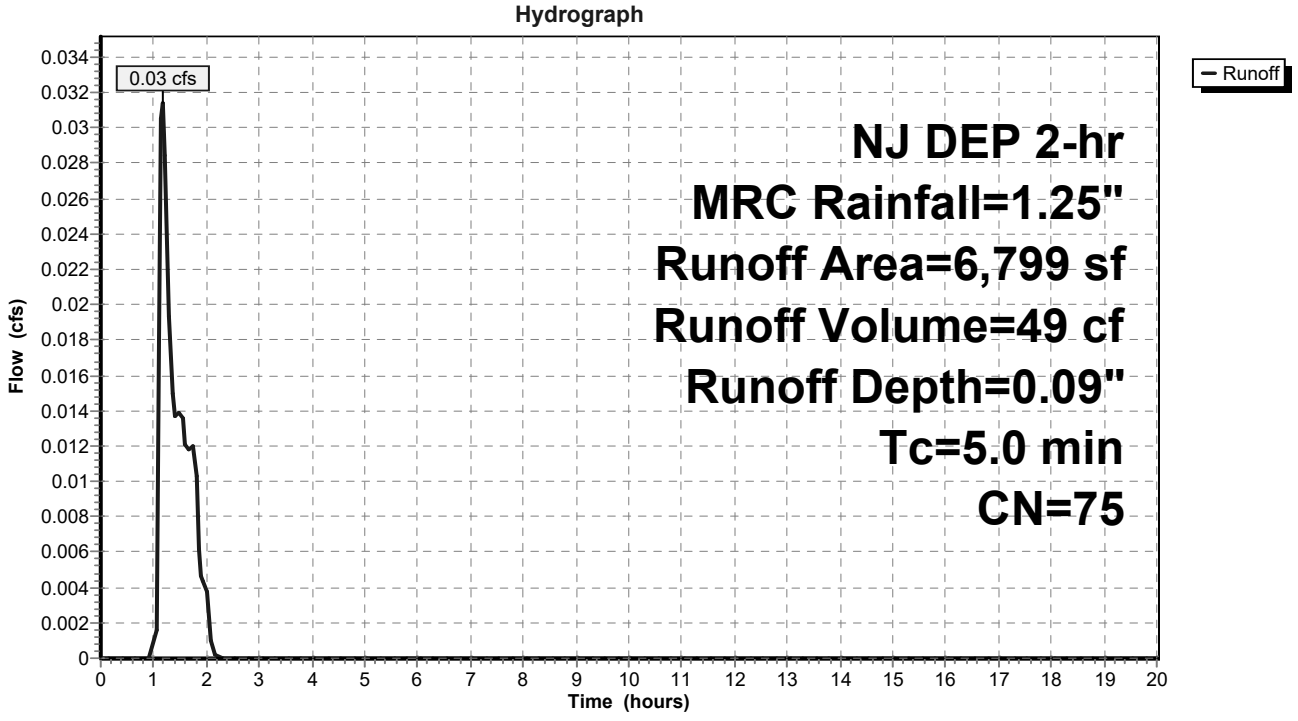
Runoff = 0.03 cfs @ 1.17 hrs, Volume= 49 cf, Depth= 0.09"
Routed to Link Post DP003 : Post-Development DP003

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr MRC Rainfall=1.25"

Area (sf)	CN	Description
6,532	74	>75% Grass cover, Good, HSG C
267	98	Paved parking, HSG C
6,799	75	Weighted Average
6,532		96.07% Pervious Area
267		3.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc-1**

Subcatchment DA-8: Bypass to DP003



Hydrograph for Subcatchment DA-8: Bypass to DP003

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.03	0.00	0.00
0.50	0.10	0.00	0.00
0.75	0.20	0.00	0.00
1.00	0.63	0.00	**0.00**
1.25	1.05	0.04	**0.02**
1.50	1.15	0.06	0.01
1.75	1.23	0.08	0.01
2.00	**1.25**	**0.09**	0.00
2.25	1.25	0.09	0.00
2.50	1.25	0.09	0.00
2.75	1.25	0.09	0.00
3.00	1.25	0.09	0.00
3.25	1.25	0.09	0.00
3.50	1.25	0.09	0.00
3.75	1.25	0.09	0.00
4.00	1.25	0.09	0.00
4.25	1.25	0.09	0.00
4.50	1.25	0.09	0.00
4.75	1.25	0.09	0.00
5.00	1.25	0.09	0.00
5.25	1.25	0.09	0.00
5.50	1.25	0.09	0.00
5.75	1.25	0.09	0.00
6.00	1.25	0.09	0.00
6.25	1.25	0.09	0.00
6.50	1.25	0.09	0.00
6.75	1.25	0.09	0.00
7.00	1.25	0.09	0.00
7.25	1.25	0.09	0.00
7.50	1.25	0.09	0.00
7.75	1.25	0.09	0.00
8.00	1.25	0.09	0.00
8.25	1.25	0.09	0.00
8.50	1.25	0.09	0.00
8.75	1.25	0.09	0.00
9.00	1.25	0.09	0.00
9.25	1.25	0.09	0.00
9.50	1.25	0.09	0.00
9.75	1.25	0.09	0.00
10.00	1.25	0.09	0.00
10.25	1.25	0.09	0.00
10.50	1.25	0.09	0.00
10.75	1.25	0.09	0.00
11.00	1.25	0.09	0.00
11.25	1.25	0.09	0.00
11.50	1.25	0.09	0.00
11.75	1.25	0.09	0.00
12.00	1.25	0.09	0.00
12.25	1.25	0.09	0.00
12.50	1.25	0.09	0.00
12.75	1.25	0.09	0.00
13.00	1.25	0.09	0.00
13.25	1.25	0.09	0.00
13.50	1.25	0.09	0.00
13.75	1.25	0.09	0.00
14.00	1.25	0.09	0.00
14.25	1.25	0.09	0.00
14.50	1.25	0.09	0.00
14.75	1.25	0.09	0.00
15.00	1.25	0.09	0.00
15.25	1.25	0.09	0.00
15.50	1.25	0.09	0.00
15.75	1.25	0.09	0.00
16.00	1.25	0.09	0.00
16.25	1.25	0.09	0.00
16.50	1.25	0.09	0.00
16.75	1.25	0.09	0.00
17.00	1.25	0.09	0.00
17.25	1.25	0.09	0.00
17.50	1.25	0.09	0.00
17.75	1.25	0.09	0.00
18.00	1.25	0.09	0.00
18.25	1.25	0.09	0.00
18.50	1.25	0.09	0.00
18.75	1.25	0.09	0.00
19.00	1.25	0.09	0.00
19.25	1.25	0.09	0.00
19.50	1.25	0.09	0.00
19.75	1.25	0.09	0.00
20.00	1.25	0.09	0.00

Summary for Pond 3P: MRC

Inflow Area = 117,005 sf, 95.04% Impervious, Inflow Depth = 0.94" for MRC event
Inflow = 7.54 cfs @ 1.09 hrs, Volume= 9,192 cf
Outflow = 0.03 cfs @ 2.14 hrs, Volume= 1,967 cf, Atten= 100%, Lag= 62.9 min
Primary = 0.03 cfs @ 2.14 hrs, Volume= 1,967 cf
Routed to Link Post DP002 : Post-Development DP002

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 194.19' @ 2.14 hrs Surf.Area= 31,076 sf Storage= 9,069 cf

Plug-Flow detention time= 566.7 min calculated for 1,967 cf (21% of inflow)
Center-of-Mass det. time= 549.6 min (620.2 - 70.6)

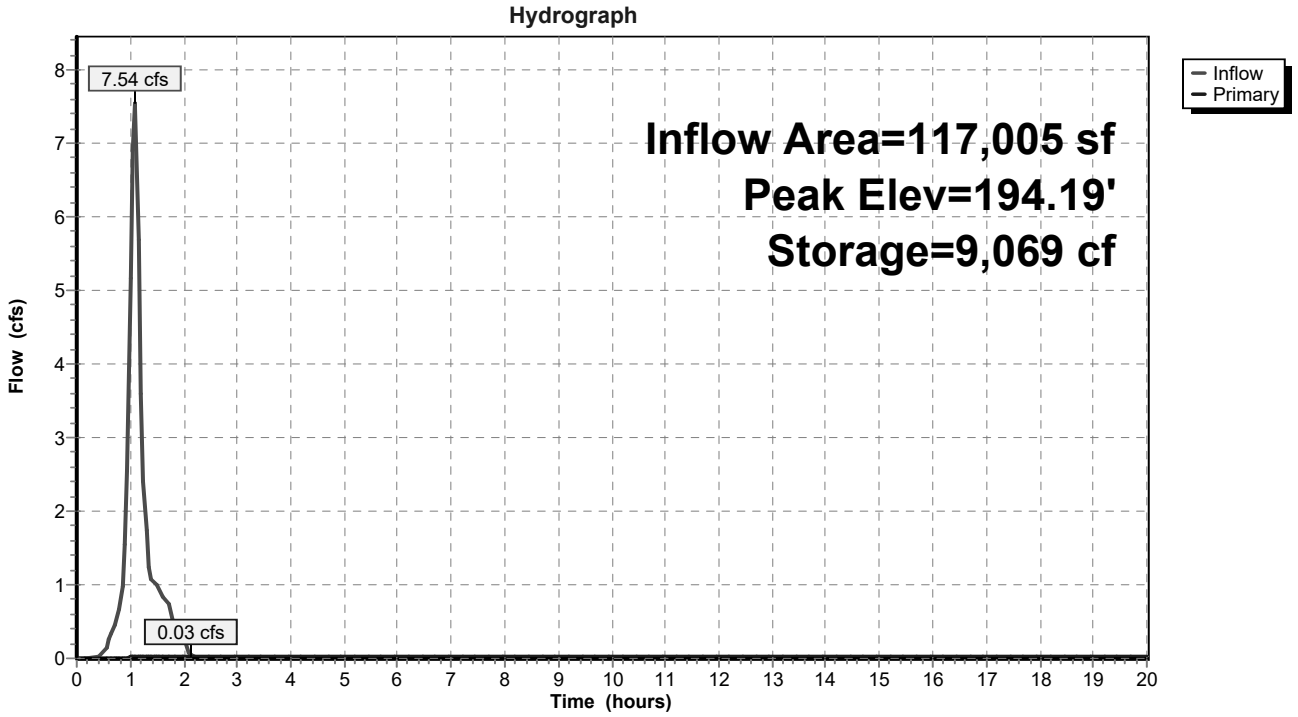
Volume	Invert	Avail.Storage	Storage Description
#1	192.55'	0 cf	**100.00'W x 150.00'L x 1.00'H Prismatoid** 15,000 cf Overall x 0.0% Voids
#2A	193.55'	16,872 cf	**126.00'W x 127.59'L x 4.75'H Field A** 76,363 cf Overall - 34,182 cf Embedded = 42,181 cf x 40.0% Voids
#3A	193.55'	34,182 cf	**ADS_StormTech MC-3500 d +Cap**x 306 Inside #2 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 306 Chambers in 18 Rows Cap Storage= 14.9 cf x 2 x 18 rows = 536.4 cf
		51,054 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	193.55'	**18.0" Round 18" Outlet** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 193.55' / 192.00' S= 0.0775 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	192.55'	**1.2" Vert. MRC Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	194.19'	**4.0" Vert. 4" Circular Orifice** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.03 cfs @ 2.14 hrs HW=194.19' (Free Discharge)
└**1=18" Outlet** (Passes 0.03 cfs of 1.98 cfs potential flow)
  ├**2=MRC Orifice** (Orifice Controls 0.03 cfs @ 3.86 fps)
  └**3=4" Circular Orifice** (Orifice Controls 0.00 cfs @ 0.19 fps)

Pond 3P: MRC


Hydrograph
Inflow Area=117,005 sf
Peak Elev=194.19'
Storage=9,069 cf
7.54 cfs
0.03 cfs
Inflow
Primary
Flow (cfs)
Time (hours)
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20

Hydrograph for Pond 3P: MRC

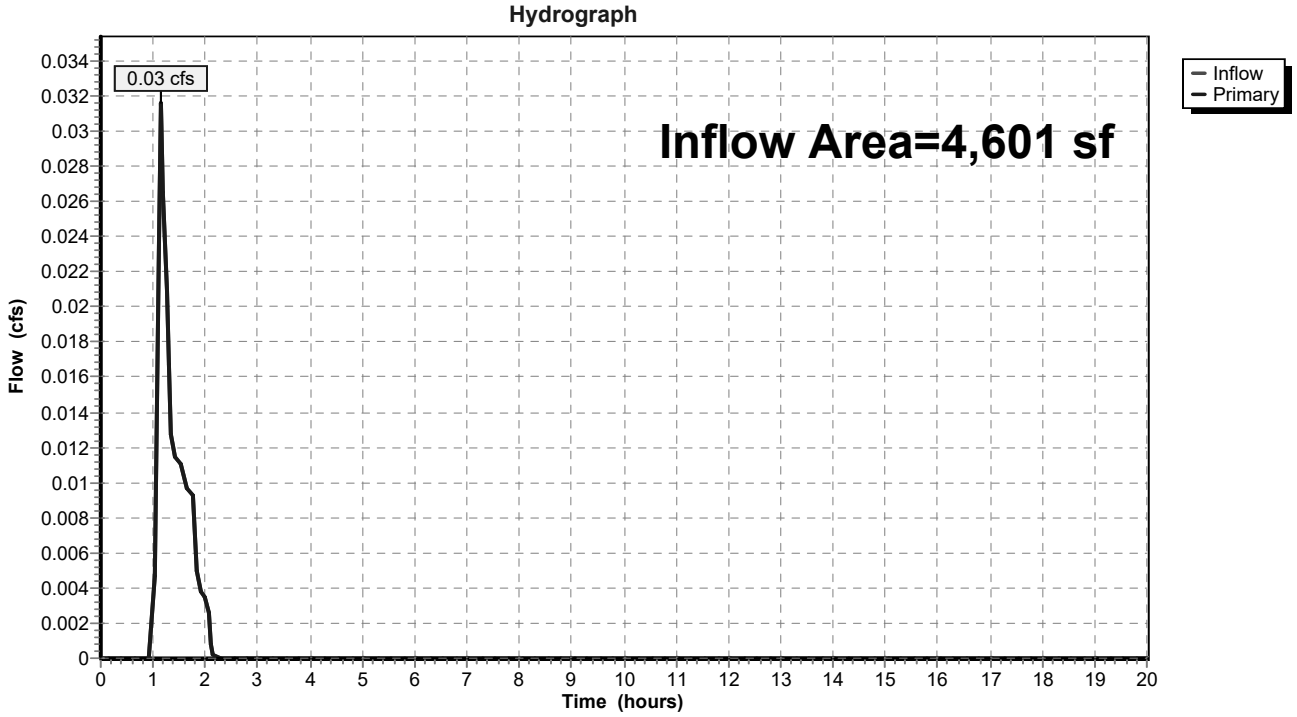
Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	192.55	0.00
0.50	0.08	11	193.55	0.00
1.00	**5.17**	1,805	193.68	0.01
1.50	**1.02**	7,926	194.11	0.03
2.00	0.26	**9,015**	**194.19**	**0.03**
2.50	0.00	**9,032**	**194.19**	**0.03**
3.00	0.00	8,978	194.19	0.03
3.50	0.00	8,924	194.18	0.03
4.00	0.00	8,870	194.18	0.03
4.50	0.00	8,816	194.17	0.03
5.00	0.00	8,762	194.17	0.03
5.50	0.00	8,708	194.17	0.03
6.00	0.00	8,655	194.16	0.03
6.50	0.00	8,602	194.16	0.03
7.00	0.00	8,549	194.16	0.03
7.50	0.00	8,496	194.15	0.03
8.00	0.00	8,443	194.15	0.03
8.50	0.00	8,391	194.14	0.03
9.00	0.00	8,338	194.14	0.03
9.50	0.00	8,286	194.14	0.03
10.00	0.00	8,234	194.13	0.03
10.50	0.00	8,182	194.13	0.03
11.00	0.00	8,130	194.13	0.03
11.50	0.00	8,079	194.12	0.03
12.00	0.00	8,027	194.12	0.03
12.50	0.00	7,976	194.11	0.03
13.00	0.00	7,925	194.11	0.03
13.50	0.00	7,874	194.11	0.03
14.00	0.00	7,823	194.10	0.03
14.50	0.00	7,773	194.10	0.03
15.00	0.00	7,722	194.10	0.03
15.50	0.00	7,672	194.09	0.03
16.00	0.00	7,622	194.09	0.03
16.50	0.00	7,572	194.09	0.03
17.00	0.00	7,523	194.08	0.03
17.50	0.00	7,473	194.08	0.03
18.00	0.00	7,424	194.08	0.03
18.50	0.00	7,374	194.07	0.03
19.00	0.00	7,325	194.07	0.03
19.50	0.00	7,276	194.06	0.03
20.00	0.00	7,228	194.06	0.03

Summary for Link Post DP001: Post-Development DP001

Inflow Area = 4,601 sf, 0.00% Impervious, Inflow Depth = 0.12" for MRC event
Inflow = 0.03 cfs @ 1.16 hrs, Volume= 45 cf
Primary = 0.03 cfs @ 1.16 hrs, Volume= 45 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Post DP001: Post-Development DP001



Hydrograph for Link Post DP001: Post-Development DP001

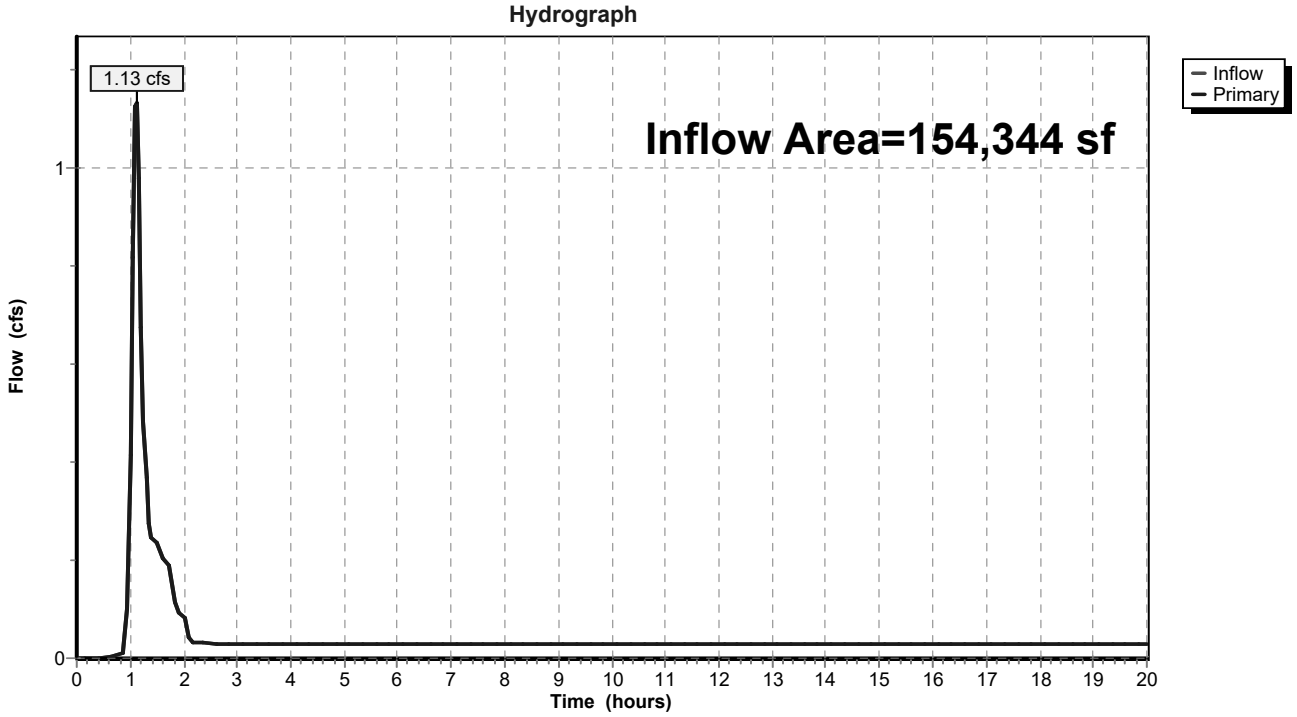
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
0.25	0.00	0.00	0.00
0.50	0.00	0.00	0.00
0.75	0.00	0.00	0.00
1.00	**0.00**	0.00	**0.00**
1.25	**0.02**	0.00	**0.02**
1.50	0.01	0.00	0.01
1.75	0.01	0.00	0.01
2.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00
2.50	0.00	0.00	0.00
2.75	0.00	0.00	0.00
3.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00
3.50	0.00	0.00	0.00
3.75	0.00	0.00	0.00
4.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00
4.50	0.00	0.00	0.00
4.75	0.00	0.00	0.00
5.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00
5.50	0.00	0.00	0.00
5.75	0.00	0.00	0.00
6.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00
6.50	0.00	0.00	0.00
6.75	0.00	0.00	0.00
7.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00
7.50	0.00	0.00	0.00
7.75	0.00	0.00	0.00
8.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00
8.50	0.00	0.00	0.00
8.75	0.00	0.00	0.00
9.00	0.00	0.00	0.00
9.25	0.00	0.00	0.00
9.50	0.00	0.00	0.00
9.75	0.00	0.00	0.00
10.00	0.00	0.00	0.00
10.25	0.00	0.00	0.00
10.50	0.00	0.00	0.00
10.75	0.00	0.00	0.00
11.00	0.00	0.00	0.00
11.25	0.00	0.00	0.00
11.50	0.00	0.00	0.00
11.75	0.00	0.00	0.00
12.00	0.00	0.00	0.00
12.25	0.00	0.00	0.00
12.50	0.00	0.00	0.00
12.75	0.00	0.00	0.00
13.00	0.00	0.00	0.00
13.25	0.00	0.00	0.00
13.50	0.00	0.00	0.00
13.75	0.00	0.00	0.00
14.00	0.00	0.00	0.00
14.25	0.00	0.00	0.00
14.50	0.00	0.00	0.00
14.75	0.00	0.00	0.00
15.00	0.00	0.00	0.00
15.25	0.00	0.00	0.00
15.50	0.00	0.00	0.00
15.75	0.00	0.00	0.00
16.00	0.00	0.00	0.00
16.25	0.00	0.00	0.00
16.50	0.00	0.00	0.00
16.75	0.00	0.00	0.00
17.00	0.00	0.00	0.00
17.25	0.00	0.00	0.00
17.50	0.00	0.00	0.00
17.75	0.00	0.00	0.00
18.00	0.00	0.00	0.00
18.25	0.00	0.00	0.00
18.50	0.00	0.00	0.00
18.75	0.00	0.00	0.00
19.00	0.00	0.00	0.00
19.25	0.00	0.00	0.00
19.50	0.00	0.00	0.00
19.75	0.00	0.00	0.00
20.00	0.00	0.00	0.00

Summary for Link Post DP002: Post-Development DP002

Inflow Area = 154,344 sf, 86.51% Impervious, Inflow Depth > 0.25" for MRC event
Inflow = 1.13 cfs @ 1.11 hrs, Volume= 3,236 cf
Primary = 1.13 cfs @ 1.11 hrs, Volume= 3,236 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Post DP002: Post-Development DP002



Hydrograph for Link Post DP002: Post-Development DP002

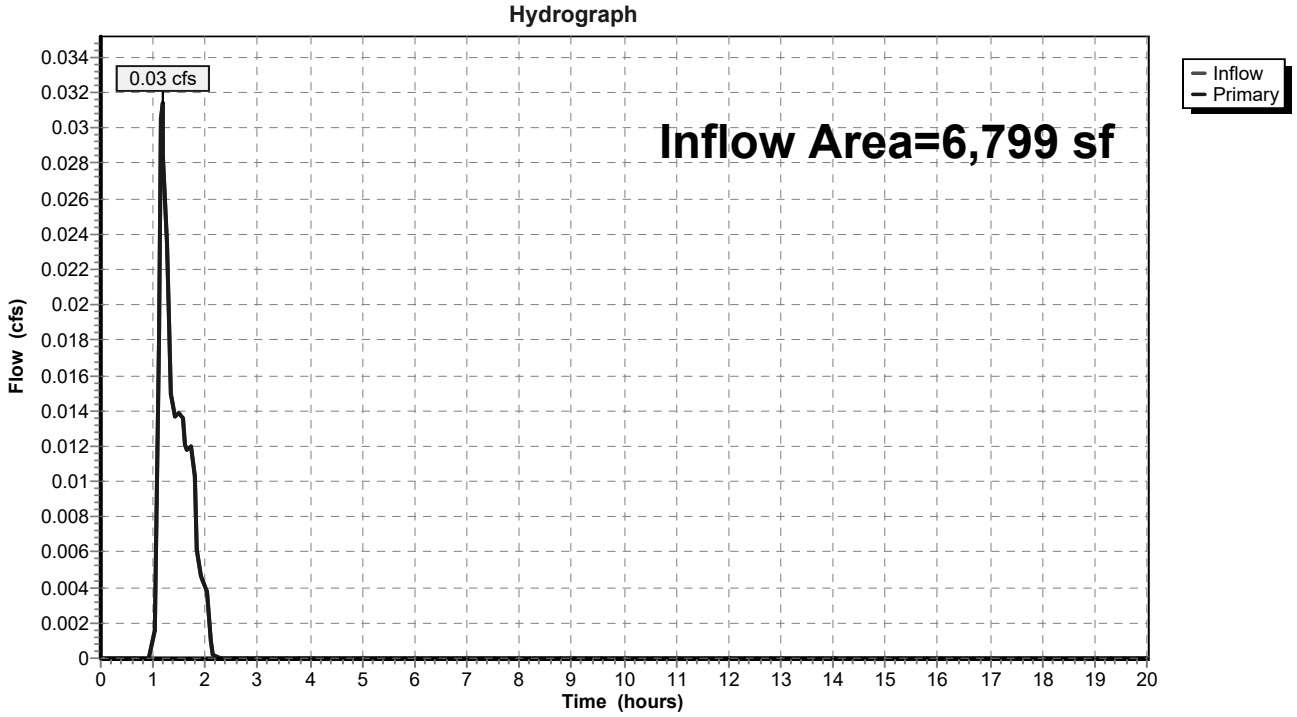
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
0.25	0.00	0.00	0.00
0.50	0.00	0.00	0.00
0.75	0.00	0.00	0.00
1.00	**0.42**	0.00	**0.42**
1.25	**0.48**	0.00	**0.48**
1.50	0.24	0.00	0.24
1.75	0.20	0.00	0.20
2.00	0.09	0.00	0.09
2.25	0.03	0.00	0.03
2.50	0.03	0.00	0.03
2.75	0.03	0.00	0.03
3.00	0.03	0.00	0.03
3.25	0.03	0.00	0.03
3.50	0.03	0.00	0.03
3.75	0.03	0.00	0.03
4.00	0.03	0.00	0.03
4.25	0.03	0.00	0.03
4.50	0.03	0.00	0.03
4.75	0.03	0.00	0.03
5.00	0.03	0.00	0.03
5.25	0.03	0.00	0.03
5.50	0.03	0.00	0.03
5.75	0.03	0.00	0.03
6.00	0.03	0.00	0.03
6.25	0.03	0.00	0.03
6.50	0.03	0.00	0.03
6.75	0.03	0.00	0.03
7.00	0.03	0.00	0.03
7.25	0.03	0.00	0.03
7.50	0.03	0.00	0.03
7.75	0.03	0.00	0.03
8.00	0.03	0.00	0.03
8.25	0.03	0.00	0.03
8.50	0.03	0.00	0.03
8.75	0.03	0.00	0.03
9.00	0.03	0.00	0.03
9.25	0.03	0.00	0.03
9.50	0.03	0.00	0.03
9.75	0.03	0.00	0.03
10.00	0.03	0.00	0.03
10.25	0.03	0.00	0.03
10.50	0.03	0.00	0.03
10.75	0.03	0.00	0.03
11.00	0.03	0.00	0.03
11.25	0.03	0.00	0.03
11.50	0.03	0.00	0.03
11.75	0.03	0.00	0.03
12.00	0.03	0.00	0.03
12.25	0.03	0.00	0.03
12.50	0.03	0.00	0.03
12.75	0.03	0.00	0.03
13.00	0.03	0.00	0.03
13.25	0.03	0.00	0.03
13.50	0.03	0.00	0.03
13.75	0.03	0.00	0.03
14.00	0.03	0.00	0.03
14.25	0.03	0.00	0.03
14.50	0.03	0.00	0.03
14.75	0.03	0.00	0.03
15.00	0.03	0.00	0.03
15.25	0.03	0.00	0.03
15.50	0.03	0.00	0.03
15.75	0.03	0.00	0.03
16.00	0.03	0.00	0.03
16.25	0.03	0.00	0.03
16.50	0.03	0.00	0.03
16.75	0.03	0.00	0.03
17.00	0.03	0.00	0.03
17.25	0.03	0.00	0.03
17.50	0.03	0.00	0.03
17.75	0.03	0.00	0.03
18.00	0.03	0.00	0.03
18.25	0.03	0.00	0.03
18.50	0.03	0.00	0.03
18.75	0.03	0.00	0.03
19.00	0.03	0.00	0.03
19.25	0.03	0.00	0.03
19.50	0.03	0.00	0.03
19.75	0.03	0.00	0.03
20.00	0.03	0.00	0.03

Summary for Link Post DP003: Post-Development DP003

Inflow Area = 6,799 sf, 3.93% Impervious, Inflow Depth = 0.09" for MRC event
Inflow = 0.03 cfs @ 1.17 hrs, Volume= 49 cf
Primary = 0.03 cfs @ 1.17 hrs, Volume= 49 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link Post DP003: Post-Development DP003



Hydrograph for Link Post DP003: Post-Development DP003

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
0.25	0.00	0.00	0.00
0.50	0.00	0.00	0.00
0.75	0.00	0.00	0.00
1.00	**0.00**	0.00	**0.00**
1.25	**0.02**	0.00	**0.02**
1.50	0.01	0.00	0.01
1.75	0.01	0.00	0.01
2.00	0.00	0.00	0.00
2.25	0.00	0.00	0.00
2.50	0.00	0.00	0.00
2.75	0.00	0.00	0.00
3.00	0.00	0.00	0.00
3.25	0.00	0.00	0.00
3.50	0.00	0.00	0.00
3.75	0.00	0.00	0.00
4.00	0.00	0.00	0.00
4.25	0.00	0.00	0.00
4.50	0.00	0.00	0.00
4.75	0.00	0.00	0.00
5.00	0.00	0.00	0.00
5.25	0.00	0.00	0.00
5.50	0.00	0.00	0.00
5.75	0.00	0.00	0.00
6.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00
6.50	0.00	0.00	0.00
6.75	0.00	0.00	0.00
7.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00
7.50	0.00	0.00	0.00
7.75	0.00	0.00	0.00
8.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00
8.50	0.00	0.00	0.00
8.75	0.00	0.00	0.00
9.00	0.00	0.00	0.00
9.25	0.00	0.00	0.00
9.50	0.00	0.00	0.00
9.75	0.00	0.00	0.00
10.00	0.00	0.00	0.00
10.25	0.00	0.00	0.00
10.50	0.00	0.00	0.00
10.75	0.00	0.00	0.00
11.00	0.00	0.00	0.00
11.25	0.00	0.00	0.00
11.50	0.00	0.00	0.00
11.75	0.00	0.00	0.00
12.00	0.00	0.00	0.00
12.25	0.00	0.00	0.00
12.50	0.00	0.00	0.00
12.75	0.00	0.00	0.00
13.00	0.00	0.00	0.00
13.25	0.00	0.00	0.00
13.50	0.00	0.00	0.00
13.75	0.00	0.00	0.00
14.00	0.00	0.00	0.00
14.25	0.00	0.00	0.00
14.50	0.00	0.00	0.00
14.75	0.00	0.00	0.00
15.00	0.00	0.00	0.00
15.25	0.00	0.00	0.00
15.50	0.00	0.00	0.00
15.75	0.00	0.00	0.00
16.00	0.00	0.00	0.00
16.25	0.00	0.00	0.00
16.50	0.00	0.00	0.00
16.75	0.00	0.00	0.00
17.00	0.00	0.00	0.00
17.25	0.00	0.00	0.00
17.50	0.00	0.00	0.00
17.75	0.00	0.00	0.00
18.00	0.00	0.00	0.00
18.25	0.00	0.00	0.00
18.50	0.00	0.00	0.00
18.75	0.00	0.00	0.00
19.00	0.00	0.00	0.00
19.25	0.00	0.00	0.00
19.50	0.00	0.00	0.00
19.75	0.00	0.00	0.00
20.00	0.00	0.00	0.00

Events for Subcatchment DA-5: BYPASS TO DP-001

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
1-yr	2.72	0.17	305	0.80
2-yr	3.28	0.24	443	1.16
5-yr	4.12	0.36	671	1.75
10-yr	4.82	0.47	874	2.28
25-yr	5.83	0.63	1,183	3.09
50-yr	6.68	0.76	1,453	3.79
100-yr	**7.60**	**0.91**	**1,753**	**4.57**
MRC	1.25	0.03	45	0.12

Events for Subcatchment DA-6: To Rain Garden (BMP-2)

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
1-yr	2.72	10.21	21,940	2.25
2-yr	3.28	12.43	27,083	2.78
5-yr	4.12	15.74	34,821	3.57
10-yr	4.82	18.50	41,283	4.23
25-yr	5.83	22.45	50,620	5.19
50-yr	6.68	25.78	58,484	6.00
100-yr	**7.60**	**29.37**	**67,001**	**6.87**
MRC	1.25	7.54	9,192	0.94

Events for Subcatchment DA-7: BYPASS TO DP-002

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
1-yr	2.72	2.40	4,533	1.46
2-yr	3.28	3.12	5,991	1.93
5-yr	4.12	4.22	8,259	2.65
10-yr	4.82	5.14	10,195	3.28
25-yr	5.83	6.46	13,037	4.19
50-yr	6.68	7.56	15,459	4.97
100-yr	**7.60**	**8.75**	**18,100**	**5.82**
MRC	1.25	1.11	1,269	0.41

Events for Subcatchment DA-8: Bypass to DP003

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
1-yr	2.72	0.21	398	0.70
2-yr	3.28	0.32	589	1.04
5-yr	4.12	0.49	910	1.61
10-yr	4.82	0.65	1,200	2.12
25-yr	5.83	0.88	1,643	2.90
50-yr	6.68	1.07	2,032	3.59
100-yr	**7.60**	**1.29**	**2,466**	**4.35**
MRC	1.25	0.03	49	0.09

Events for Pond 3P: MRC

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
1-yr	10.21	0.29	194.71	16,134
2-yr	12.43	0.38	194.98	19,779
5-yr	15.74	0.49	195.42	25,453
10-yr	18.50	0.56	195.81	30,259
25-yr	22.45	0.67	196.42	37,190
50-yr	25.78	0.76	197.05	42,925
100-yr	**29.37**	**0.88**	**197.97**	**48,945**
MRC	7.54	0.03	194.19	9,069

Events for Link Post DP001: Post-Development DP001

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)
1-yr	0.17	0.17	**0.00**
2-yr	0.24	0.24	0.00
5-yr	0.36	0.36	0.00
10-yr	0.47	0.47	0.00
25-yr	0.63	0.63	0.00
50-yr	0.76	0.76	0.00
100-yr	**0.91**	**0.91**	0.00
MRC	0.03	0.03	0.00

Events for Link Post DP002: Post-Development DP002

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)
1-yr	2.47	2.47	**0.00**
2-yr	3.33	3.33	0.00
5-yr	4.55	4.55	0.00
10-yr	5.54	5.54	0.00
25-yr	6.95	6.95	0.00
50-yr	8.12	8.12	0.00
100-yr	**9.37**	**9.37**	0.00
MRC	1.13	1.13	0.00

Events for Link Post DP003: Post-Development DP003

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)
1-yr	0.21	0.21	**0.00**
2-yr	0.32	0.32	0.00
5-yr	0.49	0.49	0.00
10-yr	0.65	0.65	0.00
25-yr	0.88	0.88	0.00
50-yr	1.07	1.07	0.00
100-yr	**1.29**	**1.29**	0.00
MRC	0.03	0.03	0.00

List of Encumbrances

TO: Whitemarsh Township

FROM: Paul Lepard

DATE: 10/21/2024

SUBJECT: Gemma Redevelopment List of Encumbrances

NAVE NEWELL NO: 2024-039.00

Discussion

TITLE EXCEPTIONS:

COMMITMENT FOR TITLE INSURANCE PREPARED BY FIRST AMERICAN TITLE INSURANCE COMPANY
ISSUING AGENT: ROGER LAND TRANSFER, LLC dba LEGALTY, TRANSFER
COMMITMENT NUMBER: 110315505
COMMITMENT DATE: APRIL 15, 2024
RECORD OWNER: EMERGENCY CARE RESEARCH INSTITUTE, A PENNSYLVANIA NON-PROFIT CORPORATION (PREMISES A AND B)
PROPOSED INSURED: GEMMA SERVICES, A PENNSYLVANIA NON-PROFIT CORPORATION
VESTING DEEDS:
DEED BOOK 6071 PG 769 (PREMISES A)
DEED BOOK 6131 PAGE 2844 (PREMISES B)

TRACT OF LAND SUBJECT TO THE FOLLOWING EASEMENTS, RESTRICTIONS AND ENCUMBRANCES AS
CONTAINED IN THE REFERENCED REPORT OF TITLE. EXCEPTION DESIGNATIONS USED HEREIN REFER
TO THE DESIGNATIONS AS FOUND IN SCHEDULE B - SECTION II EXCEPTIONS FROM COVERAGE:

- SUBJECT TO ALL MATTERS SHOWN ON THE PLAN AS RECORDED IN THE RECORDER'S OFFICE OF MONTGOMERY COUNTY,
  PENNSYLVANIA IN PLAN BOOK 46, PAGE 431 (PREMISES A AND B) - PERTINENT PLAN FEATURES SHOWN ON PLAN - ULTIMATE
  RIGHT-OF-WAY LINE SHOWN ON PLAN.

- ACCESS EASEMENT AGREEMENT BETWEEN LU LU TEMPLE HOLDING CORP. AND EMERGENCY CARE RESEARCH INSTITUTE DATED
  11/02/2017 AND RECORDED 11/30/2017 AS SET FORTH IN DEED BOOK 6071, PAGE 787. (INSTRUMENT NO. 2017090425).
  (PREMISES A) - APPROXIMATE LOCATION ACCESS EASEMENT SHOWN ON PLAN.

- EASEMENT AGREEMENT BETWEEN LU LU TEMPLE HOLDING CORP. AND EMERGENCY CARE RESEARCH INSTITUTE DATED 11/02/2017
  AND RECORDED 11/30/2017 AS SET FORTH IN DEED BOOK 6071, PAGE 801 (INSTRUMENT NO. 2017090426). (PREMISES A)
  - LEASE PREMISES (EASEMENT) AREASHOWN ON PLAN.

- TERMS AND CONDITIONS OF UNRECORDED LEASE BETWEEN LU LU TEMPLE HOLDING CORP. AND EMERGENCY CARE
  RESEARCH INSTITUTE, AS DISCLOSED IN EASEMENT AGREEMENT SET FORTH IN DEED BOOK 6071, PAGE 801 (INSTRUMENT
  NO. 2017090426). (PREMISES A) -LEASE PREMISES (EASEMENT) AREA SHOWN ON PLAN.

- CONDITIONS AS SET FORTH IN DEED BOOK 6071, PAGE 769 (INSTRUMENT NO. 2017090422). (PREMISES A) - NOT PLOTABLE
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AGREEMENT DATED 06/13/1991 AND RECORDED 08/30/1993 AS SET FORTH IN DEED BOOK 5052, PAGE 1200. MEMORANDUM OF
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5019, PAGE 253. (PREMISES B)

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September 20, 2024
TPD# GEMS.00001

Est. 1989

TRAFFIC PLANNING AND DESIGN, INC.

MARTIN LUTHER SCHOOL RELOCATION

5200 Butler Pike
Whitemarsh Township, Montgomery County, PA

For Submission To:

Montgomery County Roads and Bridges
and Whitemarsh Township, Montgomery County

2500 East High Street, Suite 650, Pottstown, PA 19464 | 610.326.3100 | TPD@TraffficPD.com

MARTIN LUTHER SCHOOL – 5200 BUTLER PIKE
TRANSPORTATION IMPACT STUDY

FOR SUBMISSION TO:

Whitemarsh Township, Montgomery County
& Montgomery County

Prepared For:
GEMMA SERVICES
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June 26, 2024
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Table of Contents

EXECUTIVE SUMMARY 1
INTRODUCTION 3
EXISTING ROADWAY NETWORK 3
BICYCLE AND PEDESTRIAN FACILITIES 3
MASS TRANSIT FACILITIES 3
CRASH DATA INVESTIGATION 4
EXISTING TRAFFIC CONDITIONS 4
BASE (NO-BUILD) CONDITIONS 5
BACKGROUND GROWTH 5
PROPOSED SITE ACCESS 5
SIGHT DISTANCE ANALYSIS 5
TRIP GENERATION 6
TRIP DISTRIBUTION 8
PROJECTED (BUILD) CONDITION TRAFFIC VOLUMES 9
LEVELS OF SERVICE FOR AN INTERSECTION 9
LEVELS OF SERVICE IN THE STUDY AREA 10
95TH PERCENTILE QUEUE ANALYSIS 12
AUXILIARY TURN LANE ANALYSIS 12
RECOMMENDATIONS & CONCLUSIONS 13

Figures 1-20

TECHNICAL APPENDICES

Appendix A: Study Area Photographs
Appendix B: Manual Traffic Count Printouts
Appendix C: Nearby Development Trip Distributions
Appendix D: Trip Generation Worksheets
Appendix E: Trip Assignment Percentage Information
Appendix F: Volume Development Spreadsheets
Appendix G: Critical/Follow-Up Gap Data
Appendix H: Capacity Analyses
Appendix I: Auxiliary Turn Lane Analysis

EXECUTIVE SUMMARY

The purpose of this TIS is to examine the potential traffic impact associated with the proposed relocation and expansion of the existing Martin Luther School, from its existing location at 512 West Township Line Road in Plymouth Meeting, to 5200 Butler Pike in Whitemarsh Township. Both locations are in Montgomery County, Pennsylvania. Based on this evaluation, the following conclusions were reached:

- The Project Site is located along the eastern side of Butler Pike. The Proposed Site will replace approximately 80,000 square feet of existing office space and an existing 3,312 square foot storage barn with a school containing approximately 275 students and 140 staff upon opening (335 students and 166 staff in 2028/2029 School Year). In addition, a gymnasium and recreational facilities will be provided.
- The Existing Site is served by one (1) full-access driveway to Butler Pike. The Proposed Site will continue to be served by the same driveway.
- With removal and maintenance of on-site vegetation, the measured sight distances at the site driveway will exceed all PennDOT Safe Stopping Sight Distance (SSSD) and Desirable Sight Distance criteria.
- The Proposed Site will generate **295 new trips** during the weekday A.M. Peak Hour, **234 new trips** during the weekday school P.M. Peak Hour, and **114 new trips** during the weekday P.M. Peak Hour.
- Based on a comparison with the Existing Site (at full occupancy), the Proposed School will generate total of **157 more new trips** during the weekday A.M. Peak Hour and **24 less new trips** during the weekday P.M. Peak Hour.
- Under all projected (build) conditions with the redevelopment of the subject site and with site-related recommendations outlined in **Table II**, all study area intersections will satisfy PennDOT ILOS Standards.
- Levels of Service (LOS) for the study area intersections have been summarized in matrix form. **Table I** details the overall intersection LOS for each study area intersection:

TABLE I
LEVEL OF SERVICE DELAY (SECONDS) SUMMARY

Intersection	Peak Hour	2024 Exist.	2029			Meet PennDOT/ Township LOS Requirements?
			Base	Proj.	Proj.[1]	
Butler Pike & Existing/Proposed Driveway (5200 Butler Pike)	AM	A (0.1)	A (0.1)	A (3.0)	A (2.9)	Yes/Yes
	School PM	A (0.2)	A (0.2)	A (3.7)	A (3.7)	
	PM	A (0.0)	A (0.0)	A (1.7)	A (1.7)	
Butler Pike & Existing Driveway (5140 Butler Pike)	AM	A (0.1)	A (0.1)	A (0.1)	A (0.1)	Yes/Yes
	School PM	A (0.1)	A (0.1)	A (0.1)	A (0.1)	
	PM	A (0.0)	A (0.0)	A (0.0)	A (0.0)	
Butler Pike & Township Line Road	AM	A (3.7)	A (3.8)	A (4.0)	A (4.0)	Yes/ *
	School PM	A (3.0)	A (3.1)	A (2.5)	A (2.5)	
	PM	A (4.5)	A (4.6)	A (4.3)	A (4.3)	
Butler Pike & Cold Point Hill Road / Campus Drive	AM	A (4.7)	A (4.9)	A (5.2)	A (5.2)	Yes/ *
	School PM	A (1.1)	A (1.2)	A (1.3)	A (1.3)	
	PM	A (1.3)	A (1.3)	A (1.4)	A (1.4)	

Exist. = Existing Condition, Base = No-Build scenario, Proj. = Build Scenario
** = See Discussion of Township LOS Standards on Page 11*
1 = With improvements

» Site-related recommendations are summarized in **Table II**:

TABLE II
RECOMMENDATIONS

Intersection	Recommendation
Butler Pike & Existing/Proposed Driveway (5200 Butler Pike)	Ensure the Existing Radii at the Existing/Proposed Driveway are adequate for School Bus Ingress/Egress.
	Restrict Bus Routes to/from the south along Butler Pike in the vicinity of Narcissa Road.
	Provide internal signage and an emergency access gate to restrict/discourage school traffic from using the internal connection to the adjacent Lulu Shriners property.

INTRODUCTION

Traffic Planning and Design, Inc. (TPD) has completed a revised Transportation Impact Study (TIS) for the Relocation of the Existing Martin Luther School, from 512 West Township Line Road in Plymouth Township to 5200 Butler Pike in Whitemarsh Township, Montgomery County, Pennsylvania. The Existing School and Proposed Site are shown in **Figure 1**. It is TPD's understanding that the Existing School serves approximately 221 students and has approximately 133 staff members. It is also TPD's understanding that upon opening, the Proposed Site (**Figure 2**) will serve approximately 275 students and will have approximately 140 staff members. Finally, it is also TPD's understanding the Proposed Site will ultimately serve approximately 335 students and will have approximately 166 staff members, by the 2028/2029 School Year. It should be noted that the Proposed School will replace approximately 80,000 square feet of office and a 3,312 square foot storage barn at 5200 Butler Pike. The Existing Site at 5200 Butler Pike is served by one (1) full-access driveway to Butler Pike. TPD assumed a future year of 2029.

This report has been prepared in accordance with PennDOT's *Policies and Procedures for Transportation Impact Studies*, found in PennDOT's Publication 282, Appendix A, dated July 2017.

EXISTING ROADWAY NETWORK

A field review of the existing roadway system in the study area was conducted. The existing roadway characteristics within the study area are summarized in **Table 1**. Photographs of the study area intersections are included in **Appendix A**.

TABLE 1
ROADWAY CHARACTERISTICS WITHIN STUDY AREA

Roadway	Route Ownership	Functional Classification/ Roadway Type	Predominant Directional Orientation	Average Daily Traffic[1]	Posted Speed Limit
Butler Pike	County	Principal Arterial	North-South	10,196	35 mph
Township Line Road	Township	Collector	East-West	2,850[2]	35 mph
Campus Drive	Township	Collector	East-West	2,500[2]	25 mph
Cold Point Hill Road	Township	Local	North-South	300[2]	35 mph

1 = PennDOT TIRe Data
2 = No PennDOT Data Available. Based on Estimates from Peak Hour Counts

Bicycle and Pedestrian Facilities

Based on observations during field visits, Butler Pike does not have specific pedestrian facilities, such as sidewalks, ADA ramps, or crosswalks. Butler Pike has narrow paved shoulders that do not support safe bicycle travel.

Mass Transit Facilities

There is no bus service in the Study Area. There is also no regional rail service within 2 miles of the Proposed Redevelopment.

Crash Data Investigation

Crash data were obtained from PennDOT for the study area intersections. PennDOT defines a reportable crash as follows, "A reportable (crash) is one in which an injury or fatality occurs or if at least one of the vehicles involved requires towing from the scene." Reportable crashes were tabulated for the five-year time period beginning 01/01/2019 and ending 12/31/2023. For a given intersection, PennDOT considers a crash occurrence of 5 reportable, correctable crashes over a continuous twelve-month period during the past five years to be a threshold value, above which the intersection design should be reviewed to examine if corrective measures can be taken to enhance safety. The number of reportable crashes at the study area intersections is shown in **Table 2.**

TABLE 2
PENNDOT REPORTABLE CRASH DATA

Study Area Intersection	Total Number of Reportable Crashes				
	2019	2020	2021	2022	2023
Butler Pike & Existing Driveway (5200 Butler Pike)	2	0	0	1	0
Butler Pike & Existing Driveway (5140 Butler Pike)	0	0	0	0	0
Butler Pike & Township Line Road	0	0	0	0	0
Butler Pike & Cold Point Hill Road / Campus Drive	0	0	0	2	0

Based on a review of the crash data in **Table 2**, there were no twelve-month periods during the past five years where 5 or more crashes occurred that were deemed correctable.

EXISTING TRAFFIC CONDITIONS

Manual traffic counts were conducted on 15-minute intervals during the weekday morning (7:00 to 9:30 A.M.), School P.M. (2:00 to 4:00 P.M.), and weekday evening (4:00 to 6:00 P.M.) peak periods. Data pertaining to heavy vehicles, pedestrians and transit vehicles were observed during the manual counts. Peak hours and count dates for the study area intersections are identified in **Table 3**.

TABLE 3
MANUAL TRAFFIC COUNT INFORMATION[1]

Intersection	Date of Traffic Counts	Time Period	Intersection Peak Hour[2]
Butler Pike & Existing Site Driveway (5200 Butler Pike)	Tuesday, April 30, 2024	Weekday A.M.	8:00 to 9:00 A.M.
		School P.M.	2:15 to 3:15 P.M.
		Weekday P.M.	5:00 to 6:00 P.M.
Butler Pike & Existing Driveway (5140 Butler Pike)		Weekday A.M.	7:30 to 8:30 A.M.
		School P.M.	2:15 to 3:15 P.M.
		Weekday P.M.	4:30 to 5:30 P.M.
Butler Pike & Township Line Road		Weekday A.M.	7:30 to 8:30 A.M.
		School P.M.	2:45 to 3:45 P.M.
		Weekday P.M.	4:30 to 5:30 P.M.
Butler Pike & Campus Drive/Cold Point Hill Road		Weekday A.M.	8:00 to 9:00 A.M.
		School P.M.	2:15 to 3:15 P.M.
		Weekday P.M.	4:30 to 5:30 P.M.

1 =Schools confirmed to be in session
2 =Peak Hour consists of the four consecutive 15-minute intervals where the highest traffic volumes occur

2024 Existing Condition traffic volumes for the weekday A.M., School P.M., and weekday P.M. peak hours are illustrated in **Figures 3-5**. All manual traffic count data sheets are provided in **Appendix B**.

BASE (NO-BUILD) CONDITIONS

Background Growth

A background growth factor for the roadways in the study area was developed based on growth factors for September 2023 to July 2024 obtained from the PennDOT Bureau of Planning and Research (BPR). The PennDOT BPR suggests using a background growth trend factor of 0.21% per year in Montgomery County for urban non-interstate roadways. Therefore, a background growth factor was applied annually to yield an overall growth percentage of 1.05% (0.21% per year compounded over 5 years) for the 2029 future year.

Nearby Planned Redevelopment

Base conditions included traffic from the following nearby planned developments:

- 502 W. Germantown Pike Residential – Located near the Plymouth Meeting Mall. The development consists of 149 mid-rise apartments.
- PREIT Residential – Located near the Plymouth Meeting Mall. The development consists of 300 mid-rise apartments.

The additional traffic volumes due to background growth, background developments, were added to the existing traffic data to produce the 2029 Base (No-Build) Conditions, as illustrated in **Figure 6-8.** The nearby trip distributions/redistributions are illustrated in **Appendix C**.

PROPOSED SITE ACCESS

The Existing Site at 5200 Butler Pike is served by one (1) full-access driveway to Butler Pike. Access for the Proposed Site will remain the same.

Sight Distance Analysis

A sight distance analysis was prepared for the Proposed/Existing Site Driveway location. In general, recommended safe sight distances depend upon the posted speed limit and roadway grades. The existing sight distances at the proposed driveways were measured in accordance with PennDOT Publication 282 Highway Occupancy Permit Guidelines and compared to PennDOT's desirable sight distance standard, which is identified in 67 PA Code Chapter 441.8(h), "Access to and Occupancy of Highways by Driveways and Local Roads." In addition, measured sight distances at the proposed driveways were compared to PennDOT's safe stopping sight distance standard, which is calculated by the following equation:

$$SSSD = 1.47VT + V^2/[30(f \pm g)]$$

SSSD = safe stopping sight distance (acceptable sight distance)
V = Vehicle Speed
T = Perception Reaction Time of Driver (2.5 seconds)
f = Coefficient of Friction for Wet Pavements
g = Percent of Roadway Grade Divided by 100

Table 4 shows the measured, desirable, and acceptable (SSSD) sight distances at the proposed/existing site driveway for vehicles entering and exiting the site.

TABLE 4
SIGHT DISTANCE ANALYSIS
PROPOSED/EXISTING SITE DRIVEWAYS

	Direction	Posted Speed (mph)	Sight Distances (feet)			
			Grade[1] (%)	DES[2]	SSSD[3]	EXIST[4]
Existing/Proposed Driveway – 5200 Butler Pike						
Exiting Movements	*To the left*	35	+2%	440	304	**725'**
	To the right	35	-1%	350	319	**800'+**
Entering Left Turns	*Approaching same direction*	35	-1%	N/A	319	**800'+**
	Approaching opposite direction	35	+2%	300	304	**800'+**

DES = PennDOT Desirable Sight Distance
SSSD = PennDOT Acceptable Sight Distance
EXIST = Existing (measured) Sight Distance

1 = Roadway Grade Approaching Driveway
2 = Based on the posted speed
3 = Based on the posted speed + 5mph
4 = With Maintenance/Removal of On-Site Vegetation

As shown in **Table 4** above, with removal/maintenance of on-site vegetation, the measured sight distances at the proposed/existing site driveway exceed PennDOT Desirable Sight Distance criteria.

TRIP GENERATION

The trip generation rates for the Proposed School were based on counts conducted at the Existing School located at 512 West Township Line Road. These counts were conducted on multiple days (April 31, May 1, May 2, and May 28, 2024). These counts, and the associated trip generation worksheets, are included in **Appendix D**.

Table 5 shows the resultant trip generation data utilized for the Proposed School.

TABLE 5
TRIP GENERATION DATA – EXISTING SCHOOL

Time Period	Size (X)	Rate	Enter %	Bus/Van%
Average Weekday	221 students	T = 2.398*(X)[1]	50%[2]	31%[3]
Weekday AM Peak Hour		T = 0.881*(X)	69%	30%
School PM Peak Hour		T = 0.698*(X)	29%	44%
Weekday PM Peak Hour		T = 0.339*(X)	15%	21%
Average Weekday	133 staff members	T = 3.985*(X)[1]	50%[2]	31%[3]
Weekday AM Peak Hour		T = 1.464*(X)	69%	30%
School PM Peak Hour		T = 1.160*(X)	29%	44%
Weekday PM Peak Hour		T = 0.564*(X)	15%	21%

T = Total Trips; X = Independent Variable (students/staff)
1 = AM + School PM + PM assumed to be 80% of Average Weekday
2 = Assumed 50%
3 = Average of AM/School PM/PM

The results of the trip generation calculations for the ultimate 2028/2029 School Year are summarized in **Table 6**.

TABLE 6
TRIP GENERATION – PROPOSED SCHOOL

Time Period	Size (X)	Total Trips			Bus/Van			Car		
		Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit
Average Weekday	335 students	***804***	***402***	***402***	***250***	***125***	***125***	***554***	***277***	***277***
Weekday AM Peak Hour		***295***	***204***	***91***	***89***	***61***	***28***	***206***	***143***	***63***
School PM Peak Hour		***234***	***68***	***166***	***103***	***30***	***73***	***131***	***38***	***93***
Weekday PM Peak Hour		***114***	***17***	***97***	***24***	***4***	***20***	***90***	***13***	***77***
Average Weekday	166 staff members	662	331	331	206	103	103	456	228	228
Weekday AM Peak Hour		243	168	75	73	50	23	170	118	52
School PM Peak Hour		193	55	138	85	25	60	108	30	78
Weekday PM Peak Hour		94	14	80	20	3	17	74	11	63

Bold/Italics = Higher Generator (Utilized)

Based on the information contained in **Table 6**, the Proposed School will generate total of **295 new trips** during the weekday A.M. Peak Hour, **234 new trips** during the School P.M. Peak Hour, and **114 new trips** during the weekday P.M. Peak Hour.

Trip Generation Comparison (Based on Full-Occupancy of Existing Site at 5200 Butler Pike)

As stated previously in this study, the Existing Site currently contains approximately 80 ksf of general office space (not fully occupied). Based on the information contained in ITE #710 (General Office), the Existing Site (at full occupancy) would generate a total of **138 new trips** during the weekday A.M. Peak Hour and **138 new trips** during the weekday P.M. Peak Hour.

Based on a comparison with the Existing Site (at full occupancy), the Proposed School will generate total of **157 more trips** during the weekday A.M. Peak Hour and **24 less trips** during the weekday P.M. Peak Hour.

Note, since the Existing Site is not currently fully occupied, a trip generation credit was only taken in the Study Area based on the trips counted at the Existing Site Driveway.

Global Trip Generation Comparison (Existing School vs Proposed School)

Based on trip generation data contained in **Appendix D**, on average, the Existing School generated a total of **195 new trips** during the weekday A.M. Peak Hour, **154 new trips** during the School P.M. Peak Hour, and **75 new trips** during the weekday P.M. Peak Hour. Therefore, after accounting for the maximum potential student/staff increases projected over the next 5 years, the Proposed School will generate total of **100 more new trips** during the weekday A.M. Peak Hour, **80 more new trips** during the School P.M. Peak Hour, and **39 more new trips** during the weekday P.M. Peak Hour.

Since the Existing School is being relocated to the Proposed Site, a credit was also taken in the Study Area so as not to double-count school traffic in the Study Area. Both credits were done via separate base redistributions.

TRIP DISTRIBUTION

The distribution and assignment of new trips generated by the Proposed School was based upon existing traffic patterns in the Study Area and at the Existing School Driveway on Township Line Road. Based on this evaluation, the new trips for the proposed development were distributed to the local roadway network based on the percentages shown in **Table 7.**

TABLE 7
TRIP DISTRIBUTION PERCENTAGES

Direction - To/From	Assignment - To/From	Distribution Percentage	
		AM/PM School/PM	
		Cars	Buses
North	via Butler Pike	42%	52%
South/West	via Butler Pike	35%	--
West	via Township Line Road	16%	48%
East	via Campus Drive	7%	--

TPD removed the bus distribution percentages assigned to/from the south via Butler Pike and Campus Drive in order to avoid additional large vehicles utilizing the curve on Butler Pike at Narcissa Road.

To account for the redevelopment of the Proposed Site, TPD developed a redistribution that serves to zero out the trips associated with the existing office use, as counted at the Proposed Site Driveway. These Base Redistributions are shown in **Figures 9-11**.

In addition, since the Existing School is being relocated to the Proposed Site, TPD developed a redistribution in the Study Area so as not to double-count school traffic in the Study Area. TPD assumed 80% of the Existing Trip Generation at the Existing Campus was student-related and reaches the Proposed Study Area today. This redistribution only considers these trips. These Base Redistributions are shown in **Figures 12-14**.

The distribution of site-generated trips for the Proposed School during the weekday A.M., P.M. School, and weekday P.M. peak hours are shown in **Figures 15-17**. The trip assignment percentage information is included in **Appendix E**.

PROJECTED (BUILD) CONDITION TRAFFIC VOLUMES

The site-generated trips for the Proposed School and the redistributions of the Existing Site and Existing School, were added to the 2029 Base (no-build) Conditions to develop the 2029 Projected (build) Condition traffic volumes, as shown in **Figures 18-20**. Volume development spreadsheets are contained in **Appendix F.**

LEVELS OF SERVICE FOR AN INTERSECTION

For analysis of intersections, level of service is defined in terms of delay, which is a measure of driver discomfort and frustration, fuel consumption, and lost travel time. LOS criteria is stated in terms of control delay per vehicle for a one-hour analysis period. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The criteria are shown in **Table 8.** Delay, as it relates to level of service, is a complex measure and is dependent upon a number of variables. For signalized intersections, these variables include the quality of vehicle progression, the cycle length, the green time ratio, and the volume/capacity ratio for the lane group in question. For unsignalized intersections, delay is related to the availability of gaps in the flow of traffic on the major street and the driver's discretion in selecting an appropriate gap for a particular movement from the minor street (straight across, left or right turn).

TABLE 8
LEVEL OF SERVICE CRITERIA
UNSIGNALIZED AND SIGNALIZED INTERSECTIONS[1]

Level of Service	Control Delay Per Vehicle (Seconds)	
	Signalized	Unsignalized
A	< 10	< 10
B	> 10 and < 20	> 10 and < 15
C	> 20 and < 35	> 15 and < 25
D	> 35 and < 55	> 25 and < 35
E	> 55 and < 80	> 35 and < 50
F	> 80 or v/c > 1.0	> 50 or v/c > 1.0

[1]Obtained from Exhibits 19-8 and 20-2 of the Transportation Research Board's Highway Capacity Manual 6th Edition

CAPACITY ANALYSIS METHODOLOGY

Capacity analyses were conducted for the weekday A.M., School P.M., and weekday P.M. peak hours at the study area intersections. These analyses were conducted according to the methodologies contained in the 6th Edition *Highway Capacity Manual* (HCM) using *Synchro 11* software, a Trafficware product.

The following conditions were analyzed, as applicable:

- 2024 Existing conditions;
- 2029 Base conditions (Build-out year without development);
- 2029 Projected conditions (Design year with development).

It should be noted that based on methodologies contained in Chapter 10 of PennDOT's Publication 46, TPD adjusted the following HCM default values in the *Synchro 11* capacity analysis. These adjustments were made at the signalized intersections within the study area for all time periods based on the study area location being classified as Suburban:

- Base saturation flow rates for signalized intersections. The saturation flow rate was changed from the default value of 1900 to 1800 based on Exhibit 10-9.
- Critical and Follow-Up Gap times were adjusted relative to the difference between default and PA Default values contained in Exhibits 10-11 and 10-12. As requested by PennDOT, worksheets/tables showing how these values were calculated are included in **Appendix G**.
- Due to the HCM's inability to analyze asymmetrical intersections, such as Butler Pike/Campus Drive/Cold Point Hill Road, where the STOP control is not on opposing approaches, TPD analyzed this intersection as a T-intersection, with Butler Pike as the NB/SB approaches, and a combined volume to/from Campus Drive/Cold Point Hill Road as the WB STOP controlled approach.

In addition, capacity analyses were conducted at the Proposed School driveway intersection under the projected conditions. The capacity analysis worksheets are included in **Appendix H**.

PennDOT Requirements

PennDOT's *Policies and Procedures for Transportation Impact Studies*, found in PennDOT's Publication 282, Appendix A, dated July, 2017 contain the following criteria regarding levels of service:

- Page 29 of the Guidelines state that if evaluation of the With Development Horizon Year Scenario to the Without Development Horizon Year Scenario indicates that the overall intersection level of service has dropped, the applicant will be required to mitigate the level of service if the increase in overall intersection delay is greater than 10-seconds. If the overall intersection delay increase is less than or equal to 10-seconds, mitigation of the intersection will not be required.
- Page 29 of the Guidelines state that for mitigation scenarios, applicants are expected to mitigate the overall intersection LOS to the original Without Development LOS; the 10-second delay variance is not applied to mitigation scenarios. Applicants may be required to address available storage and queue lengths at critical movements or approaches even if the overall LOS requirements are met.
- Page 31 of the Guidelines state that if signalization is the preferred alternative for mitigation, overall intersection LOS C in rural areas and LOS D in urban areas is acceptable.
- Page 31 of the Guidelines states new signalized or unsignalized intersection established to serve as access to the development shall be designed to operate at minimum LOS C for rural areas, and minimum LOS D for urban areas.

Whitemarsh Township Requirements

As stated in the Whitemarsh Township SALDO, 105-21,(9),[6],[a], LOS requirements state that:

> *"All streets and/or intersections showing a level of service below C shall be considered deficient, and specific recommendations for the elimination of these problems shall be listed. This listing of recommended improvements shall include, but not be limited to the following elements: internal circulation design, site access location and design, external street and intersection design and improvements, traffic signal installation and operation, including signal timing, and transit design improvements."*

LEVELS OF SERVICE IN THE STUDY AREA

Level of service (LOS) matrices for the study area intersections are shown in **Table 9.**

TABLE 9
LEVEL OF SERVICE DELAY (SECONDS) SUMMARY

Intersection	Movement	Weekday AM Peak Hour				Weekday School PM Peak Hour				Weekday PM Peak Hour			
		2024	2029			2024	2029			2024	2029		
		Exist.	Base	Proj.	Proj.[1]	Exist.	Base	Proj.	Proj.[1]	Exist.	Base	Proj.	Proj.[1]
Butler Pike & Existing/Proposed Driveway (5200 Butler Pike)	WB LR	B	B	C	C	B	B	C	C	B	B	B	B
	SB L	A	A	B	B	A	A	B	B	A	A	A	A
	ILOS	**A (0.1)**	**A (0.1)**	**A (3.0)**	**A (2.9)**	**A (0.2)**	**A (0.2)**	**A (3.7)**	**A (3.7)**	**A (0.0)**	**A (0.0)**	**A (1.7)**	**A (1.7)**
Butler Pike & Existing Driveway (5140 Butler Pike)	WB LR	B	B	B	B	B	B	B	B	A	A	A	A
	SB L	A	A	A	A	A	A	A	A	A	A	A	A
	ILOS	**A (0.1)**	**A (0.1)**	**A (0.1)**	**A (0.1)**	**A (0.1)**	**A (0.1)**	**A (0.1)**	**A (0.1)**	**A (0.0)**	**A (0.0)**	**A (0.0)**	**A (0.0)**
Butler Pike & Township Line Road	EB LR	D (28.3)	D (29.9)	D (30.3)	D (30.3)	C	C	C	C	C	C	C	C
	NB L	B	B	B	B	A	A	A	A	A	A	A	A
	ILOS	**A (3.7)**	**A (3.8)**	**A (4.0)**	**A (4.0)**	**A (3.0)**	**A (3.1)**	**A (2.5)**	**A (2.5)**	**A (4.5)**	**A (4.6)**	**A (4.3)**	**A (4.3)**
Butler Pike & Cold Point Hill Road / Campus Drive	WB L	C	C (23.0)	D (25.7)	D (25.7)	B	B	B	B	B	B	B	B
	WB R	B	B	B	B	B	B	B	B	B	B	B	B
	SB L	A	A	A	A	A	A	A	A	A	A	A	A
	ILOS	**A (4.7)**	**A (4.9)**	**A (5.2)**	**A (5.2)**	**A (1.1)**	**A (1.2)**	**A (1.3)**	**A (1.3)**	**A (1.3)**	**A (1.3)**	**A (1.4)**	**A (1.4)**

Exist. = Existing Condition, Base = No-Build scenario, Proj = Build scenario
1 = With improvements

PennDOT Standards

As shown in **Table 9**, under all projected (build) conditions with the development of the proposed site and with site-related recommendations, all study area intersections will satisfy PennDOT ILOS Standards. Additionally, the Proposed Driveway intersection will operate at **ILOS A** and all movements will operate at **LOS C** or better.

Whitemarsh Township Standards

As shown in **Table 9**, under all projected (build) conditions with the development of the proposed site and with site-related recommendations, all study area intersections will satisfy Township LOS Standards except for the following:

- Butler Pike & Township Line Road - EB approach will continue to operate at LOS D under 2029 Projected Conditions during the weekday A.M. peak hour. Although considered deficient based on Township Standards, the EB approach operates at LOS D under Existing Conditions. It is TPD's opinion, signalization and/or an additional northbound left turn lane would be the most obvious improvement at the intersection. In addition, based on a review of the traffic volumes at the intersection, it is TPD's opinion that both improvements may be warranted under Existing Conditions. However, based on the results of the analysis, the need for these improvements is not increased, as the LOS remains the same with or without the Proposed Site. Therefore, TPD has not proposed any improvements to this intersection in conjunction with the subject development.
- Butler Pike & Cold Point Hill Road - WB approach will operate at LOS D under 2029 Projected Conditions during the weekday A.M. peak hour. Although considered deficient based on Township Standards, as stated previously in the TIS, the WB approach analysis is conservative, as it is an analysis of the NB and WB approaches combined. It is TPD's opinion, signalization would be the most

obvious improvement at the intersection. However, based on a review of the traffic volumes at the intersection, it is TPD's opinion that sufficient Signal Warrants would not be satisfied. Therefore, TPD has not proposed any improvements to this intersection in conjunction with the subject development.

95TH PERCENTILE QUEUE ANALYSIS

Queue analyses were conducted at the study area intersections using *Synchro 11* software. For this analysis, the 95th percentile queue is defined as the queue length that is exceeded in 5% of the signal cycles. As an example, for a signal with a 90-second cycle, this means that the 95th percentile queue length will be exceeded during 2 of the 40 signal cycles that occur during the peak hour. The queue analysis results are summarized in **Table 10**.

TABLE 10
95TH PERCENTILE QUEUE ANALYSIS (FEET)

Intersection	Movement	Weekday AM Peak Hour				Weekday School PM Peak Hour				Weekday PM Peak Hour			
		2024	2029			2024	2029			2024	2029		
		Exist.	Base	Proj.	Proj.[1]	Exist.	Base	Proj.	Proj.[1]	Exist.	Base	Proj.	Proj.[1]
Butler Pike & Existing/Proposed Driveway (5200 Butler Pike)	WB LR	<25'	<25'	30'	28'	<25'	<25'	43'	43'	<25'	<25'	<25'	<25'
	SB L	<25'	<25'	<25'	<25'	<25'	<25'	<25'	<25'	<25'	<25'	<25'	<25'
Butler Pike & Existing Driveway (5140 Butler Pike)	WB LR	<25'	<25'	<25'	<25'	<25'	<25'	<25'	<25'	<25'	<25'	<25'	<25'
	SB L	<25'	<25'	<25'	<25'	<25'	<25'	<25'	<25'	<25'	<25'	<25'	<25'
Butler Pike & Township Line Road	EB LR	58'	60'	68'	68'	35'	35'	25'	25'	58'	60'	58'	58'
	NB L	<25'	<25'	<25'	<25'	<25'	<25'	<25'	<25'	<25'	<25'	<25'	<25'
Butler Pike & Cold Point Hill Road / Campus Drive	WB L	58'	63'	70'	70'	<25'	<25'	<25'	<25'	<25'	<25'	<25'	<25'
	WB R	<25'	<25'	<25'	<25'	<25'	<25'	<25'	<25'	<25'	<25'	<25'	<25'
	SB L	<25'	<25'	<25'	<25'	<25'	<25'	<25'	<25'	<25'	<25'	<25'	<25'

Exist. = Existing Condition, Base = No-Build scenario, Proj = Build scenario
1 = With improvements

Queue analysis is included with the capacity analysis worksheets provided in the **Appendix H**.

AUXILIARY TURN LANE ANALYSIS

Methodology

TPD evaluated auxiliary turn lane warrants at the site access intersection. The warrant analysis methodology contained within Chapter 11 of PennDOT's *Publication 46*, Section 11.17 and Strike-Off Letter 470-08-07 was utilized for this evaluation.

Findings

Table 11 summarizes the results of the auxiliary turn lane analysis at the site access intersection.

TABLE 11
AUXILIARY TURN LANE ANALYSIS SUMMARY

Intersection	Auxiliary Lane	Warranted Length	Proposed Length
Butler Pike & Existing/Proposed Driveway	SB Left-Turn Lane	100′	0′
	NB Right-Turn Lane	--	--

As shown in **Table 11**, a 100′ left turn lane is warranted on the southbound approach to the site driveway. ***However, it is TPD's opinion the dedicated left turn lane is not needed for the following reasons:***

- ***The Proposed Site Driveway will operate at ILOS A and the egress movement will operate LOS C or better without the provision of the Southbound left-turn lane. Therefore, the lane will not provide a significant improvement to operation.***
- ***The Southbound Left Turn queue will be no longer than one (1) vehicle <u>without</u> the provision of the Southbound left-turn lane, which is evidence that significant gaps in traffic exist. Therefore, the lane will not provide a significant improvement to queueing.***
- ***The peak demand for the left-turn ingress occurs over a short 15-20 minute time period during the weekday peak time periods. Therefore, it is TPD's opinion that the provision of this lane for the purpose of serving 30-40 minutes of daily benefits during the school year (180 days) is unnecessary given the results of the analyses completed.***
- ***The provision of this lane would impact several existing structures, several utility poles, existing residential driveways on the north side of Butler Pike and several mature trees within the ROW.***

The calculations for the auxiliary turn lane warrants are included in **Appendix I**.

RECOMMENDATIONS & CONCLUSIONS

The recommendations and conclusions are provided in the Executive Summary section of this document.

