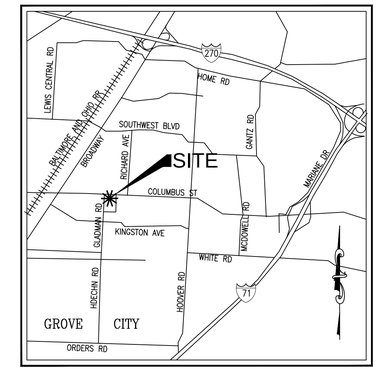
SITE DEVELOPMENT PLANS FOR

GROVE CITY FAMILY DENTISTRY

PARKING LOT EXPANSION

4068 GLADMAN AVENUE
GROVE CITY, OHIO
DECEMBER, 2014



LOCATION MAP
NO SCALE

PROJECT DESCRIPTION:

PROVIDE ALL IMPROVEMENTS FOR THE CONSTRUCTION OF NEW AND/OR REPLACED PAVEMENT FOR ADDITIONAL PARKING. A RESIDENTIAL DRIVE WILL BE REMOVED AND A SECOND RESIDENTIAL WILL BE REPLACED WITH A COMMERCIAL DRIVE. THE WORK AREA IS 0.20 ACRE AND THE PROPOSED IMPROVEMENTS SHALL INCREASE THE IMPERVIOUS AREA BY 0.11 AC. THE COMBINED SITES WILL BE APPROXIMATELY 1.06 ACRES WITH THE LANDSCAPE AREA COMPRISING ABOUT 0.24 ACRE. THE CIVIL DRAWINGS AND CALCULATIONS WILL SHOW THAT THE STORM WATER VOLUME REQUIRED FOR THIS IMPROVEMENT WILL BE PROVIDED FOR, IN COMPLIANCE WITH THE CURRENT CITY OF GROVE CITY REQUIREMENTS.

ARCHITECT:

ARCHITECTURAL ALLIANCE
165 NORTH FIFTH STREET
COLUMBUS, OHIO 43215
614.469.7500 FAX614.469.0500
E-MAIL: mail@archall.com

OWNER/DEVELOPER

3031 COLUMBUS STREET, LTD.
3031 COLUMBUS STREET
GROVE CITY, OHIO 43123
(614) 875-2153

FLOOD DESIGNATION

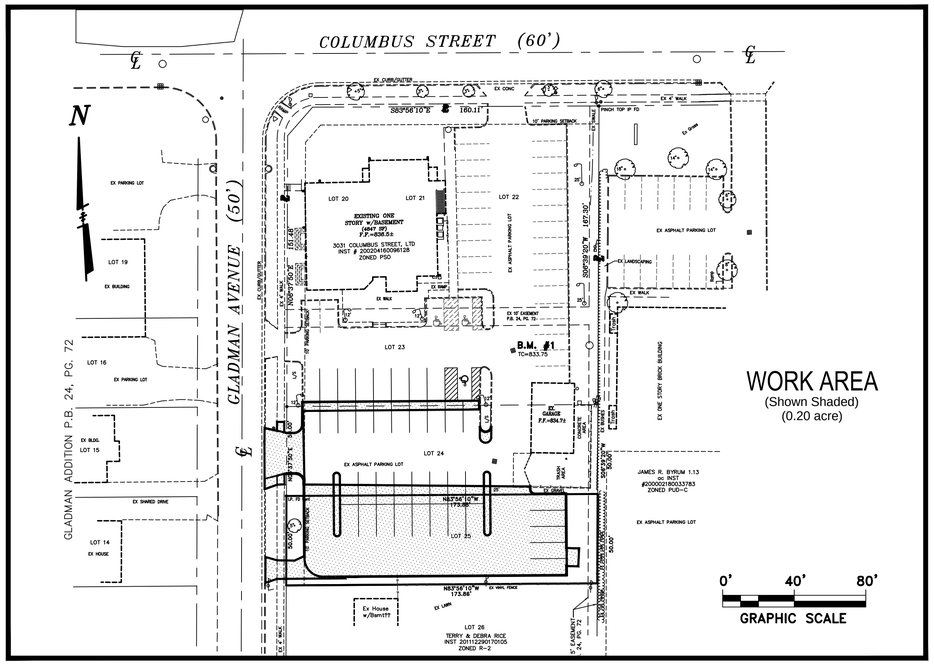
ACCORDING TO F.E.M.A. FLOOD INSURANCE RATE MAP #39049C0314K, DATED JUNE 17, 2008, FOR COMMUNITY NUMBER 390173, THIS PROPERTY IS NOT IN A "SPECIAL FLOOD HAZARD AREA".

BENCH MARKS

NAVD 88 DATUM

SOURCE BENCH MARK, ELEVATION OBTAINED USING TOPCON RTK GPS EQUIPMENT AND OHIO DEPARTMENT OF TRANSPORTATION CORS/VRS NETWORK, NAVD 1988.

BENCH MARK #1 ~TOP OF CASTING ON STORM CATCH BASIN, LOCATED 150' EAST OF GLADMAN AVE. AND 166' SOUTH OF COLUMBUS STREET. ELEV=833.75



WORK AREA
(Shown Shaded)
(0.20 acre)

INDEX MAP
SCALE: 1" = 40'

SHEET INDEX

CITY OF GROVE CITY

SIGNATURES ON THIS PLAN SIGNIFY ONLY CONCURRENCE WITH THE PURPOSE AND GENERAL LOCATION OF THE PROJECT. ALL TECHNICAL DETAILS REMAIN THE RESPONSIBILITY OF SITE ENGINEERING, INC.

CITY ADMINISTRATOR _____ DATE _____

SERVICE DIRECTOR _____ DATE _____

REVIEW FOR THE CITY OF GROVE CITY _____ DATE _____

JACKSON TOWNSHIP FIRE DEPARTMENT _____ DATE _____

STANDARD DRAWINGS

THE CITY OF GROVE CITY'S STANDARD DRAWINGS LISTED ON THIS PLAN SHALL BE CONSIDERED A PART THEREOF.

C-GC-42 C-GC-71A
C-GC-46A C-GC-72A
C-GC-46C C-GC-74
C-GC-57B C-GC-77

PLANS PREPARED BY:

SITE ENGINEERING
Incorporated
Civil Engineers & Surveyors

Site Engineering Inc
7453 East Main Street
Reynoldsburg, OH 43068
Phone : (614) 759-9900
eMail : siteeng@ameritech.net

#3044

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WWW.OUPS.ORG

DRAWING SET STATUS

■ PRELIMINARY ENGINEERING SET	12-02-14
■ CITY REVIEW SET	12-16-14
□ CONSTRUCTION DOCUMENT SET	
□ AS-CONSTRUCTED DOCUMENT SET	

CHANGE ORDER SCHEDULE

CHANGE	PREPARED	DATE OF CHANGE	DESCRIPTION OF CHANGE	SHT NO	APPROVED	DATE OF APPROVAL
1	LHBJ	1-14-15	ADDED LANDSCAPE ISLANDS & H/C STALL PER CITY'S COMMENTS	3,4,5		
2	MAH	2-26-15	REVISED LANDSCAPE AND LIGHTING PLANS	6,7		

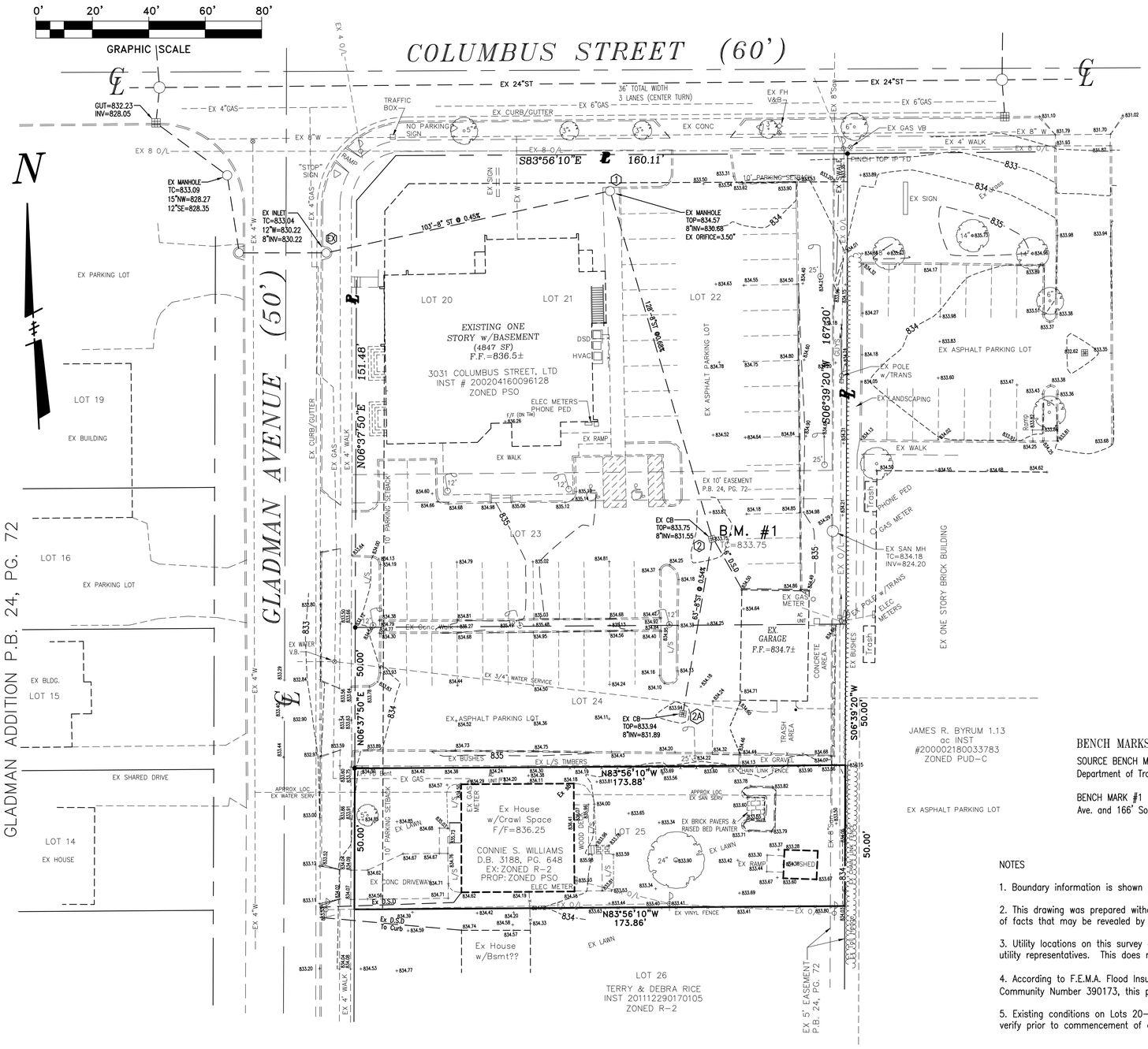
DESIGN ENGINEER

THIS IS TO CERTIFY THAT GOOD ENGINEERING PRACTICES HAVE BEEN UTILIZED IN THE DESIGN OF THIS PROJECT AND THAT ALL MINIMUM STANDARDS AS DELINEATED IN THE CITY OF GROVE CITY DESIGN, CONSTRUCTION AND SURVEYING STANDARDS MANUAL HAVE BEEN MET, INCLUDING THOSE STANDARDS GREATER THAN MINIMUM WHERE, IN OUR OPINION, THEY ARE NEEDED TO PROTECT THE SAFETY OF THE PUBLIC. ANY VARIANCES TO THE ABOVE STANDARDS ARE CONSISTENT WITH SOUND ENGINEERING PRACTICE AND ARE NOT DETRIMENTAL TO THE PUBLIC SAFETY AND CONVENIENCE. THESE VARIANCES HAVE BEEN LISTED HEREIN AND HAVE BEEN APPROVED BY THE CITY OF GROVE CITY ENGINEER.

PROFESSIONAL ENGINEER STUART E. WILMS 45618 REGISTERED STATE OF OHIO

Stuart E. Wilms, P.E. _____ Date _____
Registered Professional Engineer No. 45618

SITE ENGINEERING, INC. — 7453 EAST MAIN STREET — REYNOLDSBURG, OHIO 43068 — PHONE: (614) 759-9900



LOCATION MAP
NO SCALE

LEGEND

—— San. ——	Sanitary Sewer
—— St. ——	Storm Sewer
—— W ——	Water Main
—— G ——	Gas Line
—— U/C ——	Underground Cables
—— O/L ——	Overhead Lines
○	Manhole
▦	Storm Inlet
⊗◇	Fire Hydrant
	Utility Pole
– – →	Guy Wire
–x–x–	Fence
△	Sign
⊗	Valve Box
○	Gas Line Marker
□	Telephone Closure
I.P.S. ⊸	Iron Pin Set

SITUATED IN THE STATE OF OHIO, COUNTY OF FRANKLIN, CITY OF GROVE CITY, BEING ALL OF LOT 25 AS DESIGNATED AND DELINEATED ON THE RECORDED PLAT OF "GLADMAN ADDITION" OF RECORD IN PLAT BOOK 24, PAGE 72, RECORDER'S OFFICE, FRANKLIN COUNTY, OHIO.

BENCH MARKS **NAVD 88 DATUM**

SOURCE BENCH MARK, Elevation obtained using Topcon RTK GPS equipment and Ohio Department of Transportation CORS/VRS Network, NAVD 1988.

BENCH MARK #1 ~Top of casting on storm catch basin, located 150' East of Gladman Ave. and 166' South of Columbus Street. ELEV=833.75

NOTES

1. Boundary information is shown from available records.

2. This drawing was prepared without benefit of an abstract of title and is subject to any state of facts that may be revealed by an examination of same.

3. Utility locations on this survey are reported from field locations or information provided by utility representatives. This does not mean there could not be other utilities in the area.

4. According to F.E.M.A. Flood Insurance Rate Map #39049C0314K, dated June 17, 2008, for Community Number 390173, this property is NOT in a "Special Flood Hazard Area".

5. Existing conditions on Lots 20–22 are from previous survey and plan information, Contractor to verify prior to commencement of construction.

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REV:	DATE:	DESCRIPTION:	BY:

CALCULATED SEI
CHECKED MAH

TOPOGRAPHIC MAP

Development Plans For:
GROVE CITY FAMILY DENTISTRY
4068 GLADMAN AVENUE – GROVE CITY, OHIO

SITE ENGINEERING
Incorporated
Civil Engineers & Surveyors

NOV 2014
1"=20'
SEI#3044

2
5

GENERAL NOTES

THE REQUIREMENTS OF THE CITY OF GROVE CITY, TOGETHER WITH THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING ALL SUPPLEMENTS THERETO IN FORCE ON DATE OF CONTRACT SHALL GOVERN ALL MATERIALS AND WORKMANSHIP INVOLVED IN THE IMPROVEMENTS SHOWN ON THESE PLANS EXCEPT AS SUCH SPECIFICATIONS ARE MODIFIED BY THE FOLLOWING SPECIFICATIONS, OR BY THE CONSTRUCTION DETAILS SET FORTH HEREIN.

ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THESE PLANS AND THE REQUIREMENTS AND STANDARDS OF THE LOCAL GOVERNING AUTHORITY. IF A SOILS REPORT IS A PART OF THE CONSTRUCTION DOCUMENTS, IT SHALL TAKE PRECEDENCE UNLESS SPECIFICALLY NOTED OTHERWISE ON THE PLANS. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER OF ANY DISCREPANCIES BETWEEN THE SOILS REPORT AND PLANS, ETC.

ALL PERTINENT STANDARD CONSTRUCTION DRAWINGS ARE AVAILABLE UPON REQUEST AT THE OFFICES OF THE CITY ENGINEER.

THE CONTRACTOR SHALL PERFORM FIELD RECONNAISSANCE TO BECOME ACQUAINTED WITH THE EXISTING SITE CONDITIONS AND THE POTENTIAL EFFECTS UPON THE WORK SCOPE.

THE INFORMATION SHOWN ON THE PLANS REGARDING EXISTING UTILITIES IS NOT REPRESENTED, WARRANTED OR GUARANTEED TO BE COMPLETE OR ACCURATE. INVESTIGATION, LOCATION, SUPPORT, PROTECTION AND RESTORATION OF ALL EXISTING UTILITIES AND APPURTENANCES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, PRIOR TO CONSTRUCTION TO DETERMINE IN THE FIELD THE ACTUAL LOCATION AND ELEVATIONS OF ALL EXISTING UTILITIES WHETHER SHOWN ON THE PLANS OR NOT. NO COMPENSATION SHALL BE PAID TO THE CONTRACTOR FOR DAMAGE AND REPAIR TO THESE FACILITIES CAUSED BY THE CONTRACTORS WORK FORCE.

COMPLIANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 IS REQUIRED OF ALL CONTRACTORS ON THIS PROJECT.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL SAFETY REQUIREMENTS, TOGETHER WITH EXERCISING PRECAUTIONS AT ALL TIMES OF THE PROTECTION OF PERSONS (INCLUDING EMPLOYEES) AND PROPERTY. IT IS ALSO THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO INITIATE, MAINTAIN, AND SUPERVISE ALL SAFETY REQUIREMENTS, PRECAUTIONS, AND PROGRAMS IN CONNECTION WITH THE WORK.

THE CONTRACTOR SHALL CONFINE ALL ACTIVITIES TO THE PROJECT SITE UNDER DEVELOPMENT OR THE EXISTING RIGHT-OF-WAYS, CONSTRUCTION AND PERMANENT EASEMENTS AND SHALL NOT TRESPASS UPON OTHER PRIVATE PROPERTY WITHOUT THE WRITTEN CONSENT OF THE OWNER.

ALL WORK WITHIN THE RIGHTS OF WAY SHALL BE IN ACCORDANCE WITH THE GOVERNING JURISDICTION AND THEIR CURRENT SPECIFICATIONS.

IN ADDITION TO DIRECT REQUIREMENTS OF THE CONTRACT SPECIFICATIONS, THE CONTRACTOR SHALL OBSERVE AND CONFORM TO THE SPECIFIC REQUIREMENTS OF ALL RIGHTS-OF-WAY INCLUDING EASEMENTS, RIGHTS-OF-ENTRY, OR ACTION FILED IN COURT IN ACCORDANCE WITH THE CODE OF APPLICABLE GOVERNING AGENCY. THE COST OF THE OPERATIONS NECESSARY TO FULFILL SUCH REQUIREMENTS SHALL BE INCLUDED IN THE PRICE BID FOR THE PROJECT IMPROVEMENTS.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO SCHEDULE ALL NEEDED INSPECTIONS WITH THE APPLICABLE AGENCIES.

THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.

A PRE-CONSTRUCTION CONFERENCE INVOLVING A REPRESENTATIVE OF THE CITY OF GROVE CITY, THE CONTRACTOR AND ALL AVAILABLE SUB-CONTRACTORS WILL BE HELD PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL ARRANGE THE CONFERENCE 48 HOURS PRIOR TO THE START OF CONSTRUCTION.

THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE SUPERVISING CONSTRUCTION ENGINEER IF A PAVEMENT OR FOUNDATION STAKE IS DISTURBED.

THE CONTRACTOR'S BID SHALL BE COMPREHENSIVE AND INCLUDE ALL LABOR, MATERIALS AND EQUIPMENT TO COMPLETE ALL EXCAVATION, FILL AND GRADING IN ACCORDANCE WITH ENGINEERING AND SPECIFICATIONS.

ALL ITEMS OF WORK CALLED FOR WHICH NO SPECIFIC METHOD OF PAYMENT IS PROVIDED, SHALL BE PERFORMED BY THE CONTRACTOR AND THE COST OF SAME SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS RELATED ITEMS.

THE CONTRACTOR SHALL USE CONCRETE WITH A MINIMUM 28 DAY STRENGTH OF 3000 P.S.I. WITH AIR ENTRAINMENT, UNLESS SPECIFIED OTHERWISE.

THE CONTRACTOR SHALL CONSTRUCT PAVEMENT IN ACCORDANCE WITH TYPICAL PAVEMENT SECTION DETAILS OR AS SPECIFIED IN A GEOTECHNICAL ANALYSIS. THE FINISH PAVEMENT GRADES SHALL CONFORM TO THOSE SPECIFIED ON THE SITE GRADING PLAN.

ALL SECTIONS REQUIRING EMBANKMENT AND COMPACTION SHALL BE SCALPED IN ACCORDANCE WITH O.D.O.T. CONSTRUCTION AND MATERIAL SPECIFICATIONS (201.03) CLEARING AND GRUBBING (201.04) SCALPING AND (203.12) EMBANKMENT

DURING CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE FOR ADEQUATE DRAINAGE AND PROPER SOIL EROSION CONTROL MEASURES FOR PROTECTION OF ALL ADJACENT ROADS AND LANDS, AS SPECIFIED ON THE PLANS.

THE SOILS ENGINEER SHALL APPROVE ALL SUBBASE MATERIAL AND COMPACTION IN FILL AREAS.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR EMPLOYING A REGISTERED SOIL ENGINEER TO PROVIDE TESTING AS REQUIRED BY THE CITY. IN LIEU OF ADEQUATE COMPACTION STANDARDS AS SET FORTH BY THIS ITEM THE CITY RESERVES THE RIGHT TO REQUIRE COMPACTED GRANULAR BACKFILL. THE COST OF THIS REQUIREMENT SHALL BE INCLUDED AS PART OF THE UNIT PRICE BID FOR THE VARIOUS UTILITY ITEMS.

NO DRAINAGEWAYS OR SWALES SHALL BE BLOCKED OVERNIGHT OR DURING NONWORK DAYS WHEN WORKERS ARE NOT ONSITE.

NO MATERIALS OR EQUIPMENT SHALL BE STORED WITHIN PUBLIC RIGHT-OF-WAY OR WITHIN FIFTY (50) FEET OF ANY INTERSECTING STREET, DRIVEWAY, DITCH, STREAM OR EXISTING WETLAND. COMPLIANCE WITH THESE REQUIREMENTS ALONG WITH ADDITIONAL PROVISIONS OF THE CONTRACTOR SPECIFICATIONS SHALL NOT IN ANY WAY RELIEVE THE CONTRACTOR OF HIS LEGAL RESPONSIBILITIES OR LIABILITIES FOR THE SAFETY OF THE PUBLIC. THE CONTRACTOR SHALL INDICATED HIS INTENT WITH REGARD TO STORAGE OF MATERIAL AT THE PRECONSTRUCTION MEETING.

THE CONTRACTOR SHALL RESTORE ALL OFFSITE DISTURBED AREAS TO AN EQUAL OR BETTER CONDITION THAN EXISTING PRIOR TO COMMENCEMENT OF CONSTRUCTION.

ALL TRAFFIC CONTROL DEVICES SHALL BE FURNISHED, ERECTED, MAINTAINED AND REMOVED BY THE CONTRACTOR IN ACCORDANCE WITH THE "OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS", COPIES OF WHICH ARE AVAILABLE FROM THE DEPARTMENT OF TRANSPORTATION, BUREAU OF TRAFFIC, 1980 WEST BROAD STREET, COLUMBUS, OHIO 43215. THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN ALL NECESSARY PERMITS REQUIRED BY THE LOCAL JURISDICTION.

TYPE C STEADY BURN LIGHTS SHALL BE USED ON ALL BARRICADES, DRUMS AND SIMILAR TRAFFIC CONTROL DEVICES IN USE AT NIGHT.

ADEQUATE LIGHTS, SIGNS AND BARRICADES SHALL BE USED AS REQUIRED IN ITEM 614 O.D.T.S. TO SAFEGUARD THE TRAVELING THE PUBLIC AT ALL TIMES.

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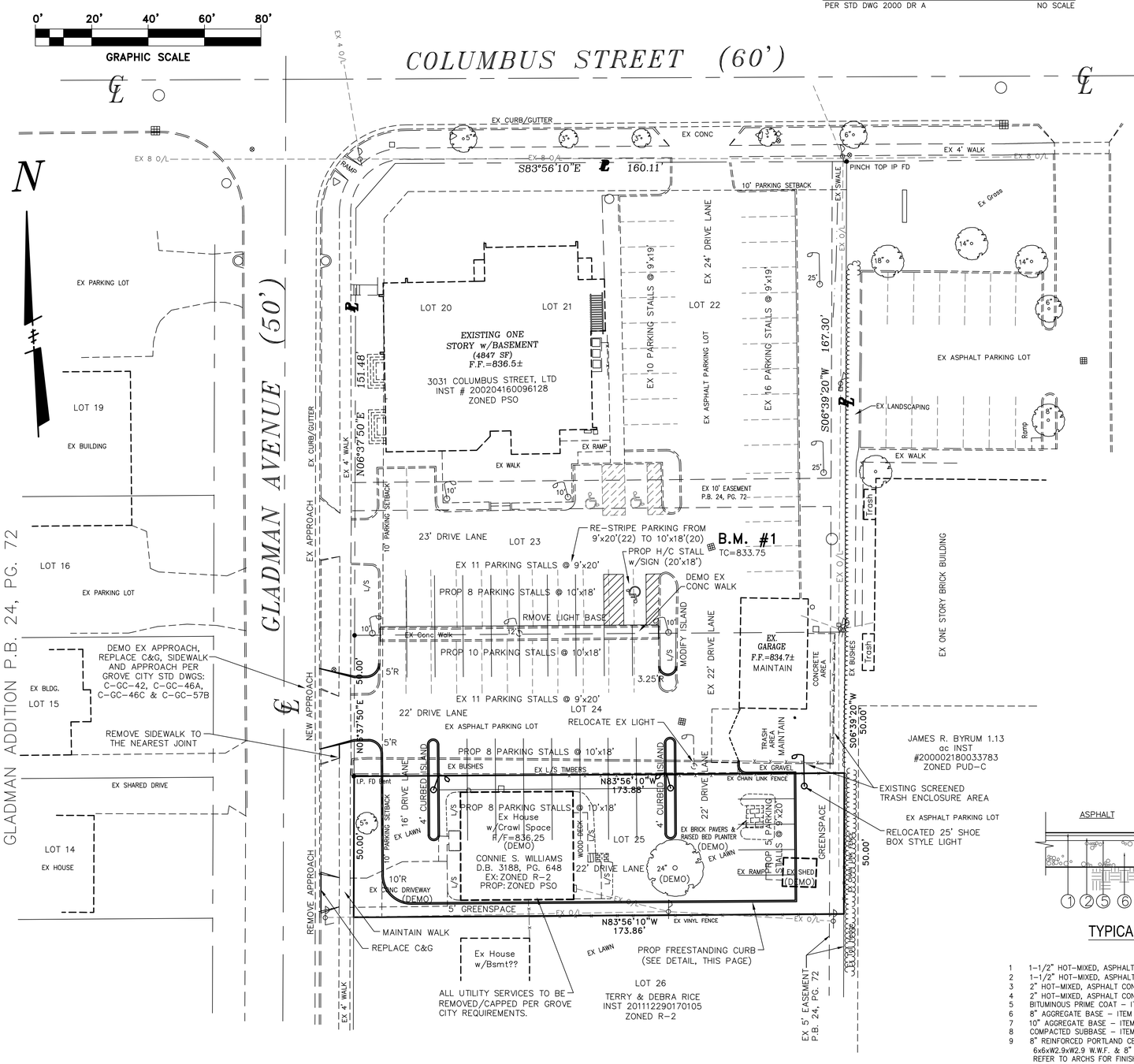
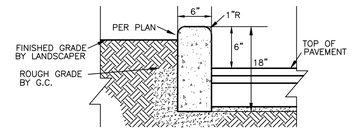




NOTE:
PROVIDE EXPANSION JOINTS @ 20'0" O.C. (MAX)

PROPOSED 6"x18" FREESTANDING CURB

PER STD DWG 2000 DR A — NO SCALE

SITE PLAN NOTES

1. ALL DIMENSIONS AND RADII ARE GIVEN TO EDGE OF PAVEMENT, UNLESS OTHERWISE NOTED.

2. ALL DIMENSIONS SHOWN ON THE PLANS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER IF ANY DISCREPANCIES EXIST, PRIOR TO PROCEEDING WITH CONSTRUCTION FOR NECESSARY PLAN CHANGES, NO EXTRA COMPENSATION SHALL BE PAID TO THE CONTRACTOR FOR WORK HAVING TO BE REDONE DUE TO DIMENSIONS SHOWN INCORRECTLY ON THESE PLANS, IF SUCH NOTIFICATION IS NOT GIVEN.

3. ALL EXTERIOR SITE SPECIFIC PORTLAND CONCRETE CEMENT SHALL MEET THE LATEST EDITION OF THE DEPARTMENT OF TRANSPORTATION SPECIFICATIONS FOR CURING AND INSTALLATION. THE MINIMUM PCC ALLOWED IS 3000 P.S.I. AT 28 DAY, WITH AIR ENTRAINMENT MEETING THE DOT REQUIREMENTS.

4. ALL EXTERIOR CURB SHALL HAVE EXPANSION JOINTS AT 100' OC. AND CONTROL JOINTS AT 10' OC. ALL EXTERIOR WALKS SHALL HAVE EXPANSION JOINTS AT 20' OC AND CONTROL JOINTS AT 5' OC. UNLESS SPECIFIED OTHERWISE.

5. CONTRACTOR SHALL ADJUST AND/OR SAWCUT EXISTING PAVEMENT AS REQUIRED TO PROVIDE A CLEAN, SMOOTH ABUTMENT AND GRADE. CONTRACTOR SHALL HOT TAR SEAL ALL PAVEMENT CUTS TO ASSURE A SMOOTH FIT AND CONTINOUS GRADE.

6. REFER TO LANDSCAPE PLAN FOR PROPOSED TREE AND SHRUB DETAILS AND SPECIFICATIONS.

PARKING TABULATION

EXISTING:

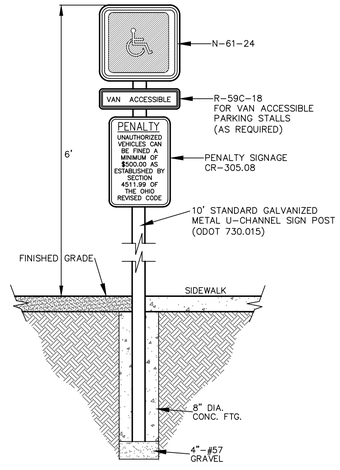
26	9'x19' STALLS
22	9'x20' STALLS (TO BE RE-STRIPED)
2	10'x18" STALLS
2 H/C	18'x30' (TOTAL)
52	TOTAL PARKING STALLS

PARKING PER THIS IMPROVEMENT:

-22	REMOVE EX 9'x20' STALLS
18	RE-STRIPE TO 10'x18'
1	RE-STRIPE H/C STALL 20'x18'
5	9'x20' STALLS
16	10'x18' STALLS

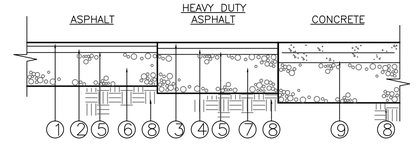
TOTALS:

26	9'x19' STALLS
5	9'x20' STALLS
36	10'x18' STALLS
3 H/C	18'x30' (TOTAL)
70	TOTAL PARKING STALLS



HANDICAPPED PARKING SIGN

NO SCALE



TYPICAL PAVEMENT SECTIONS

NO SCALE

1 1-1/2" HOT-MIXED, ASPHALT CONCRETE SURFACE COURSE, H.D. (PG 70-22M) ITEM 448, TYPE I
2 1-1/2" HOT-MIXED, ASPHALT CONCRETE INTERMEDIATE COURSE, H.D. (PG 64-22) ITEM 448, TYPE I
3 2" HOT-MIXED, ASPHALT CONCRETE SURFACE COURSE, H.D. (PG 70-22M) ITEM 448, TYPE 2
4 2" HOT-MIXED, ASPHALT CONCRETE INTERMEDIATE COURSE, H.D. (PG 64-22) ITEM 448, TYPE 2
5 BITUMINOUS PRIME COAT - ITEM 408, 0.35 GAL. PER SQ. YD.
6 8" AGGREGATE BASE - ITEM 304
7 10" AGGREGATE BASE - ITEM 304
8 COMPACTED SUBBASE - ITEM 204
9 8" REINFORCED PORTLAND CEMENT CONCRETE - ITEM 451 WITH 6x6xW2.9xW2.9 W.W.F. & 8" COMPACTED GRAVEL BASE REFER TO ARCHS FOR FINISHES.

NOTE
THESE PAVEMENT SECTIONS WERE NOT DERIVED FROM ANY GEOTECHNICAL REPORT OR PAVEMENT DESIGN BY A SOILS ENGINEER. THE SECTIONS SHOWN SHOULD BE REVIEWED AND VERIFIED BY THE SOILS ENGINEER AND THE OWNERS.

REV:	DATE:	DESCRIPTION:	BY:
A	12-2-14	PRELIMINARY REVIEW	LHBJ
B	12-16-14	GROVE CITY REVIEW SET	LHBJ
C	1-14-15	ADDED ISLANDS & H/C COUNT PER CITY	LHBJ
D	2-26-15	PROPOSED LIGHT POLE LOCATIONS	MAH

CALCULATED SEI
CHECKED MAH

DEVELOPMENT PLAN

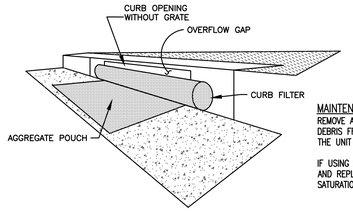
SITE ENGINEERING — Incorporated — Civil Engineers & Surveyors

Development Plans For:
GROVE CITY FAMILY DENTISTRY
4068 GLADMAN AVENUE - GROVE CITY, OHIO

NOV 2014
1"=20'
SEI#3044

3 / 5

SITE ENGINEERING, INC. — 7453 EAST MAIN STREET — REYNOLDSBURG, OHIO 43068 — PHONE: (614) 759-9900

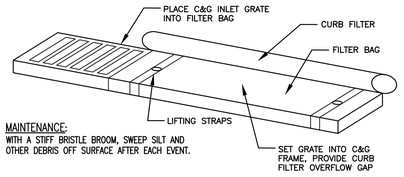


MAINTENANCE:
REMOVE ALL ACCUMULATED SEDIMENT AND DEBRIS FROM THE SURFACE AND VICINITY OF THE UNIT AFTER EACH STORM EVENT.

IF USING OPTIONAL OIL ABSORBENTS, REMOVE AND REPLACE ABSORBENTS WHEN THEY NEAR SATURATION.

CURB INLET PROTECTION WITHOUT GRATE

NO SCALE C



MAINTENANCE:
WITH A STIFF BRISTLE BROOM, SWEEP SILT AND OTHER DEBRIS OFF SURFACE AFTER EACH EVENT.