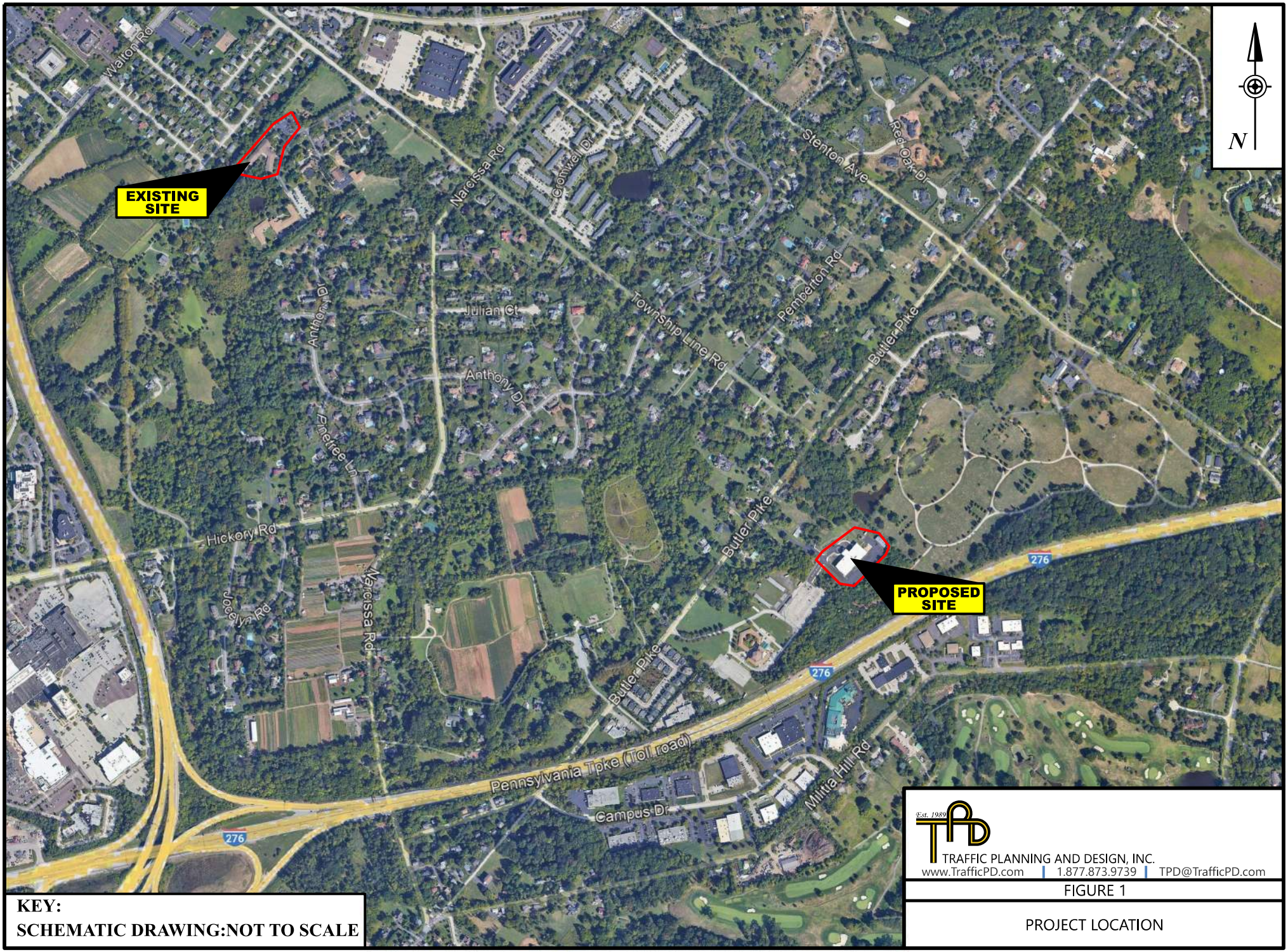

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FIGURE 1

PROJECT LOCATION

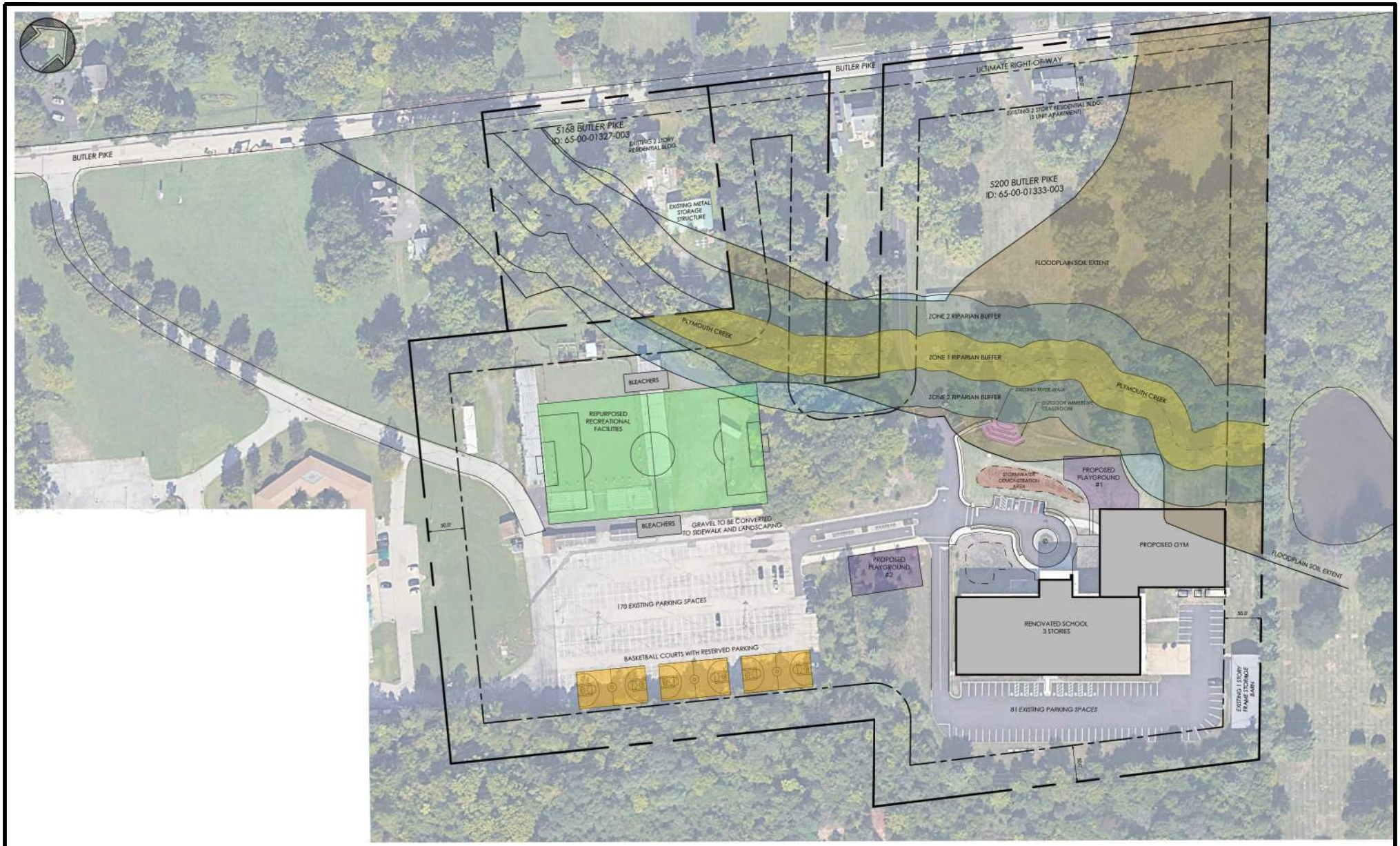

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FIGURE 2

SITE PLAN

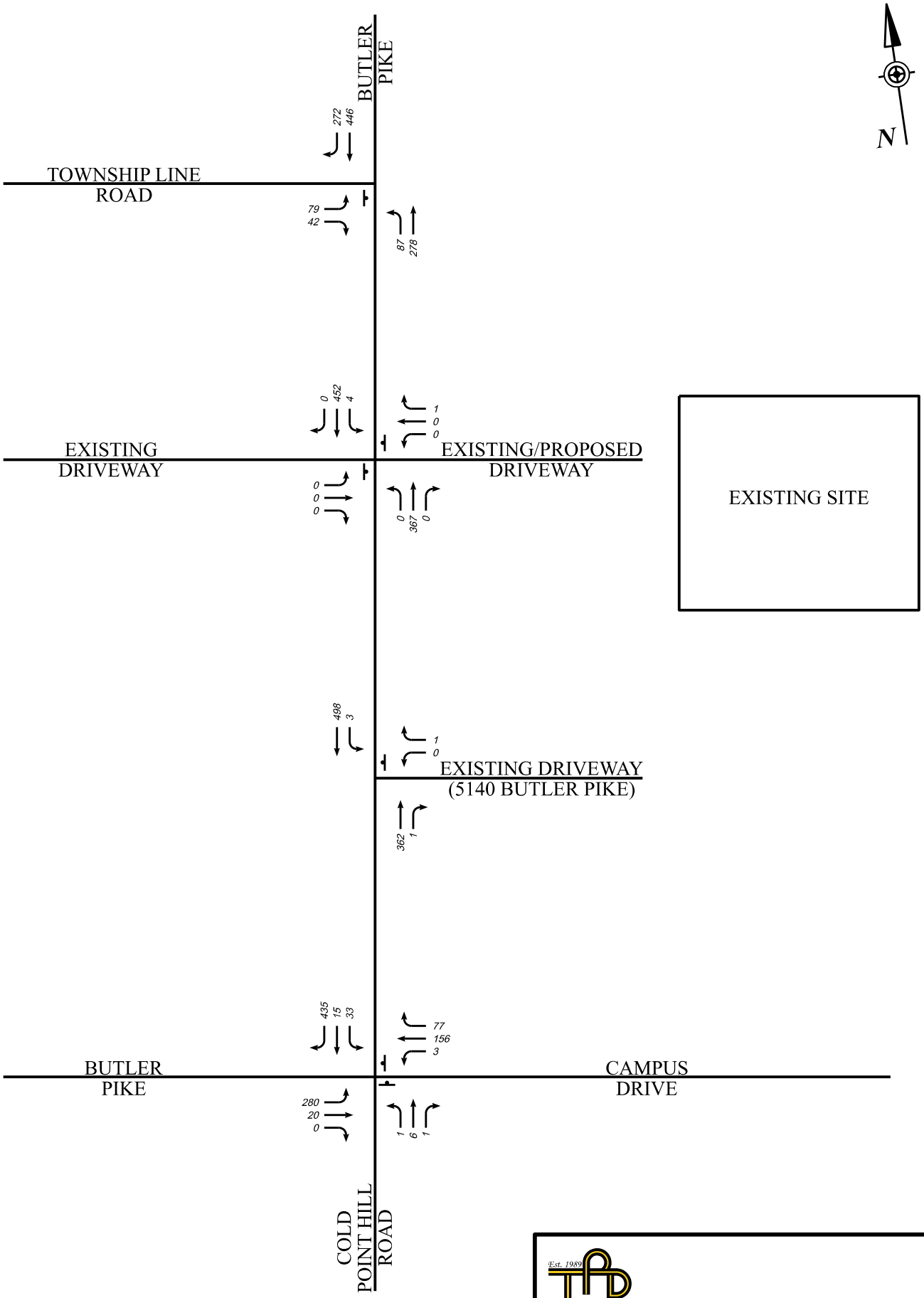

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FIGURE 3

2024 EXISTING CONDITIONS
WEEKDAY A.M. PEAK HOUR
VEHICULAR TRAFFIC VOLUMES

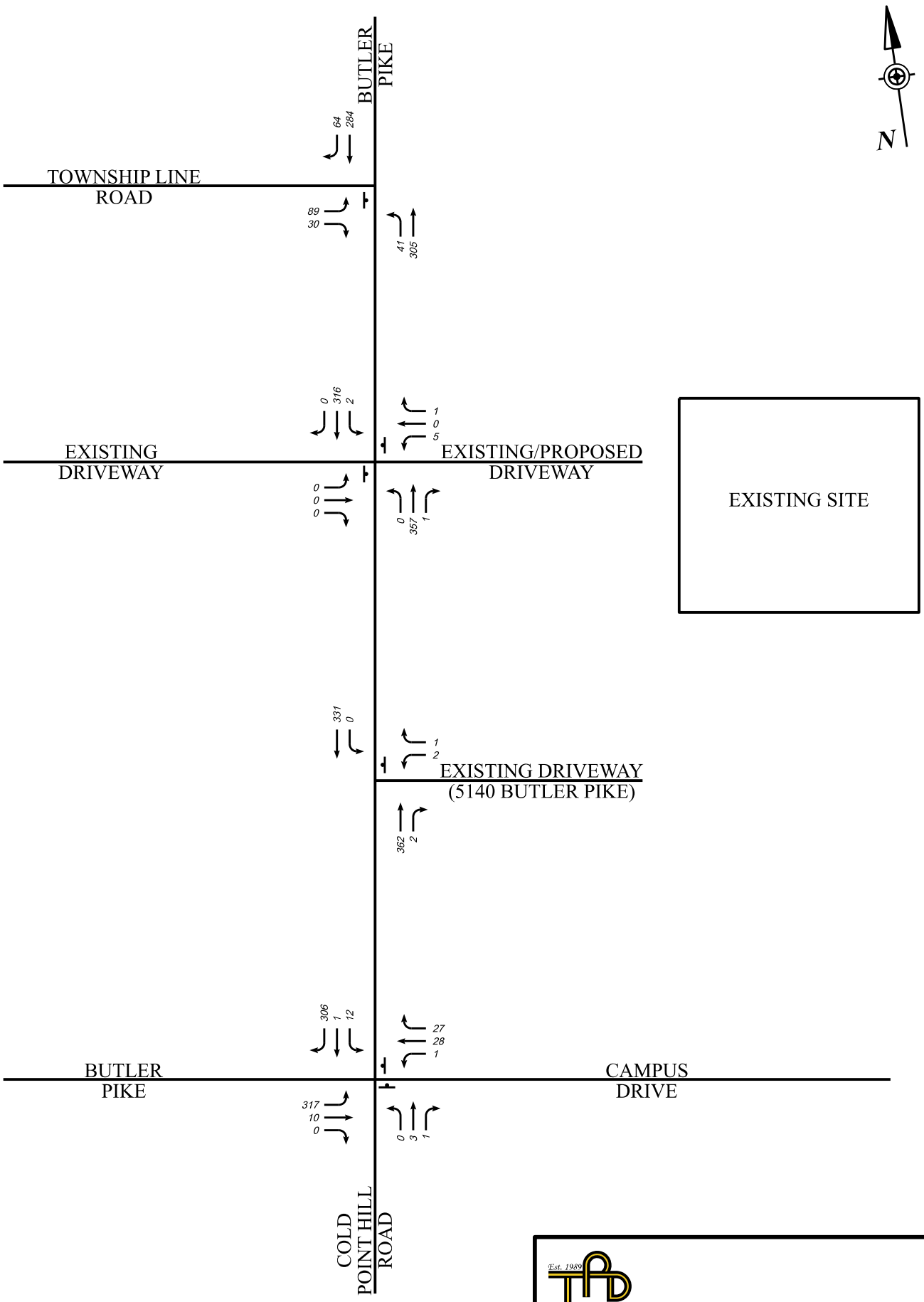

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FIGURE 4

2024 EXISTING CONDITIONS
WEEKDAY SCHOOL P.M. PEAK HOUR
VEHICULAR TRAFFIC VOLUMES

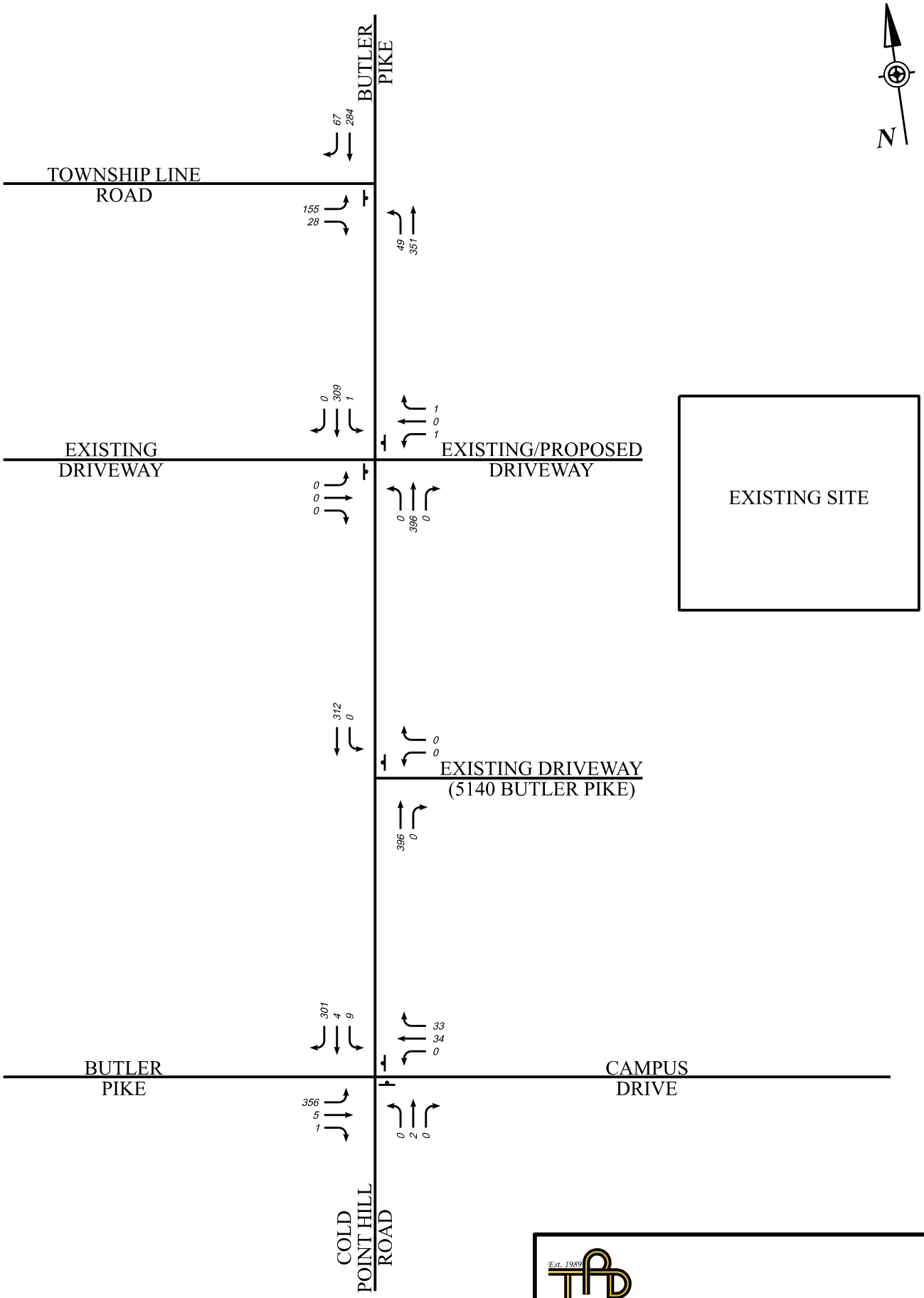

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FIGURE 5

2024 EXISTING CONDITIONS
WEEKDAY P.M. PEAK HOUR
VEHICULAR TRAFFIC VOLUMES

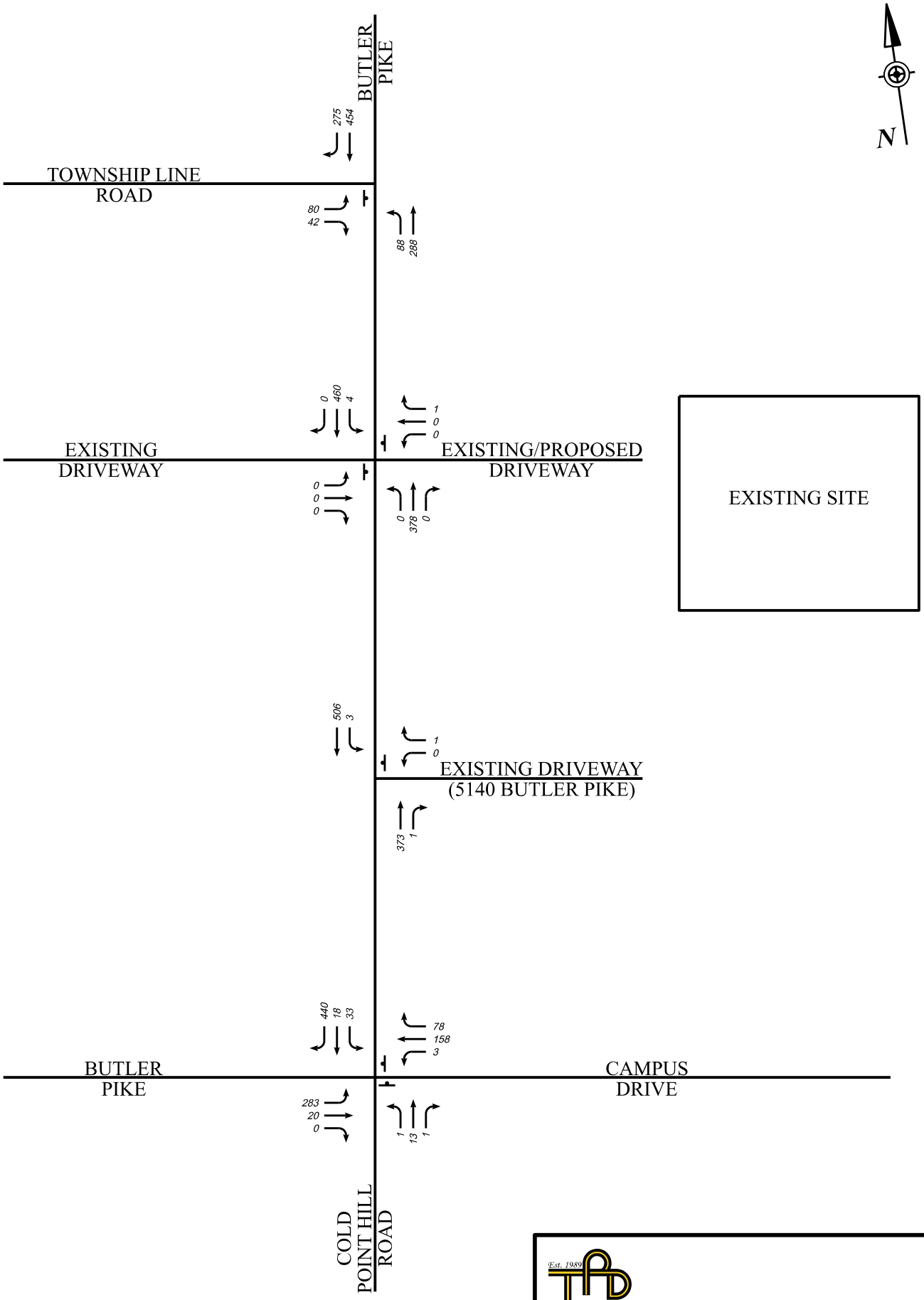

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FIGURE 6

2029 BASE (NO-BUILD) CONDITIONS
WEEKDAY A.M. PEAK HOUR
VEHICULAR TRAFFIC VOLUMES

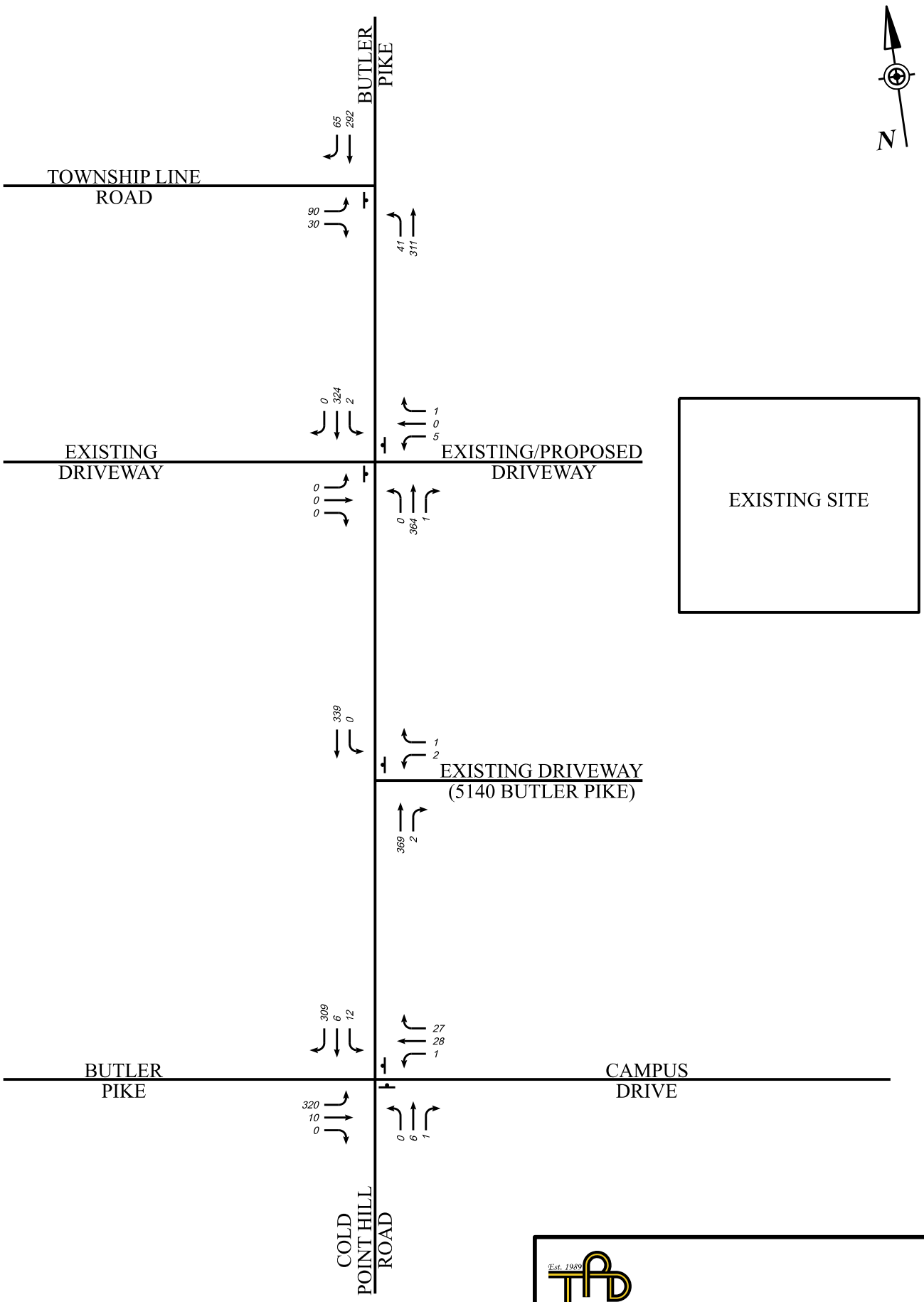

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FIGURE 7

2029 BASE (NO-BUILD) CONDITIONS
WEEKDAY SCHOOL P.M. PEAK HOUR
VEHICULAR TRAFFIC VOLUMES

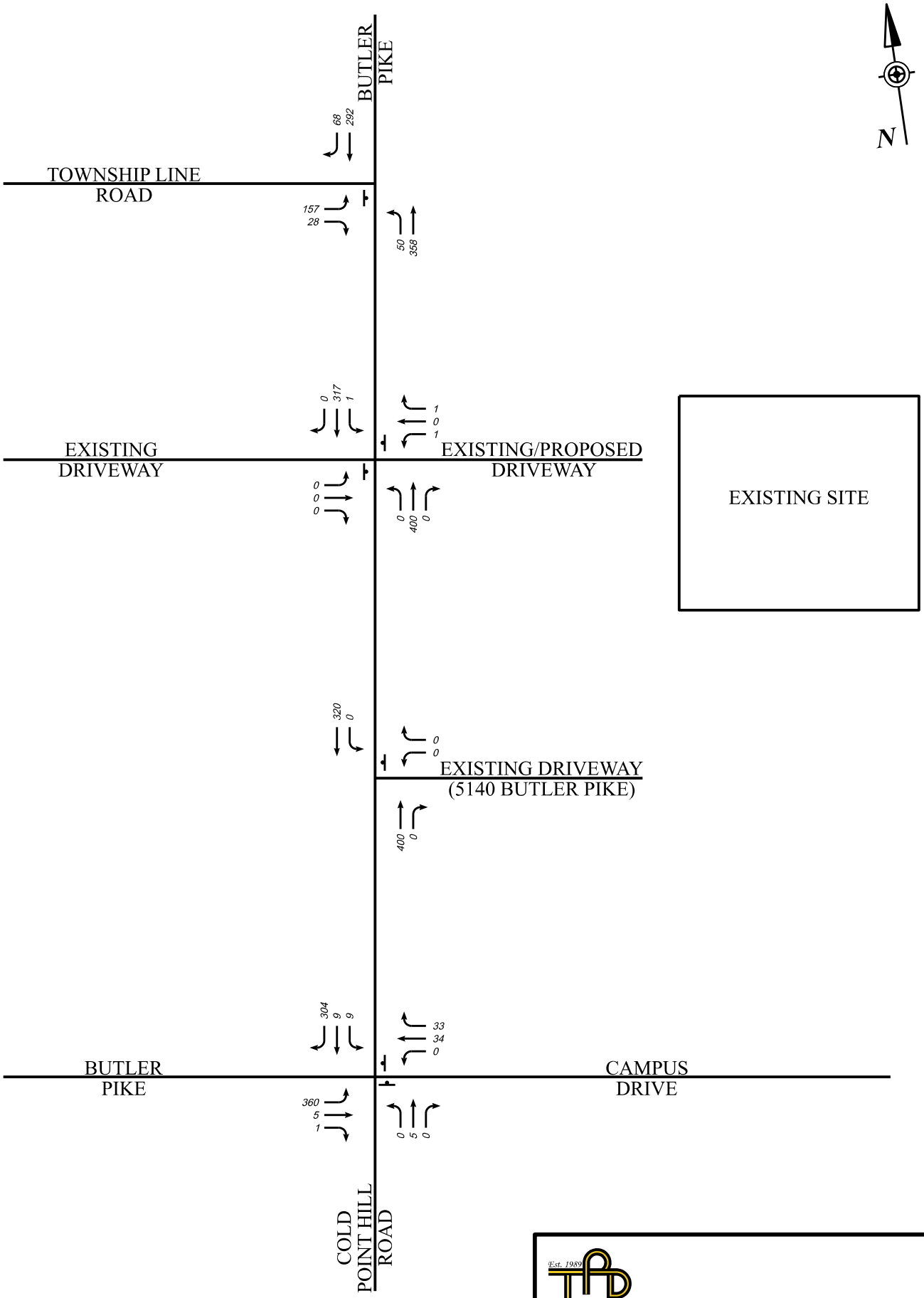

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FIGURE 8

2029 BASE (NO-BUILD) CONDITIONS
WEEKDAY P.M. PEAK HOUR
VEHICULAR TRAFFIC VOLUMES

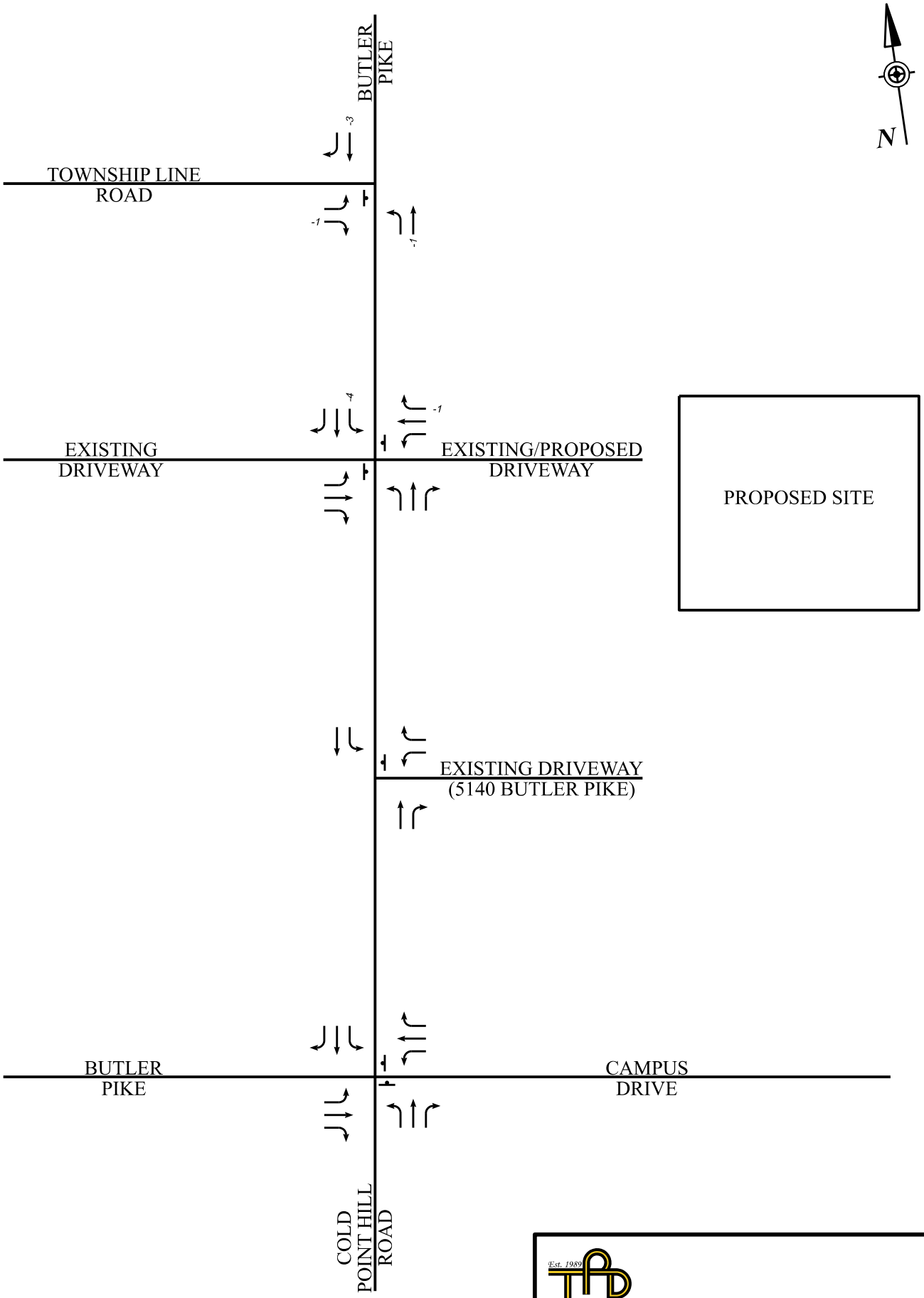

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FIGURE 9

EXISTING 5200 BUTLER PIKE REDISTRIBUTION
WEEKDAY A.M. PEAK HOUR
VEHICULAR TRIPS

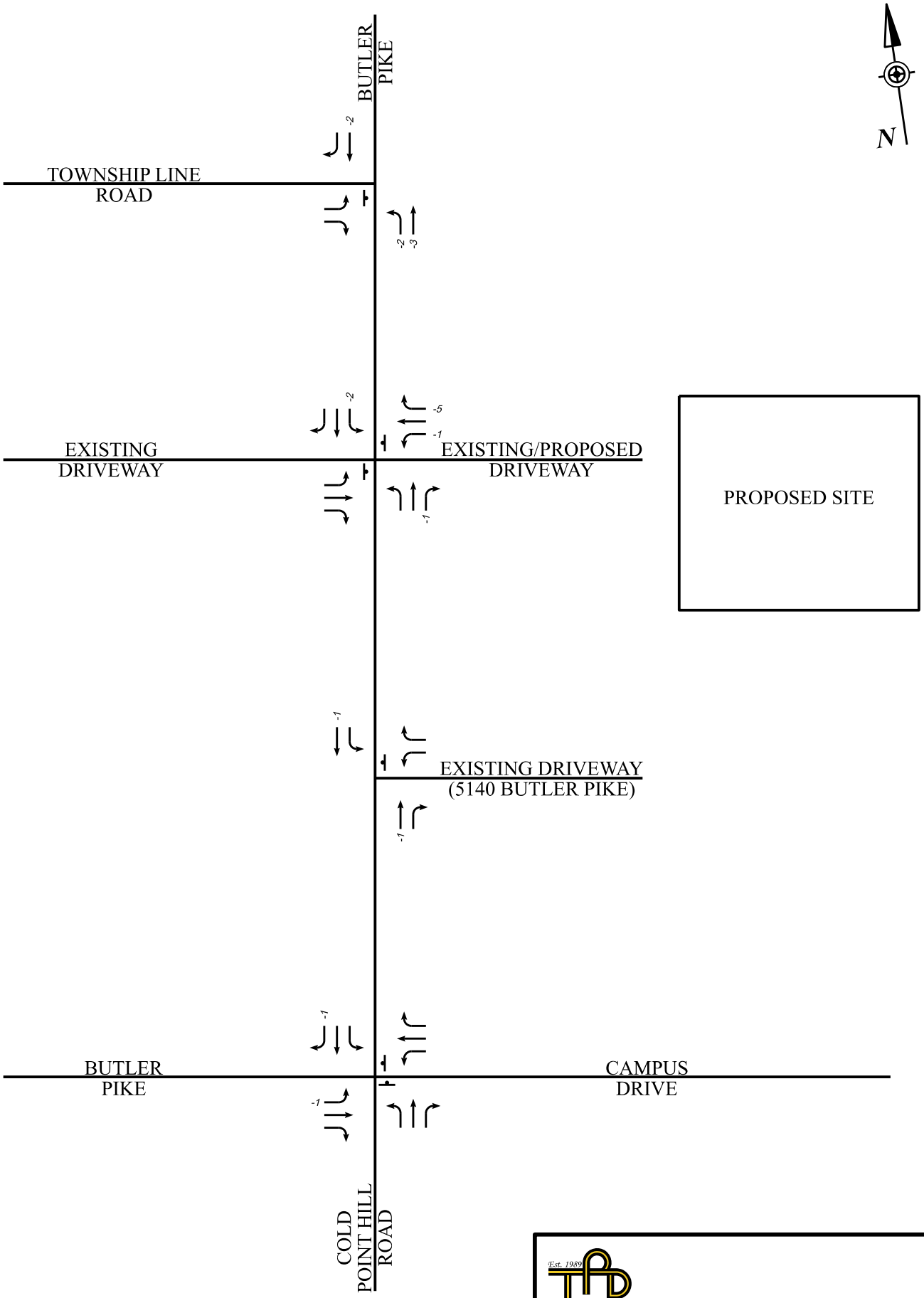

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FIGURE 10

EXISTING 5200 BUTLER PIKE REDISTRIBUTION
WEEKDAY SCHOOL P.M. PEAK HOUR
VEHICULAR TRIPS

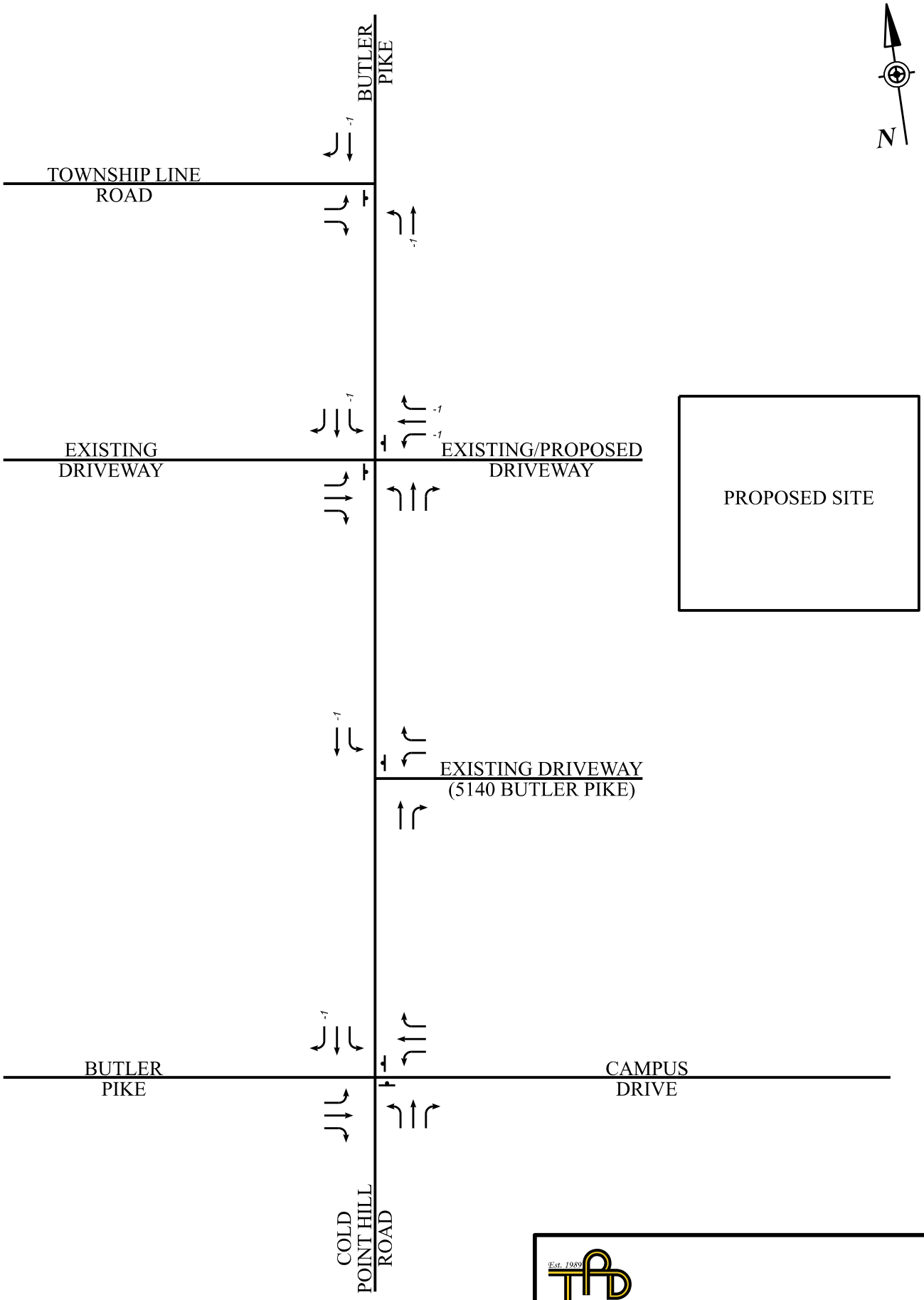

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FIGURE 11

EXISTING 5200 BUTLER PIKE REDISTRIBUTION
WEEKDAY P.M. PEAK HOUR
VEHICULAR TRIPS

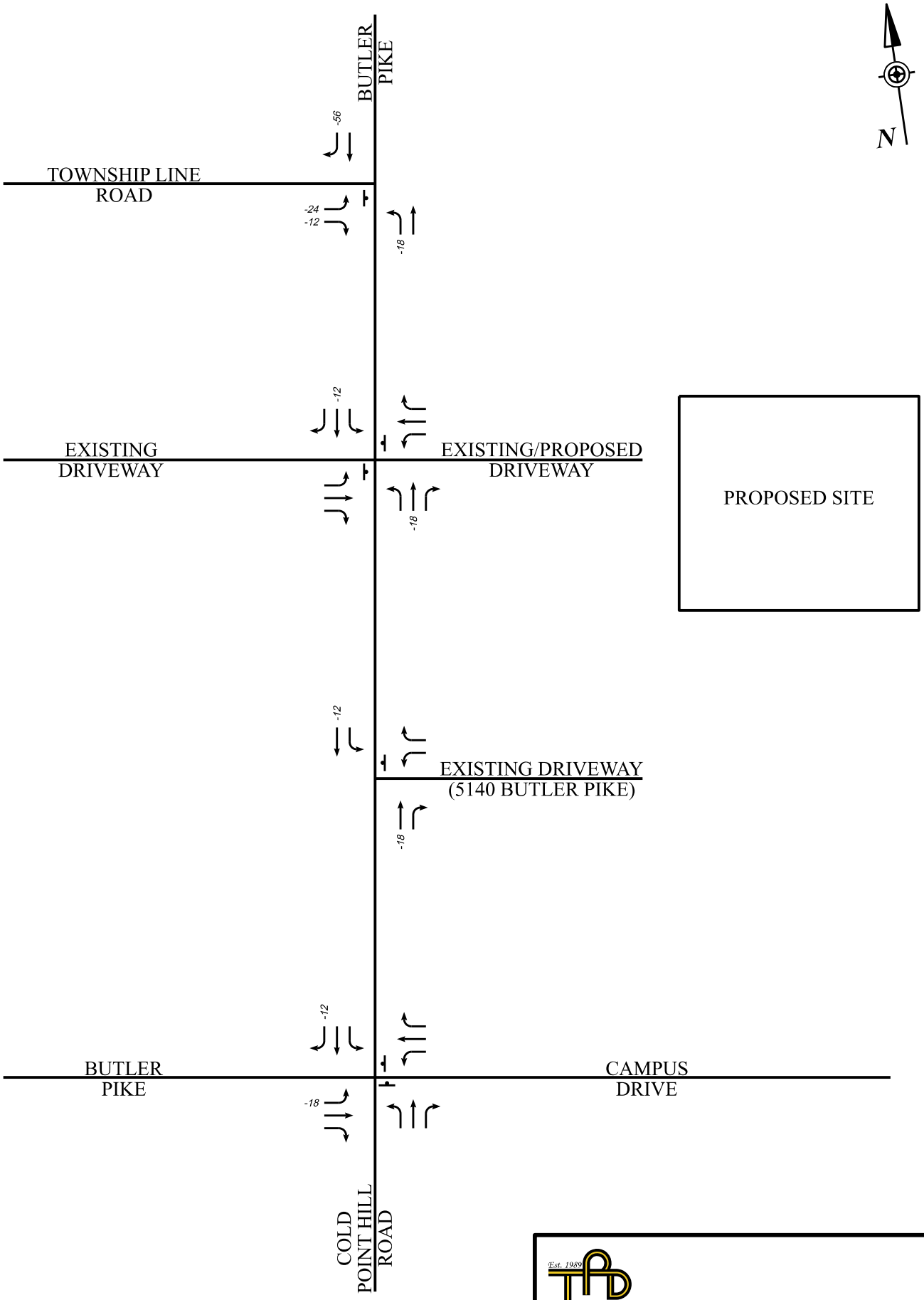

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FIGURE 12

EXISTING SCHOOL REDISTRIBUTION
WEEKDAY A.M. PEAK HOUR
VEHICULAR TRIPS

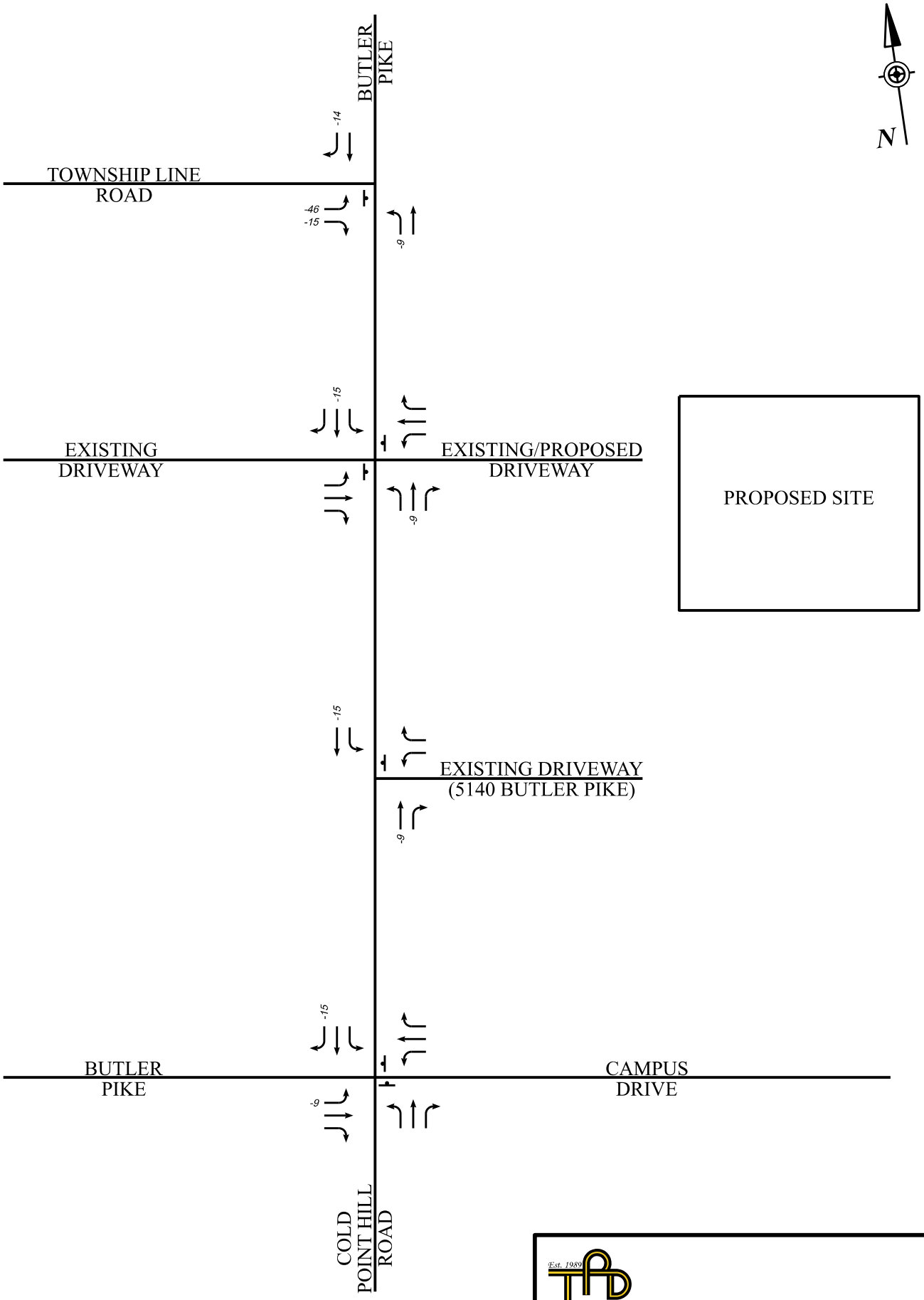

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FIGURE 13

EXISTING SCHOOL REDISTRIBUTION
WEEKDAY SCHOOL P.M. PEAK HOUR
VEHICULAR TRIPS

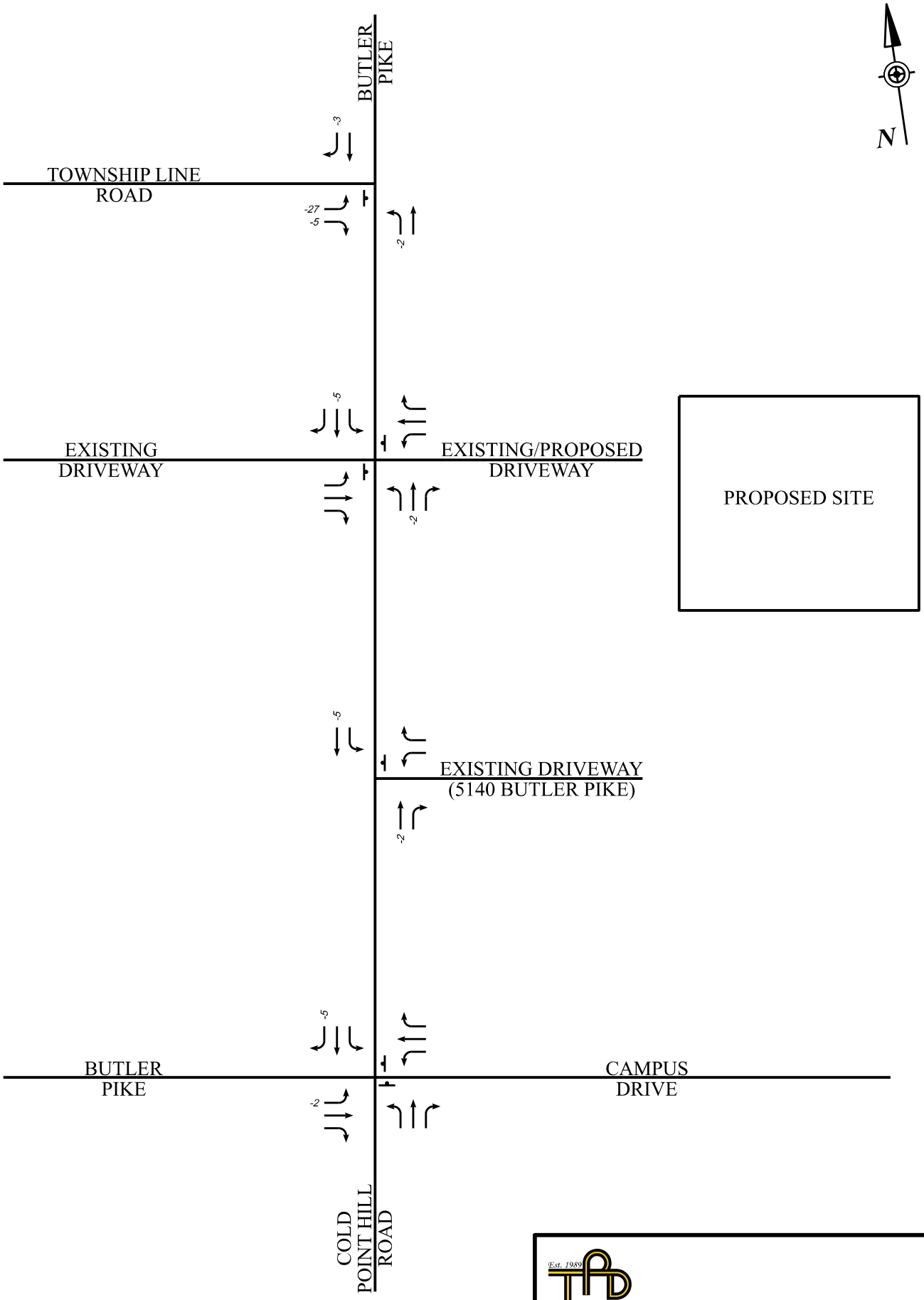

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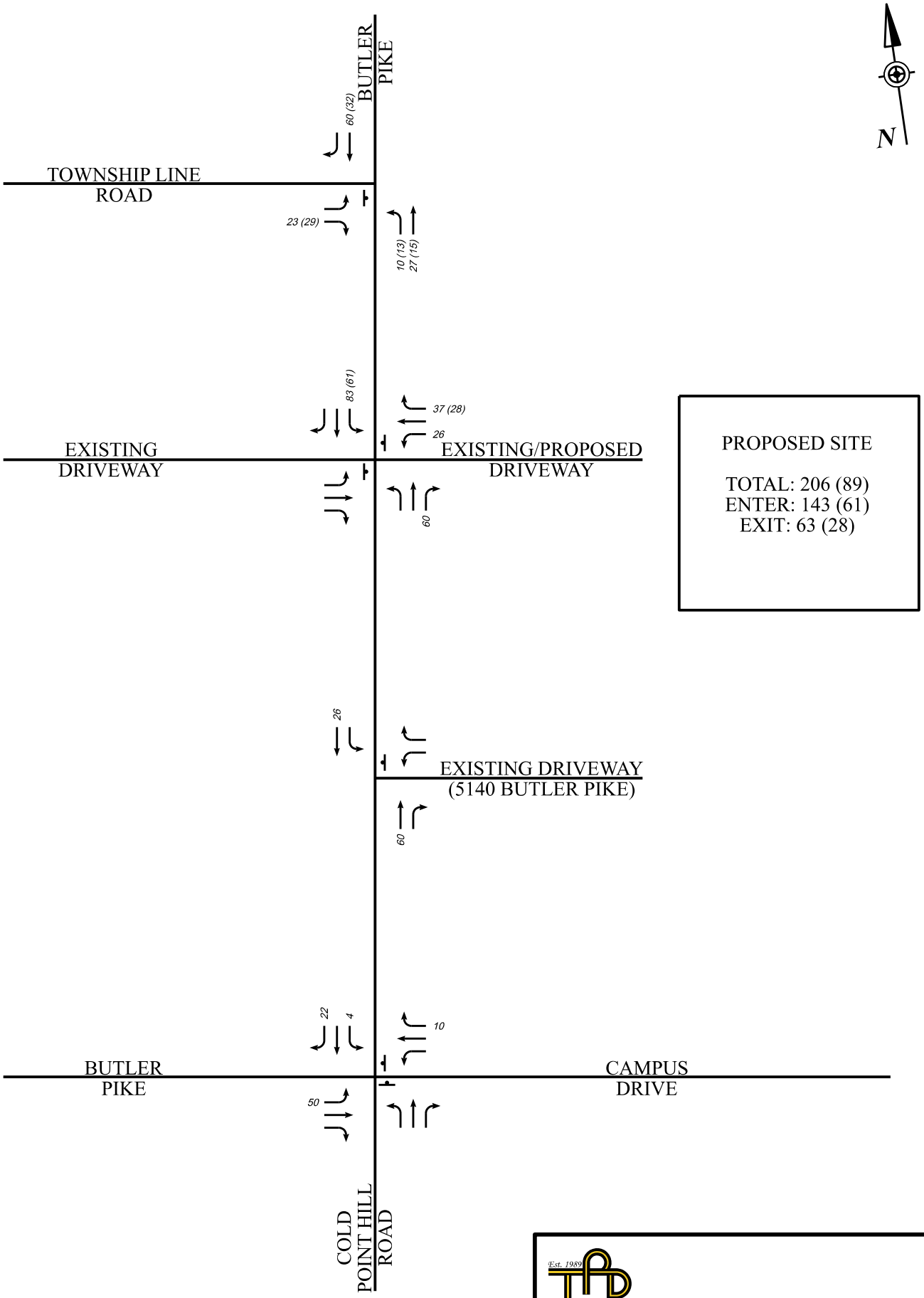
FIGURE 14

EXISTING SCHOOL REDISTRIBUTION
WEEKDAY P.M. PEAK HOUR
VEHICULAR TRIPS



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XX (XX) - PASSENGER (BUS) VEHICLES

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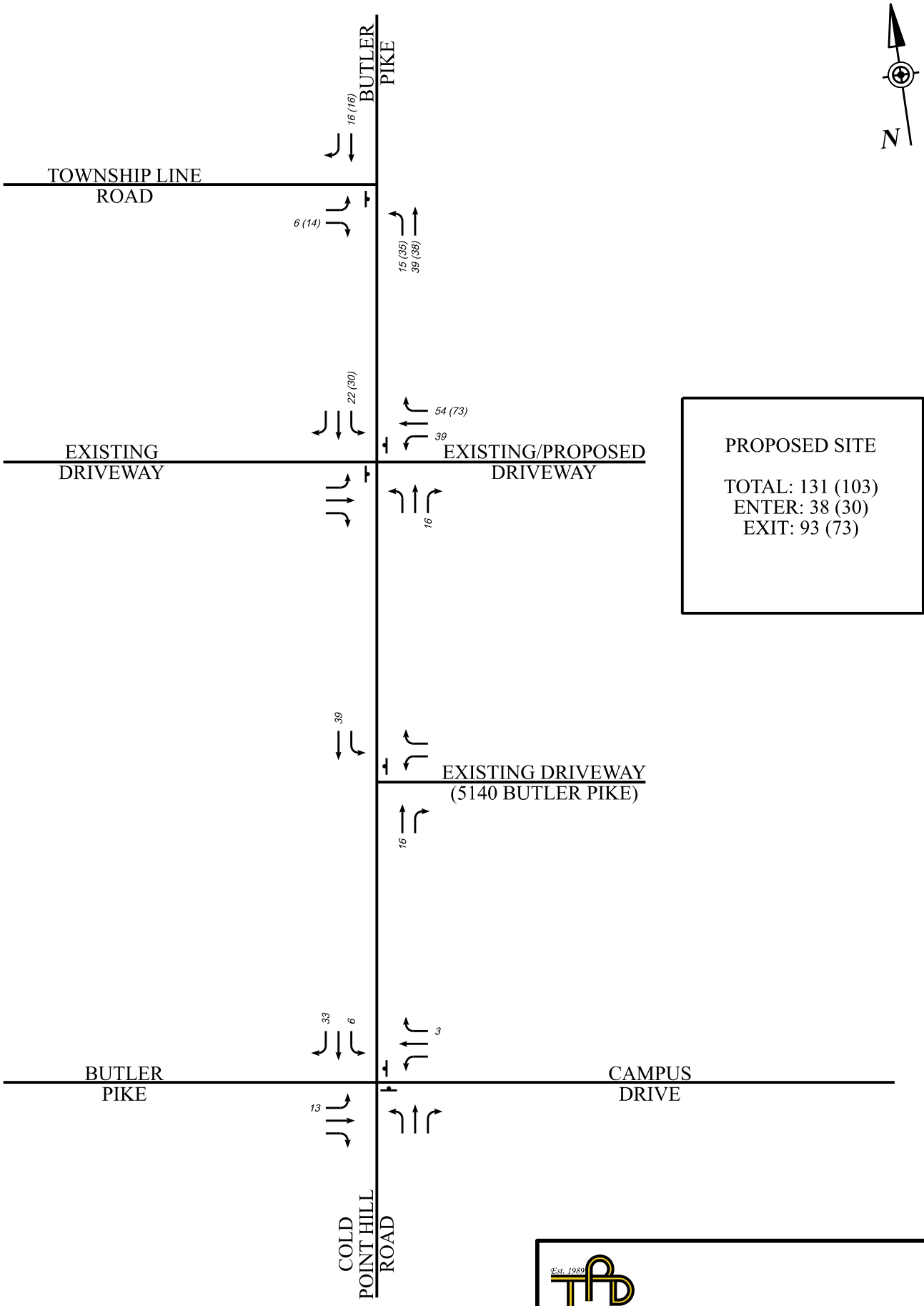
FIGURE 15

TRIP DISTRIBUTION
WEEKDAY A.M. PEAK HOUR
VEHICULAR TRIPS
PASSENGER (BUS) VEHICLES



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SCHEMATIC DRAWING:NOT TO SCALE

XX (XX) - PASSENGER (BUS) VEHICLES

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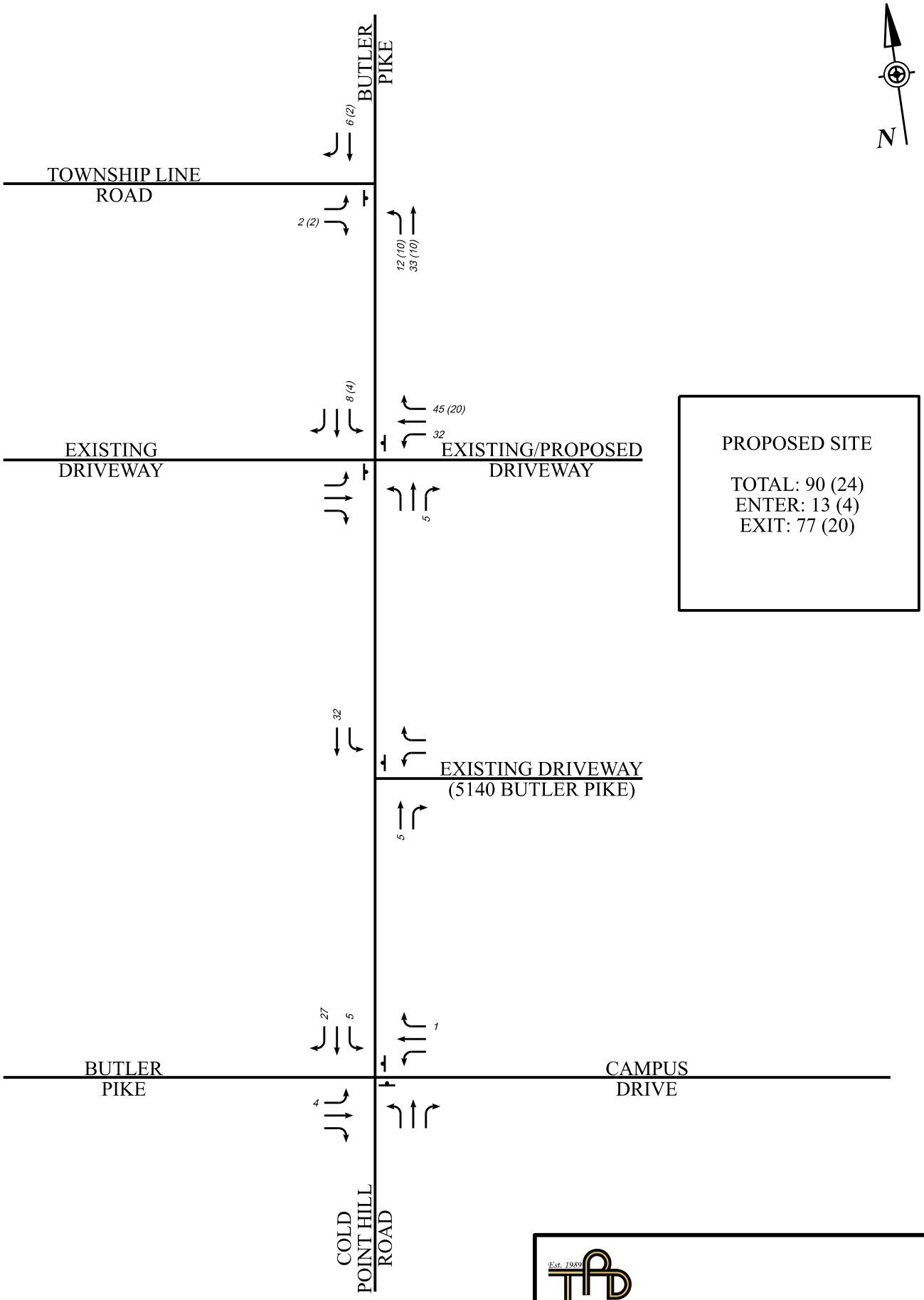
FIGURE 16

TRIP DISTRIBUTION
WEEKDAY SCHOOL P.M. PEAK HOUR
VEHICULAR TRIPS
PASSENGER (BUS) VEHICLES



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SCHEMATIC DRAWING:NOT TO SCALE

XX (XX) - PASSENGER (BUS) VEHICLES

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FIGURE 17

TRIP DISTRIBUTION
WEEKDAY P.M. PEAK HOUR
VEHICULAR TRIPS
PASSENGER (BUS) VEHICLES

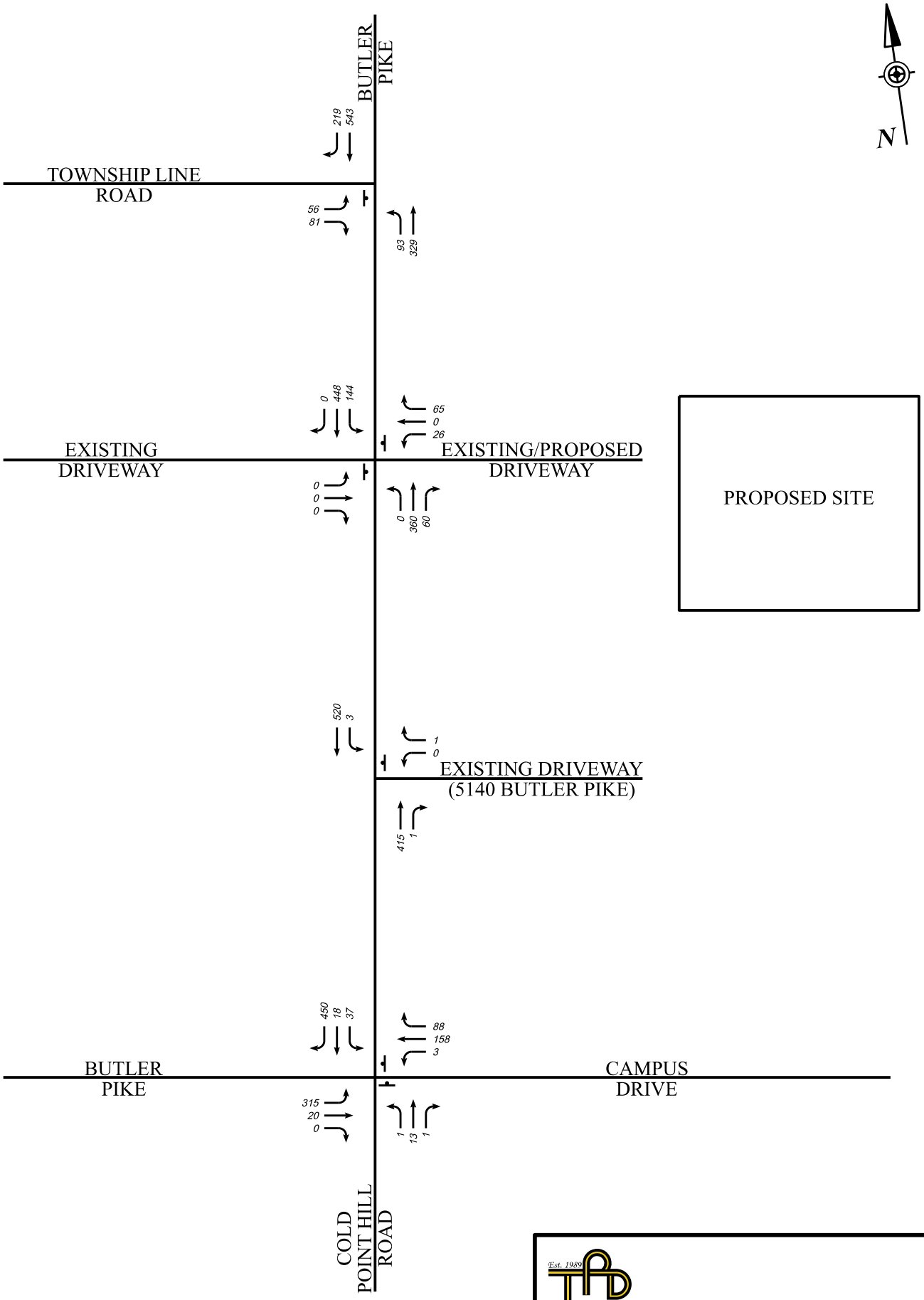

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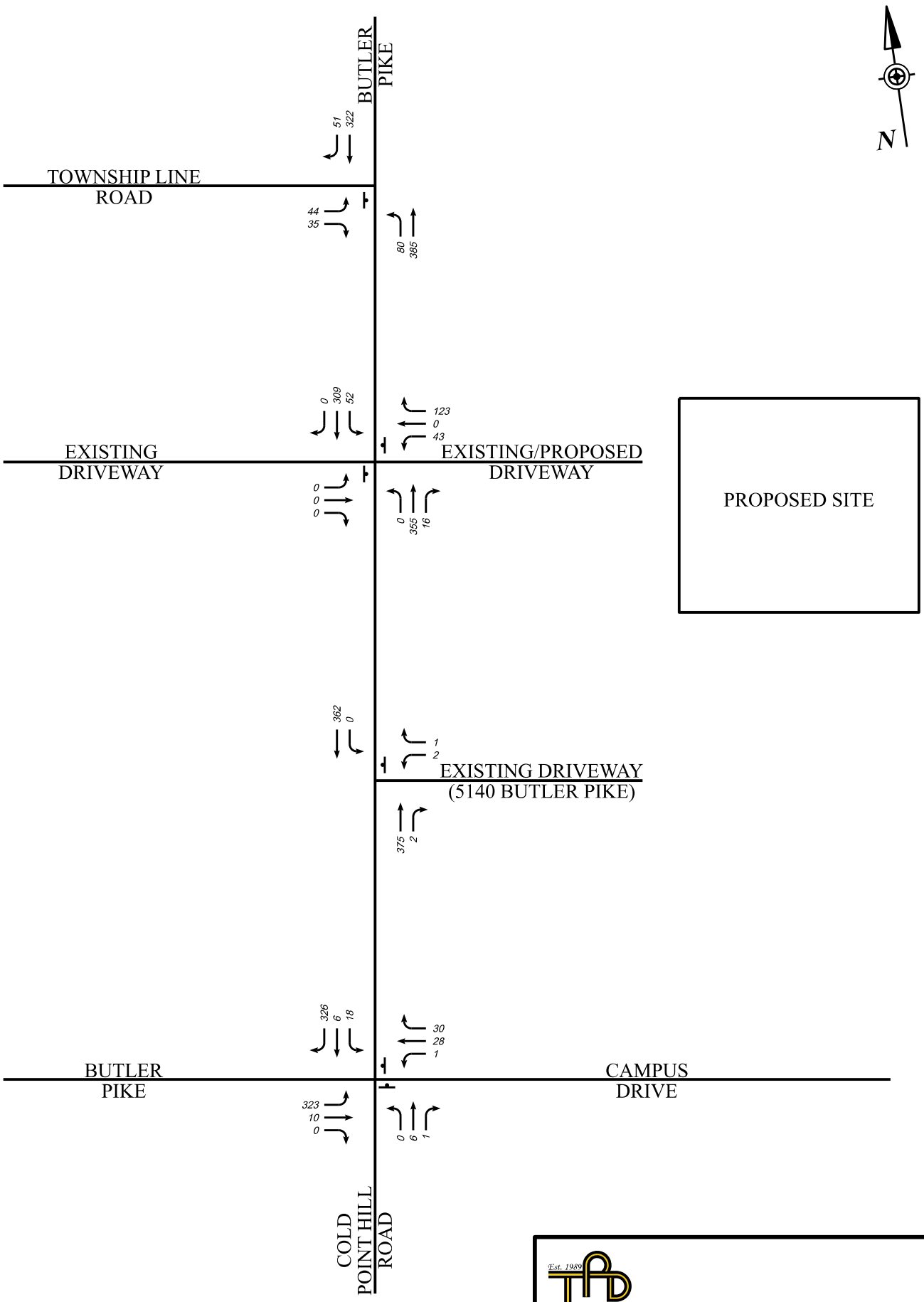
FIGURE 18

2029 PROJECTED (BUILD) CONDITIONS
WEEKDAY A.M. PEAK HOUR
VEHICULAR TRAFFIC VOLUMES



KEY:

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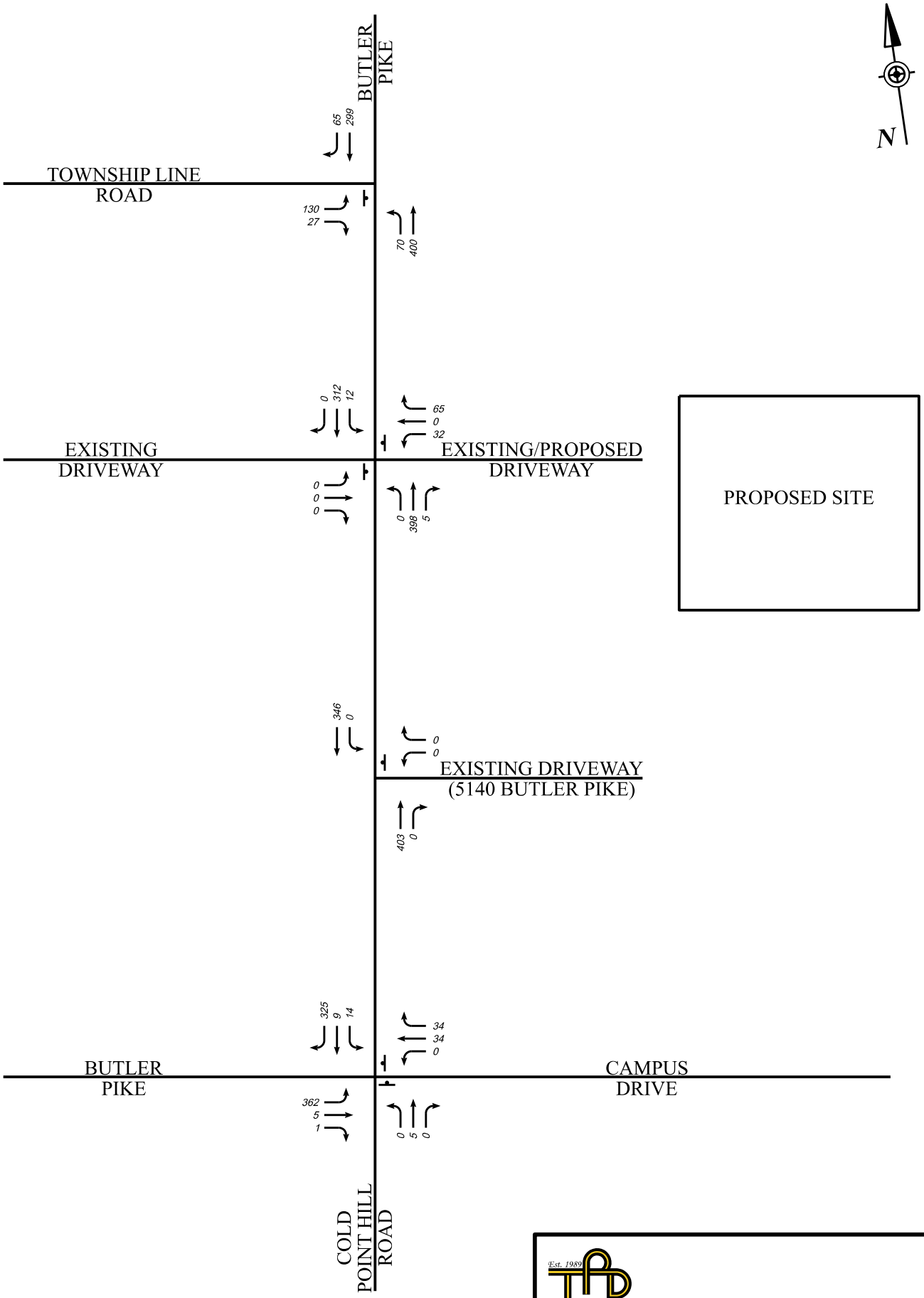
FIGURE 19

2029 PROJECTED (BUILD) CONDITIONS
WEEKDAY SCHOOL P.M. PEAK HOUR
VEHICULAR TRAFFIC VOLUMES



KEY:

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FIGURE 20

2029 PROJECTED (BUILD) CONDITIONS
WEEKDAY P.M. PEAK HOUR
VEHICULAR TRAFFIC VOLUMES

APPENDIX A

Study Area Photographs

Job #: GEMS.00001 *Date Taken:* 5/8/2024 *Intersection Of:* Butler Pike & Existing DW 5200 Butler Pike

Direction / Road: **Wb. Existing DW**
Approach / Departure: Approach
Distance: 50 feet

Direction / Road: **Wb. Existing DW**
Approach / Departure: Approach
Distance: 200 Feet

Job #: GEMS.00001 *Date Taken:* 5/8/2024 *Intersection Of:* Butler Pike & Existing DW 5200 Butler Pike

Direction / Road:	**Nb. Butler Pike**
Approach / Departure:	Approach
Distance:	50 feet

Direction / Road:	**Nb. Butler Pike**
Approach / Departure:	Approach
Distance:	200 Feet

Job #: GEMS.00001 *Date Taken:* 5/8/2024 *Intersection Of:* Butler Pike & Existing DW 5200 Butler Pike

Direction / Road: **Sb. Butler Pike**
Approach / Departure: Approach
Distance: 50 feet

Direction / Road: **Sb. Butler Pike**
Approach / Departure: Approach
Distance: 200 Feet

Job #: GEMS.00001 *Date Taken:* 5/8/2024 *Intersection Of:* Butler Pike & Existing DW 5140 Butler Pike

Direction / Road: **Wb. Existing DW**
Approach / Departure: Approach
Distance: 50 feet

Direction / Road: **Wb. Existing DW**
Approach / Departure: Approach
Distance: 200 Feet

Job #: GEMS.00001 *Date Taken:* 5/8/2024 *Intersection Of:* Butler Pike & Existing DW 5140 Butler Pike

Direction / Road: **Nb. Butler Pike**
Approach / Departure: Approach
Distance: 50 feet

Direction / Road: **Nb. Butler Pike**
Approach / Departure: Approach
Distance: 200 Feet

Job #: GEMS.00001 *Date Taken:* 5/8/2024 *Intersection Of:* Butler Pike & Existing DW 5140 Butler Pike

Direction / Road: **Sb. Butler Pike**
Approach / Departure: Approach
Distance: 50 feet

Direction / Road: **Sb. Butler Pike**
Approach / Departure: Approach
Distance: 200 Feet

Job #: GEMS.00001 *Date Taken:* 5/8/2024 *Intersection Of:* Butler Pike & Township Line Road

Direction / Road: **Eb. Township Line Rd**
Approach / Departure: Approach
Distance: 50 feet

Direction / Road: **Eb. Township Line Rd**
Approach / Departure: Approach
Distance: 200 Feet

Job #: GEMS.00001 *Date Taken:* 5/8/2024 *Intersection Of:* Butler Pike & Township Line Road

Direction / Road: **Nb. Butler Pike**
Approach / Departure: Approach
Distance: 50 feet

Direction / Road: **Nb. Butler Pike**
Approach / Departure: Approach
Distance: 200 Feet

Job #: GEMS.00001 *Date Taken:* 5/8/2024 *Intersection Of:* Butler Pike & Township Line Road

Direction / Road: **Sb. Butler Pike**
Approach / Departure: Approach
Distance: 50 feet

Direction / Road: **Sb. Butler Pike**
Approach / Departure: Approach
Distance: 200 Feet

Job #:	GEMS.00001	Date Taken:	5/8/2024	Intersection Of:	Butler Pike- Cold Point Hill Rd & Butler Pike- Cold Point Hill Rd

Direction / Road:	**Nb. Cold Point Hill Rd**
Approach / Departure:	Approach
Distance:	50 feet

Direction / Road:	**Nb. Cold Point Hill Rd**
Approach / Departure:	Approach
Distance:	200 Feet

Job #:	GEMS.00001	Date Taken:	5/8/2024	Intersection Of:	Butler Pike- Cold Point Hill Rd & Butler Pike- Cold Point Hill Rd

Direction / Road: **Sb. Butler Pike**
Approach / Departure: Approach
Distance: 50 feet

Direction / Road: **Sb. Butler Pike**
Approach / Departure: Approach
Distance: 200 Feet

Job #: GEMS.00001 *Date Taken:* 5/8/2024 *Intersection Of:* Butler Pike- Cold Point Hill Rd & Butler Pike- Cold Point Hill Rd

Direction / Road: **Eb. Butler Pike**
Approach / Departure: Approach
Distance: 50 feet

Direction / Road: **Eb. Butler Pike**
Approach / Departure: Approach
Distance: 200 Feet

Job #: GEMS.00001 *Date Taken:* 5/8/2024 *Intersection Of:* Butler Pike- Cold Point Hill Rd & Butler Pike- Cold Point Hill Rd

Direction / Road: **Wb. Campus Dr**
Approach / Departure: Approach
Distance: 50 feet

Direction / Road: **Wb. Campus Dr**
Approach / Departure: Approach
Distance: 200 Feet

APPENDIX B

Manual Traffic Counts

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 1 Bulter Pike & Existing DW (5200 Butler Pk)
Site Code:
Start Date: 04/30/2024

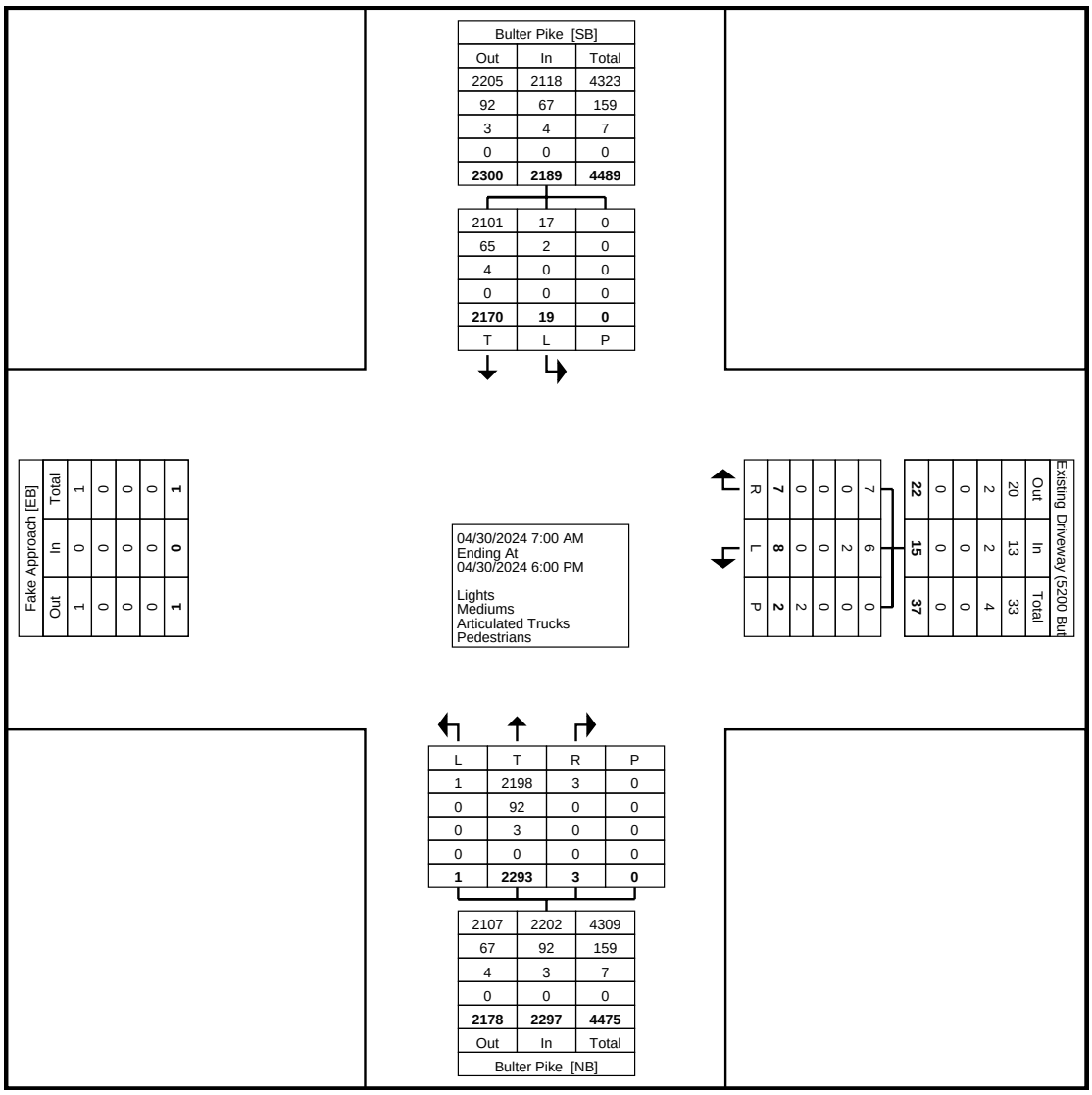
Turning Movement Data

Start Time	Existing Driveway (5200 Butler Pk) Westbound				Bulter Pike Northbound					Bulter Pike Southbound				
	Left	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Int. Total
7:00 AM	0	0	0	0	0	71	0	0	71	0	101	0	101	172
7:15 AM	0	0	0	0	0	62	0	0	62	2	122	0	124	186
7:30 AM	0	0	0	0	0	70	0	0	70	0	150	0	150	220
7:45 AM	0	1	0	1	0	90	1	0	91	2	102	0	104	196
Hourly Total	0	1	0	1	0	293	1	0	294	4	475	0	479	774
8:00 AM	0	1	0	1	0	115	0	0	115	2	83	0	85	201
8:15 AM	0	0	0	0	0	93	0	0	93	1	111	0	112	205
8:30 AM	0	0	0	0	0	67	0	0	67	1	128	0	129	196
8:45 AM	0	0	0	0	0	92	0	0	92	0	130	0	130	222
Hourly Total	0	1	0	1	0	367	0	0	367	4	452	0	456	824
9:00 AM	0	1	0	1	0	67	0	0	67	1	99	0	100	168
9:15 AM	0	0	0	0	0	89	0	0	89	2	90	0	92	181
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	1	0	1	0	156	0	0	156	3	189	0	192	349
2:00 PM	0	0	0	0	0	67	0	0	67	1	67	0	68	135
2:15 PM	1	1	0	2	0	87	0	0	87	2	69	0	71	160
2:30 PM	2	0	0	2	0	85	0	0	85	0	76	0	76	163
2:45 PM	1	0	0	1	0	98	0	0	98	0	86	0	86	185
Hourly Total	4	1	0	5	0	337	0	0	337	3	298	0	301	643
3:00 PM	1	0	2	1	1	86	1	0	88	0	85	0	85	174
3:15 PM	0	0	0	0	0	73	0	0	73	0	55	0	55	128
3:30 PM	1	1	0	2	0	85	1	0	86	0	53	0	53	141
3:45 PM	0	0	0	0	0	87	0	0	87	0	48	0	48	135
Hourly Total	2	1	2	3	1	331	2	0	334	0	241	0	241	578
4:00 PM	1	1	0	2	0	105	0	0	105	2	45	0	47	154
4:15 PM	0	0	0	0	0	112	0	0	112	1	39	0	40	152
4:30 PM	0	0	0	0	0	101	0	0	101	1	51	0	52	153
4:45 PM	0	0	0	0	0	95	0	0	95	0	71	0	71	166
Hourly Total	1	1	0	2	0	413	0	0	413	4	206	0	210	625
5:00 PM	1	0	0	1	0	118	0	0	118	1	73	0	74	193
5:15 PM	0	1	0	1	0	89	0	0	89	0	95	0	95	185
5:30 PM	0	0	0	0	0	87	0	0	87	0	69	0	69	156
5:45 PM	0	0	0	0	0	102	0	0	102	0	72	0	72	174
Hourly Total	1	1	0	2	0	396	0	0	396	1	309	0	310	708
Grand Total	8	7	2	15	1	2293	3	0	2297	19	2170	0	2189	4501
Approach %	53.3	46.7	-	-	0.0	99.8	0.1	-	-	0.9	99.1	-	-	-
Total %	0.2	0.2	-	0.3	0.0	50.9	0.1	-	51.0	0.4	48.2	-	48.6	-
Lights	6	7	-	13	1	2198	3	-	2202	17	2101	-	2118	4333
% Lights	75.0	100.0	-	86.7	100.0	95.9	100.0	-	95.9	89.5	96.8	-	96.8	96.3
Mediums	2	0	-	2	0	92	0	-	92	2	65	-	67	161
% Mediums	25.0	0.0	-	13.3	0.0	4.0	0.0	-	4.0	10.5	3.0	-	3.1	3.6
Articulated Trucks	0	0	-	0	0	3	0	-	3	0	4	-	4	7
% Articulated Trucks	0.0	0.0	-	0.0	0.0	0.1	0.0	-	0.1	0.0	0.2	-	0.2	0.2
Pedestrians	-	-	2	-	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 1 Bulter Pike & Existing DW (5200 Butler Pk)
Site Code:
Start Date: 04/30/2024



Turning Movement Data Plot

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 1 Bulter Pike & Existing DW (5200 Butler Pk)
Site Code:
Start Date: 04/30/2024

Turning Movement Peak Hour Data (8:00 AM)

Start Time	Existing Driveway (5200 Butler Pk) Westbound				Bulter Pike Northbound					Bulter Pike Southbound				
	Left	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Int. Total
8:00 AM	0	1	0	1	0	115	0	0	115	2	83	0	85	201
8:15 AM	0	0	0	0	0	93	0	0	93	1	111	0	112	205
8:30 AM	0	0	0	0	0	67	0	0	67	1	128	0	129	196
8:45 AM	0	0	0	0	0	92	0	0	92	0	130	0	130	222
Total	0	1	0	1	0	367	0	0	367	4	452	0	456	824
Approach %	0.0	100.0	-	-	0.0	100.0	0.0	-	-	0.9	99.1	-	-	-
Total %	0.0	0.1	-	0.1	0.0	44.5	0.0	-	44.5	0.5	54.9	-	55.3	-
PHF	0.000	0.250	-	0.250	0.000	0.798	0.000	-	0.798	0.500	0.869	-	0.877	0.928
Lights	0	1	-	1	0	348	0	-	348	4	434	-	438	787
% Lights	-	100.0	-	100.0	-	94.8	-	-	94.8	100.0	96.0	-	96.1	95.5
Mediums	0	0	-	0	0	19	0	-	19	0	17	-	17	36
% Mediums	-	0.0	-	0.0	-	5.2	-	-	5.2	0.0	3.8	-	3.7	4.4
Articulated Trucks	0	0	-	0	0	0	0	-	0	0	1	-	1	1
% Articulated Trucks	-	0.0	-	0.0	-	0.0	-	-	0.0	0.0	0.2	-	0.2	0.1
Pedestrians	-	-	0	-	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
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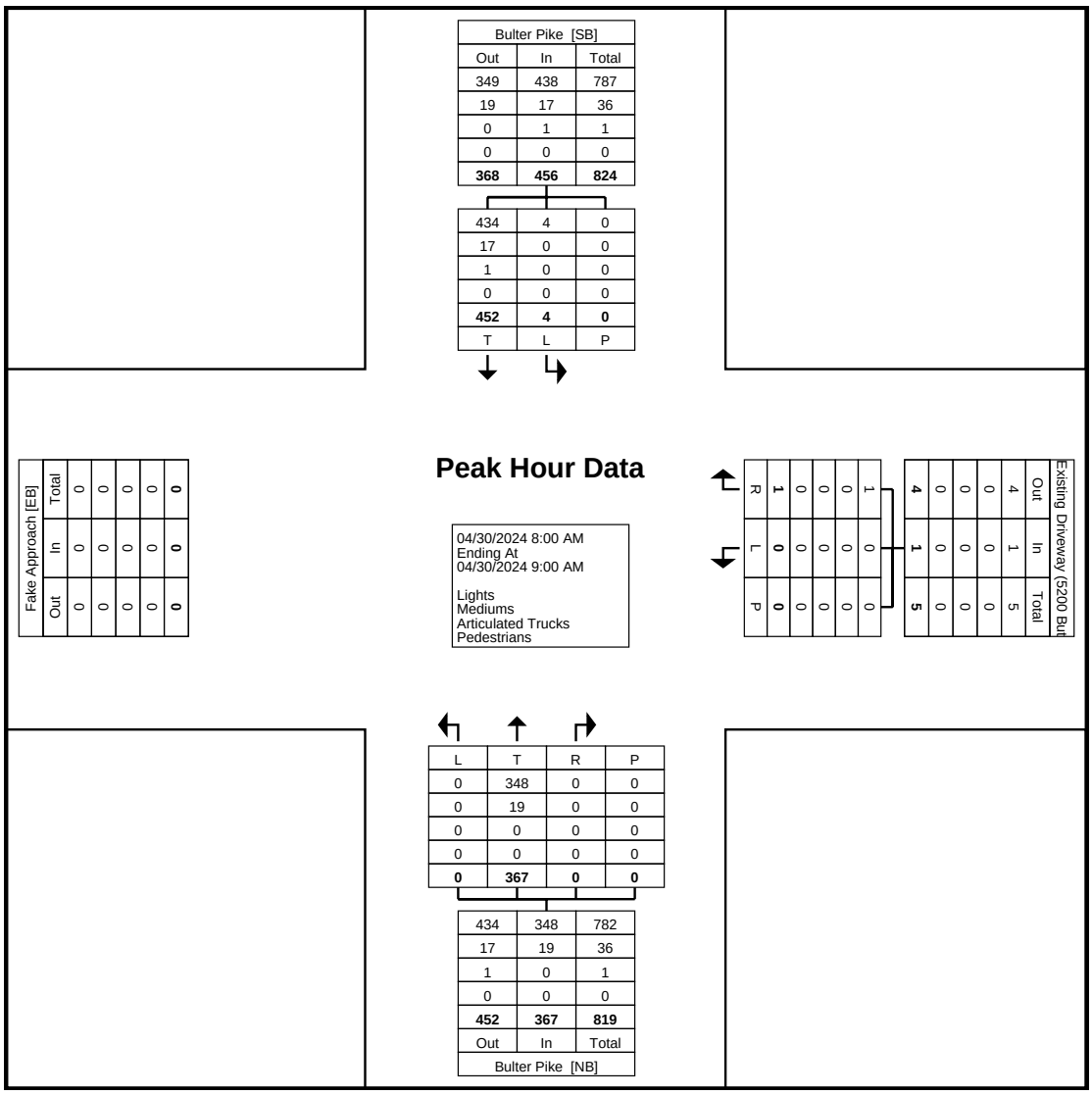
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 1 Bulter Pike & Existing DW (5200 Butler Pk)
Site Code:
Start Date: 04/30/2024



Turning Movement Peak Hour Data Plot (8:00 AM)

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 1 Bulter Pike & Existing DW (5200 Butler Pk)
Site Code:
Start Date: 04/30/2024

Turning Movement Peak Hour Data (2:15 PM)

Start Time	Existing Driveway (5200 Butler Pk) Westbound				Bulter Pike Northbound					Bulter Pike Southbound				
	Left	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Int. Total
2:15 PM	1	1	0	2	0	87	0	0	87	2	69	0	71	160
2:30 PM	2	0	0	2	0	85	0	0	85	0	76	0	76	163
2:45 PM	1	0	0	1	0	98	0	0	98	0	86	0	86	185
3:00 PM	1	0	2	1	1	86	1	0	88	0	85	0	85	174
Total	5	1	2	6	1	356	1	0	358	2	316	0	318	682
Approach %	83.3	16.7	-	-	0.3	99.4	0.3	-	-	0.6	99.4	-	-	-
Total %	0.7	0.1	-	0.9	0.1	52.2	0.1	-	52.5	0.3	46.3	-	46.6	-
PHF	0.625	0.250	-	0.750	0.250	0.908	0.250	-	0.913	0.250	0.919	-	0.924	0.922
Lights	3	1	-	4	1	334	1	-	336	1	304	-	305	645
% Lights	60.0	100.0	-	66.7	100.0	93.8	100.0	-	93.9	50.0	96.2	-	95.9	94.6
Mediums	2	0	-	2	0	21	0	-	21	1	12	-	13	36
% Mediums	40.0	0.0	-	33.3	0.0	5.9	0.0	-	5.9	50.0	3.8	-	4.1	5.3
Articulated Trucks	0	0	-	0	0	1	0	-	1	0	0	-	0	1
% Articulated Trucks	0.0	0.0	-	0.0	0.0	0.3	0.0	-	0.3	0.0	0.0	-	0.0	0.1
Pedestrians	-	-	2	-	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
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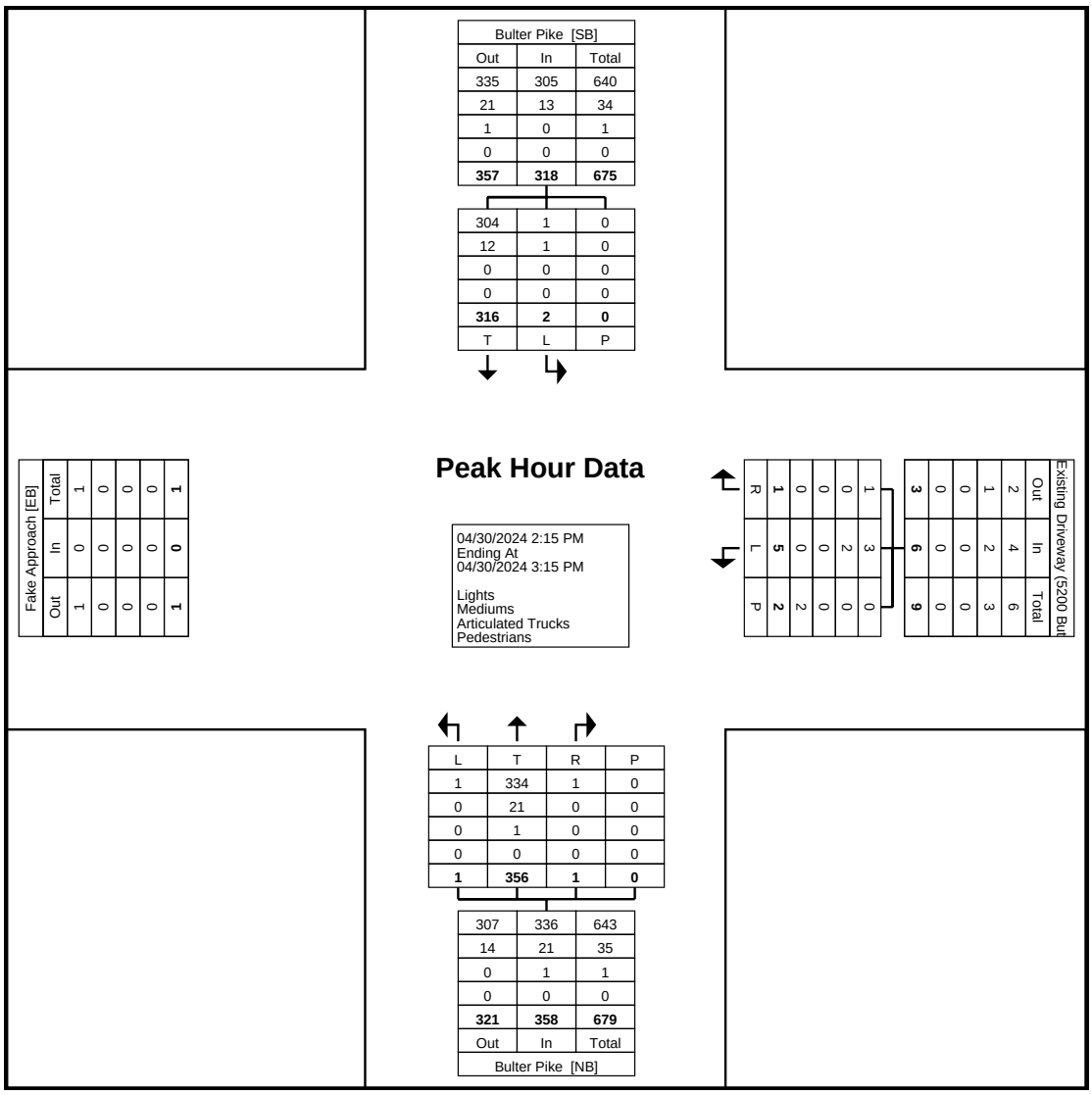
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 1 Bulter Pike & Existing DW (5200 Butler Pk)
Site Code:
Start Date: 04/30/2024



Turning Movement Peak Hour Data Plot (2:15 PM)

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 1 Bulter Pike & Existing DW (5200 Butler Pk)
Site Code:
Start Date: 04/30/2024

Turning Movement Peak Hour Data (5:00 PM)

Start Time	Existing Driveway (5200 Butler Pk) Westbound				Bulter Pike Northbound					Bulter Pike Southbound				
	Left	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Int. Total
5:00 PM	1	0	0	1	0	118	0	0	118	1	73	0	74	193
5:15 PM	0	1	0	1	0	89	0	0	89	0	95	0	95	185
5:30 PM	0	0	0	0	0	87	0	0	87	0	69	0	69	156
5:45 PM	0	0	0	0	0	102	0	0	102	0	72	0	72	174
Total	1	1	0	2	0	396	0	0	396	1	309	0	310	708
Approach %	50.0	50.0	-	-	0.0	100.0	0.0	-	-	0.3	99.7	-	-	-
Total %	0.1	0.1	-	0.3	0.0	55.9	0.0	-	55.9	0.1	43.6	-	43.8	-
PHF	0.250	0.250	-	0.500	0.000	0.839	0.000	-	0.839	0.250	0.813	-	0.816	0.917
Lights	1	1	-	2	0	392	0	-	392	1	303	-	304	698
% Lights	100.0	100.0	-	100.0	-	99.0	-	-	99.0	100.0	98.1	-	98.1	98.6
Mediums	0	0	-	0	0	4	0	-	4	0	6	-	6	10
% Mediums	0.0	0.0	-	0.0	-	1.0	-	-	1.0	0.0	1.9	-	1.9	1.4
Articulated Trucks	0	0	-	0	0	0	0	-	0	0	0	-	0	0
% Articulated Trucks	0.0	0.0	-	0.0	-	0.0	-	-	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	0	-	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
2500 East High Street
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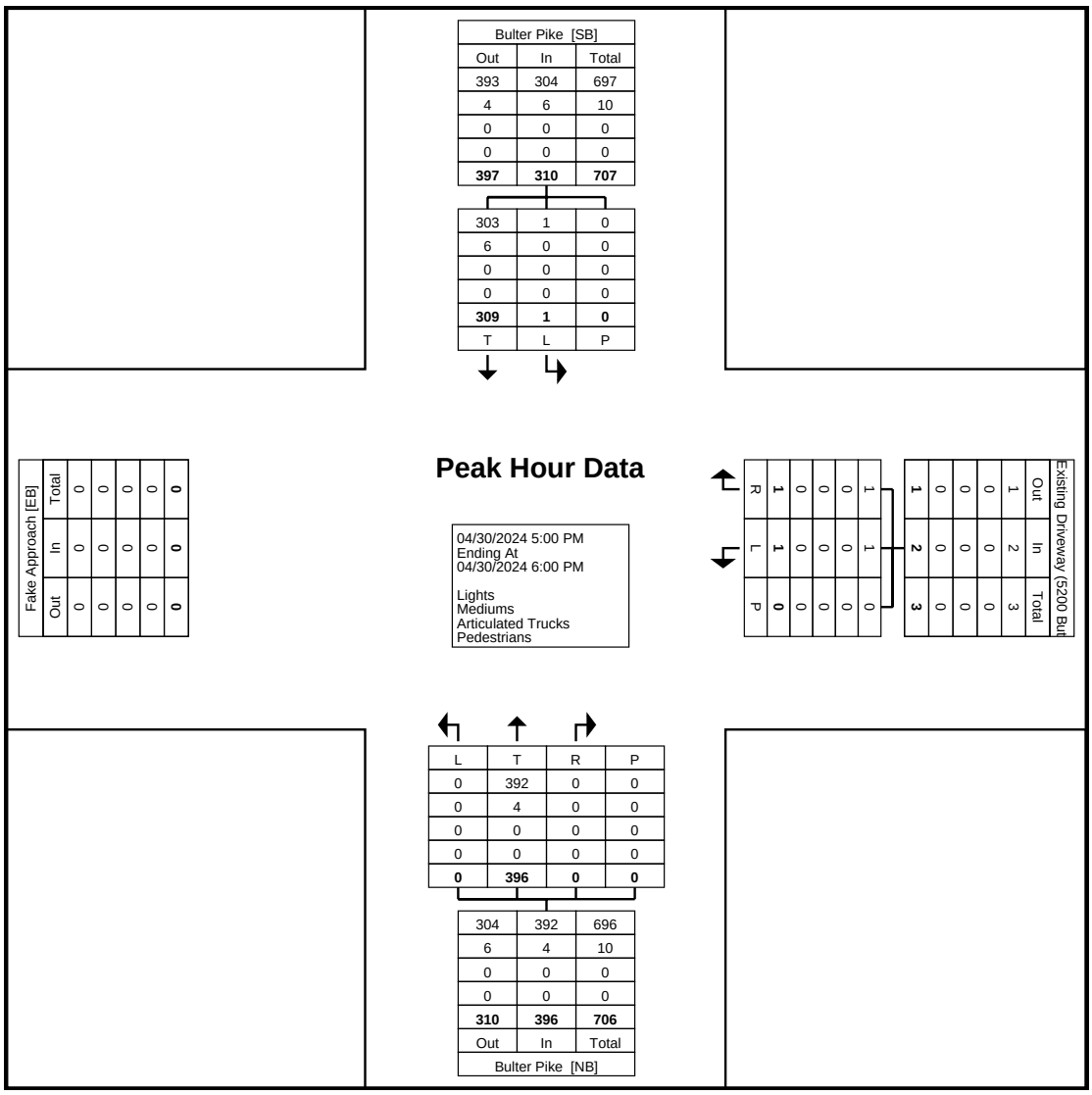
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 1 Bulter Pike & Existing DW (5200 Butler Pk)
Site Code:
Start Date: 04/30/2024



Turning Movement Peak Hour Data Plot (5:00 PM)

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 2 Butler Pike & Existing DW (5140 Bulter Pk)
Site Code:
Start Date: 04/30/2024

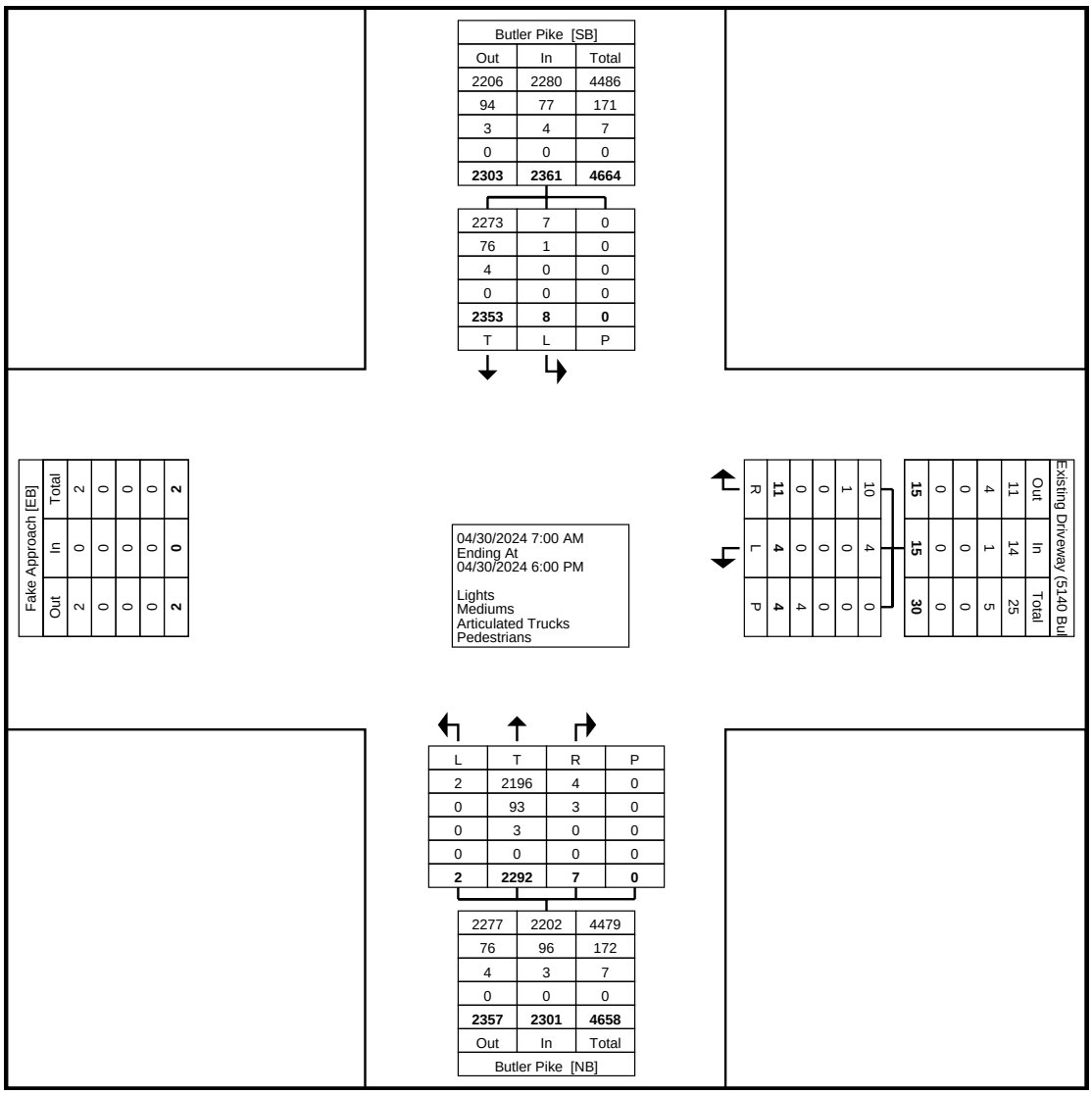
Turning Movement Data

Start Time	Existing Driveway (5140 Bulter Pk) Westbound				Butler Pike Northbound					Butler Pike Southbound				
	Left	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Int. Total
7:00 AM	0	1	0	1	0	72	0	0	72	1	103	0	104	177
7:15 AM	0	0	0	0	0	64	1	0	65	0	128	0	128	193
7:30 AM	0	1	0	1	0	63	0	0	63	1	175	0	176	240
7:45 AM	0	0	0	0	0	99	0	0	99	0	122	0	122	221
Hourly Total	0	2	0	2	0	298	1	0	299	2	528	0	530	831
8:00 AM	0	0	0	0	0	113	1	0	114	1	88	0	89	203
8:15 AM	0	0	0	0	0	87	0	0	87	1	113	0	114	201
8:30 AM	0	0	0	0	0	70	0	0	70	1	130	0	131	201
8:45 AM	0	3	0	3	0	91	1	0	92	2	130	0	132	227
Hourly Total	0	3	0	3	0	361	2	0	363	5	461	0	466	832
9:00 AM	0	0	0	0	0	64	0	0	64	0	99	0	99	163
9:15 AM	1	0	0	1	0	91	1	0	92	0	91	0	91	184
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	1	0	0	1	0	155	1	0	156	0	190	0	190	347
2:00 PM	0	0	0	0	0	68	0	0	68	0	68	0	68	136
2:15 PM	1	1	0	2	0	90	1	0	91	0	72	0	72	165
2:30 PM	0	0	0	0	0	79	1	0	80	0	80	0	80	160
2:45 PM	0	0	1	0	0	102	0	0	102	0	90	0	90	192
Hourly Total	1	1	1	2	0	339	2	0	341	0	310	0	310	653
3:00 PM	1	0	1	1	0	91	0	0	91	0	89	0	89	181
3:15 PM	1	0	0	1	0	68	0	0	68	0	67	0	67	136
3:30 PM	0	0	2	0	0	85	0	0	85	1	68	0	69	154
3:45 PM	0	4	0	4	0	89	1	0	90	0	71	0	71	165
Hourly Total	2	4	3	6	0	333	1	0	334	1	295	0	296	636
4:00 PM	0	1	0	1	2	106	0	0	108	0	58	0	58	167
4:15 PM	0	0	0	0	0	113	0	0	113	0	56	0	56	169
4:30 PM	0	0	0	0	0	103	0	0	103	0	64	0	64	167
4:45 PM	0	0	0	0	0	91	0	0	91	0	78	0	78	169
Hourly Total	0	1	0	1	2	413	0	0	415	0	256	0	256	672
5:00 PM	0	0	0	0	0	113	0	0	113	0	74	0	74	187
5:15 PM	0	0	0	0	0	89	0	0	89	0	96	0	96	185
5:30 PM	0	0	0	0	0	93	0	0	93	0	70	0	70	163
5:45 PM	0	0	0	0	0	98	0	0	98	0	73	0	73	171
Hourly Total	0	0	0	0	0	393	0	0	393	0	313	0	313	706
Grand Total	4	11	4	15	2	2292	7	0	2301	8	2353	0	2361	4677
Approach %	26.7	73.3	-	-	0.1	99.6	0.3	-	-	0.3	99.7	-	-	-
Total %	0.1	0.2	-	0.3	0.0	49.0	0.1	-	49.2	0.2	50.3	-	50.5	-
Lights	4	10	-	14	2	2196	4	-	2202	7	2273	-	2280	4496
% Lights	100.0	90.9	-	93.3	100.0	95.8	57.1	-	95.7	87.5	96.6	-	96.6	96.1
Mediums	0	1	-	1	0	93	3	-	96	1	76	-	77	174
% Mediums	0.0	9.1	-	6.7	0.0	4.1	42.9	-	4.2	12.5	3.2	-	3.3	3.7
Articulated Trucks	0	0	-	0	0	3	0	-	3	0	4	-	4	7
% Articulated Trucks	0.0	0.0	-	0.0	0.0	0.1	0.0	-	0.1	0.0	0.2	-	0.2	0.1
Pedestrians	-	-	4	-	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 2 Butler Pike & Existing DW (5140 Bulter Pk)
Site Code:
Start Date: 04/30/2024



Turning Movement Data Plot

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 2 Butler Pike & Existing DW (5140 Bulter Pk)
Site Code:
Start Date: 04/30/2024

Turning Movement Peak Hour Data (7:30 AM)

Start Time	Existing Driveway (5140 Bulter Pk) Westbound				Butler Pike Northbound					Butler Pike Southbound				
	Left	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Int. Total
7:30 AM	0	1	0	1	0	63	0	0	63	1	175	0	176	240
7:45 AM	0	0	0	0	0	99	0	0	99	0	122	0	122	221
8:00 AM	0	0	0	0	0	113	1	0	114	1	88	0	89	203
8:15 AM	0	0	0	0	0	87	0	0	87	1	113	0	114	201
Total	0	1	0	1	0	362	1	0	363	3	498	0	501	865
Approach %	0.0	100.0	-	-	0.0	99.7	0.3	-	-	0.6	99.4	-	-	-
Total %	0.0	0.1	-	0.1	0.0	41.8	0.1	-	42.0	0.3	57.6	-	57.9	-
PHF	0.000	0.250	-	0.250	0.000	0.801	0.250	-	0.796	0.750	0.711	-	0.712	0.901
Lights	0	1	-	1	0	349	1	-	350	3	480	-	483	834
% Lights	-	100.0	-	100.0	-	96.4	100.0	-	96.4	100.0	96.4	-	96.4	96.4
Mediums	0	0	-	0	0	13	0	-	13	0	17	-	17	30
% Mediums	-	0.0	-	0.0	-	3.6	0.0	-	3.6	0.0	3.4	-	3.4	3.5
Articulated Trucks	0	0	-	0	0	0	0	-	0	0	1	-	1	1
% Articulated Trucks	-	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0	0.2	-	0.2	0.1
Pedestrians	-	-	0	-	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
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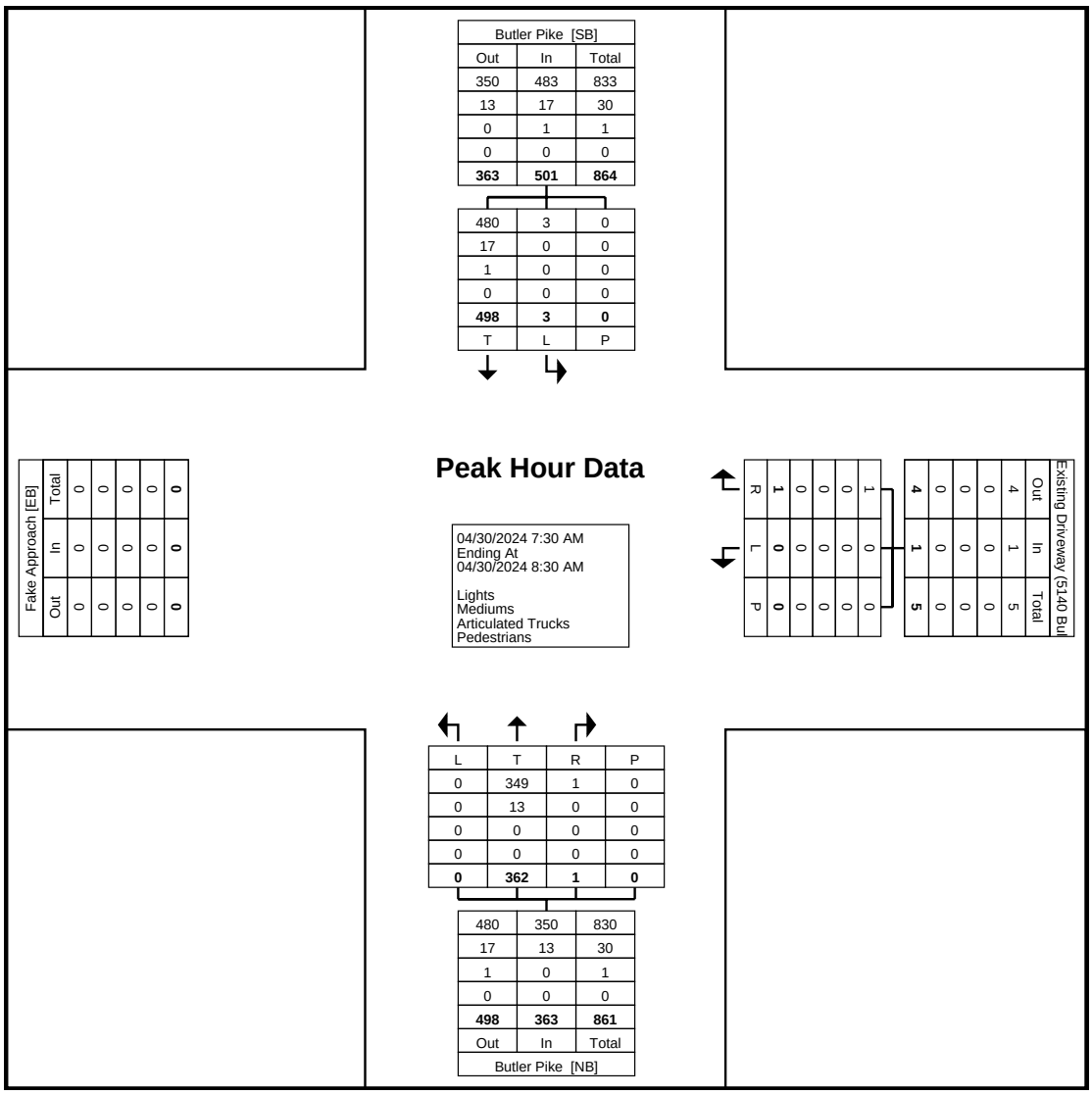
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 2 Butler Pike & Existing DW (5140 Bulter Pk)
Site Code:
Start Date: 04/30/2024



Turning Movement Peak Hour Data Plot (7:30 AM)

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 2 Butler Pike & Existing DW (5140 Bulter Pk)
Site Code:
Start Date: 04/30/2024

Turning Movement Peak Hour Data (2:15 PM)

Start Time	Existing Driveway (5140 Bulter Pk) Westbound				Butler Pike Northbound					Butler Pike Southbound				
	Left	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Int. Total
2:15 PM	1	1	0	2	0	90	1	0	91	0	72	0	72	165
2:30 PM	0	0	0	0	0	79	1	0	80	0	80	0	80	160
2:45 PM	0	0	1	0	0	102	0	0	102	0	90	0	90	192
3:00 PM	1	0	1	1	0	91	0	0	91	0	89	0	89	181
Total	2	1	2	3	0	362	2	0	364	0	331	0	331	698
Approach %	66.7	33.3	-	-	0.0	99.5	0.5	-	-	0.0	100.0	-	-	-
Total %	0.3	0.1	-	0.4	0.0	51.9	0.3	-	52.1	0.0	47.4	-	47.4	-
PHF	0.500	0.250	-	0.375	0.000	0.887	0.500	-	0.892	0.000	0.919	-	0.919	0.909
Lights	2	1	-	3	0	339	1	-	340	0	314	-	314	657
% Lights	100.0	100.0	-	100.0	-	93.6	50.0	-	93.4	-	94.9	-	94.9	94.1
Mediums	0	0	-	0	0	22	1	-	23	0	16	-	16	39
% Mediums	0.0	0.0	-	0.0	-	6.1	50.0	-	6.3	-	4.8	-	4.8	5.6
Articulated Trucks	0	0	-	0	0	1	0	-	1	0	1	-	1	2
% Articulated Trucks	0.0	0.0	-	0.0	-	0.3	0.0	-	0.3	-	0.3	-	0.3	0.3
Pedestrians	-	-	2	-	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
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Counter: MIO:
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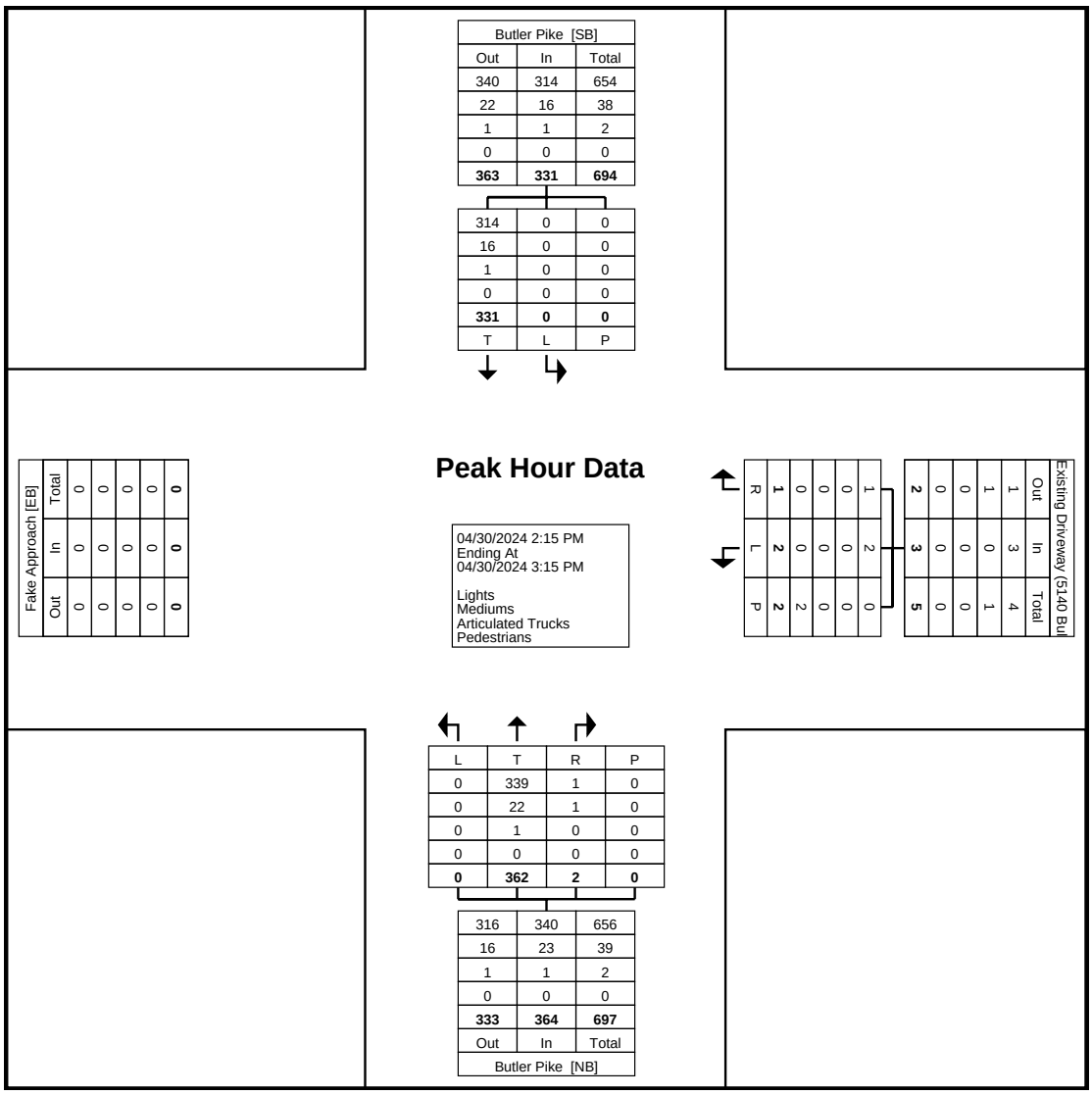
Count Name: 2 Butler Pike & Existing DW (5140 Bulter Pk)
Site Code:
Start Date: 04/30/2024



Turning Movement Peak Hour Data Plot (2:15 PM)

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Turning Movement Peak Hour Data (4:30 PM)

Start Time	Existing Driveway (5140 Bulter Pk) Westbound				Butler Pike Northbound					Butler Pike Southbound				
	Left	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Int. Total
4:30 PM	0	0	0	0	0	103	0	0	103	0	64	0	64	167
4:45 PM	0	0	0	0	0	91	0	0	91	0	78	0	78	169
5:00 PM	0	0	0	0	0	113	0	0	113	0	74	0	74	187
5:15 PM	0	0	0	0	0	89	0	0	89	0	96	0	96	185
Total	0	0	0	0	0	396	0	0	396	0	312	0	312	708
Approach %	0.0	0.0	-	-	0.0	100.0	0.0	-	-	0.0	100.0	-	-	-
Total %	0.0	0.0	-	0.0	0.0	55.9	0.0	-	55.9	0.0	44.1	-	44.1	-
PHF	0.000	0.000	-	0.000	0.000	0.876	0.000	-	0.876	0.000	0.813	-	0.813	0.947
Lights	0	0	-	0	0	390	0	-	390	0	307	-	307	697
% Lights	-	-	-	-	-	98.5	-	-	98.5	-	98.4	-	98.4	98.4
Mediums	0	0	-	0	0	6	0	-	6	0	5	-	5	11
% Mediums	-	-	-	-	-	1.5	-	-	1.5	-	1.6	-	1.6	1.6
Articulated Trucks	0	0	-	0	0	0	0	-	0	0	0	-	0	0
% Articulated Trucks	-	-	-	-	-	0.0	-	-	0.0	-	0.0	-	0.0	0.0
Pedestrians	-	-	0	-	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
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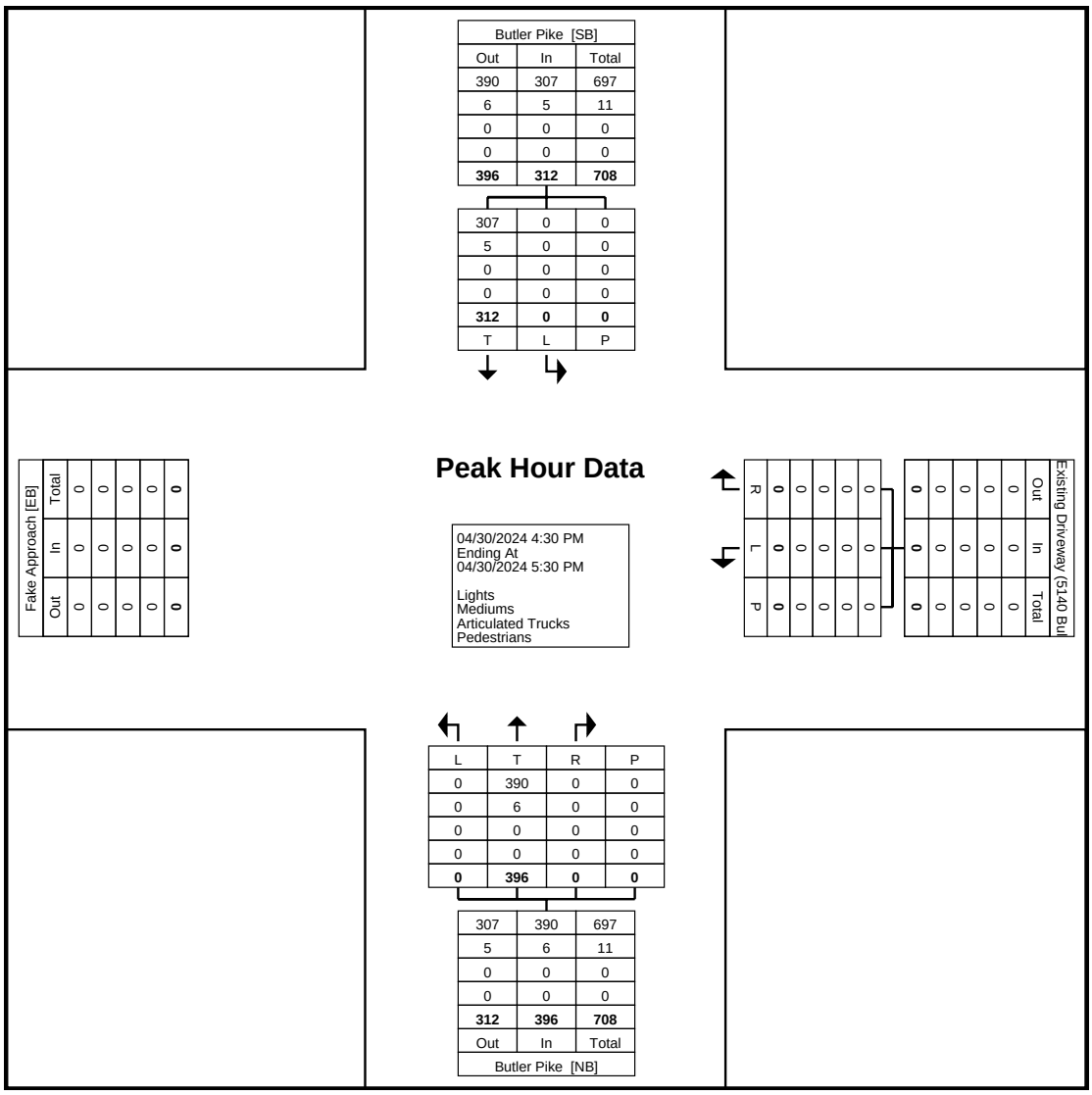
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 2 Butler Pike & Existing DW (5140 Bulter Pk)
Site Code:
Start Date: 04/30/2024



Turning Movement Peak Hour Data Plot (4:30 PM)

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: 3 Butler Pike & Township Line Road
Site Code:
Start Date: 04/30/2024

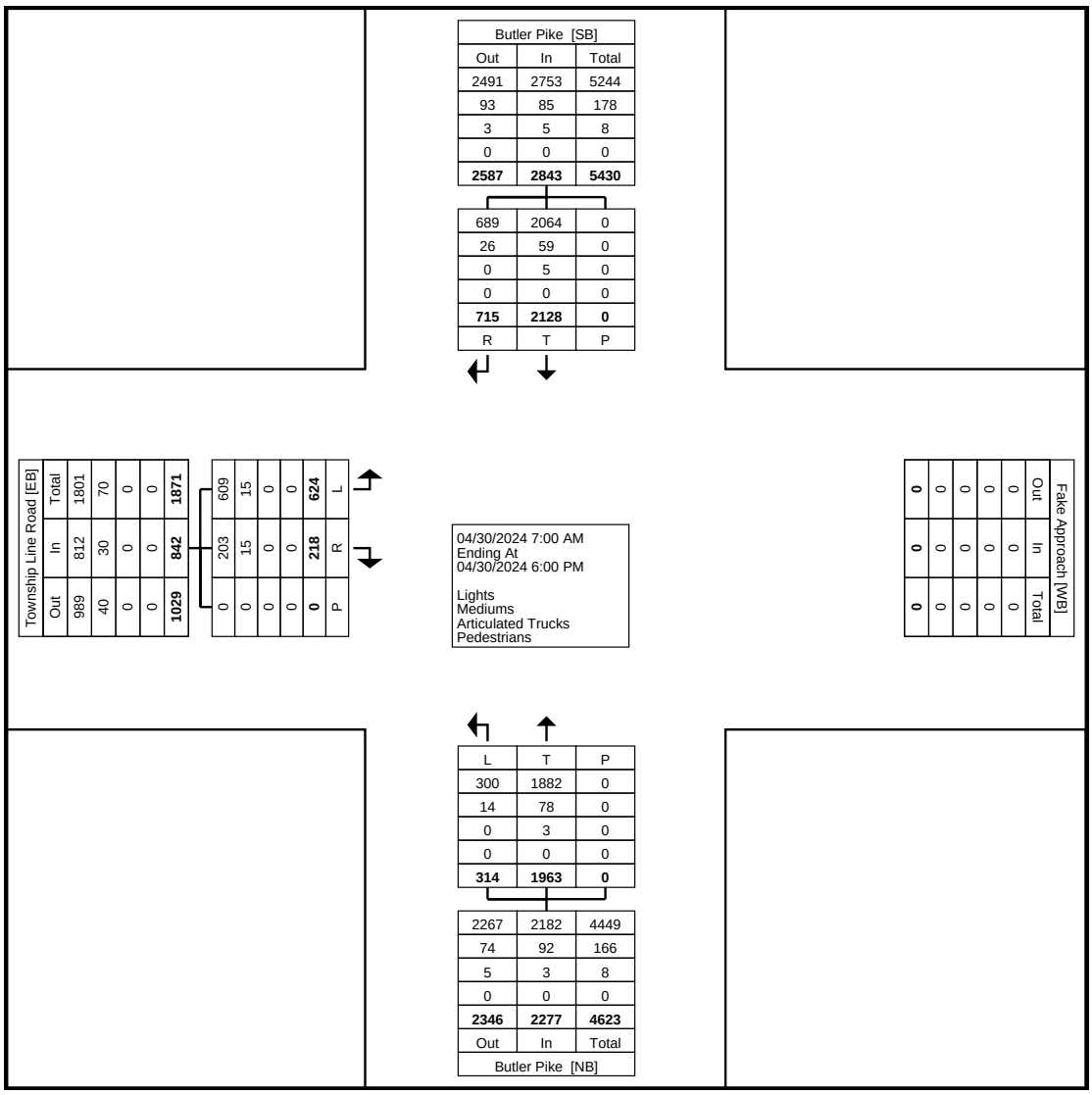
Turning Movement Data

Start Time	Township Line Road Eastbound				Butler Pike Northbound				Butler Pike Southbound				
	Left	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Thru	Right	Peds	App. Total	Int. Total
7:00 AM	13	13	0	26	8	61	0	69	90	16	0	106	201
7:15 AM	11	12	0	23	6	56	0	62	125	15	0	140	225
7:30 AM	16	10	0	26	8	61	0	69	160	21	0	181	276
7:45 AM	18	10	0	28	20	68	0	88	106	69	0	175	291
Hourly Total	58	45	0	103	42	246	0	288	481	121	0	602	993
8:00 AM	17	13	0	30	33	81	0	114	72	102	0	174	318
8:15 AM	28	9	0	37	26	68	0	94	108	80	0	188	319
8:30 AM	20	15	0	35	8	61	0	69	121	44	0	165	269
8:45 AM	19	9	0	28	20	66	0	86	124	42	0	166	280
Hourly Total	84	46	0	130	87	276	0	363	425	268	0	693	1186
9:00 AM	16	8	0	24	13	52	0	65	83	62	0	145	234
9:15 AM	12	12	0	24	13	74	0	87	82	27	0	109	220
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	28	20	0	48	26	126	0	152	165	89	0	254	454
2:00 PM	7	6	0	13	6	61	0	67	65	11	0	76	156
2:15 PM	20	9	0	29	5	83	0	88	64	10	0	74	191
2:30 PM	14	5	0	19	6	76	0	82	72	10	0	82	183
2:45 PM	21	11	0	32	17	86	0	103	79	17	0	96	231
Hourly Total	62	31	0	93	34	306	0	340	280	48	0	328	761
3:00 PM	21	10	0	31	11	75	0	86	77	8	0	85	202
3:15 PM	22	5	0	27	3	67	0	70	60	21	0	81	178
3:30 PM	25	4	0	29	10	77	0	87	68	18	0	86	202
3:45 PM	28	8	0	36	10	75	0	85	61	18	0	79	200
Hourly Total	96	27	0	123	34	294	0	328	266	65	0	331	782
4:00 PM	46	7	0	53	13	88	0	101	45	21	0	66	220
4:15 PM	32	5	0	37	13	103	0	116	51	12	0	63	216
4:30 PM	39	12	0	51	15	87	0	102	54	16	0	70	223
4:45 PM	42	6	0	48	11	80	0	91	74	18	0	92	231
Hourly Total	159	30	0	189	52	358	0	410	224	67	0	291	890
5:00 PM	35	4	0	39	13	105	0	118	69	14	0	83	240
5:15 PM	39	6	0	45	10	79	0	89	87	19	0	106	240
5:30 PM	30	4	0	34	11	75	0	86	64	14	0	78	198
5:45 PM	33	5	0	38	5	98	0	103	67	10	0	77	218
Hourly Total	137	19	0	156	39	357	0	396	287	57	0	344	896
Grand Total	624	218	0	842	314	1963	0	2277	2128	715	0	2843	5962
Approach %	74.1	25.9	-	-	13.8	86.2	-	-	74.9	25.1	-	-	-
Total %	10.5	3.7	-	14.1	5.3	32.9	-	38.2	35.7	12.0	-	47.7	-
Lights	609	203	-	812	300	1882	-	2182	2064	689	-	2753	5747
% Lights	97.6	93.1	-	96.4	95.5	95.9	-	95.8	97.0	96.4	-	96.8	96.4
Mediums	15	15	-	30	14	78	-	92	59	26	-	85	207
% Mediums	2.4	6.9	-	3.6	4.5	4.0	-	4.0	2.8	3.6	-	3.0	3.5
Articulated Trucks	0	0	-	0	0	3	-	3	5	0	-	5	8
% Articulated Trucks	0.0	0.0	-	0.0	0.0	0.2	-	0.1	0.2	0.0	-	0.2	0.1
Pedestrians	-	-	0	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 3 Butler Pike & Township Line Road
Site Code:
Start Date: 04/30/2024



Turning Movement Data Plot

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610.326.3100

Counter: MIO:
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Count Name: 3 Butler Pike & Township Line Road
Site Code:
Start Date: 04/30/2024

Turning Movement Peak Hour Data (7:30 AM)

Start Time	Township Line Road Eastbound				Butler Pike Northbound				Butler Pike Southbound				
	Left	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Thru	Right	Peds	App. Total	Int. Total
7:30 AM	16	10	0	26	8	61	0	69	160	21	0	181	276
7:45 AM	18	10	0	28	20	68	0	88	106	69	0	175	291
8:00 AM	17	13	0	30	33	81	0	114	72	102	0	174	318
8:15 AM	28	9	0	37	26	68	0	94	108	80	0	188	319
Total	79	42	0	121	87	278	0	365	446	272	0	718	1204
Approach %	65.3	34.7	-	-	23.8	76.2	-	-	62.1	37.9	-	-	-
Total %	6.6	3.5	-	10.0	7.2	23.1	-	30.3	37.0	22.6	-	59.6	-
PHF	0.705	0.808	-	0.818	0.659	0.858	-	0.800	0.697	0.667	-	0.955	0.944
Lights	78	41	-	119	82	270	-	352	434	262	-	696	1167
% Lights	98.7	97.6	-	98.3	94.3	97.1	-	96.4	97.3	96.3	-	96.9	96.9
Mediums	1	1	-	2	5	8	-	13	11	10	-	21	36
% Mediums	1.3	2.4	-	1.7	5.7	2.9	-	3.6	2.5	3.7	-	2.9	3.0
Articulated Trucks	0	0	-	0	0	0	-	0	1	0	-	1	1
% Articulated Trucks	0.0	0.0	-	0.0	0.0	0.0	-	0.0	0.2	0.0	-	0.1	0.1
Pedestrians	-	-	0	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-

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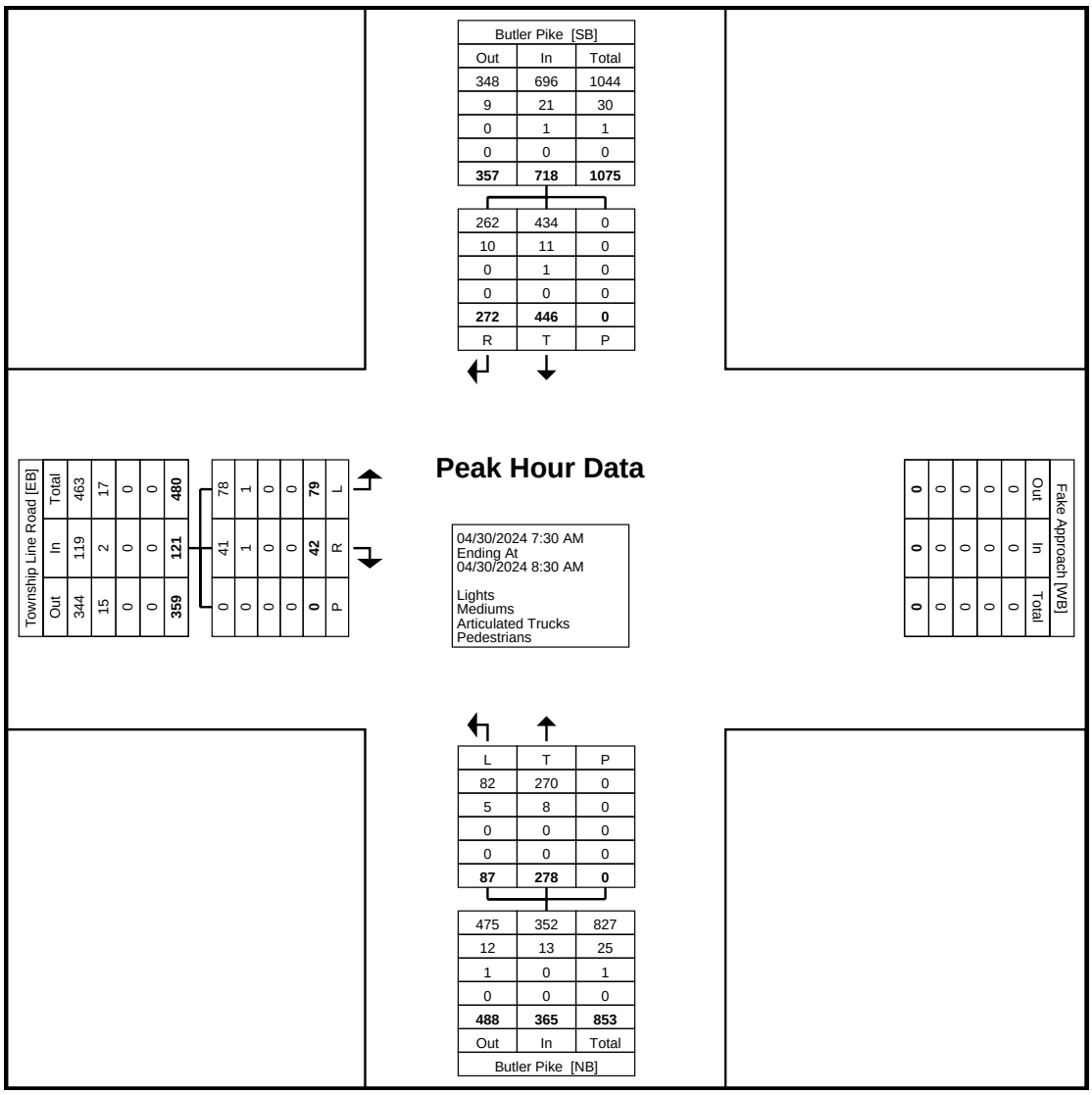
Count Name: 3 Butler Pike & Township Line Road
Site Code:
Start Date: 04/30/2024



Turning Movement Peak Hour Data Plot (7:30 AM)

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
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Counter: MIO:
Set up By JH::

Count Name: 3 Butler Pike & Township Line Road
Site Code:
Start Date: 04/30/2024

Turning Movement Peak Hour Data (2:45 PM)

Start Time	Township Line Road Eastbound				Butler Pike Northbound				Butler Pike Southbound				
	Left	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Thru	Right	Peds	App. Total	Int. Total
2:45 PM	21	11	0	32	17	86	0	103	79	17	0	96	231
3:00 PM	21	10	0	31	11	75	0	86	77	8	0	85	202
3:15 PM	22	5	0	27	3	67	0	70	60	21	0	81	178
3:30 PM	25	4	0	29	10	77	0	87	68	18	0	86	202
Total	89	30	0	119	41	305	0	346	284	64	0	348	813
Approach %	74.8	25.2	-	-	11.8	88.2	-	-	81.6	18.4	-	-	-
Total %	10.9	3.7	-	14.6	5.0	37.5	-	42.6	34.9	7.9	-	42.8	-
PHF	0.890	0.682	-	0.930	0.603	0.887	-	0.840	0.899	0.762	-	0.906	0.880
Lights	84	28	-	112	39	280	-	319	270	58	-	328	759
% Lights	94.4	93.3	-	94.1	95.1	91.8	-	92.2	95.1	90.6	-	94.3	93.4
Mediums	5	2	-	7	2	25	-	27	12	6	-	18	52
% Mediums	5.6	6.7	-	5.9	4.9	8.2	-	7.8	4.2	9.4	-	5.2	6.4
Articulated Trucks	0	0	-	0	0	0	-	0	2	0	-	2	2
% Articulated Trucks	0.0	0.0	-	0.0	0.0	0.0	-	0.0	0.7	0.0	-	0.6	0.2
Pedestrians	-	-	0	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-

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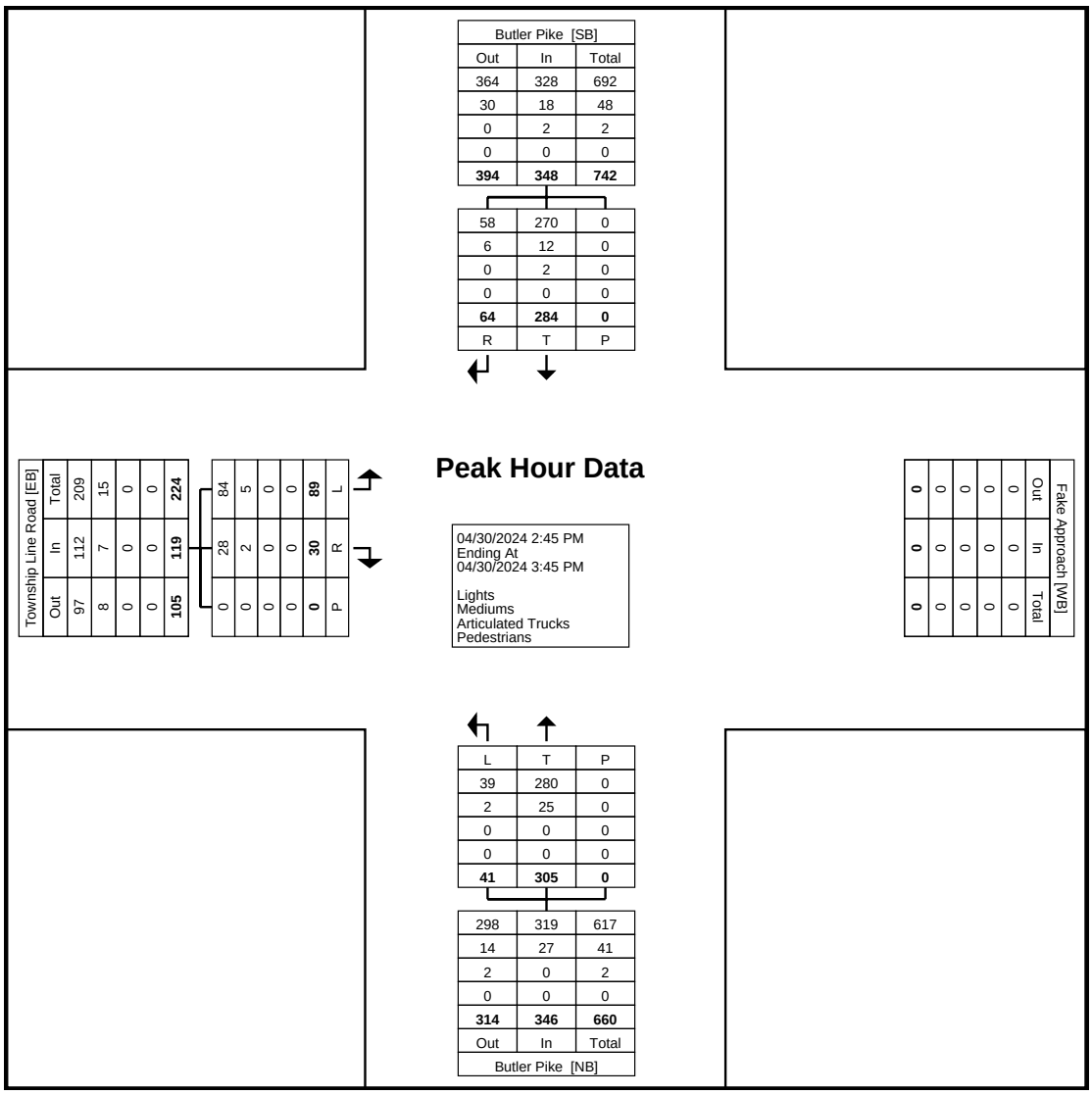

Turning Movement Peak Hour Data Plot (2:45 PM)

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2500 East High Street
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Counter: MIO:
Set up By JH::

Count Name: 3 Butler Pike & Township Line Road
Site Code:
Start Date: 04/30/2024

Turning Movement Peak Hour Data (4:30 PM)

Start Time	Township Line Road Eastbound				Butler Pike Northbound				Butler Pike Southbound				
	Left	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Thru	Right	Peds	App. Total	Int. Total
4:30 PM	39	12	0	51	15	87	0	102	54	16	0	70	223
4:45 PM	42	6	0	48	11	80	0	91	74	18	0	92	231
5:00 PM	35	4	0	39	13	105	0	118	69	14	0	83	240
5:15 PM	39	6	0	45	10	79	0	89	87	19	0	106	240
Total	155	28	0	183	49	351	0	400	284	67	0	351	934
Approach %	84.7	15.3	-	-	12.3	87.8	-	-	80.9	19.1	-	-	-
Total %	16.6	3.0	-	19.6	5.2	37.6	-	42.8	30.4	7.2	-	37.6	-
PHF	0.923	0.583	-	0.897	0.817	0.836	-	0.847	0.816	0.882	-	0.828	0.973
Lights	152	27	-	179	47	347	-	394	280	67	-	347	920
% Lights	98.1	96.4	-	97.8	95.9	98.9	-	98.5	98.6	100.0	-	98.9	98.5
Mediums	3	1	-	4	2	4	-	6	4	0	-	4	14
% Mediums	1.9	3.6	-	2.2	4.1	1.1	-	1.5	1.4	0.0	-	1.1	1.5
Articulated Trucks	0	0	-	0	0	0	-	0	0	0	-	0	0
% Articulated Trucks	0.0	0.0	-	0.0	0.0	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	0	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-