CURB INLET PROTECTION WITH GRATE

NO SCALE C

SITE STORMWATER DATA

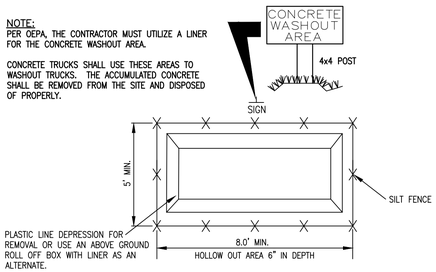
(SEE STORMWATER CALCULATIONS FOR ADDITIONAL DATA)

STORM EVENT (yr)	PRE DISCHARGE RATE (cfs)	POST DISCHARGE RATE (cfs)	POST PONDING VOLUME (CB-2A)	POST PONDING ELEVATION (CB-2A)	POST PONDING VOLUME (CB-2)	POST PONDING ELEVATION (CB-2)	POST PONDING VOLUME (TOTAL)
1	0.85	0.60	69 CF	834.06	621 CF	834.25	690 CF
2	0.99	0.60	100 CF	834.09	722 CF	834.29	822 CF
5	1.58	0.61	255 CF	834.19	1140 CF	834.43	1395 CF
10	1.89	0.62	343 CF	834.24	1361 CF	834.50	1704 CF
*25	2.35	0.62	494 CF	834.30	1685 CF	834.58	2179 CF
50	2.67	0.63	597 CF	834.33	1907 CF	834.64	2504 CF
100	2.83	0.63	652 CF	834.35	2015 CF	834.66	2667 CF
					EOR ELEV	834.75	

*25YR = CRITICAL STORM

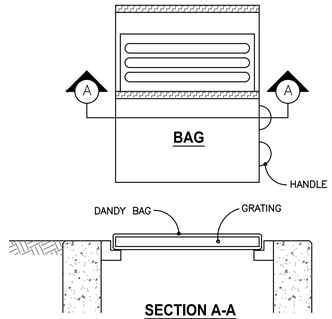
NOTE:
PER OEPA, THE CONTRACTOR MUST UTILIZE A LINER FOR THE CONCRETE WASHOUT AREA.

CONCRETE TRUCKS SHALL USE THESE AREAS TO WASHOUT TRUCKS. THE ACCUMULATED CONCRETE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF PROPERLY.



CONCRETE WASHOUT AREA

NO SCALE D



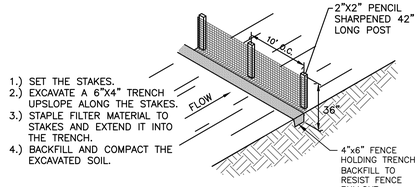
INSTALLATION: STAND GRATE ON END. PLACE THE BAG OVER GRATE. FLIP GRATE OVER SO THAT OPEN END IS UP. PULL UP SLACK. TUCK FLAP IN. BE SURE END OF GRATE IS COMPLETELY COVERED BY FLAP OR THE BAG WILL NOT FIT PROPERLY. HOLDING HANDLES, CAREFULLY PLACE THE BAG WITH GRATE INSERTED INTO CATCH BASIN FRAME.

MAINTENANCE: WITH A STIFF BRISTLE BROOM OR A SQUARE POINT SHOVEL, REMOVE SILT AND OTHER DEBRIS OFF OF THE SURFACE AFTER EACH EVENT.

CATCH BASIN PROTECTION

NO SCALE B

FABRIC PROPERTIES	VALUES	TEST METHOD
GRAB TENSILE STRENGTH	90 LB MIN	ASTM 1682
MULLEN BURST STRENGTH	190 PSI MIN	ASTM 3786
SLURRY FLOW RATE	0.3 GAL/MIN/FT^2 MAX	
EQUIVALENT OPENING SIZE	40-80	US STD SIEVE CW-02215
ULTRAVIOLET RADIATION STABILITY	90% MIN	ASTM-G-26



1.) SET THE STAKES.
2.) EXCAVATE A 6"X4" TRENCH UPSLOPE ALONG THE STAKES.
3.) STAPLE FILTER MATERIAL TO STAKES AND EXTEND IT INTO THE TRENCH.
4.) BACKFILL AND COMPACT THE EXCAVATED SOIL.

SEDIMENT FENCE DETAIL

NO SCALE A

SILT FENCE THIS SEDIMENT BARRIER UTILIZES STANDARD STRENGTH OR EXTRA STRENGTH SYNTHETIC FILTER FABRICS. IT IS DESIGNED FOR SITUATIONS IN WHICH ONLY SHEET OR OVERLAND FLOWS ARE EXPECTED.

MATERIAL PROPERTIES ARE THE HEIGHT OF A SILT FENCE SHALL NOT EXCEED 36 INCHES (HIGHER FENCES MAY IMPOUND VOLUMES OF WATER SUFFICIENT TO CAUSE FAILURE TO THE STRUCTURE).

THE FILTER FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID THE USE OF JOINTS. WHEN JOINTS ARE NECESSARY FILTER CLOTH SHALL BE SPLICED TOGETHER ONLY AT A SUPPORT POST WITH A MINIMUM OF A 6-INCH OVERLAP AND SECURELY SEALED.

POSTS SHALL BE SPACED A MAXIMUM OF 10 FEET APART AT THE BARRIER LOCATION AND DRIVEN SECURELY INTO THE GROUND (MINIMUM OF 12 INCHES). WOOD POSTS WILL BE A MINIMUM OF 32 INCHES LONG. WHEN EXTRA STRENGTH FABRIC IS USED WITHOUT THE WIRE SUPPORT FENCE, POST SPACING SHALL NOT EXCEED 6 FEET.

A TRENCH SHALL BE EXCAVATED APPROXIMATELY 4 INCHES WIDE AND 6 INCHES DEEP ALONG THE LINE OF POSTS AND UPSLOPE FROM THE BARRIER.

WHEN STANDARD STRENGTH FILTER FABRIC IS USED, A WIRE MESH SUPPORT FENCE SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POST USING HEAVY DUTY WIRE STAPLES AT LEAST ONE INCH LONG, TIE WIRES OR HOG RINGS. THE WIRE SHALL EXTEND INTO THE TRENCH A MINIMUM OF TWO INCHES AND SHALL NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE.

THE STANDARD STRENGTH FILTER FABRIC SHALL BE STAPLED OR WIRED TO THE FENCE, AND 8 INCHES OF THE FABRIC SHALL BE EXTENDED INTO THE TRENCH. THE FABRIC SHALL NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE. FILTER FABRIC SHALL NOT BE STAPLED TO EXISTING TREES.

WHEN EXTRA STRENGTH FILTER FABRIC AND CLOSER POST SPACING ARE USED THE WIRE MESH SUPPORT FENCE MAY BE ELIMINATED. IN SUCH A CASE, THE FILTER FABRIC IS STAPLED OR WIRED DIRECTLY TO THE POSTS WITH ALL OTHER PROVISIONS OF ITEM NO. 6 APPLYING.

THE TRENCH SHALL BE BACKFILLED AND SOIL COMPACTED OVER THE FILTER FABRIC. SILT FENCES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED.

SILT FENCES AND FILTER BARRIERS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.

TO PREVENT WATER PONDING BY THE SILT FENCE FROM FLOWING AROUND THE ENDS, EACH END SHALL BE CONSTRUCTED UPSLOPE SO THAT THE ENDS ARE AT A HIGHER ELEVATION.

MAINTENANCE

SHOULD THE FABRIC ON A SILT FENCE OR FILTER BARRIER DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER IS STILL NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY.

SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.

ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE OR FILTER BARRIER IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM WITH THE EXISTING GRADE PREPARED AND SEEDED.

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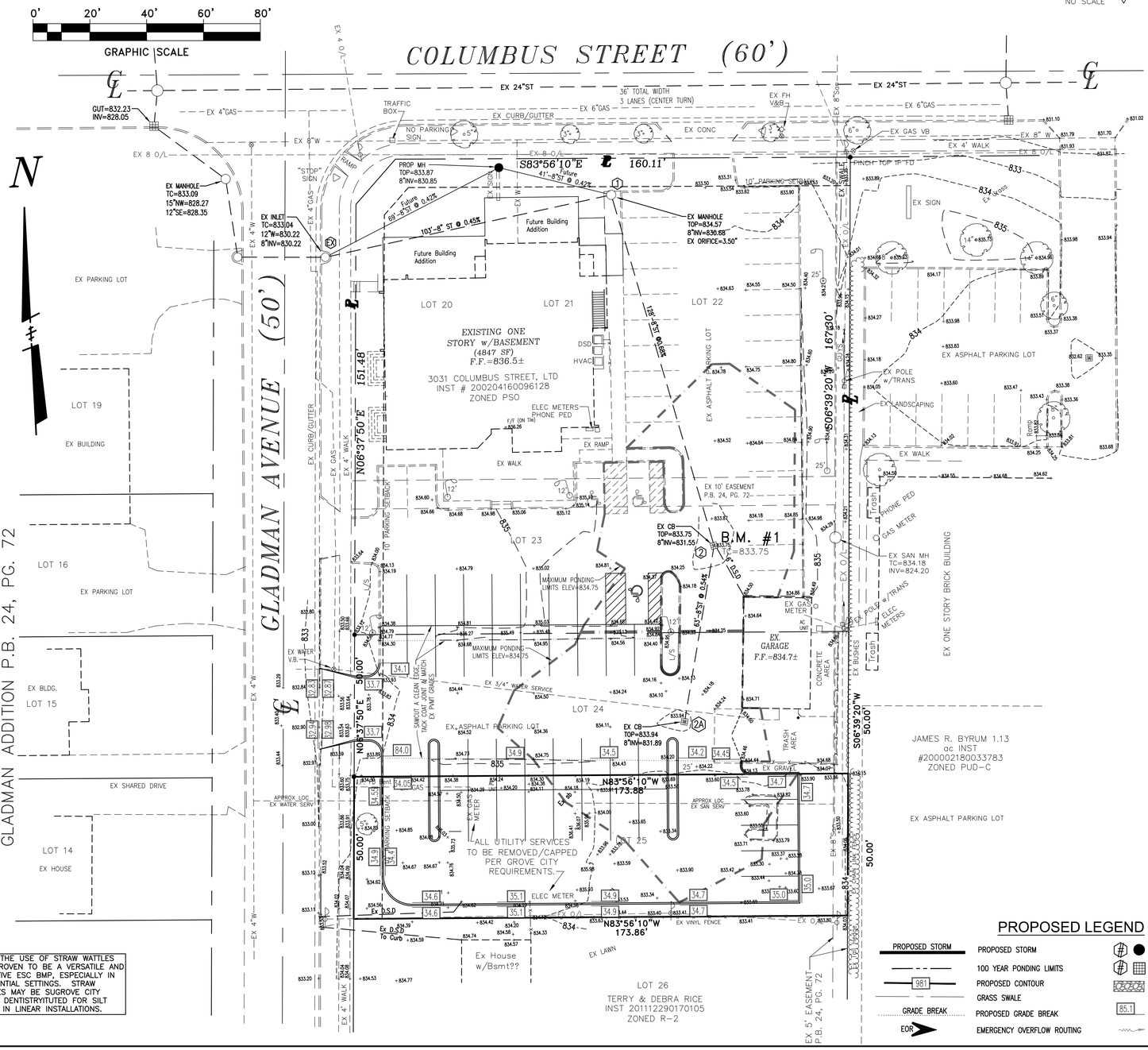


NOTE: THE USE OF STRAW WATTLES HAS PROVEN TO BE A VERSATILE AND EFFECTIVE ESC BMP, ESPECIALLY IN RESIDENTIAL SETTINGS. STRAW WATTLES MAY BE SUGROVE CITY FAMILY DENTISTRYITUTED FOR SILT FENCE IN LINEAR INSTALLATIONS.

GENERAL NOTES

1. ALL ELEVATIONS SHOWN ARE IN REFERENCE TO THE BENCHMARK AND MUST BE VERIFIED BY THE GENERAL CONTRACTOR AT GROUND BREAK.

2. ALL LANDSCAPE AREAS SHALL BE ROUGH GRADED TO 6" BELOW TOP OF ALL WALKS AND EDGE OF PAVEMENT. FINISH GRADING, LANDSCAPING, AND SPRINKLER SYSTEMS ARE BY THE OWNER/OPERATOR.

3. H/C PARKING NOTES:
ALL GRADES SHOWN ON H/C PARKING AREAS MUST BE MAINTAINED.
PARKING-1:50 (2%) SLOPE MAX. IN ALL DIRECTIONS
ACCESS ROUTE- 1:20 (5%) RUNNING SLOPE MAX. 1:50 (2%) CROSS SLOPE MAX.

4. SEE LANDSCAPE PLAN FOR PLACEMENT AND TYPE.

GRADING NOTES

1. ALL SPOT ELEVATIONS SHOWN IN BOXES (35.5) ARE PROPOSED FINISHED GRADES, NOT SUB-BASE GRADES.

2. ADD 800 TO ALL SPOT ELEVATIONS SHOWN IN BOXES.

3. THE CONTRACTOR SHALL NOTIFY THE OHIO UTILITY PROTECTION SERVICE (800-362-2764) 48 HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION.

4. PRIOR TO ANY CONSTRUCTION AND GRADING OPERATIONS THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION AND DEPTH OF ALL UTILITIES THE CONTRACTOR SHALL NOTIFY THE ENGINEER IF THE EXISTING UTILITIES MAY BE IN CONFLICT WITH THE PROPOSED CONSTRUCTION.

5. FIELD CONTROL IS TO BE MAXIMIZED IN THE GRADING OF AREAS WITH A SLOPE OF LESS THAN 1.5% TO MINIMIZE THE OCCURANCE OF UNWANTED PONDING.

6. UNLESS OTHERWISE SPECIFIED IN THE PLANS, SPECIFICATIONS, OR SOILS REPORT, THE SITE GRADING, EXCAVATION AND EMBANKMENT SHALL BE IN ACCORDANCE WITH THE STATE DEPARTMENT OF TRANSPORTATION AND MATERIAL SPECIFICATIONS.

7. ALL EXCAVATED OR FILLED AREAS SHALL BE COMPACTED IN ACCORDANCE WITH THE PLANS AND SPECS AND THE RECOMMENDATIONS SET FORTH IN THE SOILS REPORT (IF ONE IS AVAILABLE). NOTIFY PROJECT ENGINEER IF ANY UNSUITABLE SOILS ARE FOUND.

8. ALL DIMENSIONS AND GRADES SHOWN ON THE PLANS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. IF ANY DISCREPANCIES EXIST PRIOR TO PROCEEDING WITH CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY CONSTRUCTION MANAGER FOR NECESSARY PLAN OR GRADE CHANGES.

9. CONTRACTOR SHALL PROVIDE BUTT END JOINTS TO MEET EXISTING PAVEMENT IN ELEVATION AT DRIVE RETURNS AND ENSURE POSITIVE DRAINAGE. BUTT END JOINTS BETWEEN EXISTING AND PROPOSED ASPHALT SHALL HAVE A HOT TAR SEAL JOINT.

SEDIMENT & SOIL EROSION LEGEND

(SEE SHEET #5 FOR ALL BMP PLAN LOCATIONS)

A : SEDIMENT FENCE
B : CATCH BASIN PROTECTION
C : CURB INLET PROTECTION
D : CONCRETE WASHOUT AREA
E : FUEL STORAGE AND DUMPSTER
F : STORAGE/MIXING COMPOUNDS

PROPOSED LEGEND

PROPOSED STORM — PROPOSED STORM
100 YEAR PONDING LIMITS
981 — PROPOSED CONTOUR
GRASS SWALE
GRADE BREAK — PROPOSED GRADE BREAK
EOR — EMERGENCY OVERFLOW ROUTING
PROP STORM MANHOLE
PROP CATCH BASIN
ROCK CHANNEL PROTECTION
85.1 — PROPOSED SPOT ELEVATION (ADD 900 TO SPOT SHOT)
DRAINAGE ARROW

BENCH MARKS

NAVD 88 DATUM

SOURCE BENCH MARK, ELEVATION OBTAINED USING TOPCON RTK GPS EQUIPMENT AND OHIO DEPARTMENT OF TRANSPORTATION CORS/VRS NETWORK, NAVD 1988.

BENCH MARK #1 ~TOP OF CASTING ON STORM CATCH BASIN, LOCATED 150' EAST OF GLADMAN AVE. AND 166' SOUTH OF COLUMBUS STREET. ELEV=833.75

REV:	DATE:	DESCRIPTION:	BY:
A	12-2-14	PRELIMINARY REVIEW	LHBJ
B	12-16-14	GROVE CITY REVIEW SET	LHBJ
C	1-14-15	ADDED ISLANDS & H/C COUNT PER CITY	LHBJ

CALCULATED: SEI
CHECKED: MAH

SITE ENGINEERING, INC. — 7453 EAST MAIN STREET — REYNOLDSBURG, OHIO 43068 — PHONE: (614) 759-9900

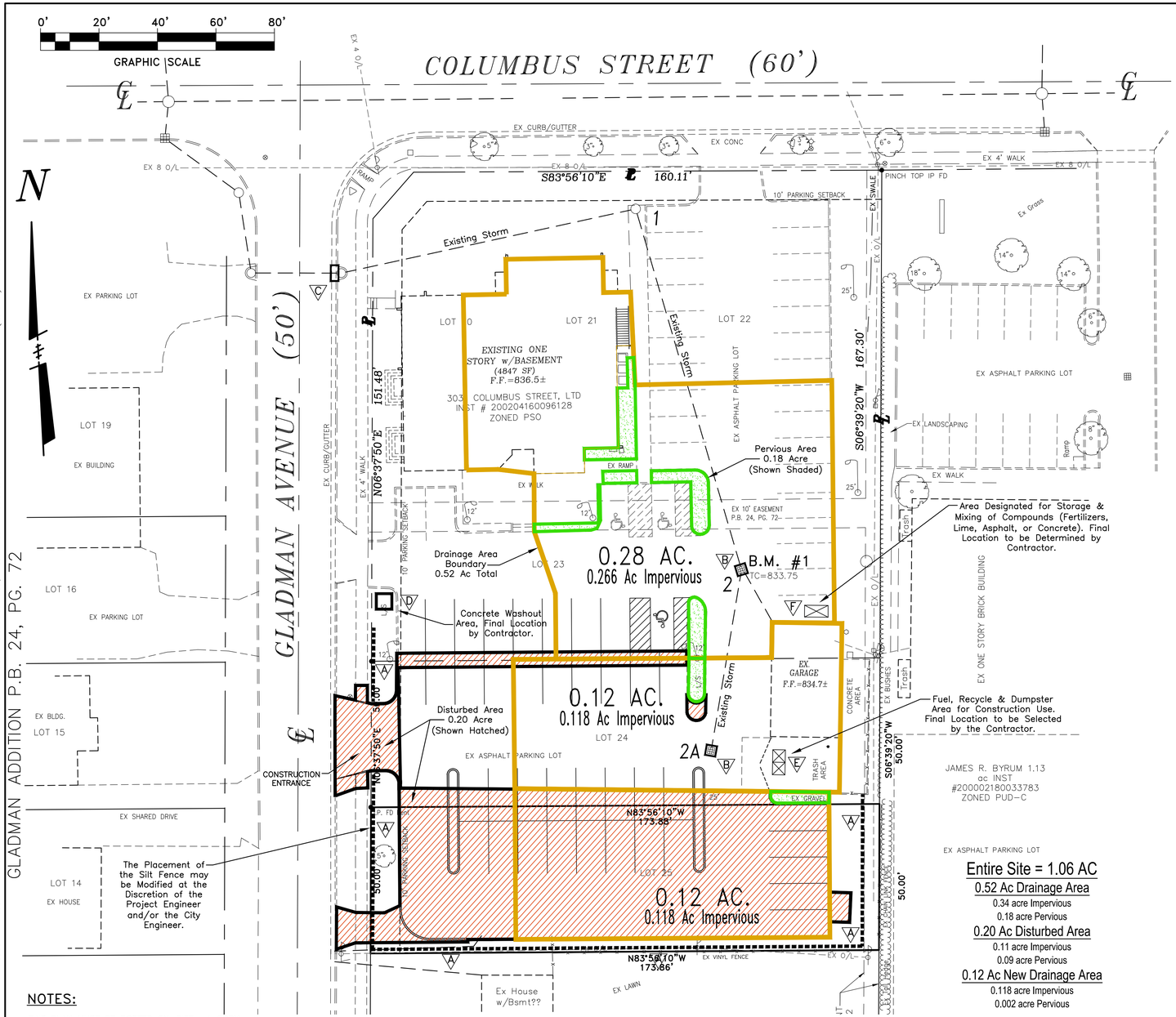
SITE ENGINEERING — Incorporated — Civil Engineers & Surveyors

SITE GRADING PLAN

Development Plans For:
GROVE CITY FAMILY DENTISTRY
4068 GLADMAN AVENUE - GROVE CITY, OHIO

NOV 2014
1"=20'
SEI#3044

4 / 5



GLADMAN ADDITION P.B. 24, PG. 72 — REYNOLDSBURG, OHIO 43068 — PHONE: (614) 759-9900

SITE ENGINEERING, INC. — 7453 EAST MAIN STREET — REYNOLDSBURG, OHIO 43068 — PHONE: (614) 759-9900

NOTES:

THIS PLAN MUST BE POSTED ON-SITE. A COPY OF THE SWPP PLAN AND THE APPROVED EPA STORMWATER PERMIT (WITH THE SITE SPECIFIC NOI NUMBER) SHALL BE KEPT ON-SITE AT ALL TIMES.

MODIFICATIONS TO EROSION AND SEDIMENT CONTROLS MAY BE REQUIRED AS IDENTIFIED BY THE DESC INSPECTOR.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ON-SITE DRAINAGE AT ALL TIMES DURING CONSTRUCTION. NO SEPARATE PAYMENT SHALL BE MADE FOR MAINTAINING DRAINAGE.

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SEDIMENT & SOIL EROSION LEGEND

(SEE SHEET #4 FOR BMP DETAILS)

- A : SEDIMENT FENCE
- B : CATCH BASIN PROTECTION
- C : CURB INLET PROTECTION
- D : CONCRETE WASHOUT AREA
- E : FUEL STORAGE AND DUMPSTER
- F : STORAGE/MIXING COMPOUNDS

STORMWATER DATA

PRE-DEVELOPED DRAINAGE AREA:	0.12 ACRE
IMPERVIOUS AREA:	0.033 ACRE
CURVE NUMBER:	83
AREA DESCRIPTION:	RESIDENTIAL, ¼ AC
SOIL CLASSIFICATION:	CsA,CsB-CROSBY
HYDROLOGIC GROUP:	C
POST DEVELOPED DRAINAGE AREA:	0.12 ACRE
IMPERVIOUS AREA:	0.002 AREA
CURVE NUMBER:	97
AREA DESCRIPTION:	GRASS, PAVEMENT

CONSTRUCTION SEQUENCE

INSTALL REQUIRED SEDIMENT FENCE & INLET PROTECTION AS SHOWN.

PROCEED WITH CUT AND FILL OPERATIONS, MAINTAIN THE PROPOSED SEDIMENT FENCE & INLET PROTECTION.

CONSTRUCT PROPOSED ASPHALT AND CURB WORK.

INSPECT BMP'S WEEKLY OR WITHIN 24 HOURS AFTER EVERY RAIN EVENT OF 0.5 INCHES WITHIN A 24 HOUR PERIOD TO INSURE BMP'S PROPER FUNCTION.

CLEAN AND DISPOSE OF SEDIMENT/DEBRIS IN AND AROUND THE BMP'S IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS.

FINISH GRADE, THEN STABILIZE THE DISTURBED AREAS PER TEMPORARY AND PERMANENT SEEDING REQUIREMENTS.

REMOVE STORM SEWER INLET PROTECTION, AND SEDIMENT FENCE.

INSPECT AND CLEAN EXISTING STORM WATER SYSTEM, AS REQUIRED.

INSPECT BMP PERFORMANCE WITH THE APPROVED MAINTENANCE SCHEDULE.

POST CONSTRUCTION MAINTENANCE

PERIODIC INSPECTIONS OF THE STORM WATER CONTROL FACILITY AND ITS APPURTENANCES SHALL BE COMPLETED EVERY 3 MONTHS AND AFTER EVERY HEAVY RAIN EVENT.

MAINTENANCE WILL INCLUDE A VISUAL INSPECTION OF THE CATCH BASINS. THE REMOVAL OF ALL SEDIMENT BUILDUP AND IF ANY STRUCTURAL FAILURE IS FOUND, IT SHALL BE REPAIRED.

ANY POLLUTANTS AND/OR SEDIMENTS RECOVERED SHALL BE DISPOSED OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS.

INSPECTIONS SHALL INCLUDE A DATED AND SIGNED INSPECTION CHECKLIST AND SHALL PROVIDED THE NOTATION OF ALL DEFICIENCIES OBSERVED DURING THE INSPECTION.

THE PROPERTY OWNER SHALL MAINTAIN COPIES OF COMPLETE DATED AND SIGNED INSPECTION CHECKLISTS OF MAINTENANCE ACTIVITIES PERFORMED BY PROPERTY OWNER TO REMEDY THE DEFICIENCIES OBSERVED DURING PRIOR INSPECTIONS.

THE MAINTENANCE INSPECTION LOG SHALL BE KEPT ON THE PROPERTY OR PROPERTY'S OFFICE AND SHALL BE MADE AVAILABLE TO THE CITY UPON REQUEST.

THE PROPERTY OWNER, ITS ADMINISTRATORS, EXECUTORS, SUCCESSORS, HEIRS OR ASSIGNS SHALL BE RESPONSIBLE FOR SELECTING AND TRAINING THE INDIVIDUALS WHO SHALL BE RESPONSIBLE FOR THESE INSPECTIONS AND MAINTENANCE AND REPAIR ACTIVITIES.

SWPP GENERAL NOTES

CONTRACTOR RESPONSIBILITY: DETAILS HAVE BEEN PROVIDED ON THE PLANS IN AN EFFORT TO HELP THE CONTRACTOR PROVIDE EROSION AND SEDIMENTATION CONTROL. THE DETAILS SHOWN ON THE PLAN SHALL BE CONSIDERED A MINIMUM. ADDITIONAL OR ALTERNATE DETAILS MAY BE FOUND IN THE O.D.N.R. MANUAL 'RAINWATER AND LAND DEVELOPMENT.' THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR PROVIDING NECESSARY AND ADEQUATE MEASURES FOR PROPER CONTROL OF EROSION AND SEDIMENT RUNOFF FROM THE SITE ALONG WITH PROPERTY MAINTENANCE AND INSPECTION IN COMPLIANCE WITH NPDES GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY.

ONLY QUALIFIED INSPECTION PERSONNEL SHALL PERFORM THE INSPECTIONS. THE INSPECTION CHECKLIST WILL BE COMPLETED AND SIGNED BY THE INSPECTOR AFTER EVERY INSPECTION.

THE INSPECTION REPORTS SHALL BE KEPT FOR 3 YEARS AFTER THE TERMINATION OF THE CONSTRUCTION ACTIVITIES.

PRIOR TO CONSTRUCTION OPERATIONS IN A PARTICULAR AREA, ALL SEDIMENTATION AND EROSION CONTROL FEATURES SHALL BE IN PLACE. FIELD ADJUSTMENTS WITH RESPECT TO LOCATION AND DIMENSIONS MAY BE MADE BY THE ENGINEER.

THE CONTRACTOR SHALL PLACE INLET AND CHANNEL PROTECTION FOR EROSION CONTROL IMMEDIATELY AFTER CONSTRUCTION OF THE INLETS OR CHANNELS WHICH ARE NOT TRIBUTARY TO A SEDIMENT BASIN OR DAM.

IT MAY BECOME NECESSARY TO REMOVE PORTIONS OF THE BARRIER DURING CONSTRUCTION TO FACILITATE THE GRADING OPERATIONS IN CERTAIN AREAS. HOWEVER, THE BARRIER SHALL BE IN PLACE IN THE EVENING OR DURING ANY INCLEMENT WEATHER.

INSTALLATION AND IMPLEMENTATION OF SEDIMENT CONTROLS SHALL OCCUR WITHIN 7 DAYS OF GRUBBING ACTIVITIES.

BMP'S THAT REQUIRE REPAIR OR MAINTENANCE: NON-SEDIMENT POND BMP'S SHALL BE REPAIRED WITHIN 3 DAYS OF INSPECTION AND SEDIMENT PONDS ARE TO BE REPAIRED OR CLEANED OUT WITHIN 10 DAYS OF INSPECTION.

BMP'S THAT ARE MISSING OR NOT MEETING THE INTENDED FUNCTION SHALL HAVE A REPLACEMENT BMP INSTALLED WITHIN 10 DAYS OF INSPECTION.

FOR DISTURBED AREAS WITHIN 50 FEET OF A STREAM, REMAINING DORMANT FOR OVER 14 DAYS, WILL RECEIVE TEMPORARY EROSION CONTROLS WITHIN 2 DAYS. AFTER FINAL GRADE IS REACHED, THE PERMANENT EROSION CONTROLS SHALL BE PLACED WITHIN 2 DAYS.

FOR DISTURBED AREAS OVER 50 FEET OF A STREAM, REMAINING DORMANT FOR OVER 14 DAYS, WILL RECEIVE TEMPORARY EROSION CONTROLS WITHIN 7 DAYS.

FOR DISTURBED AREAS THAT WILL BE DORMANT FOR MORE THAN A YEAR, PERMANENT EROSION CONTROLS SHALL BE APPLIED WITHIN 7 DAYS. FOR DISTURBED AREAS THAT WILL BE LEFT IDLE OVER WINTER, EROSION CONTROLS SHALL BE APPLIED PRIOR TO THE ONSET OF WINTER WEATHER.

IF THE SITE IS DORMANT FOR A LONG PERIOD, IT'S STABILIZED AND LESS FREQUENT INSPECTIONS ARE DESIRED, A WAIVER REQUEST IS TO BE SUBMITTED TO OEPA FOR A REDUCTION TO THE MONTHLY INSPECTIONS.

THE LIMITS OF SEEDING AND MULCHING ARE AS DETERMINED BY SITE DISTURBANCE. ANY AREAS DISTURBED OUTSIDE THE SITE LIMITS SHALL BE SEEDED AND MULCHED AT THE CONTRACTOR'S EXPENSE.

'TEMPORARY SEEDING' NO AREA FOR WHICH GRADING HAS BEEN COMPLETED OR WHERE A DENUDED AREA WILL REMAIN IDLE FOR MORE THAN 14 DAYS SHALL BE LEFT UNSEEDED FOR LONGER THAN 7 DAYS. IF PERMANENT SEED IS NOT APPLIED AT THIS TIME, TEMPORARY SEEDING SHALL BE DONE AT THE FOLLOWING RATES:

MARCH 1 TO SEPTEMBER 15

SEED: OATS	2 LBS./1,000 S.F.
FERTILIZER: (12: 12:12)	25 LBS./1,000 S.F.
MULCH: (STRAW OR HAY)	2 TONS/ACRE

SEPTEMBER 15 TO NOVEMBER 1:

SEED: ANNUAL RYE	2 LBS./1,000 S.F.
FERTILIZER: (12: 12:12)	25 LBS./1,000 S.F.
MULCH: (STRAW OR HAY)	2 TONS/ACRE

NOVEMBER 1 TO MARCH 1:

MULCH (ONLY): STRAW OR HAY	2 TONS/ACRE

"PERMANENT SEEDING" SHALL BE DONE BETWEEN MARCH 15 AND SEPTEMBER 15. IF SEEDING IS DONE BETWEEN SEPTEMBER 15 AND MARCH 15, IT SHALL BE CLASSIFIED AS 'TEMPORARY SEEDING.' PERMANENT SEED SHALL BE 40% KENTUCKY BLUEGRASS, 40% CREEPING RED FESCUE, 20% ANNUAL RYEGRASS. PERMANENT SEEDING SHALL CONSIST OF FERTILIZING, WATER AND SEEDING RATES INDICATED UNDER ITEM 659. SEEDING SHALL BE APPLIED WITHIN TWO (2) DAYS AFTER FINAL GRADING OR FOLLOWING SEED BED PREPARATION.

RATES OF APPLICATION OF ITEM 659:

SEED	4 LBS./1,000 S.F.
FERTILIZER: (12: 12: 12)	20 LBS./1,000 S.F.
MULCH: STRAW (HAY)	2 TONS/ACRE (3 TONS/ACRE)

MAINTENANCE: IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN THE SEDIMENT CONTROL FEATURES USED ON THIS PROJECT. THE SITE SHALL BE INSPECTED PERIODICALLY AND WITHIN 24 HOURS OF A SIGNIFICANT RAINFALL. RECORDS OF THESE INSPECTIONS SHALL BE KEPT AND MADE AVAILABLE TO JURISDICTIONAL AGENCIES IF REQUESTED. ANY SEDIMENT OR DEBRIS WHICH HAS REDUCED THE EFFICIENCY OF A STRUCTURE SHALL BE REMOVED IMMEDIATELY. SHOULD A STRUCTURE OR FEATURE BECOME DAMAGED, THE CONTRACTOR SHALL REPAIR OR REPLACE AT NO ADDITIONAL COST TO THE OWNER. NOT ALL DETAILS SHOWN ON THIS SHEET MAY BE REQUIRED FOR THIS PROJECT. REFERENCE SEDIMENT CONTROL PLAN.

THE COST FOR TEMPORARY CHANNELS, SEDIMENT DAMS, SEDIMENT BASINS, AND OTHER APPURTENANT EARTHMOVING OPERATIONS SHALL BE INCLUDED IN THE PRICE BID FOR EROSION AND SEDIMENTATION CONTROL QUANTITIES.

THE CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE THAT OFF-SITE TRACKING OF SEDIMENTS BY VEHICLES AND EQUIPMENT IS MINIMIZED. ALL SUCH OFF-SITE SEDIMENT SHALL BE CLEANED UP DAILY. CONSTRUCTION OF STABILIZED CONSTRUCTION ENTRANCES ARE A PART OF THAT RESPONSIBILITY.

STREET CLEANING (ON AN AS-NEEDED BASIS) IS REQUIRED THROUGH THE DURATION OF THIS CONSTRUCTION PROJECT. THIS INCLUDES SWEEPING, POWER CLEANING AND (IF NECESSARY) MANUAL REMOVAL OF DIRT OR MUD IN THE STREET GUTTERS.

THE CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE THAT NO SOLID OR LIQUID WASTE IS DISCHARGED INTO STORM WATER RUNOFF. SEDIMENT-LADEN WATER SHALL BE FILTERED THROUGH THE USE OF SEDIMENT FILTERING FENCES OR SEDIMENTATION BASINS PRIOR TO DISCHARGE TO SURFACE WATERS. CONCRETE TRUCKS WILL NOT BE ALLOWED TO WASH OUT OR DISCHARGE SURPLUS CONCRETE INTO OR ALONGSIDE RIVERS, STREAMS, AND CREEKS OR INTO NATURAL OR MAN-MADE CHANNELS OR SWALES LEADING THERETO. CONCRETE TRUCK WASH WATER AND SURPLUS CONCRETE SHALL BE CONFINED TO AREAS APPROVED BY THE ENGINEER; AFTER SOLIDIFYING, THESE WASTE MATERIALS SHALL BE REMOVED FROM THE SITE.

ALL EROSION AND SEDIMENT CONTROL PRACTICES ARE SUBJECT TO FIELD INSPECTIONS.

GENERAL NOTES

CONSTRUCTION DEBRIS MAY BE DISPOSED ON-SITE, BUT DEMOLITION DEBRIS MUST BE DISPOSED IN AN OHIO EPA APPROVED LANDFILL. MATERIALS WHICH CONTAIN ASBESTOS MUST COMPLY WITH AIR POLLUTION REGULATIONS (SEE OHIO ADMINISTRATIVE CODE 3745-20).

ANY CONSTRUCTION DEWATERING REQUIRED ON THE SITE SHALL HAVE THE DISCHARGING WATER PASSING THROUGH A FILTER BAG, SUMP PIT, OR OTHER SEDIMENT REMOVING DEVICE.

ALL CONTAMINATED SOILS MUST BE TREATED AND/OR DISPOSED IN OHIO EPA APPROVED SOLID WASTE MANAGEMENT FACILITIES OR HAZARDOUS WASTE TREATMENT, STORAGE OR DISPOSAL FACILITIES.