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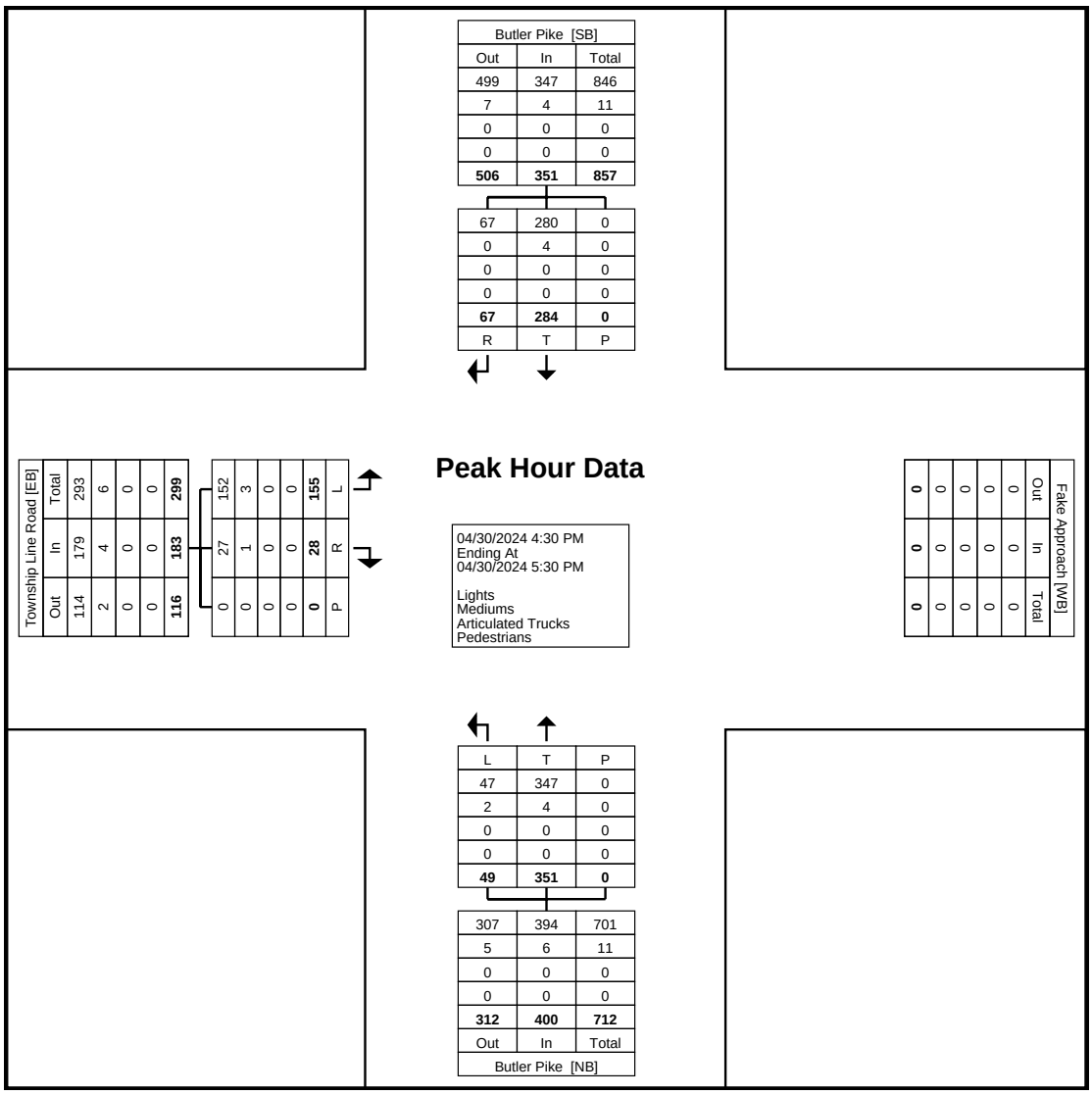
Counter: MIO:
Set up By JH::

Count Name: 3 Butler Pike & Township Line Road
Site Code:
Start Date: 04/30/2024



Turning Movement Peak Hour Data Plot (4:30 PM)

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 5 Butler Pk-Cold Pint Hill Rd & Township Line Road
Site Code:
Start Date: 04/30/2024

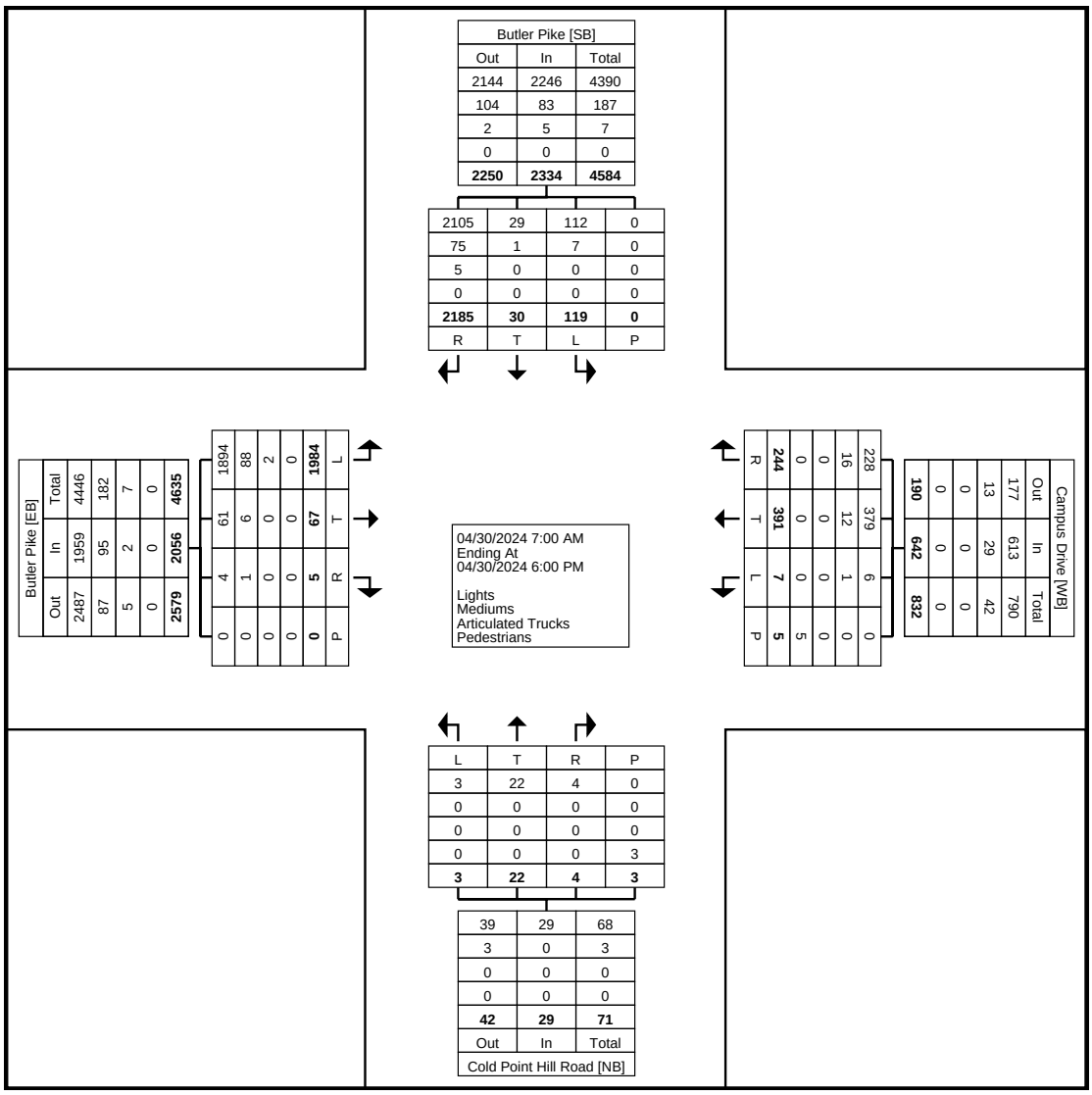
Turning Movement Data

Start Time	Butler Pike Eastbound					Campus Drive Westbound					Cold Point Hill Road Northbound					Butler Pike Southbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
7:00 AM	66	5	1	0	72	0	6	4	1	10	1	0	0	0	1	10	1	97	0	108	191
7:15 AM	61	3	0	0	64	0	6	2	0	8	1	0	1	0	2	5	0	116	0	121	195
7:30 AM	60	3	0	0	63	1	30	8	0	39	0	1	0	1	1	5	1	159	0	165	268
7:45 AM	73	4	1	0	78	0	54	16	0	70	0	1	0	0	1	5	1	108	0	114	263
Hourly Total	260	15	2	0	277	1	96	30	1	127	2	2	1	1	5	25	3	480	0	508	917
8:00 AM	73	4	0	0	77	0	29	34	0	63	0	1	0	0	1	11	1	91	0	103	244
8:15 AM	69	2	0	0	71	1	31	17	0	49	0	2	0	0	2	6	0	108	0	114	236
8:30 AM	67	6	0	0	73	2	55	6	0	63	1	1	0	0	2	7	3	117	0	127	265
8:45 AM	71	8	0	0	79	0	41	20	0	61	0	2	1	0	3	9	11	119	0	139	282
Hourly Total	280	20	0	0	300	3	156	77	0	236	1	6	1	0	8	33	15	435	0	483	1027
9:00 AM	49	2	0	0	51	2	6	4	0	12	0	1	0	0	1	11	0	89	0	100	164
9:15 AM	80	3	0	0	83	0	3	12	0	15	0	2	0	0	2	7	0	76	0	83	183
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	129	5	0	0	134	2	9	16	0	27	0	3	0	0	3	18	0	165	0	183	347
2:00 PM	64	3	0	0	67	0	9	6	0	15	0	0	0	0	0	1	1	67	0	69	151
2:15 PM	83	5	0	0	88	0	5	4	0	9	0	0	1	0	1	0	1	71	0	72	170
2:30 PM	71	2	0	0	73	1	5	3	0	9	0	1	0	0	1	5	0	68	0	73	156
2:45 PM	83	1	0	0	84	0	6	10	0	16	0	2	0	0	2	4	0	89	0	93	195
Hourly Total	301	11	0	0	312	1	25	23	0	49	0	3	1	0	4	10	2	295	0	307	672
3:00 PM	80	2	0	0	82	0	12	10	1	22	0	0	0	0	0	3	0	78	0	81	185
3:15 PM	62	3	0	0	65	0	3	3	2	6	0	0	0	2	0	3	0	70	0	73	144
3:30 PM	75	1	0	0	76	0	14	11	1	25	0	1	0	0	1	3	1	63	0	67	169
3:45 PM	79	2	0	0	81	0	12	7	0	19	0	0	0	0	0	5	1	67	0	73	173
Hourly Total	296	8	0	0	304	0	41	31	4	72	0	1	0	2	1	14	2	278	0	294	671
4:00 PM	92	1	0	0	93	0	14	16	0	30	0	1	0	0	1	3	1	49	0	53	177
4:15 PM	92	1	0	0	93	0	7	11	0	18	0	3	1	0	4	1	0	55	0	56	171
4:30 PM	93	1	1	0	95	0	12	11	0	23	0	1	0	0	1	3	1	68	0	72	191
4:45 PM	81	3	0	0	84	0	4	9	0	13	0	1	0	0	1	3	0	65	0	68	166
Hourly Total	358	6	1	0	365	0	37	47	0	84	0	6	1	0	7	10	2	237	0	249	705
5:00 PM	104	1	0	0	105	0	10	7	0	17	0	0	0	0	0	1	2	83	0	86	208
5:15 PM	78	0	0	0	78	0	8	6	0	14	0	0	0	0	0	2	1	85	0	88	180
5:30 PM	85	0	1	0	86	0	2	3	0	5	0	0	0	0	0	2	2	65	0	69	160
5:45 PM	93	1	1	0	95	0	7	4	0	11	0	1	0	0	1	4	1	62	0	67	174
Hourly Total	360	2	2	0	364	0	27	20	0	47	0	1	0	0	1	9	6	295	0	310	722
Grand Total	1984	67	5	0	2056	7	391	244	5	642	3	22	4	3	29	119	30	2185	0	2334	5061
Approach %	96.5	3.3	0.2	-	-	1.1	60.9	38.0	-	-	10.3	75.9	13.8	-	-	5.1	1.3	93.6	-	-	-
Total %	39.2	1.3	0.1	-	40.6	0.1	7.7	4.8	-	12.7	0.1	0.4	0.1	-	0.6	2.4	0.6	43.2	-	46.1	-
Lights	1894	61	4	-	1959	6	379	228	-	613	3	22	4	-	29	112	29	2105	-	2246	4847
% Lights	95.5	91.0	80.0	-	95.3	85.7	96.9	93.4	-	95.5	100.0	100.0	100.0	-	100.0	94.1	96.7	96.3	-	96.2	95.8
Mediums	88	6	1	-	95	1	12	16	-	29	0	0	0	-	0	7	1	75	-	83	207
% Mediums	4.4	9.0	20.0	-	4.6	14.3	3.1	6.6	-	4.5	0.0	0.0	0.0	-	0.0	5.9	3.3	3.4	-	3.6	4.1
Articulated Trucks	2	0	0	-	2	0	0	0	-	0	0	0	0	-	0	0	0	5	-	5	7
% Articulated Trucks	0.1	0.0	0.0	-	0.1	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.2	-	0.2	0.1
Pedestrians	-	-	-	0	-	-	-	-	5	-	-	-	-	3	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 5 Butler Pk-Cold Pint Hill Rd & Township Line Road
Site Code:
Start Date: 04/30/2024



Turning Movement Data Plot

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: 5 Butler Pk-Cold Pint Hill Rd & Township Line Road
Site Code:
Start Date: 04/30/2024

Turning Movement Peak Hour Data (8:00 AM)

Start Time	Butler Pike Eastbound					Campus Drive Westbound					Cold Point Hill Road Northbound					Butler Pike Southbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
8:00 AM	73	4	0	0	77	0	29	34	0	63	0	1	0	0	1	11	1	91	0	103	244
8:15 AM	69	2	0	0	71	1	31	17	0	49	0	2	0	0	2	6	0	108	0	114	236
8:30 AM	67	6	0	0	73	2	55	6	0	63	1	1	0	0	2	7	3	117	0	127	265
8:45 AM	71	8	0	0	79	0	41	20	0	61	0	2	1	0	3	9	11	119	0	139	282
Total	280	20	0	0	300	3	156	77	0	236	1	6	1	0	8	33	15	435	0	483	1027
Approach %	93.3	6.7	0.0	-	-	1.3	66.1	32.6	-	-	12.5	75.0	12.5	-	-	6.8	3.1	90.1	-	-	-
Total %	27.3	1.9	0.0	-	29.2	0.3	15.2	7.5	-	23.0	0.1	0.6	0.1	-	0.8	3.2	1.5	42.4	-	47.0	-
PHF	0.959	0.625	0.000	-	0.949	0.375	0.709	0.566	-	0.937	0.250	0.750	0.250	-	0.667	0.750	0.341	0.914	-	0.869	0.910
Lights	266	20	0	-	286	3	152	73	-	228	1	6	1	-	8	33	15	416	-	464	986
% Lights	95.0	100.0	-	-	95.3	100.0	97.4	94.8	-	96.6	100.0	100.0	100.0	-	100.0	100.0	100.0	95.6	-	96.1	96.0
Mediums	14	0	0	-	14	0	4	4	-	8	0	0	0	-	0	0	0	18	-	18	40
% Mediums	5.0	0.0	-	-	4.7	0.0	2.6	5.2	-	3.4	0.0	0.0	0.0	-	0.0	0.0	0.0	4.1	-	3.7	3.9
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	1	-	1	1
% Articulated Trucks	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.2	-	0.2	0.1
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
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Counter: MIO:
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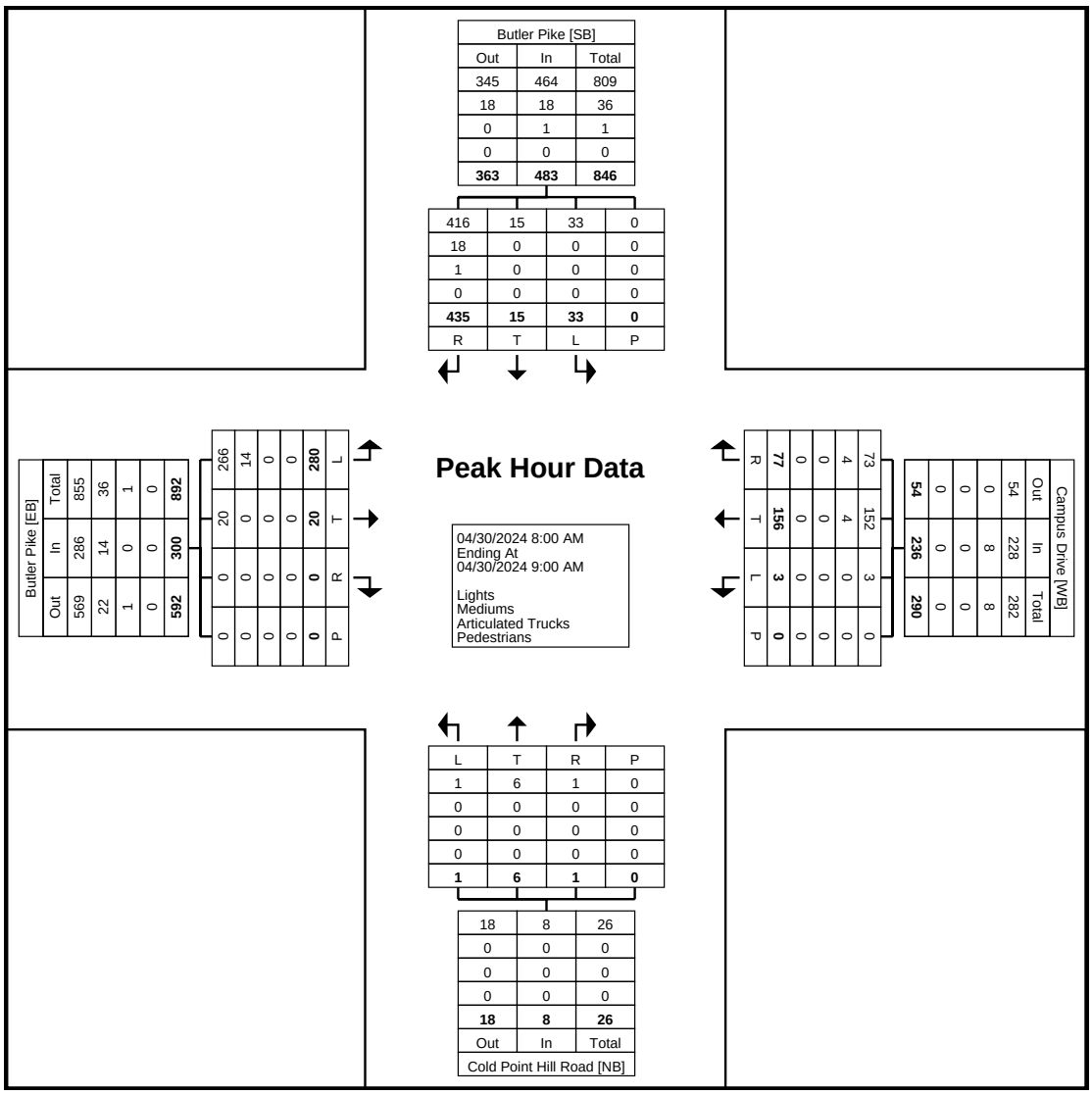
Count Name: 5 Butler Pk-Cold Pint Hill Rd & Township Line Road
Site Code:
Start Date: 04/30/2024



Turning Movement Peak Hour Data Plot (8:00 AM)

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: 5 Butler Pk-Cold Pint Hill Rd & Township Line Road
Site Code:
Start Date: 04/30/2024

Turning Movement Peak Hour Data (2:15 PM)

Start Time	Butler Pike Eastbound					Campus Drive Westbound					Cold Point Hill Road Northbound					Butler Pike Southbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
2:15 PM	83	5	0	0	88	0	5	4	0	9	0	0	1	0	1	0	1	71	0	72	170
2:30 PM	71	2	0	0	73	1	5	3	0	9	0	1	0	0	1	5	0	68	0	73	156
2:45 PM	83	1	0	0	84	0	6	10	0	16	0	2	0	0	2	4	0	89	0	93	195
3:00 PM	80	2	0	0	82	0	12	10	1	22	0	0	0	0	0	3	0	78	0	81	185
Total	317	10	0	0	327	1	28	27	1	56	0	3	1	0	4	12	1	306	0	319	706
Approach %	96.9	3.1	0.0	-	-	1.8	50.0	48.2	-	-	0.0	75.0	25.0	-	-	3.8	0.3	95.9	-	-	-
Total %	44.9	1.4	0.0	-	46.3	0.1	4.0	3.8	-	7.9	0.0	0.4	0.1	-	0.6	1.7	0.1	43.3	-	45.2	-
PHF	0.955	0.500	0.000	-	0.929	0.250	0.583	0.675	-	0.636	0.000	0.375	0.250	-	0.500	0.600	0.250	0.860	-	0.858	0.905
Lights	294	10	0	-	304	1	28	23	-	52	0	3	1	-	4	10	0	290	-	300	660
% Lights	92.7	100.0	-	-	93.0	100.0	100.0	85.2	-	92.9	-	100.0	100.0	-	100.0	83.3	0.0	94.8	-	94.0	93.5
Mediums	22	0	0	-	22	0	0	4	-	4	0	0	0	-	0	2	1	15	-	18	44
% Mediums	6.9	0.0	-	-	6.7	0.0	0.0	14.8	-	7.1	-	0.0	0.0	-	0.0	16.7	100.0	4.9	-	5.6	6.2
Articulated Trucks	1	0	0	-	1	0	0	0	-	0	0	0	0	-	0	0	0	1	-	1	2
% Articulated Trucks	0.3	0.0	-	-	0.3	0.0	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0	0.0	0.3	-	0.3	0.3
Pedestrians	-	-	-	0	-	-	-	-	1	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
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Count Name: 5 Butler Pk-Cold Pint Hill Rd & Township Line Road
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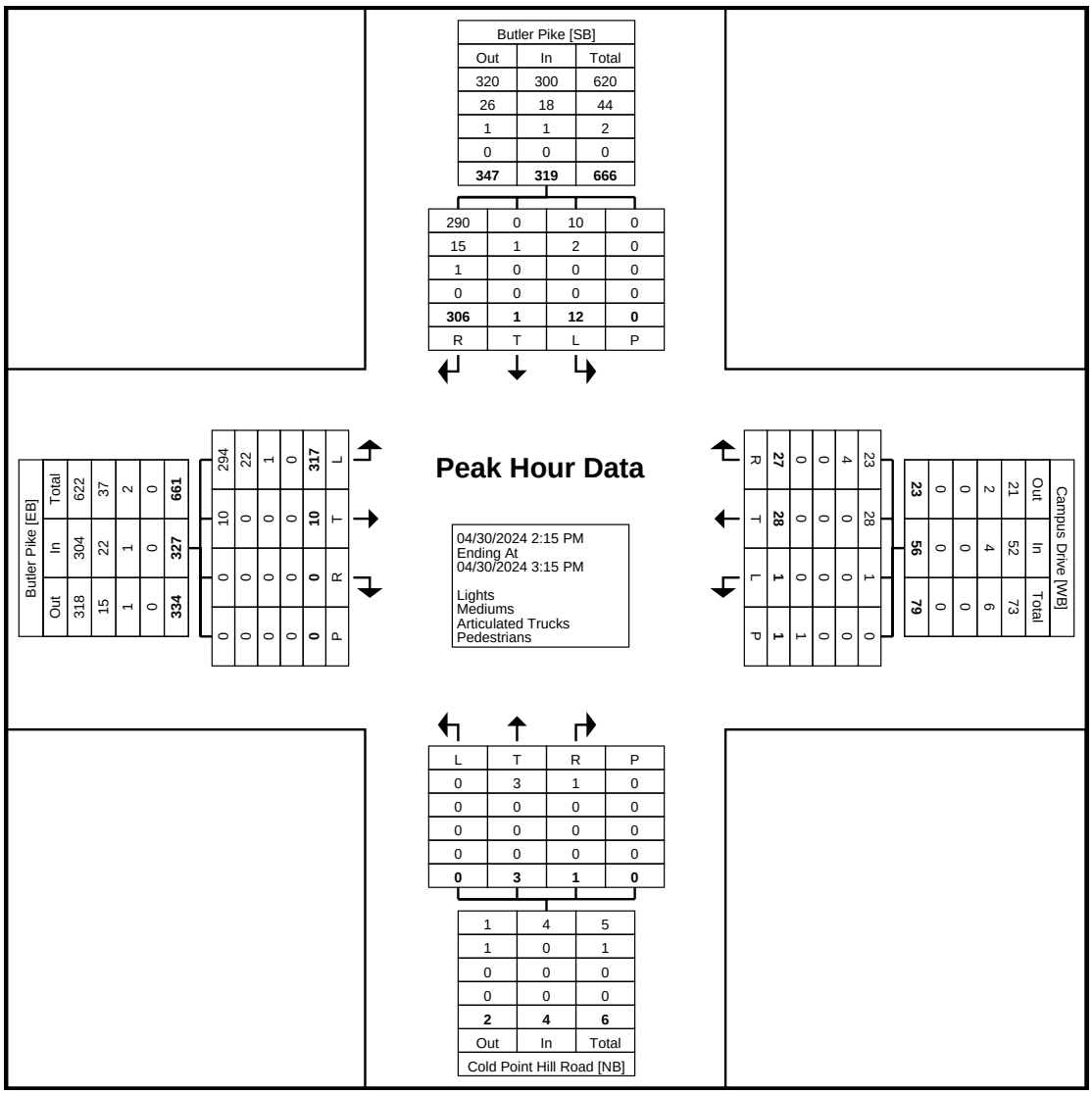

Turning Movement Peak Hour Data Plot (2:15 PM)

Counter: MIO:
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Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Turning Movement Peak Hour Data (4:30 PM)

Start Time	Butler Pike Eastbound					Campus Drive Westbound					Cold Point Hill Road Northbound					Butler Pike Southbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
4:30 PM	93	1	1	0	95	0	12	11	0	23	0	1	0	0	1	3	1	68	0	72	191
4:45 PM	81	3	0	0	84	0	4	9	0	13	0	1	0	0	1	3	0	65	0	68	166
5:00 PM	104	1	0	0	105	0	10	7	0	17	0	0	0	0	0	1	2	83	0	86	208
5:15 PM	78	0	0	0	78	0	8	6	0	14	0	0	0	0	0	2	1	85	0	88	180
Total	356	5	1	0	362	0	34	33	0	67	0	2	0	0	2	9	4	301	0	314	745
Approach %	98.3	1.4	0.3	-	-	0.0	50.7	49.3	-	-	0.0	100.0	0.0	-	-	2.9	1.3	95.9	-	-	-
Total %	47.8	0.7	0.1	-	48.6	0.0	4.6	4.4	-	9.0	0.0	0.3	0.0	-	0.3	1.2	0.5	40.4	-	42.1	-
PHF	0.856	0.417	0.250	-	0.862	0.000	0.708	0.750	-	0.728	0.000	0.500	0.000	-	0.500	0.750	0.500	0.885	-	0.892	0.895
Lights	350	4	1	-	355	0	33	32	-	65	0	2	0	-	2	9	4	294	-	307	729
% Lights	98.3	80.0	100.0	-	98.1	-	97.1	97.0	-	97.0	-	100.0	-	-	100.0	100.0	100.0	97.7	-	97.8	97.9
Mediums	6	1	0	-	7	0	1	1	-	2	0	0	0	-	0	0	0	6	-	6	15
% Mediums	1.7	20.0	0.0	-	1.9	-	2.9	3.0	-	3.0	-	0.0	-	-	0.0	0.0	0.0	2.0	-	1.9	2.0
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	1	-	1	1
% Articulated Trucks	0.0	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	-	0.0	-	-	0.0	0.0	0.0	0.3	-	0.3	0.1
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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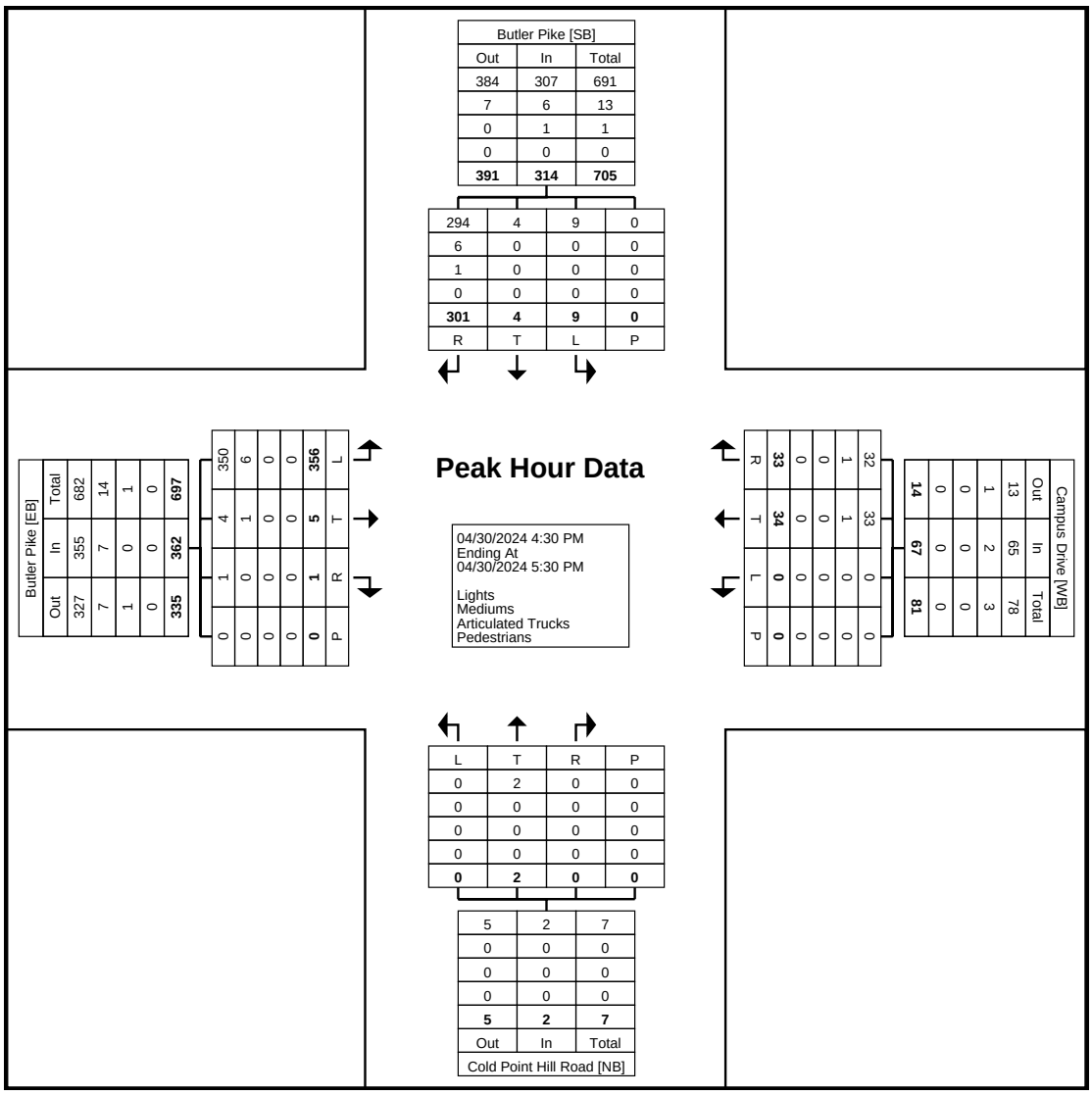
Site Code:
Start Date: 04/30/2024



Turning Movement Peak Hour Data Plot (4:30 PM)

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: 7 Existing Driveway (512 W) & Township Line Road
Site Code:
Start Date: 04/30/2024

Turning Movement Data

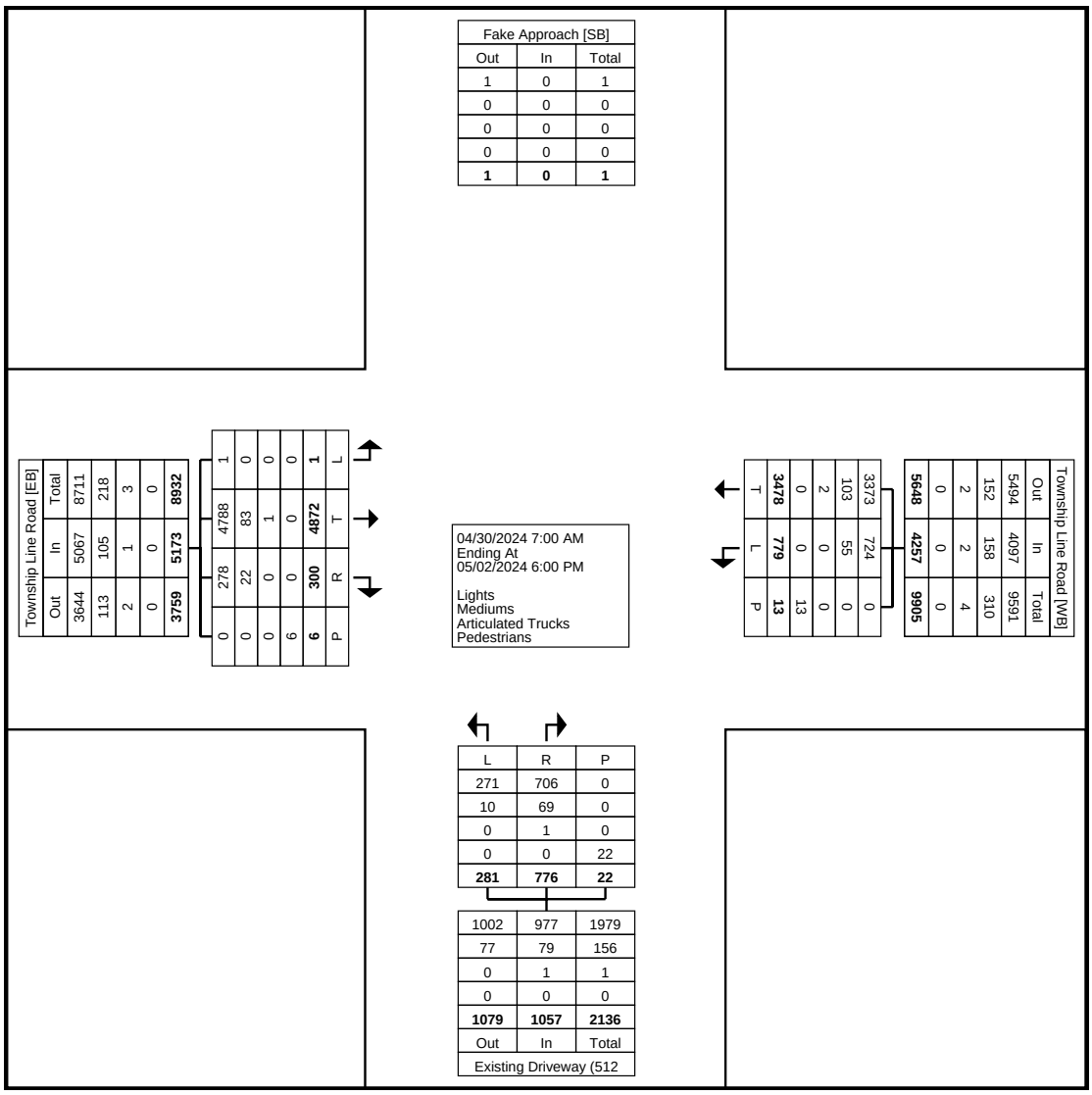
Start Time	Township Line Road Eastbound					Township Line Road Westbound				Existing Driveway (512 West TLR) Northbound				
	Left	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
7:00 AM	0	57	2	0	59	10	18	0	28	1	2	0	3	90
7:15 AM	0	61	5	0	66	6	37	0	43	1	1	0	2	111
7:30 AM	0	65	5	0	70	12	39	0	51	0	0	1	0	121
7:45 AM	0	66	11	0	77	25	61	0	86	1	0	0	1	164
Hourly Total	0	249	23	0	272	53	155	0	208	3	3	1	6	486
8:00 AM	0	71	9	0	80	36	66	0	102	0	3	0	3	185
8:15 AM	0	49	10	0	59	31	80	1	111	7	29	0	36	206
8:30 AM	0	70	9	0	79	20	50	0	70	3	18	0	21	170
8:45 AM	0	53	7	0	60	18	47	0	65	3	12	0	15	140
Hourly Total	0	243	35	0	278	105	243	1	348	13	62	0	75	701
9:00 AM	0	42	5	0	47	9	76	0	85	1	6	0	7	139
9:15 AM	0	30	3	0	33	7	45	0	52	2	3	0	5	90
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	72	8	0	80	16	121	0	137	3	9	0	12	229
2:00 PM	0	36	1	0	37	5	30	0	35	3	4	0	7	79
2:15 PM	0	48	0	0	48	6	35	1	41	1	4	1	5	94
2:30 PM	0	38	5	0	43	8	44	0	52	0	7	0	7	102
2:45 PM	0	54	7	0	61	12	53	0	65	2	7	0	9	135
Hourly Total	0	176	13	0	189	31	162	1	193	6	22	1	28	410
3:00 PM	0	60	4	0	64	16	41	1	57	9	15	1	24	145
3:15 PM	0	54	4	0	58	5	33	0	38	6	23	0	29	125
3:30 PM	0	78	6	0	84	8	40	0	48	12	18	0	30	162
3:45 PM	0	49	2	0	51	10	42	0	52	11	46	1	57	160
Hourly Total	0	241	16	0	257	39	156	1	195	38	102	2	140	592
4:00 PM	0	84	0	1	84	3	66	3	69	15	35	3	50	203
4:15 PM	0	78	2	0	80	0	40	0	40	3	11	0	14	134
4:30 PM	0	82	3	0	85	2	49	0	51	3	5	0	8	144
4:45 PM	0	79	0	0	79	1	48	0	49	2	6	0	8	136
Hourly Total	0	323	5	1	328	6	203	3	209	23	57	3	80	617
5:00 PM	0	92	2	0	94	1	50	0	51	4	3	0	7	152
5:15 PM	0	97	0	0	97	1	47	0	48	0	2	1	2	147
5:30 PM	0	78	1	1	79	1	42	0	43	3	1	0	4	126
5:45 PM	0	60	0	0	60	0	43	1	43	1	1	0	2	105
Hourly Total	0	327	3	1	330	3	182	1	185	8	7	1	15	530
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 AM	0	43	0	0	43	4	32	0	36	1	1	0	2	81
7:15 AM	0	69	8	0	77	6	23	1	29	2	0	1	2	108
7:30 AM	0	53	5	0	58	20	44	0	64	0	1	0	1	123
7:45 AM	0	84	13	0	97	38	57	0	95	1	2	0	3	195
Hourly Total	0	249	26	0	275	68	156	1	224	4	4	1	8	507
8:00 AM	0	72	8	0	80	32	38	0	70	0	2	0	2	152
8:15 AM	0	47	10	0	57	27	44	0	71	6	28	0	34	162
8:30 AM	0	59	10	0	69	19	37	0	56	6	23	0	29	154
8:45 AM	0	47	4	0	51	13	36	0	49	2	11	0	13	113
Hourly Total	0	225	32	0	257	91	155	0	246	14	64	0	78	581
9:00 AM	0	35	4	0	39	9	30	0	39	2	8	0	10	88
9:15 AM	0	35	2	0	37	5	30	0	35	1	2	0	3	75
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	70	6	0	76	14	60	0	74	3	10	0	13	163
2:00 PM	0	35	1	0	36	7	37	0	44	1	5	0	6	86
2:15 PM	0	42	3	0	45	8	34	0	42	0	8	0	8	95
2:30 PM	0	37	3	0	40	11	38	0	49	1	3	0	4	93
2:45 PM	0	41	5	0	46	15	38	0	53	1	7	0	8	107
Hourly Total	0	155	12	0	167	41	147	0	188	3	23	0	26	381
3:00 PM	0	52	5	0	57	21	37	0	58	4	12	1	16	131
3:15 PM	0	65	3	0	68	9	29	0	38	6	27	0	33	139
3:30 PM	0	63	3	0	66	7	58	0	65	13	27	0	40	171
3:45 PM	0	57	0	0	57	10	49	0	59	11	37	0	48	164
Hourly Total	0	237	11	0	248	47	173	0	220	34	103	1	137	605
4:00 PM	0	67	1	1	68	3	48	3	51	16	31	3	47	166
4:15 PM	0	77	0	0	77	1	41	0	42	4	7	0	11	130

4:30 PM	0	100	1	0	101	2	53	0	55	2	9	0	11	167
4:45 PM	0	84	1	0	85	0	63	0	63	0	3	0	3	151
Hourly Total	0	328	3	1	331	6	205	3	211	22	50	3	72	614
5:00 PM	0	100	2	0	102	2	58	0	60	6	4	0	10	172
5:15 PM	0	98	0	0	98	0	46	0	46	1	8	0	9	153
5:30 PM	0	76	0	0	76	1	43	0	44	2	1	0	3	123
5:45 PM	0	74	0	0	74	0	42	0	42	0	0	0	0	116
Hourly Total	0	348	2	0	350	3	189	0	192	9	13	0	22	564
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 AM	0	52	3	0	55	8	29	0	37	1	0	0	1	93
7:15 AM	0	79	6	0	85	7	20	0	27	1	1	1	2	114
7:30 AM	0	58	5	0	63	19	45	0	64	0	0	0	0	127
7:45 AM	0	81	11	0	92	38	68	0	106	2	1	0	3	201
Hourly Total	0	270	25	0	295	72	162	0	234	4	2	1	6	535
8:00 AM	0	55	15	0	70	37	50	0	87	1	3	0	4	161
8:15 AM	0	50	8	0	58	26	45	0	71	8	27	0	35	164
8:30 AM	0	51	9	0	60	20	42	0	62	6	18	0	24	146
8:45 AM	0	41	7	0	48	7	45	0	52	0	9	0	9	109
Hourly Total	0	197	39	0	236	90	182	0	272	15	57	0	72	580
9:00 AM	0	35	4	0	39	7	37	0	44	4	3	0	7	90
9:15 AM	0	29	0	0	29	5	24	0	29	1	5	0	6	64
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	64	4	0	68	12	61	0	73	5	8	0	13	154
2:00 PM	0	51	2	0	53	7	36	0	43	3	5	0	8	104
2:15 PM	0	34	0	0	34	5	34	0	39	1	5	0	6	79
2:30 PM	0	40	4	0	44	13	34	0	47	4	4	0	8	99
2:45 PM	0	50	5	0	55	10	53	0	63	1	4	4	5	123
Hourly Total	0	175	11	0	186	35	157	0	192	9	18	4	27	405
3:00 PM	0	69	6	0	75	19	53	0	72	4	16	2	20	167
3:15 PM	0	54	7	0	61	5	41	0	46	11	28	0	39	146
3:30 PM	0	59	3	0	62	7	47	0	54	10	15	0	25	141
3:45 PM	0	79	4	0	83	3	46	0	49	10	40	0	50	182
Hourly Total	0	261	20	0	281	34	187	0	221	35	99	2	134	636
4:00 PM	0	65	1	3	66	3	68	2	71	9	27	2	36	173
4:15 PM	0	83	3	0	86	0	54	0	54	7	9	0	16	156
4:30 PM	1	83	0	0	84	3	51	0	54	5	4	0	9	147
4:45 PM	0	71	1	0	72	4	53	0	57	1	7	0	8	137
Hourly Total	1	302	5	3	308	10	226	2	236	22	47	2	69	613
5:00 PM	0	98	1	0	99	2	56	0	58	5	4	0	9	166
5:15 PM	0	97	0	0	97	0	61	0	61	1	4	0	5	163
5:30 PM	0	100	0	0	100	1	41	0	42	1	8	0	9	151
5:45 PM	0	65	0	0	65	0	38	0	38	1	0	0	1	104
Hourly Total	0	360	1	0	361	3	196	0	199	8	16	0	24	584
Grand Total	1	4872	300	6	5173	779	3478	13	4257	281	776	22	1057	10487
Approach %	0.0	94.2	5.8	-	-	18.3	81.7	-	-	26.6	73.4	-	-	-
Total %	0.0	46.5	2.9	-	49.3	7.4	33.2	-	40.6	2.7	7.4	-	10.1	-
Lights	1	4788	278	-	5067	724	3373	-	4097	271	706	-	977	10141
% Lights	100.0	98.3	92.7	-	98.0	92.9	97.0	-	96.2	96.4	91.0	-	92.4	96.7
Mediums	0	83	22	-	105	55	103	-	158	10	69	-	79	342
% Mediums	0.0	1.7	7.3	-	2.0	7.1	3.0	-	3.7	3.6	8.9	-	7.5	3.3
Articulated Trucks	0	1	0	-	1	0	2	-	2	0	1	-	1	4
% Articulated Trucks	0.0	0.0	0.0	-	0.0	0.0	0.1	-	0.0	0.0	0.1	-	0.1	0.0
Pedestrians	-	-	-	6	-	-	-	13	-	-	-	22	-	-
% Pedestrians	-	-	-	100.0	-	-	-	100.0	-	-	-	100.0	-	-

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 7 Existing Driveway (512 W) & Township Line Road
Site Code:
Start Date: 04/30/2024



Turning Movement Data Plot

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Turning Movement Peak Hour Data (7:45 AM)

Start Time	Township Line Road Eastbound					Township Line Road Westbound				Existing Driveway (512 West TLR) Northbound				
	Left	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
7:45 AM	0	66	11	0	77	25	61	0	86	1	0	0	1	164
8:00 AM	0	71	9	0	80	36	66	0	102	0	3	0	3	185
8:15 AM	0	49	10	0	59	31	80	1	111	7	29	0	36	206
8:30 AM	0	70	9	0	79	20	50	0	70	3	18	0	21	170
Total	0	256	39	0	295	112	257	1	369	11	50	0	61	725
Approach %	0.0	86.8	13.2	-	-	30.4	69.6	-	-	18.0	82.0	-	-	-
Total %	0.0	35.3	5.4	-	40.7	15.4	35.4	-	50.9	1.5	6.9	-	8.4	-
PHF	0.000	0.901	0.886	-	0.922	0.778	0.803	-	0.831	0.393	0.431	-	0.424	0.880
Lights	0	252	36	-	288	105	251	-	356	10	43	-	53	697
% Lights	-	98.4	92.3	-	97.6	93.8	97.7	-	96.5	90.9	86.0	-	86.9	96.1
Mediums	0	4	3	-	7	7	6	-	13	1	7	-	8	28
% Mediums	-	1.6	7.7	-	2.4	6.3	2.3	-	3.5	9.1	14.0	-	13.1	3.9
Articulated Trucks	0	0	0	-	0	0	0	-	0	0	0	-	0	0
% Articulated Trucks	-	0.0	0.0	-	0.0	0.0	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	1	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-

Traffic Planning and Design, Inc
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Counter: MIO:
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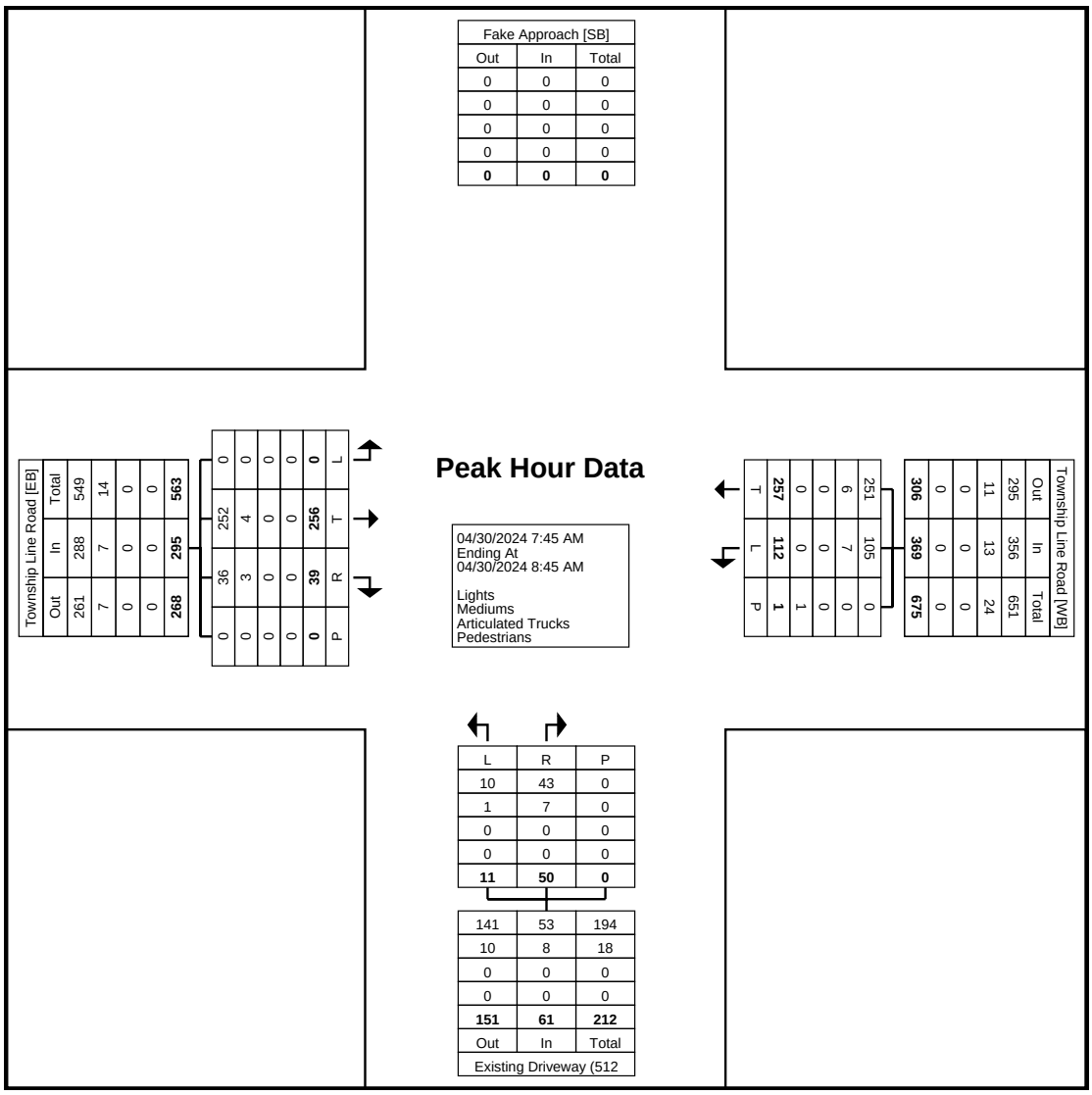
Count Name: 7 Existing Driveway (512 W) & Township Line Road
Site Code:
Start Date: 04/30/2024



Fake Approach [SB]		
Out	In	Total
0	0	0
0	0	0
0	0	0
0	0	0
0	**0**	**0**

Township Line Road [EB]							
	Total	549	14	0	0	**563**	
	In	288	7	0	0	**295**	
	Out	261	7	0	0	**268**	

0	0	0	0	**0**	L	
252	4	0	0	**256**	T	
36	3	0	0	**39**	R	
0	0	0	0	**0**	P	

T	**257**	0	0	6	251
L	**112**	0	0	7	105
P	**1**	1	0	0	0

Township Line Road [WB]						
	Out	295	11	0	0	**306**
	In	356	13	0	0	**369**
	Total	651	24	0	0	**675**

L	R	P
10	43	0
1	7	0
0	0	0
0	0	0
11	**50**	**0**

141	53	194
10	8	18
0	0	0
0	0	0
151	**61**	**212**
Out	In	Total
Existing Driveway (512		

Turning Movement Peak Hour Data Plot (7:45 AM)

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: 7 Existing Driveway (512 W) & Township Line Road
Site Code:
Start Date: 04/30/2024

Turning Movement Peak Hour Data (3:00 PM)

Start Time	Township Line Road Eastbound					Township Line Road Westbound				Existing Driveway (512 West TLR) Northbound				
	Left	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
3:00 PM	0	60	4	0	64	16	41	1	57	9	15	1	24	145
3:15 PM	0	54	4	0	58	5	33	0	38	6	23	0	29	125
3:30 PM	0	78	6	0	84	8	40	0	48	12	18	0	30	162
3:45 PM	0	49	2	0	51	10	42	0	52	11	46	1	57	160
Total	0	241	16	0	257	39	156	1	195	38	102	2	140	592
Approach %	0.0	93.8	6.2	-	-	20.0	80.0	-	-	27.1	72.9	-	-	-
Total %	0.0	40.7	2.7	-	43.4	6.6	26.4	-	32.9	6.4	17.2	-	23.6	-
PHF	0.000	0.772	0.667	-	0.765	0.609	0.929	-	0.855	0.792	0.554	-	0.614	0.914
Lights	0	233	14	-	247	33	154	-	187	37	91	-	128	562
% Lights	-	96.7	87.5	-	96.1	84.6	98.7	-	95.9	97.4	89.2	-	91.4	94.9
Mediums	0	8	2	-	10	6	2	-	8	1	11	-	12	30
% Mediums	-	3.3	12.5	-	3.9	15.4	1.3	-	4.1	2.6	10.8	-	8.6	5.1
Articulated Trucks	0	0	0	-	0	0	0	-	0	0	0	-	0	0
% Articulated Trucks	-	0.0	0.0	-	0.0	0.0	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	1	-	-	-	2	-	-
% Pedestrians	-	-	-	-	-	-	-	100.0	-	-	-	100.0	-	-

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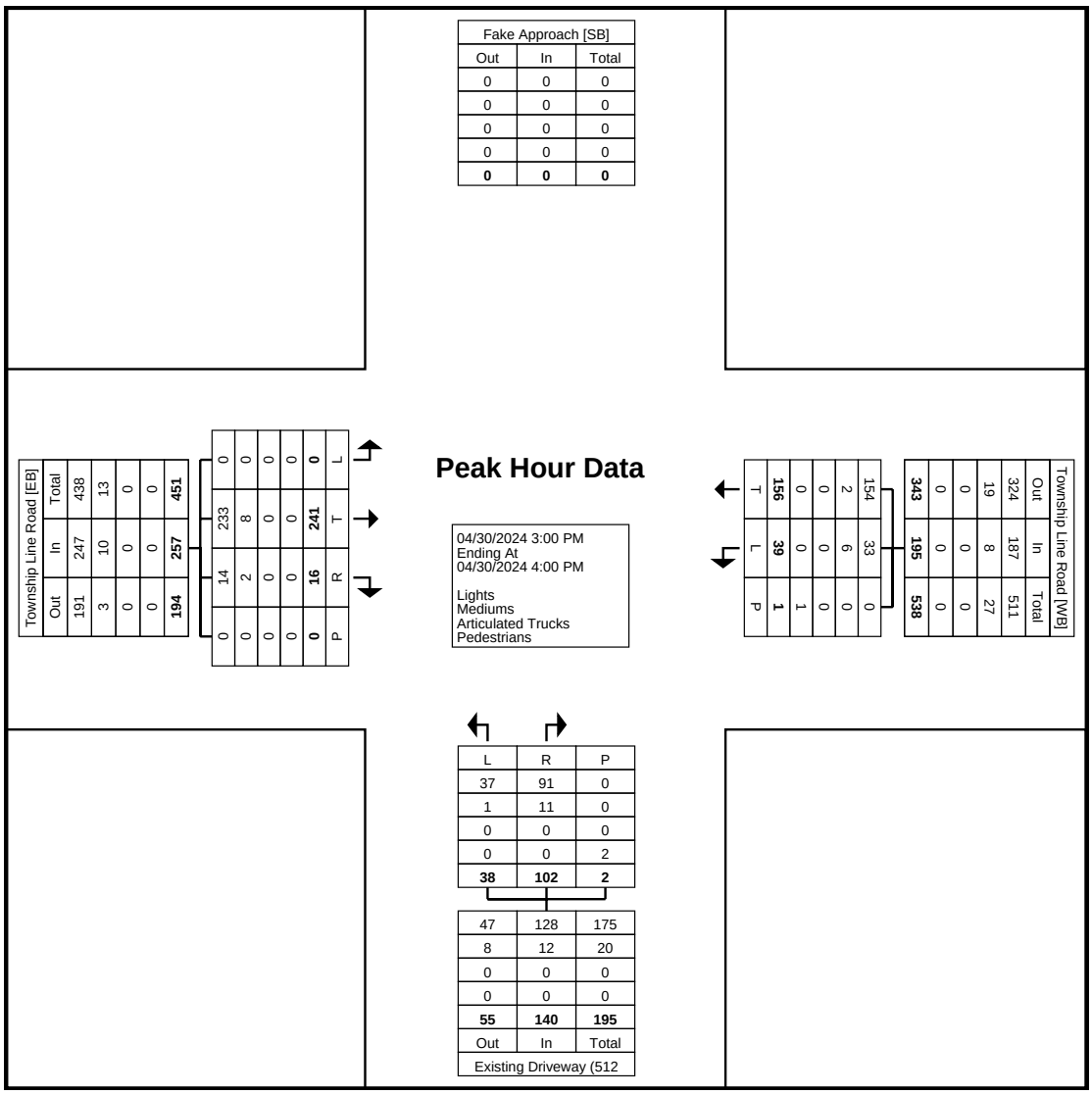

Turning Movement Peak Hour Data Plot (3:00 PM)

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
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610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 7 Existing Driveway (512 W) & Township Line Road
Site Code:
Start Date: 04/30/2024

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Township Line Road Eastbound					Township Line Road Westbound				Existing Driveway (512 West TLR) Northbound				
	Left	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
4:00 PM	0	84	0	1	84	3	66	3	69	15	35	3	50	203
4:15 PM	0	78	2	0	80	0	40	0	40	3	11	0	14	134
4:30 PM	0	82	3	0	85	2	49	0	51	3	5	0	8	144
4:45 PM	0	79	0	0	79	1	48	0	49	2	6	0	8	136
Total	0	323	5	1	328	6	203	3	209	23	57	3	80	617
Approach %	0.0	98.5	1.5	-	-	2.9	97.1	-	-	28.8	71.3	-	-	-
Total %	0.0	52.4	0.8	-	53.2	1.0	32.9	-	33.9	3.7	9.2	-	13.0	-
PHF	0.000	0.961	0.417	-	0.965	0.500	0.769	-	0.757	0.383	0.407	-	0.400	0.760
Lights	0	319	4	-	323	6	195	-	201	23	55	-	78	602
% Lights	-	98.8	80.0	-	98.5	100.0	96.1	-	96.2	100.0	96.5	-	97.5	97.6
Mediums	0	4	1	-	5	0	8	-	8	0	1	-	1	14
% Mediums	-	1.2	20.0	-	1.5	0.0	3.9	-	3.8	0.0	1.8	-	1.3	2.3
Articulated Trucks	0	0	0	-	0	0	0	-	0	0	1	-	1	1
% Articulated Trucks	-	0.0	0.0	-	0.0	0.0	0.0	-	0.0	0.0	1.8	-	1.3	0.2
Pedestrians	-	-	-	1	-	-	-	3	-	-	-	3	-	-
% Pedestrians	-	-	-	100.0	-	-	-	100.0	-	-	-	100.0	-	-

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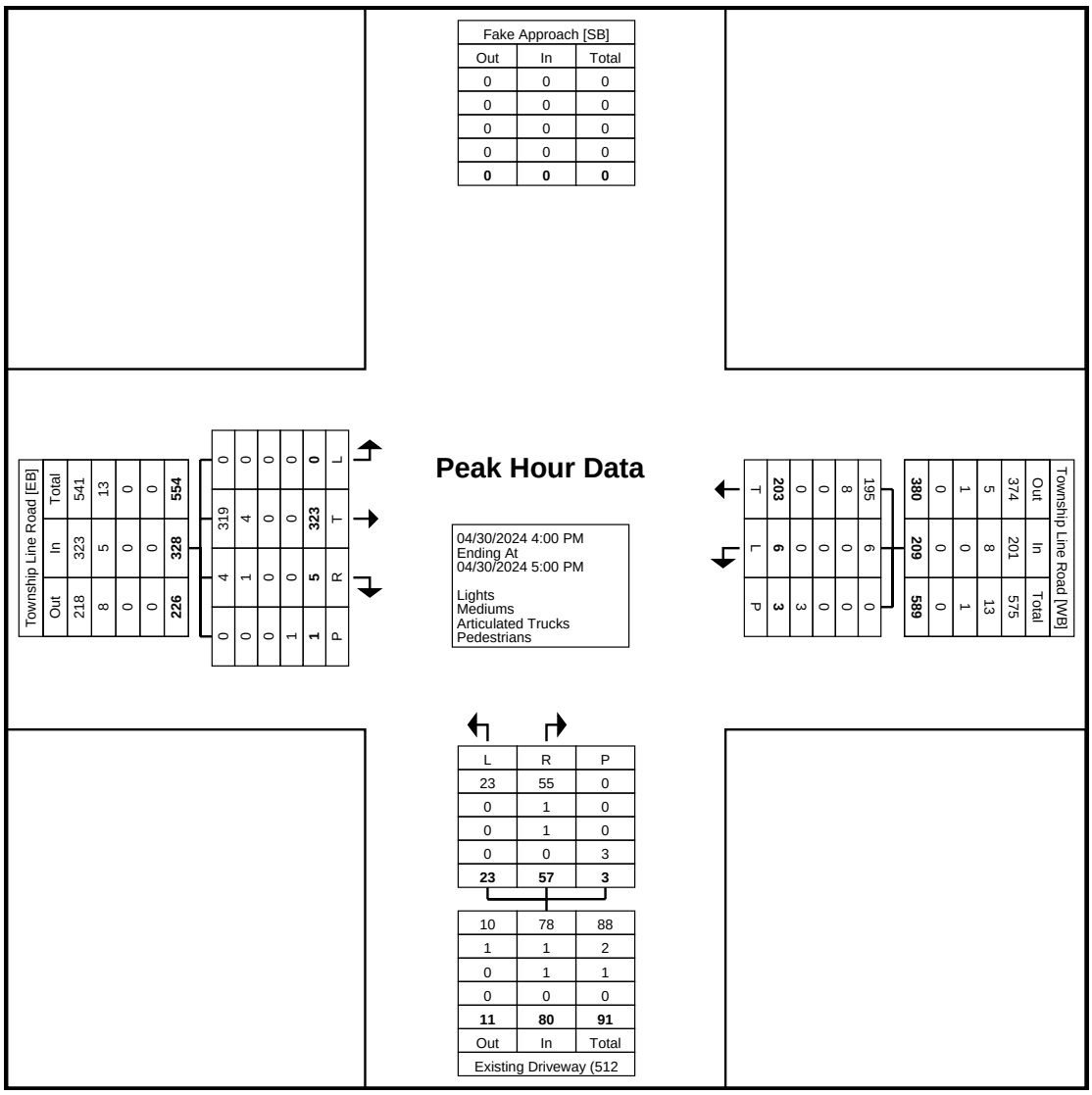
Start Date: 04/30/2024



Turning Movement Peak Hour Data Plot (4:00 PM)

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
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Counter: MIO:
Set up By JH::

Count Name: 7 Existing Driveway (512 W) & Township Line Road
Site Code:
Start Date: 04/30/2024

Turning Movement Peak Hour Data (7:45 AM)

Start Time	Township Line Road Eastbound					Township Line Road Westbound				Existing Driveway (512 West TLR) Northbound				
	Left	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
7:45 AM	0	84	13	0	97	38	57	0	95	1	2	0	3	195
8:00 AM	0	72	8	0	80	32	38	0	70	0	2	0	2	152
8:15 AM	0	47	10	0	57	27	44	0	71	6	28	0	34	162
8:30 AM	0	59	10	0	69	19	37	0	56	6	23	0	29	154
Total	0	262	41	0	303	116	176	0	292	13	55	0	68	663
Approach %	0.0	86.5	13.5	-	-	39.7	60.3	-	-	19.1	80.9	-	-	-
Total %	0.0	39.5	6.2	-	45.7	17.5	26.5	-	44.0	2.0	8.3	-	10.3	-
PHF	0.000	0.780	0.788	-	0.781	0.763	0.772	-	0.768	0.542	0.491	-	0.500	0.850
Lights	0	257	38	-	295	107	173	-	280	12	47	-	59	634
% Lights	-	98.1	92.7	-	97.4	92.2	98.3	-	95.9	92.3	85.5	-	86.8	95.6
Mediums	0	4	3	-	7	9	3	-	12	1	8	-	9	28
% Mediums	-	1.5	7.3	-	2.3	7.8	1.7	-	4.1	7.7	14.5	-	13.2	4.2
Articulated Trucks	0	1	0	-	1	0	0	-	0	0	0	-	0	1
% Articulated Trucks	-	0.4	0.0	-	0.3	0.0	0.0	-	0.0	0.0	0.0	-	0.0	0.2
Pedestrians	-	-	-	0	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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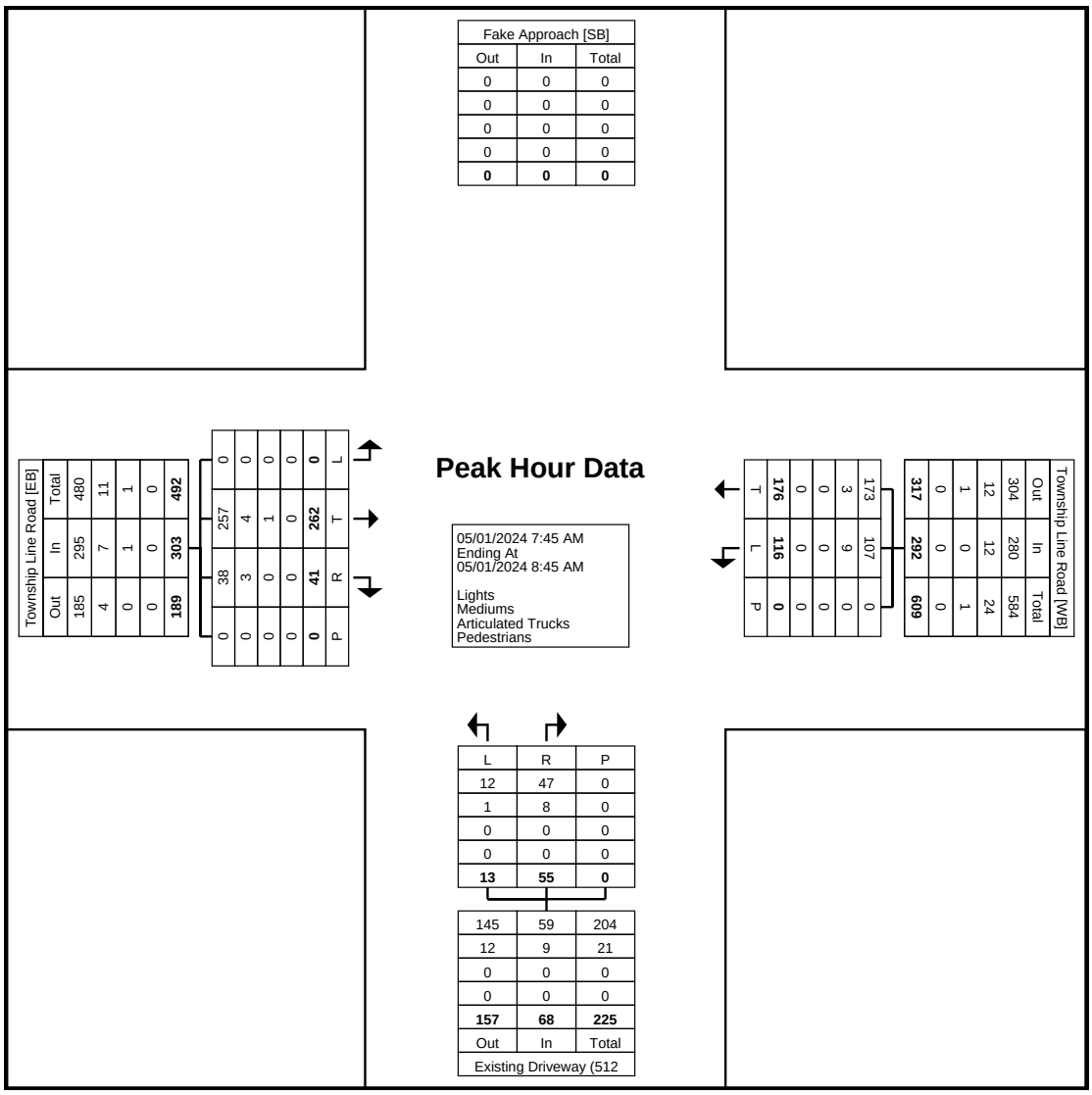
Start Date: 04/30/2024



Turning Movement Peak Hour Data Plot (7:45 AM)

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Counter: MIO:
Set up By JH::

Count Name: 7 Existing Driveway (512 W) & Township Line Road
Site Code:
Start Date: 04/30/2024

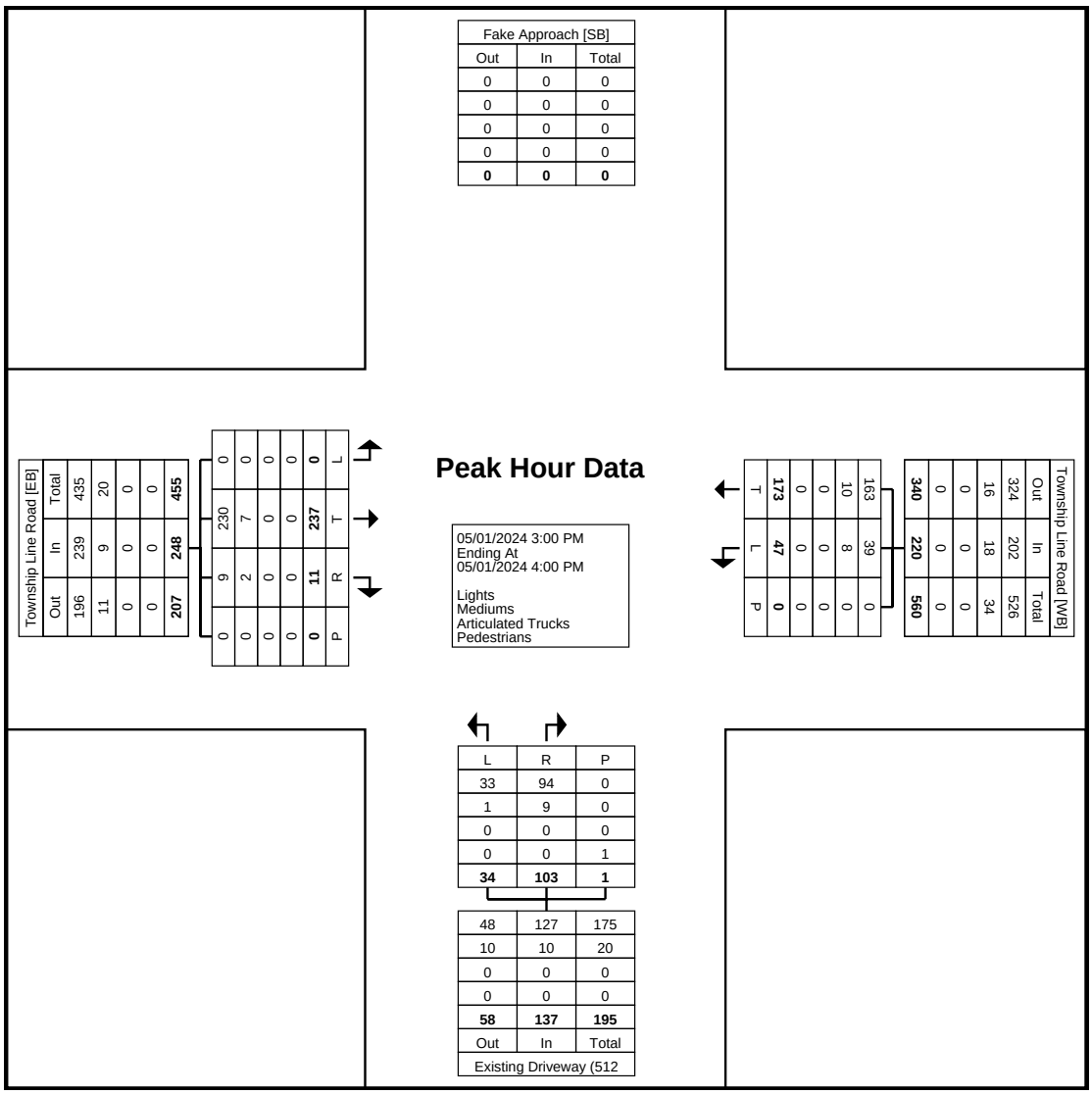
Turning Movement Peak Hour Data (3:00 PM)

Start Time	Township Line Road Eastbound					Township Line Road Westbound				Existing Driveway (512 West TLR) Northbound				
	Left	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
3:00 PM	0	52	5	0	57	21	37	0	58	4	12	1	16	131
3:15 PM	0	65	3	0	68	9	29	0	38	6	27	0	33	139
3:30 PM	0	63	3	0	66	7	58	0	65	13	27	0	40	171
3:45 PM	0	57	0	0	57	10	49	0	59	11	37	0	48	164
Total	0	237	11	0	248	47	173	0	220	34	103	1	137	605
Approach %	0.0	95.6	4.4	-	-	21.4	78.6	-	-	24.8	75.2	-	-	-
Total %	0.0	39.2	1.8	-	41.0	7.8	28.6	-	36.4	5.6	17.0	-	22.6	-
PHF	0.000	0.912	0.550	-	0.912	0.560	0.746	-	0.846	0.654	0.696	-	0.714	0.885
Lights	0	230	9	-	239	39	163	-	202	33	94	-	127	568
% Lights	-	97.0	81.8	-	96.4	83.0	94.2	-	91.8	97.1	91.3	-	92.7	93.9
Mediums	0	7	2	-	9	8	10	-	18	1	9	-	10	37
% Mediums	-	3.0	18.2	-	3.6	17.0	5.8	-	8.2	2.9	8.7	-	7.3	6.1
Articulated Trucks	0	0	0	-	0	0	0	-	0	0	0	-	0	0
% Articulated Trucks	-	0.0	0.0	-	0.0	0.0	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	0	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 7 Existing Driveway (512 W) & Township Line Road
Site Code:
Start Date: 04/30/2024



Turning Movement Peak Hour Data Plot (3:00 PM)

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: 7 Existing Driveway (512 W) & Township Line Road
Site Code:
Start Date: 04/30/2024

Turning Movement Peak Hour Data (4:30 PM)

Start Time	Township Line Road Eastbound					Township Line Road Westbound				Existing Driveway (512 West TLR) Northbound				
	Left	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
4:30 PM	0	100	1	0	101	2	53	0	55	2	9	0	11	167
4:45 PM	0	84	1	0	85	0	63	0	63	0	3	0	3	151
5:00 PM	0	100	2	0	102	2	58	0	60	6	4	0	10	172
5:15 PM	0	98	0	0	98	0	46	0	46	1	8	0	9	153
Total	0	382	4	0	386	4	220	0	224	9	24	0	33	643
Approach %	0.0	99.0	1.0	-	-	1.8	98.2	-	-	27.3	72.7	-	-	-
Total %	0.0	59.4	0.6	-	60.0	0.6	34.2	-	34.8	1.4	3.7	-	5.1	-
PHF	0.000	0.955	0.500	-	0.946	0.500	0.873	-	0.889	0.375	0.667	-	0.750	0.935
Lights	0	382	2	-	384	4	212	-	216	9	22	-	31	631
% Lights	-	100.0	50.0	-	99.5	100.0	96.4	-	96.4	100.0	91.7	-	93.9	98.1
Mediums	0	0	2	-	2	0	8	-	8	0	2	-	2	12
% Mediums	-	0.0	50.0	-	0.5	0.0	3.6	-	3.6	0.0	8.3	-	6.1	1.9
Articulated Trucks	0	0	0	-	0	0	0	-	0	0	0	-	0	0
% Articulated Trucks	-	0.0	0.0	-	0.0	0.0	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
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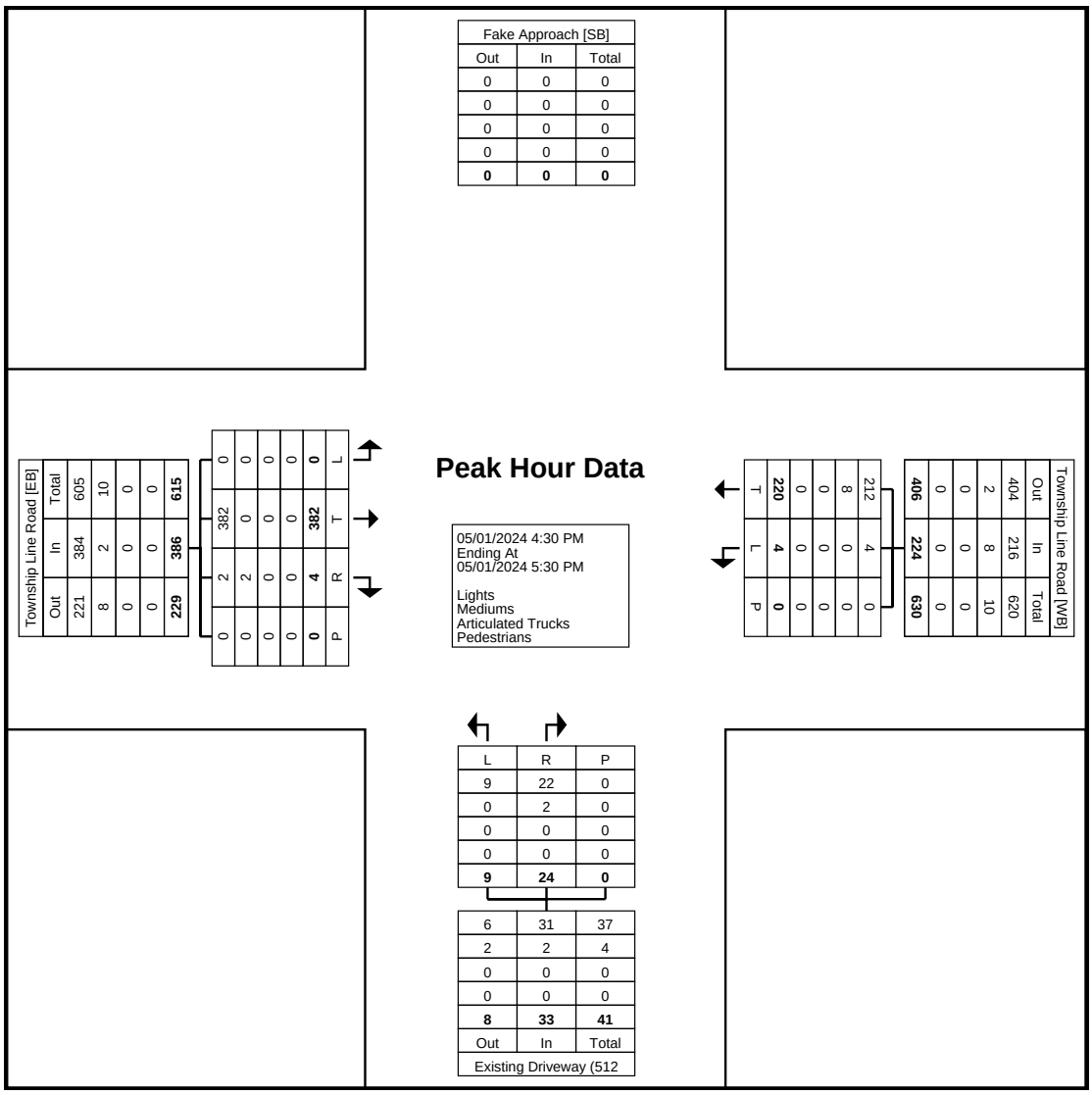
Counter: MIO:
Set up By JH::

Count Name: 7 Existing Driveway (512 W) & Township Line Road
Site Code:
Start Date: 04/30/2024



Turning Movement Peak Hour Data Plot (4:30 PM)

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 7 Existing Driveway (512 W) & Township Line Road
Site Code:
Start Date: 04/30/2024

Turning Movement Peak Hour Data (7:45 AM)

Start Time	Township Line Road Eastbound					Township Line Road Westbound				Existing Driveway (512 West TLR) Northbound				
	Left	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
7:45 AM	0	81	11	0	92	38	68	0	106	2	1	0	3	201
8:00 AM	0	55	15	0	70	37	50	0	87	1	3	0	4	161
8:15 AM	0	50	8	0	58	26	45	0	71	8	27	0	35	164
8:30 AM	0	51	9	0	60	20	42	0	62	6	18	0	24	146
Total	0	237	43	0	280	121	205	0	326	17	49	0	66	672
Approach %	0.0	84.6	15.4	-	-	37.1	62.9	-	-	25.8	74.2	-	-	-
Total %	0.0	35.3	6.4	-	41.7	18.0	30.5	-	48.5	2.5	7.3	-	9.8	-
PHF	0.000	0.731	0.717	-	0.761	0.796	0.754	-	0.769	0.531	0.454	-	0.471	0.836
Lights	0	234	40	-	274	112	201	-	313	16	40	-	56	643
% Lights	-	98.7	93.0	-	97.9	92.6	98.0	-	96.0	94.1	81.6	-	84.8	95.7
Mediums	0	3	3	-	6	9	4	-	13	1	9	-	10	29
% Mediums	-	1.3	7.0	-	2.1	7.4	2.0	-	4.0	5.9	18.4	-	15.2	4.3
Articulated Trucks	0	0	0	-	0	0	0	-	0	0	0	-	0	0
% Articulated Trucks	-	0.0	0.0	-	0.0	0.0	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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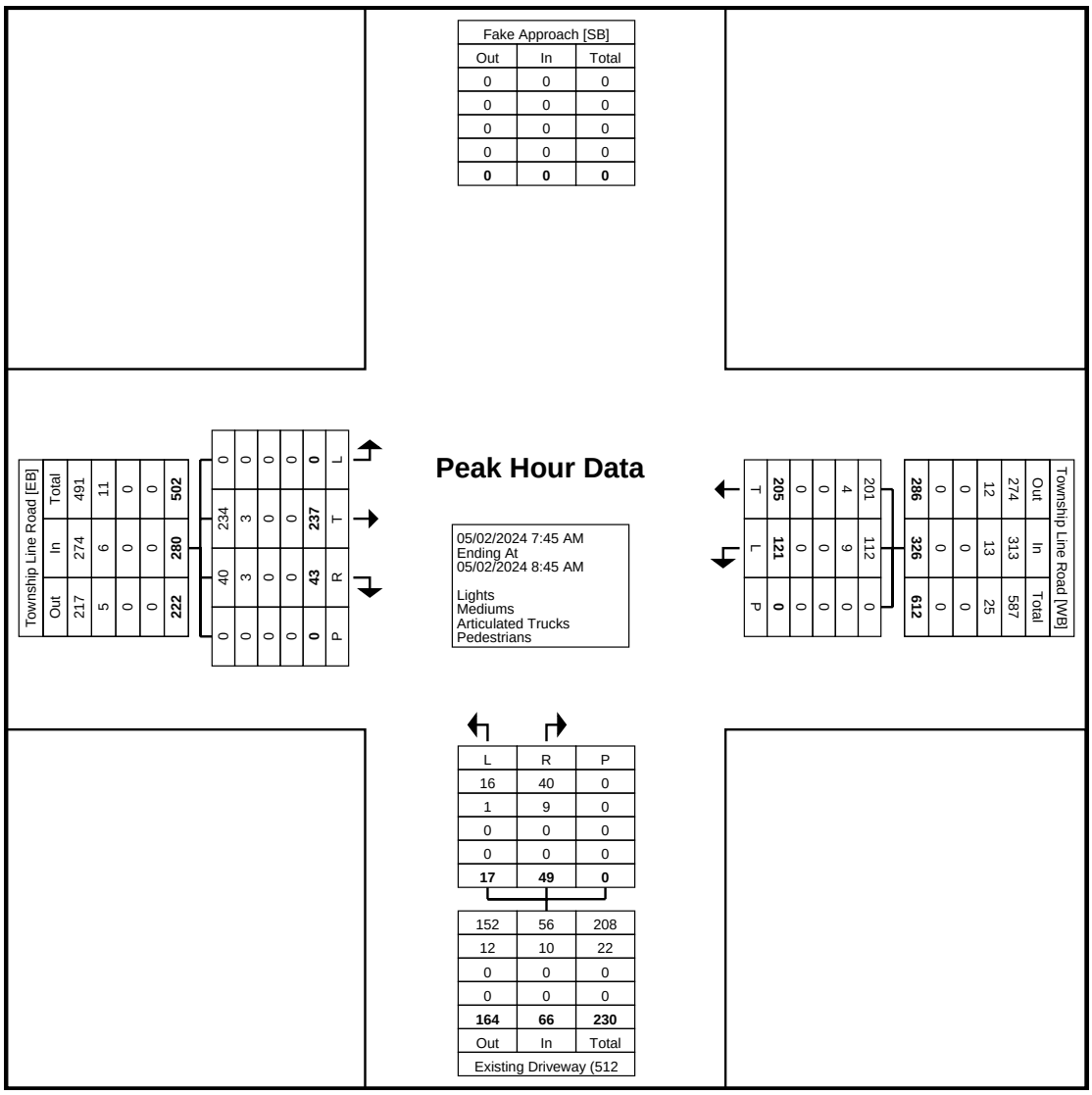
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 7 Existing Driveway (512 W) & Township Line Road
Site Code:
Start Date: 04/30/2024



Fake Approach [SB]		
Out	In	Total
0	0	0
0	0	0
0	0	0
0	0	0
0	**0**	**0**

Township Line Road [EB]		
Out	In	Total
217	274	491
5	6	11
0	0	0
0	0	0
222	**280**	**502**

0	0	0	0	**0**	L
234	3	0	0	**237**	T
40	3	0	0	**43**	R
0	0	0	0	**0**	P

T	**205**	0
L	**121**	0
P	**0**	0

0	0	0
0	0	0
0	0	0
4	9	0
201	112	0

Township Line Road [WB]		
Out	In	Total
274	313	587
12	13	25
0	0	0
0	0	0
286	**326**	**612**

L	R	P
16	40	0
1	9	0
0	0	0
0	0	0
17	**49**	**0**

152	56	208
12	10	22
0	0	0
0	0	0
164	**66**	**230**
Out	In	Total
Existing Driveway (512		

Turning Movement Peak Hour Data Plot (7:45 AM)

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
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610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 7 Existing Driveway (512 W) & Township Line Road
Site Code:
Start Date: 04/30/2024

Turning Movement Peak Hour Data (3:00 PM)

Start Time	Township Line Road Eastbound					Township Line Road Westbound				Existing Driveway (512 West TLR) Northbound				
	Left	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
3:00 PM	0	69	6	0	75	19	53	0	72	4	16	2	20	167
3:15 PM	0	54	7	0	61	5	41	0	46	11	28	0	39	146
3:30 PM	0	59	3	0	62	7	47	0	54	10	15	0	25	141
3:45 PM	0	79	4	0	83	3	46	0	49	10	40	0	50	182
Total	0	261	20	0	281	34	187	0	221	35	99	2	134	636
Approach %	0.0	92.9	7.1	-	-	15.4	84.6	-	-	26.1	73.9	-	-	-
Total %	0.0	41.0	3.1	-	44.2	5.3	29.4	-	34.7	5.5	15.6	-	21.1	-
PHF	0.000	0.826	0.714	-	0.846	0.447	0.882	-	0.767	0.795	0.619	-	0.670	0.874
Lights	0	256	18	-	274	26	181	-	207	34	90	-	124	605
% Lights	-	98.1	90.0	-	97.5	76.5	96.8	-	93.7	97.1	90.9	-	92.5	95.1
Mediums	0	5	2	-	7	8	6	-	14	1	9	-	10	31
% Mediums	-	1.9	10.0	-	2.5	23.5	3.2	-	6.3	2.9	9.1	-	7.5	4.9
Articulated Trucks	0	0	0	-	0	0	0	-	0	0	0	-	0	0
% Articulated Trucks	-	0.0	0.0	-	0.0	0.0	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	0	-	-	-	2	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

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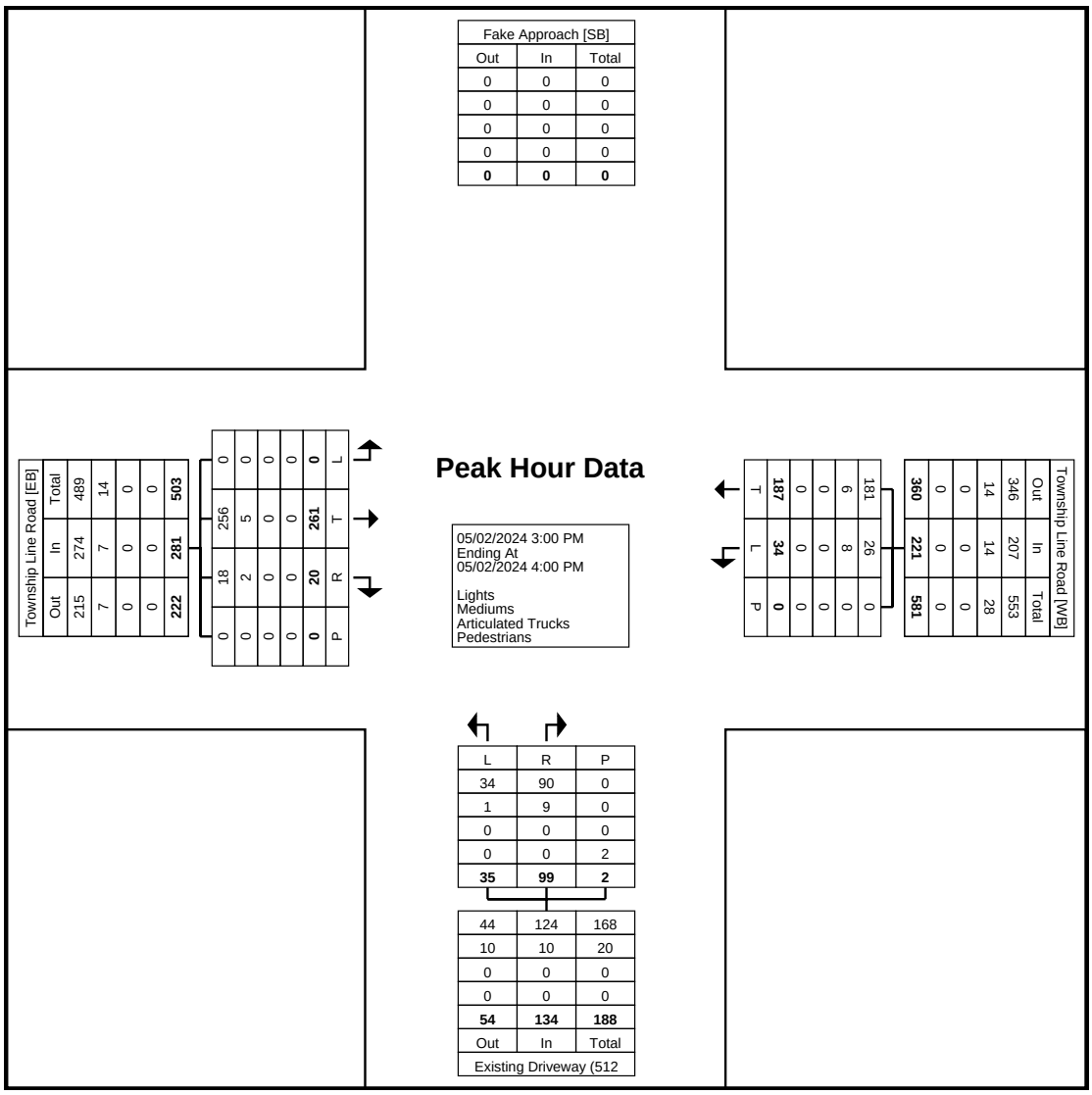
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 7 Existing Driveway (512 W) & Township Line Road
Site Code:
Start Date: 04/30/2024



Fake Approach [SB]		
Out	In	Total
0	0	0
0	0	0
0	0	0
0	0	0
0	**0**	**0**

Township Line Road [EB]						
Out	In	Total				
215	274	489	14	0	0	503
7	7	14	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
222	**281**	**503**	**14**	**0**	**0**	**0**

0	0	0	0	0	0	L
256	5	0	0	261	0	T
18	2	0	0	20	0	R
0	0	0	0	0	0	P

T	187	0	0	6	181	0
L	34	0	0	8	26	0
P	0	0	0	0	0	0

Township Line Road [WB]						
Out	In	Total				
346	207	553	14	0	0	360
14	14	28	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
360	**221**	**581**	**28**	**0**	**0**	**0**

L	R	P
34	90	0
1	9	0
0	0	0
0	0	2
35	**99**	**2**

44	124	168
10	10	20
0	0	0
0	0	0
54	**134**	**188**
Out	In	Total

Turning Movement Peak Hour Data Plot (3:00 PM)

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
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610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 7 Existing Driveway (512 W) & Township Line Road
Site Code:
Start Date: 04/30/2024

Turning Movement Peak Hour Data (4:45 PM)

Start Time	Township Line Road Eastbound					Township Line Road Westbound				Existing Driveway (512 West TLR) Northbound				
	Left	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
4:45 PM	0	71	1	0	72	4	53	0	57	1	7	0	8	137
5:00 PM	0	98	1	0	99	2	56	0	58	5	4	0	9	166
5:15 PM	0	97	0	0	97	0	61	0	61	1	4	0	5	163
5:30 PM	0	100	0	0	100	1	41	0	42	1	8	0	9	151
Total	0	366	2	0	368	7	211	0	218	8	23	0	31	617
Approach %	0.0	99.5	0.5	-	-	3.2	96.8	-	-	25.8	74.2	-	-	-
Total %	0.0	59.3	0.3	-	59.6	1.1	34.2	-	35.3	1.3	3.7	-	5.0	-
PHF	0.000	0.915	0.500	-	0.920	0.438	0.865	-	0.893	0.400	0.719	-	0.861	0.929
Lights	0	366	1	-	367	7	208	-	215	8	22	-	30	612
% Lights	-	100.0	50.0	-	99.7	100.0	98.6	-	98.6	100.0	95.7	-	96.8	99.2
Mediums	0	0	1	-	1	0	3	-	3	0	1	-	1	5
% Mediums	-	0.0	50.0	-	0.3	0.0	1.4	-	1.4	0.0	4.3	-	3.2	0.8
Articulated Trucks	0	0	0	-	0	0	0	-	0	0	0	-	0	0
% Articulated Trucks	-	0.0	0.0	-	0.0	0.0	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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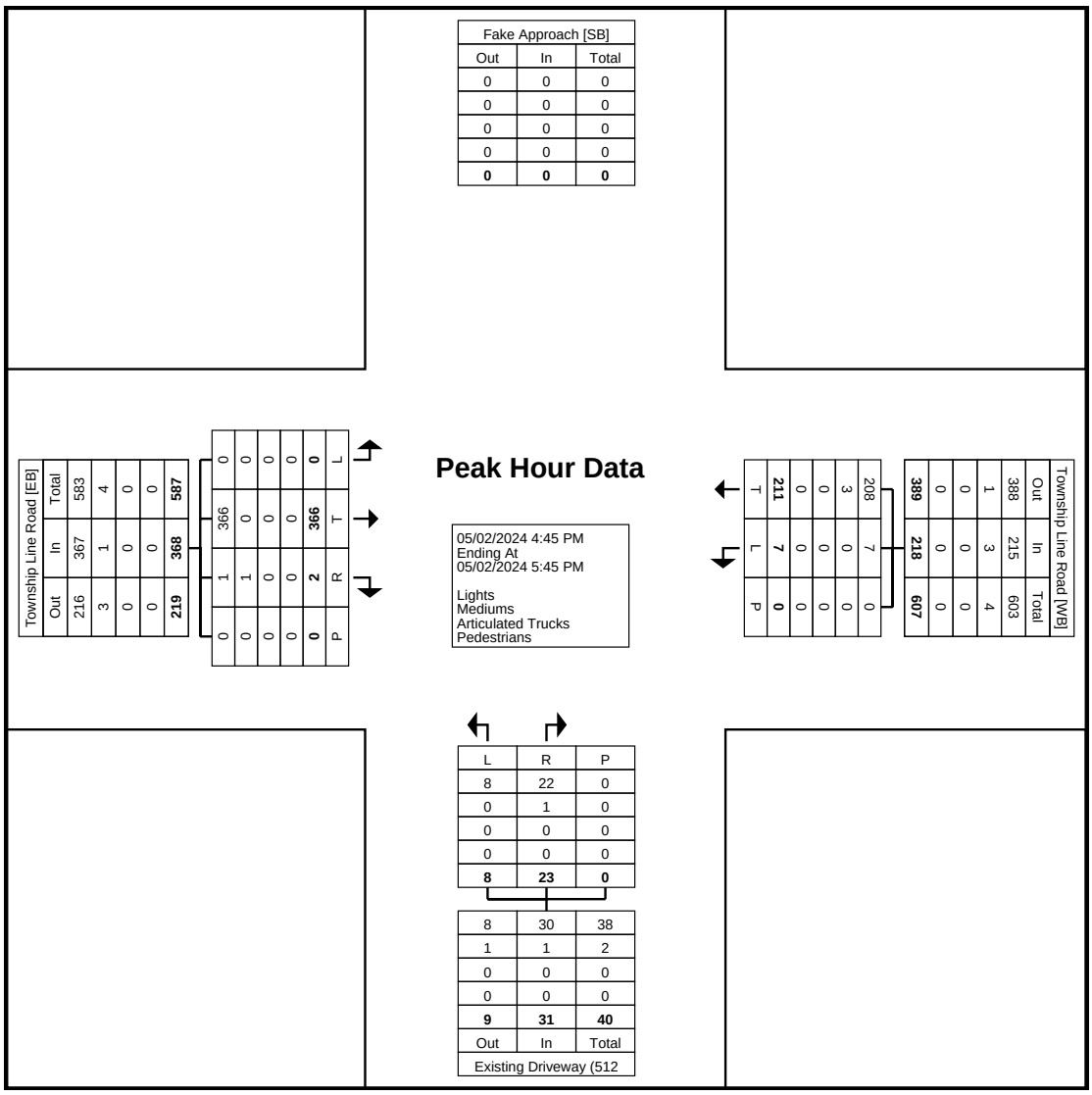
Count Name: 7 Existing Driveway (512 W) & Township Line Road
Site Code:
Start Date: 04/30/2024

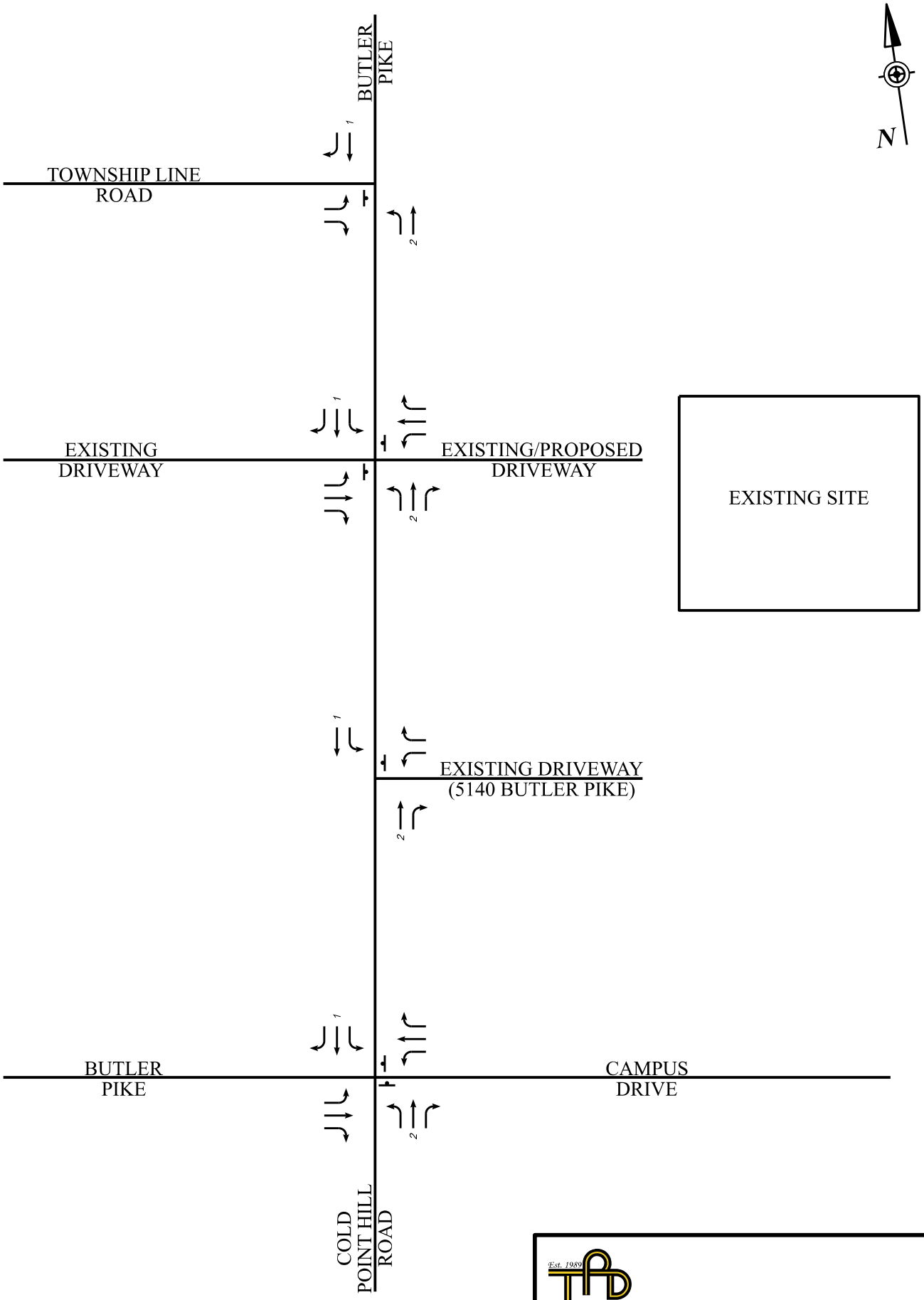


Turning Movement Peak Hour Data Plot (4:45 PM)

APPENDIX C

Nearby Development Trip Distributions

502 West Germantown Pike Residential



KEY:

—•— **STOP CONTROLLED**

SCHEMATIC DRAWING:NOT TO SCALE

Est. 1989
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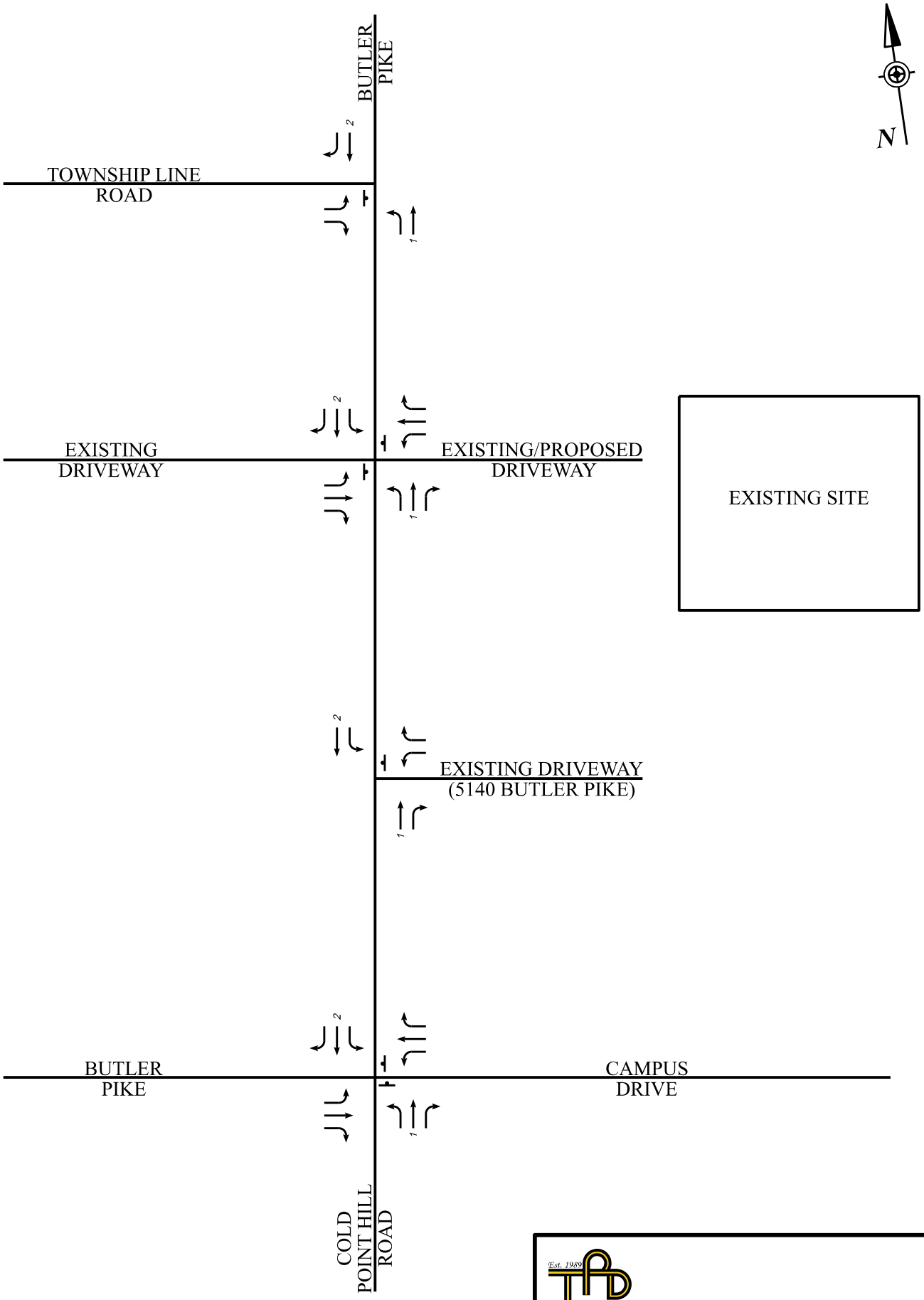
FIGURE C-1

502 W. GERMANTOWN PIKE RESIDENTIAL
WEEKDAY A.M. PEAK HOUR
VEHICULAR TRIPS
TRIP DISTRIBUTION



KEY:

—•— **STOP CONTROLLED**

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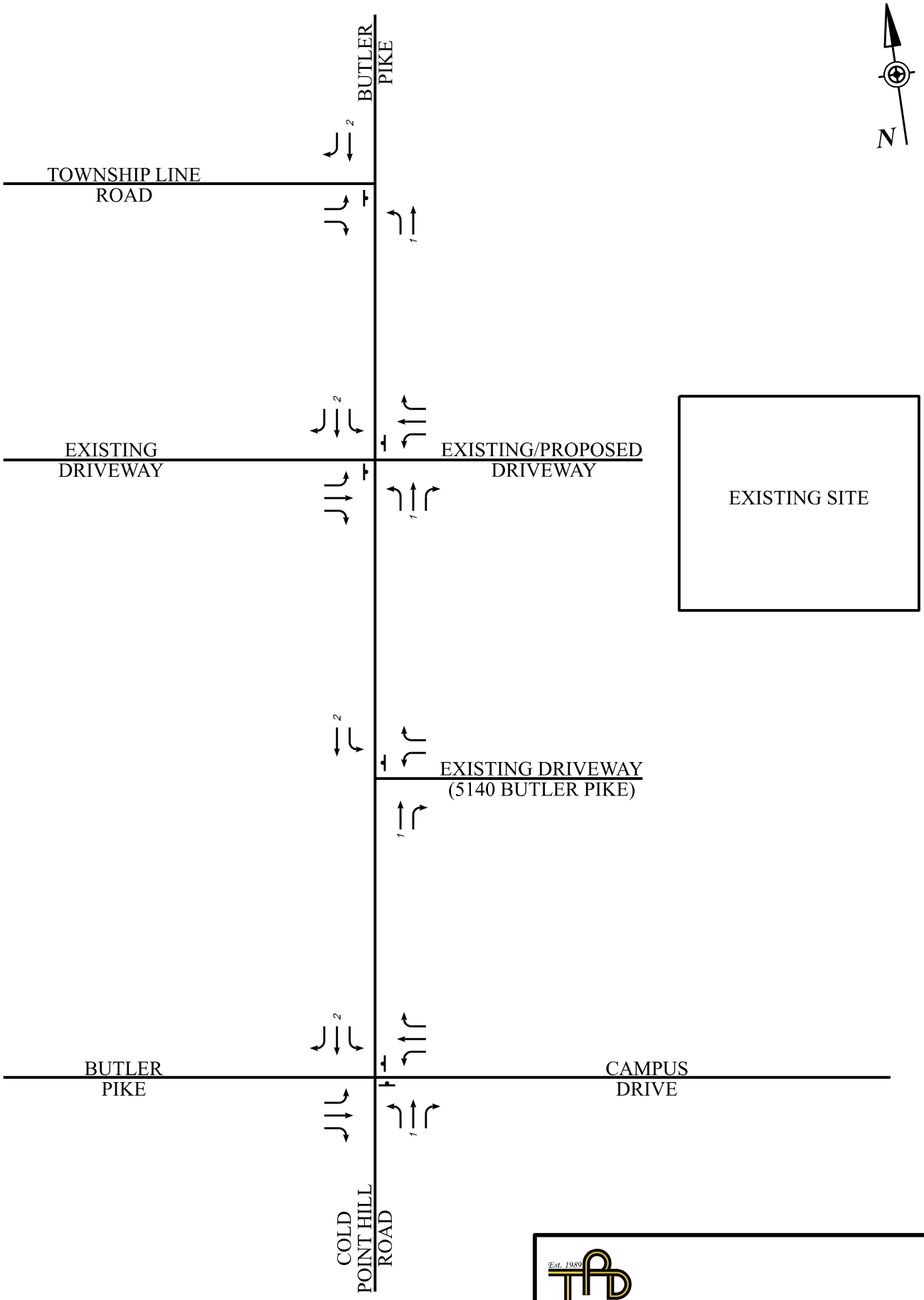
FIGURE C-2

502 W. GERMANTOWN PIKE RESIDENTIAL
WEEKDAY SCHOOL P.M. PEAK HOUR
VEHICULAR TRIPS
TRIP DISTRIBUTION



KEY:

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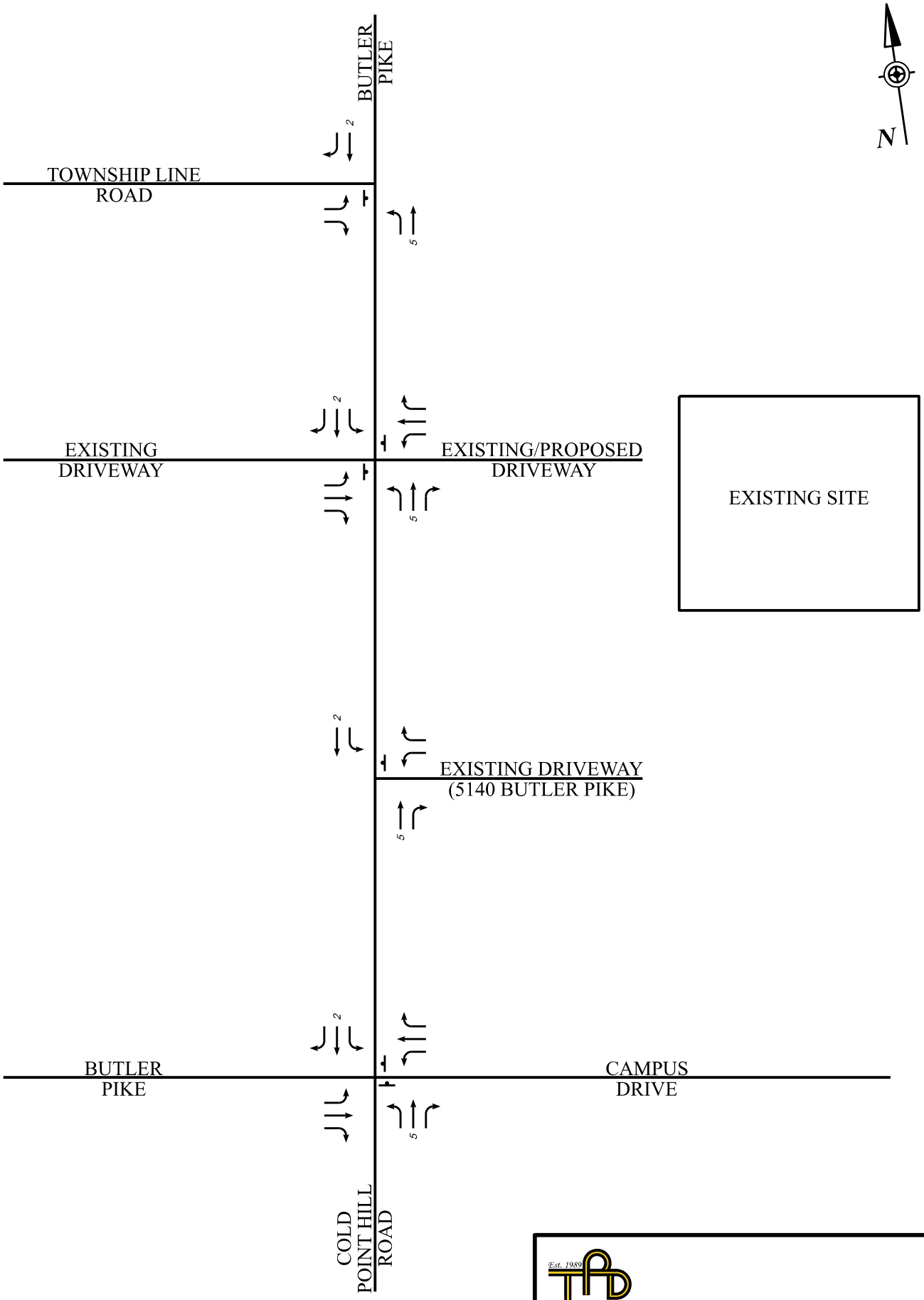
FIGURE C-3

502 W. GERMANTOWN PIKE RESIDENTIAL
WEEKDAY P.M. PEAK HOUR
VEHICULAR TRIPS
TRIP DISTRIBUTION



KEY:

—•— **STOP CONTROLLED**

SCHEMATIC DRAWING:NOT TO SCALE

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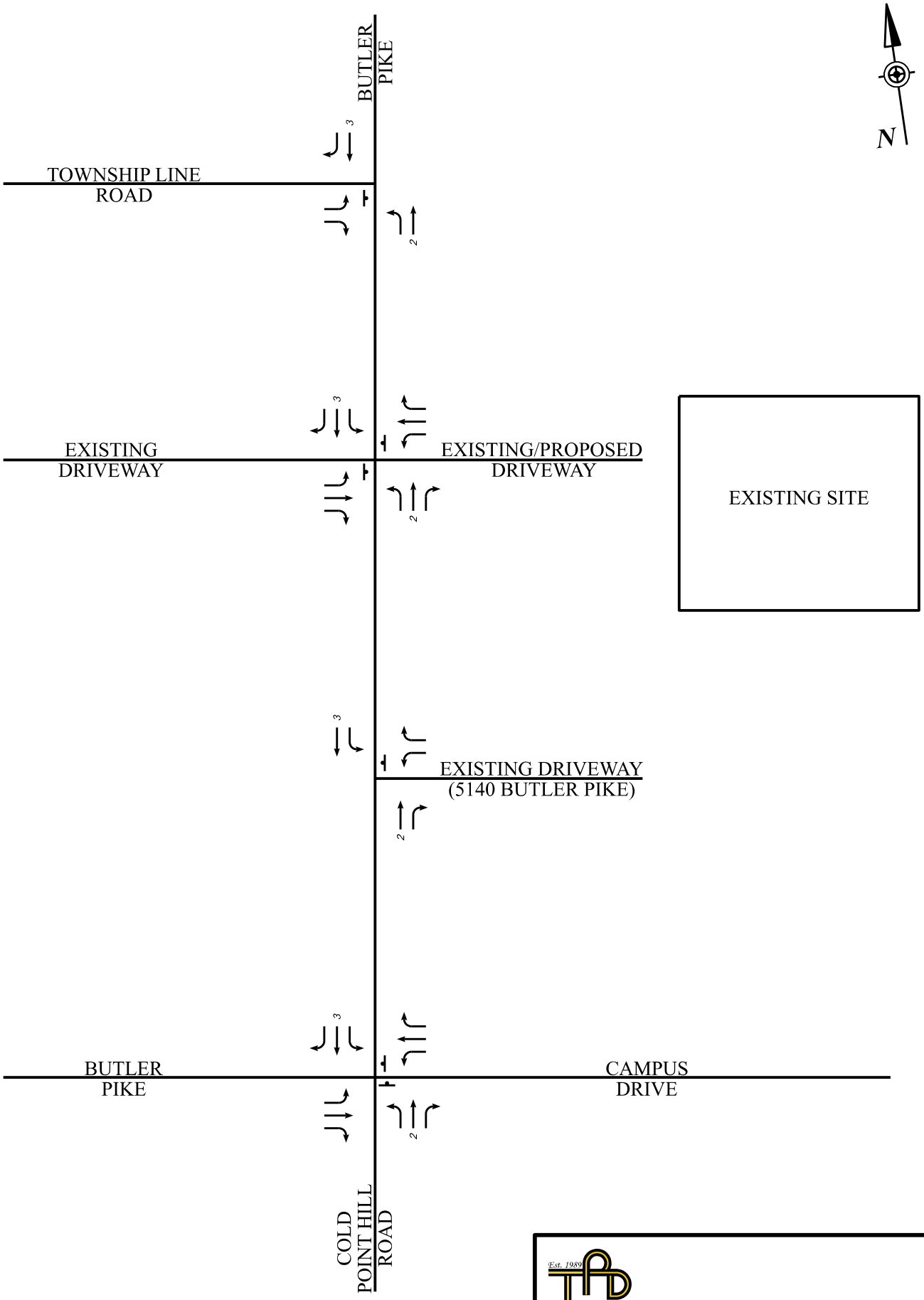
FIGURE C-4

PREIT RESIDENTAIL
WEEKDAY A.M. PEAK HOUR
VEHICULAR TRIPS
TRIP DISTRIBUTION



KEY:

—•— **STOP CONTROLLED**

SCHEMATIC DRAWING:NOT TO SCALE

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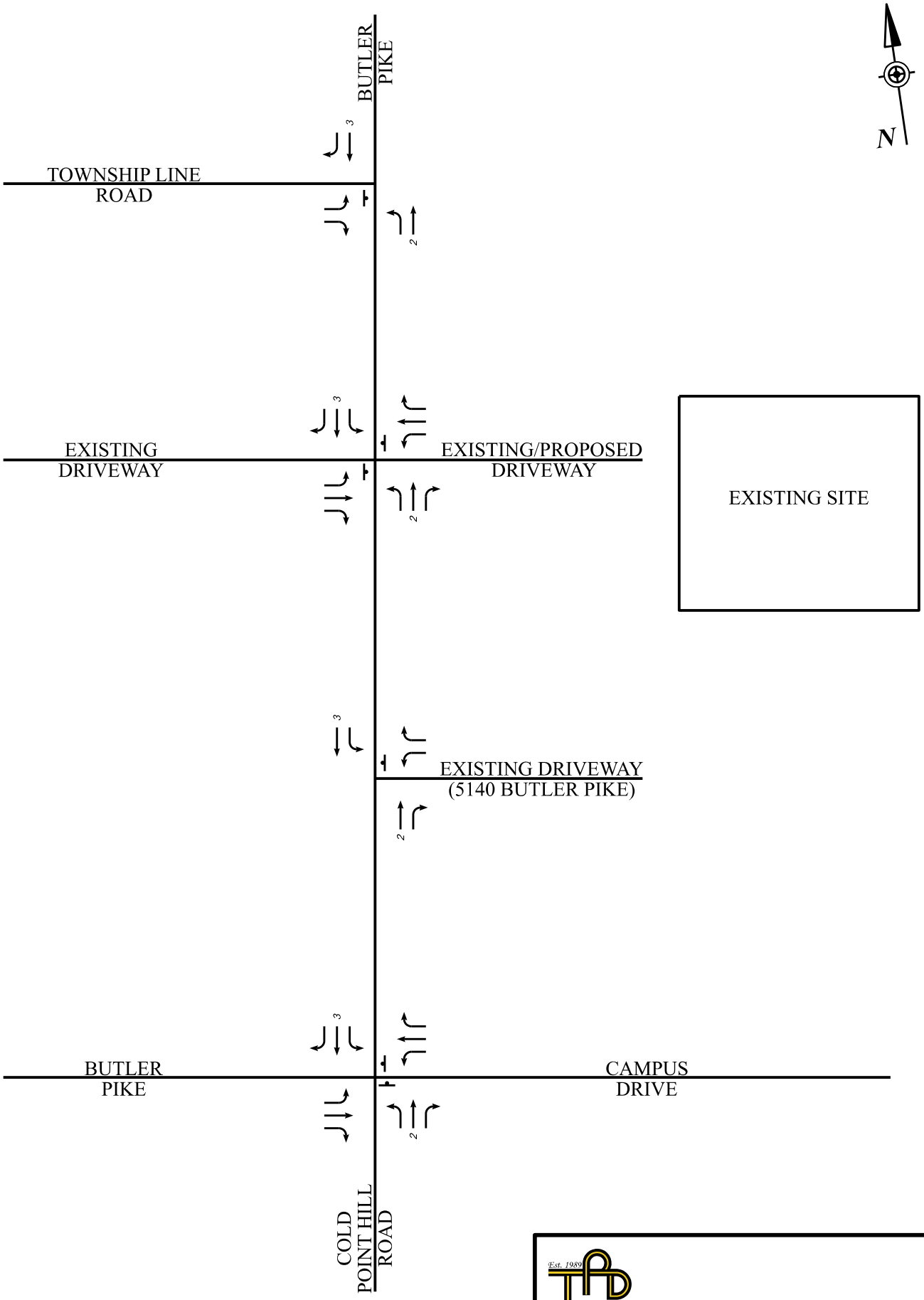
FIGURE C-5

PREIT RESIDENTAIL
WEEKDAY SCHOOL P.M. PEAK HOUR
VEHICULAR TRIPS
TRIP DISTRIBUTION



KEY:

—•— **STOP CONTROLLED**

SCHEMATIC DRAWING:NOT TO SCALE

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FIGURE C-6

PREIT RESIDENTAIL
WEEKDAY P.M. PEAK HOUR
VEHICULAR TRIPS
TRIP DISTRIBUTION

APPENDIX D

Trip Generation Data

GEMS.00001
TRIP GENERATION COUNTS - 512 West Township Line Road
Plymouth Township/Montgomery County

TRIP GENERATION SUMMARY

		ENTER	TOTAL EXIT	TOTAL	TRIPS/STUDENT	TRIPS/STAFF	ENTER%	BUS/VAN%
AM =	Tuesday, April 30, 2024	122	66	188	0.851	1.414	64.9%	
	Wednesday, May 1, 2024	136	59	195	0.882	1.466	69.7%	
	Thursday, May 2, 2024	143	58	201	0.910	1.511	71.1%	
	WEIGHTED AVERAGE	134	61	195	0.881	1.464	68.7%	29.5%

		ENTER	TOTAL EXIT	TOTAL	TRIPS/BUS SPACE	TRIPS/STAFF	ENTER%	BUS/VAN%
PM School =	Tuesday, April 30, 2024	44	112	156	0.706	1.173	28.2%	
	Wednesday, May 1, 2024	46	111	157	0.710	1.180	29.3%	
	Thursday, May 2, 2024	43	107	150	0.679	1.128	28.7%	
	WEIGHTED AVERAGE	44	110	154	0.698	1.160	28.6%	44.0%

		ENTER	TOTAL EXIT	TOTAL	TRIPS/BUS SPACE	TRIPS/STAFF	ENTER%	BUS/VAN%
PM =	Tuesday, April 30, 2024	11	69	80	0.362	0.602	13.8%	
	Wednesday, May 1, 2024	9	63	72	0.326	0.541	12.5%	
	Thursday, May 2, 2024	14	59	73	0.330	0.549	19.2%	
	WEIGHTED AVERAGE	11	64	75	0.339	0.564	14.7%	20.9%

GEMS.00001
TRIP GENERATION COUNTS - 512 West Township Line Road
Plymouth Township/Montgomery County
Tuesday, April 30, 2024

221	students
133	staff members

		Township Line Road/Existing Driveway								TOTAL				
		Total Vehicles				Non-School Exclusions								
		EBR	WBL	NBL	NBR	EBR	WBL	NBL	NBR	ENTER	EXIT	TOTAL	PEAK	
7	00	2	10	1	2	0	-1	0	0	11	3	14	72	
7	15	5	6	1	1	-1	-1	0	0	9	2	11	100	
7	30	5	12	0	0	-1	-2	0	0	14	0	14	156	
7	45	11	25	1	0	-1	-3	0	0	32	1	33	186	
8	00	9	36	0	3	-1	-5	0	0	39	3	42	188	<<<AM PEAK HOUR
8	15	10	31	7	29	-1	-4	-1	-4	36	31	67	164	
8	30	9	20	3	18	-1	-3	0	-2	25	19	44	111	
8	45	7	18	3	12	-1	-2	0	-2	22	13	35		
9	00	5	9	1	6	-1	-1	0	-1	12	6	18		
9	15	3	7	2	3	0	-1	0	0	9	5	14		
		35	105	13	62	-4	-14	-1	-8	122	66	188	= AM PEAK HOUR	

		Township Line Road/Existing Driveway								TOTAL				
		Total Vehicles				Non-School Exclusions								
		EBR	WBL	NBL	NBR	EBR	WBL	NBL	NBR	ENTER	EXIT	TOTAL	PEAK	
14	00	1	5	3	4	0	-1	-1	-1	5	5	10	59	
14	15	0	6	1	4	0	-1	0	-1	5	4	9	84	
14	30	5	8	0	7	-1	-2	0	-1	10	6	16	75	
14	45	7	12	2	7	-1	-2	0	-1	16	8	24	124	
15	00	4	16	9	15	-1	-3	-2	-3	16	19	35	156	<<<PM SCHOOL PEAK HOUR
15	15	4	5	6	23	-1	-1	-1	-5	7	23	30		
15	30	6	8	12	18	-1	-2	-2	-4	11	24	35		
15	45	2	10	11	46	0	-2	-2	-9	10	46	56		
		16	39	38	102	-3	-8	-7	-21	44	112	156	= PM SCHOOL PEAK HOUR	

		Township Line Road/Existing Driveway								TOTAL				
		Total Vehicles				Non-School Exclusions								
		EBR	WBL	NBL	NBR	EBR	WBL	NBL	NBR	ENTER	EXIT	TOTAL	PEAK	
16	00	0	3	15	35	0	0	-2	-5	3	43	46	80	<<<PM PEAK HOUR
16	15	2	0	3	11	0	0	0	-2	2	12	14	43	
16	30	3	2	3	5	0	0	0	-1	5	7	12	29	
16	45	0	1	2	6	0	0	0	-1	1	7	8	26	
17	00	2	1	4	3	0	0	-1	0	3	6	9	20	
17	15	0	1	0	2	0	0	0	0	1	2	3		
17	30	1	1	3	1	0	0	0	0	2	4	6		
17	45	0	0	1	1	0	0	0	0	0	2	2		
		5	6	23	57	0	0	-2	-9	11	69	80	= PM PEAK HOUR	

GEMS.00001
TRIP GENERATION COUNTS - 512 West Township Line Road
Plymouth Township/Montgomery County
Wednesday, May 1, 2024

221	students
133	staff members

		Township Line Road/Existing Driveway								TOTAL			
		Total Vehicles				Non-School Exclusions							
		EBR	WBL	NBL	NBR	EBR	WBL	NBL	NBR	ENTER	EXIT	TOTAL	PEAK
7	00	0	4	1	1	0	-1	0	0	3	2	5	88
7	15	8	6	2	0	-1	-1	0	0	12	2	14	120
7	30	5	20	0	1	-1	-3	0	0	21	1	22	167
7	45	13	38	1	2	-2	-5	0	0	44	3	47	195
8	00	8	32	0	2	-1	-4	0	0	35	2	37	174
8	15	10	27	6	28	-1	-4	-1	-4	32	29	61	157
8	30	10	19	6	23	-1	-3	-1	-3	25	25	50	105
8	45	4	13	2	11	-1	-2	0	-1	14	12	26	
9	00	4	9	2	8	-1	-1	0	-1	11	9	20	
9	15	2	5	1	2	0	-1	0	0	6	3	9	
		41	116	13	55	-5	-16	-2	-7	136	59	195	= AM PEAK HOUR

		Township Line Road/Existing Driveway								TOTAL			
		Total Vehicles				Non-School Exclusions							
		EBR	WBL	NBL	NBR	EBR	WBL	NBL	NBR	ENTER	EXIT	TOTAL	PEAK

14	00	1	7	1	5	0	-1	0	-1	7	5	12	63
14	15	3	8	0	8	-1	-2	0	-2	8	6	14	85
14	30	3	11	1	3	-1	-2	0	-1	11	3	14	71
14	45	5	15	1	7	-1	-3	0	-1	16	7	23	133
15	00	5	21	4	12	-1	-4	-1	-2	21	13	34	157
15	15	3	9	6	27	-1	-2	-1	-5	9	27	36	
15	30	3	7	13	27	-1	-1	-3	-5	8	32	40	
15	45	0	10	11	37	0	-2	-2	-7	8	39	47	
		11	47	34	103	-3	-9	-7	-19	46	111	157	= PM SCHOOL PEAK HOUR

		Township Line Road/Existing Driveway								TOTAL			
		Total Vehicles				Non-School Exclusions							
		EBR	WBL	NBL	NBR	EBR	WBL	NBL	NBR	ENTER	EXIT	TOTAL	PEAK

16	00	1	3	16	31	0	0	-2	-4	4	41	45	72
16	15	0	1	4	7	0	0	-1	-1	1	9	10	39
16	30	1	2	2	9	0	0	0	-1	3	10	13	29
16	45	1	0	0	3	0	0	0	0	1	3	4	28
17	00	2	2	6	4	0	0	-1	-1	4	8	12	24
17	15	0	0	1	8	0	0	0	-1	0	8	8	
17	30	0	1	2	1	0	0	0	0	1	3	4	
17	45	0	0	0	0	0	0	0	0	0	0	0	
		3	6	22	50	0	0	-3	-6	9	63	72	= PM PEAK HOUR

<<<AM PEAK HOUR
<<<PM SCHOOL PEAK HOUR
<<<PM PEAK HOUR

GEMS.00001
TRIP GENERATION COUNTS - 512 West Township Line Road
Plymouth Township/Montgomery County
Thursday, May 2, 2024

221	students
133	staff members

		Township Line Road/Existing Driveway								TOTAL			
		Total Vehicles				Non-School Exclusions							
		EBR	WBL	NBL	NBR	EBR	WBL	NBL	NBR	ENTER	EXIT	TOTAL	PEAK
7	00	3	8	1	0	0	-1	0	0	10	1	11	90
7	15	6	7	1	1	-1	-1	0	0	11	2	13	128
7	30	5	19	0	0	-1	-3	0	0	20	0	20	175
7	45	11	38	2	1	-1	-5	0	0	43	3	46	201
8	00	15	37	1	3	-2	-5	0	0	45	4	49	175
8	15	8	26	8	27	-1	-3	-1	-4	30	30	60	141
8	30	9	20	6	18	-1	-3	-1	-2	25	21	46	90
8	45	7	7	0	9	-1	-1	0	-1	12	8	20	
9	00	4	7	4	3	-1	-1	-1	0	9	6	15	
9	15	0	5	1	5	0	-1	0	-1	4	5	9	
		43	121	17	49	-5	-16	-2	-6	143	58	201	

<<<AM PEAK HOUR

= AM PEAK HOUR

		Township Line Road/Existing Driveway								TOTAL			
		Total Vehicles				Non-School Exclusions							
		EBR	WBL	NBL	NBR	EBR	WBL	NBL	NBR	ENTER	EXIT	TOTAL	PEAK
14	00	2	7	3	5	0	-1	-1	-1	8	6	14	58
14	15	0	5	1	5	0	-1	0	-1	4	5	9	80
14	30	4	13	4	4	-1	-3	-1	-1	13	6	19	112
14	45	5	10	1	4	-1	-2	0	-1	12	4	16	121
15	00	6	19	4	16	-1	-4	-1	-3	20	16	36	150
15	15	7	5	11	28	-1	-1	-2	-6	10	31	41	
15	30	3	7	10	15	-1	-1	-2	-3	8	20	28	
15	45	4	3	10	40	-1	-1	-2	-8	5	40	45	
		20	34	35	99	-4	-7	-7	-20	43	107	150	

<<<PM SCHOOL PEAK HOUR

= PM SCHOOL PEAK HOUR

		Township Line Road/Existing Driveway								TOTAL			
		Total Vehicles				Non-School Exclusions							
		EBR	WBL	NBL	NBR	EBR	WBL	NBL	NBR	ENTER	EXIT	TOTAL	PEAK
16	00	1	3	9	27	0	0	-1	-4	4	31	35	73
16	15	3	0	7	9	0	0	-1	-1	3	14	17	48
16	30	0	3	5	4	0	0	-1	-1	3	7	10	31
16	45	1	4	1	7	0	-1	0	-1	4	7	11	34
17	00	1	2	5	4	0	0	-1	-1	3	7	10	24
17	15	0	0	1	4	0	0	0	-1	0	4	4	
17	30	0	1	1	8	0	0	0	-1	1	8	9	
17	45	0	0	1	0	0	0	0	0	0	1	1	
		5	10	22	47	0	-1	-3	-7	14	59	73	

<<<PM PEAK HOUR

= PM PEAK HOUR

GEMS.00001
TRIP GENERATION COUNTS (SCHOOL v NON-SCHOOL) - 512 West Township Line Road
Plymouth Township/Montgomery County
Tuesday, May 28, 2024

		School Related						Non-School Related		SCHOOL RELATED TOTAL			GRAND TOTAL		
		Cars		Van		Bus		Staff/Visitors							
		Enter	Exit	Enter	Exit	Enter	Exit	Enter	Exit	ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL
7	30	19	0	0	0	0	0	5	2	19	0	19	24	2	26
7	45	48	2	4	0	0	0	4	2	52	2	54	56	4	60
8	00	40	5	9	0	2	0	9	0	51	5	56	60	5	65
8	15	14	20	7	12	6	2	7	5	27	34	61	34	39	73
8	30	7	8	4	7	4	6	5	0	15	21	36	20	21	41
8	45	3	1	2	2	0	3	5	6	5	6	11	10	12	22
		109	35	24	19	12	8	25	7	145	62	207	170	69	239

AM BUS/VAN % = 29.5%
AM NON-SCHOOL % = 13.4%

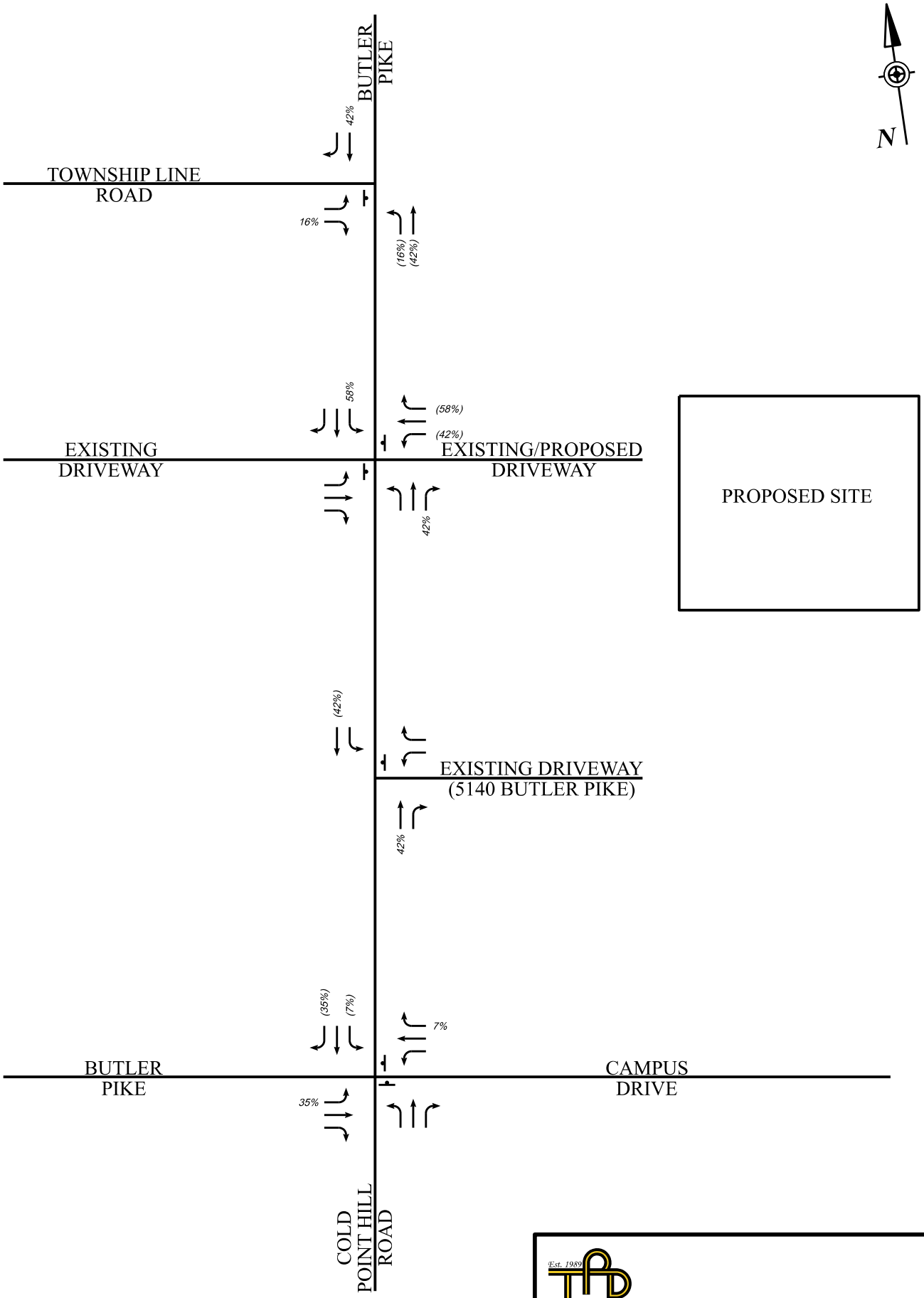
		School Related						Non-School Related		SCHOOL RELATED TOTAL			GRAND TOTAL		
		Cars		Van		Bus		Staff/Visitors							
		Enter	Exit	Enter	Exit	Enter	Exit	Enter	Exit	ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL
2	30	7	0	5	0	0	0	4	3	12	0	12	16	3	19
2	45	5	1	3	0	0	0	3	2	8	1	9	11	3	14
3	00	11	5	8	9	2	0	7	4	21	14	35	28	18	46
3	15	8	24	1	12	6	2	1	3	15	38	53	16	41	57
3	30	2	17	1	4	4	8	2	1	7	29	36	9	30	39
3	45	0	60	4	4	0	2	5	1	4	66	70	9	67	76
4	00	0	22	0	2	0	0	3	4	0	24	24	3	28	31
4	15	0	9	0	0	0	0	0	6	0	9	9	0	15	15
		33	138	22	31	12	12	25	24	56	53	109	71	65	136
		2	108	5	10	4	10	10	12	11	128	139	21	140	161

PM SCHOOL BUS/VAN % = 44.0%
PM SCHOOL NON-SCHOOL % = 19.9%

PM BUS/VAN % = 20.9%
PM NON-SCHOOL % = 13.7%

APPENDIX E

Trip Assignment Data



KEY:

—•— **STOP CONTROLLED**

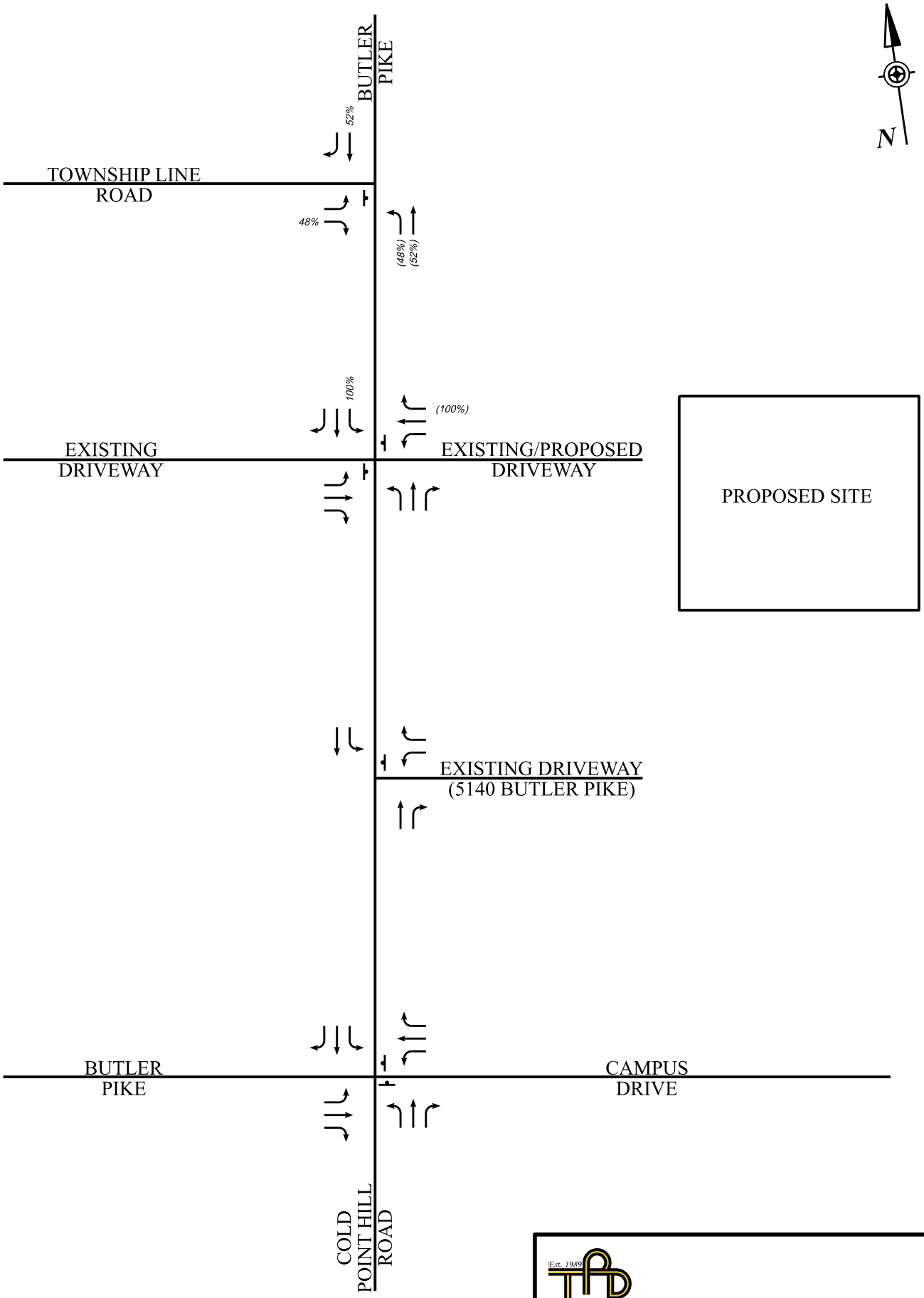
SCHEMATIC DRAWING:NOT TO SCALE

XX% (XX%) - ENTER % (EXIT %)

Est. 1989
TRAFFIC PLANNING AND DESIGN, INC.
www.TrafficPD.com | 1.877.873.9739 | TPD@TrafficPD.com

FIGURE E-1

TRIP DISTRIBUTION PERCENTAGES
ENTER % (EXIT %)
VEHICULAR TRIP PERCENTAGES
PASSENGER VEHICLES



KEY:

—•— **STOP CONTROLLED**

SCHEMATIC DRAWING:NOT TO SCALE

XX% (XX%) - ENTER % (EXIT %)

Est. 1989
TRAFFIC PLANNING AND DESIGN, INC.
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FIGURE E-2

TRIP DISTRIBUTION PERCENTAGES
ENTER % (EXIT %)
VEHICULAR TRIP PERCENTAGES
BUS VEHICLES

APPENDIX F

Volume Development Spreadsheets

TPD# GEMS.00001
9/11/2024
Traffic Volumes Worksheet
Intersection: **Butler Pike & Existing Driveway (5200 Butler Pike)/Proposed Driveway**
Synchro Node: **1** **Adjacent intersections:** **West** 0 **East** 0 **North** 0 **South** 0

Time Period: Weekday A.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2024 Existing Counts				**0**		**1**		**367**	**0**	**4**	**452**		**824**
Balancing													0
2024 Existing Volumes (Balanced)				**0**		**1**		**367**	**0**	**4**	**452**		**824**
Base growth (0.21% compounded for 5 yrs)				0		0		4	0	0	5		9
502 W Germantown Pike Residential								2			1		3
PREIT Residential								5			2		7
2029 Base Volumes				**0**		**1**		**378**	**0**	**4**	**460**		**843**

	Cars (Vans/Buses)	
ENTER =	**143**	**(61)**
EXIT =	**63**	**(28)**

Cars - Trip Assignment % - New Enter									42.0%	58.0%			
Cars - Trip Assignment % - New Exit				42.0%		58.0%							
Vans/Buses - Trip Assignment % - New Enter										100%			
Vans/Buses - Trip Assignment % - New Exit						100%							
Car Trips				26		37			60	83			**206**
Vans/Bus Trips						28				61			**89**
Redistribution - Existing School								-18			-12		**-30**
Redistribution - 5200 Butler Pike						-1				-4			**-5**
2029 Projected Volumes				**26**		**65**		**360**	**60**	**144**	**448**		**1103**

Time Period: Weekday P.M. School Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2024 Existing Counts				**5**		**1**		**357**	**1**	**2**	**316**		**682**
Balancing													0
2024 Existing Volumes (Balanced)				**5**		**1**		**357**	**1**	**2**	**316**		**682**
Base growth (0.21% compounded for 5 yrs)				0		0		4	0	0	3		7
502 W Germantown Pike Residential								1			2		3
PREIT Residential								2			3		5
2029 Base Volumes				**5**		**1**		**364**	**1**	**2**	**324**		**697**

	Cars (Vans/Buses)	
ENTER =	**38**	**(30)**
EXIT =	**93**	**(73)**

Cars - Trip Assignment % - New Enter									42.0%	58.0%			
Cars - Trip Assignment % - New Exit				42.0%		58.0%							
Vans/Buses - Trip Assignment % - New Enter										100%			
Vans/Buses - Trip Assignment % - New Exit						100%							
Car Trips				39		54			16	22			**131**
Vans/Bus Trips						73				30			**103**
Redistribution - Existing School								-9			-15		**-24**
Redistribution - 5200 Butler Pike				-1		-5			-1	-2			**-9**
2029 Projected Volumes				**43**		**123**		**355**	**16**	**52**	**309**		**898**

Time Period: Weekday P.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2024 Existing Counts				**1**		**1**		**396**	**0**	**1**	**309**		**708**
Balancing													0
2024 Existing Volumes (Balanced)				**1**		**1**		**396**	**0**	**1**	**309**		**708**
Base growth (0.21% compounded for 5 yrs)				0		0		4	0	0	3		7
502 W Germantown Pike Residential								1			2		3
PREIT Residential								2			3		5
2029 Base Volumes				**1**		**1**		**400**	**0**	**1**	**317**		**720**

	Cars (Vans/Buses)	
ENTER =	**13**	**(4)**
EXIT =	**77**	**(20)**

Cars - Trip Assignment % - New Enter									42.0%	58.0%			
Cars - Trip Assignment % - New Exit				42.0%		58.0%							
Vans/Buses - Trip Assignment % - New Enter										100%			
Vans/Buses - Trip Assignment % - New Exit						100%							
Car Trips				32		45			5	8			**90**
Vans/Bus Trips						20				4			**24**
Redistribution - Existing School								-2			-5		**-7**
Redistribution - 5200 Butler Pike				-1		-1				-1			**-3**
2029 Projected Volumes				**32**		**65**		**398**	**5**	**12**	**312**		**824**

TPD# GEMS.00001
9/11/2024
Traffic Volumes Worksheet

Intersection:	**Butler Pike & Existing Driveway (5140 Butler Pike)**											
Synchro Node:	**2**	**Adjacent intersections:**	**West**	**0**	**East**	**0**	**North**	**0**	**South**	**0**		

Time Period: Weekday A.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2024 Existing Counts				**0**		**1**		**362**	**1**	**3**	**498**		**865**
Balancing													0
2024 Existing Volumes (Balanced)				**0**		**1**		**362**	**1**	**3**	**498**		**865**
Base growth (0.21% compounded for 5 yrs)				0		0		4	0	0	5		9
502 W Germantown Pike Residential								2			1		3
PREIT Residential								5			2		7
2029 Base Volumes				**0**		**1**		**373**	**1**	**3**	**506**		**884**

	Cars	Vans/Buses
ENTER =	**143**	**(61)**
EXIT =	**63**	**(28)**

Cars - Trip Assignment % - New Enter								42.0%					
Cars - Trip Assignment % - New Exit											42.0%		
Vans/Buses - Trip Assignment % - New Enter													
Vans/Buses - Trip Assignment % - New Exit													
Car Trips								60			26		**86**
Vans/Bus Trips													**0**
Redistribution - Existing School								-18			-12		**-30**
Redistribution - 5200 Butler Pike													**0**
2029 Projected Volumes				**0**		**1**		**415**	**1**	**3**	**520**		**940**

Time Period: Weekday P.M. School Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2024 Existing Counts				**2**		**1**		**362**	**2**	**0**	**331**		**698**
Balancing													0
2024 Existing Volumes (Balanced)				**2**		**1**		**362**	**2**	**0**	**331**		**698**
Base growth (0.21% compounded for 5 yrs)				0		0		4	0	0	3		7
502 W Germantown Pike Residential								1			2		3
PREIT Residential								2			3		5
2029 Base Volumes				**2**		**1**		**369**	**2**	**0**	**339**		**713**

	Cars	Vans/Buses
ENTER =	**38**	**(30)**
EXIT =	**93**	**(73)**

Cars - Trip Assignment % - New Enter								42.0%					
Cars - Trip Assignment % - New Exit											42.0%		
Vans/Buses - Trip Assignment % - New Enter													
Vans/Buses - Trip Assignment % - New Exit													
Car Trips								16			39		**55**
Vans/Bus Trips													**0**
Redistribution - Existing School								-9			-15		**-24**
Redistribution - 5200 Butler Pike								-1			-1		**-2**
2029 Projected Volumes				**2**		**1**		**375**	**2**	**0**	**362**		**742**

Time Period: Weekday P.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2024 Existing Counts				**0**		**0**		**396**	**0**	**0**	**312**		**708**
Balancing													0
2024 Existing Volumes (Balanced)				**0**		**0**		**396**	**0**	**0**	**312**		**708**
Base growth (0.21% compounded for 5 yrs)				0		0		4	0	0	3		7
502 W Germantown Pike Residential								1			2		3
PREIT Residential								2			3		5
2029 Base Volumes				**0**		**0**		**400**	**0**	**0**	**320**		**720**

	Cars	Vans/Buses
ENTER =	**13**	**(4)**
EXIT =	**77**	**(20)**

Cars - Trip Assignment % - New Enter								42.0%					
Cars - Trip Assignment % - New Exit											42.0%		
Vans/Buses - Trip Assignment % - New Enter													
Vans/Buses - Trip Assignment % - New Exit													
Car Trips								5			32		**37**
Vans/Bus Trips													**0**
Redistribution - Existing School								-2			-5		**-7**
Redistribution - 5200 Butler Pike											-1		**-1**
2029 Projected Volumes				**0**		**0**		**403**	**0**	**0**	**346**		**749**

TPD# GEMS.00001
9/11/2024
Traffic Volumes Worksheet

Intersection:	**Butler Pike & Township Line Road**											
Synchro Node:	**3**	**Adjacent intersections:**	**West**	**0**	**East**	**0**	**North**	**0**	**South**	**0**		

Time Period: Weekday A.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2024 Existing Counts	**79**		**42**				**87**	**278**			**446**	**272**	**1204**
Balancing													0
2024 Existing Volumes (Balanced)	**79**		**42**				**87**	**278**			**446**	**272**	**1204**
Base growth (0.21% compounded for 5 yrs)	1		0				1	3			5	3	13
502 W Germantown Pike Residential								2			1		3
PREIT Residential								5			2		7
2029 Base Volumes	**80**		**42**				**88**	**288**			**454**	**275**	**1227**

	Cars (Vans/Buses)	
ENTER =	**143**	**(61)**
EXIT =	**63**	**(28)**

Cars - Trip Assignment % - New Enter			16.0%								42.0%		
Cars - Trip Assignment % - New Exit							16.0%	42.0%					
Vans/Buses - Trip Assignment % - New Enter			48.0%								52.0%		
Vans/Buses - Trip Assignment % - New Exit							48.0%	52.0%					
Car Trips			23				10	27			60		**120**
Vans/Bus Trips			29				13	15			32		**89**
Redistribution - Existing School	-24		-12				-18					-56	**-110**
Redistribution - 5200 Butler Pike			-1					-1			-3		**-5**
2029 Projected Volumes	**56**		**81**				**93**	**329**			**543**	**219**	**1321**

Time Period: Weekday P.M. School Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2024 Existing Counts	**89**		**30**				**41**	**305**			**284**	**64**	**813**
Balancing													0
2024 Existing Volumes (Balanced)	**89**		**30**				**41**	**305**			**284**	**64**	**813**
Base growth (0.21% compounded for 5 yrs)	1		0				0	3			3	1	8
502 W Germantown Pike Residential								1			2		3
PREIT Residential								2			3		5
2029 Base Volumes	**90**		**30**				**41**	**311**			**292**	**65**	**829**