IF THE SITE DISCOVERS CONTAMINATED SOILS, ONE OF THE FOLLOWING PRACTICES SHALL BE UTILIZED TO PREVENT THE CONTAMINATION FROM BEING RELEASED:

THE USE OF BERM, TRENCHES AND PITS TO COLLECT CONTAMINATED RUNOFF AND PREVENT DISCHARGES.

PUMPING RUNOFF INTO A SANITARY SEWER (WITH PRIOR APPROVAL OF THE SANITARY SEWER OPERATOR) OR INTO A CONTAINER FOR TRANSPORT TO AN APPROPRIATE TREATMENT/DISPOSAL FACILITY.

COVERING AREAS OF CONTAMINATION WITH TARPS OR OTHER METHODS THAT PREVENT STORM WATER FROM COMING INTO CONTACT WITH THE MATERIAL.

PETROLEUM BASED AND CONCRETE CURING COMPOUNDS MUST HAVE SPECIAL HANDLING PROCEDURES IN PLACE IN THE EVENT OF A SMALL SPILL, 25 GALLONS OR LESS.

IF THE SPILL IS GREATER THAN 25 GALLONS, YOU MUST CONTACT, OHIO EPA (AT 1-800-282-9378), THE LOCAL FIRE DEPARTMENT, AND THE LOCAL EMERGENCY PLANNING COMMITTEE (LEPC) WITHIN 30 MINUTES OF A SPILL.

OPEN BURNING IS PERMITTED IN RESTRICTED AREAS FOR BARBEQUES, HEATING AND CERTAIN OCCUPATIONAL PURPOSES.

OPEN BURNING IN AN UNRESTRICTED AREA IS LIMITED TO SCRAP LUMBER, WOODEN FENCE POSTS, AGRICULTURAL, LAND CLEARING, OR LANDSCAPE WASTES.

USED OIL MAY NOT BE USED AS A DUST SUPPRESSANT.

SWPP CRITERIA

PLAN DESIGNER:	SITE ENGINEERING INC 7453 EAST MAIN STREET REYNOLDSBURG, OHIO 43068 PHONE: (614) 759-9900
OWNER:	3031 COLUMBUS STREET, LTD. 3031 COLUMBUS STREET GROVE CITY, OHIO 43123 (614) 875-2153
ON-SITE CONTACT:	CRAIG OILER (614) 875-2153
START DATE:	03-01-15
COMPLETION DATE:	09-01-15
PROJECT DESCRIPTION:	PROVIDE ALL IMPROVEMENTS FOR THE CONSTRUCTION OF NEW AND/OR REPLACED PAVEMENT FOR ADDITIONAL PARKING. THE WORK AREA IS 0.20 ACRE AND THE PROPOSED IMPROVEMENTS SHALL INCREASE THE IMPERVIOUS AREA BY 0.11 AC. THE COMBINED SITES WILL BE APPROXIMATELY 1.06 ACRES WITH THE LANDSCAPE AREA COMPRISING ABOUT 0.24 ACRE.
EXISTING SITE CONDITIONS:	THE PROPERTY DRAINS TO AN EXISTING 12" STORM SEWER IN THE GLADMAN AVENUE RIGHT-OF-WAY.
RECEIVING STREAM:	WEST WATER RUN
ADJACENT AREAS:	THE PROJECT AREA HAS COMMERCIAL ZONING TO THE EAST & WEST AND RESIDENTIAL TO THE NORTH & SOUTH.
EROSION & SEDIMENT MEASURES:	EROSION AND SEDIMENT WILL BE CONTROLLED BY THE USE OF PERIMETER SEDIMENT FENCE, AND INLET PROTECTION, AS WELL AS CONSTRUCTION TECHNIQUES TO MINIMIZE LAND DISTURBANCE.
PERMANENT STABILIZATION:	ALL DISTURBED AREAS SHALL BE SEEDED AND MULCHED.
MAINTENANCE:	ALL EROSION CONTROL DEVICES ARE TO BE INSPECTED BY THE CONSTRUCTION SUPERINTENDENT DAILY AND AFTER RAINFALLS. ANY DAMAGED FACILITIES ARE TO BE REPLACED/REPAIRED IMMEDIATELY AS MAY BE NECESSARY.
CONSTRUCTION:	THE CONTRACTOR SHALL PROVIDE A SCHEDULE OF OPERATIONS TO THE CITY. SEDIMENTATION AND EROSION CONTROL FEATURES SHALL BE PLACED AND MAINTAINED IN ACCORDANCE WITH THIS SCHEDULE.
DISTURBED AREA:	APPROXIMATELY 0.20 ACRE
GROVE CITY SERVICE SUPERINTENDENT: PHONE:	CINDI FITZPATRICK, P.E. (614) 277-1100

Entire Site = 1.06 AC

0.52 Ac Drainage Area
0.34 acre Impervious
0.18 acre Pervious

0.20 Ac Disturbed Area
0.11 acre Impervious
0.09 acre Pervious

0.12 Ac New Drainage Area
0.118 acre Impervious
0.002 acre Pervious

PERMANENT STABILIZATION

AREAS REQUIRING PERMANENT STABILIZATION	TIME FRAME TO APPLY EROSION CONTROLS
ANY AREAS THAT WILL LIE DORMANT OF ONE YEAR OR MORE	WITHIN SEVEN DAYS OF THE MOST RECENT DISTURBANCE
ANY AREAS WITHIN 50 FEET OF A STREAM AND AT FINAL GRADE	WITHIN TWO DAYS OF REACHING FINAL GRADE
ANY OTHER AREAS AT FINAL GRADE	WITHIN SEVEN DAYS OF REACHING FINAL GRADE WITHIN THAT AREA

TEMPORARY STABILIZATION

AREAS REQUIRING TEMPORARY STABILIZATION	TIME FRAME TO APPLY EROSION CONTROLS
ANY AREAS WITHIN 50 FEET OF A STREAM AND NOT AT FINAL GRADE	WITHIN TWO DAYS OF THE MOST RECENT DISTURBANCE IF THE AREA WILL REMAIN IDLE FOR MORE THAN 14 DAYS
FOR ALL CONSTRUCTION ACTIVITIES, ANY DISTURBED AREAS THAT WILL BE DORMANT FOR MORE THAN 14 DAYS BUT LESS THAN ONE YEAR, AND NOT WITHIN 50 FEET OF A STREAM	WITHIN SEVEN DAYS OF THE MOST RECENT DISTURBANCE WITHIN THE AREA FOR RESIDENTIAL SUBDIVISIONS, DISTURBED AREAS MUST BE STABILIZED AT LEAST SEVEN DAYS PRIOR TO TRANSFER OF PERMIT COVERAGE FOR THE INDIVIDUAL LOT(S).
DISTURBED AREAS THAT WILL BE IDLE OVER WINTER	PRIOR TO THE ONSET OF WINTER WEATHER

INSPECTION DATE	INSPECTOR NAME(S)	DESCRIPTION OF BMP DEFICENCY	CORRECTIVE ACTION NEEDED (INCLUDING PLANNED DATE/RESPONSIBLE PERSON)	DATE ACTION TAKEN/RESPONSIBLE PERSON

CALCULATED: SEI
CHECKED: MAH

REV:	DATE:	DESCRIPTION:	BY:
A	12-2-14	PRELIMINARY REVIEW	LHBJ
B	12-16-14	GROVE CITY REVIEW SET	LHBJ
C	1-14-15	ADDED ISLANDS & H/C COUNT PER CITY	LHBJ

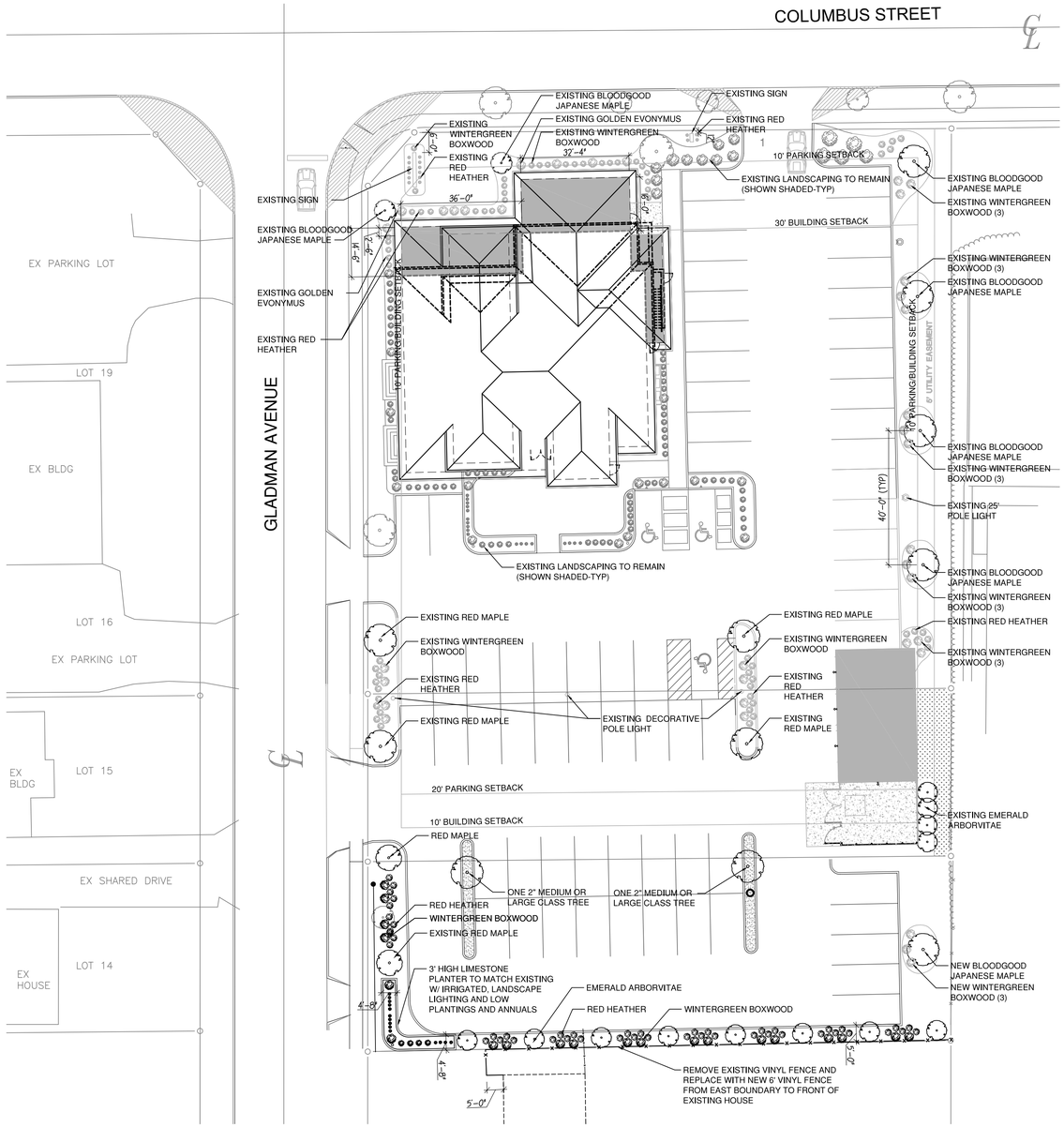
STORMWATER POLLUTION PREVENTION PLAN

SITE ENGINEERING
Civil Engineers & Surveyors
Incorporated

Development Plans For:
GROVE CITY FAMILY DENTISTRY
4068 GLADMAN AVENUE - GROVE CITY, OHIO

NOV 2014
1"=20'
SEI#3044

5
5



1 LANDSCAPE PLAN
SCALE 1" = 20'-0" 50' 10'

LANDSCAPING DATA

1. TO THE GREATEST EXTENT POSSIBLE LANDSCAPING THAT IS TO BE REMOVED DURING NEW CONSTRUCTION IS TO BE RETAINED FOR REINSTALLATION.
2. ALL PROPOSED NEW LANDSCAPING IS OF THE SAME SPECIES AS EXISTING.
3. ALL SUPPLEMENTAL LANDSCAPING TO BE A MINIMUM OF 36" AT TIME OF INSTALLATION.
4. ALL SERVICE STRUCTURES, SUCH AS A/C UNITS, ELECTRIC TRANSFORMERS AND GAS METERS MUST BE SCREENED ACCORDING TO LANDSCAPE CODE SECTION 1136.08
5. AREAS TO RECIEVE SOD OR HYDRO SEEDING

RED MAPLE: PLANT 2"–3" CALIPER
MATURE HEIGHT: 50'
MATURE WIDTH: 30'

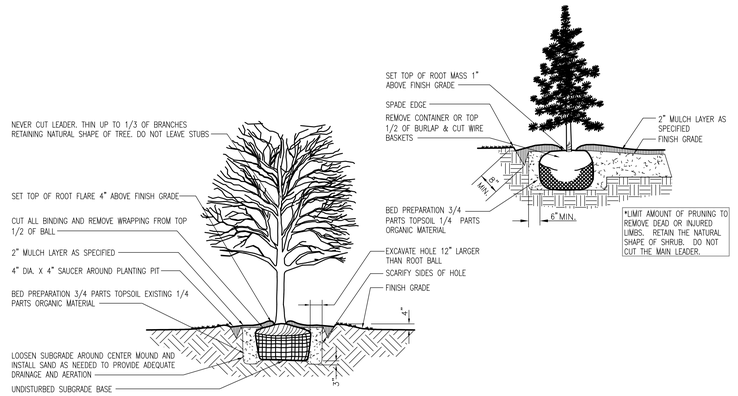
BLOODGOOD JAPANESE MAPLE:
PLANT 10–15 GAL. CONTAINERS
MATURE HEIGHT: 15'–20'
MATURE WIDTH: 15'

GOLDEN EVONYMUS:
PLANT 5 GAL. CONTAINERS
MATURE HEIGHT: 4'–5'
MATURE WIDTH: 4'

WINTERGREEN BOXWOOD:
PLANT 3–5 GAL. CONTAINERS
MATURE HEIGHT: 3'–4'
MATURE WIDTH: 3'

RED HEATHER:
PLANT 1–3 GAL. CONTAINERS
MATURE HEIGHT: 4"–24"
MATURE WIDTH: 2'

EMERALD ARBOVITAE:
PLANT 5–10 GAL. CONTAINERS
MATURE HEIGHT: 6'–8'
MATURE WIDTH: 4'



3 TYPICAL TREE PLANTING DETAILS
SCALE 3/4" = 1'-0" 1" 0"

Grove City family dentistry
The quality & care you need. **Guaranteed.**®

address	tel	fax	web	email
3031 Columbus St Grove City, OH 43123	614 875-2153	614 871-7471	www.gcfamdent.com	info@gcfamdent.com

February 25, 2015

MEMORANDUM OF UNDERSTANDING
Regarding the Development Plan for:
Grove City Family Dentistry Parking Lot Expansion
4068 Gladman Avenue, Grove City, OH 43123

Attention Members of the Grove City Planning Commission:

Please let it be known that we have met on multiple occasions since the last Planning Commission meeting to discuss the relevant issues involved with the proposed parking lot expansion. We have reviewed the proposed plan and we are all in agreement. Please note the following changes to the submitted drawings since the last meeting:

1. There will now be a 6' tall fence instead of a 4' fence. This fence matches the height of the existing fence at the rear of the Rice's property.
2. There will be a stone-walled planting bed extending from the new fence toward the sidewalk which will better define the edges of both properties and allow for the appropriate amount of landscape screening.
3. There will be two new lights to replace the higher 25' pole light fixtures originally shown. These lights will match the 10' light posts in the existing parking lot and should avoid any overflow lighting onto the Rice's property.

Thanks you for your consideration.

Craig Oiler, DDS
Grove City Family Dentistry

Terry Rice
4082 Gladman Avenue

Brian Mitchell, DDS
Grove City Family Dentistry

Debra Rice
4082 Gladman Avenue

4 MEMORANDUM OF UNDERSTANDING

PARKING EXPANSION, ADDITION AND GARAGE for:
GROVE CITY FAMILY DENTISTRY
3031 COLUMBUS STREET, SUITE A | GROVE CITY, OHIO 43123

Seal
STATE OF OHIO
JOHN A. ONEY 5716
REGISTERED ARCHITECT

Drawings
- [x] Zoning 09 / 18 / 09
- [ ] Preliminary
- [ ] Bid Set
- [ ] Permit Set
- [ ] Construction

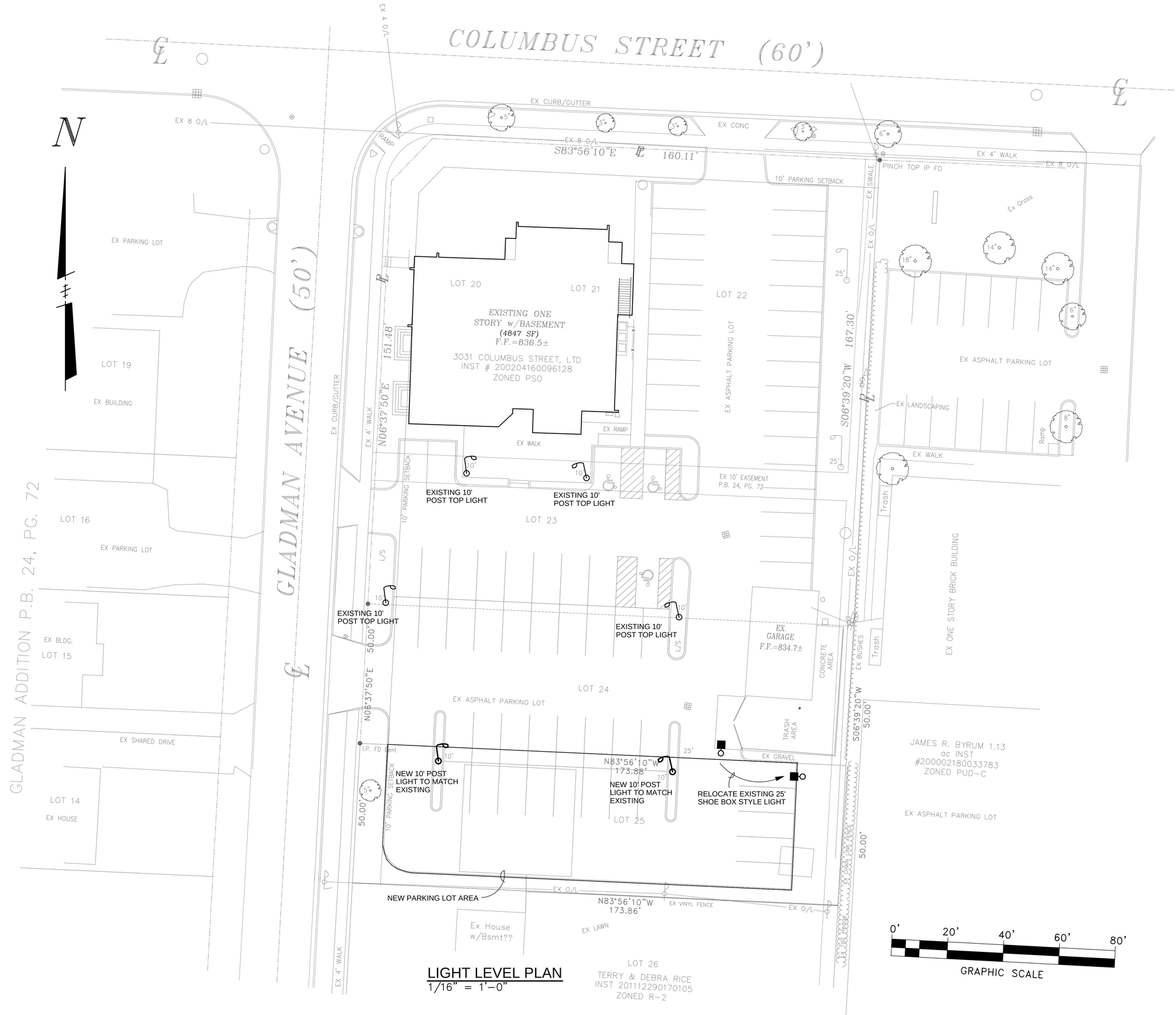
Revisions
1 2 3 4 5 6 7 8 9 10 11

ARCHITECTURAL ALLIANCE
165 NORTH FIFTH STREET | COLUMBUS OHIO 43215
P. 614.469.7500 | F. 614.469.0500 | www.aainet.com

Project Number
A07_088

Sheet Title
GROVE CITY FAMILY DENTISTRY SITE PLAN

Sheet Number
L1.1



LIGHT LEVEL PLAN
1/16" = 1'-0"

DWG TAG — 15026-SL1 DATE — 1-21-15 CAD OPER — DNR

APPLIED ENGINEERING GROUP, LTD.
MEP Building Consultants
7402 East Broad Street
Blacklick, Ohio 43004
Phone: 614.322.7050
Fax: 614.322.7049
www.aegltd.com

STATE OF OHIO
DAN R. RHODES
E-57289
REGISTERED PROFESSIONAL ENGINEER

REVISIONS		
NO.	DESCRIPTION	DATE

DATE: 2-26-15
SCALE: AS NOTED
JOB #: 15026

PROJECT TITLE
Grove City Dentistry
4068 Gladman Ave
Grove City, OH

SHEET TITLE
SITE LIGHTING PLAN

SHEET NO. SE1

The City of Grove City, Ohio

4035 Broadway • Grove City, Ohio 43123
(614) 277-3000

January 13, 2015

Thomas R. Clark
3083 Columbus Street
Grove City, OH 43123

Via email: tclark24@columbus.rr.com

Dear Mr. Clark:

Staff has reviewed your development plan application for the Grove City Family Dentistry Parking Lot Expansion located at 4068 Gladman Avenue. The control number for this application is #201412220073 and should be referenced on any future correspondence concerning this matter.

Having compiled the comments/recommendations provided to the Development Department from our various departments, we request the following additional information and/or corrections:

Development Department (Kimberly Shields, 614-277-3007)

1. A photometric plan should be submitted showing a minimum of 0.5 footcandles in all pedestrian and vehicular areas.

2. Details for any new lighting fixtures should be provided. New fixtures should match existing fixtures on the site and should be located to reduce impacts on the adjacent residential properties.

3. The landscape plan (Sheet L1.1) appears to show the proposed landscaping on the adjacent property to the south. Plans should be adjusted to show all improvements on the applicant's property.

4. The proposed parking lot setbacks from the southern and western property boundaries will require deviations through Planning Commission and City Council. Staff would be supportive of the proposed deviations, as the proposed setbacks are consistent with variances granted by the BZA in 2009 for the previous parking lot expansion.

Building Division (Laura Scott, 614-277-3086)

5. Per 1106.1 of the OBC, accessible parking spaces; a total of three parking stalls are required for lots with 51-75 total spaces.

Urban Forestry (Jodee Lowe, 614-277-1103)

6. Code requires the installation of one of the landscape options below between incompatible land uses. Any deviation from these standards must be approved by the Planning Commission and City Council.

    - Option A requires a 20' minimum parking and/or drive aisle set-back with either a continuous 6' height wall or solid fence or a 90% opaque 5' height evergreen screen or a combination thereof. In addition to the wall or fence, one 2" minimum caliper small class tree, two 6' height evergreen trees and two 18" height deciduous shrubs are to be planted per each 40 lineal feet of property line. In addition to the evergreen screen, four 18" height deciduous shrubs are to be planted per each 40 lineal feet of property line.

    - Option B requires a 30' minimum parking and/or drive aisle setback with a continuous 4' height minimum earthen mound. In addition to the mounding requirement a double staggered row of 6' height minimum evergreen trees at 20' maximum spacing and one 2" caliper minimum small

class tree and two 18" height deciduous shrubs per each 40 lineal feet of property line are to be planted.

7. The proposed new parking spaces must have an island bed on either side to define the parking areas. Each island will then need to have one minimum 2" caliper medium or large class tree planted in it. A tree is also needed at the end island on the Northeast corner near the dumpster and the screening around the dumpster will need to continue around to the south side (1136.08).

Grove City Division of Police (Jeff Pearson, 614-277-1709)

8. Need a lighting plan approved by the City.

Please revise your materials accordingly and submit twenty (20) completely folded copies along with a response letter indicating how each issue noted was addressed in the revised plans to my attention by 12:00 p.m. on Monday, January 26th. This will allow us time to review the revisions prior to finalizing the agenda for the February Planning Commission meeting. If for any reason you feel a meeting with staff is warranted prior to the Planning Commission meeting, please call me as soon as possible to arrange a date and time. If revised drawings cannot be submitted by the above deadline, the Development Department will recommend that this application be postponed until the March Planning Commission meeting; however, if the above deadline is met, staff will recommend that your application be heard as described below.

Planning Commission will hear your request on Tuesday, February 3, 2015 in Council Chambers on the first floor of City Hall at 1:30 p.m. Your request will be postponed to a future date if you are unable to attend the meeting.

If you have any questions or need additional information, please call me at 277-3007 or email kshields@grovecityohio.gov .

Sincerely,

Kim Shields

Kimberly Shields, AICP
Planning / GIS Specialist

SITE ENGINEERING
Incorporated
Civil Engineers & Surveyors

7453 East Main Street
Reynoldsburg, OH 43068
phone: 614-759-9900
fax: 614-759-9902
email: siteeng@ameritech.net

January 21, 2015

Ms. Kimberly Shields, AICP
The City of Grove City, Ohio
4035 Broadway
Grove City, Ohio 43123

Re: Application #201412220073
Grove City Dentistry

Dear Kimberly:

Thank you for the plan review comments for the parking lot expansion on the above captioned project. Enclosed please find twenty (20) folded copies of the revised plans. We offer the following responses to the comments in your January 13, 2015 letter to Mr. Thomas R. Clark:

1) A Lighting Plan has been added to the plan set, which shows the photometrics.
2) Lighting details are on the New Lighting Plan.
3) The Landscape Plan has been corrected and revised.
4) It is assumed the Variances to setbacks are to be granted with the re-zoning.
5) A third Handicap parking stall has been added to the site plan.
6) The plans show a 5' setback on the south and the same landscape items that were approved with the previous variance. We assume the re-zoning will include the variance to setback and landscaping.
7) The hatched islands at the ends of the new row of parking have been changed to landscaped islands with plantings shown on the Landscape Plan.
8) A Lighting Plan has been added.

John Oney of Architectural Alliance and I will be attending the Planning Commission meeting on Monday, February 3rd at 1:30 p.m. Should you have any questions or require additional information, please do not hesitate to contact me.

Sincerely,

SITE ENGINEERING, INC.

Mark Hazel

Mark A. Hazel

RECEIVED
JAN 26 2015
GC PLANNING COMMISSION

GROVE CITY FAMILY DENTISTRY

SITE IMPROVEMENTS

4068 Gladman Avenue
Grove City, Ohio
Franklin County

PROJECT NO. 3044
Dec, 2014

Prepared for:
Grove City

STORMWATER MANAGEMENT REPORT & CALCULATIONS

Prepared by:

SITE ENGINEERING
Incorporated
Civil Engineers & Surveyors

7453 East Main Street
Reynoldsburg, Ohio 43068
Phone: 614-759-9900
Fax: 614-759-9902

PRELIM
STATE OF OHIO
STUART E. WILMS 45618
REGISTERED PROFESSIONAL ENGINEER

Stuart Wilms

Registered Engineer No. E-45618 Date

RECEIVED
DEC 22 2014
GC PLANNING COMMISSION

Table of Contents:

Section 1

Project Description

The following report includes Stormwater Management Calculations as required by Grove City. This report accompanies the final engineering plan prepared for review and approval from Grove City. The existing site is operated by Grove City Family Dentistry and the area that will be disturbed is a newly purchased abutting parcel to the south of their site. The proposed developed area will provide additional parking. These calculations and plans propose to provide all site improvements to accommodate the proposed improvement. The existing property is 1.06 acres by survey and is located at 4068 Gladman Avenue. The disturbed area is approximately 0.20 acres.

To provide for the storm water, the new area it will be graded utilizing an existing catch basin, number "2A", providing additional ponding. This site has been developed two times prior, first in 2003 and more recently in 2010. The original stormwater design was calculated using the rational method and 2010 addition utilized the modeling program "Pond Pack". Because no storm has been added for this improvement, the entire site has been modeled utilizing the existing stormwater system. With the additional ponding, the existing system meets the current stormwater requirements. Maintenance of this facility is provided within these drawings to ensure that the area will continue to function as planned.

Methodology of Stormwater Management Analysis

All stormwater management analysis and design will be in accordance with the Grove City stormwater management requirements. It is the policy of the Grove City to discharge a 1 year storm event from the 1 year through the determined critical storm. Storm water discharge from storms greater than the critical storm shall not exceed the pre-developed discharge from the same storm duration up to the 100 year storm event. The critical storm determined for these calculations will be a 25 year storm. The SCS dimensionless unit hydrograph method will be utilized to develop runoff hydrographs for the stormwater modeling (Type II). Time of concentration calculations are performed using TR-55 methodology, with the minimum time being 5-minutes. The Hydrocad Stormwater Modeling program will be utilized to complete calculations for modeling the hydrologic and hydraulic conditions.

Drainage Area Analysis

The pre-developed work area consists of a r4esidential lot. Based on the hydrologic soil group and land-use classification, the weighted curve number is calculated at 83.

The post-developed area will consist of grass and a parking lot. Based on the hydrologic soil group and land-use classification, a weighted curve number is calculated at 97.

A critical storm has been determined for the post-developed improvement to be a 25 year event. The drainage area will release a rate of less than the pre 1 year storm event from the post 1 year through the post 25 year storm event. Events greater than 25 will not release a rate that exceeds the pre-developed rate of the same event.

The pre developed Time of Concentration was determined to be 5 minutes, with the post-developed Time of Concentration being 5 minutes at the minimum.

Detention Analysis

The new drainage area, 0.12 acres, will provide its storm water storage within the existing storm water system. The ponding will be expanded to accommodate the additional impervious area. The existing control for this ponding was field inspected and determined to be a 3.5"orifice plate in place on Catch Basin number 1. This catch basin then discharges into the storm water system in the Gladman Avenue right of way. The stormwater eventually discharge into the West Water Run system.

As required by the Grove City, the proposed development will show that the post-developed runoff for each storm event will not be increased when compared to the pre-developed condition.

The comparison of pre-developed and post-developed runoff is as follows:

STORM EVENT (YR)	PRE (CFS)	POST (CFS)	VOLUME (CF)	ELEV #2A (FT)	ELEV #2 (FT)
1	0.85	0.60	690	834.06	834.25
2	0.99	0.60	822	834.09	834.29
5	1.58	0.61	1395	834.19	834.43
10	1.89	0.62	1704	834.24	834.50
25	2.35	0.62	2179	834.30	834.58
50	2.67	0.63	2504	834.33	834.64
100	2.83	0.63	2667	834.35	834.66

For further details, see the Hydrocad model in Sections 2 & 3.

Grove City Family Dentistry
SEI File No. 3044
4068 Gladman Avenue
Grove City, Ohio **Dec, 2014**

24 Hour Rainfall

Pre-developed Volume of Runoff:

1 year design storm frequency depth = 2.17 inches (CN = 83)
Runoff depth (Table 2-1, TR-55 Urban Hydrology for Small Watersheds) = 0.8264 inches

Total Runoff Volume:

0.8264 inches x 0.52 acres x 1 ft/ 12 in x 43,560 sf/ac = 1,560 c.f.

Post Developed Volume of Runoff:

1 year design storm frequency depth = 2.17 inches (CN 97)
Runoff depth (Table 2-1, TR-55 Urban Hydrology for Small Watersheds) = 1.8411 inches

Total Runoff Volume:

1.8411 inches x 0.52 acres x 1 ft/ 12 in. x 43,560 sf/ac = 3,475 c.f.

CRITICAL STORM

$$\frac{3{,}475 - 1{,}560}{1{,}560} x\,100 = 123\%\ Increase$$

123% Increase = 25 Year Storm

Storm Water Pollution Prevention

Based on the requirements from the Ohio EPA, the proposed development will include all Stormwater Pollution Prevention structures. Included within the site development plans is a Stormwater Pollution Prevention Plan with associated details.

The following analysis and report are for site preparation and consist of the following:

1. Excavation and construction of graded ditches providing positive drainage towards the temporary sediment basin.
2. Construction of culverts to maintain the existing flow patterns.
3. On-site clearing and grading
4. Hydroseeding
5. Maintenance of Facilities

The proposed grading of the site, as well as the construction of the items listed below, will mitigate against any major diversion of storm water runoff by maintaining natural drainage patterns. All existing and developed flows will remain within the same drainage basin.

The structural components of the erosion control plan will work in combination with temporary and permanent soil stabilization efforts to minimize the level of sediment laden runoff entering the downstream environment. The minimum requirements for erosion control have been listed below:

1. Erosion and Sediment Control Requirement: All exposed soils shall be stabilized as soon as possible following grading activities.
2. Delineate Work Limits: The construction work limits are shown on the SWPPP and the site development plans. Contractor shall not, under any circumstances, perform construction outside of these delineations.

3. Protection of Adjacent Properties: The contractor shall be responsible for identifying and marking all property lines. The grading of the proposed site and silt fencing will ensure that adjacent properties will not be impacted by proposed site work. Silt fencing shall be constructed as shown and as additionally required to mitigate erosion control hazards.