	Cars (Vans/Buses)	
ENTER =	**38**	**(30)**
EXIT =	**93**	**(73)**

Cars - Trip Assignment % - New Enter			16.0%								42.0%		
Cars - Trip Assignment % - New Exit							16.0%	42.0%					
Vans/Buses - Trip Assignment % - New Enter			48.0%								52.0%		
Vans/Buses - Trip Assignment % - New Exit							48.0%	52.0%					
Car Trips			6				15	39			16		**76**
Vans/Bus Trips			14				35	38			16		**103**
Redistribution - Existing School	-46		-15				-9					-14	**-84**
Redistribution - 5200 Butler Pike							-2	-3			-2		**-7**
2029 Projected Volumes	**44**		**35**				**80**	**385**			**322**	**51**	**917**

Time Period: Weekday P.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2024 Existing Counts	**155**		**28**				**49**	**351**			**284**	**67**	**934**
Balancing													0
2024 Existing Volumes (Balanced)	**155**		**28**				**49**	**351**			**284**	**67**	**934**
Base growth (0.21% compounded for 5 yrs)	2		0				1	4			3	1	11
502 W Germantown Pike Residential								1			2		3
PREIT Residential								2			3		5
2029 Base Volumes	**157**		**28**				**50**	**358**			**292**	**68**	**953**

	Cars (Vans/Buses)	
ENTER =	**13**	**(4)**
EXIT =	**77**	**(20)**

Cars - Trip Assignment % - New Enter			16.0%								42.0%		
Cars - Trip Assignment % - New Exit							16.0%	42.0%					
Vans/Buses - Trip Assignment % - New Enter			48.0%								52.0%		
Vans/Buses - Trip Assignment % - New Exit							48.0%	52.0%					
Car Trips			2				12	33			6		**53**
Vans/Bus Trips			2				10	10			2		**24**
Redistribution - Existing School	-27		-5				-2					-3	**-37**
Redistribution - 5200 Butler Pike								-1			-1		**-2**
2029 Projected Volumes	**130**		**27**				**70**	**400**			**299**	**65**	**991**

TPD# GEMS.00001
9/11/2024
Traffic Volumes Worksheet
Intersection: **Butler Pike/Campus Drive & Butler Pike/Cold Point Hill Road**
Synchro Node: **4** **Adjacent intersections:** **West** 0 **East** 0 **North** 0 **South** 0

Time Period: Weekday A.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2024 Existing Counts	**280**	**20**	**0**	**3**	**156**	**77**	**1**	**6**	**1**	**33**	**15**	**435**	**1027**
Balancing													0
2024 Existing Volumes (Balanced)	**280**	**20**	**0**	**3**	**156**	**77**	**1**	**6**	**1**	**33**	**15**	**435**	**1027**
Base growth (0.21% compounded for 5 yrs)	3	0	0	0	2	1	0	0	0	0	0	5	11
502 W Germantown Pike Residential								2			1		3
PREIT Residential								5			2		7
2029 Base Volumes	**283**	**20**	**0**	**3**	**158**	**78**	**1**	**13**	**1**	**33**	**18**	**440**	**1048**

	Cars (Vans/Buses)	
ENTER =	**143**	**(61)**
EXIT =	**63**	**(28)**

Cars - Trip Assignment % - New Enter	35.0%					7.0%							
Cars - Trip Assignment % - New Exit										7.0%		35.0%	
Vans/Buses - Trip Assignment % - New Enter													
Vans/Buses - Trip Assignment % - New Exit													
Car Trips	50					10				4		22	**86**
Vans/Bus Trips													**0**
Redistribution - Existing School	-18											-12	**-30**
Redistribution - 5200 Butler Pike													**0**
2029 Projected Volumes	**315**	**20**	**0**	**3**	**158**	**88**	**1**	**13**	**1**	**37**	**18**	**450**	**1104**

Time Period: Weekday P.M. School Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2024 Existing Counts	**317**	**10**	**0**	**1**	**28**	**27**	**0**	**3**	**1**	**12**	**1**	**306**	**706**
Balancing													0
2024 Existing Volumes (Balanced)	**317**	**10**	**0**	**1**	**28**	**27**	**0**	**3**	**1**	**12**	**1**	**306**	**706**
Base growth (0.21% compounded for 5 yrs)	3	0	0	0	0	0	0	0	0	0	0	3	6
502 W Germantown Pike Residential								1			2		3
PREIT Residential								2			3		5
2029 Base Volumes	**320**	**10**	**0**	**1**	**28**	**27**	**0**	**6**	**1**	**12**	**6**	**309**	**720**

	Cars (Vans/Buses)	
ENTER =	**38**	**(30)**
EXIT =	**93**	**(73)**

Cars - Trip Assignment % - New Enter	35.0%					7.0%							
Cars - Trip Assignment % - New Exit										7.0%		35.0%	
Vans/Buses - Trip Assignment % - New Enter													
Vans/Buses - Trip Assignment % - New Exit													
Car Trips	13					3				6		33	**55**
Vans/Bus Trips													**0**
Redistribution - Existing School	-9											-15	**-24**
Redistribution - 5200 Butler Pike	-1											-1	**-2**
2029 Projected Volumes	**323**	**10**	**0**	**1**	**28**	**30**	**0**	**6**	**1**	**18**	**6**	**326**	**749**

Time Period: Weekday P.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2024 Existing Counts	**356**	**5**	**1**	**0**	**34**	**33**	**0**	**2**	**0**	**9**	**4**	**301**	**745**
Balancing													0
2024 Existing Volumes (Balanced)	**356**	**5**	**1**	**0**	**34**	**33**	**0**	**2**	**0**	**9**	**4**	**301**	**745**
Base growth (0.21% compounded for 5 yrs)	4	0	0	0	0	0	0	0	0	0	0	3	7
502 W Germantown Pike Residential								1			2		3
PREIT Residential								2			3		5
2029 Base Volumes	**360**	**5**	**1**	**0**	**34**	**33**	**0**	**5**	**0**	**9**	**9**	**304**	**760**

	Cars (Vans/Buses)	
ENTER =	**13**	**(4)**
EXIT =	**77**	**(20)**

Cars - Trip Assignment % - New Enter	35.0%					7.0%							
Cars - Trip Assignment % - New Exit										7.0%		35.0%	
Vans/Buses - Trip Assignment % - New Enter													
Vans/Buses - Trip Assignment % - New Exit													
Car Trips	4					1				5		27	**37**
Vans/Bus Trips													**0**
Redistribution - Existing School	-2											-5	**-7**
Redistribution - 5200 Butler Pike												-1	**-1**
2029 Projected Volumes	**362**	**5**	**1**	**0**	**34**	**34**	**0**	**5**	**0**	**14**	**9**	**325**	**789**

APPENDIX G

Critical & Follow-up Tables

CRITICAL HEADWAY CALCULATIONS FOR TWSC INTERSECTION WITHIN SUBURBAN LAND USE CONTEXT
BASED ON PENNSYLVANIA DEFAULT VALUES FROM CHAPTER 10 OF PENNDOT PUBLICATION 46

$t_{c,x} = t_{c,\,base} + t_{c,HV} * P_{HV} + t_{c,G} * G - t_{3,LT}$

where:

$t_{c,x}$ = critical headway for movement x (s)
$t_{c,base}$ = base crtitcal headway from Chapter 10 of PennDOT Publication 46
$t_{c,HV}$ = adjustment factor for heavy vehciles (1.0 for major streets with one lane in each direction; 2.0 for major streets with two or three lanes in each direction) (s)
P_{HV} = proportion of heavy vehciles for movement (expressed as a decimal; e.g., P_{HV}=0.02 for 2% heavy vehciles)
$t_{c,G}$ = adjustment factor for grade (0.1 for Movement 9 and 12; 0.2 for Movements 7,8,10, and 11) (s)
G = percent grade (expressed as an integer; e.g., G= -2 for a 2% downhill grade)
$t_{c,base}$ = adjustment factor for intersction geometry (0.7 for minor street left-turn movement at three-leg intersections; 0.0 otherwise) (s)

LEFT TURN FROM MAJOR ROADWAY - TWO LANES ($t_{c,\,base}$ = 4.3)

GRADE	0	-1	1	-2	2	-3	3	-4	4	-5	5	-6	6	-7	7	-8	8	-9	9	-10	10
HV %																					
0	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
1	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
2	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
4	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
5	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
6	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
7	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
8	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
9	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
10	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4

LEFT TURN FROM MINOR ROADWAY - TWO LANES - 4-LEG INTERSECTION ($t_{c,\,base}$ = 7.1)

GRADE	0	-1	1	-2	2	-3	3	-4	4	-5	5	-6	6	-7	7	-8	8	-9	9	-10	10
HV %																					
0	7.1	6.9	7.3	6.7	7.5	6.5	7.7	6.3	7.9	6.1	8.1	5.9	8.3	5.7	8.5	5.5	8.7	5.3	8.9	5.1	9.1
1	7.1	6.9	7.3	6.7	7.5	6.5	7.7	6.3	7.9	6.1	8.1	5.9	8.3	5.7	8.5	5.5	8.7	5.3	8.9	5.1	9.1
2	7.1	6.9	7.3	6.7	7.5	6.5	7.7	6.3	7.9	6.1	8.1	5.9	8.3	5.7	8.5	5.5	8.7	5.3	8.9	5.1	9.1
3	7.1	6.9	7.3	6.7	7.5	6.5	7.7	6.3	7.9	6.1	8.1	5.9	8.3	5.7	8.5	5.5	8.7	5.3	8.9	5.1	9.1
4	7.1	6.9	7.3	6.7	7.5	6.5	7.7	6.3	7.9	6.1	8.1	5.9	8.3	5.7	8.5	5.5	8.7	5.3	8.9	5.1	9.1
5	7.2	7.0	7.4	6.8	7.6	6.6	7.8	6.4	8.0	6.2	8.2	6.0	8.4	5.8	8.6	5.6	8.8	5.4	9.0	5.2	9.2
6	7.2	7.0	7.4	6.8	7.6	6.6	7.8	6.4	8.0	6.2	8.2	6.0	8.4	5.8	8.6	5.6	8.8	5.4	9.0	5.2	9.2
7	7.2	7.0	7.4	6.8	7.6	6.6	7.8	6.4	8.0	6.2	8.2	6.0	8.4	5.8	8.6	5.6	8.8	5.4	9.0	5.2	9.2
8	7.2	7.0	7.4	6.8	7.6	6.6	7.8	6.4	8.0	6.2	8.2	6.0	8.4	5.8	8.6	5.6	8.8	5.4	9.0	5.2	9.2
9	7.2	7.0	7.4	6.8	7.6	6.6	7.8	6.4	8.0	6.2	8.2	6.0	8.4	5.8	8.6	5.6	8.8	5.4	9.0	5.2	9.2
10	7.2	7.0	7.4	6.8	7.6	6.6	7.8	6.4	8.0	6.2	8.2	6.0	8.4	5.8	8.6	5.6	8.8	5.4	9.0	5.2	9.2

THROUGH TRAFFIC ON MINOR ROADWAY - TWO LANES ($t_{c,\,base}$ = 6.5)

GRADE	0	-1	1	-2	2	-3	3	-4	4	-5	5	-6	6	-7	7	-8	8	-9	9	-10	10
HV %																					
0	6.5	6.3	6.7	6.1	6.9	5.9	7.1	5.7	7.3	5.5	7.5	5.3	7.7	5.1	7.9	4.9	8.1	4.7	8.3	4.5	8.5
1	6.5	6.3	6.7	6.1	6.9	5.9	7.1	5.7	7.3	5.5	7.5	5.3	7.7	5.1	7.9	4.9	8.1	4.7	8.3	4.5	8.5
2	6.5	6.3	6.7	6.1	6.9	5.9	7.1	5.7	7.3	5.5	7.5	5.3	7.7	5.1	7.9	4.9	8.1	4.7	8.3	4.5	8.5
3	6.5	6.3	6.7	6.1	6.9	5.9	7.1	5.7	7.3	5.5	7.5	5.3	7.7	5.1	7.9	4.9	8.1	4.7	8.3	4.5	8.5
4	6.5	6.3	6.7	6.1	6.9	5.9	7.1	5.7	7.3	5.5	7.5	5.3	7.7	5.1	7.9	4.9	8.1	4.7	8.3	4.5	8.5
5	6.6	6.4	6.8	6.2	7.0	6.0	7.2	5.8	7.4	5.6	7.6	5.4	7.8	5.2	8.0	5.0	8.2	4.8	8.4	4.6	8.6
6	6.6	6.4	6.8	6.2	7.0	6.0	7.2	5.8	7.4	5.6	7.6	5.4	7.8	5.2	8.0	5.0	8.2	4.8	8.4	4.6	8.6
7	6.6	6.4	6.8	6.2	7.0	6.0	7.2	5.8	7.4	5.6	7.6	5.4	7.8	5.2	8.0	5.0	8.2	4.8	8.4	4.6	8.6
8	6.6	6.4	6.8	6.2	7.0	6.0	7.2	5.8	7.4	5.6	7.6	5.4	7.8	5.2	8.0	5.0	8.2	4.8	8.4	4.6	8.6
9	6.6	6.4	6.8	6.2	7.0	6.0	7.2	5.8	7.4	5.6	7.6	5.4	7.8	5.2	8.0	5.0	8.2	4.8	8.4	4.6	8.6
10	6.6	6.4	6.8	6.2	7.0	6.0	7.2	5.8	7.4	5.6	7.6	5.4	7.8	5.2	8.0	5.0	8.2	4.8	8.4	4.6	8.6

RIGHT TURN FROM MINOR ROADWAY - TWO LANES ($t_{c,\,base}$ = 6.2)

GRADE	0	-1	1	-2	2	-3	3	-4	4	-5	5	-6	6	-7	7	-8	8	-9	9	-10	10
HV %																					
0	6.2	6.1	6.3	6.0	6.4	5.9	6.5	5.8	6.6	5.7	6.7	5.6	6.8	5.5	6.9	5.4	7.0	5.3	7.1	5.2	7.2
1	6.2	6.1	6.3	6.0	6.4	5.9	6.5	5.8	6.6	5.7	6.7	5.6	6.8	5.5	6.9	5.4	7.0	5.3	7.1	5.2	7.2
2	6.2	6.1	6.3	6.0	6.4	5.9	6.5	5.8	6.6	5.7	6.7	5.6	6.8	5.5	6.9	5.4	7.0	5.3	7.1	5.2	7.2
3	6.2	6.1	6.3	6.0	6.4	5.9	6.5	5.8	6.6	5.7	6.7	5.6	6.8	5.5	6.9	5.4	7.0	5.3	7.1	5.2	7.2
4	6.2	6.1	6.3	6.0	6.4	5.9	6.5	5.8	6.6	5.7	6.7	5.6	6.8	5.5	6.9	5.4	7.0	5.3	7.1	5.2	7.2
5	6.3	6.2	6.4	6.1	6.5	6.0	6.6	5.9	6.7	5.8	6.8	5.7	6.9	5.6	7.0	5.5	7.1	5.4	7.2	5.3	7.3
6	6.3	6.2	6.4	6.1	6.5	6.0	6.6	5.9	6.7	5.8	6.8	5.7	6.9	5.6	7.0	5.5	7.1	5.4	7.2	5.3	7.3
7	6.3	6.2	6.4	6.1	6.5	6.0	6.6	5.9	6.7	5.8	6.8	5.7	6.9	5.6	7.0	5.5	7.1	5.4	7.2	5.3	7.3
8	6.3	6.2	6.4	6.1	6.5	6.0	6.6	5.9	6.7	5.8	6.8	5.7	6.9	5.6	7.0	5.5	7.1	5.4	7.2	5.3	7.3
9	6.3	6.2	6.4	6.1	6.5	6.0	6.6	5.9	6.7	5.8	6.8	5.7	6.9	5.6	7.0	5.5	7.1	5.4	7.2	5.3	7.3
10	6.3	6.2	6.4	6.1	6.5	6.0	6.6	5.9	6.7	5.8	6.8	5.7	6.9	5.6	7.0	5.5	7.1	5.4	7.2	5.3	7.3

CRITICAL HEADWAY CALCULATIONS FOR TWSC INTERSECTION WITHIN SUBURBAN LAND USE CONTEXT
BASED ON PENNSYLVANIA DEFAULT VALUES FROM CHAPTER 10 OF PENNDOT PUBLICATION 46

$t_{c,x} = t_{c,\,base} + t_{c,HV} * P_{HV} + t_{c,G} * G - t_{3,LT}$

where:

$t_{c,x}$ = critical headway for movement x (s)
$t_{c,base}$ = base crtitcal headway from Chapter 10 of PennDOT Publication 46
$t_{c,HV}$ = adjustment factor for heavy vehciles (1.0 for major streets with one lane in each direction; 2.0 for major streets with two or three lanes in each direction) (s)
P_{HV} = proportion of heavy vehciles for movement (expressed as a decimal; e.g., P_{HV}=0.02 for 2% heavy vehciles)
$t_{c,G}$ = adjustment factor for grade (0.1 for Movement 9 and 12; 0.2 for Movements 7,8,10, and 11) (s)
G = percent grade (expressed as an integer; e.g., G= -2 for a 2% downhill grade)
$t_{c,base}$ = adjustment factor for intersction geometry (0.7 for minor street left-turn movement at three-leg intersections; 0.0 otherwise) (s)

LEFT TURN FROM MAJOR ROADWAY - TWO LANES ($t_{c,\,base}$ = 4.3)

GRADE	0	-1	1	-2	2	-3	3	-4	4	-5	5	-6	6	-7	7	-8	8	-9	9	-10	10
HV %																					
0	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
1	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
2	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
4	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
5	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
6	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
7	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
8	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
9	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
10	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4

LEFT TURN FROM MINOR ROADWAY - TWO LANES - 3-LEG INTERSECTION ($t_{c,\,base}$ = 7.1)

GRADE	0	-1	1	-2	2	-3	3	-4	4	-5	5	-6	6	-7	7	-8	8	-9	9	-10	10
HV %																					
0	6.4	6.2	6.6	6.0	6.8	5.8	7.0	5.6	7.2	5.4	7.4	5.2	7.6	5.0	7.8	4.8	8.0	4.6	8.2	4.4	8.4
1	6.4	6.2	6.6	6.0	6.8	5.8	7.0	5.6	7.2	5.4	7.4	5.2	7.6	5.0	7.8	4.8	8.0	4.6	8.2	4.4	8.4
2	6.4	6.2	6.6	6.0	6.8	5.8	7.0	5.6	7.2	5.4	7.4	5.2	7.6	5.0	7.8	4.8	8.0	4.6	8.2	4.4	8.4
3	6.4	6.2	6.6	6.0	6.8	5.8	7.0	5.6	7.2	5.4	7.4	5.2	7.6	5.0	7.8	4.8	8.0	4.6	8.2	4.4	8.4
4	6.4	6.2	6.6	6.0	6.8	5.8	7.0	5.6	7.2	5.4	7.4	5.2	7.6	5.0	7.8	4.8	8.0	4.6	8.2	4.4	8.4
5	6.5	6.3	6.7	6.1	6.9	5.9	7.1	5.7	7.3	5.5	7.5	5.3	7.7	5.1	7.9	4.9	8.1	4.7	8.3	4.5	8.5
6	6.5	6.3	6.7	6.1	6.9	5.9	7.1	5.7	7.3	5.5	7.5	5.3	7.7	5.1	7.9	4.9	8.1	4.7	8.3	4.5	8.5
7	6.5	6.3	6.7	6.1	6.9	5.9	7.1	5.7	7.3	5.5	7.5	5.3	7.7	5.1	7.9	4.9	8.1	4.7	8.3	4.5	8.5
8	6.5	6.3	6.7	6.1	6.9	5.9	7.1	5.7	7.3	5.5	7.5	5.3	7.7	5.1	7.9	4.9	8.1	4.7	8.3	4.5	8.5
9	6.5	6.3	6.7	6.1	6.9	5.9	7.1	5.7	7.3	5.5	7.5	5.3	7.7	5.1	7.9	4.9	8.1	4.7	8.3	4.5	8.5
10	6.5	6.3	6.7	6.1	6.9	5.9	7.1	5.7	7.3	5.5	7.5	5.3	7.7	5.1	7.9	4.9	8.1	4.7	8.3	4.5	8.5

RIGHT TURN FROM MINOR ROADWAY - TWO LANES ($t_{c,\,base}$ = 6.2)

GRADE	0	-1	1	-2	2	-3	3	-4	4	-5	5	-6	6	-7	7	-8	8	-9	9	-10	10
HV %																					
0	6.2	6.1	6.3	6.0	6.4	5.9	6.5	5.8	6.6	5.7	6.7	5.6	6.8	5.5	6.9	5.4	7.0	5.3	7.1	5.2	7.2
1	6.2	6.1	6.3	6.0	6.4	5.9	6.5	5.8	6.6	5.7	6.7	5.6	6.8	5.5	6.9	5.4	7.0	5.3	7.1	5.2	7.2
2	6.2	6.1	6.3	6.0	6.4	5.9	6.5	5.8	6.6	5.7	6.7	5.6	6.8	5.5	6.9	5.4	7.0	5.3	7.1	5.2	7.2
3	6.2	6.1	6.3	6.0	6.4	5.9	6.5	5.8	6.6	5.7	6.7	5.6	6.8	5.5	6.9	5.4	7.0	5.3	7.1	5.2	7.2
4	6.2	6.1	6.3	6.0	6.4	5.9	6.5	5.8	6.6	5.7	6.7	5.6	6.8	5.5	6.9	5.4	7.0	5.3	7.1	5.2	7.2
5	6.3	6.2	6.4	6.1	6.5	6.0	6.6	5.9	6.7	5.8	6.8	5.7	6.9	5.6	7.0	5.5	7.1	5.4	7.2	5.3	7.3
6	6.3	6.2	6.4	6.1	6.5	6.0	6.6	5.9	6.7	5.8	6.8	5.7	6.9	5.6	7.0	5.5	7.1	5.4	7.2	5.3	7.3
7	6.3	6.2	6.4	6.1	6.5	6.0	6.6	5.9	6.7	5.8	6.8	5.7	6.9	5.6	7.0	5.5	7.1	5.4	7.2	5.3	7.3
8	6.3	6.2	6.4	6.1	6.5	6.0	6.6	5.9	6.7	5.8	6.8	5.7	6.9	5.6	7.0	5.5	7.1	5.4	7.2	5.3	7.3
9	6.3	6.2	6.4	6.1	6.5	6.0	6.6	5.9	6.7	5.8	6.8	5.7	6.9	5.6	7.0	5.5	7.1	5.4	7.2	5.3	7.3
10	6.3	6.2	6.4	6.1	6.5	6.0	6.6	5.9	6.7	5.8	6.8	5.7	6.9	5.6	7.0	5.5	7.1	5.4	7.2	5.3	7.3

FOLLOW-UP HEADWAY CALCULATIONS FOR TWSC INTERSECTION WITHIN SUBURBAN LAND USE CONTEXT
BASED ON PENNSYLVANIA DEFAULT VALUES FROM CHAPTER 10 OF PENNDOT PUBLICATION 46

$t_{f,x} = t_{f,\,base} + t_{f,HV} * P_{HV}$

where:

$t_{f,x}$ = follow-up headway for movement x (s)
$t_{f,base}$ = base follow-up headway from Chapter 10 of PennDOT Publication 46
$t_{f,HV}$ = adjustment factor for heavy vehciles (0.9 for major streets with one lane in each direction; 1.0 for major streets with two or three lanes in each direction) (s)
P_{HV} = proportion of heavy vehciles for movement (expressed as a decimal; e.g., P_{HV}=0.02 for 2% heavy vehciles)

LEFT TURN FROM MAJOR ROADWAY - TWO LANES ($t_{f,\,base}$ = 3.0)

GRADE	0	-1	1	-2	2	-3	3	-4	4	-5	5	-6	6	-7	7	-8	8	-9	9	-10	10
HV %																					
0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
1	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
2	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
3	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
4	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
6	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
7	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
8	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
9	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
10	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1

LEFT TURN FROM MINOR ROADWAY - TWO LANES ($t_{f,\,base}$ = 3.0)

GRADE	0	-1	1	-2	2	-3	3	-4	4	-5	5	-6	6	-7	7	-8	8	-9	9	-10	10
HV %																					
0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
1	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
2	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
3	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
4	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
6	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
7	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
8	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
9	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
10	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1

THROUGH TRAFFIC ON MINOR ROADWAY - TWO LANES ($t_{f,\,base}$ = 4.0)

GRADE	0	-1	1	-2	2	-3	3	-4	4	-5	5	-6	6	-7	7	-8	8	-9	9	-10	10
HV %																					
0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
1	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
2	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
3	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
4	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
5	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
6	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
7	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
8	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
9	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
10	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1

RIGHT TURN FROM MINOR ROADWAY - TWO LANES ($t_{f,\,base}$ = 3.1)

GRADE	0	-1	1	-2	2	-3	3	-4	4	-5	5	-6	6	-7	7	-8	8	-9	9	-10	10
HV %																					
0	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
2	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
3	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
4	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
5	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
6	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
7	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
8	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
9	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
10	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2

APPENDIX H

Capacity Analyses

2024 Existing Conditions

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	1	367	0	4	452
Future Volume (vph)	0	1	367	0	4	452
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	12	11	12	12	11
Grade (%)	1%		1%			-1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected						
Satd. Flow (prot)	1756	0	1731	0	0	1682
Flt Permitted						
Satd. Flow (perm)	1756	0	1731	0	0	1682
Link Speed (mph)	25		35			35
Link Distance (ft)	373		1156			722
Travel Time (s)	10.2		22.5			14.1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	5%	0%	4%
Adj. Flow (vph)	0	1	395	0	4	486
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	0	395	0	0	490
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	1	367	0	4	452
Future Vol, veh/h	0	1	367	0	4	452
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	1	-	1	-	-	-1
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	5	0	4
Mvmt Flow	0	1	395	0	4	486

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	889	395	0	0	395	0
Stage 1	395	-	-	-	-	-
Stage 2	494	-	-	-	-	-
Critical Hdwy	6.6	6.3	-	-	4.3	-
Critical Hdwy Stg 1	5.6	-	-	-	-	-
Critical Hdwy Stg 2	5.6	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	333	686	-	-	879	-
Stage 1	762	-	-	-	-	-
Stage 2	679	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	331	686	-	-	879	-
Mov Cap-2 Maneuver	331	-	-	-	-	-
Stage 1	762	-	-	-	-	-
Stage 2	675	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	10.3	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	686	879	-
HCM Lane V/C Ratio	-	-	0.002	0.005	-
HCM Control Delay (s/veh)	-	-	10.3	9.1	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q (veh)	-	-	0	0	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	1	362	1	3	498
Future Volume (vph)	0	1	362	1	3	498
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	12	11	12	12	10
Grade (%)	-2%		1%			-1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected						
Satd. Flow (prot)	1782	0	1665	0	0	1624
Flt Permitted						
Satd. Flow (perm)	1782	0	1665	0	0	1624
Link Speed (mph)	20		35			35
Link Distance (ft)	376		1634			1156
Travel Time (s)	12.8		31.8			22.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	4%	0%	0%	4%
Adj. Flow (vph)	0	1	402	1	3	553
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	0	403	0	0	556
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	1	362	1	3	498
Future Vol, veh/h	0	1	362	1	3	498
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-2	-	1	-	-	-1
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	4	0	0	4
Mvmt Flow	0	1	402	1	3	553

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	962	403	0	0	403	0
Stage 1	403	-	-	-	-	-
Stage 2	559	-	-	-	-	-
Critical Hdwy	6	6	-	-	4.3	-
Critical Hdwy Stg 1	5	-	-	-	-	-
Critical Hdwy Stg 2	5	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	351	702	-	-	873	-
Stage 1	807	-	-	-	-	-
Stage 2	691	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	349	702	-	-	873	-
Mov Cap-2 Maneuver	349	-	-	-	-	-
Stage 1	807	-	-	-	-	-
Stage 2	688	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	10.1	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	702	873	-
HCM Lane V/C Ratio	-	-	0.002	0.004	-
HCM Control Delay (s/veh)	-	-	10.1	9.1	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q (veh)	-	-	0	0	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	79	42	87	278	446	272
Future Volume (vph)	79	42	87	278	446	272
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	12	11	10	12
Grade (%)	-1%			3%	-2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.953				0.949	
Flt Protected	0.968			0.988		
Satd. Flow (prot)	1537	0	0	1633	1558	0
Flt Permitted	0.968			0.988		
Satd. Flow (perm)	1537	0	0	1633	1558	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	663			722	537	
Travel Time (s)	12.9			14.1	10.5	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	2%	6%	3%	3%	4%
Adj. Flow (vph)	84	45	93	296	474	289
Shared Lane Traffic (%)						
Lane Group Flow (vph)	129	0	0	389	763	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	79	42	87	278	446	272
Future Vol, veh/h	79	42	87	278	446	272
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-1	-	-	3	-2	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	1	2	6	3	3	4
Mvmt Flow	84	45	93	296	474	289

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1101	619	763	0	-	0
Stage 1	619	-	-	-	-	-
Stage 2	482	-	-	-	-	-
Critical Hdwy	6.21	6.12	4.4	-	-	-
Critical Hdwy Stg 1	5.21	-	-	-	-	-
Critical Hdwy Stg 2	5.21	-	-	-	-	-
Follow-up Hdwy	3	3.1	3.1	-	-	-
Pot Cap-1 Maneuver	274	523	623	-	-	-
Stage 1	627	-	-	-	-	-
Stage 2	725	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	225	523	623	-	-	-
Mov Cap-2 Maneuver	225	-	-	-	-	-
Stage 1	515	-	-	-	-	-
Stage 2	725	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	28.3	2.8	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	623	-	280	-	-
HCM Lane V/C Ratio	0.149	-	0.46	-	-
HCM Control Delay (s/veh)	11.8	0	28.3	-	-
HCM Lane LOS	B	A	D	-	-
HCM 95th %tile Q (veh)	0.5	-	2.3	-	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	160	84	280	20	48	435
Future Volume (vph)	160	84	280	20	48	435
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	10	10	12	12	10
Grade (%)	-4%		-3%			2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.991			
Flt Protected	0.950					0.995
Satd. Flow (prot)	1919	1387	1615	0	0	1597
Flt Permitted	0.950					0.995
Satd. Flow (perm)	1919	1387	1615	0	0	1597
Link Speed (mph)	20		35			35
Link Distance (ft)	407		573			1634
Travel Time (s)	13.9		11.2			31.8
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	3%	5%	5%	0%	0%	4%
Adj. Flow (vph)	176	92	308	22	53	478
Shared Lane Traffic (%)						
Lane Group Flow (vph)	176	92	330	0	0	531
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	4.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	160	84	280	20	48	435
Future Vol, veh/h	160	84	280	20	48	435
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-4	-	-3	-	-	2
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	5	5	0	0	4
Mvmt Flow	176	92	308	22	53	478

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	903	319	0	0	330	0
Stage 1	319	-	-	-	-	-
Stage 2	584	-	-	-	-	-
Critical Hdwy	5.63	5.85	-	-	4.3	-
Critical Hdwy Stg 1	4.63	-	-	-	-	-
Critical Hdwy Stg 2	4.63	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	416	791	-	-	925	-
Stage 1	907	-	-	-	-	-
Stage 2	715	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	384	791	-	-	925	-
Mov Cap-2 Maneuver	384	-	-	-	-	-
Stage 1	907	-	-	-	-	-
Stage 2	659	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	18	0	0.9
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	384	791	925	-
HCM Lane V/C Ratio	-	-	0.458	0.117	0.057	-
HCM Control Delay (s/veh)	-	-	22.1	10.2	9.1	0
HCM Lane LOS	-	-	C	B	A	A
HCM 95th %tile Q (veh)	-	-	2.3	0.4	0.2	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	1	357	1	2	316
Future Volume (vph)	5	1	357	1	2	316
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	12	11	12	12	11
Grade (%)	1%		1%			-1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.977					
Flt Protected	0.960					
Satd. Flow (prot)	1428	0	1634	0	0	1677
Flt Permitted	0.960					
Satd. Flow (perm)	1428	0	1634	0	0	1677
Link Speed (mph)	25		35			35
Link Distance (ft)	373		1156			722
Travel Time (s)	10.2		22.5			14.1
Confl. Peds. (#/hr)	2	2				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	40%	0%	6%	0%	50%	4%
Adj. Flow (vph)	5	1	388	1	2	343
Shared Lane Traffic (%)						
Lane Group Flow (vph)	6	0	389	0	0	345
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	1	357	1	2	316
Future Vol, veh/h	5	1	357	1	2	316
Conflicting Peds, #/hr	2	2	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	1	-	1	-	-	-1
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	40	0	6	0	50	4
Mvmt Flow	5	1	388	1	2	343

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	738	391	0	0	389	0
Stage 1	389	-	-	-	-	-
Stage 2	349	-	-	-	-	-
Critical Hdwy	7	6.3	-	-	4.8	-
Critical Hdwy Stg 1	6	-	-	-	-	-
Critical Hdwy Stg 2	6	-	-	-	-	-
Follow-up Hdwy	3.4	3.1	-	-	3.5	-
Pot Cap-1 Maneuver	350	690	-	-	735	-
Stage 1	662	-	-	-	-	-
Stage 2	695	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	348	689	-	-	735	-
Mov Cap-2 Maneuver	348	-	-	-	-	-
Stage 1	662	-	-	-	-	-
Stage 2	692	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	14.7	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	379	735	-
HCM Lane V/C Ratio	-	-	0.017	0.003	-
HCM Control Delay (s/veh)	-	-	14.7	9.9	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q (veh)	-	-	0.1	0	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	2	1	362	2	0	331
Future Volume (vph)	2	1	362	2	0	331
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	12	11	12	12	10
Grade (%)	-2%		1%			-1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.955		0.999			
Flt Protected	0.968					
Satd. Flow (prot)	1905	0	1628	0	0	1608
Flt Permitted	0.968					
Satd. Flow (perm)	1905	0	1628	0	0	1608
Link Speed (mph)	20		35			35
Link Distance (ft)	376		1634			1156
Travel Time (s)	12.8		31.8			22.5
Confl. Peds. (#/hr)	2	2				
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	6%	50%	0%	5%
Adj. Flow (vph)	2	1	398	2	0	364
Shared Lane Traffic (%)						
Lane Group Flow (vph)	3	0	400	0	0	364
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	1	362	2	0	331
Future Vol, veh/h	2	1	362	2	0	331
Conflicting Peds, #/hr	2	2	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-2	-	1	-	-	-1
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	6	50	0	5
Mvmt Flow	2	1	398	2	0	364

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	765	401	0	0	400	0
Stage 1	399	-	-	-	-	-
Stage 2	366	-	-	-	-	-
Critical Hdwy	6	6	-	-	4.3	-
Critical Hdwy Stg 1	5	-	-	-	-	-
Critical Hdwy Stg 2	5	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	453	704	-	-	875	-
Stage 1	810	-	-	-	-	-
Stage 2	837	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	452	703	-	-	875	-
Mov Cap-2 Maneuver	452	-	-	-	-	-
Stage 1	810	-	-	-	-	-
Stage 2	835	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	12.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	513	875	-
HCM Lane V/C Ratio	-	-	0.006	-	-
HCM Control Delay (s/veh)	-	-	12.1	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q (veh)	-	-	0	0	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	89	30	41	305	284	64
Future Volume (vph)	89	30	41	305	284	64
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	12	11	10	12
Grade (%)	-1%			3%	-2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.966				0.975	
Flt Protected	0.964			0.994		
Satd. Flow (prot)	1480	0	0	1583	1565	0
Flt Permitted	0.964			0.994		
Satd. Flow (perm)	1480	0	0	1583	1565	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	663			722	537	
Travel Time (s)	12.9			14.1	10.5	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	6%	7%	5%	8%	5%	9%
Adj. Flow (vph)	101	34	47	347	323	73
Shared Lane Traffic (%)						
Lane Group Flow (vph)	135	0	0	394	396	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	89	30	41	305	284	64
Future Vol, veh/h	89	30	41	305	284	64
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-1	-	-	3	-2	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	6	7	5	8	5	9
Mvmt Flow	101	34	47	347	323	73

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	801	360	396	0	-	0
Stage 1	360	-	-	-	-	-
Stage 2	441	-	-	-	-	-
Critical Hdwy	6.26	6.17	4.3	-	-	-
Critical Hdwy Stg 1	5.26	-	-	-	-	-
Critical Hdwy Stg 2	5.26	-	-	-	-	-
Follow-up Hdwy	3.1	3.2	3	-	-	-
Pot Cap-1 Maneuver	399	709	878	-	-	-
Stage 1	798	-	-	-	-	-
Stage 2	733	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	373	709	878	-	-	-
Mov Cap-2 Maneuver	373	-	-	-	-	-
Stage 1	745	-	-	-	-	-
Stage 2	733	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	17.4	1.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	878	-	424	-	-
HCM Lane V/C Ratio	0.053	-	0.319	-	-
HCM Control Delay (s/veh)	9.3	0	17.4	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q (veh)	0.2	-	1.4	-	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	29	31	317	10	13	306
Future Volume (vph)	29	31	317	10	13	306
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	10	10	12	12	10
Grade (%)	-4%		-3%			2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.996			
Flt Protected	0.950					0.998
Satd. Flow (prot)	1977	1289	1590	0	0	1570
Flt Permitted	0.950					0.998
Satd. Flow (perm)	1977	1289	1590	0	0	1570
Link Speed (mph)	20		35			35
Link Distance (ft)	407		573			1634
Travel Time (s)	13.9		11.2			31.8
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	13%	7%	0%	23%	5%
Adj. Flow (vph)	32	34	348	11	14	336
Shared Lane Traffic (%)						
Lane Group Flow (vph)	32	34	359	0	0	350
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	29	31	317	10	13	306
Future Vol, veh/h	29	31	317	10	13	306
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-4	-	-3	-	-	2
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	13	7	0	23	5
Mvmt Flow	32	34	348	11	14	336

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	718	354	0	0	359	0
Stage 1	354	-	-	-	-	-
Stage 2	364	-	-	-	-	-
Critical Hdwy	5.6	5.93	-	-	4.5	-
Critical Hdwy Stg 1	4.6	-	-	-	-	-
Critical Hdwy Stg 2	4.6	-	-	-	-	-
Follow-up Hdwy	3	3.2	-	-	3.2	-
Pot Cap-1 Maneuver	522	732	-	-	839	-
Stage 1	881	-	-	-	-	-
Stage 2	874	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	511	732	-	-	839	-
Mov Cap-2 Maneuver	511	-	-	-	-	-
Stage 1	881	-	-	-	-	-
Stage 2	856	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	11.3	0	0.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	511	732	839	-
HCM Lane V/C Ratio	-	-	0.062	0.047	0.017	-
HCM Control Delay (s/veh)	-	-	12.5	10.2	9.4	0
HCM Lane LOS	-	-	B	B	A	A
HCM 95th %tile Q (veh)	-	-	0.2	0.1	0.1	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	1	1	396	0	1	309
Future Volume (vph)	1	1	396	0	1	309
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	12	11	12	12	11
Grade (%)	1%		1%			-1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.932					
Flt Protected	0.976					
Satd. Flow (prot)	1846	0	1714	0	0	1715
Flt Permitted	0.976					
Satd. Flow (perm)	1846	0	1714	0	0	1715
Link Speed (mph)	25		35			35
Link Distance (ft)	373		1156			722
Travel Time (s)	10.2		22.5			14.1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	1%	0%	0%	2%
Adj. Flow (vph)	1	1	430	0	1	336
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2	0	430	0	0	337
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	1	396	0	1	309
Future Vol, veh/h	1	1	396	0	1	309
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	1	-	1	-	-	-1
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	1	0	0	2
Mvmt Flow	1	1	430	0	1	336

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	768	430	0	0	430	0
Stage 1	430	-	-	-	-	-
Stage 2	338	-	-	-	-	-
Critical Hdwy	6.6	6.3	-	-	4.3	-
Critical Hdwy Stg 1	5.6	-	-	-	-	-
Critical Hdwy Stg 2	5.6	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	397	655	-	-	854	-
Stage 1	731	-	-	-	-	-
Stage 2	814	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	397	655	-	-	854	-
Mov Cap-2 Maneuver	397	-	-	-	-	-
Stage 1	731	-	-	-	-	-
Stage 2	813	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	12.3	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	494	854	-
HCM Lane V/C Ratio	-	-	0.004	0.001	-
HCM Control Delay (s/veh)	-	-	12.3	9.2	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q (veh)	-	-	0	0	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	396	0	0	312
Future Volume (vph)	0	0	396	0	0	312
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	12	11	12	12	10
Grade (%)	-2%		1%			-1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	2060	0	1697	0	0	1655
Flt Permitted						
Satd. Flow (perm)	2060	0	1697	0	0	1655
Link Speed (mph)	20		35			35
Link Distance (ft)	376		1634			1156
Travel Time (s)	12.8		31.8			22.5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	2%	0%	0%	2%
Adj. Flow (vph)	0	0	417	0	0	328
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	417	0	0	328
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	396	0	0	312
Future Vol, veh/h	0	0	396	0	0	312
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-2	-	1	-	-	-1
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	2	0	0	2
Mvmt Flow	0	0	417	0	0	328

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	745	417	0	0	417	0
Stage 1	417	-	-	-	-	-
Stage 2	328	-	-	-	-	-
Critical Hdwy	6	6	-	-	4.3	-
Critical Hdwy Stg 1	5	-	-	-	-	-
Critical Hdwy Stg 2	5	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	465	690	-	-	863	-
Stage 1	796	-	-	-	-	-
Stage 2	870	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	465	690	-	-	863	-
Mov Cap-2 Maneuver	465	-	-	-	-	-
Stage 1	796	-	-	-	-	-
Stage 2	870	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	863	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q (veh)	-	-	-	0	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	155	28	49	351	284	67
Future Volume (vph)	155	28	49	351	284	67
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	12	11	10	12
Grade (%)	-1%			3%	-2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.979				0.974	
Flt Protected	0.959			0.994		
Satd. Flow (prot)	1549	0	0	1681	1639	0
Flt Permitted	0.959			0.994		
Satd. Flow (perm)	1549	0	0	1681	1639	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	663			722	537	
Travel Time (s)	12.9			14.1	10.5	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	4%	1%	1%	0%
Adj. Flow (vph)	160	29	51	362	293	69
Shared Lane Traffic (%)						
Lane Group Flow (vph)	189	0	0	413	362	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	155	28	49	351	284	67
Future Vol, veh/h	155	28	49	351	284	67
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-1	-	-	3	-2	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	4	4	1	1	0
Mvmt Flow	160	29	51	362	293	69

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	792	328	362	0	-	0
Stage 1	328	-	-	-	-	-
Stage 2	464	-	-	-	-	-
Critical Hdwy	6.22	6.14	4.3	-	-	-
Critical Hdwy Stg 1	5.22	-	-	-	-	-
Critical Hdwy Stg 2	5.22	-	-	-	-	-
Follow-up Hdwy	3	3.1	3	-	-	-
Pot Cap-1 Maneuver	417	762	902	-	-	-
Stage 1	852	-	-	-	-	-
Stage 2	738	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	387	762	902	-	-	-
Mov Cap-2 Maneuver	387	-	-	-	-	-
Stage 1	792	-	-	-	-	-
Stage 2	738	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	20.4	1.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	902	-	419	-	-
HCM Lane V/C Ratio	0.056	-	0.45	-	-
HCM Control Delay (s/veh)	9.2	0	20.4	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q (veh)	0.2	-	2.3	-	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	34	35	356	6	13	301
Future Volume (vph)	34	35	356	6	13	301
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	10	10	12	12	10
Grade (%)	-4%		-3%			2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.998			
Flt Protected	0.950					0.998
Satd. Flow (prot)	1919	1414	1663	0	0	1629
Flt Permitted	0.950					0.998
Satd. Flow (perm)	1919	1414	1663	0	0	1629
Link Speed (mph)	20		35			35
Link Distance (ft)	407		573			1634
Travel Time (s)	13.9		11.2			31.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	2%	20%	0%	2%
Adj. Flow (vph)	38	39	396	7	14	334
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	39	403	0	0	348
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	34	35	356	6	13	301
Future Vol, veh/h	34	35	356	6	13	301
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-4	-	-3	-	-	2
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	3	2	20	0	2
Mvmt Flow	38	39	396	7	14	334

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	762	400	0	0	403	0
Stage 1	400	-	-	-	-	-
Stage 2	362	-	-	-	-	-
Critical Hdwy	5.63	5.83	-	-	4.3	-
Critical Hdwy Stg 1	4.63	-	-	-	-	-
Critical Hdwy Stg 2	4.63	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	492	718	-	-	873	-
Stage 1	844	-	-	-	-	-
Stage 2	873	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	482	718	-	-	873	-
Mov Cap-2 Maneuver	482	-	-	-	-	-
Stage 1	844	-	-	-	-	-
Stage 2	856	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	11.7	0	0.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	482	718	873	-
HCM Lane V/C Ratio	-	-	0.078	0.054	0.017	-
HCM Control Delay (s/veh)	-	-	13.1	10.3	9.2	0
HCM Lane LOS	-	-	B	B	A	A
HCM 95th %tile Q (veh)	-	-	0.3	0.2	0.1	-

2029 Base Conditions

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	1	378	0	4	460
Future Volume (vph)	0	1	378	0	4	460
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	12	11	12	12	11
Grade (%)	1%		1%			-1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected						
Satd. Flow (prot)	1756	0	1731	0	0	1682
Flt Permitted						
Satd. Flow (perm)	1756	0	1731	0	0	1682
Link Speed (mph)	25		35			35
Link Distance (ft)	373		1156			722
Travel Time (s)	10.2		22.5			14.1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	5%	0%	4%
Adj. Flow (vph)	0	1	406	0	4	495
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	0	406	0	0	499
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	1	378	0	4	460
Future Vol, veh/h	0	1	378	0	4	460
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	1	-	1	-	-	-1
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	5	0	4
Mvmt Flow	0	1	406	0	4	495

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	909	406	0	0	406	0
Stage 1	406	-	-	-	-	-
Stage 2	503	-	-	-	-	-
Critical Hdwy	6.6	6.3	-	-	4.3	-
Critical Hdwy Stg 1	5.6	-	-	-	-	-
Critical Hdwy Stg 2	5.6	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	323	676	-	-	871	-
Stage 1	752	-	-	-	-	-
Stage 2	672	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	321	676	-	-	871	-
Mov Cap-2 Maneuver	321	-	-	-	-	-
Stage 1	752	-	-	-	-	-
Stage 2	668	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	10.3	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	676	871	-
HCM Lane V/C Ratio	-	-	0.002	0.005	-
HCM Control Delay (s/veh)	-	-	10.3	9.2	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q (veh)	-	-	0	0	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	1	373	1	3	506
Future Volume (vph)	0	1	373	1	3	506
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	12	11	12	12	10
Grade (%)	-2%		1%			-1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected						
Satd. Flow (prot)	1782	0	1665	0	0	1624
Flt Permitted						
Satd. Flow (perm)	1782	0	1665	0	0	1624
Link Speed (mph)	20		35			35
Link Distance (ft)	376		1634			1156
Travel Time (s)	12.8		31.8			22.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	4%	0%	0%	4%
Adj. Flow (vph)	0	1	414	1	3	562
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	0	415	0	0	565
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	1	373	1	3	506
Future Vol, veh/h	0	1	373	1	3	506
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-2	-	1	-	-	-1
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	4	0	0	4
Mvmt Flow	0	1	414	1	3	562

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	983	415	0	0	415	0
Stage 1	415	-	-	-	-	-
Stage 2	568	-	-	-	-	-
Critical Hdwy	6	6	-	-	4.3	-
Critical Hdwy Stg 1	5	-	-	-	-	-
Critical Hdwy Stg 2	5	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	342	692	-	-	865	-
Stage 1	798	-	-	-	-	-
Stage 2	684	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	340	692	-	-	865	-
Mov Cap-2 Maneuver	340	-	-	-	-	-
Stage 1	798	-	-	-	-	-
Stage 2	681	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	10.2	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	692	865	-
HCM Lane V/C Ratio	-	-	0.002	0.004	-
HCM Control Delay (s/veh)	-	-	10.2	9.2	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q (veh)	-	-	0	0	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	80	42	88	288	454	275
Future Volume (vph)	80	42	88	288	454	275
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	12	11	10	12
Grade (%)	-1%			3%	-2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.953				0.949	
Flt Protected	0.968			0.988		
Satd. Flow (prot)	1537	0	0	1633	1558	0
Flt Permitted	0.968			0.988		
Satd. Flow (perm)	1537	0	0	1633	1558	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	663			722	537	
Travel Time (s)	12.9			14.1	10.5	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	2%	6%	3%	3%	4%
Adj. Flow (vph)	85	45	94	306	483	293
Shared Lane Traffic (%)						
Lane Group Flow (vph)	130	0	0	400	776	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	80	42	88	288	454	275
Future Vol, veh/h	80	42	88	288	454	275
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-1	-	-	3	-2	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	1	2	6	3	3	4
Mvmt Flow	85	45	94	306	483	293

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1124	630	776	0	-	0
Stage 1	630	-	-	-	-	-
Stage 2	494	-	-	-	-	-
Critical Hdwy	6.21	6.12	4.4	-	-	-
Critical Hdwy Stg 1	5.21	-	-	-	-	-
Critical Hdwy Stg 2	5.21	-	-	-	-	-
Follow-up Hdwy	3	3.1	3.1	-	-	-
Pot Cap-1 Maneuver	266	516	617	-	-	-
Stage 1	620	-	-	-	-	-
Stage 2	716	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	217	516	617	-	-	-
Mov Cap-2 Maneuver	217	-	-	-	-	-
Stage 1	506	-	-	-	-	-
Stage 2	716	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	29.9	2.8	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	617	-	271	-	-
HCM Lane V/C Ratio	0.152	-	0.479	-	-
HCM Control Delay (s/veh)	11.9	0	29.9	-	-
HCM Lane LOS	B	A	D	-	-
HCM 95th %tile Q (veh)	0.5	-	2.4	-	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	162	92	283	20	51	440
Future Volume (vph)	162	92	283	20	51	440
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	10	10	12	12	10
Grade (%)	-4%		-3%			2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.991			
Flt Protected	0.950					0.995
Satd. Flow (prot)	1919	1387	1614	0	0	1598
Flt Permitted	0.950					0.995
Satd. Flow (perm)	1919	1387	1614	0	0	1598
Link Speed (mph)	20		35			35
Link Distance (ft)	407		573			1634
Travel Time (s)	13.9		11.2			31.8
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	3%	5%	5%	0%	0%	4%
Adj. Flow (vph)	178	101	311	22	56	484
Shared Lane Traffic (%)						
Lane Group Flow (vph)	178	101	333	0	0	540
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	4.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	162	92	283	20	51	440
Future Vol, veh/h	162	92	283	20	51	440
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-4	-	-3	-	-	2
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	5	5	0	0	4
Mvmt Flow	178	101	311	22	56	484

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	918	322	0	0	333	0
Stage 1	322	-	-	-	-	-
Stage 2	596	-	-	-	-	-
Critical Hdwy	5.63	5.85	-	-	4.3	-
Critical Hdwy Stg 1	4.63	-	-	-	-	-
Critical Hdwy Stg 2	4.63	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	409	788	-	-	923	-
Stage 1	904	-	-	-	-	-
Stage 2	707	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	375	788	-	-	923	-
Mov Cap-2 Maneuver	375	-	-	-	-	-
Stage 1	904	-	-	-	-	-
Stage 2	648	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	18.4	0	1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	375	788	923	-
HCM Lane V/C Ratio	-	-	0.475	0.128	0.061	-
HCM Control Delay (s/veh)	-	-	23	10.2	9.2	0
HCM Lane LOS	-	-	C	B	A	A
HCM 95th %tile Q (veh)	-	-	2.5	0.4	0.2	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	1	364	1	2	324
Future Volume (vph)	5	1	364	1	2	324
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	12	11	12	12	11
Grade (%)	1%		1%			-1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.977					
Flt Protected	0.960					
Satd. Flow (prot)	1428	0	1634	0	0	1677
Flt Permitted	0.960					
Satd. Flow (perm)	1428	0	1634	0	0	1677
Link Speed (mph)	25		35			35
Link Distance (ft)	373		1156			722
Travel Time (s)	10.2		22.5			14.1
Confl. Peds. (#/hr)	2	2				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	40%	0%	6%	0%	50%	4%
Adj. Flow (vph)	5	1	396	1	2	352
Shared Lane Traffic (%)						
Lane Group Flow (vph)	6	0	397	0	0	354
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	1	364	1	2	324
Future Vol, veh/h	5	1	364	1	2	324
Conflicting Peds, #/hr	2	2	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	1	-	1	-	-	-1
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	40	0	6	0	50	4
Mvmt Flow	5	1	396	1	2	352

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	755	399	0	0	397	0
Stage 1	397	-	-	-	-	-
Stage 2	358	-	-	-	-	-
Critical Hdwy	7	6.3	-	-	4.8	-
Critical Hdwy Stg 1	6	-	-	-	-	-
Critical Hdwy Stg 2	6	-	-	-	-	-
Follow-up Hdwy	3.4	3.1	-	-	3.5	-
Pot Cap-1 Maneuver	341	683	-	-	730	-
Stage 1	655	-	-	-	-	-
Stage 2	687	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	339	682	-	-	730	-
Mov Cap-2 Maneuver	339	-	-	-	-	-
Stage 1	655	-	-	-	-	-
Stage 2	684	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	14.9	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	370	730	-
HCM Lane V/C Ratio	-	-	0.018	0.003	-
HCM Control Delay (s/veh)	-	-	14.9	9.9	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q (veh)	-	-	0.1	0	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	2	1	369	2	0	339
Future Volume (vph)	2	1	369	2	0	339
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	12	11	12	12	10
Grade (%)	-2%		1%			-1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.955		0.999			
Flt Protected	0.968					
Satd. Flow (prot)	1905	0	1628	0	0	1608
Flt Permitted	0.968					
Satd. Flow (perm)	1905	0	1628	0	0	1608
Link Speed (mph)	20		35			35
Link Distance (ft)	376		1634			1156
Travel Time (s)	12.8		31.8			22.5
Confl. Peds. (#/hr)	2	2				
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	6%	50%	0%	5%
Adj. Flow (vph)	2	1	405	2	0	373
Shared Lane Traffic (%)						
Lane Group Flow (vph)	3	0	407	0	0	373
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	1	369	2	0	339
Future Vol, veh/h	2	1	369	2	0	339
Conflicting Peds, #/hr	2	2	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-2	-	1	-	-	-1
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	6	50	0	5
Mvmt Flow	2	1	405	2	0	373

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	781	408	0	0	407	0
Stage 1	406	-	-	-	-	-
Stage 2	375	-	-	-	-	-
Critical Hdwy	6	6	-	-	4.3	-
Critical Hdwy Stg 1	5	-	-	-	-	-
Critical Hdwy Stg 2	5	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	444	698	-	-	870	-
Stage 1	805	-	-	-	-	-
Stage 2	830	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	443	697	-	-	870	-
Mov Cap-2 Maneuver	443	-	-	-	-	-
Stage 1	805	-	-	-	-	-
Stage 2	828	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	12.2	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	504	870	-
HCM Lane V/C Ratio	-	-	0.007	-	-
HCM Control Delay (s/veh)	-	-	12.2	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q (veh)	-	-	0	0	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	90	30	41	311	292	65
Future Volume (vph)	90	30	41	311	292	65
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	12	11	10	12
Grade (%)	-1%			3%	-2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.966				0.975	
Flt Protected	0.964			0.994		
Satd. Flow (prot)	1480	0	0	1583	1565	0
Flt Permitted	0.964			0.994		
Satd. Flow (perm)	1480	0	0	1583	1565	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	663			722	537	
Travel Time (s)	12.9			14.1	10.5	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	6%	7%	5%	8%	5%	9%
Adj. Flow (vph)	102	34	47	353	332	74
Shared Lane Traffic (%)						
Lane Group Flow (vph)	136	0	0	400	406	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	90	30	41	311	292	65
Future Vol, veh/h	90	30	41	311	292	65
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-1	-	-	3	-2	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	6	7	5	8	5	9
Mvmt Flow	102	34	47	353	332	74

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	816	369	406	0	-	0
Stage 1	369	-	-	-	-	-
Stage 2	447	-	-	-	-	-
Critical Hdwy	6.26	6.17	4.3	-	-	-
Critical Hdwy Stg 1	5.26	-	-	-	-	-
Critical Hdwy Stg 2	5.26	-	-	-	-	-
Follow-up Hdwy	3.1	3.2	3	-	-	-
Pot Cap-1 Maneuver	391	701	871	-	-	-
Stage 1	791	-	-	-	-	-
Stage 2	728	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	365	701	871	-	-	-
Mov Cap-2 Maneuver	365	-	-	-	-	-
Stage 1	738	-	-	-	-	-
Stage 2	728	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	17.9	1.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	871	-	415	-	-
HCM Lane V/C Ratio	0.053	-	0.329	-	-
HCM Control Delay (s/veh)	9.4	0	17.9	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q (veh)	0.2	-	1.4	-	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	29	34	320	10	18	309
Future Volume (vph)	29	34	320	10	18	309
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	10	10	12	12	10
Grade (%)	-4%		-3%			2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.996			
Flt Protected	0.950					0.997
Satd. Flow (prot)	1977	1289	1590	0	0	1564
Flt Permitted	0.950					0.997
Satd. Flow (perm)	1977	1289	1590	0	0	1564
Link Speed (mph)	20		35			35
Link Distance (ft)	407		573			1634
Travel Time (s)	13.9		11.2			31.8
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	13%	7%	0%	23%	5%
Adj. Flow (vph)	32	37	352	11	20	340
Shared Lane Traffic (%)						
Lane Group Flow (vph)	32	37	363	0	0	360
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	29	34	320	10	18	309
Future Vol, veh/h	29	34	320	10	18	309
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-4	-	-3	-	-	2
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	13	7	0	23	5
Mvmt Flow	32	37	352	11	20	340

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	738	358	0	0	363	0
Stage 1	358	-	-	-	-	-
Stage 2	380	-	-	-	-	-
Critical Hdwy	5.6	5.93	-	-	4.5	-
Critical Hdwy Stg 1	4.6	-	-	-	-	-
Critical Hdwy Stg 2	4.6	-	-	-	-	-
Follow-up Hdwy	3	3.2	-	-	3.2	-
Pot Cap-1 Maneuver	510	728	-	-	836	-
Stage 1	878	-	-	-	-	-
Stage 2	862	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	495	728	-	-	836	-
Mov Cap-2 Maneuver	495	-	-	-	-	-
Stage 1	878	-	-	-	-	-
Stage 2	837	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	11.4	0	0.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	495	728	836	-
HCM Lane V/C Ratio	-	-	0.064	0.051	0.024	-
HCM Control Delay (s/veh)	-	-	12.8	10.2	9.4	0
HCM Lane LOS	-	-	B	B	A	A
HCM 95th %tile Q (veh)	-	-	0.2	0.2	0.1	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	1	1	400	0	1	317
Future Volume (vph)	1	1	400	0	1	317
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	12	11	12	12	11
Grade (%)	1%		1%			-1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.932					
Flt Protected	0.976					
Satd. Flow (prot)	1846	0	1714	0	0	1715
Flt Permitted	0.976					
Satd. Flow (perm)	1846	0	1714	0	0	1715
Link Speed (mph)	25		35			35
Link Distance (ft)	373		1156			722
Travel Time (s)	10.2		22.5			14.1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	1%	0%	0%	2%
Adj. Flow (vph)	1	1	435	0	1	345
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2	0	435	0	0	346
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	1	400	0	1	317
Future Vol, veh/h	1	1	400	0	1	317
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	1	-	1	-	-	-1
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	1	0	0	2
Mvmt Flow	1	1	435	0	1	345

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	782	435	0	0	435	0
Stage 1	435	-	-	-	-	-
Stage 2	347	-	-	-	-	-
Critical Hdwy	6.6	6.3	-	-	4.3	-
Critical Hdwy Stg 1	5.6	-	-	-	-	-
Critical Hdwy Stg 2	5.6	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	389	650	-	-	851	-
Stage 1	727	-	-	-	-	-
Stage 2	805	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	389	650	-	-	851	-
Mov Cap-2 Maneuver	389	-	-	-	-	-
Stage 1	727	-	-	-	-	-
Stage 2	804	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	12.4	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	487	851	-
HCM Lane V/C Ratio	-	-	0.004	0.001	-
HCM Control Delay (s/veh)	-	-	12.4	9.2	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q (veh)	-	-	0	0	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	400	0	0	320
Future Volume (vph)	0	0	400	0	0	320
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	12	11	12	12	10
Grade (%)	-2%		1%			-1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	2060	0	1697	0	0	1655
Flt Permitted						
Satd. Flow (perm)	2060	0	1697	0	0	1655
Link Speed (mph)	20		35			35
Link Distance (ft)	376		1634			1156
Travel Time (s)	12.8		31.8			22.5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	2%	0%	0%	2%
Adj. Flow (vph)	0	0	421	0	0	337
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	421	0	0	337
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	400	0	0	320
Future Vol, veh/h	0	0	400	0	0	320
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-2	-	1	-	-	-1
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	2	0	0	2
Mvmt Flow	0	0	421	0	0	337

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	758	421	0	0	421	0
Stage 1	421	-	-	-	-	-
Stage 2	337	-	-	-	-	-
Critical Hdwy	6	6	-	-	4.3	-
Critical Hdwy Stg 1	5	-	-	-	-	-
Critical Hdwy Stg 2	5	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	458	686	-	-	860	-
Stage 1	793	-	-	-	-	-
Stage 2	862	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	458	686	-	-	860	-
Mov Cap-2 Maneuver	458	-	-	-	-	-
Stage 1	793	-	-	-	-	-
Stage 2	862	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	860	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q (veh)	-	-	-	0	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	157	28	50	358	292	68
Future Volume (vph)	157	28	50	358	292	68
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	12	11	10	12
Grade (%)	-1%			3%	-2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.980				0.975	
Flt Protected	0.959			0.994		
Satd. Flow (prot)	1551	0	0	1681	1641	0
Flt Permitted	0.959			0.994		
Satd. Flow (perm)	1551	0	0	1681	1641	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	663			722	537	
Travel Time (s)	12.9			14.1	10.5	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	4%	1%	1%	0%
Adj. Flow (vph)	162	29	52	369	301	70
Shared Lane Traffic (%)						
Lane Group Flow (vph)	191	0	0	421	371	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	4.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	157	28	50	358	292	68
Future Vol, veh/h	157	28	50	358	292	68
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-1	-	-	3	-2	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	4	4	1	1	0
Mvmt Flow	162	29	52	369	301	70

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	809	336	371	0	-	0
Stage 1	336	-	-	-	-	-
Stage 2	473	-	-	-	-	-
Critical Hdwy	6.22	6.14	4.3	-	-	-
Critical Hdwy Stg 1	5.22	-	-	-	-	-
Critical Hdwy Stg 2	5.22	-	-	-	-	-
Follow-up Hdwy	3	3.1	3	-	-	-
Pot Cap-1 Maneuver	408	754	896	-	-	-
Stage 1	845	-	-	-	-	-
Stage 2	731	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	378	754	896	-	-	-
Mov Cap-2 Maneuver	378	-	-	-	-	-
Stage 1	783	-	-	-	-	-
Stage 2	731	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	21.3	1.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	896	-	409	-	-
HCM Lane V/C Ratio	0.058	-	0.466	-	-
HCM Control Delay (s/veh)	9.3	0	21.3	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q (veh)	0.2	-	2.4	-	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	34	38	360	6	18	304
Future Volume (vph)	34	38	360	6	18	304
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	10	10	12	12	10
Grade (%)	-4%		-3%			2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.998			
Flt Protected	0.950					0.997
Satd. Flow (prot)	1919	1414	1663	0	0	1627
Flt Permitted	0.950					0.997
Satd. Flow (perm)	1919	1414	1663	0	0	1627
Link Speed (mph)	20		35			35
Link Distance (ft)	407		573			1634
Travel Time (s)	13.9		11.2			31.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	2%	20%	0%	2%
Adj. Flow (vph)	38	42	400	7	20	338
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	42	407	0	0	358
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	34	38	360	6	18	304
Future Vol, veh/h	34	38	360	6	18	304
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-4	-	-3	-	-	2
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	3	2	20	0	2
Mvmt Flow	38	42	400	7	20	338

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	782	404	0	0	407	0
Stage 1	404	-	-	-	-	-
Stage 2	378	-	-	-	-	-
Critical Hdwy	5.63	5.83	-	-	4.3	-
Critical Hdwy Stg 1	4.63	-	-	-	-	-
Critical Hdwy Stg 2	4.63	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	481	715	-	-	870	-
Stage 1	841	-	-	-	-	-
Stage 2	860	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	468	715	-	-	870	-
Mov Cap-2 Maneuver	468	-	-	-	-	-
Stage 1	841	-	-	-	-	-
Stage 2	836	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	11.8	0	0.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	468	715	870	-
HCM Lane V/C Ratio	-	-	0.081	0.059	0.023	-
HCM Control Delay (s/veh)	-	-	13.4	10.4	9.2	0
HCM Lane LOS	-	-	B	B	A	A
HCM 95th %tile Q (veh)	-	-	0.3	0.2	0.1	-

2029 Projected Conditions

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	26	65	360	60	144	448
Future Volume (vph)	26	65	360	60	144	448
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	12	11	12	12	11
Grade (%)	1%		1%			-1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.904		0.981			
Flt Protected	0.986					0.988
Satd. Flow (prot)	1809	0	1629	0	0	1677
Flt Permitted	0.986					0.988
Satd. Flow (perm)	1809	0	1629	0	0	1677
Link Speed (mph)	25		35			35
Link Distance (ft)	373		1156			722
Travel Time (s)	10.2		22.5			14.1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	5%	0%	0%	4%
Adj. Flow (vph)	28	70	387	65	155	482
Shared Lane Traffic (%)						
Lane Group Flow (vph)	98	0	452	0	0	637
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

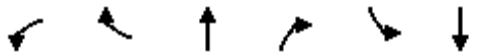
Intersection	
Int Delay, s/veh	3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	26	65	360	60	144	448
Future Vol, veh/h	26	65	360	60	144	448
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	1	-	1	-	-	-1
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	5	0	0	4
Mvmt Flow	28	70	387	65	155	482

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1212	420	0	0	452	0
Stage 1	420	-	-	-	-	-
Stage 2	792	-	-	-	-	-
Critical Hdwy	6.6	6.3	-	-	4.3	-
Critical Hdwy Stg 1	5.6	-	-	-	-	-
Critical Hdwy Stg 2	5.6	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	207	664	-	-	839	-
Stage 1	740	-	-	-	-	-
Stage 2	478	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	155	664	-	-	839	-
Mov Cap-2 Maneuver	155	-	-	-	-	-
Stage 1	740	-	-	-	-	-
Stage 2	358	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.6	0	2.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	343	839	-
HCM Lane V/C Ratio	-	-	0.285	0.185	-
HCM Control Delay (s)	-	-	19.6	10.3	0
HCM Lane LOS	-	-	C	B	A
HCM 95th %tile Q(veh)	-	-	1.2	0.7	-



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	1	415	1	3	520
Future Volume (vph)	0	1	415	1	3	520
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	12	11	12	12	10
Grade (%)	-2%		1%			-1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected						
Satd. Flow (prot)	1782	0	1665	0	0	1624
Flt Permitted						
Satd. Flow (perm)	1782	0	1665	0	0	1624
Link Speed (mph)	20		35			35
Link Distance (ft)	376		1634			1156
Travel Time (s)	12.8		31.8			22.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	4%	0%	0%	4%
Adj. Flow (vph)	0	1	461	1	3	578
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	0	462	0	0	581
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

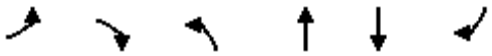
Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	1	415	1	3	520
Future Vol, veh/h	0	1	415	1	3	520
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-2	-	1	-	-	-1
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	4	0	0	4
Mvmt Flow	0	1	461	1	3	578

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1046	462	0	0	462	0
Stage 1	462	-	-	-	-	-
Stage 2	584	-	-	-	-	-
Critical Hdwy	6	6	-	-	4.3	-
Critical Hdwy Stg 1	5	-	-	-	-	-
Critical Hdwy Stg 2	5	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	315	652	-	-	833	-
Stage 1	761	-	-	-	-	-
Stage 2	673	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	313	652	-	-	833	-
Mov Cap-2 Maneuver	313	-	-	-	-	-
Stage 1	761	-	-	-	-	-
Stage 2	670	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.5	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	652	833	-
HCM Lane V/C Ratio	-	-	0.002	0.004	-
HCM Control Delay (s)	-	-	10.5	9.3	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	56	81	93	329	543	219
Future Volume (vph)	56	81	93	329	543	219
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	12	11	10	12
Grade (%)	-1%			3%	-2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.920				0.961	
Flt Protected	0.980			0.989		
Satd. Flow (prot)	1498	0	0	1635	1579	0
Flt Permitted	0.980			0.989		
Satd. Flow (perm)	1498	0	0	1635	1579	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	663			722	537	
Travel Time (s)	12.9			14.1	10.5	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	2%	6%	3%	3%	4%
Adj. Flow (vph)	60	86	99	350	578	233
Shared Lane Traffic (%)						
Lane Group Flow (vph)	146	0	0	449	811	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	56	81	93	329	543	219
Future Vol, veh/h	56	81	93	329	543	219
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-1	-	-	3	-2	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	1	2	6	3	3	4
Mvmt Flow	60	86	99	350	578	233

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1243	695	811	0	-	0
Stage 1	695	-	-	-	-	-
Stage 2	548	-	-	-	-	-
Critical Hdwy	6.21	6.12	4.4	-	-	-
Critical Hdwy Stg 1	5.21	-	-	-	-	-
Critical Hdwy Stg 2	5.21	-	-	-	-	-
Follow-up Hdwy	3	3.1	3.1	-	-	-
Pot Cap-1 Maneuver	226	473	599	-	-	-
Stage 1	578	-	-	-	-	-
Stage 2	676	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	180	473	599	-	-	-
Mov Cap-2 Maneuver	180	-	-	-	-	-
Stage 1	460	-	-	-	-	-
Stage 2	676	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	30.3	2.7	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	599	-	284	-	-
HCM Lane V/C Ratio	0.165	-	0.513	-	-
HCM Control Delay (s)	12.2	0	30.3	-	-
HCM Lane LOS	B	A	D	-	-
HCM 95th %tile Q(veh)	0.6	-	2.7	-	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	162	102	315	20	55	450
Future Volume (vph)	162	102	315	20	55	450
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	10	10	12	12	10
Grade (%)	-4%		-3%			2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.992			
Flt Protected	0.950					0.995
Satd. Flow (prot)	1919	1387	1616	0	0	1598
Flt Permitted	0.950					0.995
Satd. Flow (perm)	1919	1387	1616	0	0	1598
Link Speed (mph)	20		35			35
Link Distance (ft)	407		573			1634
Travel Time (s)	13.9		11.2			31.8
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	3%	5%	5%	0%	0%	4%
Adj. Flow (vph)	178	112	346	22	60	495
Shared Lane Traffic (%)						
Lane Group Flow (vph)	178	112	368	0	0	555
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	5.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	162	102	315	20	55	450
Future Vol, veh/h	162	102	315	20	55	450
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-4	-	-3	-	-	2
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	5	5	0	0	4
Mvmt Flow	178	112	346	22	60	495

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	972	357	0	0	368	0
Stage 1	357	-	-	-	-	-
Stage 2	615	-	-	-	-	-
Critical Hdwy	5.63	5.85	-	-	4.3	-
Critical Hdwy Stg 1	4.63	-	-	-	-	-
Critical Hdwy Stg 2	4.63	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	383	755	-	-	898	-
Stage 1	877	-	-	-	-	-
Stage 2	695	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	348	755	-	-	898	-
Mov Cap-2 Maneuver	348	-	-	-	-	-
Stage 1	877	-	-	-	-	-
Stage 2	631	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.9	0	1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	348	755	898	-
HCM Lane V/C Ratio	-	-	0.512	0.148	0.067	-
HCM Control Delay (s)	-	-	25.7	10.6	9.3	0
HCM Lane LOS	-	-	D	B	A	A
HCM 95th %tile Q(veh)	-	-	2.8	0.5	0.2	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	43	123	355	16	52	309
Future Volume (vph)	43	123	355	16	52	309
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	12	11	12	12	11
Grade (%)	1%		1%			-1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.900		0.994			
Flt Protected	0.987					0.993
Satd. Flow (prot)	1633	0	1627	0	0	1569
Flt Permitted	0.987					0.993
Satd. Flow (perm)	1633	0	1627	0	0	1569
Link Speed (mph)	25		35			35
Link Distance (ft)	373		1156			722
Travel Time (s)	10.2		22.5			14.1
Confl. Peds. (#/hr)	2	2				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	40%	0%	6%	0%	50%	4%
Adj. Flow (vph)	47	134	386	17	57	336
Shared Lane Traffic (%)						
Lane Group Flow (vph)	181	0	403	0	0	393
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	3.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	43	123	355	16	52	309
Future Vol, veh/h	43	123	355	16	52	309
Conflicting Peds, #/hr	2	2	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	1	-	1	-	-	-1
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	40	0	6	0	50	4
Mvmt Flow	47	134	386	17	57	336

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	847	397	0	0	403	0
Stage 1	395	-	-	-	-	-
Stage 2	452	-	-	-	-	-
Critical Hdwy	7	6.3	-	-	4.8	-
Critical Hdwy Stg 1	6	-	-	-	-	-
Critical Hdwy Stg 2	6	-	-	-	-	-
Follow-up Hdwy	3.4	3.1	-	-	3.5	-
Pot Cap-1 Maneuver	296	684	-	-	726	-
Stage 1	657	-	-	-	-	-
Stage 2	612	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	267	683	-	-	726	-
Mov Cap-2 Maneuver	267	-	-	-	-	-
Stage 1	657	-	-	-	-	-
Stage 2	551	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.7	0	1.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	487	726	-
HCM Lane V/C Ratio	-	-	0.371	0.078	-
HCM Control Delay (s)	-	-	16.7	10.4	0
HCM Lane LOS	-	-	C	B	A
HCM 95th %tile Q(veh)	-	-	1.7	0.3	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	2	1	375	2	0	362
Future Volume (vph)	2	1	375	2	0	362
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	12	11	12	12	10
Grade (%)	-2%		1%			-1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.955		0.999			
Flt Protected	0.968					
Satd. Flow (prot)	1905	0	1628	0	0	1608
Flt Permitted	0.968					
Satd. Flow (perm)	1905	0	1628	0	0	1608
Link Speed (mph)	20		35			35
Link Distance (ft)	376		1634			1156
Travel Time (s)	12.8		31.8			22.5
Confl. Peds. (#/hr)	2	2				
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	6%	50%	0%	5%
Adj. Flow (vph)	2	1	412	2	0	398
Shared Lane Traffic (%)						
Lane Group Flow (vph)	3	0	414	0	0	398
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

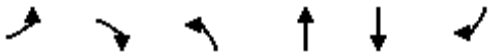
Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	1	375	2	0	362
Future Vol, veh/h	2	1	375	2	0	362
Conflicting Peds, #/hr	2	2	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-2	-	1	-	-	-1
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	6	50	0	5
Mvmt Flow	2	1	412	2	0	398

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	813	415	0	0	414	0
Stage 1	413	-	-	-	-	-
Stage 2	400	-	-	-	-	-
Critical Hdwy	6	6	-	-	4.3	-
Critical Hdwy Stg 1	5	-	-	-	-	-
Critical Hdwy Stg 2	5	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	426	692	-	-	865	-
Stage 1	799	-	-	-	-	-
Stage 2	810	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	425	691	-	-	865	-
Mov Cap-2 Maneuver	425	-	-	-	-	-
Stage 1	799	-	-	-	-	-
Stage 2	808	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.4	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	488	865	-
HCM Lane V/C Ratio	-	-	0.007	-	-
HCM Control Delay (s)	-	-	12.4	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	44	35	80	385	322	51
Future Volume (vph)	44	35	80	385	322	51
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	12	11	10	12
Grade (%)	-1%			3%	-2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.940				0.982	
Flt Protected	0.973			0.991		
Satd. Flow (prot)	1451	0	0	1580	1579	0
Flt Permitted	0.973			0.991		
Satd. Flow (perm)	1451	0	0	1580	1579	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	663			722	537	
Travel Time (s)	12.9			14.1	10.5	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	6%	7%	5%	8%	5%	9%
Adj. Flow (vph)	50	40	91	438	366	58
Shared Lane Traffic (%)						
Lane Group Flow (vph)	90	0	0	529	424	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	44	35	80	385	322	51
Future Vol, veh/h	44	35	80	385	322	51
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-1	-	-	3	-2	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	6	7	5	8	5	9
Mvmt Flow	50	40	91	438	366	58