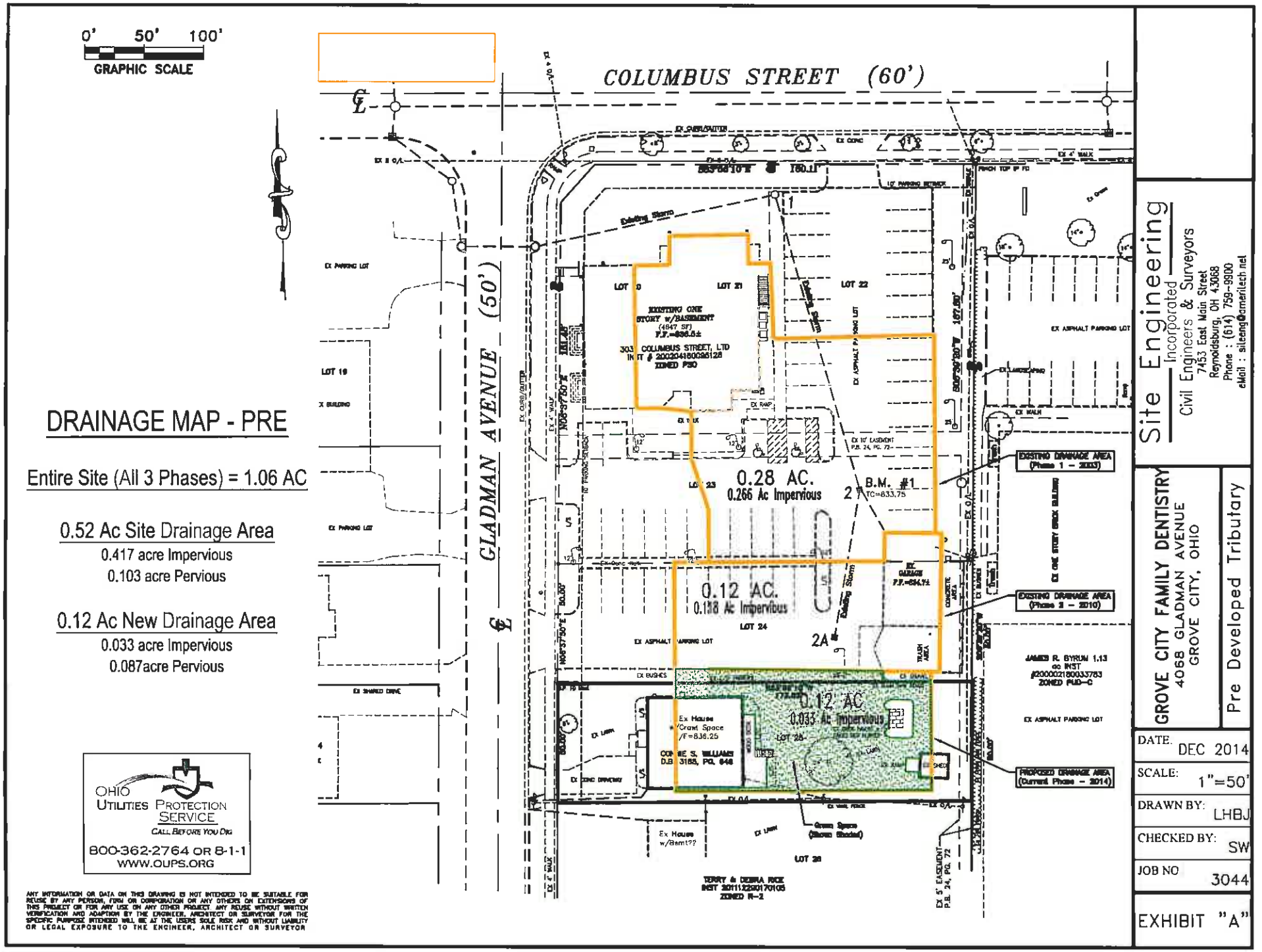
4. Timing and stabilization of sediment trapping Measures: The SWPPP contains a construction sequence to ensure proper timing and stabilization of sediment trapping measures.
5. Cut and Fill Slopes: By following the guidelines set forth in the construction documents, the contractor will prevent potential erosion control hazards associated with the cut and fill of slopes.
6. Controlling off-site erosion: Off-site properties will be protected from erosion through graded swales and silt fence.
7. Stabilization of Temporary Conveyance Channels and Outlets: Temporary on-site conveyance channels will be protected from erosion by their minimal average slope of approximately 0.50.
8. Storm Drain Inlet Protection: All existing inlets will be protected with silt barriers as detailed on the site development plans.
9. Underground Utility Construction: All utilities will be installed as shown on the site development plans, as required.
10. Construction Access Routes: A construction entrance will be installed at the proposed site access to help minimize the transport of sediment from the site, unless the use of the existing entrance drive is delineated.
11. Removal of Temporary BMP's: All temporary best management practices shall be removed within 30 days after final stabilization is achieved.
12. Dewatering Construction Sites: Dewater site, as required. All dewatering must pass through the temporary sediment basin.
13. Control of Pollutants other than Sediment on Construction Sites: All pollutants other than sediment that occur on-site during construction shall be handled and disposed of in a manner that does not cause contamination of storm water.
14. Maintenance: All erosion control features shall be maintained on a regularly scheduled basis to ensure their effectiveness.
15. Financial Liability: To be provided as required by the local municipality.

The storm water pollution prevention facilities need to be properly maintained on a regular basis to remain efficient in removing sediment over an extended period of time. Therefore, the contractor shall remove sediment build-up after each storm even or as necessary to ensure the effectiveness of the facilities during their entire use.

The creation of airborne dust during construction will also need to be controlled by the contractor. This can be accomplished through the use of watering trucks during construction.

All features contained within the Storm Water Pollution Prevention Plan, if installed correctly and periodically maintained, are expected to minimize the level of sediment-laden runoff entering any of the public road right-of-ways, drainage areas, and the adjacent properties.

Section 2



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Site Engineering Incorporated
Civil Engineers & Surveyors
7453 East Main Street
Reynoldsburg, OH 43068
Phone : (614) 759-9900
eMail : siteeng@ameritech.net

GROVE CITY FAMILY DENTISTRY
4068 GLADMAN AVENUE
GROVE CITY, OHIO

Pre Developed Tributary

DATE:	DEC 2014
SCALE:	1"=50'
DRAWN BY:	LHBJ
CHECKED BY:	SW
JOB NO	3044

EXHIBIT "A"

Existing Site

Subcat Reach Pond Link

Drainage Diagram for 3044-PreSite
Prepared by Site Engineering, Inc., Printed 12/12/2014

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.520	83	1/4 acre lots, 38% imp, HSG C (Pre)

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

Subcatchment Pre: Existing Site Runoff Area=0.520 ac 38.00% Impervious Runoff Depth>0.83"
Tc=5.0 min CN=83 Runoff=0.85 cfs 0.036 af

Summary for Subcatchment Pre: Existing Site

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.85 cfs @ 11.96 hrs, Volume= 0.036 af, Depth> 0.83"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.30"

Area (ac)	CN	Description
0.520	83	1/4 acre lots, 38% imp, HSG C
0.322		62.00% Pervious Area
0.198		38.00% Impervious Area

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

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

Subcatchment Pre: Existing Site Runoff Area=0.520 ac 38.00% Impervious Runoff Depth>0.96"
Tc=5.0 min CN=83 Runoff=0.99 cfs 0.042 af

Summary for Subcatchment Pre: Existing Site

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.99 cfs @ 11.96 hrs, Volume= 0.042 af, Depth> 0.96"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-Year Rainfall=2.50"

Area (ac)	CN	Description
0.520	83	1/4 acre lots, 38% imp, HSG C
0.322		62.00% Pervious Area
0.198		38.00% Impervious Area

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

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

Subcatchment Pre: Existing Site Runoff Area=0.520 ac 38.00% Impervious Runoff Depth>1.56"
Tc=5.0 min CN=83 Runoff=1.58 cfs 0.068 af

Summary for Subcatchment Pre: Existing Site

[49] Hint: Tc<2dt may require smaller dt

Runoff = 1.58 cfs @ 11.96 hrs, Volume= 0.068 af, Depth> 1.56"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 5-Year Rainfall=3.30"

Area (ac)	CN	Description
0.520	83	1/4 acre lots, 38% imp, HSG C
0.322		62.00% Pervious Area
0.198		38.00% Impervious Area

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

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

Subcatchment Pre: Existing Site Runoff Area=0.520 ac 38.00% Impervious Runoff Depth>1.88"
Tc=5.0 min CN=83 Runoff=1.89 cfs 0.081 af

Summary for Subcatchment Pre: Existing Site

[49] Hint: Tc<2dt may require smaller dt

Runoff = 1.89 cfs @ 11.96 hrs, Volume= 0.081 af, Depth> 1.88"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=3.70"

Area (ac)	CN	Description
0.520	83	1/4 acre lots, 38% imp, HSG C
0.322		62.00% Pervious Area
0.198		38.00% Impervious Area

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

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

Subcatchment Pre: Existing Site Runoff Area=0.520 ac 38.00% Impervious Runoff Depth>2.37"
Tc=5.0 min CN=83 Runoff=2.35 cfs 0.102 af

Summary for Subcatchment Pre: Existing Site

[49] Hint: Tc<2dt may require smaller dt

Runoff = 2.35 cfs @ 11.96 hrs, Volume= 0.102 af, Depth> 2.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-Year Rainfall=4.30"

Area (ac)	CN	Description
0.520	83	1/4 acre lots, 38% imp, HSG C
0.322		62.00% Pervious Area
0.198		38.00% Impervious Area

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

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

Subcatchment Pre: Existing Site Runoff Area=0.520 ac 38.00% Impervious Runoff Depth>2.70"
Tc=5.0 min CN=83 Runoff=2.67 cfs 0.117 af

Summary for Subcatchment Pre: Existing Site

[49] Hint: Tc<2dt may require smaller dt

Runoff = 2.67 cfs @ 11.96 hrs, Volume= 0.117 af, Depth> 2.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-Year Rainfall=4.70"

Area (ac)	CN	Description
0.520	83	1/4 acre lots, 38% imp, HSG C
0.322		62.00% Pervious Area
0.198		38.00% Impervious Area

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

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

Subcatchment Pre: Existing Site Runoff Area=0.520 ac 38.00% Impervious Runoff Depth>2.87"
Tc=5.0 min CN=83 Runoff=2.83 cfs 0.124 af

Summary for Subcatchment Pre: Existing Site

[49] Hint: Tc<2dt may require smaller dt

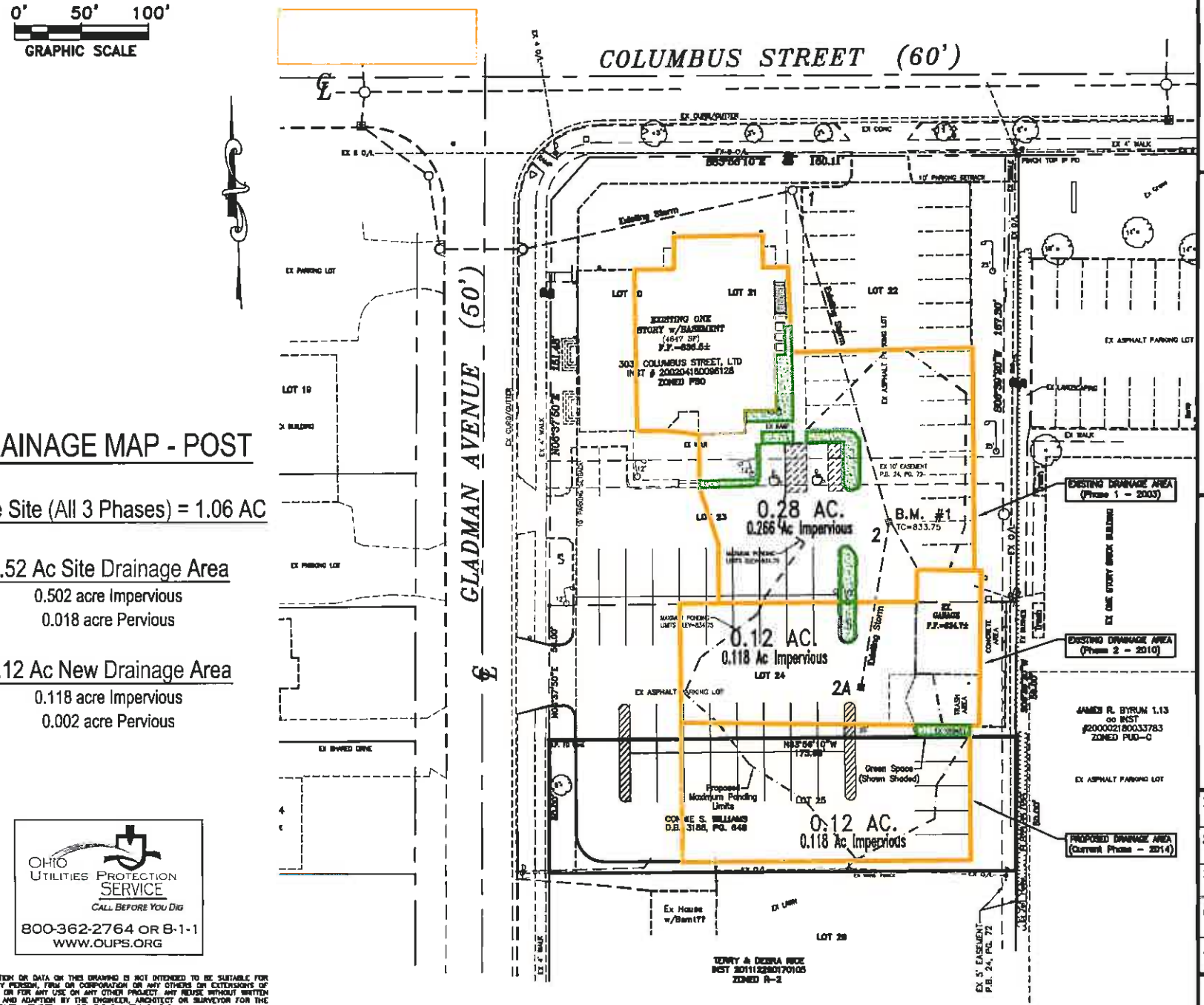
Runoff = 2.83 cfs @ 11.95 hrs, Volume= 0.124 af, Depth> 2.87"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year Rainfall=4.90"

Area (ac)	CN	Description
0.520	83	1/4 acre lots, 38% imp, HSG C
0.322		62.00% Pervious Area
0.198		38.00% Impervious Area

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

Section 3



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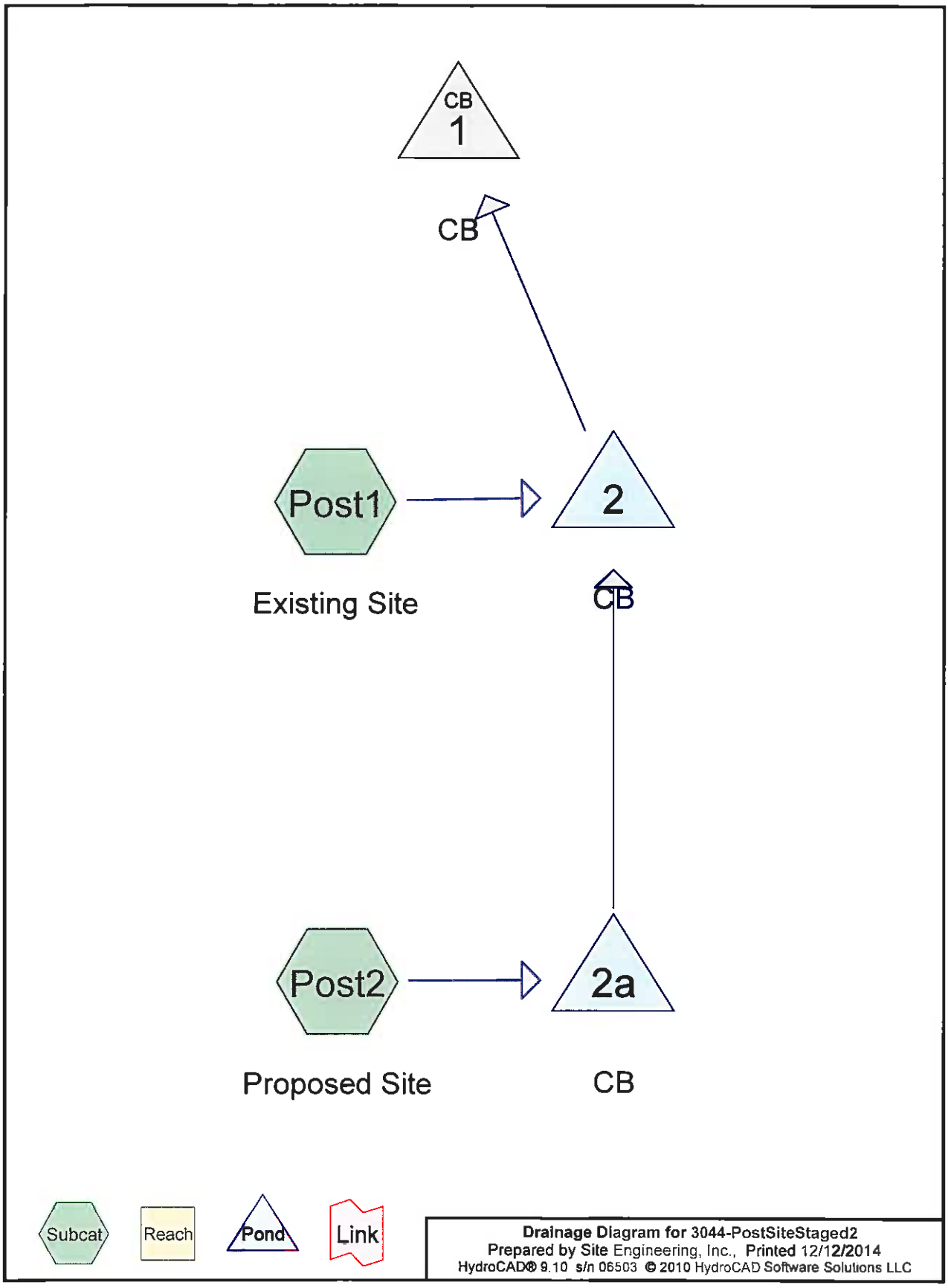
eMail : siteeng@ameritech.net

GROVE CITY FAMILY DENTISTRY
4068 GLADMAN AVENUE
GROVE CITY, OHIO

Post Developed Tributary

DATE: DEC 2014
SCALE: 1"=50'
DRAWN BY: LHBJ
CHECKED BY: SW
JOB NO.: 3044

EXHIBIT "B"


CB
1
CB
Post1
2
Existing Site
CB
Post2
2a
Proposed Site
CB
Subcat
Reach
Pond
Link
Drainage Diagram for 3044-PostSiteStaged2
Prepared by Site Engineering, Inc., Printed 12/12/2014
HydroCAD® 9.10 s/n 06503 © 2010 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.018	74	>75% Grass cover, Good, HSG C (Post1, Post2)
0.422	98	Paved parking, HSG C (Post1, Post2)
0.080	98	Roofs, HSG C (Post1)

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

Subcatchment Post1: Existing Site Runoff Area=0.280 ac 95.00% Impervious Runoff Depth>1.84"
Tc=5.0 min CN=97 Runoff=0.89 cfs 0.043 af

Subcatchment Post2: Proposed Site Runoff Area=0.240 ac 98.33% Impervious Runoff Depth>1.93"
Tc=5.0 min CN=98 Runoff=0.78 cfs 0.039 af

Pond 1: CB Peak Elev=834.11' Inflow=0.60 cfs 0.082 af
Outflow=0.60 cfs 0.082 af

Pond 2: CB Peak Elev=834.25' Storage=621 cf Inflow=1.47 cfs 0.082 af
Outflow=0.60 cfs 0.082 af

Pond 2a: CB Peak Elev=834.06' Storage=69 cf Inflow=0.78 cfs 0.039 af
Outflow=0.58 cfs 0.039 af

Summary for Subcatchment Post1: Existing Site

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.89 cfs @ 11.95 hrs, Volume= 0.043 af, Depth> 1.84"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.30"

Area (ac)	CN	Description
0.080	98	Roofs, HSG C
0.186	98	Paved parking, HSG C
0.014	74	>75% Grass cover, Good, HSG C
0.280	97	Weighted Average
0.014		5.00% Pervious Area
0.266		95.00% Impervious Area

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

Summary for Subcatchment Post2: Proposed Site

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.78 cfs @ 11.95 hrs, Volume= 0.039 af, Depth> 1.93"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.30"

Area (ac)	CN	Description
0.236	98	Paved parking, HSG C
0.004	74	>75% Grass cover, Good, HSG C
0.240	98	Weighted Average
0.004		1.67% Pervious Area
0.236		98.33% Impervious Area

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

Summary for Pond 1: CB

[82] Warning: Early inflow requires earlier time span
[57] Hint: Peaked at 834.11' (Flood elevation advised)
[79] Warning: Submerged Pond 2 Primary device # 2 by 3.43'

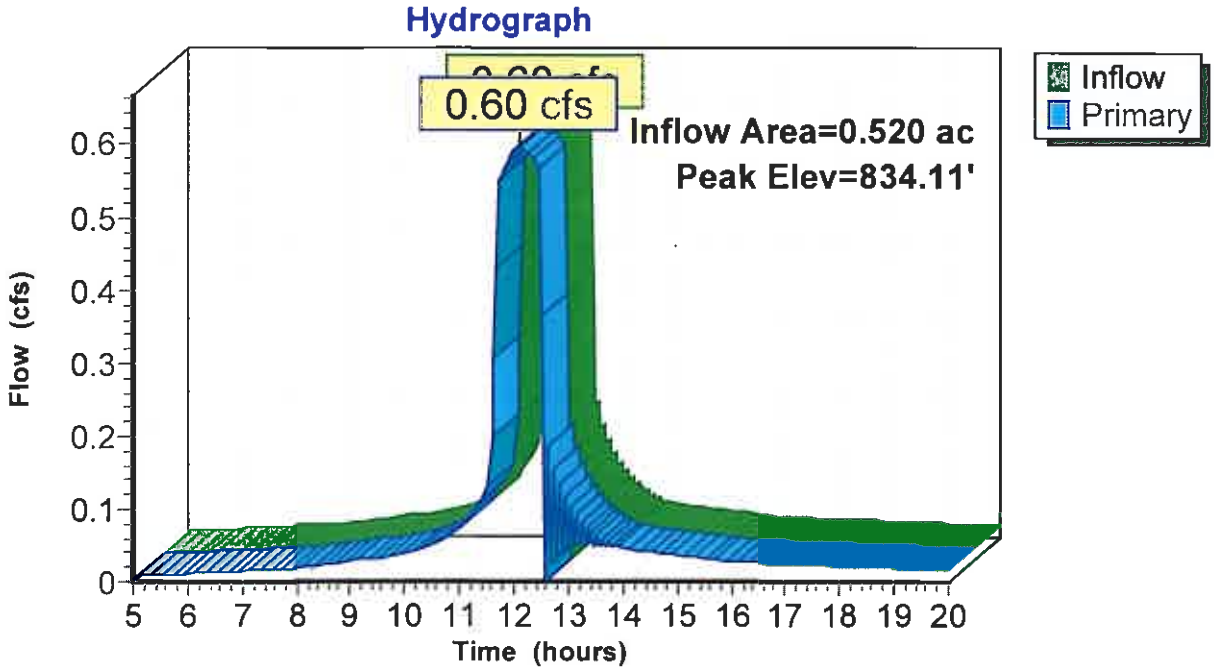
Inflow Area = 0.520 ac, 96.54% Impervious, Inflow Depth > 1.89" for 1-Year event
Inflow = 0.60 cfs @ 12.10 hrs, Volume= 0.082 af
Outflow = 0.60 cfs @ 12.10 hrs, Volume= 0.082 af, Atten= 0%, Lag= 0.0 min
Primary = 0.60 cfs @ 12.10 hrs, Volume= 0.082 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 834.11' @ 12.10 hrs

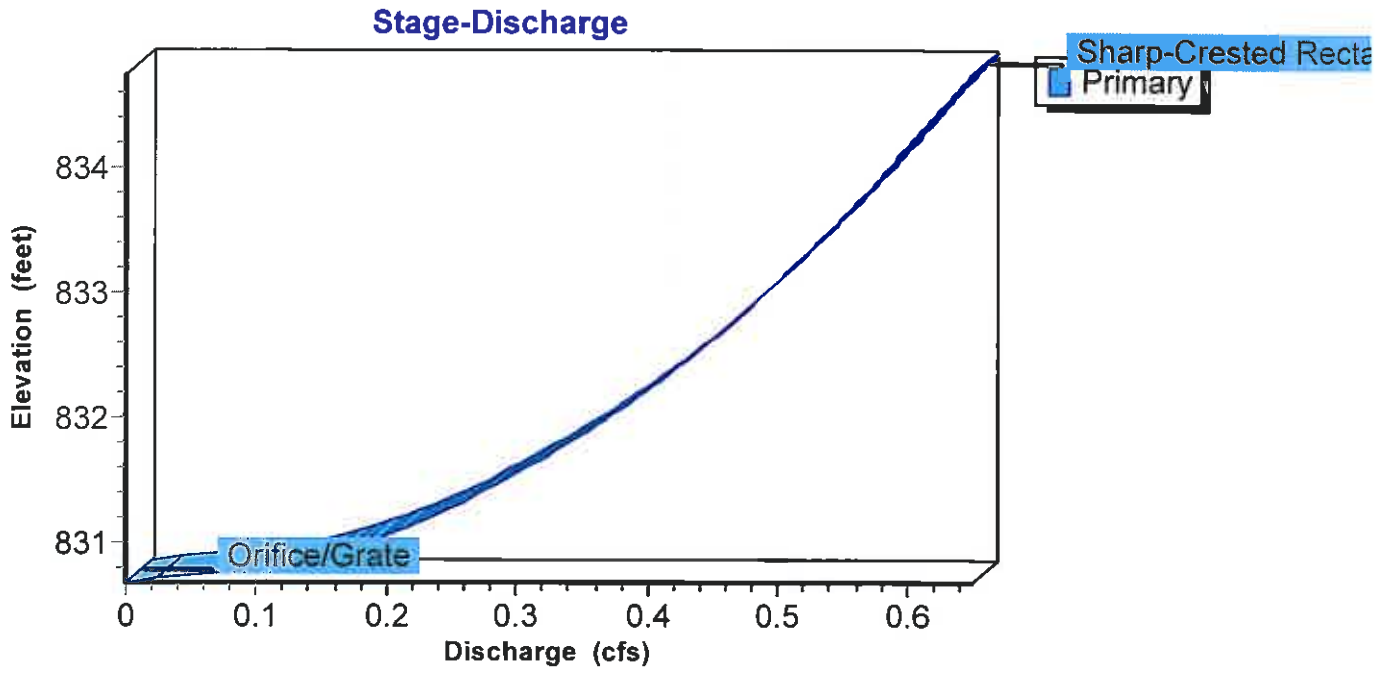
Device	Routing	Invert	Outlet Devices
#1	Primary	830.68'	**3.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	834.75'	**10.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.60 cfs @ 12.10 hrs HW=834.11' (Free Discharge)
└─**1=Orifice/Grate** (Orifice Controls 0.60 cfs @ 8.91 fps)
└─2=Sharp-Crested **Rectangular Weir** (Controls 0.00 cfs)

Pond 1: CB



Pond 1: CB


Stage-Discharge
Sharp-Crested Recta
Primary
Orifice/Grate
Elevation (feet)
834
833
832
831
0
0.1
0.2
0.3
0.4
0.5
0.6
Discharge (cfs)

Stage-Discharge for Pond 1: CB

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
830.68	0.00	831.72	0.33	832.76	0.46	833.80	0.57
830.70	0.01	831.74	0.33	832.78	0.47	833.82	0.57
830.72	0.02	831.76	0.33	832.80	0.47	833.84	0.57
830.74	0.04	831.78	0.34	832.82	0.47	833.86	0.57
830.76	0.07	831.80	0.34	832.84	0.47	833.88	0.58
830.78	0.09	831.82	0.34	832.86	0.47	833.90	0.58
830.80	0.11	831.84	0.35	832.88	0.48	833.92	0.58
830.82	0.12	831.86	0.35	832.90	0.48	833.94	0.58
830.84	0.13	831.88	0.35	832.92	0.48	833.96	0.58
830.86	0.14	831.90	0.36	832.94	0.48	833.98	0.58
830.88	0.14	831.92	0.36	832.96	0.49	834.00	0.59
830.90	0.15	831.94	0.36	832.98	0.49	834.02	0.59
830.92	0.16	831.96	0.36	833.00	0.49	834.04	0.59
830.94	0.16	831.98	0.37	833.02	0.49	834.06	0.59
830.96	0.17	832.00	0.37	833.04	0.49	834.08	0.59
830.98	0.18	832.02	0.37	833.06	0.50	834.10	0.59
831.00	0.18	832.04	0.38	833.08	0.50	834.12	0.60
831.02	0.19	832.06	0.38	833.10	0.50	834.14	0.60
831.04	0.19	832.08	0.38	833.12	0.50	834.16	0.60
831.06	0.20	832.10	0.38	833.14	0.50	834.18	0.60
831.08	0.20	832.12	0.39	833.16	0.51	834.20	0.60
831.10	0.21	832.14	0.39	833.18	0.51	834.22	0.61
831.12	0.21	832.16	0.39	833.20	0.51	834.24	0.61
831.14	0.22	832.18	0.39	833.22	0.51	834.26	0.61
831.16	0.22	832.20	0.40	833.24	0.51	834.28	0.61
831.18	0.23	832.22	0.40	833.26	0.52	834.30	0.61
831.20	0.23	832.24	0.40	833.28	0.52	834.32	0.61
831.22	0.24	832.26	0.40	833.30	0.52	834.34	0.62
831.24	0.24	832.28	0.41	833.32	0.52	834.36	0.62
831.26	0.25	832.30	0.41	833.34	0.52	834.38	0.62
831.28	0.25	832.32	0.41	833.36	0.53	834.40	0.62
831.30	0.25	832.34	0.41	833.38	0.53	834.42	0.62
831.32	0.26	832.36	0.42	833.40	0.53	834.44	0.62
831.34	0.26	832.38	0.42	833.42	0.53	834.46	0.63
831.36	0.27	832.40	0.42	833.44	0.53	834.48	0.63
831.38	0.27	832.42	0.42	833.46	0.54	834.50	0.63
831.40	0.27	832.44	0.43	833.48	0.54	834.52	0.63
831.42	0.28	832.46	0.43	833.50	0.54	834.54	0.63
831.44	0.28	832.48	0.43	833.52	0.54	834.56	0.63
831.46	0.28	832.50	0.43	833.54	0.54	834.58	0.64
831.48	0.29	832.52	0.44	833.56	0.55	834.60	0.64
831.50	0.29	832.54	0.44	833.58	0.55	834.62	0.64
831.52	0.29	832.56	0.44	833.60	0.55	834.64	0.64
831.54	0.30	832.58	0.44	833.62	0.55	834.66	0.64
831.56	0.30	832.60	0.45	833.64	0.55	834.68	0.64
831.58	0.31	832.62	0.45	833.66	0.56	834.70	0.65
831.60	0.31	832.64	0.45	833.68	0.56	834.72	0.65
831.62	0.31	832.66	0.45	833.70	0.56	834.74	**0.65**
831.64	0.32	832.68	0.45	833.72	0.56		
831.66	0.32	832.70	0.46	833.74	0.56		
831.68	0.32	832.72	0.46	833.76	0.56		
831.70	0.32	832.74	0.46	833.78	0.57		

Summary for Pond 2: CB

[82] Warning: Early inflow requires earlier time span
[85] Warning: Oscillations may require Finer Routing>1
[81] Warning: Exceeded Pond 2a by 3.56' @ 12.15 hrs

Inflow Area = 0.520 ac, 96.54% Impervious, Inflow Depth > 1.88" for 1-Year event
Inflow = 1.47 cfs @ 11.95 hrs, Volume= 0.082 af
Outflow = 0.60 cfs @ 12.10 hrs, Volume= 0.082 af, Atten= 59%, Lag= 8.9 min
Primary = 0.60 cfs @ 12.10 hrs, Volume= 0.082 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 834.25' @ 12.10 hrs Surf.Area= 2,418 sf Storage= 621 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 4.3 min (743.8 - 739.5)

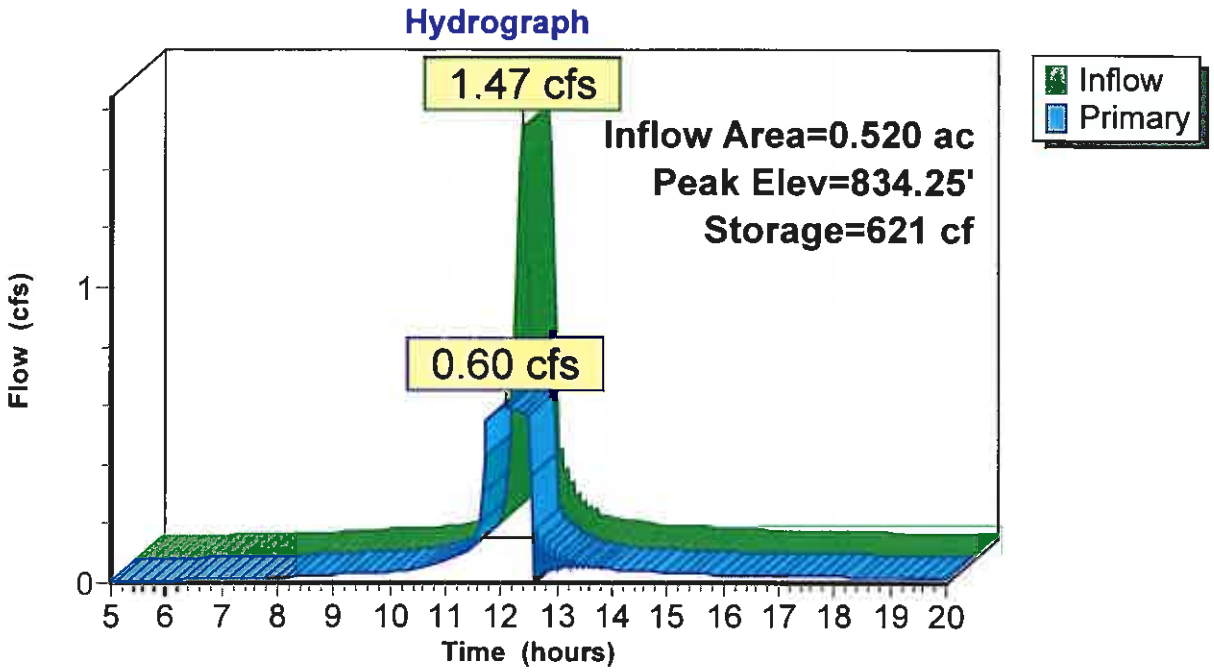
Volume	Invert	Avail.Storage	Storage Description
#1	830.68'	2,419 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
830.68	4	0	0
831.55	4	3	3
833.75	4	9	12
834.75	4,809	2,407	2,419

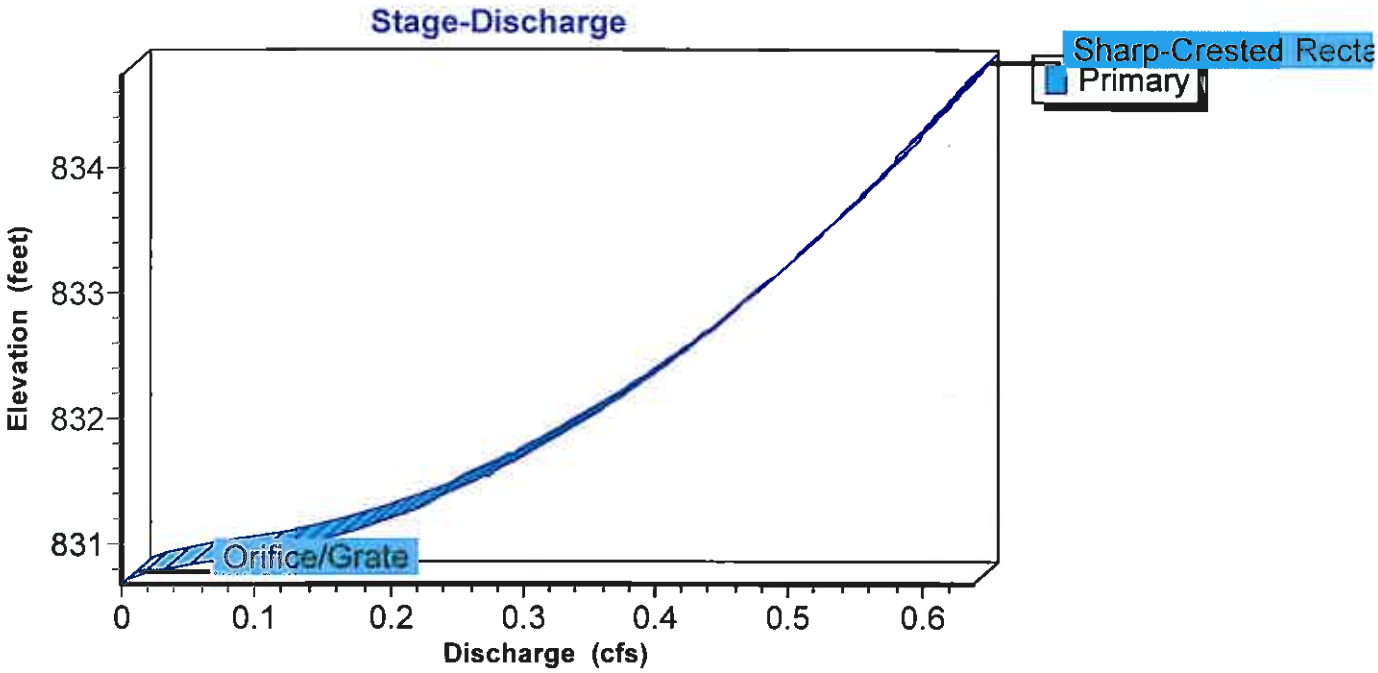
Device	Routing	Invert	Outlet Devices
#1	Primary	834.75'	**10.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	830.68'	**3.5" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.60 cfs @ 12.10 hrs HW=834.25' (Free Discharge)
↑—**1=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
└—**2=Orifice/Grate** (Orifice Controls 0.60 cfs @ 8.91 fps)

Pond 2: CB



Pond 2: CB



Stage-Discharge for Pond 2: CB

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
830.68	0.00	831.72	0.30	832.76	0.45	833.80	0.55
830.70	0.00	831.74	0.31	832.78	0.45	833.82	0.56
830.72	0.00	831.76	0.31	832.80	0.45	833.84	0.56
830.74	0.01	831.78	0.31	832.82	0.45	833.86	0.56
830.76	0.01	831.80	0.32	832.84	0.46	833.88	0.56
830.78	0.02	831.82	0.32	832.86	0.46	833.90	0.56
830.80	0.03	831.84	0.32	832.88	0.46	833.92	0.57
830.82	0.04	831.86	0.33	832.90	0.46	833.94	0.57
830.84	0.05	831.88	0.33	832.92	0.47	833.96	0.57
830.86	0.06	831.90	0.33	832.94	0.47	833.98	0.57
830.88	0.07	831.92	0.34	832.96	0.47	834.00	0.57
830.90	0.09	831.94	0.34	832.98	0.47	834.02	0.57
830.92	0.10	831.96	0.34	833.00	0.47	834.04	0.58
830.94	0.11	831.98	0.35	833.02	0.48	834.06	0.58
830.96	0.12	832.00	0.35	833.04	0.48	834.08	0.58
830.98	0.13	832.02	0.35	833.06	0.48	834.10	0.58
831.00	0.13	832.04	0.35	833.08	0.48	834.12	0.58
831.02	0.14	832.06	0.36	833.10	0.49	834.14	0.59
831.04	0.15	832.08	0.36	833.12	0.49	834.16	0.59
831.06	0.16	832.10	0.36	833.14	0.49	834.18	0.59
831.08	0.16	832.12	0.37	833.16	0.49	834.20	0.59
831.10	0.17	832.14	0.37	833.18	0.49	834.22	0.59
831.12	0.17	832.16	0.37	833.20	0.50	834.24	0.59
831.14	0.18	832.18	0.37	833.22	0.50	834.26	0.60
831.16	0.19	832.20	0.38	833.24	0.50	834.28	0.60
831.18	0.19	832.22	0.38	833.26	0.50	834.30	0.60
831.20	0.20	832.24	0.38	833.28	0.50	834.32	0.60
831.22	0.20	832.26	0.39	833.30	0.51	834.34	0.60
831.24	0.21	832.28	0.39	833.32	0.51	834.36	0.60
831.26	0.21	832.30	0.39	833.34	0.51	834.38	0.61
831.28	0.22	832.32	0.39	833.36	0.51	834.40	0.61
831.30	0.22	832.34	0.40	833.38	0.51	834.42	0.61
831.32	0.23	832.36	0.40	833.40	0.52	834.44	0.61
831.34	0.23	832.38	0.40	833.42	0.52	834.46	0.61
831.36	0.24	832.40	0.40	833.44	0.52	834.48	0.61
831.38	0.24	832.42	0.41	833.46	0.52	834.50	0.62
831.40	0.24	832.44	0.41	833.48	0.52	834.52	0.62
831.42	0.25	832.46	0.41	833.50	0.53	834.54	0.62
831.44	0.25	832.48	0.41	833.52	0.53	834.56	0.62
831.46	0.26	832.50	0.42	833.54	0.53	834.58	0.62
831.48	0.26	832.52	0.42	833.56	0.53	834.60	0.62
831.50	0.26	832.54	0.42	833.58	0.53	834.62	0.63
831.52	0.27	832.56	0.42	833.60	0.54	834.64	0.63
831.54	0.27	832.58	0.43	833.62	0.54	834.66	0.63
831.56	0.28	832.60	0.43	833.64	0.54	834.68	0.63
831.58	0.28	832.62	0.43	833.66	0.54	834.70	0.63
831.60	0.28	832.64	0.43	833.68	0.54	834.72	0.63
831.62	0.29	832.66	0.44	833.70	0.55	834.74	**0.64**
831.64	0.29	832.68	0.44	833.72	0.55		
831.66	0.29	832.70	0.44	833.74	0.55		
831.68	0.30	832.72	0.44	833.76	0.55		
831.70	0.30	832.74	0.45	833.78	0.55		

Summary for Pond 2a: CB

[82] Warning: Early inflow requires earlier time span
[85] Warning: Oscillations may require Finer Routing>1

Inflow Area = 0.240 ac, 98.33% Impervious, Inflow Depth > 1.93" for 1-Year event
Inflow = 0.78 cfs @ 11.95 hrs, Volume= 0.039 af
Outflow = 0.58 cfs @ 12.01 hrs, Volume= 0.039 af, Atten= 26%, Lag= 3.4 min
Primary = 0.58 cfs @ 12.01 hrs, Volume= 0.039 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 834.06' @ 12.01 hrs Surf.Area= 912 sf Storage= 69 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.5 min (736.4 - 736.0)

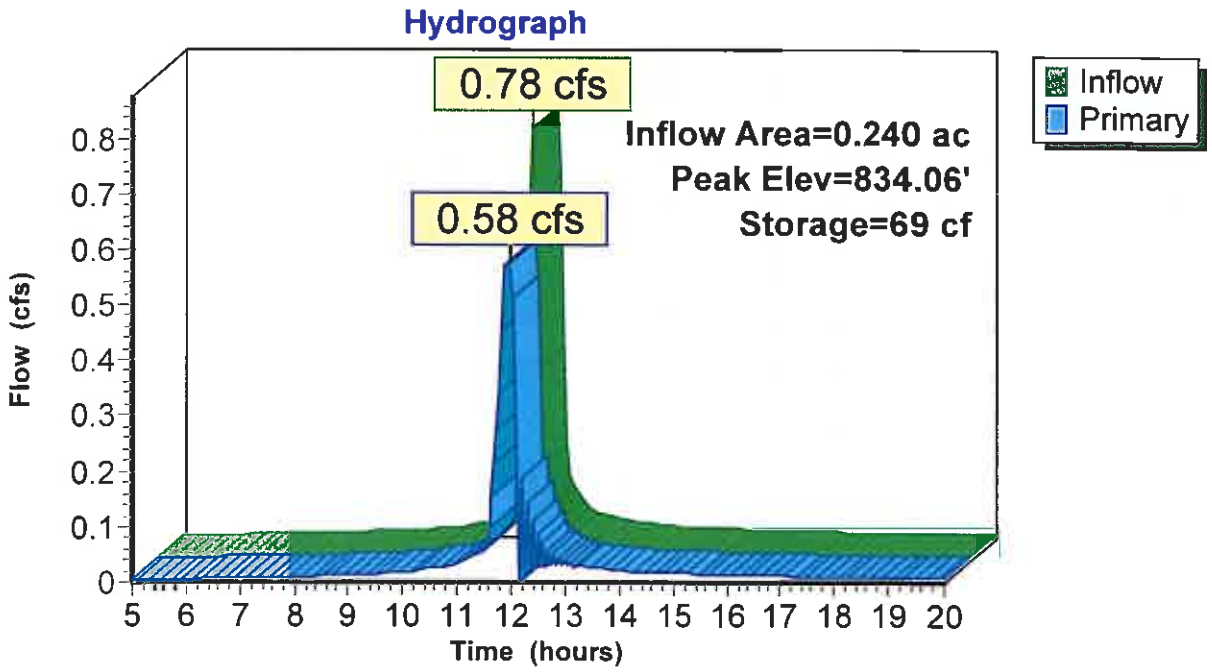
Volume	Invert	Avail.Storage	Storage Description
#1	830.68'	2,473 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
830.68	4	0	0
831.89	4	5	5
833.94	4	8	13
834.75	6,070	2,460	2,473

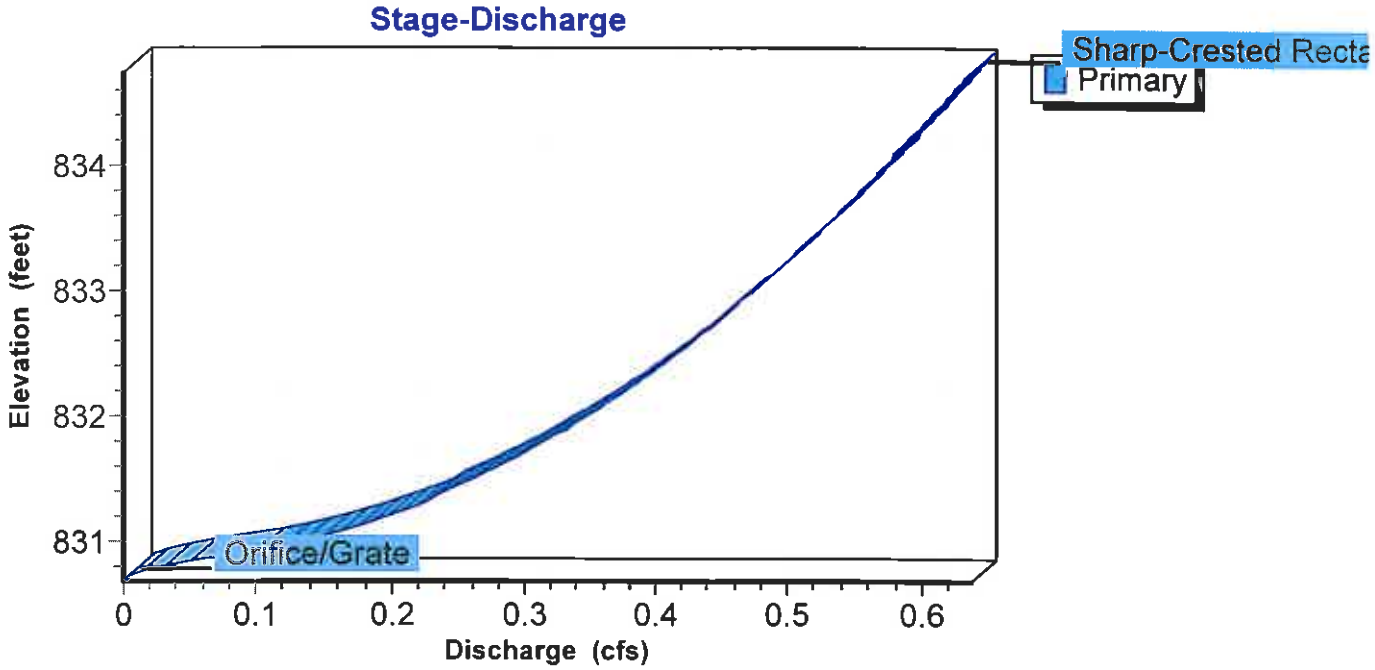
Device	Routing	Invert	Outlet Devices
#1	Primary	834.75'	**10.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	830.68'	**3.5" Vert. Orifice/Grate** C= 0.600

Primary **OutFlow** Max=0.58 cfs @ 12.01 hrs HW=834.06' (Free Discharge)
↑1=**Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
└2=**Orifice/Grate** (Orifice Controls 0.58 cfs @ 8.66 fps)

Pond 2a: CB



Pond 2a: CB



Stage-Discharge for Pond 2a: CB

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
830.68	0.00	831.72	0.30	832.76	0.45	833.80	0.55
830.70	0.00	831.74	0.31	832.78	0.45	833.82	0.56
830.72	0.00	831.76	0.31	832.80	0.45	833.84	0.56
830.74	0.01	831.78	0.31	832.82	0.45	833.86	0.56
830.76	0.01	831.80	0.32	832.84	0.46	833.88	0.56
830.78	0.02	831.82	0.32	832.86	0.46	833.90	0.56
830.80	0.03	831.84	0.32	832.88	0.46	833.92	0.57
830.82	0.04	831.86	0.33	832.90	0.46	833.94	0.57
830.84	0.05	831.88	0.33	832.92	0.47	833.96	0.57
830.86	0.06	831.90	0.33	832.94	0.47	833.98	0.57
830.88	0.07	831.92	0.34	832.96	0.47	834.00	0.57
830.90	0.09	831.94	0.34	832.98	0.47	834.02	0.57
830.92	0.10	831.96	0.34	833.00	0.47	834.04	0.58
830.94	0.11	831.98	0.35	833.02	0.48	834.06	0.58
830.96	0.12	832.00	0.35	833.04	0.48	834.08	0.58
830.98	0.13	832.02	0.35	833.06	0.48	834.10	0.58
831.00	0.13	832.04	0.35	833.08	0.48	834.12	0.58
831.02	0.14	832.06	0.36	833.10	0.49	834.14	0.59
831.04	0.15	832.08	0.36	833.12	0.49	834.16	0.59
831.06	0.16	832.10	0.36	833.14	0.49	834.18	0.59
831.08	0.16	832.12	0.37	833.16	0.49	834.20	0.59
831.10	0.17	832.14	0.37	833.18	0.49	834.22	0.59
831.12	0.17	832.16	0.37	833.20	0.50	834.24	0.59
831.14	0.18	832.18	0.37	833.22	0.50	834.26	0.60
831.16	0.19	832.20	0.38	833.24	0.50	834.28	0.60
831.18	0.19	832.22	0.38	833.26	0.50	834.30	0.60
831.20	0.20	832.24	0.38	833.28	0.50	834.32	0.60
831.22	0.20	832.26	0.39	833.30	0.51	834.34	0.60
831.24	0.21	832.28	0.39	833.32	0.51	834.36	0.60
831.26	0.21	832.30	0.39	833.34	0.51	834.38	0.61
831.28	0.22	832.32	0.39	833.36	0.51	834.40	0.61
831.30	0.22	832.34	0.40	833.38	0.51	834.42	0.61
831.32	0.23	832.36	0.40	833.40	0.52	834.44	0.61
831.34	0.23	832.38	0.40	833.42	0.52	834.46	0.61
831.36	0.24	832.40	0.40	833.44	0.52	834.48	0.61
831.38	0.24	832.42	0.41	833.46	0.52	834.50	0.62
831.40	0.24	832.44	0.41	833.48	0.52	834.52	0.62
831.42	0.25	832.46	0.41	833.50	0.53	834.54	0.62
831.44	0.25	832.48	0.41	833.52	0.53	834.56	0.62
831.46	0.26	832.50	0.42	833.54	0.53	834.58	0.62
831.48	0.26	832.52	0.42	833.56	0.53	834.60	0.62
831.50	0.26	832.54	0.42	833.58	0.53	834.62	0.63
831.52	0.27	832.56	0.42	833.60	0.54	834.64	0.63
831.54	0.27	832.58	0.43	833.62	0.54	834.66	0.63
831.56	0.28	832.60	0.43	833.64	0.54	834.68	0.63
831.58	0.28	832.62	0.43	833.66	0.54	834.70	0.63
831.60	0.28	832.64	0.43	833.68	0.54	834.72	0.63
831.62	0.29	832.66	0.44	833.70	0.55	834.74	**0.64**
831.64	0.29	832.68	0.44	833.72	0.55		
831.66	0.29	832.70	0.44	833.74	0.55		
831.68	0.30	832.72	0.44	833.76	0.55		
831.70	0.30	832.74	0.45	833.78	0.55		

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

Subcatchment Post1: Existing Site Runoff Area=0.280 ac 95.00% Impervious Runoff Depth>2.02"
Tc=5.0 min CN=97 Runoff=0.97 cfs 0.047 af

Subcatchment Post2: Proposed Site Runoff Area=0.240 ac 98.33% Impervious Runoff Depth>2.11"
Tc=5.0 min CN=98 Runoff=0.85 cfs 0.042 af

Pond 1: CB Peak Elev=834.15' Inflow=0.60 cfs 0.089 af
Outflow=0.60 cfs 0.089 af

Pond 2: CB Peak Elev=834.29' Storage=722 cf Inflow=1.55 cfs 0.089 af
Outflow=0.60 cfs 0.089 af

Pond 2a: CB Peak Elev=834.09' Storage=100 cf Inflow=0.85 cfs 0.042 af
Outflow=0.58 cfs 0.042 af

Summary for Subcatchment Post1: Existing Site

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.97 cfs @ 11.95 hrs, Volume= 0.047 af, Depth> 2.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-Year Rainfall=2.50"

Area (ac)	CN	Description
0.080	98	Roofs, HSG C
0.186	98	Paved parking, HSG C
0.014	74	>75% Grass cover, Good, HSG C
0.280	97	Weighted Average
0.014		5.00% Pervious Area
0.266		95.00% Impervious Area

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

Summary for Subcatchment Post2: Proposed Site

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.85 cfs @ 11.95 hrs, Volume= 0.042 af, Depth> 2.11"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-Year Rainfall=2.50"

Area (ac)	CN	Description
0.236	98	Paved parking, HSG C
0.004	74	>75% Grass cover, Good, HSG C
0.240	98	Weighted Average
0.004		1.67% Pervious Area
0.236		98.33% Impervious Area

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

Summary for Pond 1: CB

[82] Warning: Early inflow requires earlier time span
[57] Hint: Peaked at 834.15' (Flood elevation advised)
[79] Warning: Submerged Pond 2 Primary device # 2 by 3.47'

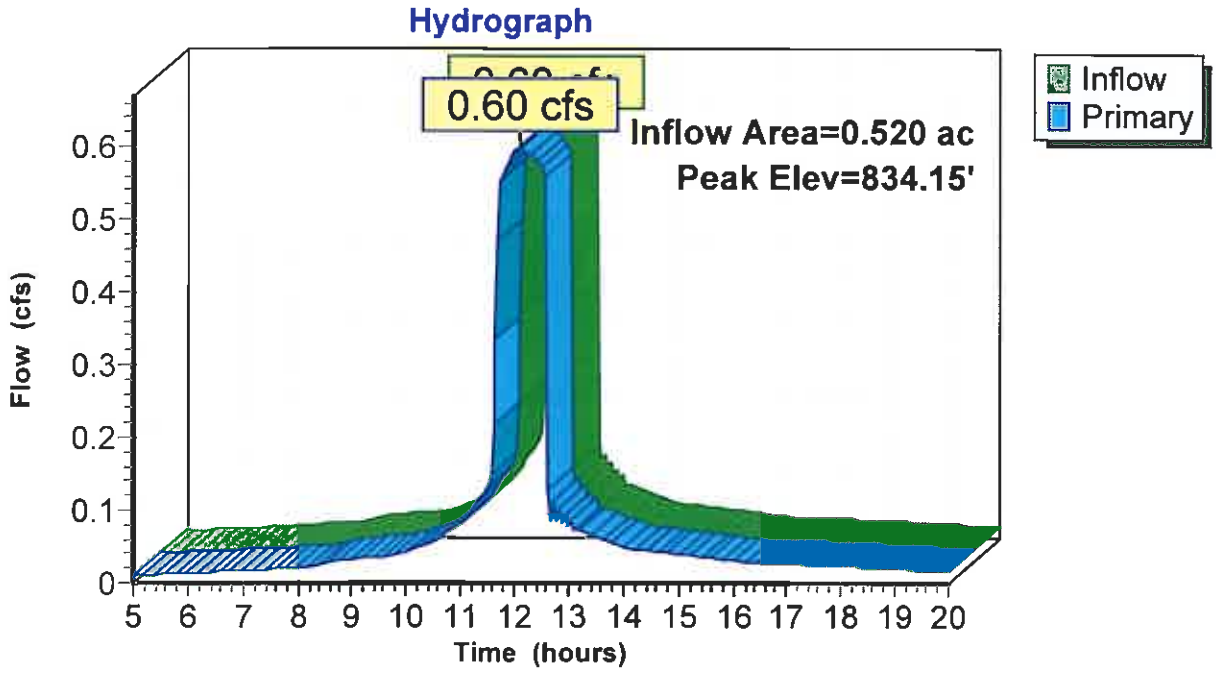
Inflow Area =	0.520 ac,	96.54% Impervious,	Inflow Depth >	2.06"	for 2-Year event
Inflow =	0.60 cfs @	12.12 hrs,	Volume=	0.089 af	
Outflow =	0.60 cfs @	12.12 hrs,	Volume=	0.089 af,	Atten= 0%, Lag= 0.0 min
Primary =	0.60 cfs @	12.12 hrs,	Volume=	0.089 af	

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 834.15' @ 12.12 hrs

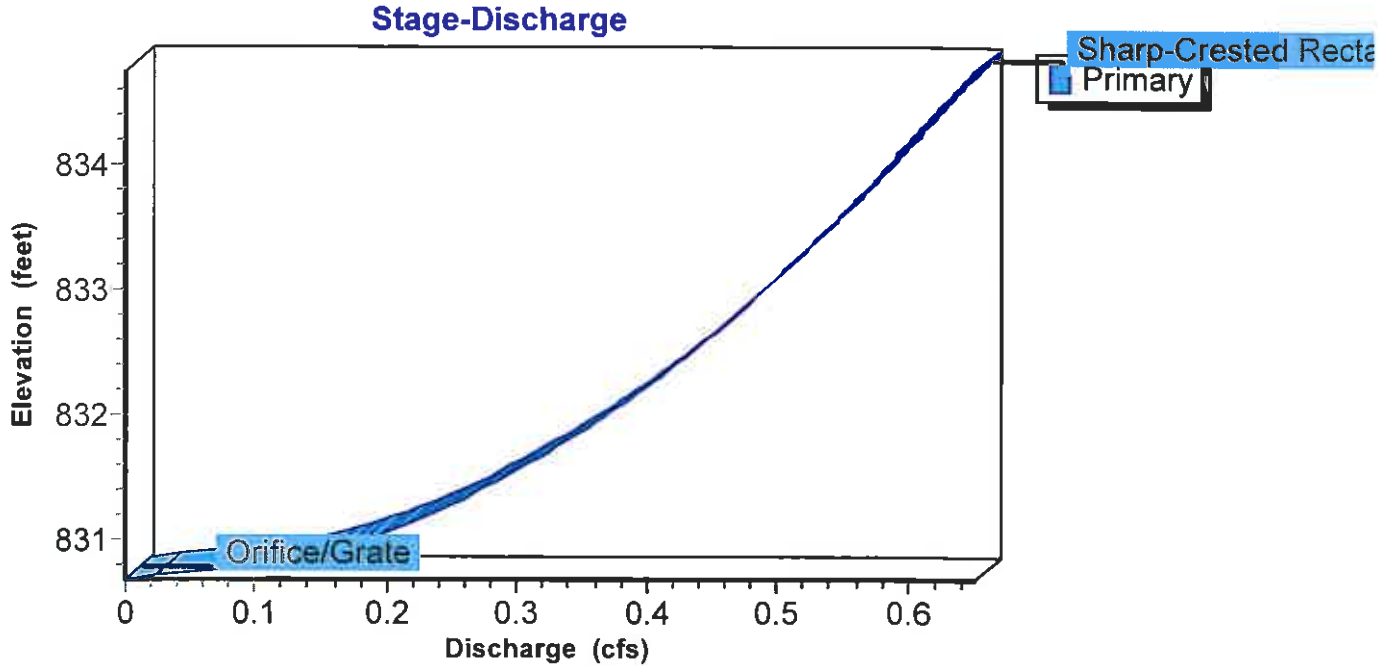
Device	Routing	Invert	Outlet Devices
#1	Primary	830.68'	**3.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	834.75'	**10.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.60 cfs @ 12.12 hrs HW=834.14' (Free Discharge)
└─**1=Orifice/Grate** (Orifice Controls 0.60 cfs @ 8.96 fps)
└─**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1: CB



Pond 1: CB


Stage-Discharge
Sharp-Crested Recta
Primary
Orifice/Grate
Elevation (feet)
834
833
832
831
0
0.1
0.2
0.3
0.4
0.5
0.6
Discharge (cfs)

Stage-Discharge for Pond 1: CB

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
830.68	0.00	831.72	0.33	832.76	0.46	833.80	0.57
830.70	0.01	831.74	0.33	832.78	0.47	833.82	0.57
830.72	0.02	831.76	0.33	832.80	0.47	833.84	0.57
830.74	0.04	831.78	0.34	832.82	0.47	833.86	0.57
830.76	0.07	831.80	0.34	832.84	0.47	833.88	0.58
830.78	0.09	831.82	0.34	832.86	0.47	833.90	0.58
830.80	0.11	831.84	0.35	832.88	0.48	833.92	0.58
830.82	0.12	831.86	0.35	832.90	0.48	833.94	0.58
830.84	0.13	831.88	0.35	832.92	0.48	833.96	0.58
830.86	0.14	831.90	0.36	832.94	0.48	833.98	0.58
830.88	0.14	831.92	0.36	832.96	0.49	834.00	0.59
830.90	0.15	831.94	0.36	832.98	0.49	834.02	0.59
830.92	0.16	831.96	0.36	833.00	0.49	834.04	0.59
830.94	0.16	831.98	0.37	833.02	0.49	834.06	0.59
830.96	0.17	832.00	0.37	833.04	0.49	834.08	0.59
830.98	0.18	832.02	0.37	833.06	0.50	834.10	0.59
831.00	0.18	832.04	0.38	833.08	0.50	834.12	0.60
831.02	0.19	832.06	0.38	833.10	0.50	834.14	0.60
831.04	0.19	832.08	0.38	833.12	0.50	834.16	0.60
831.06	0.20	832.10	0.38	833.14	0.50	834.18	0.60
831.08	0.20	832.12	0.39	833.16	0.51	834.20	0.60
831.10	0.21	832.14	0.39	833.18	0.51	834.22	0.61
831.12	0.21	832.16	0.39	833.20	0.51	834.24	0.61
831.14	0.22	832.18	0.39	833.22	0.51	834.26	0.61
831.16	0.22	832.20	0.40	833.24	0.51	834.28	0.61
831.18	0.23	832.22	0.40	833.26	0.52	834.30	0.61
831.20	0.23	832.24	0.40	833.28	0.52	834.32	0.61
831.22	0.24	832.26	0.40	833.30	0.52	834.34	0.62
831.24	0.24	832.28	0.41	833.32	0.52	834.36	0.62
831.26	0.25	832.30	0.41	833.34	0.52	834.38	0.62
831.28	0.25	832.32	0.41	833.36	0.53	834.40	0.62
831.30	0.25	832.34	0.41	833.38	0.53	834.42	0.62
831.32	0.26	832.36	0.42	833.40	0.53	834.44	0.62
831.34	0.26	832.38	0.42	833.42	0.53	834.46	0.63
831.36	0.27	832.40	0.42	833.44	0.53	834.48	0.63
831.38	0.27	832.42	0.42	833.46	0.54	834.50	0.63
831.40	0.27	832.44	0.43	833.48	0.54	834.52	0.63
831.42	0.28	832.46	0.43	833.50	0.54	834.54	0.63
831.44	0.28	832.48	0.43	833.52	0.54	834.56	0.63
831.46	0.28	832.50	0.43	833.54	0.54	834.58	0.64
831.48	0.29	832.52	0.44	833.56	0.55	834.60	0.64
831.50	0.29	832.54	0.44	833.58	0.55	834.62	0.64
831.52	0.29	832.56	0.44	833.60	0.55	834.64	0.64
831.54	0.30	832.58	0.44	833.62	0.55	834.66	0.64
831.56	0.30	832.60	0.45	833.64	0.55	834.68	0.64
831.58	0.31	832.62	0.45	833.66	0.56	834.70	0.65
831.60	0.31	832.64	0.45	833.68	0.56	834.72	0.65
831.62	0.31	832.66	0.45	833.70	0.56	834.74	**0.65**
831.64	0.32	832.68	0.45	833.72	0.56		
831.66	0.32	832.70	0.46	833.74	0.56		
831.68	0.32	832.72	0.46	833.76	0.56		
831.70	0.32	832.74	0.46	833.78	0.57		

Summary for Pond 2: CB

[82] Warning: Early inflow requires earlier time span
[85] Warning: Oscillations may require Finer Routing>1
[81] Warning: Exceeded Pond 2a by 3.34' @ 12.20 hrs

Inflow Area = 0.520 ac, 96.54% Impervious, Inflow Depth > 2.06" for 2-Year event
Inflow = 1.55 cfs @ 11.95 hrs, Volume= 0.089 af
Outflow = 0.60 cfs @ 12.12 hrs, Volume= 0.089 af, Atten= 61%, Lag= 9.9 min
Primary = 0.60 cfs @ 12.12 hrs, Volume= 0.089 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 834.29' @ 12.12 hrs Surf.Area= 2,612 sf Storage= 722 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 5.2 min (743.6 - 738.4)

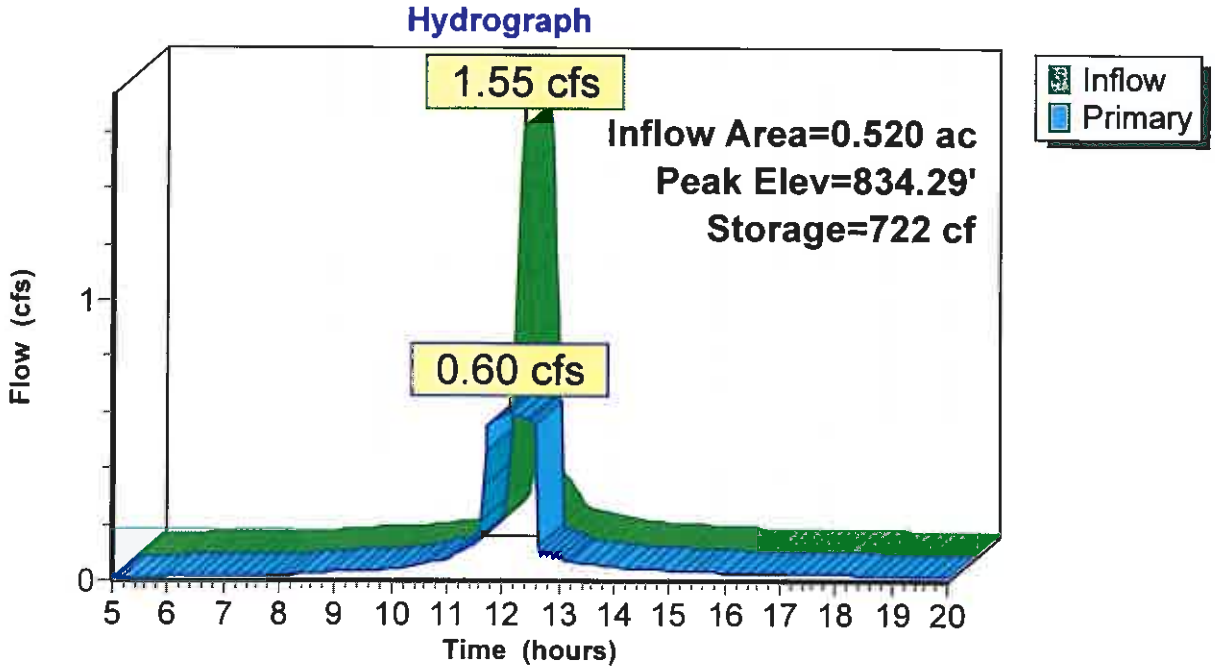
Volume	Invert	Avail.Storage	Storage Description
#1	830.68'	2,419 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
830.68	4	0	0
831.55	4	3	3
833.75	4	9	12
834.75	4,809	2,407	2,419

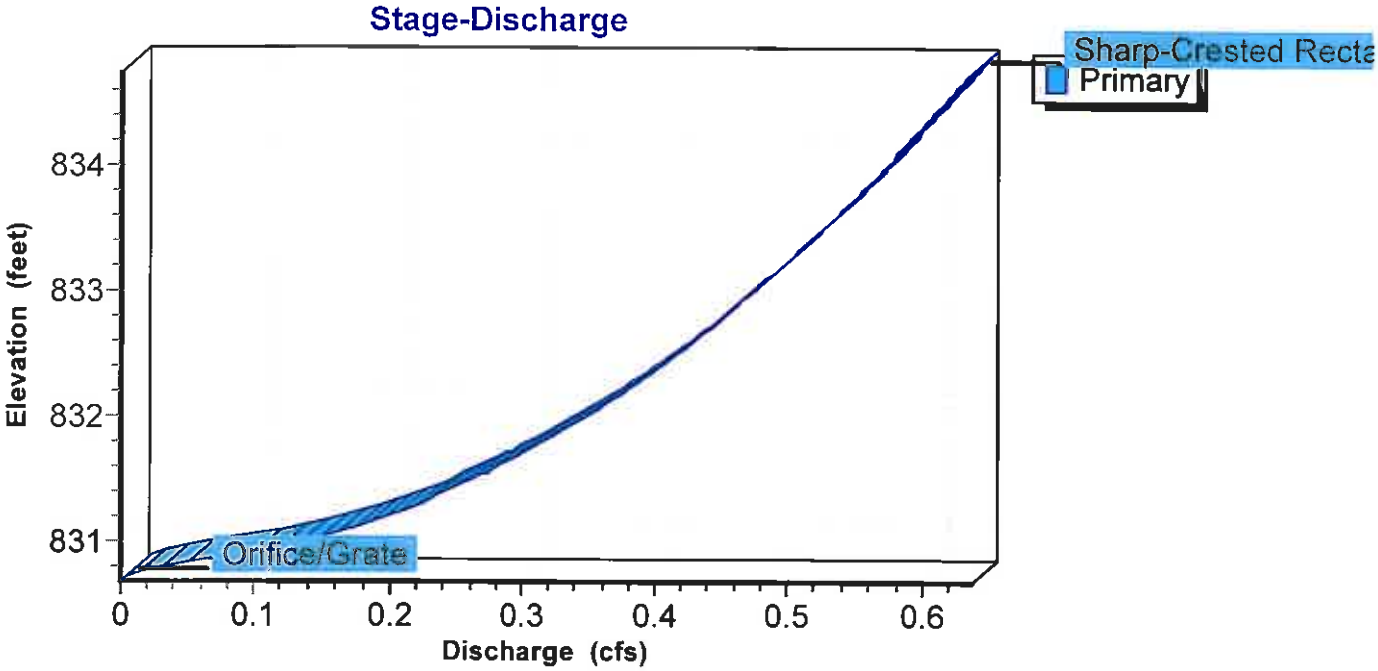
Device	Routing	Invert	Outlet Devices
#1	Primary	834.75'	**10.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	830.68'	**3.5" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.60 cfs @ 12.12 hrs HW=834.29' (Free Discharge)
└1=**Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
└2=**Orifice/Grate** (Orifice Controls 0.60 cfs @ 8.96 fps)