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1015	395	424	0	-	0
Stage 1	395	-	-	-	-	-
Stage 2	620	-	-	-	-	-
Critical Hdwy	6.26	6.17	4.3	-	-	-
Critical Hdwy Stg 1	5.26	-	-	-	-	-
Critical Hdwy Stg 2	5.26	-	-	-	-	-
Follow-up Hdwy	3.1	3.2	3	-	-	-
Pot Cap-1 Maneuver	298	678	858	-	-	-
Stage 1	769	-	-	-	-	-
Stage 2	606	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	256	678	858	-	-	-
Mov Cap-2 Maneuver	256	-	-	-	-	-
Stage 1	661	-	-	-	-	-
Stage 2	606	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.6	1.7	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	858	-	353	-	-
HCM Lane V/C Ratio	0.106	-	0.254	-	-
HCM Control Delay (s)	9.7	0	18.6	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.4	-	1	-	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	29	37	323	10	24	326
Future Volume (vph)	29	37	323	10	24	326
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	10	10	12	12	10
Grade (%)	-4%		-3%			2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.996			
Flt Protected	0.950					0.997
Satd. Flow (prot)	1977	1289	1590	0	0	1561
Flt Permitted	0.950					0.997
Satd. Flow (perm)	1977	1289	1590	0	0	1561
Link Speed (mph)	20		35			35
Link Distance (ft)	407		573			1634
Travel Time (s)	13.9		11.2			31.8
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	13%	7%	0%	23%	5%
Adj. Flow (vph)	32	41	355	11	26	358
Shared Lane Traffic (%)						
Lane Group Flow (vph)	32	41	366	0	0	384
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

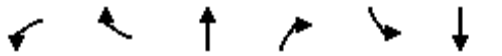
Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	29	37	323	10	24	326
Future Vol, veh/h	29	37	323	10	24	326
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-4	-	-3	-	-	2
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	13	7	0	23	5
Mvmt Flow	32	41	355	11	26	358

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	771	361	0	0	366	0
Stage 1	361	-	-	-	-	-
Stage 2	410	-	-	-	-	-
Critical Hdwy	5.6	5.93	-	-	4.5	-
Critical Hdwy Stg 1	4.6	-	-	-	-	-
Critical Hdwy Stg 2	4.6	-	-	-	-	-
Follow-up Hdwy	3	3.2	-	-	3.2	-
Pot Cap-1 Maneuver	490	726	-	-	834	-
Stage 1	876	-	-	-	-	-
Stage 2	839	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	471	726	-	-	834	-
Mov Cap-2 Maneuver	471	-	-	-	-	-
Stage 1	876	-	-	-	-	-
Stage 2	806	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.6	0	0.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	471	726	834	-
HCM Lane V/C Ratio	-	-	0.068	0.056	0.032	-
HCM Control Delay (s)	-	-	13.2	10.3	9.5	0
HCM Lane LOS	-	-	B	B	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.2	0.1	-



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	32	65	398	5	12	312
Future Volume (vph)	32	65	398	5	12	312
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	12	11	12	12	11
Grade (%)	1%		1%			-1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.910		0.998			
Flt Protected	0.984					0.998
Satd. Flow (prot)	1818	0	1711	0	0	1712
Flt Permitted	0.984					0.998
Satd. Flow (perm)	1818	0	1711	0	0	1712
Link Speed (mph)	25		35			35
Link Distance (ft)	373		1156			722
Travel Time (s)	10.2		22.5			14.1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	1%	0%	0%	2%
Adj. Flow (vph)	35	71	433	5	13	339
Shared Lane Traffic (%)						
Lane Group Flow (vph)	106	0	438	0	0	352
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

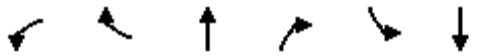
Intersection	
Int Delay, s/veh	1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	32	65	398	5	12	312
Future Vol, veh/h	32	65	398	5	12	312
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	1	-	1	-	-	-1
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	1	0	0	2
Mvmt Flow	35	71	433	5	13	339

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	801	436	0	0	438	0
Stage 1	436	-	-	-	-	-
Stage 2	365	-	-	-	-	-
Critical Hdwy	6.6	6.3	-	-	4.3	-
Critical Hdwy Stg 1	5.6	-	-	-	-	-
Critical Hdwy Stg 2	5.6	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	379	649	-	-	849	-
Stage 1	726	-	-	-	-	-
Stage 2	789	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	372	649	-	-	849	-
Mov Cap-2 Maneuver	372	-	-	-	-	-
Stage 1	726	-	-	-	-	-
Stage 2	774	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.7	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	521	849	-
HCM Lane V/C Ratio	-	-	0.202	0.015	-
HCM Control Delay (s)	-	-	13.7	9.3	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.8	0	-



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	403	0	0	346
Future Volume (vph)	0	0	403	0	0	346
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	12	11	12	12	10
Grade (%)	-2%		1%			-1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	2060	0	1697	0	0	1655
Flt Permitted						
Satd. Flow (perm)	2060	0	1697	0	0	1655
Link Speed (mph)	20		35			35
Link Distance (ft)	376		1634			1156
Travel Time (s)	12.8		31.8			22.5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	2%	0%	0%	2%
Adj. Flow (vph)	0	0	424	0	0	364
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	424	0	0	364
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

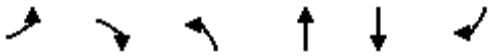
Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	403	0	0	346
Future Vol, veh/h	0	0	403	0	0	346
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-2	-	1	-	-	-1
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	2	0	0	2
Mvmt Flow	0	0	424	0	0	364

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	788	424	0	0	424	0
Stage 1	424	-	-	-	-	-
Stage 2	364	-	-	-	-	-
Critical Hdwy	6	6	-	-	4.3	-
Critical Hdwy Stg 1	5	-	-	-	-	-
Critical Hdwy Stg 2	5	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	440	684	-	-	858	-
Stage 1	790	-	-	-	-	-
Stage 2	839	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	440	684	-	-	858	-
Mov Cap-2 Maneuver	440	-	-	-	-	-
Stage 1	790	-	-	-	-	-
Stage 2	839	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	858	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	130	27	70	400	299	65
Future Volume (vph)	130	27	70	400	299	65
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	12	11	10	12
Grade (%)	-1%			3%	-2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.977				0.976	
Flt Protected	0.960			0.993		
Satd. Flow (prot)	1547	0	0	1678	1643	0
Flt Permitted	0.960			0.993		
Satd. Flow (perm)	1547	0	0	1678	1643	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	663			722	537	
Travel Time (s)	12.9			14.1	10.5	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	4%	1%	1%	0%
Adj. Flow (vph)	134	28	72	412	308	67
Shared Lane Traffic (%)						
Lane Group Flow (vph)	162	0	0	484	375	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

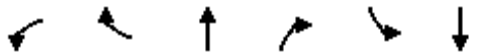
Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	130	27	70	400	299	65
Future Vol, veh/h	130	27	70	400	299	65
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-1	-	-	3	-2	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	4	4	1	1	0
Mvmt Flow	134	28	72	412	308	67

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	898	342	375	0	-	0
Stage 1	342	-	-	-	-	-
Stage 2	556	-	-	-	-	-
Critical Hdwy	6.22	6.14	4.3	-	-	-
Critical Hdwy Stg 1	5.22	-	-	-	-	-
Critical Hdwy Stg 2	5.22	-	-	-	-	-
Follow-up Hdwy	3	3.1	3	-	-	-
Pot Cap-1 Maneuver	361	748	893	-	-	-
Stage 1	840	-	-	-	-	-
Stage 2	670	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	323	748	893	-	-	-
Mov Cap-2 Maneuver	323	-	-	-	-	-
Stage 1	752	-	-	-	-	-
Stage 2	670	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	23.1	1.4	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	893	-	358	-	-
HCM Lane V/C Ratio	0.081	-	0.452	-	-
HCM Control Delay (s)	9.4	0	23.1	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.3	-	2.3	-	-



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	34	39	362	6	23	325
Future Volume (vph)	34	39	362	6	23	325
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	10	10	12	12	10
Grade (%)	-4%		-3%			2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.998			
Flt Protected	0.950					0.997
Satd. Flow (prot)	1919	1414	1663	0	0	1628
Flt Permitted	0.950					0.997
Satd. Flow (perm)	1919	1414	1663	0	0	1628
Link Speed (mph)	20		35			35
Link Distance (ft)	407		573			1634
Travel Time (s)	13.9		11.2			31.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	2%	20%	0%	2%
Adj. Flow (vph)	38	43	402	7	26	361
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	43	409	0	0	387
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	34	39	362	6	23	325
Future Vol, veh/h	34	39	362	6	23	325
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-4	-	-3	-	-	2
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	3	2	20	0	2
Mvmt Flow	38	43	402	7	26	361

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	819	406	0	0	409	0
Stage 1	406	-	-	-	-	-
Stage 2	413	-	-	-	-	-
Critical Hdwy	5.63	5.83	-	-	4.3	-
Critical Hdwy Stg 1	4.63	-	-	-	-	-
Critical Hdwy Stg 2	4.63	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	460	713	-	-	869	-
Stage 1	839	-	-	-	-	-
Stage 2	834	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	443	713	-	-	869	-
Mov Cap-2 Maneuver	443	-	-	-	-	-
Stage 1	839	-	-	-	-	-
Stage 2	803	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12	0	0.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	443	713	869	-
HCM Lane V/C Ratio	-	-	0.085	0.061	0.029	-
HCM Control Delay (s)	-	-	13.9	10.4	9.3	0
HCM Lane LOS	-	-	B	B	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0.2	0.1	-

2029 Projected Conditions With Improvements

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	26	65	360	60	144	448
Future Volume (vph)	26	65	360	60	144	448
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	12	11	12	10	11
Grade (%)	1%		1%			-1%
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.904		0.981			
Flt Protected	0.986				0.950	
Satd. Flow (prot)	1809	0	1629	0	1604	1681
Flt Permitted	0.986				0.950	
Satd. Flow (perm)	1809	0	1629	0	1604	1681
Link Speed (mph)	25		35			35
Link Distance (ft)	373		1156			722
Travel Time (s)	10.2		22.5			14.1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	5%	0%	0%	4%
Adj. Flow (vph)	28	70	387	65	155	482
Shared Lane Traffic (%)						
Lane Group Flow (vph)	98	0	452	0	155	482
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	2.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	26	65	360	60	144	448
Future Vol, veh/h	26	65	360	60	144	448
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	1	-	1	-	-	-1
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	5	0	0	4
Mvmt Flow	28	70	387	65	155	482

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1212	420	0	0	452	0
Stage 1	420	-	-	-	-	-
Stage 2	792	-	-	-	-	-
Critical Hdwy	6.6	6.3	-	-	4.3	-
Critical Hdwy Stg 1	5.6	-	-	-	-	-
Critical Hdwy Stg 2	5.6	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	207	664	-	-	839	-
Stage 1	740	-	-	-	-	-
Stage 2	478	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	169	664	-	-	839	-
Mov Cap-2 Maneuver	169	-	-	-	-	-
Stage 1	740	-	-	-	-	-
Stage 2	390	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.6	0	2.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	361	839	-
HCM Lane V/C Ratio	-	-	0.271	0.185	-
HCM Control Delay (s)	-	-	18.6	10.3	-
HCM Lane LOS	-	-	C	B	-
HCM 95th %tile Q(veh)	-	-	1.1	0.7	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	1	415	1	3	520
Future Volume (vph)	0	1	415	1	3	520
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	12	11	12	12	10
Grade (%)	-2%		1%			-1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected						
Satd. Flow (prot)	1782	0	1665	0	0	1624
Flt Permitted						
Satd. Flow (perm)	1782	0	1665	0	0	1624
Link Speed (mph)	20		35			35
Link Distance (ft)	376		1634			1156
Travel Time (s)	12.8		31.8			22.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	4%	0%	0%	4%
Adj. Flow (vph)	0	1	461	1	3	578
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	0	462	0	0	581
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

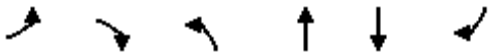
Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	1	415	1	3	520
Future Vol, veh/h	0	1	415	1	3	520
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-2	-	1	-	-	-1
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	4	0	0	4
Mvmt Flow	0	1	461	1	3	578

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1046	462	0	0	462	0
Stage 1	462	-	-	-	-	-
Stage 2	584	-	-	-	-	-
Critical Hdwy	6	6	-	-	4.3	-
Critical Hdwy Stg 1	5	-	-	-	-	-
Critical Hdwy Stg 2	5	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	315	652	-	-	833	-
Stage 1	761	-	-	-	-	-
Stage 2	673	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	313	652	-	-	833	-
Mov Cap-2 Maneuver	313	-	-	-	-	-
Stage 1	761	-	-	-	-	-
Stage 2	670	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.5	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	652	833	-
HCM Lane V/C Ratio	-	-	0.002	0.004	-
HCM Control Delay (s)	-	-	10.5	9.3	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	56	81	93	329	543	219
Future Volume (vph)	56	81	93	329	543	219
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	12	11	10	12
Grade (%)	-1%			3%	-2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.920				0.961	
Flt Protected	0.980			0.989		
Satd. Flow (prot)	1498	0	0	1635	1579	0
Flt Permitted	0.980			0.989		
Satd. Flow (perm)	1498	0	0	1635	1579	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	663			722	537	
Travel Time (s)	12.9			14.1	10.5	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	2%	6%	3%	3%	4%
Adj. Flow (vph)	60	86	99	350	578	233
Shared Lane Traffic (%)						
Lane Group Flow (vph)	146	0	0	449	811	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	56	81	93	329	543	219
Future Vol, veh/h	56	81	93	329	543	219
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-1	-	-	3	-2	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	1	2	6	3	3	4
Mvmt Flow	60	86	99	350	578	233

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1243	695	811	0	-	0
Stage 1	695	-	-	-	-	-
Stage 2	548	-	-	-	-	-
Critical Hdwy	6.21	6.12	4.4	-	-	-
Critical Hdwy Stg 1	5.21	-	-	-	-	-
Critical Hdwy Stg 2	5.21	-	-	-	-	-
Follow-up Hdwy	3	3.1	3.1	-	-	-
Pot Cap-1 Maneuver	226	473	599	-	-	-
Stage 1	578	-	-	-	-	-
Stage 2	676	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	180	473	599	-	-	-
Mov Cap-2 Maneuver	180	-	-	-	-	-
Stage 1	460	-	-	-	-	-
Stage 2	676	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	30.3	2.7	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	599	-	284	-	-
HCM Lane V/C Ratio	0.165	-	0.513	-	-
HCM Control Delay (s)	12.2	0	30.3	-	-
HCM Lane LOS	B	A	D	-	-
HCM 95th %tile Q(veh)	0.6	-	2.7	-	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	162	102	315	20	55	450
Future Volume (vph)	162	102	315	20	55	450
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	10	10	12	12	10
Grade (%)	-4%		-3%			2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.992			
Flt Protected	0.950					0.995
Satd. Flow (prot)	1919	1387	1616	0	0	1598
Flt Permitted	0.950					0.995
Satd. Flow (perm)	1919	1387	1616	0	0	1598
Link Speed (mph)	20		35			35
Link Distance (ft)	407		573			1634
Travel Time (s)	13.9		11.2			31.8
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	3%	5%	5%	0%	0%	4%
Adj. Flow (vph)	178	112	346	22	60	495
Shared Lane Traffic (%)						
Lane Group Flow (vph)	178	112	368	0	0	555
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	5.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	162	102	315	20	55	450
Future Vol, veh/h	162	102	315	20	55	450
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-4	-	-3	-	-	2
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	5	5	0	0	4
Mvmt Flow	178	112	346	22	60	495

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	972	357	0	0	368	0
Stage 1	357	-	-	-	-	-
Stage 2	615	-	-	-	-	-
Critical Hdwy	5.63	5.85	-	-	4.3	-
Critical Hdwy Stg 1	4.63	-	-	-	-	-
Critical Hdwy Stg 2	4.63	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	383	755	-	-	898	-
Stage 1	877	-	-	-	-	-
Stage 2	695	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	348	755	-	-	898	-
Mov Cap-2 Maneuver	348	-	-	-	-	-
Stage 1	877	-	-	-	-	-
Stage 2	631	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.9	0	1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	348	755	898	-
HCM Lane V/C Ratio	-	-	0.512	0.148	0.067	-
HCM Control Delay (s)	-	-	25.7	10.6	9.3	0
HCM Lane LOS	-	-	D	B	A	A
HCM 95th %tile Q(veh)	-	-	2.8	0.5	0.2	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	43	123	355	16	52	309
Future Volume (vph)	43	123	355	16	52	309
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	12	11	12	10	11
Grade (%)	1%		1%			-1%
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.900		0.994			
Flt Protected	0.987				0.950	
Satd. Flow (prot)	1633	0	1627	0	1069	1681
Flt Permitted	0.987				0.950	
Satd. Flow (perm)	1633	0	1627	0	1069	1681
Link Speed (mph)	25		35			35
Link Distance (ft)	373		1156			722
Travel Time (s)	10.2		22.5			14.1
Confl. Peds. (#/hr)	2	2				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	40%	0%	6%	0%	50%	4%
Adj. Flow (vph)	47	134	386	17	57	336
Shared Lane Traffic (%)						
Lane Group Flow (vph)	181	0	403	0	57	336
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	3.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	43	123	355	16	52	309
Future Vol, veh/h	43	123	355	16	52	309
Conflicting Peds, #/hr	2	2	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	1	-	1	-	-	-1
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	40	0	6	0	50	4
Mvmt Flow	47	134	386	17	57	336

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	847	397	0	0	403	0
Stage 1	395	-	-	-	-	-
Stage 2	452	-	-	-	-	-
Critical Hdwy	7	6.3	-	-	4.8	-
Critical Hdwy Stg 1	6	-	-	-	-	-
Critical Hdwy Stg 2	6	-	-	-	-	-
Follow-up Hdwy	3.4	3.1	-	-	3.5	-
Pot Cap-1 Maneuver	296	684	-	-	726	-
Stage 1	657	-	-	-	-	-
Stage 2	612	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	272	683	-	-	726	-
Mov Cap-2 Maneuver	272	-	-	-	-	-
Stage 1	657	-	-	-	-	-
Stage 2	562	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.5	0	1.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	491	726	-
HCM Lane V/C Ratio	-	-	0.367	0.078	-
HCM Control Delay (s)	-	-	16.5	10.4	-
HCM Lane LOS	-	-	C	B	-
HCM 95th %tile Q(veh)	-	-	1.7	0.3	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	2	1	375	2	0	362
Future Volume (vph)	2	1	375	2	0	362
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	12	11	12	12	10
Grade (%)	-2%		1%			-1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.955		0.999			
Flt Protected	0.968					
Satd. Flow (prot)	1905	0	1628	0	0	1608
Flt Permitted	0.968					
Satd. Flow (perm)	1905	0	1628	0	0	1608
Link Speed (mph)	20		35			35
Link Distance (ft)	376		1634			1156
Travel Time (s)	12.8		31.8			22.5
Confl. Peds. (#/hr)	2	2				
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	6%	50%	0%	5%
Adj. Flow (vph)	2	1	412	2	0	398
Shared Lane Traffic (%)						
Lane Group Flow (vph)	3	0	414	0	0	398
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

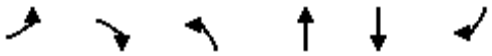
Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	1	375	2	0	362
Future Vol, veh/h	2	1	375	2	0	362
Conflicting Peds, #/hr	2	2	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-2	-	1	-	-	-1
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	6	50	0	5
Mvmt Flow	2	1	412	2	0	398

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	813	415	0	0	414	0
Stage 1	413	-	-	-	-	-
Stage 2	400	-	-	-	-	-
Critical Hdwy	6	6	-	-	4.3	-
Critical Hdwy Stg 1	5	-	-	-	-	-
Critical Hdwy Stg 2	5	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	426	692	-	-	865	-
Stage 1	799	-	-	-	-	-
Stage 2	810	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	425	691	-	-	865	-
Mov Cap-2 Maneuver	425	-	-	-	-	-
Stage 1	799	-	-	-	-	-
Stage 2	808	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.4	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	488	865	-
HCM Lane V/C Ratio	-	-	0.007	-	-
HCM Control Delay (s)	-	-	12.4	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	44	35	80	385	322	51
Future Volume (vph)	44	35	80	385	322	51
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	12	11	10	12
Grade (%)	-1%			3%	-2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.940				0.982	
Flt Protected	0.973			0.991		
Satd. Flow (prot)	1451	0	0	1580	1579	0
Flt Permitted	0.973			0.991		
Satd. Flow (perm)	1451	0	0	1580	1579	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	663			722	537	
Travel Time (s)	12.9			14.1	10.5	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	6%	7%	5%	8%	5%	9%
Adj. Flow (vph)	50	40	91	438	366	58
Shared Lane Traffic (%)						
Lane Group Flow (vph)	90	0	0	529	424	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	44	35	80	385	322	51
Future Vol, veh/h	44	35	80	385	322	51
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-1	-	-	3	-2	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	6	7	5	8	5	9
Mvmt Flow	50	40	91	438	366	58

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1015	395	424	0	-	0
Stage 1	395	-	-	-	-	-
Stage 2	620	-	-	-	-	-
Critical Hdwy	6.26	6.17	4.3	-	-	-
Critical Hdwy Stg 1	5.26	-	-	-	-	-
Critical Hdwy Stg 2	5.26	-	-	-	-	-
Follow-up Hdwy	3.1	3.2	3	-	-	-
Pot Cap-1 Maneuver	298	678	858	-	-	-
Stage 1	769	-	-	-	-	-
Stage 2	606	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	256	678	858	-	-	-
Mov Cap-2 Maneuver	256	-	-	-	-	-
Stage 1	661	-	-	-	-	-
Stage 2	606	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.6	1.7	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	858	-	353	-	-
HCM Lane V/C Ratio	0.106	-	0.254	-	-
HCM Control Delay (s)	9.7	0	18.6	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.4	-	1	-	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	29	37	323	10	24	326
Future Volume (vph)	29	37	323	10	24	326
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	10	10	12	12	10
Grade (%)	-4%		-3%			2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.996			
Flt Protected	0.950					0.997
Satd. Flow (prot)	1977	1289	1590	0	0	1561
Flt Permitted	0.950					0.997
Satd. Flow (perm)	1977	1289	1590	0	0	1561
Link Speed (mph)	20		35			35
Link Distance (ft)	407		573			1634
Travel Time (s)	13.9		11.2			31.8
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	13%	7%	0%	23%	5%
Adj. Flow (vph)	32	41	355	11	26	358
Shared Lane Traffic (%)						
Lane Group Flow (vph)	32	41	366	0	0	384
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	29	37	323	10	24	326
Future Vol, veh/h	29	37	323	10	24	326
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-4	-	-3	-	-	2
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	13	7	0	23	5
Mvmt Flow	32	41	355	11	26	358

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	771	361	0	0	366	0
Stage 1	361	-	-	-	-	-
Stage 2	410	-	-	-	-	-
Critical Hdwy	5.6	5.93	-	-	4.5	-
Critical Hdwy Stg 1	4.6	-	-	-	-	-
Critical Hdwy Stg 2	4.6	-	-	-	-	-
Follow-up Hdwy	3	3.2	-	-	3.2	-
Pot Cap-1 Maneuver	490	726	-	-	834	-
Stage 1	876	-	-	-	-	-
Stage 2	839	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	471	726	-	-	834	-
Mov Cap-2 Maneuver	471	-	-	-	-	-
Stage 1	876	-	-	-	-	-
Stage 2	806	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.6	0	0.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	471	726	834	-
HCM Lane V/C Ratio	-	-	0.068	0.056	0.032	-
HCM Control Delay (s)	-	-	13.2	10.3	9.5	0
HCM Lane LOS	-	-	B	B	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.2	0.1	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	32	65	398	5	12	312
Future Volume (vph)	32	65	398	5	12	312
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	12	11	12	10	11
Grade (%)	1%		1%			-1%
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.910		0.998			
Flt Protected	0.984				0.950	
Satd. Flow (prot)	1818	0	1711	0	1604	1714
Flt Permitted	0.984				0.950	
Satd. Flow (perm)	1818	0	1711	0	1604	1714
Link Speed (mph)	25		35			35
Link Distance (ft)	373		1156			722
Travel Time (s)	10.2		22.5			14.1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	1%	0%	0%	2%
Adj. Flow (vph)	35	71	433	5	13	339
Shared Lane Traffic (%)						
Lane Group Flow (vph)	106	0	438	0	13	339
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

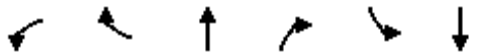
Intersection	
Int Delay, s/veh	1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	32	65	398	5	12	312
Future Vol, veh/h	32	65	398	5	12	312
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	1	-	1	-	-	-1
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	1	0	0	2
Mvmt Flow	35	71	433	5	13	339

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	801	436	0	0	438	0
Stage 1	436	-	-	-	-	-
Stage 2	365	-	-	-	-	-
Critical Hdwy	6.6	6.3	-	-	4.3	-
Critical Hdwy Stg 1	5.6	-	-	-	-	-
Critical Hdwy Stg 2	5.6	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	379	649	-	-	849	-
Stage 1	726	-	-	-	-	-
Stage 2	789	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	373	649	-	-	849	-
Mov Cap-2 Maneuver	373	-	-	-	-	-
Stage 1	726	-	-	-	-	-
Stage 2	777	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.6	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	522	849	-
HCM Lane V/C Ratio	-	-	0.202	0.015	-
HCM Control Delay (s)	-	-	13.6	9.3	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.7	0	-



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	403	0	0	346
Future Volume (vph)	0	0	403	0	0	346
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	12	11	12	12	10
Grade (%)	-2%		1%			-1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	2060	0	1697	0	0	1655
Flt Permitted						
Satd. Flow (perm)	2060	0	1697	0	0	1655
Link Speed (mph)	20		35			35
Link Distance (ft)	376		1634			1156
Travel Time (s)	12.8		31.8			22.5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	2%	0%	0%	2%
Adj. Flow (vph)	0	0	424	0	0	364
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	424	0	0	364
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

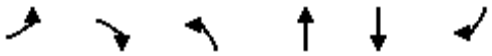
Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	403	0	0	346
Future Vol, veh/h	0	0	403	0	0	346
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-2	-	1	-	-	-1
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	2	0	0	2
Mvmt Flow	0	0	424	0	0	364

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	788	424	0	0	424	0
Stage 1	424	-	-	-	-	-
Stage 2	364	-	-	-	-	-
Critical Hdwy	6	6	-	-	4.3	-
Critical Hdwy Stg 1	5	-	-	-	-	-
Critical Hdwy Stg 2	5	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	440	684	-	-	858	-
Stage 1	790	-	-	-	-	-
Stage 2	839	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	440	684	-	-	858	-
Mov Cap-2 Maneuver	440	-	-	-	-	-
Stage 1	790	-	-	-	-	-
Stage 2	839	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	858	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	130	27	70	400	299	65
Future Volume (vph)	130	27	70	400	299	65
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	12	11	10	12
Grade (%)	-1%			3%	-2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.977				0.976	
Flt Protected	0.960			0.993		
Satd. Flow (prot)	1547	0	0	1678	1643	0
Flt Permitted	0.960			0.993		
Satd. Flow (perm)	1547	0	0	1678	1643	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	663			722	537	
Travel Time (s)	12.9			14.1	10.5	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	4%	1%	1%	0%
Adj. Flow (vph)	134	28	72	412	308	67
Shared Lane Traffic (%)						
Lane Group Flow (vph)	162	0	0	484	375	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	130	27	70	400	299	65
Future Vol, veh/h	130	27	70	400	299	65
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-1	-	-	3	-2	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	4	4	1	1	0
Mvmt Flow	134	28	72	412	308	67

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	898	342	375	0	-	0
Stage 1	342	-	-	-	-	-
Stage 2	556	-	-	-	-	-
Critical Hdwy	6.22	6.14	4.3	-	-	-
Critical Hdwy Stg 1	5.22	-	-	-	-	-
Critical Hdwy Stg 2	5.22	-	-	-	-	-
Follow-up Hdwy	3	3.1	3	-	-	-
Pot Cap-1 Maneuver	361	748	893	-	-	-
Stage 1	840	-	-	-	-	-
Stage 2	670	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	323	748	893	-	-	-
Mov Cap-2 Maneuver	323	-	-	-	-	-
Stage 1	752	-	-	-	-	-
Stage 2	670	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	23.1	1.4	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	893	-	358	-	-
HCM Lane V/C Ratio	0.081	-	0.452	-	-
HCM Control Delay (s)	9.4	0	23.1	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.3	-	2.3	-	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	34	39	362	6	23	325
Future Volume (vph)	34	39	362	6	23	325
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	10	10	12	12	10
Grade (%)	-4%		-3%			2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.998			
Flt Protected	0.950					0.997
Satd. Flow (prot)	1919	1414	1663	0	0	1628
Flt Permitted	0.950					0.997
Satd. Flow (perm)	1919	1414	1663	0	0	1628
Link Speed (mph)	20		35			35
Link Distance (ft)	407		573			1634
Travel Time (s)	13.9		11.2			31.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	2%	20%	0%	2%
Adj. Flow (vph)	38	43	402	7	26	361
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	43	409	0	0	387
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	34	39	362	6	23	325
Future Vol, veh/h	34	39	362	6	23	325
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-4	-	-3	-	-	2
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	3	2	20	0	2
Mvmt Flow	38	43	402	7	26	361

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	819	406	0	0	409	0
Stage 1	406	-	-	-	-	-
Stage 2	413	-	-	-	-	-
Critical Hdwy	5.63	5.83	-	-	4.3	-
Critical Hdwy Stg 1	4.63	-	-	-	-	-
Critical Hdwy Stg 2	4.63	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	460	713	-	-	869	-
Stage 1	839	-	-	-	-	-
Stage 2	834	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	443	713	-	-	869	-
Mov Cap-2 Maneuver	443	-	-	-	-	-
Stage 1	839	-	-	-	-	-
Stage 2	803	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12	0	0.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	443	713	869	-
HCM Lane V/C Ratio	-	-	0.085	0.061	0.029	-
HCM Control Delay (s)	-	-	13.9	10.4	9.3	0
HCM Lane LOS	-	-	B	B	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0.2	0.1	-

APPENDIX I

Auxiliary Turn Lane Analyses

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Whitemarsh Township	**Analysis Date:**	5/17/2024
County:	Montgomery County	**Conducted By:**	
PennDOT Engineering District:	6	**Checked By:**	
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: Butler Pike & Site Driveway

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	144	2.0%	146
	Through	-	448	4.0%	457
	Right	No		0.0%	N/A
Opposing	Left	No		0.0%	N/A
	Through	-	360	5.0%	369
	Right	Yes	60	2.0%	61

Advancing Volume:	603
Opposing Volume:	430
Left Turn Volume:	146
% Left Turns in Advancing Volume:	24.21%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No		0.0%	N/A
	Through	-	360	5.0%	N/A
	Right	-	60	2.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: Yes

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	146
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: 2.0

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

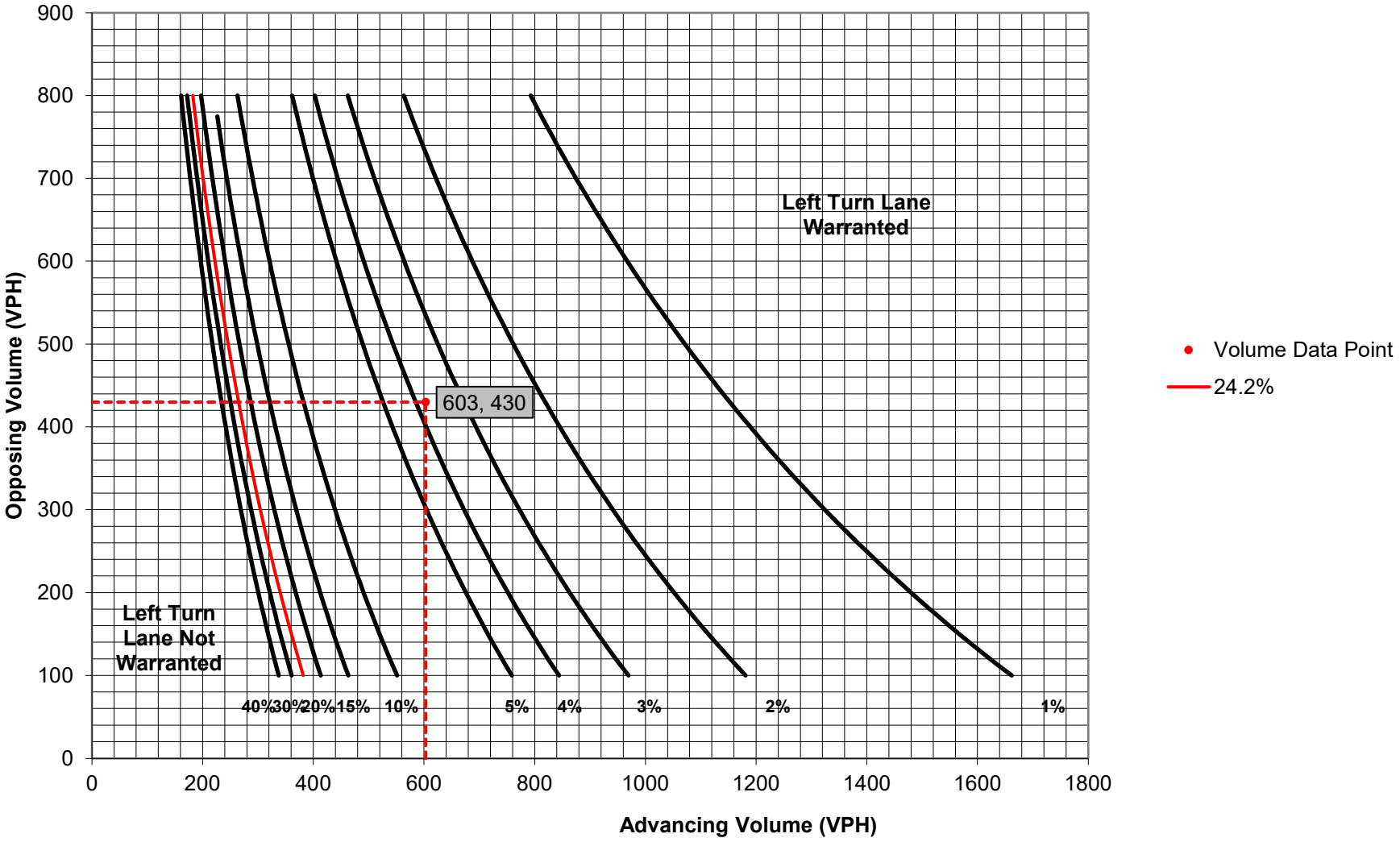
Left Turn Lane Storage Length, Condition A:	100	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	100	Feet

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Whitemarsh Township	**Analysis Date:**	5/17/2024
County:	Montgomery County	**Conducted By:**	
PennDOT Engineering District:	6	**Checked By:**	
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: Butler Pike & Site Driveway

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	144	2.0%	N/A
	Through	-	448	4.0%	N/A
	Right	No		0.0%	N/A
Opposing	Left	No		0.0%	N/A
	Through	-	360	5.0%	N/A
	Right	Yes	60	2.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No		0.0%	N/A
	Through	-	360	5.0%	369
	Right	-	60	2.0%	61

Advancing Volume:	430
Right Turn Volume:	61

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	61
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

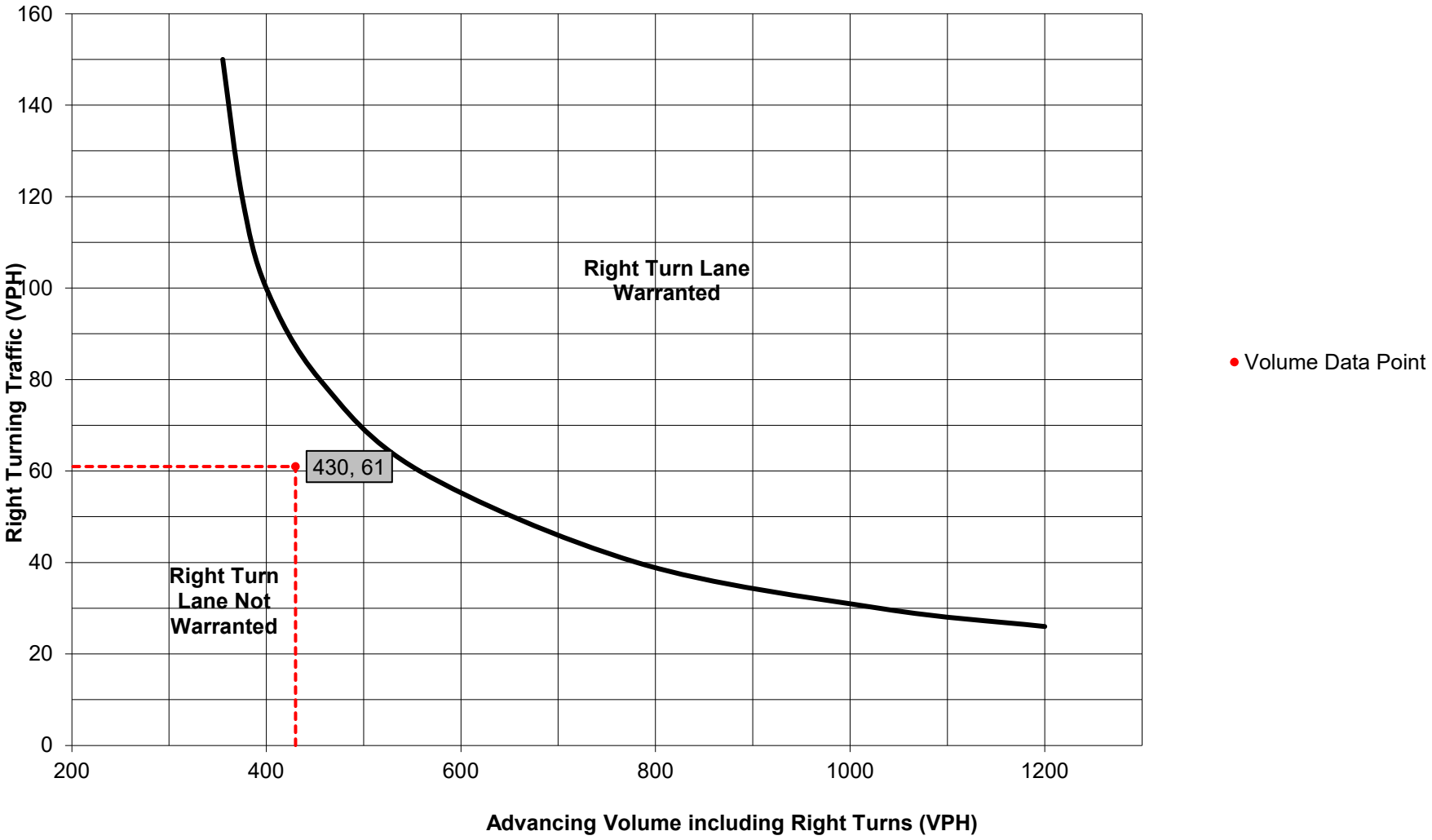
Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Whitemarsh Township	**Analysis Date:**	5/17/2024
County:	Montgomery County	**Conducted By:**	
PennDOT Engineering District:	6	**Checked By:**	
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: Butler Pike & Site Driveway

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	School PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	52	50.0%	65
	Through	-	309	4.0%	316
	Right	No		0.0%	N/A
Opposing	Left	No		0.0%	N/A
	Through	-	355	6.0%	366
	Right	Yes	16	2.0%	17

Advancing Volume:	381
Opposing Volume:	383
Left Turn Volume:	65
% Left Turns in Advancing Volume:	17.06%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No		0.0%	N/A
	Through	-	355	6.0%	N/A
	Right	-	16	2.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: Yes

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	65
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

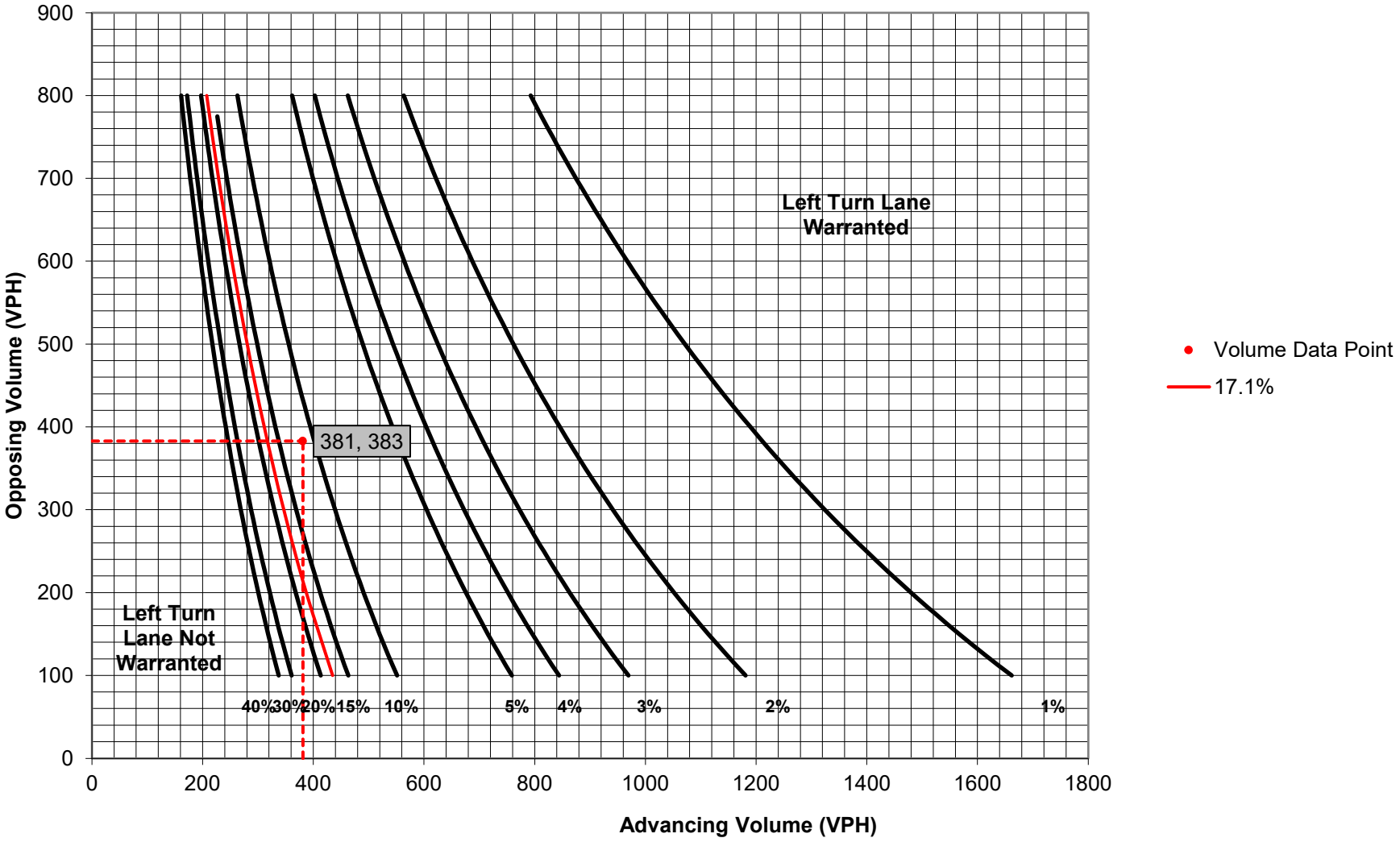
Left Turn Lane Storage Length, Condition A:	75	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	75	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Whitemarsh Township	**Analysis Date:**	5/17/2024
County:	Montgomery County	**Conducted By:**	
PennDOT Engineering District:	6	**Checked By:**	
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: Butler Pike & Site Driveway

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	School PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	52	50.0%	N/A
	Through	-	309	4.0%	N/A
	Right	No		0.0%	N/A
Opposing	Left	No		0.0%	N/A
	Through	-	355	6.0%	N/A
	Right	Yes	16	2.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No		0.0%	N/A
	Through	-	355	6.0%	366
	Right	-	16	2.0%	17

Advancing Volume:	383
Right Turn Volume:	17

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	17
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

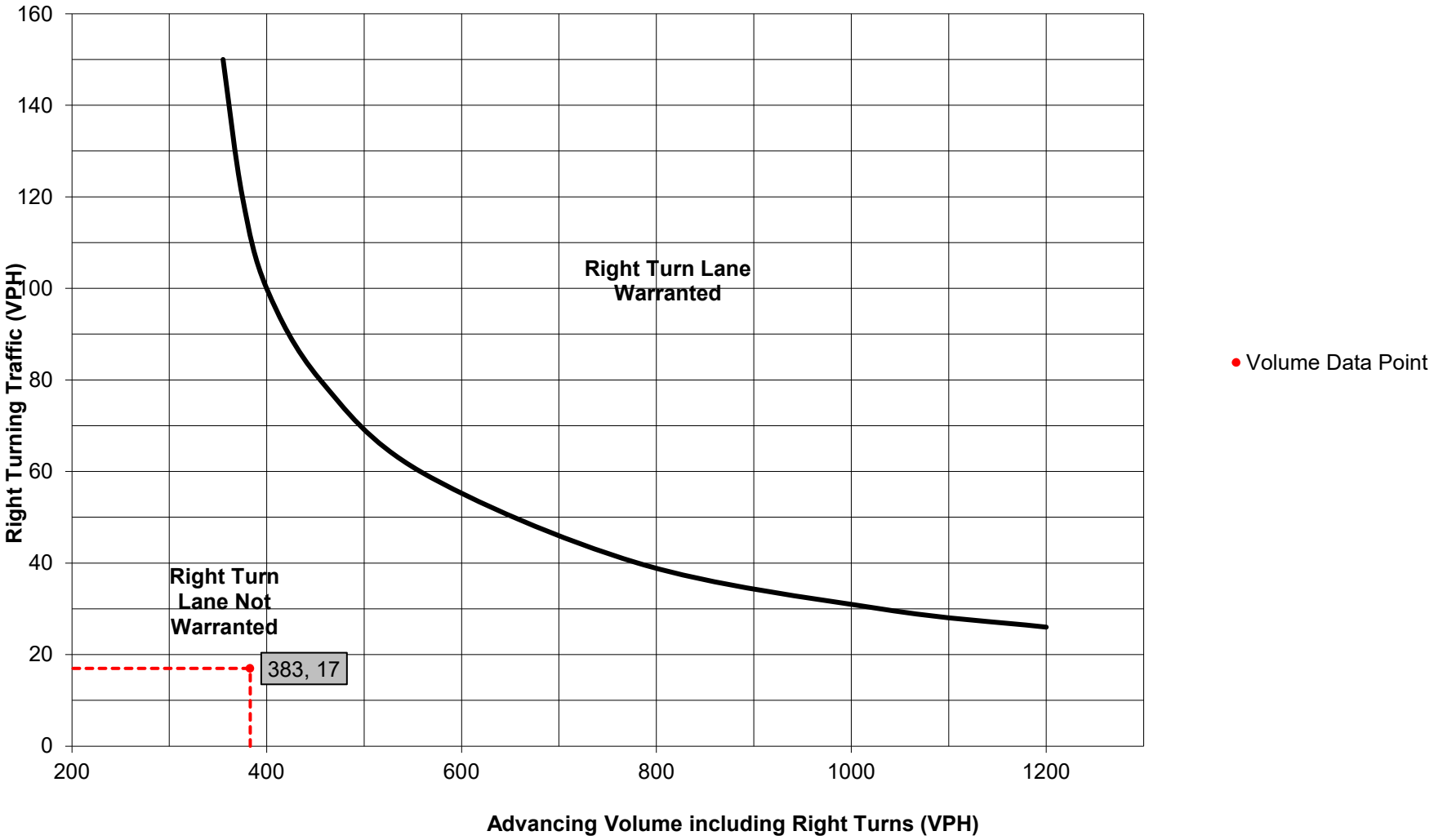
Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Whitemarsh Township	**Analysis Date:**	5/17/2024
County:	Montgomery County	**Conducted By:**	
PennDOT Engineering District:	6	**Checked By:**	
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: Butler Pike & Site Driveway

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	12	2.0%	13
	Through	-	312	2.0%	316
	Right	No		0.0%	N/A
Opposing	Left	No		0.0%	N/A
	Through	-	398	1.0%	400
	Right	Yes	5	2.0%	6

Advancing Volume:	329
Opposing Volume:	406
Left Turn Volume:	13
% Left Turns in Advancing Volume:	3.95%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No		0.0%	N/A
	Through	-	398	1.0%	N/A
	Right	-	5	2.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	13
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

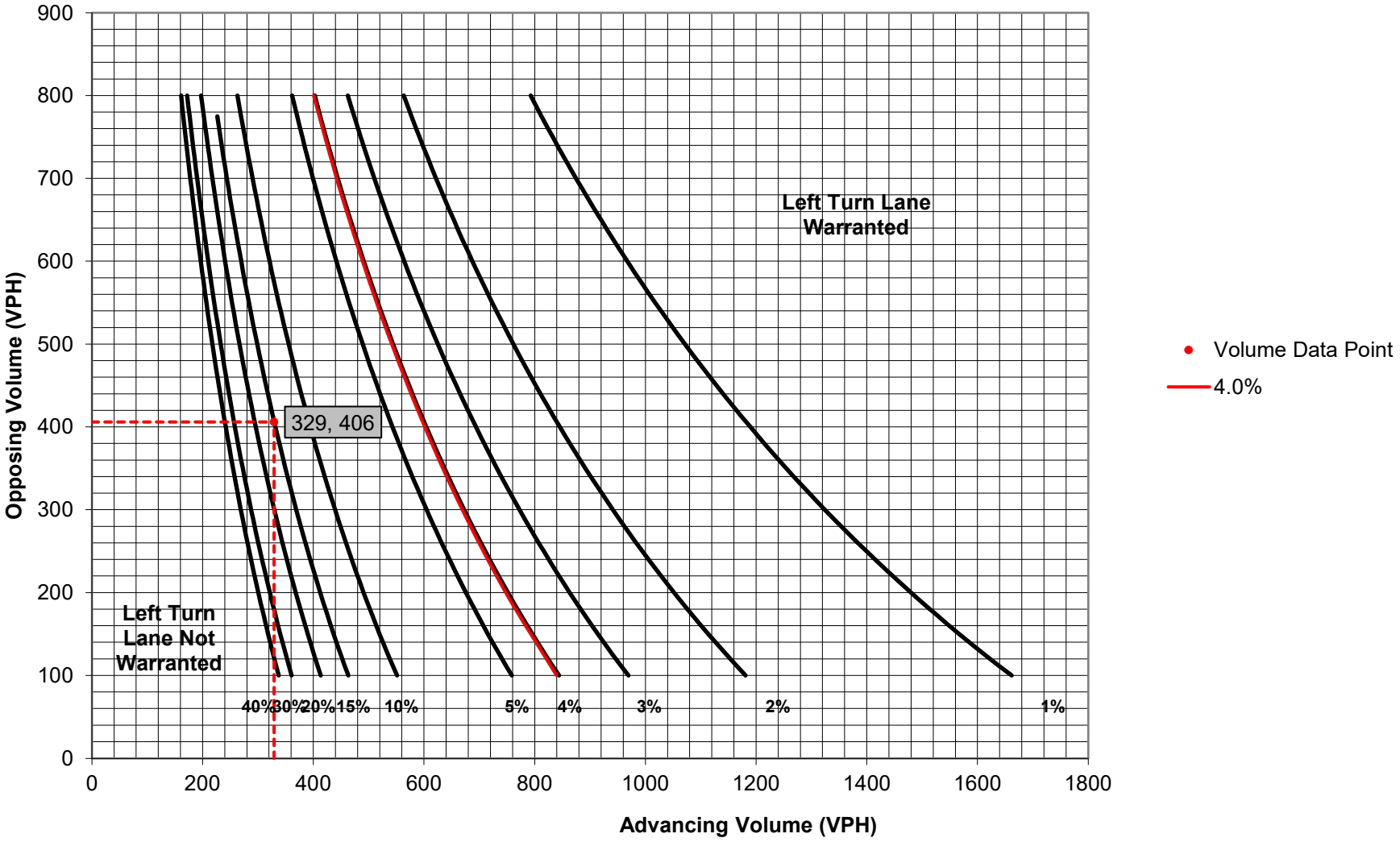
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Whitemarsh Township	**Analysis Date:**	5/17/2024
County:	Montgomery County	**Conducted By:**	
PennDOT Engineering District:	6	**Checked By:**	
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: Butler Pike & Site Driveway

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	12	2.0%	N/A
	Through	-	312	2.0%	N/A
	Right	No		0.0%	N/A
Opposing	Left	No		0.0%	N/A
	Through	-	398	1.0%	N/A
	Right	Yes	5	2.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No		0.0%	N/A
	Through	-	398	1.0%	400
	Right	-	5	2.0%	6

Advancing Volume:	406
Right Turn Volume:	6

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	6
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

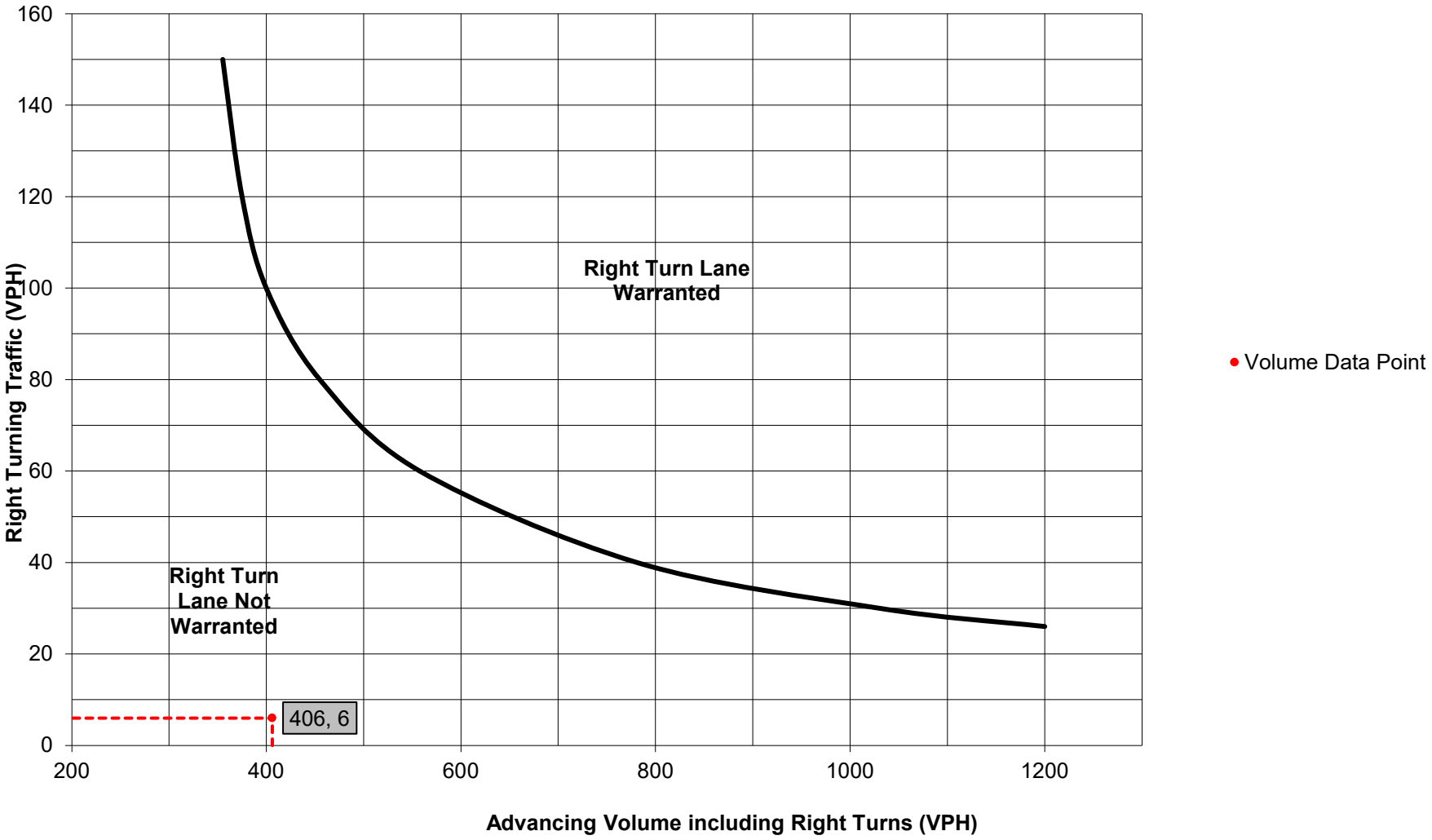
Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



October 22, 2024
VIA EMAIL

Whitemarsh Township Sewer Authority
P.O. Box 447
Lafayette Hill, PA 19444

Reference: ***Gemma Services - 5200 Butler Pike***
Sewer Will Serve Letter Request
Whitemarsh Township, Montgomery County, PA
Nave Newell No. 2024-039.00

To whom it may concern,

On behalf of our client, Gemma Services, we are requesting your approval of this request for a sewer will serve letter.

Based upon discussions with Allen Mason, Whitemarsh Township Authority (WTA), the current property owner, ECRI, has been allocated 9,100 GPD or 26 EDU's based upon a building occupancy of 260 employees at 35 GPD for the existing R&D use (350 GPD/EDU per WTA standard). Sewerage generated from the existing facility is conveyed by gravity lateral to an existing private on-site pump-station, and from here, effluent is pumped via force-main to the receiving sewer main within Butler Pike. Gemma Services plans to continue to operate this existing pump facility as part of their school operations.

Based upon a review of Gemma Service's Martin Luther School water-utilization records for both 22-23 and 23-24 academic years, per capita water utilization rate for the campus is 16.6 GPD per person (student and staff) and for the purposes of this analysis 17 GPD per person has been utilized. This gallonage provides for a conservative forecast as the Martin Luther School provides residential housing services for 56-students, which are included above, but will not be offered at the new location. Based upon the foregoing sewer flow forecast (which is in lieu of Chapter 73 School Flows of 25 GPD per student and employee), and an anticipated school occupancy of 400 students and staff, a sewer flow demand of 6,800 GPD is anticipated, leaving 2,300 GPD available for future school growth.

Insofar as we are not anticipating an increase in sewer demand for this property, we are respectfully seeking a will serve letter for this project.

Thank you for your attention to this matter. Should you have questions or need additional information do not hesitate to contact me at (610)265-8323 or plepard@navenewell.net.

Sincerely,

Paul E. Lepard, Jr., RLA, PP
Principal

October 16, 2024

VIA Email

Deanna Ciotti
New Business Coordinator
Aqua Pennsylvania, Inc
762 W. Lancaster Ave Bryn
Mawr, PA 19010

Reference: 5168 & 5200 Butler Pike
Aqua Will Serve Confirmation
East Whiteland Township, Chester County, PA Nave Newell
No. 2024-039

Dear Ms. Ciotti

We are reaching out on behalf of our client, Gemma Services, who is proposing to redevelop on properties 5168 and 5200 Butler Pike, Plymouth Meeting, PA 19462.

The proposed project includes consolidating the two properties into one. The existing sports field will be demolished, and the current existing structure will be repurposed into a school. The project proposes the construction of turf sports field, repurposing the existing building into a school, and building a gymnasium off of the existing building. The building will be three stories with a gross floor area of +/ - 105,700 square feet.

We are requesting a letter indicating the availability of public water service for this project. We have enclosed a copy of a Utility Plan to aid in your review. As mentioned above. The commercial structure will remain. The proposed school will require both domestic water and sprinklers.

If you have any questions or need additional information. Please do not hesitate to contact me at 610-256-0672 or bkelly@navenewell.net .

Sincerely,

Paul Leopard, RLA

K:\Proj_Info\24proj\24039_Gemma Services_LD\Proj_Data\Support_Data\Applications\2024039_Will Serve Letter

Whitemarsh TOWNSHIP
616 GERMANTOWN PIKE - LAFAYETTE HILL, PA 19444-1821
TEL: 610-825-3535 FAX: 610-825-9416
www.whitemarshtwp.org

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Craig T. McAnally
Township Manager

December 12, 2024

Gemma Services
c/o Joan Plump
512 Township Line Road
Plymouth Meeting, PA 19462

RE: SLD#07-24: Gemma Services; Martin Luther School at 5168 & 5200 Butler Pike
Preliminary Plan / Final Land Development Plan
Zoning Ordinance Compliance Review Letter

Dear Ms. Plump:

Please accept this as a review of the Zoning Ordinance compliance issues for your above referenced Preliminary/Final Land Development Plan, based on an 18-sheet plan set prepared by Nave Newell dated October 24, 2024, with no noted revisions. The property is in the CLI—Campus-Type Limited Industrial District as well as the IN—Institutional Overlay District (the latter of which governs this proposal). Portions of the site are also within the Floodplain Conservation Overlay District and Riparian Corridor Conservation Overlay District.

The following are the Zoning Ordinance compliance issues noted concerning the submitted plans. If compliance cannot be shown for any of these provisions, a modification to the plan must be made or additional variances would have to be secured from the Zoning Hearing Board.

1. §116-11. 'Ultimate Right-of-Way' is defined in this section as the future or planned width of a roadway as shown on the Official Ultimate Right-of-Way Map of the Township. Said map defines the ultimate right-of-way for Butler Pike as 80' or 40' from center. The submitted plans show 60' or 30' from center. This must be corrected and the front yard setback adjusted appropriately, since it is measured from the ultimate right-of-way line.

2. §116-22. A note must be added to the plans indicating that the permanent removal of topsoil from the Township is prohibited.

3. §116-28. The applicant must obtain the approval of Aqua Pennsylvania, Inc. with regard to any proposed public water service. The applicant has requested this approval from the Authority and must provide a will-serve letter to the Township.

4. §116-29. The applicant must obtain the approval of the Whitemarsh Township Authority with regard to any proposed sanitary sewer facilities. The applicant has requested this approval from the Authority and must provide a will-serve letter to the Township.

5. §116-164.C. In the Floodplain Conservation District, no development shall be permitted except where the effect of such development on flood heights is fully offset by accompanying improvements which have been approved by all appropriate local, state and federal authorities as required. Additionally, compliance is required with

Chapter 101 of the Whitemarsh Township Code, 'Floodplain Management'. We understand the applicant is aware of these requirements.

6. §116-165. In ZHB #2024-20 (decision mailed June 12, 2024), the Zoning Hearing Board granted a variance to allow a small portion of the proposed gymnasium building to be constructed within an area designated as floodplain soil.

7. §116-166.C. Any new construction, development or substantial improvements should be in full compliance with 44 CFR 60.3(a) through (d) of the National Flood Insurance Program regulations.

8. §116-166.C. Any new construction, development or substantial improvements should be in full compliance with 44 CFR 60.3(a) through (d) of the National Flood Insurance Program regulations.

9. §116-169.B.(1) & (2) These sections limit the amount of disturbance to slopes 15-25% and over 25%, respectively, to 30% and 15% disturbance or regrading. While the plans indicate the locations of the slopes in these categories, the disturbance percentages must be calculated and included. The plans indicate that all slopes appear to be manmade; however, the Zoning Ordinance does not differentiate between 'manmade' and 'naturally occurring' slopes; therefore, all must be considered in these calculations.

10. §116-175.B. In ZHB #2024-20 (decision mailed June 12, 2024), the Zoning Hearing Board granted a special exception to allow the applicant to operate a private academic school on the subject properties within the Institutional Overlay District. It should be further noted that the Institutional Overlay District governs the use of this site for all aspects of the proposed school use. While the underlying district is the CL-I, Campus-Type Limited Industrial District, the regulations and dimensional standards of this district are not applicable to the proposed development; the plans shall be amended to remove any such standards from that district.

11. §116-184.F. All parking shall conform to the requirements of the Whitemarsh Township Fire Prevention Code as enacted and amended. The applicant must obtain approval from the Whitemarsh Township Fire Marshal. The Fire Marshal will be issuing a separate review of this proposal.

12. §116-259.A. This section requires a setback from the boundary of the Riparian Corridor Conservation Overlay District equal to one-half of the setback applicable to that portion of the lot. However, as noted in our Preliminary Opinion (published in September of this year), Section 116-258.D of the Whitemarsh Township Zoning Ordinance indicates that when there is a conflict between the Riparian Corridor Conservation District ("RCCD") regulations and the Floodplain Conservation District ("FCD") regulations, the stricter regulation prevails. In this case, the FCD regulations are stricter, prohibiting the proposed building within the floodplain soils located in the FCD, compared to the setback regulation under Section 116-259.A of the RCCD. Since Gemma received a variance from 116-165.B. allowing the portion of the proposed building within the floodplain soils in ZHB #2024-20, no relief from this section of the RCCD is needed.

13.	§116-259.C.(6) §116-260. F.	Section 116-259.C.(6) permits active recreation areas in Zone 2 of the Riparian Corridor Conservation Overlay District (RCCD) only if such uses are designed to avoid concentrated flow of stormwater runoff. A corner of the proposed track is located in Zone 2. Further, §116-260.F. prohibits any type of permanent structure in the RCCD; in addition to the corner of the track, a small portion of a sidewalk in this area also falls within the RCCD. Also, see related Comment #14.
14.	§116-264.A.	Re-establishment of forest cover and woodland habitat within the Riparian Corridor shall be required consistent with the requirements of the landscape regulations within the Township Subdivision and Land Development Ordinance.

Additional Comment:

15. Should Gemma decide to maintain ownership of 5168 Butler Pike, said parcel should be formally consolidated with 5200 Butler Pike to avoid any future internal setback and related issues.

Should you have any questions, please do not hesitate to contact me.

Very truly yours,

Charles L. Guttenplan, AICP
Director of Planning and Zoning/Zoning Officer

cc: Craig T. McAnally, Township Manager
Robert A. Sztubinski, B.C.O., Director of Building and Codes
Andrew Thomas, Fire Marshal
Sean P. Kilkenny, Esq., Township Solicitor
Krista Heinrich, P.E., Township Engineer
Emergency Services Research Institute, Landowner
James P. Bannon, P.E., Applicant's Engineer
Denise R. Yarnoff, Esq., Applicant's Attorney

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PLANNING COMMISSION

MONTGOMERY COUNTY • PO BOX 311
NORRISTOWN, PA 19404-0311

610-278-3722
PLANNING@MONTGOMERYCOUNTYPA.GOV

SCOTT FRANCE, AICP
EXECUTIVE DIRECTOR

December 19, 2024

Mr. Charles L. Guttenplan, AICP
Director of Planning & Zoning Officer
Whitemarsh Township
16 Germantown Pike
Lafayette Hill, Pennsylvania 19444

Re: MCPC # 24-0235-001
Plan Name: Gemma Services- Whitemarsh Campus
Situate: 5200/5168 Butler Pike
2 lots/ 28,150 Sq. ft. / 22.67 acre site
Whitemarsh Township

Dear Mr. Guttenplan:

We have reviewed the above-referenced subdivision and land development proposal in accordance with Section 502 of Act 247, "The Pennsylvania Municipalities Planned Code," as you requested in an electronic submission received on November 1, 2024. We forward this letter as a report of our review.

BACKGROUND

The applicant, Gemma Services has submitted a preliminary land development plan for the redevelopment of a 22.64 acre site that was home to a former office/research building and the Lulu Temple Rodeo and grounds. The proposed new use is as an educational facility with a large multi-purpose recreational field and related amenities. The plan shows the demolition of several out-buildings and the rodeo area with approximately 8.0 acres of disturbance. The existing 78,000 sq. ft. office building will be repurposed and the plan proposes the construction of a 2-story, 28,150 sq. ft. addition to it. The repurposed building will be renovated with approximately 45 classrooms. The project shows the demolished rodeo area and grounds will be replaced by a +/- 106,000 sq. ft. multi-purpose, synthetic turf field with a track, bleachers and a field house. A new driveway is shown that connects two existing surface parking lots and a one-way thru driveway lane that circles the perimeter of a 126-space parking lot adjacent to the recreational field is shown.

The development tract consists of 2 lots and it is situated in the CLI- Campus- Type Limited Industrial District; the I-Institutional District, the Floodplain Conservation Overlay District and the Riparian Corridor Conservation District. The development tract consists of:

- 5200 Butler Pike- Tax Parcel- 65-00-01333-00-6
- 5168 Butler Pike- Tax Parcel- 65-00-01327-00-3

The applicant was granted a Special Exception under Section 11`6-175.B of the Zoning Ordinance to operate a private academic school on the property. A variance from Section 116-175.B of the Zoning Code was granted to permit a portion of the proposed gymnasium building within an area designated as floodplain soil.

CONSISTENCY WITH COUNTY AND MUNICIPAL PLANS

The proposal for the redevelopment of the site appears consistent with the *Montco 2040: A Shared Vision*, Montgomery County Comprehensive Plan, 2015. The county's plan recommends that the future land use for the applicant's site and surrounding neighborhood should support 'Business-Area' land uses. The proposal appears somewhat inconsistent with the 2028 Future Land Use Plan recommendations contained in the *Whitemarsh Township Selective Comprehensive Plan Update*, Nov. 2020. The future land use vision for this area recommended by the plan is for an area designated as a 'Residential Character' Area. The future land use envisioned for this character area includes a single-family residential, semi-detached homes and condos with an emphasis on connectivity and walkability.

RECOMMENDATION

The Montgomery County Planning Commission (MCPC) generally supports the applicant's redevelopment plan, however in reviewing this proposal we identified several concerns regarding the lack of any proposed safety and landscape improvements to the two existing surface parking lots shown in the proposed redevelopment of the site. We believe that a more considered approach to pedestrian safety and movement and the provision of shade trees within the parking lot's interior is needed and should be included in the redevelopment for an educational campus with a large recreational activity space. We recommend the township consider these issues and ensure that the applicant's redevelopment plan includes a more robust parking lot improvements plan to ensure pedestrian safety. As well, consideration should be given to potential environmental and aesthetic benefits that could result from the site's redevelopment. An annotated sketch of one of the existing parking lots is shown below that summarizes our recommendations.

COMMENTS

1. **Parking Lot Improvements - Section 105-38. Parking lot design standards (I. & K.)**

   The applicant's plan to redevelop the site does not address multiple requirements of the Subdivision and Land Development Ordinance – *Design Standards- Section 105-38 Off-Street Parking Facilities*. The two existing parking lots are wide expanses of un-differentiated pavement with re-stripping and lighting and improvements. It appears the parking lots are proposed to continue as non-conforming parking facilities. We recommend the applicant revise the plan to meet the requirements of the township's landscape island requirements for parking lots (One island per 15 spaces-- *§105-38.I.*) and the required 10 ft. wide planting strip for parking lots with more than 30 spaces *(§105-38.K.*) We recommend the plan address the Design Standards for Off-Street Parking Facilities. We believe the redevelopment of the site is the township's best opportunity to ensure that these two large surface parking lots are developed to 21st century best parking lot design standards for the future.

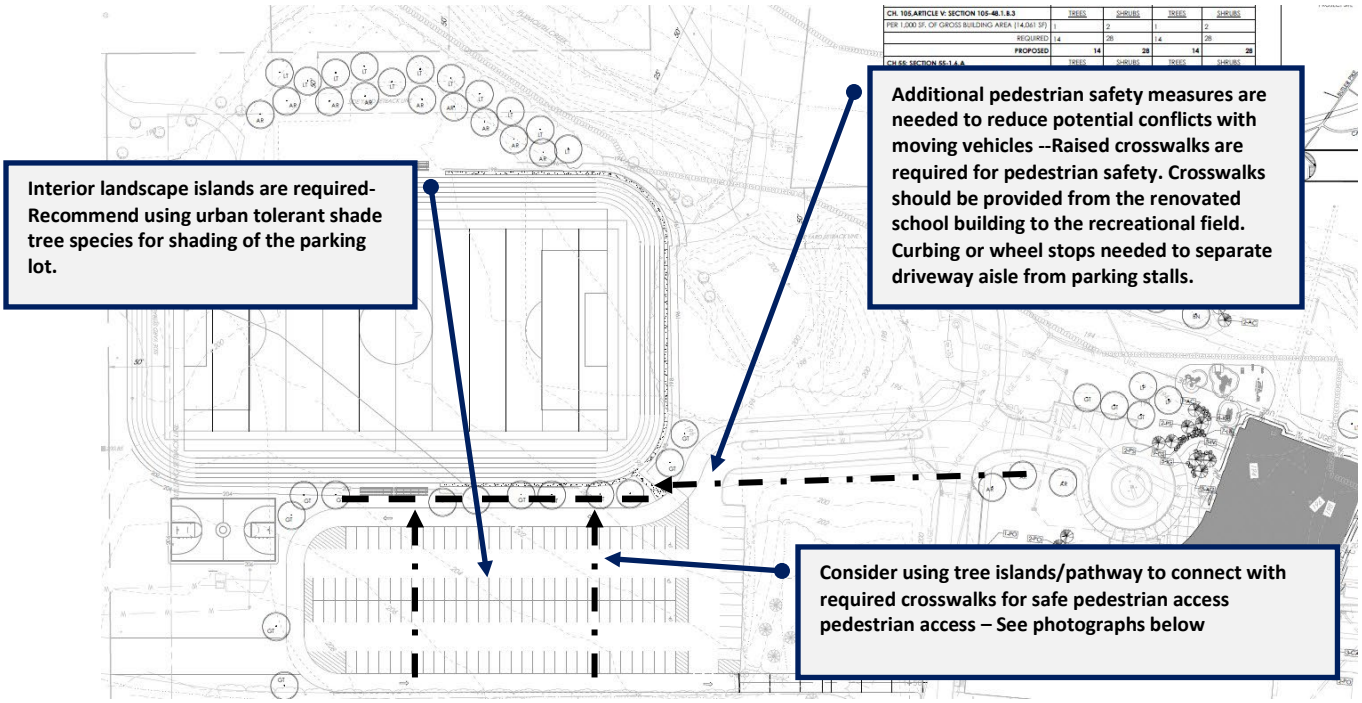
2. **Parking Lot Safety and Accessibility Improvements**

   a. Pedestrian Safety & Raised Crosswalks. – Section 105-38.S.

   The redevelopment plan does not provide pedestrian safety measures needed to minimize potential conflicts between pedestrians and motor vehicles. The plan should include dedicated pedestrian access

routes and crosswalks for pedestrian safety and comfort from the parking lot to the recreational field's sidewalk. As shown, motorists exiting their parked vehicles must weave their way through parked vehicles and across the one-way driveway aisle without any crosswalks or other safety measures. The applicant is required by *Section 105-38.S.*- to provide *"raised pedestrian crosswalks and refuge island at intervals not exceeding 200 ft. along the length of each parking area."* The attached photographs below illustrate how the required tree islands and raised crosswalks could be used to improve pedestrian safety within the parking lots and provide shade.

b. *Curbing between the One-Way Drive Aisle & Parking Stalls*.
The redevelopment plan should include a device to separate the parking stalls along the one-way driveway from the driveway aisles and vehicular traffic. Separation devices could include wheel stops and painted caution markings or raised curbing with a sidewalk. We recommend the township engineer assess the proposed arrangement and ensure that parked vehicles are physically separated from the one-way driveway aisle.



Parking Lot Improvements- Recommendations

Pedestrian safety measures: Raised crosswalk

Pedestrian safety measures: Tree islands and walkway for pedestrian refuge

CONCLUSION

We wish to reiterate that MCPC generally supports the applicant's proposal, however we recommend the township assess to its satisfaction, our concerns and comments regarding how this site's redevelopment can assist in accomplishing the goals and objectives of the township.

Please note that the review comments and recommendations contained in this report are advisory to the municipality and final disposition for the approval of any proposal will be made by the municipality.