Pond 2: CB



Pond 2: CB



Stage-Discharge for Pond 2: CB

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
830.68	0.00	831.72	0.30	832.76	0.45	833.80	0.55
830.70	0.00	831.74	0.31	832.78	0.45	833.82	0.56
830.72	0.00	831.76	0.31	832.80	0.45	833.84	0.56
830.74	0.01	831.78	0.31	832.82	0.45	833.86	0.56
830.76	0.01	831.80	0.32	832.84	0.46	833.88	0.56
830.78	0.02	831.82	0.32	832.86	0.46	833.90	0.56
830.80	0.03	831.84	0.32	832.88	0.46	833.92	0.57
830.82	0.04	831.86	0.33	832.90	0.46	833.94	0.57
830.84	0.05	831.88	0.33	832.92	0.47	833.96	0.57
830.86	0.06	831.90	0.33	832.94	0.47	833.98	0.57
830.88	0.07	831.92	0.34	832.96	0.47	834.00	0.57
830.90	0.09	831.94	0.34	832.98	0.47	834.02	0.57
830.92	0.10	831.96	0.34	833.00	0.47	834.04	0.58
830.94	0.11	831.98	0.35	833.02	0.48	834.06	0.58
830.96	0.12	832.00	0.35	833.04	0.48	834.08	0.58
830.98	0.13	832.02	0.35	833.06	0.48	834.10	0.58
831.00	0.13	832.04	0.35	833.08	0.48	834.12	0.58
831.02	0.14	832.06	0.36	833.10	0.49	834.14	0.59
831.04	0.15	832.08	0.36	833.12	0.49	834.16	0.59
831.06	0.16	832.10	0.36	833.14	0.49	834.18	0.59
831.08	0.16	832.12	0.37	833.16	0.49	834.20	0.59
831.10	0.17	832.14	0.37	833.18	0.49	834.22	0.59
831.12	0.17	832.16	0.37	833.20	0.50	834.24	0.59
831.14	0.18	832.18	0.37	833.22	0.50	834.26	0.60
831.16	0.19	832.20	0.38	833.24	0.50	834.28	0.60
831.18	0.19	832.22	0.38	833.26	0.50	834.30	0.60
831.20	0.20	832.24	0.38	833.28	0.50	834.32	0.60
831.22	0.20	832.26	0.39	833.30	0.51	834.34	0.60
831.24	0.21	832.28	0.39	833.32	0.51	834.36	0.60
831.26	0.21	832.30	0.39	833.34	0.51	834.38	0.61
831.28	0.22	832.32	0.39	833.36	0.51	834.40	0.61
831.30	0.22	832.34	0.40	833.38	0.51	834.42	0.61
831.32	0.23	832.36	0.40	833.40	0.52	834.44	0.61
831.34	0.23	832.38	0.40	833.42	0.52	834.46	0.61
831.36	0.24	832.40	0.40	833.44	0.52	834.48	0.61
831.38	0.24	832.42	0.41	833.46	0.52	834.50	0.62
831.40	0.24	832.44	0.41	833.48	0.52	834.52	0.62
831.42	0.25	832.46	0.41	833.50	0.53	834.54	0.62
831.44	0.25	832.48	0.41	833.52	0.53	834.56	0.62
831.46	0.26	832.50	0.42	833.54	0.53	834.58	0.62
831.48	0.26	832.52	0.42	833.56	0.53	834.60	0.62
831.50	0.26	832.54	0.42	833.58	0.53	834.62	0.63
831.52	0.27	832.56	0.42	833.60	0.54	834.64	0.63
831.54	0.27	832.58	0.43	833.62	0.54	834.66	0.63
831.56	0.28	832.60	0.43	833.64	0.54	834.68	0.63
831.58	0.28	832.62	0.43	833.66	0.54	834.70	0.63
831.60	0.28	832.64	0.43	833.68	0.54	834.72	0.63
831.62	0.29	832.66	0.44	833.70	0.55	834.74	**0.64**
831.64	0.29	832.68	0.44	833.72	0.55		
831.66	0.29	832.70	0.44	833.74	0.55		
831.68	0.30	832.72	0.44	833.76	0.55		
831.70	0.30	832.74	0.45	833.78	0.55		

Summary for Pond 2a: CB

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.240 ac, 98.33% Impervious, Inflow Depth > 2.11" for 2-Year event
Inflow = 0.85 cfs @ 11.95 hrs, Volume= 0.042 af
Outflow = 0.58 cfs @ 12.02 hrs, Volume= 0.042 af, Atten= 32%, Lag= 4.0 min
Primary = 0.58 cfs @ 12.02 hrs, Volume= 0.042 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 834.09' @ 12.02 hrs Surf.Area= 1,140 sf Storage= 100 cf

Plug-Flow detention time= 0.8 min calculated for 0.042 af (100% of inflow)
Center-of-Mass det. time= 0.7 min (735.6 - 735.0)

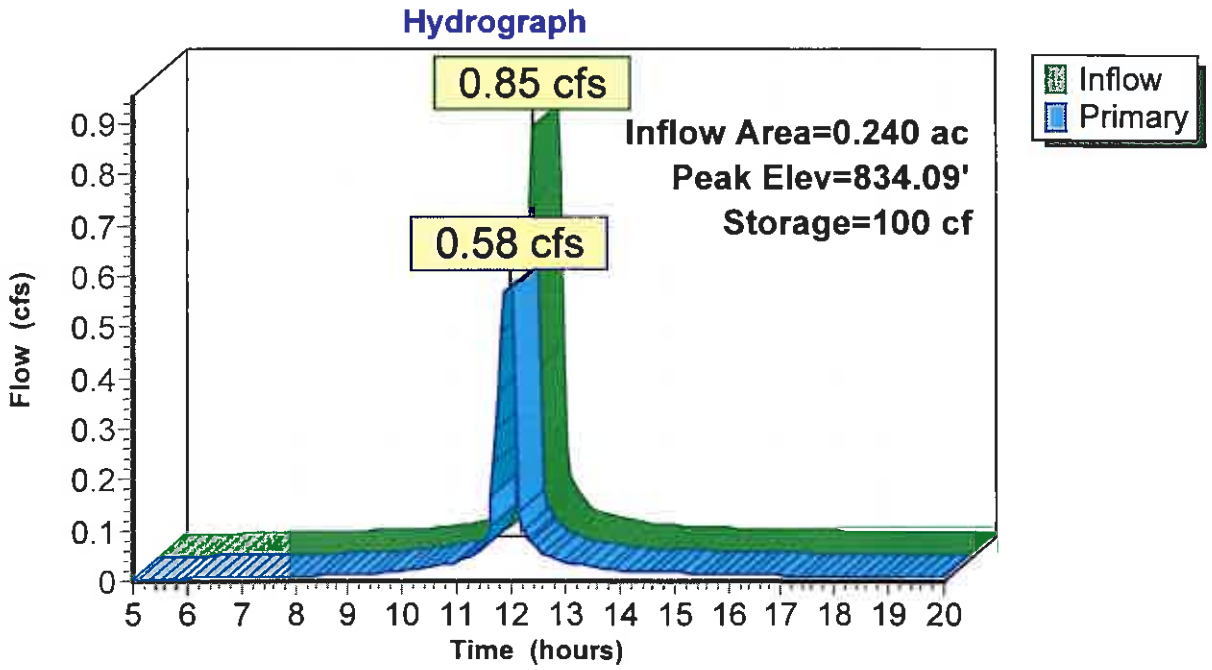
Volume	Invert	Avail.Storage	Storage Description
#1	830.68'	2,473 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
830.68	4	0	0
831.89	4	5	5
833.94	4	8	13
834.75	6,070	2,460	2,473

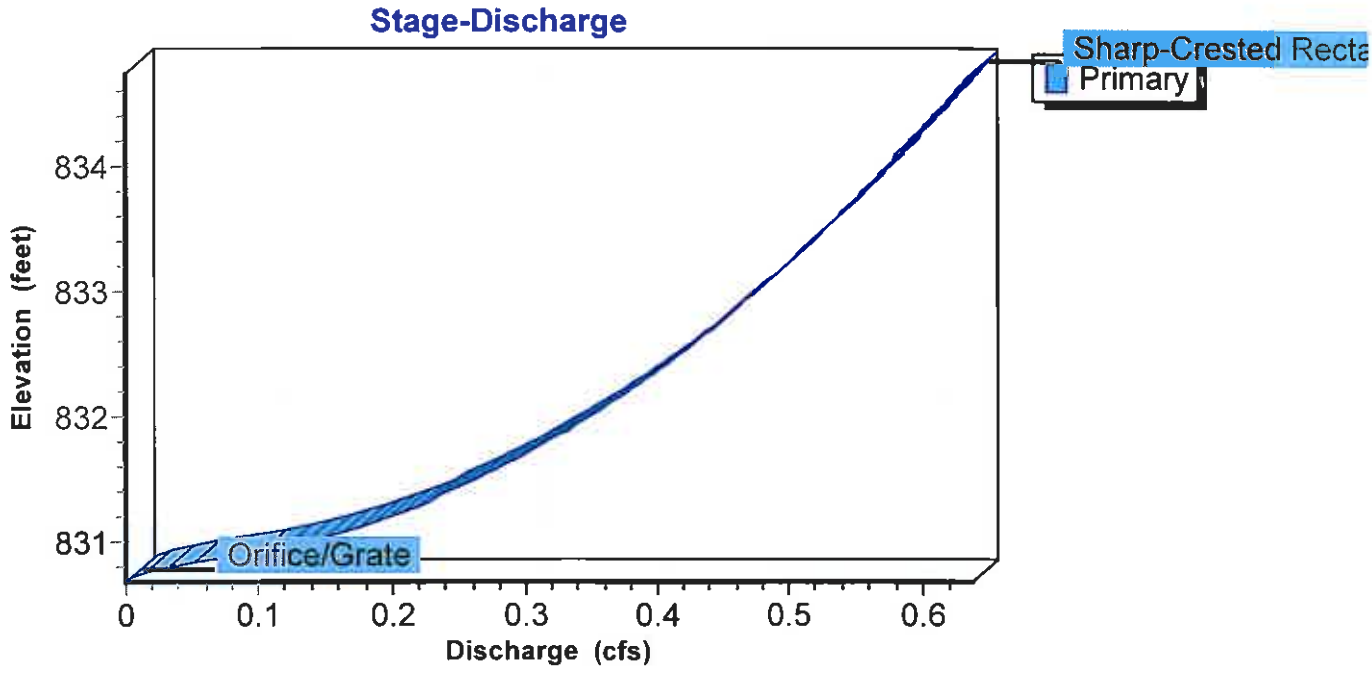
Device	Routing	Invert	Outlet Devices
#1	Primary	834.75'	**10.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	830.68'	**3.5" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.58 cfs @ 12.02 hrs HW=834.09' (Free Discharge)
↑—1=**Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
└—2=Orifice/Grate (Orifice Controls 0.58 cfs @ 8.70 fps)

Pond 2a: CB



Pond 2a: CB



Stage-Discharge for Pond 2a: CB

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
830.68	0.00	831.72	0.30	832.76	0.45	833.80	0.55
830.70	0.00	831.74	0.31	832.78	0.45	833.82	0.56
830.72	0.00	831.76	0.31	832.80	0.45	833.84	0.56
830.74	0.01	831.78	0.31	832.82	0.45	833.86	0.56
830.76	0.01	831.80	0.32	832.84	0.46	833.88	0.56
830.78	0.02	831.82	0.32	832.86	0.46	833.90	0.56
830.80	0.03	831.84	0.32	832.88	0.46	833.92	0.57
830.82	0.04	831.86	0.33	832.90	0.46	833.94	0.57
830.84	0.05	831.88	0.33	832.92	0.47	833.96	0.57
830.86	0.06	831.90	0.33	832.94	0.47	833.98	0.57
830.88	0.07	831.92	0.34	832.96	0.47	834.00	0.57
830.90	0.09	831.94	0.34	832.98	0.47	834.02	0.57
830.92	0.10	831.96	0.34	833.00	0.47	834.04	0.58
830.94	0.11	831.98	0.35	833.02	0.48	834.06	0.58
830.96	0.12	832.00	0.35	833.04	0.48	834.08	0.58
830.98	0.13	832.02	0.35	833.06	0.48	834.10	0.58
831.00	0.13	832.04	0.35	833.08	0.48	834.12	0.58
831.02	0.14	832.06	0.36	833.10	0.49	834.14	0.59
831.04	0.15	832.08	0.36	833.12	0.49	834.16	0.59
831.06	0.16	832.10	0.36	833.14	0.49	834.18	0.59
831.08	0.16	832.12	0.37	833.16	0.49	834.20	0.59
831.10	0.17	832.14	0.37	833.18	0.49	834.22	0.59
831.12	0.17	832.16	0.37	833.20	0.50	834.24	0.59
831.14	0.18	832.18	0.37	833.22	0.50	834.26	0.60
831.16	0.19	832.20	0.38	833.24	0.50	834.28	0.60
831.18	0.19	832.22	0.38	833.26	0.50	834.30	0.60
831.20	0.20	832.24	0.38	833.28	0.50	834.32	0.60
831.22	0.20	832.26	0.39	833.30	0.51	834.34	0.60
831.24	0.21	832.28	0.39	833.32	0.51	834.36	0.60
831.26	0.21	832.30	0.39	833.34	0.51	834.38	0.61
831.28	0.22	832.32	0.39	833.36	0.51	834.40	0.61
831.30	0.22	832.34	0.40	833.38	0.51	834.42	0.61
831.32	0.23	832.36	0.40	833.40	0.52	834.44	0.61
831.34	0.23	832.38	0.40	833.42	0.52	834.46	0.61
831.36	0.24	832.40	0.40	833.44	0.52	834.48	0.61
831.38	0.24	832.42	0.41	833.46	0.52	834.50	0.62
831.40	0.24	832.44	0.41	833.48	0.52	834.52	0.62
831.42	0.25	832.46	0.41	833.50	0.53	834.54	0.62
831.44	0.25	832.48	0.41	833.52	0.53	834.56	0.62
831.46	0.26	832.50	0.42	833.54	0.53	834.58	0.62
831.48	0.26	832.52	0.42	833.56	0.53	834.60	0.62
831.50	0.26	832.54	0.42	833.58	0.53	834.62	0.63
831.52	0.27	832.56	0.42	833.60	0.54	834.64	0.63
831.54	0.27	832.58	0.43	833.62	0.54	834.66	0.63
831.56	0.28	832.60	0.43	833.64	0.54	834.68	0.63
831.58	0.28	832.62	0.43	833.66	0.54	834.70	0.63
831.60	0.28	832.64	0.43	833.68	0.54	834.72	0.63
831.62	0.29	832.66	0.44	833.70	0.55	834.74	**0.64**
831.64	0.29	832.68	0.44	833.72	0.55		
831.66	0.29	832.70	0.44	833.74	0.55		
831.68	0.30	832.72	0.44	833.76	0.55		
831.70	0.30	832.74	0.45	833.78	0.55		

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

SubcatchmentPost1: Existing Site Runoff Area=0.280 ac 95.00% Impervious Runoff Depth>2.75"
Tc=5.0 min CN=97 Runoff=1.30 cfs 0.064 af

SubcatchmentPost2: Proposed Site Runoff Area=0.240 ac 98.33% Impervious Runoff Depth>2.84"
Tc=5.0 min CN=98 Runoff=1.13 cfs 0.057 af

Pond 1: CB Peak Elev=834.29' Inflow=0.61 cfs 0.121 af
Outflow=0.61 cfs 0.121 af

Pond 2: CB Peak Elev=834.43' Storage=1,140 cf Inflow=1.89 cfs 0.121 af
Outflow=0.61 cfs 0.121 af

Pond 2a: CB Peak Elev=834.19' Storage=255 cf Inflow=1.13 cfs 0.057 af
Outflow=0.59 cfs 0.057 af

Summary for Subcatchment Post1: Existing Site

[49] Hint: Tc<2dt may require smaller dt

Runoff = 1.30 cfs @ 11.95 hrs, Volume= 0.064 af, Depth> 2.75"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 5-Year Rainfall=3.30"

Area (ac)	CN	Description
0.080	98	Roofs, HSG C
0.186	98	Paved parking, HSG C
0.014	74	>75% Grass cover, Good, HSG C
0.280	97	Weighted Average
0.014		5.00% Pervious Area
0.266		95.00% Impervious Area

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

Summary for Subcatchment Post2: Proposed Site

[49] Hint: Tc<2dt may require smaller dt

Runoff = 1.13 cfs @ 11.95 hrs, Volume= 0.057 af, Depth> 2.84"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 5-Year Rainfall=3.30"

Area (ac)	CN	Description
0.236	98	Paved parking, HSG C
0.004	74	>75% Grass cover, Good, HSG C
0.240	98	Weighted Average
0.004		1.67% Pervious Area
0.236		98.33% Impervious Area

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

Summary for Pond 1: CB

[82] Warning: Early inflow requires earlier time span
[57] Hint: Peaked at 834.29' (Flood elevation advised)
[79] Warning: Submerged Pond 2 Primary device # 2 by 3.61'

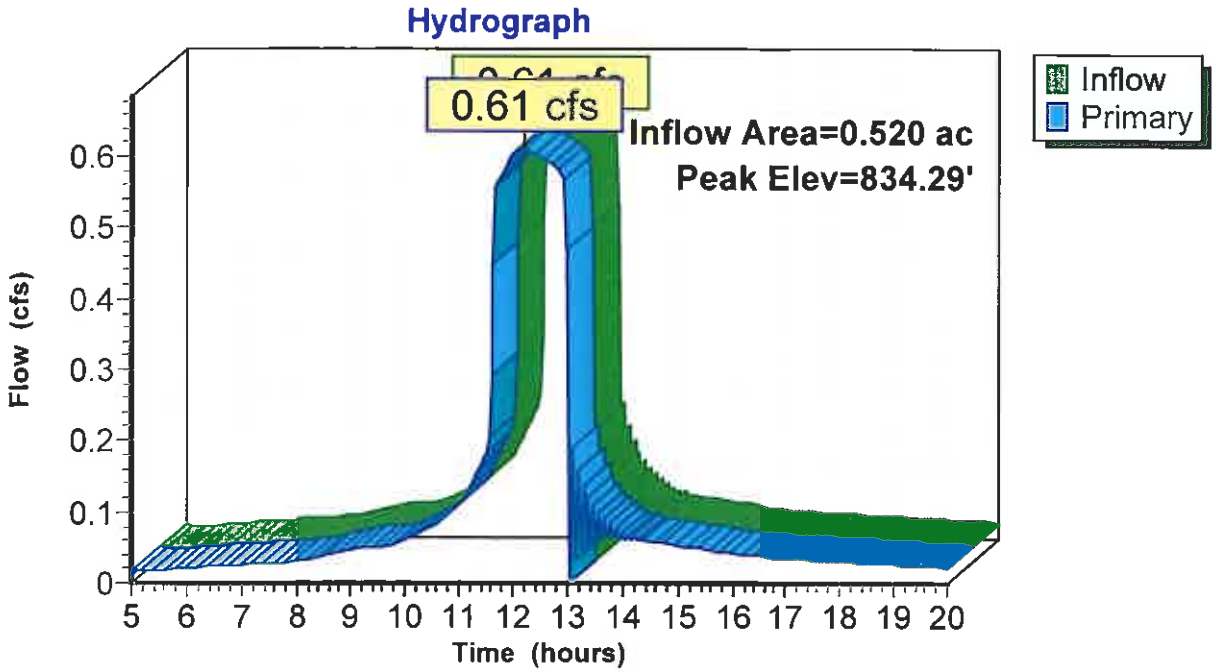
Inflow Area =	0.520 ac, 96.54% Impervious, Inflow Depth > 2.80" for 5-Year event			
Inflow =	0.61 cfs @ 12.23 hrs, Volume=	0.121 af		
Outflow =	0.61 cfs @ 12.23 hrs, Volume=	0.121 af, Atten= 0%, Lag= 0.0 min		
Primary =	0.61 cfs @ 12.23 hrs, Volume=	0.121 af		

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 834.29' @ 12.23 hrs

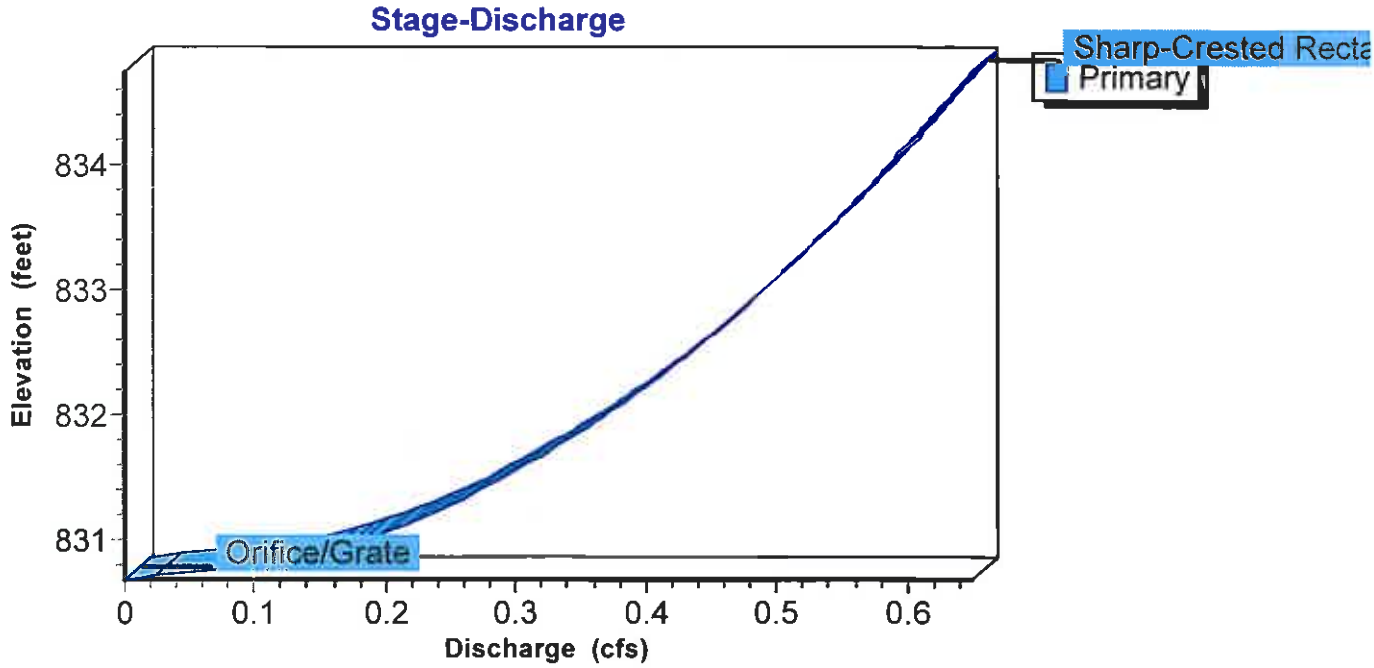
Device	Routing	Invert	Outlet Devices
#1	Primary	830.68'	**3.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	834.75'	**10.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.61 cfs @ 12.23 hrs HW=834.29' (Free Discharge)
└1=**Orifice/Grate** (Orifice Controls 0.61 cfs @ 9.14 fps)
└2=Sharp-Crested **Rectangular Weir** (Controls 0.00 cfs)

Pond 1: CB



Pond 1: CB


Stage-Discharge
Sharp-Crested Recta
Primary
Orifice/Grate
Elevation (feet)
834
833
832
831
0
0.1
0.2
0.3
0.4
0.5
0.6
Discharge (cfs)

Stage-Discharge for Pond 1: CB

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
830.68	0.00	831.72	0.33	832.76	0.46	833.80	0.57
830.70	0.01	831.74	0.33	832.78	0.47	833.82	0.57
830.72	0.02	831.76	0.33	832.80	0.47	833.84	0.57
830.74	0.04	831.78	0.34	832.82	0.47	833.86	0.57
830.76	0.07	831.80	0.34	832.84	0.47	833.88	0.58
830.78	0.09	831.82	0.34	832.86	0.47	833.90	0.58
830.80	0.11	831.84	0.35	832.88	0.48	833.92	0.58
830.82	0.12	831.86	0.35	832.90	0.48	833.94	0.58
830.84	0.13	831.88	0.35	832.92	0.48	833.96	0.58
830.86	0.14	831.90	0.36	832.94	0.48	833.98	0.58
830.88	0.14	831.92	0.36	832.96	0.49	834.00	0.59
830.90	0.15	831.94	0.36	832.98	0.49	834.02	0.59
830.92	0.16	831.96	0.36	833.00	0.49	834.04	0.59
830.94	0.16	831.98	0.37	833.02	0.49	834.06	0.59
830.96	0.17	832.00	0.37	833.04	0.49	834.08	0.59
830.98	0.18	832.02	0.37	833.06	0.50	834.10	0.59
831.00	0.18	832.04	0.38	833.08	0.50	834.12	0.60
831.02	0.19	832.06	0.38	833.10	0.50	834.14	0.60
831.04	0.19	832.08	0.38	833.12	0.50	834.16	0.60
831.06	0.20	832.10	0.38	833.14	0.50	834.18	0.60
831.08	0.20	832.12	0.39	833.16	0.51	834.20	0.60
831.10	0.21	832.14	0.39	833.18	0.51	834.22	0.61
831.12	0.21	832.16	0.39	833.20	0.51	834.24	0.61
831.14	0.22	832.18	0.39	833.22	0.51	834.26	0.61
831.16	0.22	832.20	0.40	833.24	0.51	834.28	0.61
831.18	0.23	832.22	0.40	833.26	0.52	834.30	0.61
831.20	0.23	832.24	0.40	833.28	0.52	834.32	0.61
831.22	0.24	832.26	0.40	833.30	0.52	834.34	0.62
831.24	0.24	832.28	0.41	833.32	0.52	834.36	0.62
831.26	0.25	832.30	0.41	833.34	0.52	834.38	0.62
831.28	0.25	832.32	0.41	833.36	0.53	834.40	0.62
831.30	0.25	832.34	0.41	833.38	0.53	834.42	0.62
831.32	0.26	832.36	0.42	833.40	0.53	834.44	0.62
831.34	0.26	832.38	0.42	833.42	0.53	834.46	0.63
831.36	0.27	832.40	0.42	833.44	0.53	834.48	0.63
831.38	0.27	832.42	0.42	833.46	0.54	834.50	0.63
831.40	0.27	832.44	0.43	833.48	0.54	834.52	0.63
831.42	0.28	832.46	0.43	833.50	0.54	834.54	0.63
831.44	0.28	832.48	0.43	833.52	0.54	834.56	0.63
831.46	0.28	832.50	0.43	833.54	0.54	834.58	0.64
831.48	0.29	832.52	0.44	833.56	0.55	834.60	0.64
831.50	0.29	832.54	0.44	833.58	0.55	834.62	0.64
831.52	0.29	832.56	0.44	833.60	0.55	834.64	0.64
831.54	0.30	832.58	0.44	833.62	0.55	834.66	0.64
831.56	0.30	832.60	0.45	833.64	0.55	834.68	0.64
831.58	0.31	832.62	0.45	833.66	0.56	834.70	0.65
831.60	0.31	832.64	0.45	833.68	0.56	834.72	0.65
831.62	0.31	832.66	0.45	833.70	0.56	834.74	**0.65**
831.64	0.32	832.68	0.45	833.72	0.56		
831.66	0.32	832.70	0.46	833.74	0.56		
831.68	0.32	832.72	0.46	833.76	0.56		
831.70	0.32	832.74	0.46	833.78	0.57		

Summary for Pond 2: CB

[82] Warning: Early inflow requires earlier time span
[85] Warning: Oscillations may require Finer Routing>1
[81] Warning: Exceeded Pond 2a by 3.74' @ 12.30 hrs

Inflow Area =	0.520 ac,	96.54% Impervious,	Inflow Depth >	2.79"	for 5-Year event
Inflow =	1.89 cfs @	11.95 hrs, Volume=	0.121 af		
Outflow =	0.61 cfs @	12.23 hrs, Volume=	0.121 af,	Atten= 68%,	Lag= 16.7 min
Primary =	0.61 cfs @	12.23 hrs, Volume=	0.121 af		

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 834.43' @ 12.23 hrs Surf.Area= 3,293 sf Storage= 1,140 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 9.4 min (744.7 - 735.3)

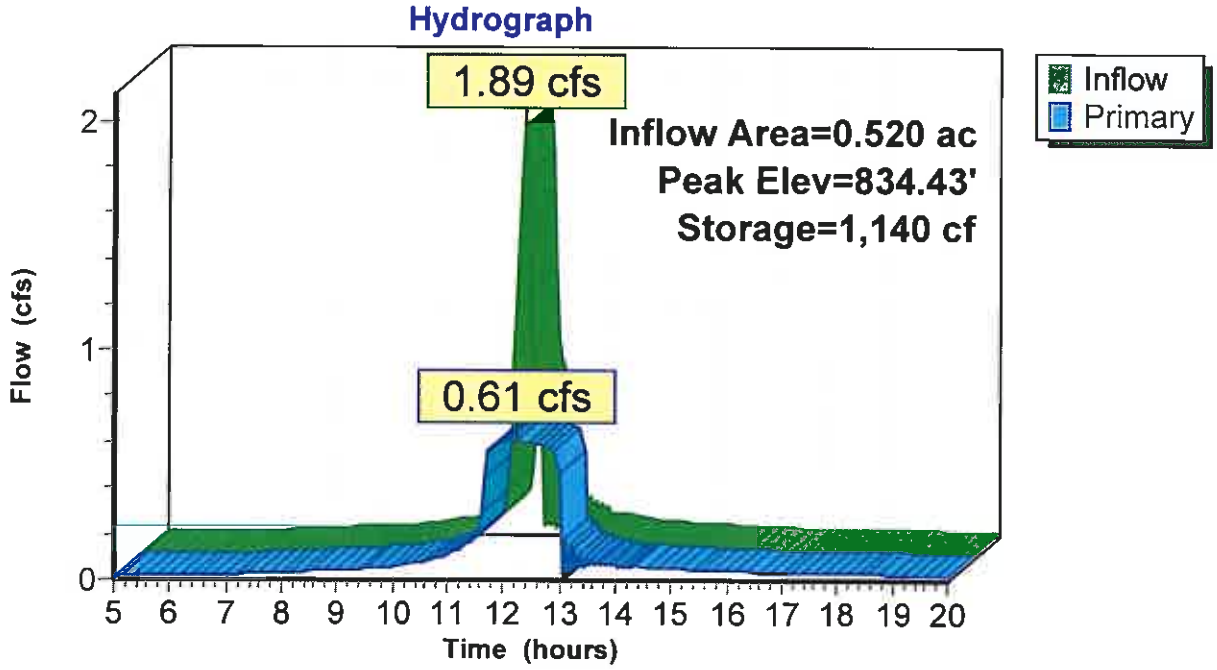
Volume	Invert	Avail.Storage	Storage Description
#1	830.68'	2,419 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
830.68	4	0	0
831.55	4	3	3
833.75	4	9	12
834.75	4,809	2,407	2,419

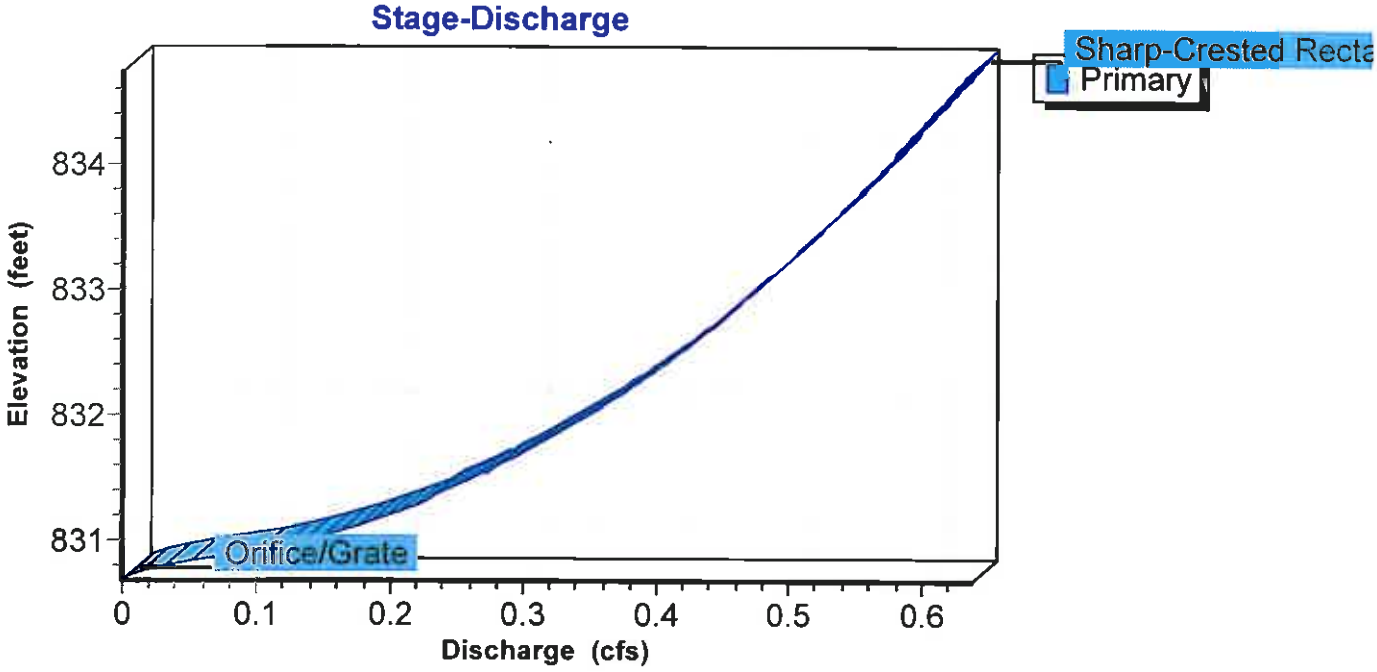
Device	Routing	Invert	Outlet Devices
#1	Primary	834.75'	**10.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	830.68'	**3.5" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.61 cfs @ 12.23 hrs HW=834.43' (Free Discharge)
↑—**1=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
└—**2=Orifice/Grate** (Orifice Controls 0.61 cfs @ 9.14 fps)

Pond 2: CB



Pond 2: CB



Stage-Discharge for Pond 2: CB

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
830.68	0.00	831.72	0.30	832.76	0.45	833.80	0.55
830.70	0.00	831.74	0.31	832.78	0.45	833.82	0.56
830.72	0.00	831.76	0.31	832.80	0.45	833.84	0.56
830.74	0.01	831.78	0.31	832.82	0.45	833.86	0.56
830.76	0.01	831.80	0.32	832.84	0.46	833.88	0.56
830.78	0.02	831.82	0.32	832.86	0.46	833.90	0.56
830.80	0.03	831.84	0.32	832.88	0.46	833.92	0.57
830.82	0.04	831.86	0.33	832.90	0.46	833.94	0.57
830.84	0.05	831.88	0.33	832.92	0.47	833.96	0.57
830.86	0.06	831.90	0.33	832.94	0.47	833.98	0.57
830.88	0.07	831.92	0.34	832.96	0.47	834.00	0.57
830.90	0.09	831.94	0.34	832.98	0.47	834.02	0.57
830.92	0.10	831.96	0.34	833.00	0.47	834.04	0.58
830.94	0.11	831.98	0.35	833.02	0.48	834.06	0.58
830.96	0.12	832.00	0.35	833.04	0.48	834.08	0.58
830.98	0.13	832.02	0.35	833.06	0.48	834.10	0.58
831.00	0.13	832.04	0.35	833.08	0.48	834.12	0.58
831.02	0.14	832.06	0.36	833.10	0.49	834.14	0.59
831.04	0.15	832.08	0.36	833.12	0.49	834.16	0.59
831.06	0.16	832.10	0.36	833.14	0.49	834.18	0.59
831.08	0.16	832.12	0.37	833.16	0.49	834.20	0.59
831.10	0.17	832.14	0.37	833.18	0.49	834.22	0.59
831.12	0.17	832.16	0.37	833.20	0.50	834.24	0.59
831.14	0.18	832.18	0.37	833.22	0.50	834.26	0.60
831.16	0.19	832.20	0.38	833.24	0.50	834.28	0.60
831.18	0.19	832.22	0.38	833.26	0.50	834.30	0.60
831.20	0.20	832.24	0.38	833.28	0.50	834.32	0.60
831.22	0.20	832.26	0.39	833.30	0.51	834.34	0.60
831.24	0.21	832.28	0.39	833.32	0.51	834.36	0.60
831.26	0.21	832.30	0.39	833.34	0.51	834.38	0.61
831.28	0.22	832.32	0.39	833.36	0.51	834.40	0.61
831.30	0.22	832.34	0.40	833.38	0.51	834.42	0.61
831.32	0.23	832.36	0.40	833.40	0.52	834.44	0.61
831.34	0.23	832.38	0.40	833.42	0.52	834.46	0.61
831.36	0.24	832.40	0.40	833.44	0.52	834.48	0.61
831.38	0.24	832.42	0.41	833.46	0.52	834.50	0.62
831.40	0.24	832.44	0.41	833.48	0.52	834.52	0.62
831.42	0.25	832.46	0.41	833.50	0.53	834.54	0.62
831.44	0.25	832.48	0.41	833.52	0.53	834.56	0.62
831.46	0.26	832.50	0.42	833.54	0.53	834.58	0.62
831.48	0.26	832.52	0.42	833.56	0.53	834.60	0.62
831.50	0.26	832.54	0.42	833.58	0.53	834.62	0.63
831.52	0.27	832.56	0.42	833.60	0.54	834.64	0.63
831.54	0.27	832.58	0.43	833.62	0.54	834.66	0.63
831.56	0.28	832.60	0.43	833.64	0.54	834.68	0.63
831.58	0.28	832.62	0.43	833.66	0.54	834.70	0.63
831.60	0.28	832.64	0.43	833.68	0.54	834.72	0.63
831.62	0.29	832.66	0.44	833.70	0.55	834.74	**0.64**
831.64	0.29	832.68	0.44	833.72	0.55		
831.66	0.29	832.70	0.44	833.74	0.55		
831.68	0.30	832.72	0.44	833.76	0.55		
831.70	0.30	832.74	0.45	833.78	0.55		

Summary for Pond 2a: CB

[82] Warning: Early inflow requires earlier time span
[85] Warning: Oscillations may require Finer Routing>1

Inflow Area = 0.240 ac, 98.33% Impervious, Inflow Depth > 2.84" for 5-Year event
Inflow = 1.13 cfs @ 11.95 hrs, Volume= 0.057 af
Outflow = 0.59 cfs @ 12.04 hrs, Volume= 0.057 af, Atten= 48%, Lag= 5.6 min
Primary = 0.59 cfs @ 12.04 hrs, Volume= 0.057 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 834.19' @ 12.04 hrs Surf.Area= 1,902 sf Storage= 255 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1.5 min (733.7 - 732.2)

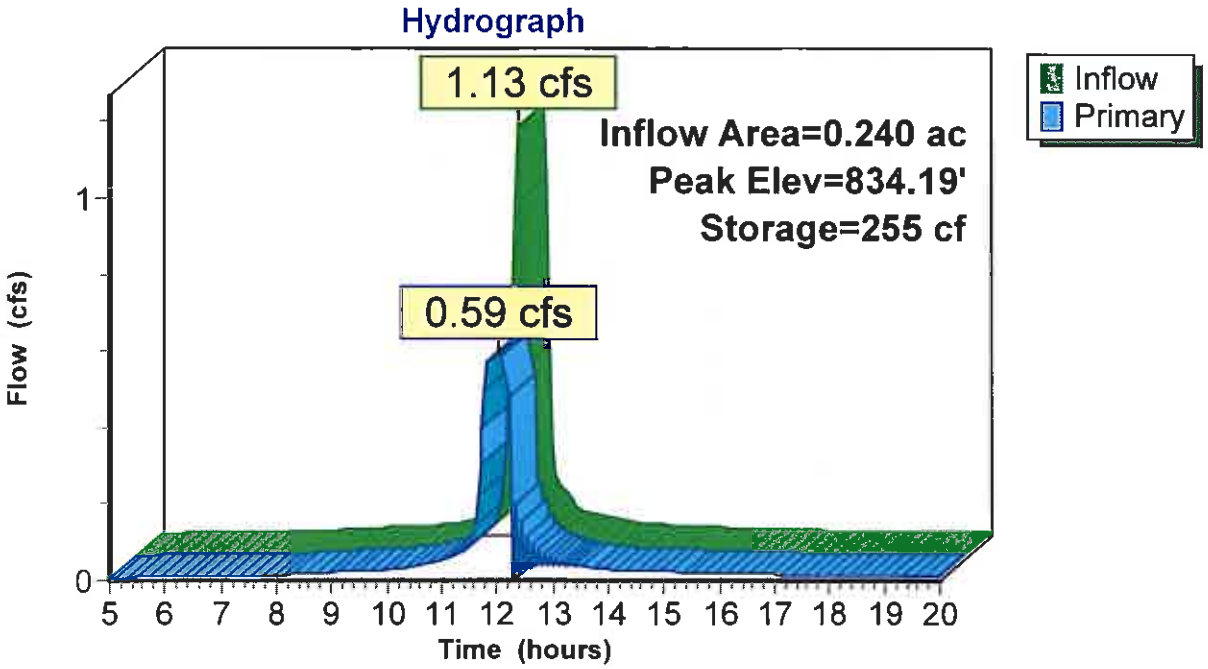
Volume	Invert	Avail.Storage	Storage Description
#1	830.68'	2,473 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
830.68	4	0	0
831.89	4	5	5
833.94	4	8	13
834.75	6,070	2,460	2,473

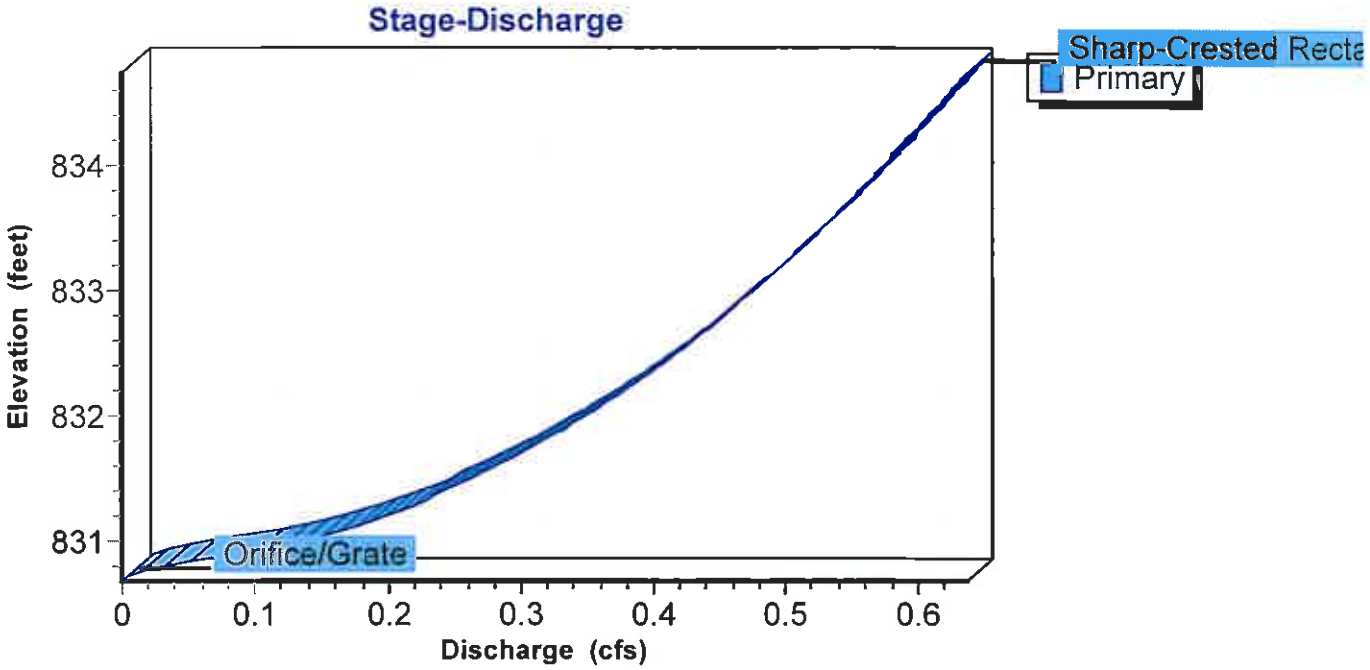
Device	Routing	Invert	Outlet Devices
#1	Primary	834.75'	**10.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	830.68'	**3.5" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.59 cfs @ 12.04 hrs HW=834.19' (Free Discharge)
↑—**1=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
└—**2=Orifice/Grate** (Orifice Controls 0.59 cfs @ 8.83 fps)

Pond 2a: CB



Pond 2a: CB



Stage-Discharge for Pond 2a: CB

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
830.68	0.00	831.72	0.30	832.76	0.45	833.80	0.55
830.70	0.00	831.74	0.31	832.78	0.45	833.82	0.56
830.72	0.00	831.76	0.31	832.80	0.45	833.84	0.56
830.74	0.01	831.78	0.31	832.82	0.45	833.86	0.56
830.76	0.01	831.80	0.32	832.84	0.46	833.88	0.56
830.78	0.02	831.82	0.32	832.86	0.46	833.90	0.56
830.80	0.03	831.84	0.32	832.88	0.46	833.92	0.57
830.82	0.04	831.86	0.33	832.90	0.46	833.94	0.57
830.84	0.05	831.88	0.33	832.92	0.47	833.96	0.57
830.86	0.06	831.90	0.33	832.94	0.47	833.98	0.57
830.88	0.07	831.92	0.34	832.96	0.47	834.00	0.57
830.90	0.09	831.94	0.34	832.98	0.47	834.02	0.57
830.92	0.10	831.96	0.34	833.00	0.47	834.04	0.58
830.94	0.11	831.98	0.35	833.02	0.48	834.06	0.58
830.96	0.12	832.00	0.35	833.04	0.48	834.08	0.58
830.98	0.13	832.02	0.35	833.06	0.48	834.10	0.58
831.00	0.13	832.04	0.35	833.08	0.48	834.12	0.58
831.02	0.14	832.06	0.36	833.10	0.49	834.14	0.59
831.04	0.15	832.08	0.36	833.12	0.49	834.16	0.59
831.06	0.16	832.10	0.36	833.14	0.49	834.18	0.59
831.08	0.16	832.12	0.37	833.16	0.49	834.20	0.59
831.10	0.17	832.14	0.37	833.18	0.49	834.22	0.59
831.12	0.17	832.16	0.37	833.20	0.50	834.24	0.59
831.14	0.18	832.18	0.37	833.22	0.50	834.26	0.60
831.16	0.19	832.20	0.38	833.24	0.50	834.28	0.60
831.18	0.19	832.22	0.38	833.26	0.50	834.30	0.60
831.20	0.20	832.24	0.38	833.28	0.50	834.32	0.60
831.22	0.20	832.26	0.39	833.30	0.51	834.34	0.60
831.24	0.21	832.28	0.39	833.32	0.51	834.36	0.60
831.26	0.21	832.30	0.39	833.34	0.51	834.38	0.61
831.28	0.22	832.32	0.39	833.36	0.51	834.40	0.61
831.30	0.22	832.34	0.40	833.38	0.51	834.42	0.61
831.32	0.23	832.36	0.40	833.40	0.52	834.44	0.61
831.34	0.23	832.38	0.40	833.42	0.52	834.46	0.61
831.36	0.24	832.40	0.40	833.44	0.52	834.48	0.61
831.38	0.24	832.42	0.41	833.46	0.52	834.50	0.62
831.40	0.24	832.44	0.41	833.48	0.52	834.52	0.62
831.42	0.25	832.46	0.41	833.50	0.53	834.54	0.62
831.44	0.25	832.48	0.41	833.52	0.53	834.56	0.62
831.46	0.26	832.50	0.42	833.54	0.53	834.58	0.62
831.48	0.26	832.52	0.42	833.56	0.53	834.60	0.62
831.50	0.26	832.54	0.42	833.58	0.53	834.62	0.63
831.52	0.27	832.56	0.42	833.60	0.54	834.64	0.63
831.54	0.27	832.58	0.43	833.62	0.54	834.66	0.63
831.56	0.28	832.60	0.43	833.64	0.54	834.68	0.63
831.58	0.28	832.62	0.43	833.66	0.54	834.70	0.63
831.60	0.28	832.64	0.43	833.68	0.54	834.72	0.63
831.62	0.29	832.66	0.44	833.70	0.55	834.74	**0.64**
831.64	0.29	832.68	0.44	833.72	0.55		
831.66	0.29	832.70	0.44	833.74	0.55		
831.68	0.30	832.72	0.44	833.76	0.55		
831.70	0.30	832.74	0.45	833.78	0.55		

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

Subcatchment Post1: Existing Site Runoff Area=0.280 ac 95.00% Impervious Runoff Depth>3.12"
Tc=5.0 min CN=97 Runoff=1.47 cfs 0.073 af

Subcatchment Post2: Proposed Site Runoff Area=0.240 ac 98.33% Impervious Runoff Depth>3.20"
Tc=5.0 min CN=98 Runoff=1.27 cfs 0.064 af

Pond 1: CB Peak Elev=834.35' Inflow=0.62 cfs 0.137 af
Outflow=0.62 cfs 0.137 af

Pond 2: CB Peak Elev=834.50' Storage=1,361 cf Inflow=2.06 cfs 0.137 af
Outflow=0.62 cfs 0.137 af

Pond 2a: CB Peak Elev=834.24' Storage=343 cf Inflow=1.27 cfs 0.064 af
Outflow=0.59 cfs 0.064 af

Summary for Subcatchment Post1: Existing Site

[49] Hint: Tc<2dt may require smaller dt

Runoff = 1.47 cfs @ 11.95 hrs, Volume= 0.073 af, Depth> 3.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=3.70"

Area (ac)	CN	Description
0.080	98	Roofs, HSG C
0.186	98	Paved parking, HSG C
0.014	74	>75% Grass cover, Good, HSG C
0.280	97	Weighted Average
0.014		5.00% Pervious Area
0.266		95.00% Impervious Area

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

Summary for Subcatchment Post2: Proposed Site

[49] Hint: Tc<2dt may require smaller dt

Runoff = 1.27 cfs @ 11.95 hrs, Volume= 0.064 af, Depth> 3.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=3.70"

Area (ac)	CN	Description
0.236	98	Paved parking, HSG C
0.004	74	>75% Grass cover, Good, HSG C
0.240	98	Weighted Average
0.004		1.67% Pervious Area
0.236		98.33% Impervious Area

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

Summary for Pond 1: CB

[82] Warning: Early inflow requires earlier time span
[57] Hint: Peaked at 834.35' (Flood elevation advised)
[79] Warning: Submerged Pond 2 Primary device # 2 by 3.67'

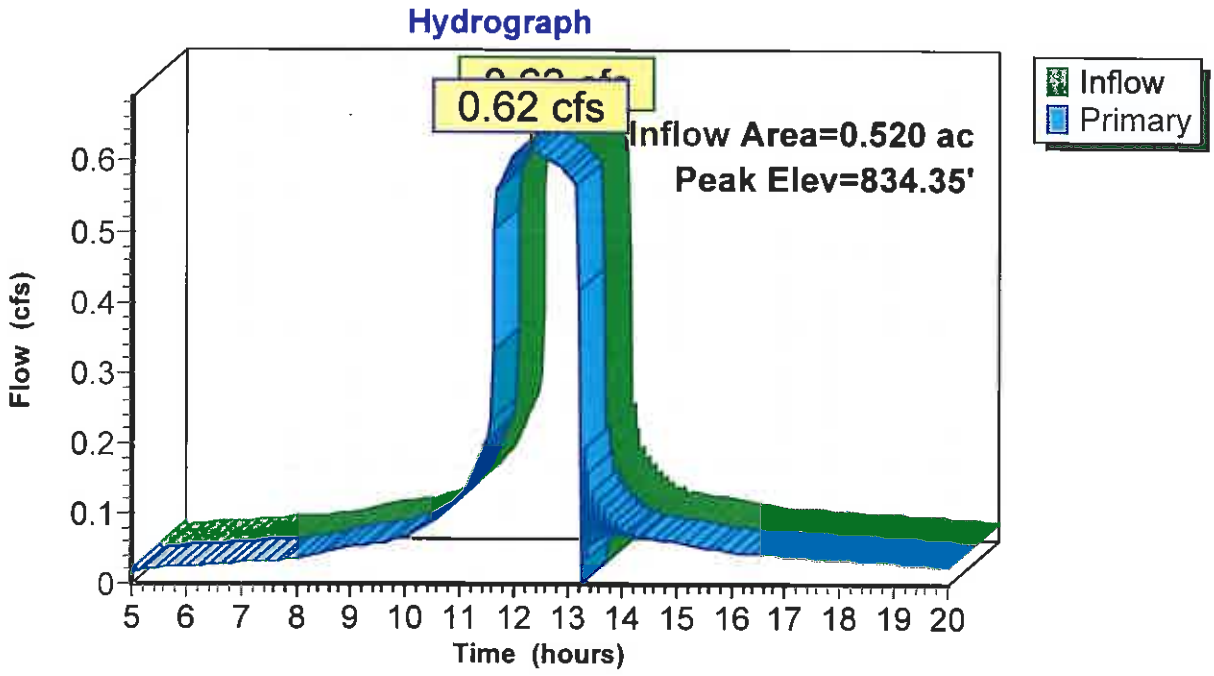
Inflow Area =	0.520 ac,	96.54% Impervious,	Inflow Depth >	3.17"	for 10-Year event
Inflow =	0.62 cfs @	12.29 hrs,	Volume=	0.137 af	
Outflow =	0.62 cfs @	12.29 hrs,	Volume=	0.137 af,	Atten= 0%, Lag= 0.0 min
Primary =	0.62 cfs @	12.29 hrs,	Volume=	0.137 af	

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 834.35' @ 12.29 hrs

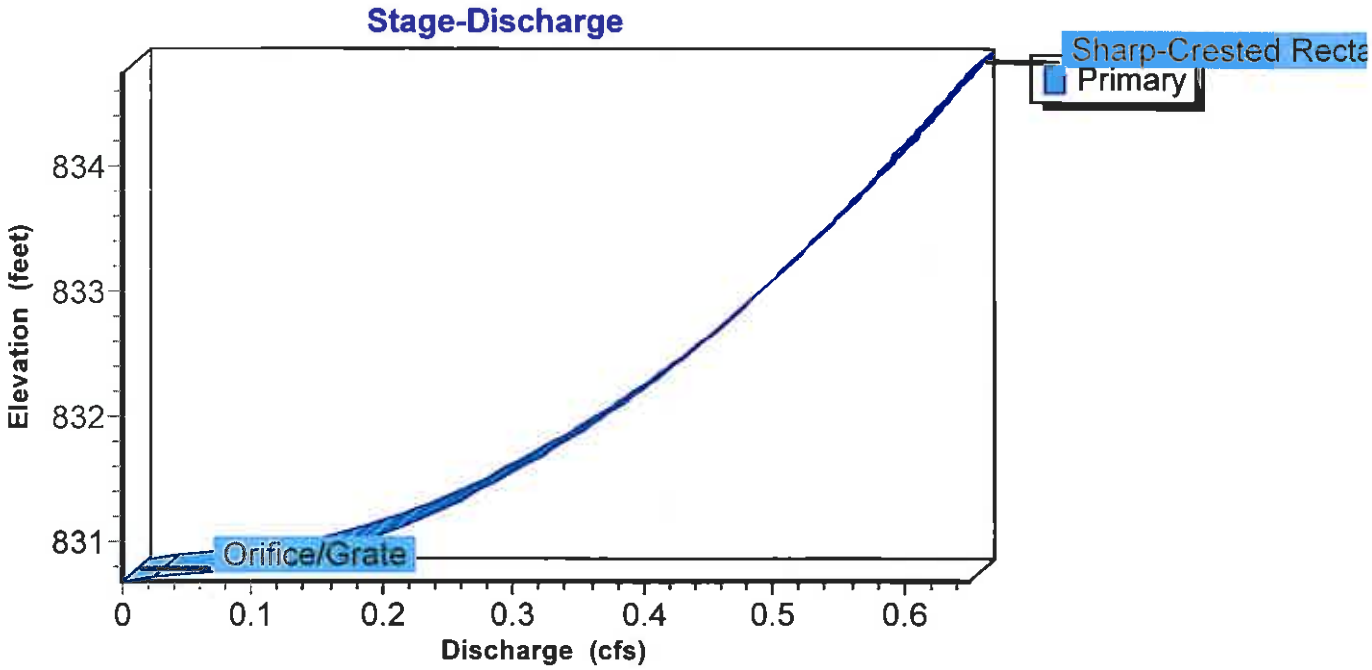
Device	Routing	Invert	Outlet Devices
#1	Primary	830.68'	**3.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	834.75'	**10.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.62 cfs @ 12.29 hrs HW=834.35' (Free Discharge)
└─**1=Orifice/Grate** (Orifice Controls 0.62 cfs @ 9.23 fps)
└─**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1: CB



Pond 1: CB


Stage-Discharge
Sharp-Crested Recta
Primary
Orifice/Grate
Elevation (feet)
834
833
832
831
0
0.1
0.2
0.3
0.4
0.5
0.6
Discharge (cfs)

Stage-Discharge for Pond 1: CB

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
830.68	0.00	831.72	0.33	832.76	0.46	833.80	0.57
830.70	0.01	831.74	0.33	832.78	0.47	833.82	0.57
830.72	0.02	831.76	0.33	832.80	0.47	833.84	0.57
830.74	0.04	831.78	0.34	832.82	0.47	833.86	0.57
830.76	0.07	831.80	0.34	832.84	0.47	833.88	0.58
830.78	0.09	831.82	0.34	832.86	0.47	833.90	0.58
830.80	0.11	831.84	0.35	832.88	0.48	833.92	0.58
830.82	0.12	831.86	0.35	832.90	0.48	833.94	0.58
830.84	0.13	831.88	0.35	832.92	0.48	833.96	0.58
830.86	0.14	831.90	0.36	832.94	0.48	833.98	0.58
830.88	0.14	831.92	0.36	832.96	0.49	834.00	0.59
830.90	0.15	831.94	0.36	832.98	0.49	834.02	0.59
830.92	0.16	831.96	0.36	833.00	0.49	834.04	0.59
830.94	0.16	831.98	0.37	833.02	0.49	834.06	0.59
830.96	0.17	832.00	0.37	833.04	0.49	834.08	0.59
830.98	0.18	832.02	0.37	833.06	0.50	834.10	0.59
831.00	0.18	832.04	0.38	833.08	0.50	834.12	0.60
831.02	0.19	832.06	0.38	833.10	0.50	834.14	0.60
831.04	0.19	832.08	0.38	833.12	0.50	834.16	0.60
831.06	0.20	832.10	0.38	833.14	0.50	834.18	0.60
831.08	0.20	832.12	0.39	833.16	0.51	834.20	0.60
831.10	0.21	832.14	0.39	833.18	0.51	834.22	0.61
831.12	0.21	832.16	0.39	833.20	0.51	834.24	0.61
831.14	0.22	832.18	0.39	833.22	0.51	834.26	0.61
831.16	0.22	832.20	0.40	833.24	0.51	834.28	0.61
831.18	0.23	832.22	0.40	833.26	0.52	834.30	0.61
831.20	0.23	832.24	0.40	833.28	0.52	834.32	0.61
831.22	0.24	832.26	0.40	833.30	0.52	834.34	0.62
831.24	0.24	832.28	0.41	833.32	0.52	834.36	0.62
831.26	0.25	832.30	0.41	833.34	0.52	834.38	0.62
831.28	0.25	832.32	0.41	833.36	0.53	834.40	0.62
831.30	0.25	832.34	0.41	833.38	0.53	834.42	0.62
831.32	0.26	832.36	0.42	833.40	0.53	834.44	0.62
831.34	0.26	832.38	0.42	833.42	0.53	834.46	0.63
831.36	0.27	832.40	0.42	833.44	0.53	834.48	0.63
831.38	0.27	832.42	0.42	833.46	0.54	834.50	0.63
831.40	0.27	832.44	0.43	833.48	0.54	834.52	0.63
831.42	0.28	832.46	0.43	833.50	0.54	834.54	0.63
831.44	0.28	832.48	0.43	833.52	0.54	834.56	0.63
831.46	0.28	832.50	0.43	833.54	0.54	834.58	0.64
831.48	0.29	832.52	0.44	833.56	0.55	834.60	0.64
831.50	0.29	832.54	0.44	833.58	0.55	834.62	0.64
831.52	0.29	832.56	0.44	833.60	0.55	834.64	0.64
831.54	0.30	832.58	0.44	833.62	0.55	834.66	0.64
831.56	0.30	832.60	0.45	833.64	0.55	834.68	0.64
831.58	0.31	832.62	0.45	833.66	0.56	834.70	0.65
831.60	0.31	832.64	0.45	833.68	0.56	834.72	0.65
831.62	0.31	832.66	0.45	833.70	0.56	834.74	**0.65**
831.64	0.32	832.68	0.45	833.72	0.56		
831.66	0.32	832.70	0.46	833.74	0.56		
831.68	0.32	832.72	0.46	833.76	0.56		
831.70	0.32	832.74	0.46	833.78	0.57		

Summary for Pond 2: CB

[82] Warning: Early inflow requires earlier time span
[85] Warning: Oscillations may require Finer Routing>1
[81] Warning: Exceeded Pond 2a by 3.81' @ 12.35 hrs

Inflow Area = 0.520 ac, 96.54% Impervious, Inflow Depth > 3.16" for 10-Year event
Inflow = 2.06 cfs @ 11.95 hrs, Volume= 0.137 af
Outflow = 0.62 cfs @ 12.29 hrs, Volume= 0.137 af, Atten= 70%, Lag= 20.6 min
Primary = 0.62 cfs @ 12.29 hrs, Volume= 0.137 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 834.50' @ 12.29 hrs Surf.Area= 3,601 sf Storage= 1,361 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 11.6 min (746.0 - 734.4)

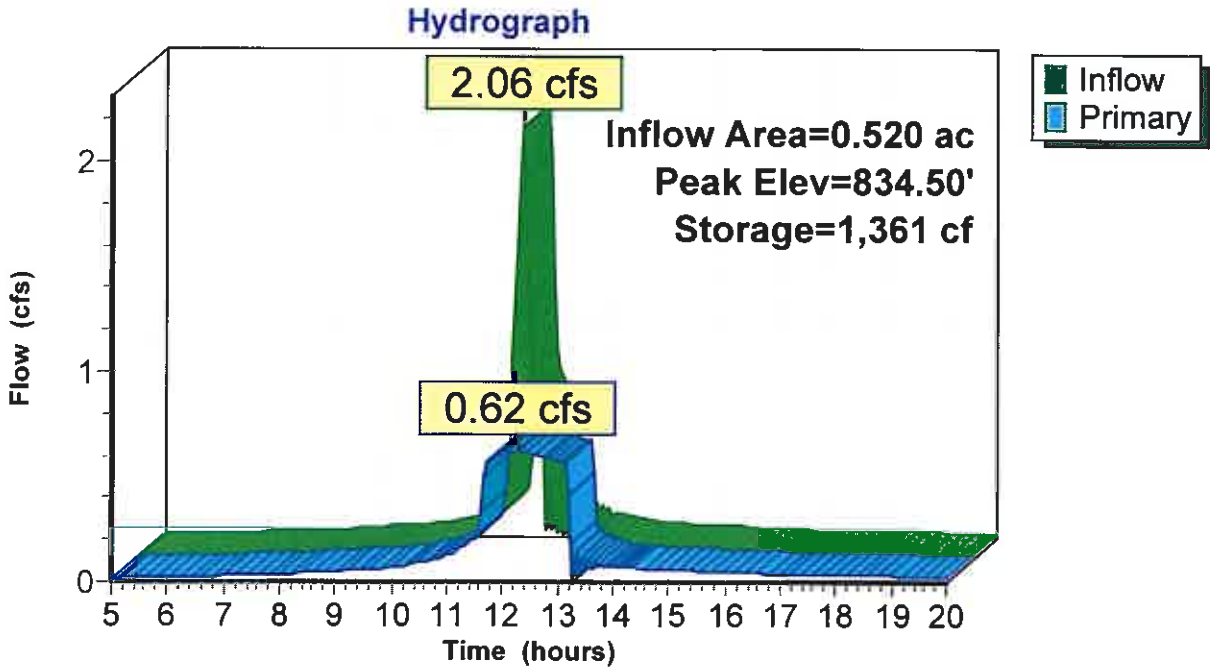
Volume	Invert	Avail.Storage	Storage Description
#1	830.68'	2,419 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
830.68	4	0	0
831.55	4	3	3
833.75	4	9	12
834.75	4,809	2,407	2,419

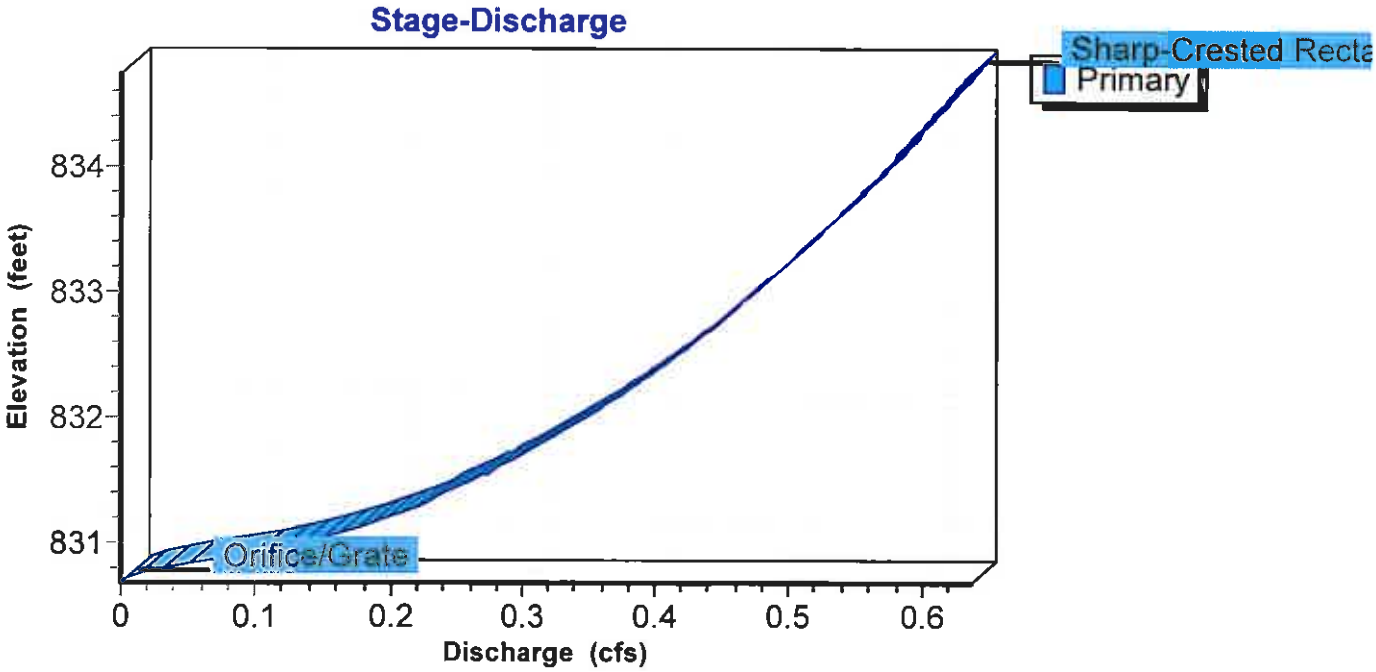
Device	Routing	Invert	Outlet Devices
#1	Primary	834.75'	**10.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	830.68'	**3.5" Vert. Orifice/Grate** C= 0.600

Primary **OutFlow** Max=0.62 cfs @ 12.29 hrs HW=834.50' (Free Discharge)
↑—1=**Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
└—2=**Orifice/Grate** (Orifice Controls 0.62 cfs @ 9.23 fps)

Pond 2: CB



Pond 2: CB



Stage-Discharge for Pond 2: CB

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
830.68	0.00	831.72	0.30	832.76	0.45	833.80	0.55
830.70	0.00	831.74	0.31	832.78	0.45	833.82	0.56
830.72	0.00	831.76	0.31	832.80	0.45	833.84	0.56
830.74	0.01	831.78	0.31	832.82	0.45	833.86	0.56
830.76	0.01	831.80	0.32	832.84	0.46	833.88	0.56
830.78	0.02	831.82	0.32	832.86	0.46	833.90	0.56
830.80	0.03	831.84	0.32	832.88	0.46	833.92	0.57
830.82	0.04	831.86	0.33	832.90	0.46	833.94	0.57
830.84	0.05	831.88	0.33	832.92	0.47	833.96	0.57
830.86	0.06	831.90	0.33	832.94	0.47	833.98	0.57
830.88	0.07	831.92	0.34	832.96	0.47	834.00	0.57
830.90	0.09	831.94	0.34	832.98	0.47	834.02	0.57
830.92	0.10	831.96	0.34	833.00	0.47	834.04	0.58
830.94	0.11	831.98	0.35	833.02	0.48	834.06	0.58
830.96	0.12	832.00	0.35	833.04	0.48	834.08	0.58
830.98	0.13	832.02	0.35	833.06	0.48	834.10	0.58
831.00	0.13	832.04	0.35	833.08	0.48	834.12	0.58
831.02	0.14	832.06	0.36	833.10	0.49	834.14	0.59
831.04	0.15	832.08	0.36	833.12	0.49	834.16	0.59
831.06	0.16	832.10	0.36	833.14	0.49	834.18	0.59
831.08	0.16	832.12	0.37	833.16	0.49	834.20	0.59
831.10	0.17	832.14	0.37	833.18	0.49	834.22	0.59
831.12	0.17	832.16	0.37	833.20	0.50	834.24	0.59
831.14	0.18	832.18	0.37	833.22	0.50	834.26	0.60
831.16	0.19	832.20	0.38	833.24	0.50	834.28	0.60
831.18	0.19	832.22	0.38	833.26	0.50	834.30	0.60
831.20	0.20	832.24	0.38	833.28	0.50	834.32	0.60
831.22	0.20	832.26	0.39	833.30	0.51	834.34	0.60
831.24	0.21	832.28	0.39	833.32	0.51	834.36	0.60
831.26	0.21	832.30	0.39	833.34	0.51	834.38	0.61
831.28	0.22	832.32	0.39	833.36	0.51	834.40	0.61
831.30	0.22	832.34	0.40	833.38	0.51	834.42	0.61
831.32	0.23	832.36	0.40	833.40	0.52	834.44	0.61
831.34	0.23	832.38	0.40	833.42	0.52	834.46	0.61
831.36	0.24	832.40	0.40	833.44	0.52	834.48	0.61
831.38	0.24	832.42	0.41	833.46	0.52	834.50	0.62
831.40	0.24	832.44	0.41	833.48	0.52	834.52	0.62
831.42	0.25	832.46	0.41	833.50	0.53	834.54	0.62
831.44	0.25	832.48	0.41	833.52	0.53	834.56	0.62
831.46	0.26	832.50	0.42	833.54	0.53	834.58	0.62
831.48	0.26	832.52	0.42	833.56	0.53	834.60	0.62
831.50	0.26	832.54	0.42	833.58	0.53	834.62	0.63
831.52	0.27	832.56	0.42	833.60	0.54	834.64	0.63
831.54	0.27	832.58	0.43	833.62	0.54	834.66	0.63
831.56	0.28	832.60	0.43	833.64	0.54	834.68	0.63
831.58	0.28	832.62	0.43	833.66	0.54	834.70	0.63
831.60	0.28	832.64	0.43	833.68	0.54	834.72	0.63
831.62	0.29	832.66	0.44	833.70	0.55	834.74	**0.64**
831.64	0.29	832.68	0.44	833.72	0.55		
831.66	0.29	832.70	0.44	833.74	0.55		
831.68	0.30	832.72	0.44	833.76	0.55		
831.70	0.30	832.74	0.45	833.78	0.55		