Should the governing body approve a final plat of this proposal, the applicant must present the plan to our office for seal and signature prior to recording with the Recorder of Deeds office. A paper copy bearing the municipal seal and signature of approval must be supplied for our files. Please print the assigned MCPC number # 24-0235-001.

Sincerely,

Barry W. Jeffries

Barry W. Jeffries, ASLA , Senior Design Planner

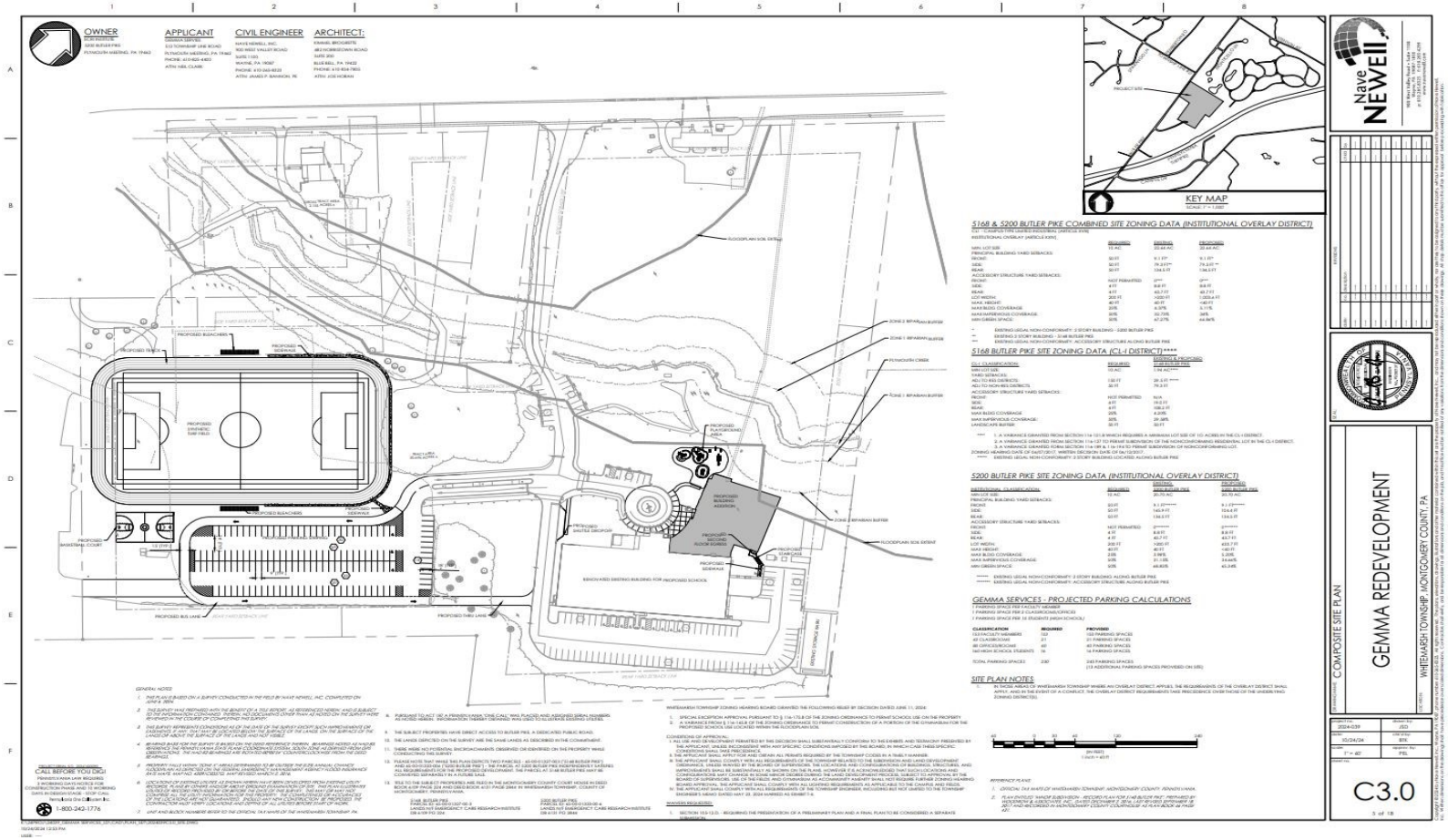
Barry.Jeffries@montgomerycountypa.gov , 610.278.3444

c: Joan Plump, Gemma Services, Applicant
Paul Lepard, Jr., RLA, PP, Nave Newell, Applicant's Representative
Aaron Kostyk, Chair, Whitemarsh Township Planning Commission
Karen Weiss, Manager, Plymouth Township

Attachment A: Aerial Image of Site
Attachment B: Reduced Copy of Applicant's Proposed Site Plan

ATTACHMENT A, B

Gemma Services - Whitemarsh Campus
MCPC#240235001


OWNER
APPLICANT
CIVIL ENGINEER
ARCHITECT:
KEY MAP
5168 & 5200 BUTLER PIKE COMBINED SITE ZONING DATA (INSTITUTIONAL OVERLAY DISTRICT)
5168 BUTLER PIKE SITE ZONING DATA (CL-I DISTRICT)****
5200 BUTLER PIKE SITE ZONING DATA (INSTITUTIONAL OVERLAY DISTRICT)
GEMMA SERVICES - PROJECTED PARKING CALCULATIONS
SITE PLAN NOTES:
GENERAL NOTES:
PROPOSED SOCCER FIELD
PROPOSED BASKETBALL COURT
PROPOSED BLEACHERS
PROPOSED SIDEWALK
PROPOSED BUS LANE
PROPOSED TWO WAY DRIVE
PROPOSED PLAYGROUND AREA
PROPOSED SHADE CANOPY
PROPOSED 2 STORY ADDITION
EXISTING SCHOOL BLDG.
EXISTING GYMNASIUM
EXISTING TENNIS COURTS
EXISTING PARKING
FLOODPLAIN SOIL EXTENT
ZONE 2 RIPARIAN BUFFER
ZONE 1 RIPARIAN BUFFER
PLYMOUTH CREEK
PROJECT SITE
Nave Newell
COMPOSITE SITE PLAN
GEMMA REDEVELOPMENT
WHITEMARSH TOWNSHIP - MONTGOMERY COUNTY, PA
C3.0

WHITEMARSH TOWNSHIP

To: Charlie L. Guttenplan, Director of Planning & Zoning/Zoning Officer.

From: **Andrew G. Thomas, Fire Marshal**

Subject: SLD#07-24 GEMMA SERVICES-WHITEMARSH CAMPUS
(PRELIMINARY/FINAL)
5168 & 5200 BUTLER PIKE
PLYMOUTH MEETING, PA 19462

Date: 1/6/2025

After reviewing the Preliminary/Final plan for the Gemma Services, the following items must be addressed.

1. The plan must be in accordance with Whitemarsh Township Ordinance 1012 accepted on April 14, 2022, Section 503.2.1 Dimensions and International Fire Code Section 5031.1 Buildings and facilities.

    a. Dimensions. Fire Apparatus access roads shall have an unobstructed width of 24 feet, exclusive of shoulders, except for *approved* security gates in accordance with Section 503.6, and an unobstructed vertical clearance of 14 feet. No access driveway shall be located closer than five feet to a structure.
    b. 503.1.1 Buildings and facilities. *Approved* fire apparatus access roads shall be provided for every facility, building or portion of a building hereafter constructed or moved into or within the jurisdiction. The fire apparatus access road shall comply with the requirements of this section and shall extend to within 150 feet (45 720 mm) of all portions of the facility and all portions of the *exterior walls* of the first story of the building as measured by an *approved* route around the exterior of the building or facility.

2. There must be an Emergency Action Plan in place since this will be an educational facility, there is also a creek that flows through the front driveway area and the property has flood soil areas. The emergency action plan shall be updated annually.
    a. Emergency Contacts shall be updated annually
    b. The facility will register with ReadyMontCo https://www.montcopa.org/3311/ReadyMontco
    c. Provide Emergency Evacuation Routes/Shelter in place plans.
    d. Provide Procedures for accounting for coaches, staff, and students/athletes after evacuation.
    e. Provide Means of notifying occupants during an emergency
    f. Provide Site plans with evacuation points, hydrants, and fire department access.
    g. Provide Floor Plans

Andrew G. Thomas
Fire Marshal, Emergency Management Coordinator
616 Germantown Pike
Lafayette Hill, PA 19444
Phone: 610-825-3535 ext. 2614
Email: athomas@whitemarshtwp.org

Additional Comments:

3. No parking fire lane signage will need to be provided along the driveway and in the parking lots.
4. The new addition will need to be tied into the existing buildings' fire alarm system.
5. The new addition will need to be tied into the existing buildings' sprinkler system.

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

January 6, 2025

File No. 2024-01150

Mr. Craig T. McAnally - Township Manager
Whitemarsh Township Municipal Building
616 Germantown Pike
Lafayette Hill, PA 19444

Reference: Preliminary/Final Plan Review
5168 & 5200 Butler Pike - GEMMA
Whitemarsh Township, Montgomery County, Pennsylvania
SLD #07-24

Dear Mr. McAnally:

As requested, we have reviewed plans for the above referenced 18-Sheet Plan submission, prepared by Nave Newell dated October 24, 2024, with no noted revisions. The following comments are offered for your consideration:

SUBDIVISION AND LAND DEVELOPMENT ORDINANCE

	Section	Description
1.	105-12	The applicant is requesting a waiver from the requirements of this section of the ordinance in order to not require separate Preliminary and Final plan submissions, and to allow the submissions to be considered contemporaneously.
2.	105-21(B)(1)	The plans must be revised to show the municipal boundary between Whitemarsh, Whitpain and Plymouth Townships.
3.	105-21(B)(1)(n), 105-22(B)(1)(n)	These sections of the ordinance requires the plans to show existing principal buildings (and their respective uses), and driveways on the adjacent peripheral strip: sewers lines, storm drains, culverts, bridges, utility easements, quarries, railroads, and other significant man-made features within 500 feet of and within the site, including properties across streets.
4.	105-21(B)(3)	The plans must be revised to show all existing forest areas, large trees over six inches caliper standing alone, and any other significant vegetation.
5.	105-21(B)(9) (d)[2][a]	The plans must be revised to detail all internal driveway roadway widths, as well as internal vehicular, bicycle and pedestrian circulation, including parking conditions, traffic channelization, and other intersection control devices within the site. Include all driveways for the site, notably the existing circular driveway connections north of the primary driveway.

	Section	Description
6.	105-21(B)(9)(d)[2][b]	The Traffic Impact Study must include sketches of all of the intersections in the study area.
7.	105-21(B)(9)(d)[4]	The TIS takes credit for the existing trips associated with the proposed location as well as the existing trips associated with the existing school location. We note that this methodology eliminates all trips associated with the existing school location with no future reuse of that site in Plymouth Township considered.
8.	105-21(B)(9)(d)[4]	Provide a discussion/documentation for the 'Non-School Exclusions' for the existing facilities traffic counts. Document how these trips were identified.
9.	105-21(B)(9)(d)[4]	Include the existing school driveway on the Existing School Redistribution Figures 12-14. It does not appear that the redistributed volumes match the existing school driveway volumes or the proposed distribution of traffic along Butler Pike. Provide further justification for the assumed 80 percent student impact on existing school driveway volumes.
10.	105-21(B)(9)(d)[4]	Clarify the bus count volumes. It is our understanding that large volumes of students are not transported to the school in a single vehicle to minimize potential behavioral conflicts, therefore confirm the size of the buses used.
11.	105-21(B)(9)(d)[4]	Revise the Van/Bus trip distribution/assignment, as there are no restrictions for van or bus usage of Butler Pike to/from the south/west.
12.	105-21(B)(9)(d)[4]	We note that the only car/van/bus documentation is from a count on May 28, 2024, the Tuesday after the Memorial Day holiday. Confirm this represented a typical day for the existing facility. Further, provide additional car/van/bus detailed count data to confirm the modal split utilized is an appropriate value. Finally, we note that from the other 3 driveway counts, the School Peak is from 3-4 PM and the PM Peak is from 4-5 PM, while the modal split count utilizes a School Peak of 2:30-3:30 PM and the PM Peak is from 3:30-4:30 PM. The times for the modal split should be consistent with the overall driveway peak periods. Finally, we note that the count data from May 28, 2024, is higher than the average of the 3 driveway counts utilized to develop trip generation rates and this data should be included in the driveway count average.
13.	105-21(B)(9)(d)[4]	Provide additional documentation/justification for the assumption that the AM Peak, School Peak, and PM Peak traffic volumes account for 80 percent of the daily traffic volumes. We note that trip generation calculations utilizing a Private School from ITE result in a higher ADT volume, despite being significantly less than the AM Peak, School Peak, or PM Peak values.
14.	105-21(B)(9)(d)[4]	Provide additional discussion/justification for the proposed distribution. We note that for the driveway counts of the existing school, 28 percent of the car traffic entered/exited west on Township Line Road, while 28 percent of the van/bus traffic entered from the west on Township Line Road and 13 percent exited to the west. This is significantly different than the 16 percent cars and 48 percent buses assumed in the TIS.
15.	105-21(B)(9)(d)[5]	Provide documentation for the trip generation, distribution, and assignment for the two developments included as background growth (i.e., excerpts from the developments' TIS).

	Section	Description
16.	105-21(B)(9)(d)[5]	Provide documentation from Plymouth and Whitpain Townships regarding any additional developments in the area that are anticipated to generate traffic within the study area.
17.	105-21(B)(9)(d)[5]	The Traffic Impact Study must be revised to include a signal warrant analysis for the proposed driveway.
18.	105-21(B)(9)(d)[5]	Include discussion of the intended future use of the 5140 Butler Pike driveway, the impact from this development, and the reason the driveway was included in the TIS.
19.	105-21(B)(9)(d)[5]	Identify on the Critical & Follow-up Headway Tables the input values and output values used.
20.	105-21(B)(9)(d)[5]	Revise the analyses for the Butler Pike & Cold Point Road/Campus Drive to have a single lane exiting on the westbound movement. While Cold Point Road and Campus Drive do have separate lanes approaching the intersection, both are stop controlled and only one movement can be made at a time.
21.	105-21(B)(9)(d)[5]	Revise the analysis parameters for the proposed driveway intersection with Butler Pike based on the existing school driveway, including the PHF and heavy vehicle percentages.
22.	105-21(B)(9)(d)[6]	Provide a traffic signal warrant analysis for the intersection of Butler Pike & Township Line Road. If warranted, provide a capacity analysis to determine the potential operation conditions if a signal is installed.
23.	105-21(B)(9)(d)[6]	Provide a traffic signal warrant analysis for the intersection of Butler Pike & Cold Point Hill Road/Campus Drive. If warranted, provide a capacity analysis to determine the potential operation conditions if a signal is installed.
24.	105-21(B)(9)(d)[6]	Identify the limits of the required Maintenance/Removal of On-Site Vegetation noted in the Sight Distance Analysis Table 4.
25.	105-21(B)(9)(d)[6]	Expand the Recommendations Table II to include the party responsible for the improvement, the cost and funding of the improvement, and the completion date for the improvement.
26.	105-21(B)(9)(d)[6]	Provide a sketch of the required improvements to provide the southbound Butler Pike left turn lane which is shown to be warranted during the AM and School PM Peak hours. Depict the anticipated impacts that are noted in the narrative. Consider symmetrical and asymmetrical widening to minimize impacts on adjacent properties. Of concern is the inability for southbound through motorists to get around stopped left turning motorists and the potential for rear-end crashes.
27.	105-21(B)(10)(a)	The applicant shall submit a letter from the appropriate municipal authority indicating the availability of public sanitary sewer facilities.
28.	105-21(B)(10)(b)	The applicant shall submit a letter from the appropriate municipal authority indicating the availability of central water supply.

	Section	Description
29.	105-21(B)(12)	A map showing the location of the proposed development within its neighborhood context and the features listed in section 105-12(B)(12)(c) shall be submitted. For tracts under 100 acres in area, such maps shall be at a scale not less than one inch equals 200 feet, and shall show the relationship of the subject tract to natural and man-made features existing within 1,000 feet of the tract boundaries.
30.	105-21(B)(16)(j)	As Butler Pike is the border between Whitemarsh Township and Plymouth Township/Whitpain Township, the existing school facility is located within Plymouth Township for which trip credits are being taken, and the Butler Pike/Township Line Road intersection is partially in all three municipalities, copies of the TIS should be provided to Plymouth Township and Whitpain Township for their review and consideration.
31.	105-21(B)(20)	The applicant must provide testimony in sufficient detail to demonstrate that there will be no objectionable light spill and/or glare onto a neighboring property.
32.	105-21(B)(20)	The Lighting Plan must be revised to show the 100 foot residential lighting setback along Parcel 65-00-01330-00-9.
33.	105-21(B)(20)	Vegetation screens shall not be employed to serve as the primary means for controlling glare. Rather, glare control shall be achieved primarily through the use of such means as cutoff fixtures, shields and baffles and appropriate application of fixture mounting height, wattage, aiming angle and placement as approved by the Township.
34.	105-21(B)(20)(d) 105-21(B)(20)(e)	The lighting plan must be revised to include Individual isocandle and isocandella curves.
35.	105-21(B)(20)(g)	The following plan notes shall appear on the lighting plan: [1] Post-approval alterations to lighting plans or intended substitutions for approved lighting equipment shall be submitted to the Township for review and approval. [2] The Township reserves the right to conduct postinstallation inspections to verify compliance with the requirements of this chapter and approved lighting plan commitments and, if deemed appropriate by the Township, to require remedial action at no expense to the Township. [3] All exterior lighting shall meet IESNA full-cutoff criteria unless otherwise approved by the Township. [4] The installer shall notify the Township to arrange for inspection and approval of all exterior lighting, including building-mounted lighting, prior to its installation.
36.	105-21.1	The development is located within the Northern Transportation Service Area, which has an associated Traffic Impact Fee (TIF) of $2,825 per peak hour trip. Include calculation of the TIF within the TIS once the trip generation calculations have been revised to address the above comments.
37.	105-22(B)(1)(d)[5]	The list of Zoning Relief on Sheet C0.0 must be revised to reference Zoning Hearing Board Decision #2024-20.
38.	105-22(B)(1)(f)	The location map must be shown at a scale of 1”=800’.

	Section	Description

39. 105-22(B)(1)(m) The plans must be revised to dimension the legal and ultimate rights-of-way of Butler Pike, and a label must be added indicating the Street Name.

40. 105-28(J) This section of the ordinance requires the applicant to obtain a Highway Occupancy Permit from the Montgomery County Roads and Bridges Department for the proposed work within the right of way of Butler Pike. The Highway Occupancy Permit Application Plans must be submitted to the Township for review prior to submission to the county. In addition, the Township Engineer should be notified of all meetings with the county and must be copied on all correspondence. Butler Pike should be labeled on the plans as a County Road.

41. 105-30 As defined by Section 105-29(C) and 105-30(A), streets adjacent to the site are subject to the following requirements:

Street Name	Classification	Required Ultimate R.O.W	Required Cartway Width	Curbs	Sidewalks	Tree Zone
Butler Pike	Arterial	*	*	Required	Required	Required

* As recommended by the Montgomery County Roads and Bridges Department.

The plans must be revised in order to demonstrate compliance with the requirements of this section of the ordinance, or waivers must be obtained.

42. 105-36 The plans must be revised to provide internal regulatory signage and an emergency access gate to restrict/discourage school traffic from using the internal connection to the adjacent Lulu Shriners property.

43. 105-37 The plans must be revised to demonstrate compliance with the sight distance requirements of this section of the ordinance and/or the required sight distances contained in the most current revision of Pennsylvania Code Title 67 Chapter 441, whichever is more restrictive. Available sight distance at each driveway opening must be indicated.

44. 105-38(A) The plans must be revised to include dimension labels for all existing and proposed off-street parking facility aisle and stall widths, in order to demonstrate compliance with the requirements of this section of the ordinance.

45 105-38(B) The width of entrance and exit drives shall be:

(1) A minimum of 12 feet for one-way use only
(2) A minimum of 25 feet of two-way use
(3) A maximum of 35 feet at the street line

Dimensions must be added to the plans which demonstrate compliance with the requirements of this section of the ordinance.

46. 105-38(C) Access and circulation for fire-fighting and other emergency equipment, moving vans, fuel trucks, garbage collection, deliveries and snow removal shall be planned for efficient operation and convenience. The applicant must submit plans using truck turning templates showing that the required turning radii are provided for access to each building.

47. 105-38(F) The plans must be revised in order to demonstrate compliance with the requirements of this section of the ordinance, which requires that all parking lots and bays permitting parking other than parallel shall be confined by curbing.

	Section	Description
48.	105-38(I)	The plans must be revised in order to demonstrate compliance with the requirements of this section of the ordinance, which states that no more than 15 parking spaces shall be permitted in a continuous row without being interrupted by a landscaping area not less than the width of a parking space constructed in accordance with the plan.
49.	105-38(I)	The plans must be revised in order to demonstrate compliance with the requirements of this section of the ordinance, which states that no one area for off-street parking of motor vehicles shall exceed 30 cars in capacity. Separate areas on a parcel shall be physically separated from one another by ten-foot-wide planting strips.
50.	105-38(S), 105-49	The plans must be revised in order to demonstrate compliance with the requirements of this section of the ordinance, which states that raised pedestrian crosswalks and refuge islands shall be provided at intervals not exceeding 200 feet along the length of each parking area.
51.	105-38(U)	The plans must be revised in order to demonstrate compliance with the requirements of this section of the ordinance, which states that all lights shall be located on raised parking islands, not on the parking surface.
52.	105-38(V), 105-21(B)(20)	The required Lighting Plan must be revised in order to demonstrate compliance with the requirements of this section of the ordinance, which states that all artificial lighting used to illuminate any parking space or spaces shall be so arranged that no direct rays from such lighting shall fall upon any neighboring property or streets, nor shall any high brightness surface of the luminaries be visible from neighboring residential property or from a public street.
53.	105-39(A)	The Landacape Plan must be revised in accordance with the requirements of this section of the ordinance, which requires that all parking areas shall have at least one tree of three inches minimum caliper for every two parking spaces provided.
54.	105-39(C)	The Landacape Plan must be revised in accordance with the requirements of this section of the ordinance, which requires that a minimum of 10% of any parking lot facility over 2,000 square feet in gross area shall be devoted to landscaping, inclusive of required trees.
55.	105-45	The plans show an area subject to an access easement agreement between Lu Lu Temple Holding Corp. and the subject property. The plans also show existing parking areas and drive aisles within this area as to be removed. Once removed, there would no longer be access between the 2 properties within the easement area. The applicant must provide additional information related to the easement and agreement.
56.	105-46	Curbs shall be provided in all subdivisions and land developments in accordance with Sections 105-30, and 105-74.
57.	105-47(A)	Sidewalks shall be provided in all subdivisions and land developments in accordance with sections 105-30, 105-47 and 105-73 of the Whitemarsh Township Code. These standards shall apply on all streets including Butler Pike.

	Section	Description
58.	105-48	This section of the ordinance requires the installation of street trees along all streets where suitable trees do not exist. Large street trees shall be planted at intervals of not more than 45 feet, and/or small street trees at intervals of not more than 30 feet along both sides of new streets and along one or both sides of any existing street within the proposed land development. The plans must be revised or a waiver must be obtained.
59.	105-51(H)	Outdoor collection stations shall be provided for garbage and trash removal when indoor collection is not provided. Collection stations shall be screened from view and landscaped. The plans must be revised to indicate the location of all outdoor collection stations, and adequate screening must be provided.
60.	105-52	Buffer yards are required between land developments and along existing streets to soften visual impact, to screen glare, and to create a visual barrier between conflicting land uses.
61.	105-52(B)(2)	This section of the ordinance requires that all buffers shall have a minimum width of 50 feet. The Board of Supervisors may permit an alternative planting option which shall have a screening capability equal to or greater than any of the available options. The applicant should provide evidence in sufficient detail to the Board of Supervisors in order to demonstrate that sufficient screening will be provided.
62.	105-53.1(C)	The nighttime illumination of outdoor recreational facilities for such aerial sports as baseball, basketball, soccer, tennis, track and field, and football typically necessitate higher than normally allowed fixture mounting heights and aiming angles, utilize very high-wattage lamps and potentially produce unacceptable levels of light trespass and glare when located near residential properties. Permission to illuminate such facilities shall be granted only when the Township is satisfied that the health, safety and welfare rights of nearby property owners and the Township as a whole have been properly protected.
63.	105-53.1(C)(2)	For freestanding lighting, all fixtures shall utilize appropriate sharp cutoff luminaires. Shielding shall be provided to screen light sources at angles above 72° to 90° from the vertical. All lenses must be flat with no dropped dish variety permitted. Maximum height of freestanding fixtures shall not exceed 20 feet unless greater heights are permitted under Subsection C(5) of this section. Fixture heights shall be measured from the bottom of the fixture to ground level.
64.	105-53.1(C)(4)	The plans must be revised in order to demonstrate that the athletic field lighting shall be provided with glare guards.
65.	105-53.1(C)(7)	The lights shall be used on a maximum of 180 days per year, limited to the months of March, April and May, the first two weeks in June, the months of September, October and November and the first two weeks in December. Sporting events shall be timed to end at such a time that all lighting in the sports facility, other than lighting for safe exit of patrons, shall be extinguished by 10:00 p.m., Monday through Friday, and 9:00 p.m. on Saturdays, unless written approval for a later time is authorized by the Township on an event-by-event basis. In addition, the lights may stay on past the 10:00 p.m. curfew by reason of the game time being extended due to a rain delay, late start or extra innings. Under no circumstances shall the lights be permitted during morning hours or at any time of day on Sundays.

	Section	Description
66.	105-53.1(C)(9)	A yearlong schedule of events for which lighting is required shall be submitted with request for final plan approval. In addition, as requested by the Board of Supervisors, the applicant shall submit an annual schedule of events requiring lighting for the Township's information.
67.	105-53	This section of the ordinance requires the dedication of land in the amount of 10% of the total Site Area for Park and/or Recreational use. The applicant has the option of offering a fee in lieu of dedicating actual land area and can also provide a combination of a fee in lieu and dedication of land. All offers of land and/or fees in lieu of dedication must meet the requirements of this section of the ordinance.
68.	105-73	This section of the ordinance requires sidewalks to be constructed as required by 105-30 and 105-47. These standards shall apply to all new and existing streets.
69.	105-74	This section of the ordinance requires Curbs to be constructed as required by section 105-30.
70.	105-76	The applicant must obtain a letter of approval from the Township Fire Marshal in order to ensure that adequate fire protection is provided.
71.	105-78	The applicant must obtain the approval of the Whitemarsh Township Authority with regard to proposed sanitary sewerage facilities.
72.	105-81	All electric, telephone and communication service facilities, both main and service lines, shall be provided by underground cables, installed in accordance with the prevailing standards and practices of the utility and other companies providing such service. Final plans shall show locations of all utilities and shall be coordinated with landscaping. The Utility Plan must be revised to show the location and layout of underground electric for all site lighting.
73.	105-83	This section of the ordinance requires street trees and other plantings in accordance with §105-39, §105-48, §105-52 and Chapter 55 of the Township Code, Tree protection standards.
74.	105-89	The developer shall enter into a written agreement with the Township in the manner and form approved by the Solicitor wherein the developer shall agree, to construct or cause to be constructed at his own expense all proposed improvements shown on the approved land development plan, all in strict accordance with the standards and specifications of the Township and within the time specified in said agreement, and to deposit with the Township financial security in an amount sufficient to cover the cost of all subdivision or land development improvements, including both public and private improvements.

CHAPTER 55 - TREE PROTECTION STANDARDS

	Section	Description
75.	55-4(C)	This section of the ordinance requires that a tree survey plan and a landscape plan shall be prepared and reviewed by the Shade Tree Commission in a public meeting.

	Section	Description
76.	55-4(C)(3)(a)	This section of the ordinance requires that the tree survey plan shall identify the size, species, and location of all existing trees having a DBH of six inches or greater, denoting preserved tree/s, and removed tree/s.
77.	55-4(C)(3)(b)	Any tree lost or destroyed within the past five years must be shown on the Tree Survey Plan as a “Removed Tree” and must be replaced as part of the proposed project.
78.	55-4(C)(3)(d)	Heritage trees and boundary trees, if any, shall be individually noted on the tree survey plan.
79.	55-4(C)(4)(b)	The plans must be revised to include provisions for tree protection to preserve healthy trees and shrubs on site in accordance with this section of the ordinance. A note must be added to the plans requiring protective fencing to be placed around trees on the property prior to construction. Protective fencing must be shown on the plans in the areas where it will be required.
80.	55-4(D)(1)(a)	The protective fencing shall be placed around the root protection zone. The fencing shall be at least six feet tall with two-inch mesh chain link fabric. Two-inch posts shall be tied with six-gauge aluminum wires at 24 inches on center. Posts shall be a minimum of two feet in the ground and space of 10 feet on center. Plastic zip ties may not be used in place of required six-gauge aluminum wire. Detail 4 on Sheet C7.1 must be revised accordingly.
81.	55-4(D)(2)	A note must be added to the plans requiring a pre-construction conference with the Township Shade Tree Commission prior to start of construction. This must also be added to Item 5 of the Construction Sequence. Item 5 of the Construction Sequence must also call for installation of tree protection fencing prior to any other work proceeding.
82.	55-4(D)(6)	This section of the ordinance requires that every tree determined to be living and healthy, with a DBH of 6 inches or greater and which is designated to be removed or which is destroyed, shall be replaced with one or more new Canopy trees of a type and species approved by the Township with a trunk diameter of not less than 3 inches in caliper. The total caliper of replacement trees, measured at 6 inches above the ground line, shall equal or exceed the DBH of the tree removed.

GRADING, EROSION CONTROL, STORMWATER MANAGEMENT AND BEST MANAGEMENT PRACTICES ORDINANCE:

	Section	Description
83.	58-17(A)(2)(t)	A statement, signed by the landowner, acknowledging that any stormwater BMPs are fixtures that can be altered or removed only after approval by the Township shall be added to the plans.
84.	58-17(A)(2)(s)	The following signature block must be added to the plans: “(Design Engineer)”, on this date (Signature, date), has reviewed and hereby certifies that the Stormwater Management Site Plan meets all design standards and criteria of Chapter 58, " Grading, Erosion Control, Stormwater Management and Best Management Practices"."

	Section	Description
85.	58-18(2)	Since the limit of disturbance is greater than one acre, the applicant must obtain a National Pollutant Discharge Elimination System (NPDES) permit from the Pennsylvania Department of Environmental Protection. Once obtained, a copy must be submitted to the Township.
86.	58-24(K)(2)	Stormwater facilities shall be accessible to permit periodic maintenance and an access easement shall be provided to permit such access. The following blanket stormwater easement note, must be added to the plan: *'Stormwater facilities shall be owned and maintained by the property owner in perpetuity. The property owner shall provide a blanket stormwater access easement to the Township for the purpose of access to the stormwater facilities. If, in the judgment of the Township Engineer, the owner has failed to maintain the stormwater facilities in such a manner as to ensure their proper functioning, the Township after providing a written notice, shall have the right to enter upon the lands of the owner and to make any repairs as may be necessary to the stormwater facilities to ensure that such facilities function and perform in accordance with the design specifications. Any and all costs incurred by the Township for such repairs and/or maintenance shall be paid in full by the owner. A lien or liens may be placed against the property if the owner fails to remit payment within sixty (60) days.'*
87.	58-28(D)(8)	The plans must be revised to provide a sediment barrier, such as compost filter sock, downslope of any disturbed earth. It appears that compost filter sock on Sheets C9.0 and C10.0 has the "LOD" linetype applied.
88.	58-28(D)(10)	The plans appear to show a closed contour representing an elevation of 194, which would result in a low point, at the eastern side of the proposed athletic field.
89.	58-31(A)(3)	Page 60 of the Post Construction Stormwater Management (PCSM) Report indicates Device #1 as 20.0 LF with an inlet/outlet invert of 193.55' / 192.00', which does not appear to be consistent with the plan view. These discrepancies must be resolved.
90.	58-31(A)(3)	In the pre-development condition, DA-2 and DA-3 are directed to DP-003; however, in the post development condition, a large area is directed to DP-002 (DA-7). The flow to each Point of interest (POI) must be consistent in the pre and post condition.
91.	58-32(E)(4)	The following note shall be attached to all drainage plans and signed and sealed by the applicant's Registered Professional Engineer experienced in geotechnical and soil engineering: *"I certify that the proposed facility is/is not underlain by limestone."*
92.	58-33(A)(13)	Energy dissipaters and/or level spreaders shall be installed at points where pipes or drainage ways drain to or from basins. Energy dissipaters shall comply with criteria in the Erosion and Sediment Control Manual, published by the Pennsylvania Department of Environmental Protection or the Engineering Field Manual for Conservation Practices, SCS.

Any future submission of the design plans for this project must be accompanied by a letter, prepared by the applicant's engineer, which addresses each of the comments contained in this report. Should you have any questions regarding this matter, please do not hesitate to contact me at this office.

Sincerely,

Krista Heinrich, P.E.
Township Engineer
Gilmore & Associates, Inc.

cc: Charles L. Guttenplan, AICP – Director of Planning and Zoning
Sean Kilkenny, Esq.; The Law Offices of Sean Kilkenny, LLC – Township Solicitor *(via email)*
Robert A. Sztubinski, B.C.O. – Director of Building & Codes *(via email)*
Andrew Thomas, Fire Marshal
Joan Plump, Gemma Services – Applicant
Emergency Care Research Institute – Owner of Record
Denis R. Yarnoff, Esq. – Applicant's Attorney
James P. Bannon, PE, Nave Newell– Applicant's Engineer

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January 10, 2025
Updated January 13, 2025

VIA HAND DELIVERY

Mr. Craig T. McAnally
Township Manager
Whitemarsh Township
616 Germantown Pike
Lafayette Hill, PA 19444

Reference: ***Gemma Redevelopment***
Waiver/Partial Waiver Request
Whitemarsh Township, Montgomery County, Pennsylvania
Nave Newell No. 2024-039.00

Dear Mr. McAnally:

On the behalf of our client Gemma Services, and in accordance with Section 105 of Whitemarsh Township Subdivision and Land Development Ordinance (SALDO), the applicant respectfully requests the following waivers and/or modifications from the cited provisions of the ordinance.

1.) Section 105-12.D. | Preliminary/Final Submission: A waiver is sought to combine Preliminary/Final Plans.

2.) Section 105-21(B)(1) | Plan Scale: A partial waiver is sought to permit Composite Plans to be at a larger scale to include Whitpain Township Line.

3.) Sections 105-21(B)(1)(n), 105-22(B)(1)(n) & 105-21(B)(12) | Aerial Imagery: A partial waiver is sought to permit Aerial imagery to capture existing features within 500 feet of the site and to provide Neighborhood Context.

4.) Sections 105-21(B)(3), 55-4(C)(3)(a), 55-4(C)(3)(b), & 55-4(C)(3)(d) | Tree Survey: A partial waiver is sought to reduce the extent of the tree survey to the areas in immediate proximity to the limit of disturbance.

5.) Sections 105-38(F), 105-46, & 105-74 | Curbing: Given the parking currently exists on site and improvements are limited to restriping, a waiver is sought to eliminate curb installation.

6.) Sections 105-38(I), 105-38(S), 105-49, 105-38(U), 105-39(A), & 105-39(C) | Parking Lot Landscaping: Given the parking currently exists on site, and improvements are limited to restriping, a waiver is sought to eliminate parking lot landscaping.

7.) Sections 105-30, 105-47(A), 105-48, 105-73, 105-83 | Sidewalk and Street Tree Improvements: A waiver is sought to eliminate the installation of sidewalk, curbing, and street trees along Butler Pike. Existing conditions are to remain the same.

900 W Valley Rd #1100, Wayne, PA 19087 | PHONE 610 265 8323 | FAX 610 265 4299

8.) Sections 105-52, & 105-52(B)(2) | Buffer Requirement: A waiver is sought from the 50-foot buffer requirement due to the adjacent land uses being similar in nature, the proximity of development being significantly setback from Butler Pike, and the residential properties have an existing/established buffer.

Should you have any questions, or wish to discuss these requests further, please contact me at (610) 265-8323 or via email at plepard@navenewell.net.

Sincerely,

Paul Lepard

/

Enclosure

cc (via email): Joan Plump, Gemma Services
Neil Clark, Gemma Services
Denise Yarnoff, Esq., RRH&C
Matt Hammond, PE, TPD

Document1

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January 21, 2025

VIA HAND DELIVERY

Mr. Christian Fassbender
Shade Tree Commission Chair

Whitemarsh Township
616 Germantown Pike
Lafayette Hill, PA 19444

Reference: ***Gemma Redevelopment***
Waiver/Partial Waiver Request
Whitemarsh Township, Montgomery County, Pennsylvania
Nave Newell No. 2024-039.00

Dear Mr. Fassbender:

On January 14th, 2025, the Whitemarsh Township Planning Commission recommended approval of the project and all associated waivers, contingent upon the Shade Tree Commission's recommendations. On the behalf of our client Gemma Services, and in accordance with Section 105 of Whitemarsh Township Subdivision and Land Development Ordinance (SALDO), the applicant respectfully requests the Shade Tree Commission to recommend the following waivers and/or modifications from the cited provisions of the ordinance.

1.) Sections 105-21(B)(3), 55-4(C)(3)(a), 55-4(C)(3)(b), & 55-4(C)(3)(d) | Tree Survey: A partial waiver is sought to reduce the extent of the tree survey to the area within 50' of the limit of disturbance. As you are aware, this is a reuse of an existing developed property. The request for these waivers is based on the minimal impact of the project beyond the existing developed conditions. The majority of the planned improvements are confined to areas that are already developed or previously disturbed, with only minor adjustments to the existing site conditions. Given the limited nature of the proposed site improvements, extending the tree survey beyond the 50' from the LOD would impose unreasonable cost on Gemma. Restricting the tree survey to within 50' of the LOD still allows for the survey and protection of existing trees from disturbance during construction while avoiding excessive survey and inventory into undisturbed and unaffected site areas.

Should you have any questions, or wish to discuss these requests further, please contact me at (610) 265-8323 or via email at plepard@navenewell.net.

Sincerely,

Paul Lepard

/

Enclosure

cc (via email): Joan Plump, Gemma Services
Neil Clark, Gemma Services
Denise Yarnoff, Esq., RRH&C
Matt Hammond, PE, TPD

Document1

Applicant Name: Gemma Services

Development Name: Gemma Redevelopment

Location of Property: 512 Township Line Rd Plymouth Meeting, PA 19462

Date: 10/21/2024, last revised 1/21/2025

PROJECT COVER SHEET – *Approved at June 6, 2023 Shade Tree Commission Meeting*

To verify fulfillment of Chapter 55 Ordinance requirements for:

1. *Maximum Tree Removal – 55-4B*
2. *Tree Replacement – 55-4D(6)(a)*
3. *Substitutions for Replacements – 55-4F*
4. *Replacement Tree Species – 55-4E*
5. *Tree and Shrub requirements for Chapters other than Chapter 55*

Complete the following tables, filling in data for each lettered item, and resolving each Compliance Test. In accordance with 55-4C(4)(e), provide this completed Cover Sheet together with the Landscape Plan.

Citations to Sections of Chapter 55 are provided for the convenience of the Applicant. Other Chapters of the Whitemarsh Township Code and other sections of Chapter 55, such as 55-2 Definitions, may be relevant. In the event of an inconsistency between this Cover Sheet and any provision of the Code, the language of the Code shall be controlling.

1) ***Calculation of Requirement for Maximum Tree Removal – 55-4B:***

A.	***Total of all existing Trees on the lot with DBH of 6" or greater**, per 55-4C(3)(a).*	+/- 359,499 sf of Tree Canopy
B.	*33% of line (A) =* ***maximum existing Trees which may be Removed.***	+/- 119,714 sf of Tree Canopy
C.	*Provide* ***number of existing Trees proposed to be Removed by the Applicant,** per 55-4C(3)(a).*	10 Trees
	***COMPLIANCE TEST:** If Line (C) is greater than Line (B), the Applicant's proposal is not in compliance with the requirement that no more than 33% of trees having a DBH of six inches or greater may be removed.*	Compliant

2) *Calculation of Replacement Requirement for Removed Trees having a DBH of Six Inches or Greater 55-4D(6)(a):*

D.	***Total DBH of all existing Living and Healthy Trees*** *(as determined per 55-4A) having a DBH of 6" or greater* ***that are proposed to be Removed****, per 55-4C(3)(a).*	140"
E.	***Total DBH of all Living and Healthy Trees*** *(as determined per 55-4A) having a DBH of 6" or greater,* ***removed within five years prior to the submission of application****, per 55-4C(3)(b).*	0"
F.	*Sum of line (D) and line (E) =* ***Total DBH that must be replaced for all Removed Living and Healthy Trees.***	140"
G.	***Total Caliper inches of Canopy Replacement Trees proposed to be planted*** *by the Applicant (as shown on the Landscape Plan) per 55-4D(6)(a). Each Canopy Replacement Tree shall have a minimum Caliper of three inches.*	141" (47 x 3")
	COMPLIANCE TEST: *If Line (G) is less than Line (F), the Applicant's proposal is not in compliance with the minimum Canopy Tree Replacement Requirement.* *To comply with this requirement, the Applicant may request a waiver from the Shade Tree Commission to permit limited substitutions per 55-4F. If so, proceed to Substitution calculation (3) below.*	Compliant

3) *Calculation of maximum Proposed Substitutions for Replacement Canopy Trees – 554F, subject to certain limitations and approval by the Shade Tree Commission.*

H.	*40% of line (F) (round fractions down to a whole number) =* ***maximum Caliper of required Replacement Canopy Trees that may be substituted*** *with Understory Trees and/or FIL, upon STC approval, per 55-4F.*	n/a
I.	*Line (F) less Line (G) =* ***Shortfall in DBH compliance with the minimum Canopy Tree Replacement Requirement,*** *per 55-4D(6)(a).*	n/a
	COMPLIANCE TEST: *If line (H) is less than line (I), the deficit of minimum Canopy Tree Replacement requirement, per 55-4D(6) cannot be fully compensated with Substitutions, per 55-4F.*	n/a

J.	*Line (I) divided by 3" (round fractions <u>up</u> to a whole number) =* ***Shortfall in the <u>number</u> of required 3" Canopy Replacement Trees.***	n/a
K.	*Provide the* ***total number of substitution Understory Trees proposed to be planted*** *by the Applicant, per 55-4F(1).*	n/a
L.	*Line (K) divided by two =* ***Number of required 3"-cal. Replacement Canopy Trees being substituted with Understory Trees*** *per 55-4F(1).*	n/a
M.	*Line (J) less Line (L) =* ***Number of required 3"-cal. Replacement Canopy Trees proposed by the Applicant to be substituted with payment of in-lieu fees****, per 55-4F(2).* ***NOTE:*** *Review proposed Landscape Plan to ensure that the use of Replacement Understory Tree substitutes has been maximized prior to calculating the number of substitutes via in-lieu fees, per 55-4F(4).*	n/a
N.	*Sum of Line (L) and Line (M) =* ***Total proposed number of Replacement Canopy Trees being substituted per 55-4F.***	n/a
O.	*Line (N) multiplied by 3" =* ***Total shortfall of DBH to be fulfilled with substitutions*** *as proposed by this Landscape Plan.*	n/a
	COMPLIANCE TEST: *If (O) is greater than (H), the Applicant's proposal has exceeded the 40% maximum eligible for consideration for Replacement substitutions, per 55-4F, and is not in compliance.*	n/a
P.	*Sum of Line (O) and (G) =* ***Total Caliper compensation for Removed Trees*** *as provided by this proposed Landscape Plan.*	141"
	COMPLIANCE TEST: *If (P) is less than (F), the Applicant's proposal is not in compliance with the Tree Replacement Requirement.*	Compliant

4) <u>Compliance with Species Requirement of Replacement Trees – 55-4E</u>:

Q.	***Total number of proposed Canopy Replacement Trees,*** *per 55-4C(4)(c).*	47 Canopy Trees

R.	*75% of line (Q) (round fractions up to the next whole number) =* ***Minimum required number of Native Species Replacement Canopy Trees****, per 55-4E.*	36 Canopy Trees
S.	*Provide the* ***number of proposed Native Species Canopy Replacement Trees,*** *per 55-4C(4)(c).*	38 Canopy Trees
	COMPLIANCE TEST: *If Line (S) is less than Line (R), the Applicant's proposal is not in compliance with the 75% Native Species requirement for Replacement Canopy Trees, per 55-4E.*	Compliant
T.	*Provide the* ***number of proposed Native Species Understory Trees****.*	n/a
	COMPLIANCE TEST: *If Line (T) is less than line (K), he Applicant's proposal is not in compliance with the 100% Native Species requirement for Replacement Understory Trees.*	n/a

5) <u>Compliance with Landscaping Requirements of Other Code Chapters</u>. Complete the following Tables for each applicable requirement.

<u>REQUIRED TREES</u>:

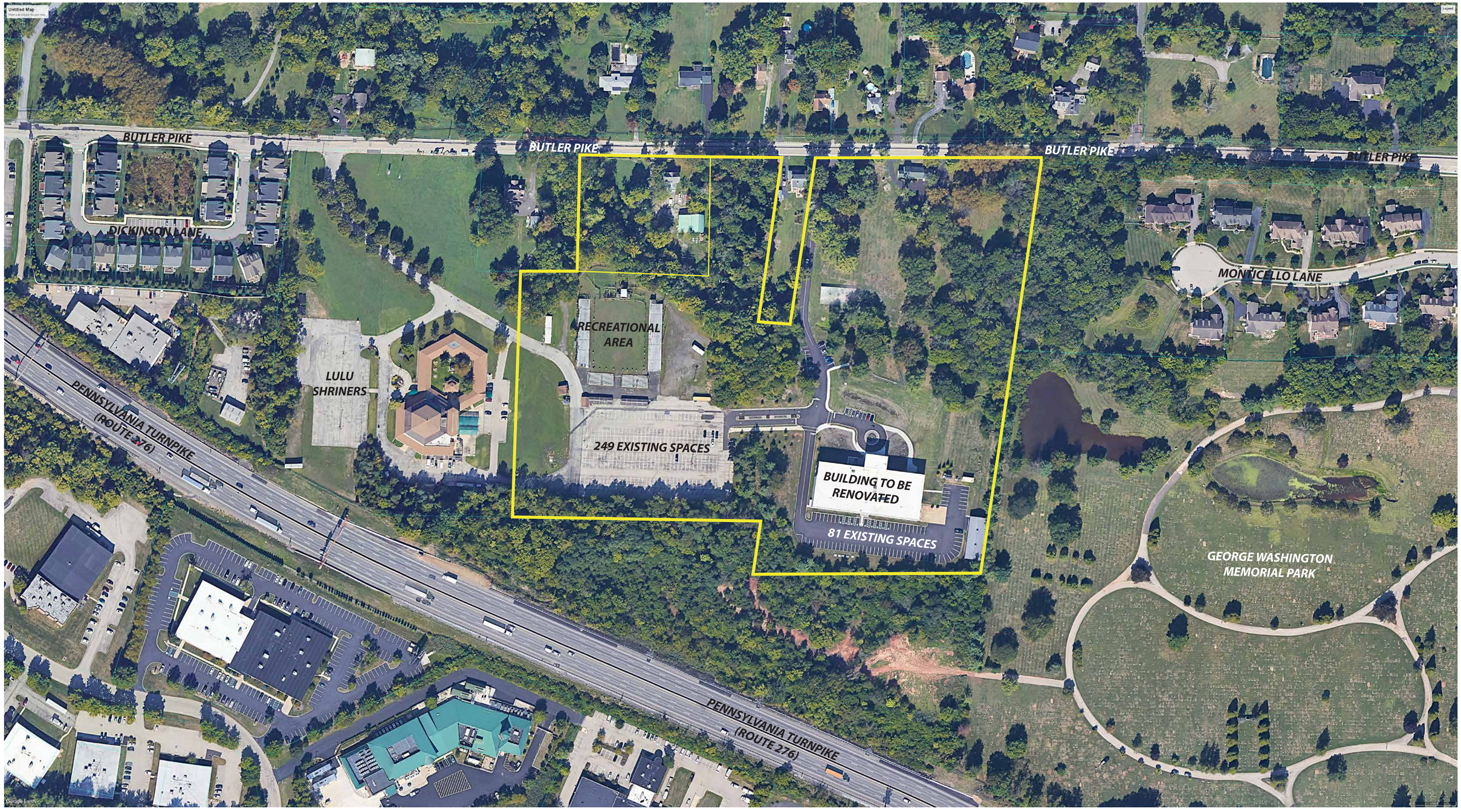
A	B	C	D*	E	F**
Full Code Citation: Chapter; sub-chapter, etc.	Subject matter as indicated in Code caption	Required # of Trees	Credits for Preserved Trees per 55-4D(5)	Proposed # of Trees	Column (C) less Columns (D) and (E)
105-48.1.B.3	Building Area Landscaping	28		28	0
55-1.6A	Tree Replacement	47		47	0

NOTE: Column (D) Credits are strictly limited to calculating Chapter 105-52 Buffer yards, in accordance with 55-4D(5).
NOTE: When the result in Column (F) is greater than zero, the Applicant's proposal is not in compliance with the applicable Code requirement.

<u>REQUIRED SHRUBS</u>:

A	B	C	D	E*
Full Code Citation: Chapter; sub-chapter, etc.	Subject matter as indicated in Code caption	Required # of Shrubs	Proposed # of Shrubs	Column (C) less Column (D)
105-48.1.B.3	Building Area Landscaping	56	56	0

NOTE: When the result in Column (E) is greater than zero, the Applicant's proposal is not in compliance with the applicable Code requirement.



GEMMA SERVICES: AERIAL EXHIBIT

WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PA
JANUARY 7, 2025

source: google earth pro

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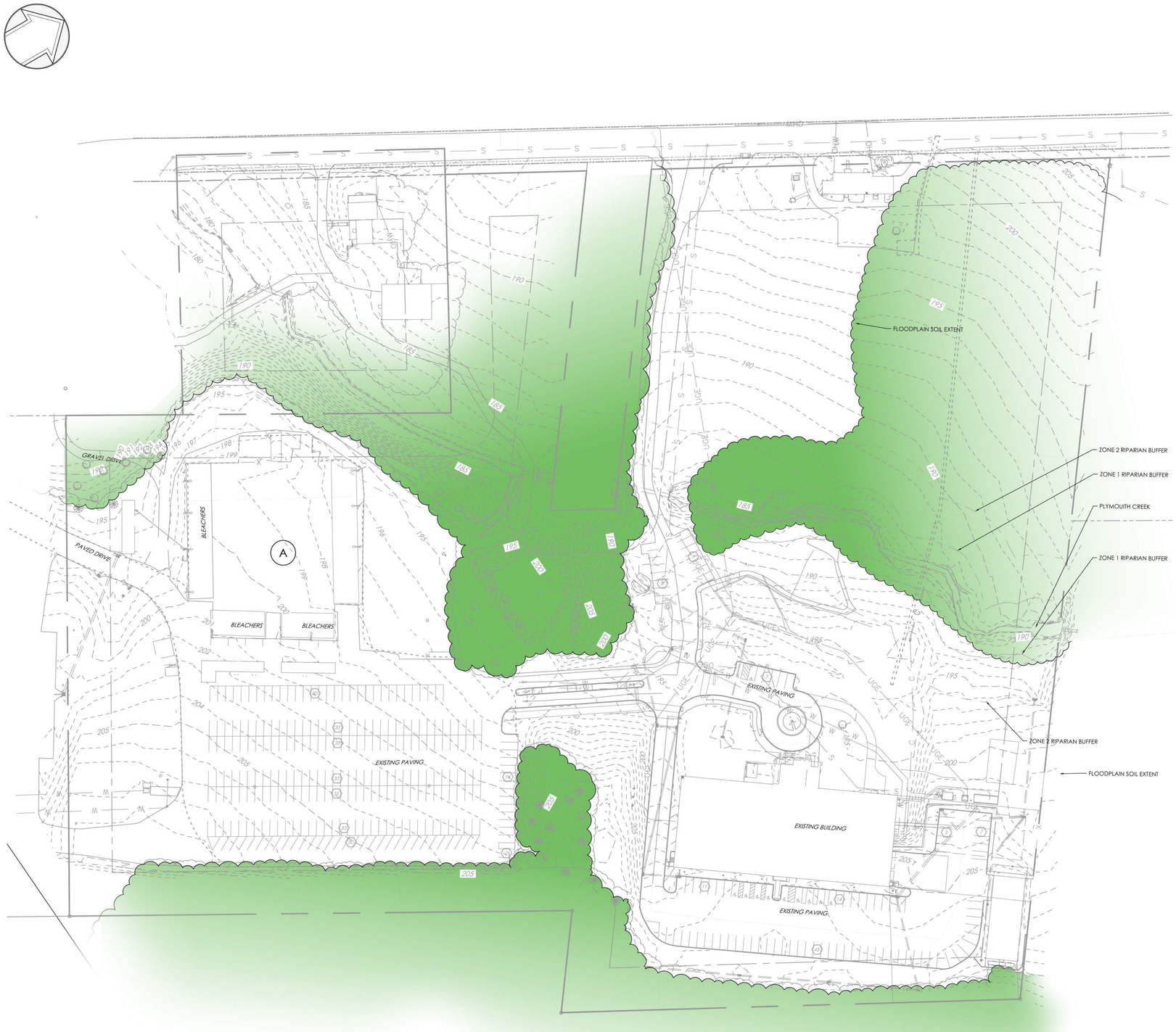
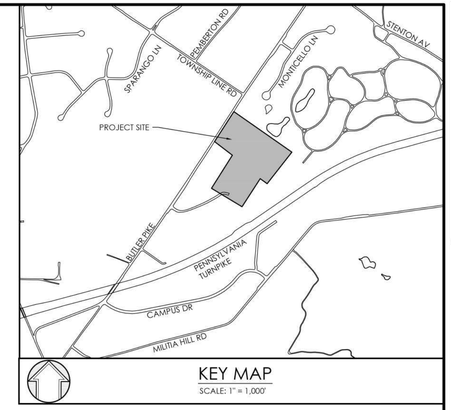
project #: 2024-039.00





KEY MAP
SCALE: 1" = 1,000'

60 0 30 60 120 240
(IN FEET)
1 inch = 60 ft

PROJECT SERIAL NO. 20241620090

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date:	no.	description	chk'd	by

REVISIONS

SEAL:

COMMONWEALTH OF PENNSYLVANIA
JAMES P. BANNON
REGISTERED PROFESSIONAL ENGINEER
No. PE082137

DRAWING NAME: EXISTING FEATURES/VEGETATION

GEMMA REDEVELOPMENT

LOCATION: WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PA

project no. 2024-039	drawn by: JSD
date: 10/24/24	chk'd by: BTK
scale: 1" = 60'	approv. by: PEL

sheet no.

C1.0

1 of 3

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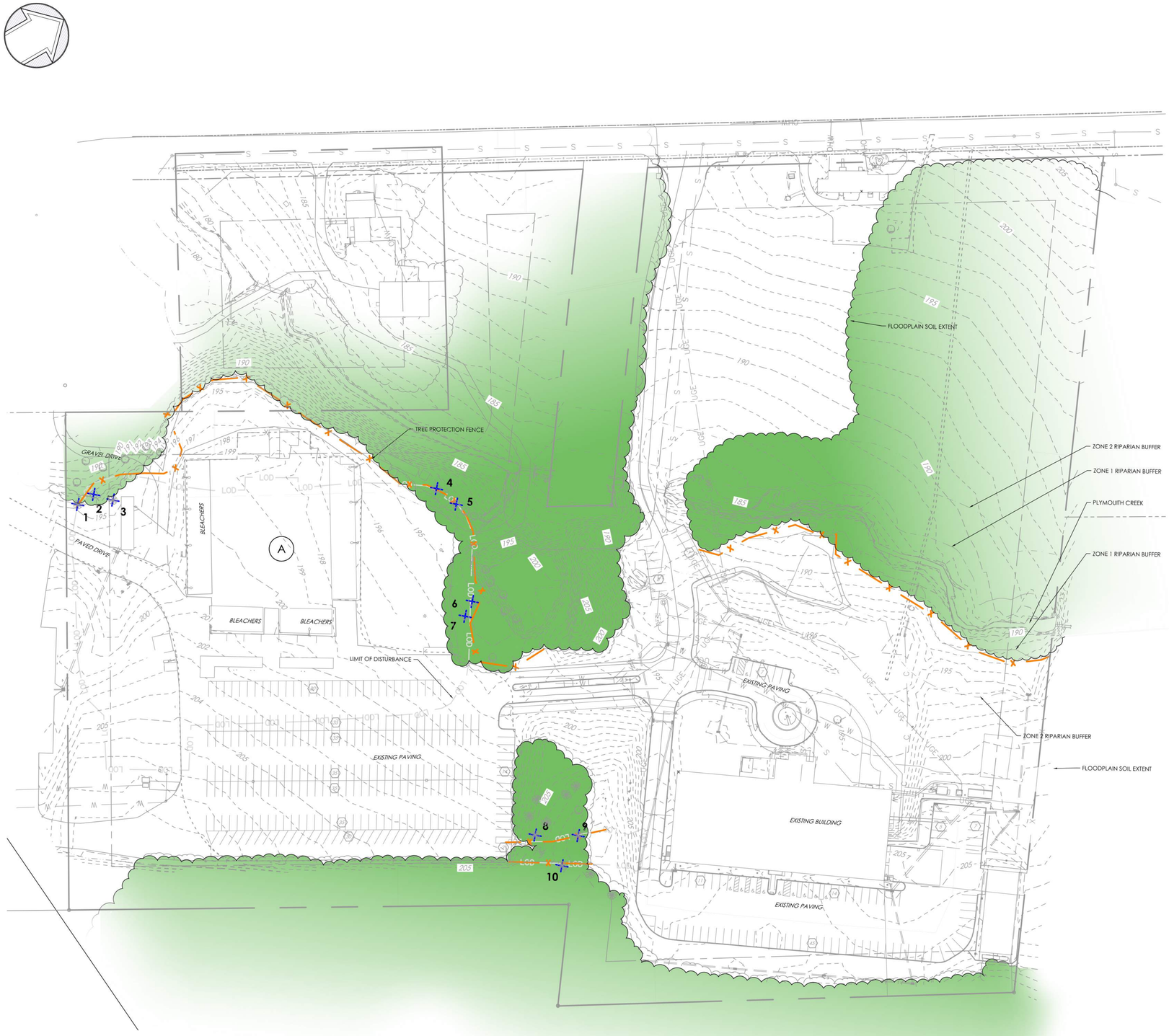
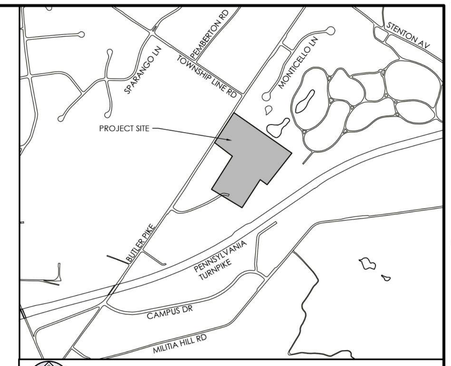
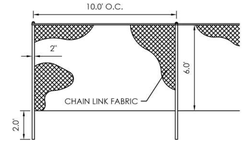




KEY MAP
SCALE: 1" = 1,000'



TYPICAL TREE PROTECTION FENCING

1. THE PROTECTIVE FENCING SHALL BE PLACED AROUND THE ROOT PROTECTION ZONE. THE FENCING SHALL BE AT LEAST SIX FEET TALL WITH TWO-INCH MESH CHAIN LINK FABRIC. TWO-INCH POSTS SHALL BE TIED WITH 6-GAUGE ALUMINUM WIRES AT 24 INCHES ON CENTER. POSTS SHALL BE A MINIMUM OF TWO FEET IN THE GROUND AND SPACE OF 10 FEET ON CENTER. PLASTIC ZIP TIES MAY NOT BE USED IN PLACE OF REQUIRED SIX-GAUGE ALUMINUM WIRE.
2. THE PROTECTIVE FENCING SHALL BE INSTALLED WITH CARE TO AVOID ROOTS AND PLACED ENCOMPASSING THE ENTIRE ROOT PROTECTION ZONE OF INDIVIDUAL OR GROUPS OF CONTIGUOUS TREES. FENCING SHALL BE INSTALLED PRIOR TO ANY WORK BEING CONDUCTED, E.G. GRUBBING, EXCAVATION, GRADING, TRENCHING, CLEANING, INSTALLATION OF SILT FENCING. THE PROTECTIVE FENCING SHALL BE MAINTAINED THROUGHOUT THE ENTIRE PERIOD OF CONSTRUCTION.
3. ALL REPLACEMENT TREES SHALL HAVE DEER PROTECTION ON THE TREE TRUNKS AT A MINIMUM OF 4.5 FEET FROM THE GROUND UP TO PREVENT BARK DAMAGE WITHOUT THE USE OF CHEMICALS. SAID DEER PROTECTION SHALL REMAIN IN PLACE 18 MONTHS FROM THE POST-CONSTRUCTION CONFERENCE.

MODIFICATION/PARTIAL WAIVER REQUESTED:

1. SECTION 55-4.C.(3)(a): TO LIMIT THE IDENTIFICATION OF TREES HAVING DBH SIX INCHES OR GREATER TO WITHIN ONLY THE IMPACTED AREAS OF DEVELOPMENT AS OPPOSED TO SITE WIDE.

TREE REMOVAL DATA

#	CALIPER INCHES	SPECIES
1	12"	PINE
2	14"	SYCAMORE
3	14"	PINE
4	14"	SYCAMORE
5	14"	SYCAMORE
6	16"	HICKORY
7	16"	HICKORY
8	16"	PINE
9	10"	PINE
10	14"	PINE

NOTE:
TEN TREES OVER 6" DBH WERE REMOVED AND REPLACED WITH 47 DECIDUOUS TREES AT 3" CALIPER. SEE C3.0.

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60 0 30 60 120 240
(IN FEET)
1 inch = 60 ft

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no.	description	date:	chk'd	by
---	---	---	---	---

SEAL:

DRAWING NAME: EXISTING FEATURES/VEGETATION

GEMMA REDEVELOPMENT

LOCATION: WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PA

project no.: 2024-039	drawn by: JSD
date: 10/24/24	chk'd by: BTK
scale: 1" = 60'	approv. by: PEL

sheet no.

C2.0

2 of 3

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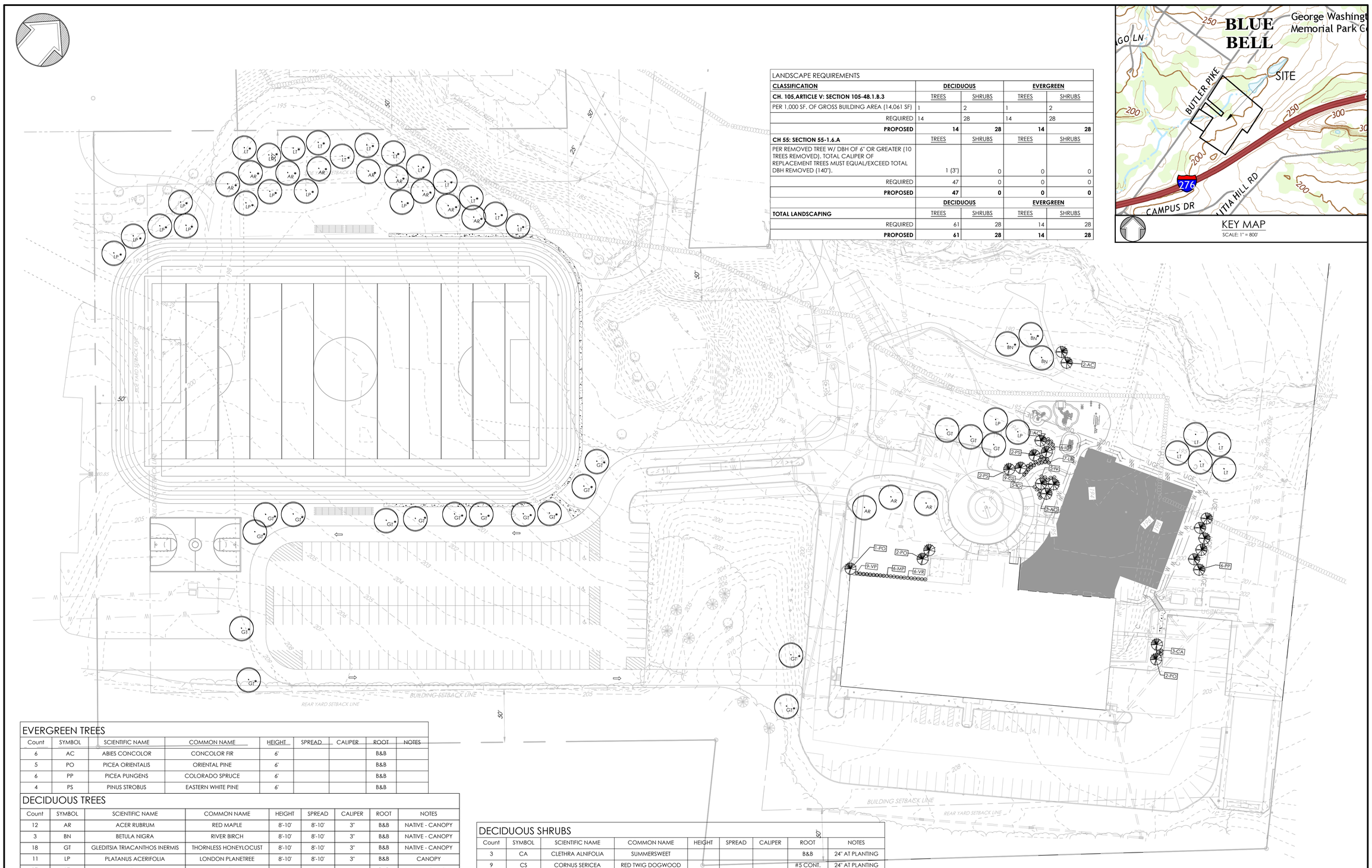

KEY MAP
SCALE: 1" = 800'

LANDSCAPE REQUIREMENTS				
CLASSIFICATION	**DECIDUOUS**		**EVERGREEN**	
CH. 105, ARTICLE V: SECTION 105-48.1.B.3	TREES	SHRUBS	TREES	SHRUBS
PER 1,000 SF. OF GROSS BUILDING AREA (14,061 SF)	1	2	1	2
REQUIRED	14	28	14	28
PROPOSED	**14**	**28**	**14**	**28**
CH 55: SECTION 55-1.6.A	TREES	SHRUBS	TREES	SHRUBS
PER REMOVED TREE W/ DBH OF 6" OR GREATER (10 TREES REMOVED). TOTAL CALIPER OF REPLACEMENT TREES MUST EQUAL/EXCEED TOTAL DBH REMOVED (140").	1 (3")	0	0	0
REQUIRED	47	0	0	0
PROPOSED	**47**	**0**	**0**	**0**
	DECIDUOUS		**EVERGREEN**	
TOTAL LANDSCAPING	TREES	SHRUBS	TREES	SHRUBS
REQUIRED	61	28	14	28
PROPOSED	**61**	**28**	**14**	**28**

EVERGREEN TREES

Count	SYMBOL	SCIENTIFIC NAME	COMMON NAME	HEIGHT	SPREAD	CALIPER	ROOT	NOTES
6	AC	ABIES CONCOLOR	CONCOLOR FIR	6'			B&B	
5	PO	PICEA ORIENTALIS	ORIENTAL PINE	6'			B&B	
6	PP	PICEA PUNGENS	COLORADO SPRUCE	6'			B&B	
4	PS	PINUS STROBUS	EASTERN WHITE PINE	6'			B&B	

DECIDUOUS TREES

Count	SYMBOL	SCIENTIFIC NAME	COMMON NAME	HEIGHT	SPREAD	CALIPER	ROOT	NOTES
12	AR	ACER RUBRUM	RED MAPLE	8'-10'	8'-10'	3"	B&B	NATIVE - CANOPY
3	BN	BETULA NIGRA	RIVER BIRCH	8'-10'	8'-10'	3"	B&B	NATIVE - CANOPY
18	GT	GLEDITSIA TRIACANTHOS INERMIS	THORNLESS HONEYLOCUST	8'-10'	8'-10'	3"	B&B	NATIVE - CANOPY
11	LP	PLATANUS ACERIFOLIA	LONDON PLANETREE	8'-10'	8'-10'	3"	B&B	CANOPY
17	LT	LIRIDENDRON TULIPIFERA	TULIP POPLAR	8'-10'	8'-10'	3"	B&B	NATIVE - CANOPY

* **DENOTES QUANTIFYING FOR TREE REPLACEMENT CRITERIA PER CHAPTER 55**

DECIDUOUS SHRUBS

Count	SYMBOL	SCIENTIFIC NAME	COMMON NAME	HEIGHT	SPREAD	CALIPER	ROOT	NOTES
3	CA	CLETHRA ALNIFOLIA	SUMMERSWEET				B&B	24" AT PLANTING
9	CS	CORNUS SERICEA	RED TWIG DOGWOOD				#5 CONT.	24" AT PLANTING
7	LB	LINDERA BENZOIN	SPICEBUSH				#5 CONT.	24" AT PLANTING
9	VP	VIBURNUM PRUNIFOLIA	BLACKHAW VIBURNUM				#5 CONT.	24" AT PLANTING

EVERGREEN SHRUBS

Count	SYMBOL	SCIENTIFIC NAME	COMMON NAME	HEIGHT	SPREAD	CALIPER	ROOT	NOTES
11	IG	ILEX GLABRA	INKBERRY				#5 CONT.	24" AT PLANTING
5	IV	ILEX VERTICILATA	WINTERBERRY HOLLY				B&B	24" AT PLANTING
6	MP	MYRICA PENSYLVANICA	BAYBERRY				#5 CONT.	24" AT PLANTING
6	VR	VIBURNUM RHYTIDOPHYLLUM	LEATHERLEAF VIBURNUM				#5 CONT.	24" AT PLANTING

NOTES:
1. ALL REPLACEMENT TREES SHALL HAVE DEER PROTECTION ON THE TREE TRUNKS AT A MINIMUM OF 4.5 FEET FROM THE GROUND UP TO PREVENT BARK DAMAGE WITHOUT THE USE OF CHEMICALS. SAID DEER PROTECTION SHALL REMAIN IN PLACE 18 MONTHS FROM THE POST-CONSTRUCTION CONFERENCE.

40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft

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SEAL
PAUL E. LEBEAU
REGISTERED LANDSCAPE ARCHITECT
Registered Landscape Architect
Pennsylvania License No. LA001322R

DRAWING NAME: LANDSCAPE PLAN

GEMMA REDEVELOPMENT

LOCATION: WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PA

project no.	drawn by:
2024-039	GSS
date:	chk'd by:
10/24/24	BTK
scale:	approv. by:
1" = 40'	PEL

sheet no.
C7.0
10 of 18

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(IN FEET)
1 inch = 60 ft

GEMMA REDEVELOPMENT: ILLUSTRATIVE RENDERING

WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PA

JANUARY 7, 2025

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PROJECT #2024-039.00

ROCKWELL ASSOCIATES

Urban Foresters - Natural Resource Consultants Planners - Forensic Arborists

Gemma Services

Via Email Delivery

January 28, 2025
To: Samantha Zrillo
Whitemarsh Township - Planner
616 Germantown Pike Lafayette
Hill, PA 19444-1821
From: John Hosbach
Applicant: Gemma Services

Dear Sam,

Pursuant to my site inspection and plan review, the following are my comments. Gemma Services is proposing a the site improvements which include but is not limited to a synthetic field, building renovations and landscaping.

Tree survey plan

Plan identifying the size, species, and location of all existing trees having a diameter at breast height (DBH) of six inches or greater and denoting each tree to be saved or removed. All removed trees shall be identified if removed in the past five years.

Like other projects, the said property inhabits numerous trees that are not within the project LOD. Such areas include a riparian buffer, woodlands and vegetative areas. These subject green structures are not within the proposed improvements. The applicant has provided a tree inventory by way of canopy coverage instead of actual tree counts. This is sufficient for this application; however, a waiver will be required.

Tree Removal

Maximum tree removal.

The removal of more than 33% of trees, having a DBH of six inches or greater, on any lot, shall not be permitted.

The applicant is proposing the removal of 10 trees, which is compliant for this application and the inventory provided. It was estimated that 300 trees exist on the property. The trees to be removed are noted on the plan.

ROCKWELL ASSOCIATES

Urban Foresters - Natural Resource Consultants Planners - Forensic Arborists

Tree Protection

Denote location and species of each preserved tree and all boundary trees, and the location of tree protection fences, encompassing the dimensions of each root protection zone as established by one of the following two means, whichever is greater:

[1] Calculated at 1.25 feet (radius) per one inch of (DBH) diameter breast height.
[2] A circle with a radius extending from a tree's trunk to a point no less than the furthest crown dripline.

The tree protection was found to be compliant. In review of the actual site, most of the tree protection is safeguarding the transition layer to the actual trees outside the LOD which adds more protection. For this application, tree protection is satisfactory. However, the tree protection detail needs to be shown on the plan set.

Replacement tree requirement.

Every living and healthy tree with a DBH of six inches or greater and which is designated to be removed or which is destroyed, shall be replaced with one or more new canopy trees, of a type and species approved by the Shade Tree Commission or its designee, with a trunk diameter of not less than three inches in caliper. The total caliper of replacement trees, measured at six inches above the ground line, shall equal or exceed the DBH of the removed trees.

The applicant is proposing to replace all 140" of DBH with (47) 3" caliper trees. The plan denotes locations and species. The native species palate is compliant.

General Notes.

- **I have reviewed the site and have confirmed that no heritage trees will be removed or impacted.**

John Rockwell Hosbach jr. CONSULTANT

WHITEMARSH TOWNSHIP

To:	Craig McAnally, Township Manager
From:	Samantha Zrillo, Township Planner
Subject:	**SLD# 07-24 Gemma Services (5168 & 5200 Butler Pike)--2.4.25 STC Meeting**
Date:	March 5, 2025
cc:	**Charlie Guttenplan, AICP, Township Director of Planning and Zoning** **Krista Heinrich, PE, Township Engineer, Gilmore Associates** **John Hosbach Jr., RCA, ACF, CUCF, Township's Consulting Arborist** **Denise Yarnoff, Esq., Applicant's Attorney** **Joan Plump, Applicant's Representative**

Plans Reviewed: *Nave Newell, dated 10/24/24, revised and received 1/21/2025*

In attendance: Denise Yarnoff Esq., Riley Riper Hollin & Colagreco, Applicant's Attorney and Paul Lepard, RLA, PP, Nave Newell, Applicant's Landscape Architect

Ms. Yarnoff gave an introduction and informed the Commission that the plans have now been fully reviewed. They appeared in front of the Planning Commission, who recommended approval for all waiver requests with the exception of the waivers regarding Chapter 55 and the full site inventory.

Mr. Lepard took the floor and went through a PowerPoint presentation showing renderings and the plans. Much of the improvements are taking place on areas that are already disturbed or developed. There is minimal impact to the site and the woodland area to the north is entirely preserved. All trees 6" or greater in the area of impact have been inventoried. The tree protection fencing generally coincides with the limit of disturbance with the exception of 10 trees that are to be removed (marked with a blue "X"). This equates to 140" DBH.

The applicant proposes to plant 61 deciduous trees, 14 evergreen trees, and over 50 shrubs. Fourty-seven deciduous trees are replacement trees.

Mr. Lepard ended by saying the Township's Consulting Arborist provided a review memo stating that he found all the submission documents to be in order. The applicant is kindly requesting the Commission's consideration for 4 waivers: 3 from Chapter 55 and 1 from CH 105. They all relate to the tree inventory. We are proposing to collect tree inventory 50 feet off of the limit of disturbance.

There was a general discussion about the plans and public comment regarding the parking lot.

Ms. Kosabutski made a motion to recommend approval of the plans with the following waivers:

- **55-4(C)(3)(a), 55-4(C)(3)(b), 55-4(C)(3)(d) and 105-21(B)(3) to allow the reduction of the extent of the tree survey to the areas in immediate proximity to the limit of disturbance**

Ms. Borkowski seconded the motion. Motion carried unanimously.

Samantha Zrillo
Township Planner
616 Germantown Pike
Lafayette Hill, PA 19444
Phone: 610-825-3535 ext. 2608
Email: szrillo@whitemarshtwp.org