Summary for Pond 2a: CB

[82] Warning: Early inflow requires earlier time span
[85] Warning: Oscillations may require Finer Routing>1

Inflow Area =	0.240 ac,	98.33% Impervious,	Inflow Depth >	3.20"	for 10-Year event
Inflow =	1.27 cfs @	11.95 hrs, Volume=	0.064 af		
Outflow =	0.59 cfs @	12.05 hrs, Volume=	0.064 af,	Atten= 53%,	Lag= 6.2 min
Primary =	0.59 cfs @	12.05 hrs, Volume=	0.064 af		

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 834.24' @ 12.05 hrs Surf.Area= 2,224 sf Storage= 343 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 2.1 min (733.4 - 731.3)

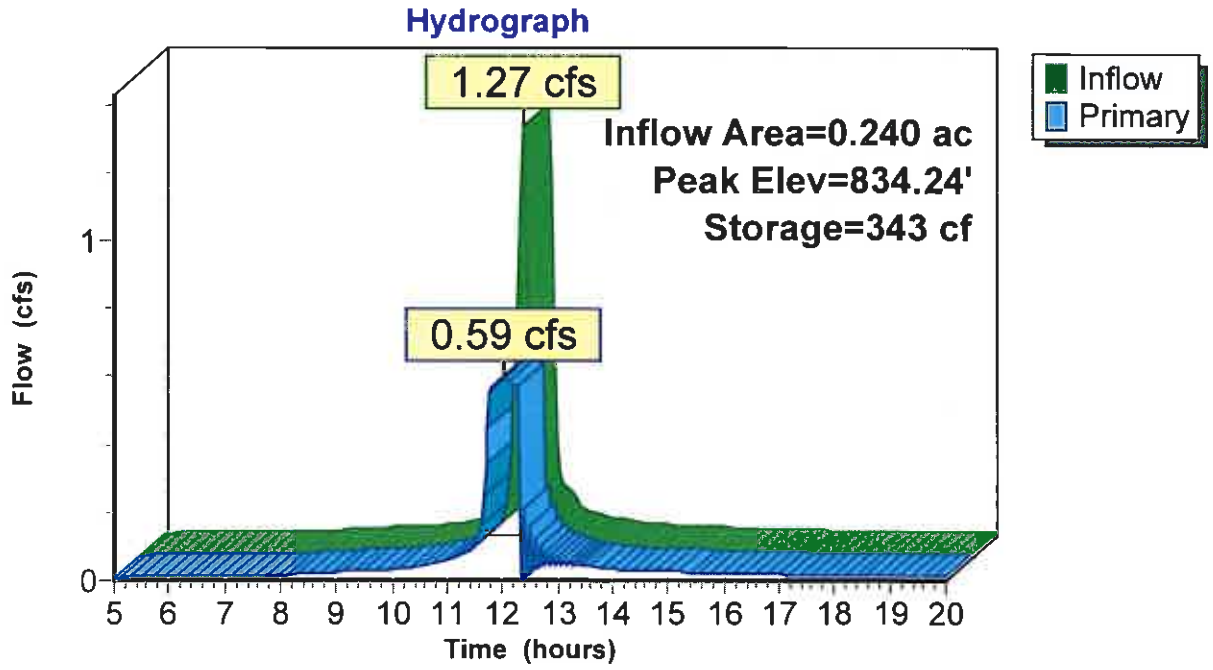
Volume	Invert	Avail.Storage	Storage Description
#1	830.68'	2,473 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
830.68	4	0	0
831.89	4	5	5
833.94	4	8	13
834.75	6,070	2,460	2,473

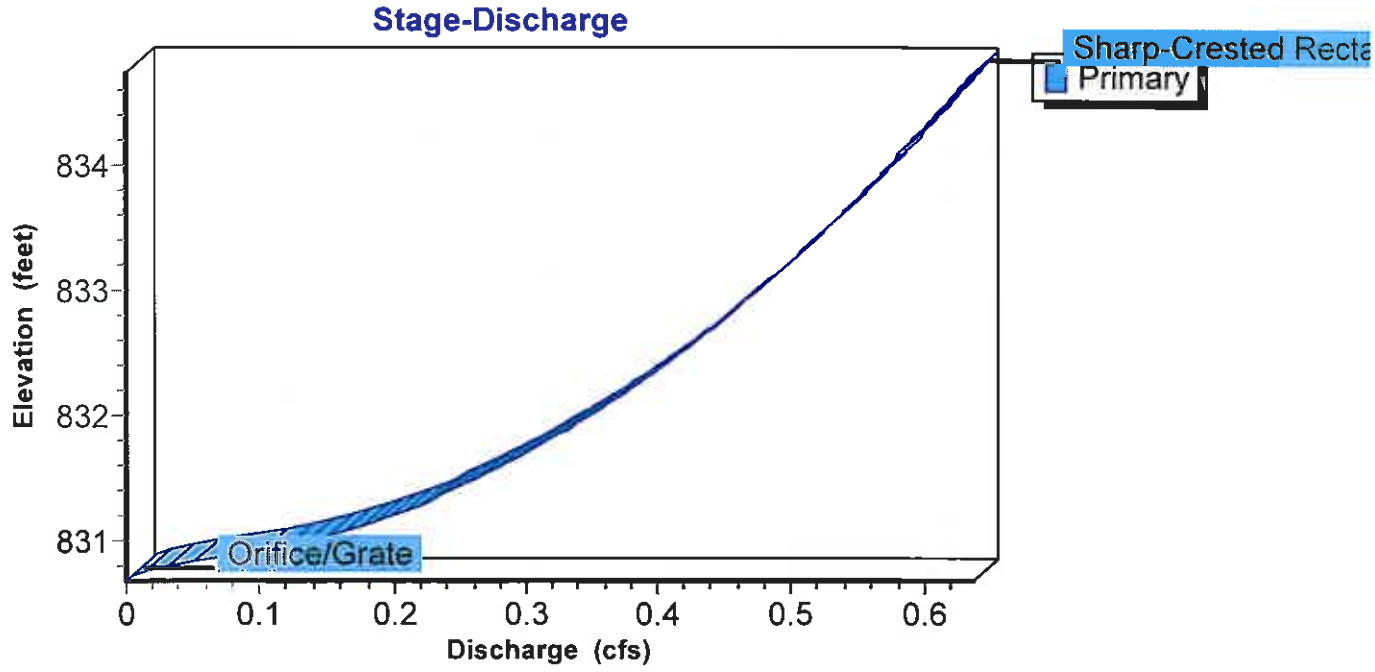
Device	Routing	Invert	Outlet Devices
#1	Primary	834.75'	**10.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	830.68'	**3.5" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.59 cfs @ 12.05 hrs HW=834.24' (Free Discharge)
└─1=**Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
└─2=**Orifice/Grate** (Orifice Controls 0.59 cfs @ 8.89 fps)

Pond 2a: CB



Pond 2a: CB



Stage-Discharge for Pond 2a: CB

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
830.68	0.00	831.72	0.30	832.76	0.45	833.80	0.55
830.70	0.00	831.74	0.31	832.78	0.45	833.82	0.56
830.72	0.00	831.76	0.31	832.80	0.45	833.84	0.56
830.74	0.01	831.78	0.31	832.82	0.45	833.86	0.56
830.76	0.01	831.80	0.32	832.84	0.46	833.88	0.56
830.78	0.02	831.82	0.32	832.86	0.46	833.90	0.56
830.80	0.03	831.84	0.32	832.88	0.46	833.92	0.57
830.82	0.04	831.86	0.33	832.90	0.46	833.94	0.57
830.84	0.05	831.88	0.33	832.92	0.47	833.96	0.57
830.86	0.06	831.90	0.33	832.94	0.47	833.98	0.57
830.88	0.07	831.92	0.34	832.96	0.47	834.00	0.57
830.90	0.09	831.94	0.34	832.98	0.47	834.02	0.57
830.92	0.10	831.96	0.34	833.00	0.47	834.04	0.58
830.94	0.11	831.98	0.35	833.02	0.48	834.06	0.58
830.96	0.12	832.00	0.35	833.04	0.48	834.08	0.58
830.98	0.13	832.02	0.35	833.06	0.48	834.10	0.58
831.00	0.13	832.04	0.35	833.08	0.48	834.12	0.58
831.02	0.14	832.06	0.36	833.10	0.49	834.14	0.59
831.04	0.15	832.08	0.36	833.12	0.49	834.16	0.59
831.06	0.16	832.10	0.36	833.14	0.49	834.18	0.59
831.08	0.16	832.12	0.37	833.16	0.49	834.20	0.59
831.10	0.17	832.14	0.37	833.18	0.49	834.22	0.59
831.12	0.17	832.16	0.37	833.20	0.50	834.24	0.59
831.14	0.18	832.18	0.37	833.22	0.50	834.26	0.60
831.16	0.19	832.20	0.38	833.24	0.50	834.28	0.60
831.18	0.19	832.22	0.38	833.26	0.50	834.30	0.60
831.20	0.20	832.24	0.38	833.28	0.50	834.32	0.60
831.22	0.20	832.26	0.39	833.30	0.51	834.34	0.60
831.24	0.21	832.28	0.39	833.32	0.51	834.36	0.60
831.26	0.21	832.30	0.39	833.34	0.51	834.38	0.61
831.28	0.22	832.32	0.39	833.36	0.51	834.40	0.61
831.30	0.22	832.34	0.40	833.38	0.51	834.42	0.61
831.32	0.23	832.36	0.40	833.40	0.52	834.44	0.61
831.34	0.23	832.38	0.40	833.42	0.52	834.46	0.61
831.36	0.24	832.40	0.40	833.44	0.52	834.48	0.61
831.38	0.24	832.42	0.41	833.46	0.52	834.50	0.62
831.40	0.24	832.44	0.41	833.48	0.52	834.52	0.62
831.42	0.25	832.46	0.41	833.50	0.53	834.54	0.62
831.44	0.25	832.48	0.41	833.52	0.53	834.56	0.62
831.46	0.26	832.50	0.42	833.54	0.53	834.58	0.62
831.48	0.26	832.52	0.42	833.56	0.53	834.60	0.62
831.50	0.26	832.54	0.42	833.58	0.53	834.62	0.63
831.52	0.27	832.56	0.42	833.60	0.54	834.64	0.63
831.54	0.27	832.58	0.43	833.62	0.54	834.66	0.63
831.56	0.28	832.60	0.43	833.64	0.54	834.68	0.63
831.58	0.28	832.62	0.43	833.66	0.54	834.70	0.63
831.60	0.28	832.64	0.43	833.68	0.54	834.72	0.63
831.62	0.29	832.66	0.44	833.70	0.55	834.74	**0.64**
831.64	0.29	832.68	0.44	833.72	0.55		
831.66	0.29	832.70	0.44	833.74	0.55		
831.68	0.30	832.72	0.44	833.76	0.55		
831.70	0.30	832.74	0.45	833.78	0.55		

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

Subcatchment Post1: Existing Site Runoff Area=0.280 ac 95.00% Impervious Runoff Depth>3.66"
Tc=5.0 min CN=97 Runoff=1.72 cfs 0.085 af

Subcatchment Post2: Proposed Site Runoff Area=0.240 ac 98.33% Impervious Runoff Depth>3.74"
Tc=5.0 min CN=98 Runoff=1.48 cfs 0.075 af

Pond 1: CB Peak Elev=834.44' Inflow=0.62 cfs 0.160 af
Outflow=0.62 cfs 0.160 af

Pond 2: CB Peak Elev=834.58' Storage=1,685 cf Inflow=2.31 cfs 0.160 af
Outflow=0.62 cfs 0.160 af

Pond 2a: CB Peak Elev=834.30' Storage=494 cf Inflow=1.48 cfs 0.075 af
Outflow=0.60 cfs 0.075 af

Summary for Subcatchment Post1: Existing Site

[49] Hint: Tc<2dt may require smaller dt

Runoff = 1.72 cfs @ 11.95 hrs, Volume= 0.085 af, Depth> 3.66"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-Year Rainfall=4.30"

Area (ac)	CN	Description
0.080	98	Roofs, HSG C
0.186	98	Paved parking, HSG C
0.014	74	>75% Grass cover, Good, HSG C
0.280	97	Weighted Average
0.014		5.00% Pervious Area
0.266		95.00% Impervious Area

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

Summary for Subcatchment Post2: Proposed Site

[49] Hint: Tc<2dt may require smaller dt

Runoff = 1.48 cfs @ 11.95 hrs, Volume= 0.075 af, Depth> 3.74"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-Year Rainfall=4.30"

Area (ac)	CN	Description
0.236	98	Paved parking, HSG C
0.004	74	>75% Grass cover, Good, HSG C
0.240	98	Weighted Average
0.004		1.67% Pervious Area
0.236		98.33% Impervious Area

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

Summary for Pond 1: CB

[82] Warning: Early inflow requires earlier time span
[57] Hint: Peaked at 834.44' (Flood elevation advised)
[79] Warning: Submerged Pond 2 Primary device # 2 by 3.76'

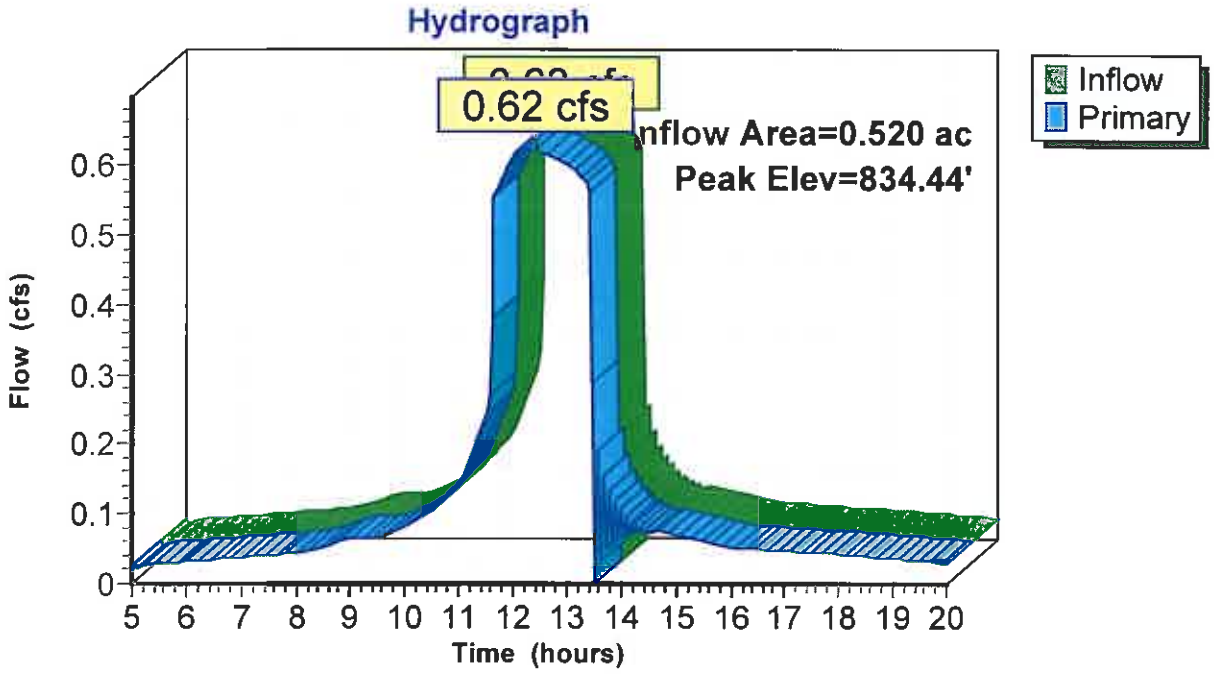
Inflow Area = 0.520 ac, 96.54% Impervious, Inflow Depth > 3.70" for 25-Year event
Inflow = 0.62 cfs @ 12.39 hrs, Volume= 0.160 af
Outflow = 0.62 cfs @ 12.39 hrs, Volume= 0.160 af, Atten= 0%, Lag= 0.0 min
Primary = 0.62 cfs @ 12.39 hrs, Volume= 0.160 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 834.44' @ 12.39 hrs

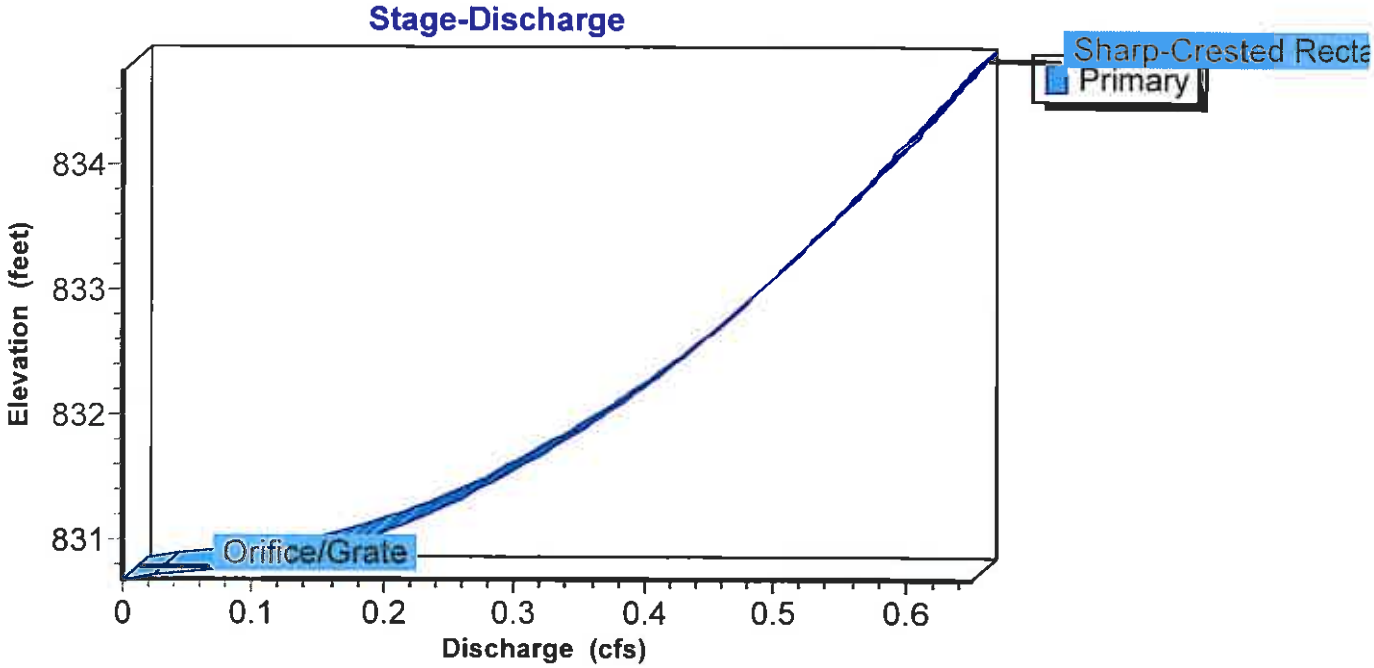
Device	Routing	Invert	Outlet Devices
#1	Primary	830.68'	**3.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	834.75'	**10.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.62 cfs @ 12.39 hrs HW=834.44' (Free Discharge)
└─**1=Orifice/Grate** (Orifice Controls 0.62 cfs @ 9.33 fps)
└─**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1: CB



Pond 1: CB


Stage-Discharge
Sharp-Crested Recta
Primary
Orifice/Grate
Elevation (feet)
834
833
832
831
0
0.1
0.2
0.3
0.4
0.5
0.6
Discharge (cfs)

Stage-Discharge for Pond 1: CB

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
830.68	0.00	831.72	0.33	832.76	0.46	833.80	0.57
830.70	0.01	831.74	0.33	832.78	0.47	833.82	0.57
830.72	0.02	831.76	0.33	832.80	0.47	833.84	0.57
830.74	0.04	831.78	0.34	832.82	0.47	833.86	0.57
830.76	0.07	831.80	0.34	832.84	0.47	833.88	0.58
830.78	0.09	831.82	0.34	832.86	0.47	833.90	0.58
830.80	0.11	831.84	0.35	832.88	0.48	833.92	0.58
830.82	0.12	831.86	0.35	832.90	0.48	833.94	0.58
830.84	0.13	831.88	0.35	832.92	0.48	833.96	0.58
830.86	0.14	831.90	0.36	832.94	0.48	833.98	0.58
830.88	0.14	831.92	0.36	832.96	0.49	834.00	0.59
830.90	0.15	831.94	0.36	832.98	0.49	834.02	0.59
830.92	0.16	831.96	0.36	833.00	0.49	834.04	0.59
830.94	0.16	831.98	0.37	833.02	0.49	834.06	0.59
830.96	0.17	832.00	0.37	833.04	0.49	834.08	0.59
830.98	0.18	832.02	0.37	833.06	0.50	834.10	0.59
831.00	0.18	832.04	0.38	833.08	0.50	834.12	0.60
831.02	0.19	832.06	0.38	833.10	0.50	834.14	0.60
831.04	0.19	832.08	0.38	833.12	0.50	834.16	0.60
831.06	0.20	832.10	0.38	833.14	0.50	834.18	0.60
831.08	0.20	832.12	0.39	833.16	0.51	834.20	0.60
831.10	0.21	832.14	0.39	833.18	0.51	834.22	0.61
831.12	0.21	832.16	0.39	833.20	0.51	834.24	0.61
831.14	0.22	832.18	0.39	833.22	0.51	834.26	0.61
831.16	0.22	832.20	0.40	833.24	0.51	834.28	0.61
831.18	0.23	832.22	0.40	833.26	0.52	834.30	0.61
831.20	0.23	832.24	0.40	833.28	0.52	834.32	0.61
831.22	0.24	832.26	0.40	833.30	0.52	834.34	0.62
831.24	0.24	832.28	0.41	833.32	0.52	834.36	0.62
831.26	0.25	832.30	0.41	833.34	0.52	834.38	0.62
831.28	0.25	832.32	0.41	833.36	0.53	834.40	0.62
831.30	0.25	832.34	0.41	833.38	0.53	834.42	0.62
831.32	0.26	832.36	0.42	833.40	0.53	834.44	0.62
831.34	0.26	832.38	0.42	833.42	0.53	834.46	0.63
831.36	0.27	832.40	0.42	833.44	0.53	834.48	0.63
831.38	0.27	832.42	0.42	833.46	0.54	834.50	0.63
831.40	0.27	832.44	0.43	833.48	0.54	834.52	0.63
831.42	0.28	832.46	0.43	833.50	0.54	834.54	0.63
831.44	0.28	832.48	0.43	833.52	0.54	834.56	0.63
831.46	0.28	832.50	0.43	833.54	0.54	834.58	0.64
831.48	0.29	832.52	0.44	833.56	0.55	834.60	0.64
831.50	0.29	832.54	0.44	833.58	0.55	834.62	0.64
831.52	0.29	832.56	0.44	833.60	0.55	834.64	0.64
831.54	0.30	832.58	0.44	833.62	0.55	834.66	0.64
831.56	0.30	832.60	0.45	833.64	0.55	834.68	0.64
831.58	0.31	832.62	0.45	833.66	0.56	834.70	0.65
831.60	0.31	832.64	0.45	833.68	0.56	834.72	0.65
831.62	0.31	832.66	0.45	833.70	0.56	834.74	**0.65**
831.64	0.32	832.68	0.45	833.72	0.56		
831.66	0.32	832.70	0.46	833.74	0.56		
831.68	0.32	832.72	0.46	833.76	0.56		
831.70	0.32	832.74	0.46	833.78	0.57		

Summary for Pond 2: CB

[82] Warning: Early inflow requires earlier time span
[85] Warning: Oscillations may require Finer Routing>1
[81] Warning: Exceeded Pond 2a by 3.81' @ 12.45 hrs

Inflow Area = 0.520 ac, 96.54% Impervious, Inflow Depth > 3.70" for 25-Year event
Inflow = 2.31 cfs @ 11.95 hrs, Volume= 0.160 af
Outflow = 0.62 cfs @ 12.39 hrs, Volume= 0.160 af, Atten= 73%, Lag= 26.6 min
Primary = 0.62 cfs @ 12.39 hrs, Volume= 0.160 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 834.58' @ 12.39 hrs Surf.Area= 4,010 sf Storage= 1,685 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 15.0 min (748.4 - 733.5)

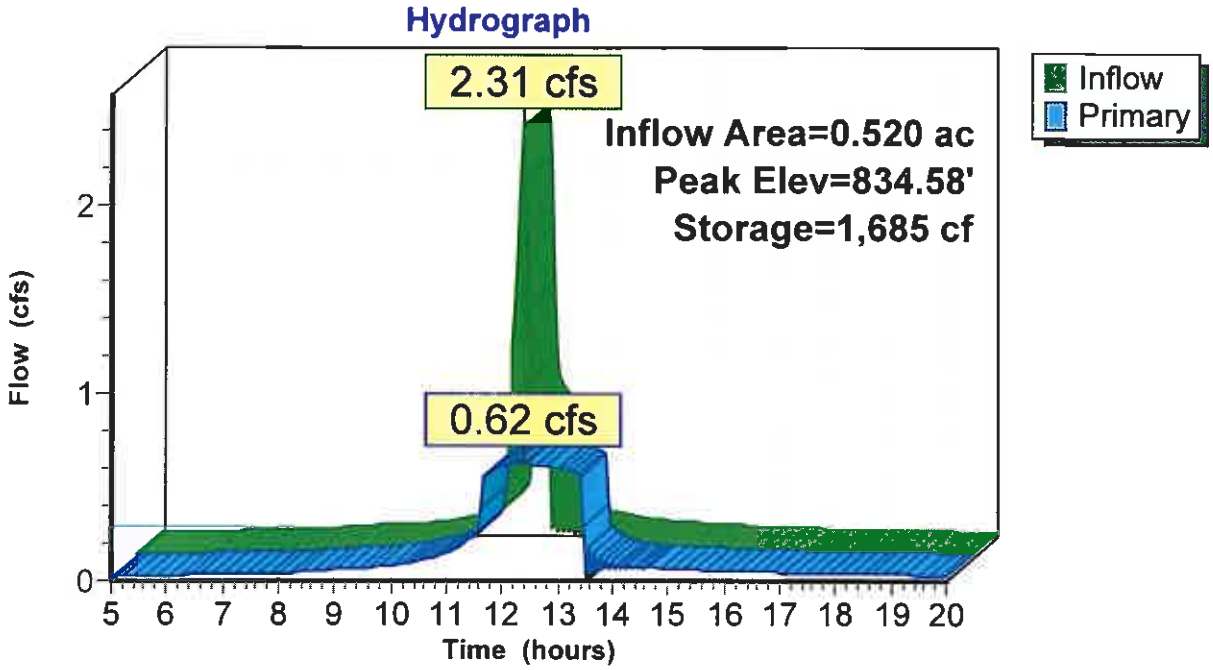
Volume	Invert	Avail.Storage	Storage Description
#1	830.68'	2,419 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
830.68	4	0	0
831.55	4	3	3
833.75	4	9	12
834.75	4,809	2,407	2,419

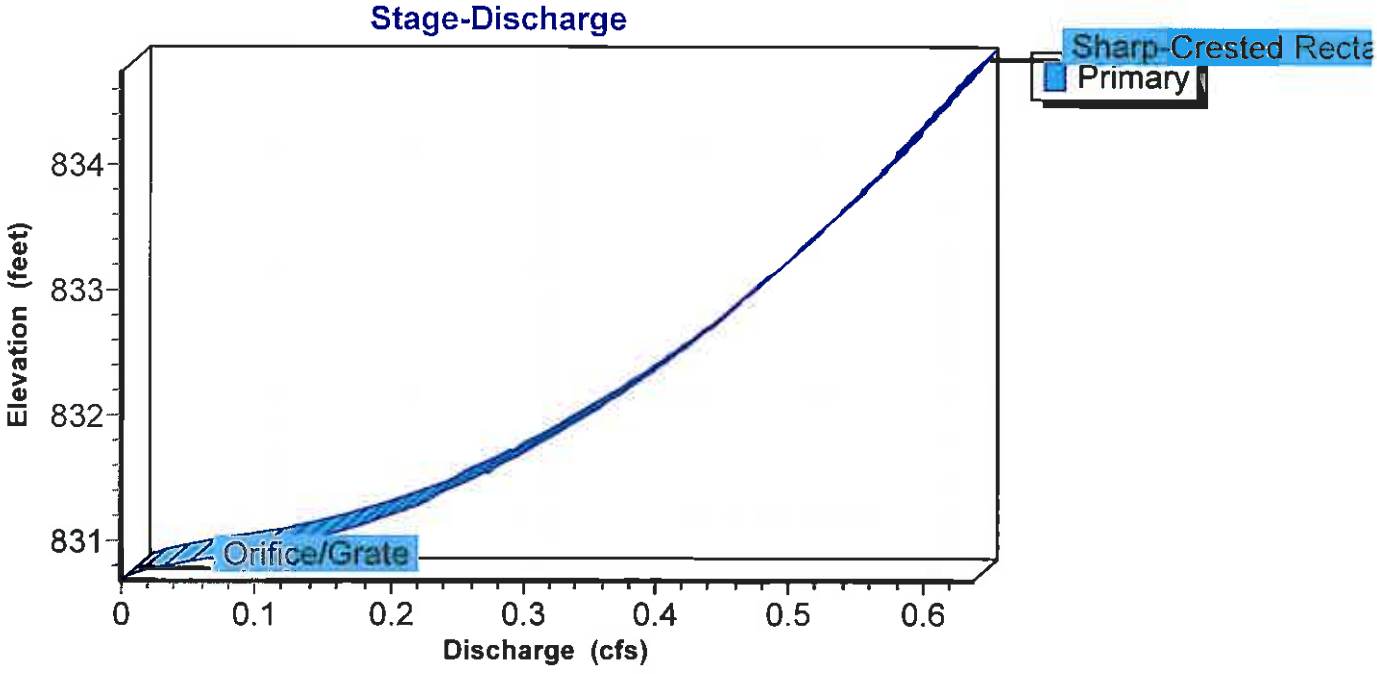
Device	Routing	Invert	Outlet Devices
#1	Primary	834.75'	**10.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	830.68'	**3.5" Vert. Orifice/Grate** C= 0.600

Primary **OutFlow** Max=0.62 cfs @ 12.39 hrs HW=834.58' (Free Discharge)
└─**1=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
└─**2=Orifice/Grate** (Orifice Controls 0.62 cfs @ 9.33 fps)

Pond 2: CB



Pond 2: CB



Stage-Discharge for Pond 2: CB

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
830.68	0.00	831.72	0.30	832.76	0.45	833.80	0.55
830.70	0.00	831.74	0.31	832.78	0.45	833.82	0.56
830.72	0.00	831.76	0.31	832.80	0.45	833.84	0.56
830.74	0.01	831.78	0.31	832.82	0.45	833.86	0.56
830.76	0.01	831.80	0.32	832.84	0.46	833.88	0.56
830.78	0.02	831.82	0.32	832.86	0.46	833.90	0.56
830.80	0.03	831.84	0.32	832.88	0.46	833.92	0.57
830.82	0.04	831.86	0.33	832.90	0.46	833.94	0.57
830.84	0.05	831.88	0.33	832.92	0.47	833.96	0.57
830.86	0.06	831.90	0.33	832.94	0.47	833.98	0.57
830.88	0.07	831.92	0.34	832.96	0.47	834.00	0.57
830.90	0.09	831.94	0.34	832.98	0.47	834.02	0.57
830.92	0.10	831.96	0.34	833.00	0.47	834.04	0.58
830.94	0.11	831.98	0.35	833.02	0.48	834.06	0.58
830.96	0.12	832.00	0.35	833.04	0.48	834.08	0.58
830.98	0.13	832.02	0.35	833.06	0.48	834.10	0.58
831.00	0.13	832.04	0.35	833.08	0.48	834.12	0.58
831.02	0.14	832.06	0.36	833.10	0.49	834.14	0.59
831.04	0.15	832.08	0.36	833.12	0.49	834.16	0.59
831.06	0.16	832.10	0.36	833.14	0.49	834.18	0.59
831.08	0.16	832.12	0.37	833.16	0.49	834.20	0.59
831.10	0.17	832.14	0.37	833.18	0.49	834.22	0.59
831.12	0.17	832.16	0.37	833.20	0.50	834.24	0.59
831.14	0.18	832.18	0.37	833.22	0.50	834.26	0.60
831.16	0.19	832.20	0.38	833.24	0.50	834.28	0.60
831.18	0.19	832.22	0.38	833.26	0.50	834.30	0.60
831.20	0.20	832.24	0.38	833.28	0.50	834.32	0.60
831.22	0.20	832.26	0.39	833.30	0.51	834.34	0.60
831.24	0.21	832.28	0.39	833.32	0.51	834.36	0.60
831.26	0.21	832.30	0.39	833.34	0.51	834.38	0.61
831.28	0.22	832.32	0.39	833.36	0.51	834.40	0.61
831.30	0.22	832.34	0.40	833.38	0.51	834.42	0.61
831.32	0.23	832.36	0.40	833.40	0.52	834.44	0.61
831.34	0.23	832.38	0.40	833.42	0.52	834.46	0.61
831.36	0.24	832.40	0.40	833.44	0.52	834.48	0.61
831.38	0.24	832.42	0.41	833.46	0.52	834.50	0.62
831.40	0.24	832.44	0.41	833.48	0.52	834.52	0.62
831.42	0.25	832.46	0.41	833.50	0.53	834.54	0.62
831.44	0.25	832.48	0.41	833.52	0.53	834.56	0.62
831.46	0.26	832.50	0.42	833.54	0.53	834.58	0.62
831.48	0.26	832.52	0.42	833.56	0.53	834.60	0.62
831.50	0.26	832.54	0.42	833.58	0.53	834.62	0.63
831.52	0.27	832.56	0.42	833.60	0.54	834.64	0.63
831.54	0.27	832.58	0.43	833.62	0.54	834.66	0.63
831.56	0.28	832.60	0.43	833.64	0.54	834.68	0.63
831.58	0.28	832.62	0.43	833.66	0.54	834.70	0.63
831.60	0.28	832.64	0.43	833.68	0.54	834.72	0.63
831.62	0.29	832.66	0.44	833.70	0.55	834.74	**0.64**
831.64	0.29	832.68	0.44	833.72	0.55		
831.66	0.29	832.70	0.44	833.74	0.55		
831.68	0.30	832.72	0.44	833.76	0.55		
831.70	0.30	832.74	0.45	833.78	0.55		

Summary for Pond 2a: CB

[82] Warning: Early inflow requires earlier time span
[85] Warning: Oscillations may require Finer Routing>1

Inflow Area = 0.240 ac, 98.33% Impervious, Inflow Depth > 3.74" for 25-Year event
Inflow = 1.48 cfs @ 11.95 hrs, Volume= 0.075 af
Outflow = 0.60 cfs @ 12.06 hrs, Volume= 0.075 af, Atten= 60%, Lag= 6.8 min
Primary = 0.60 cfs @ 12.06 hrs, Volume= 0.075 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 834.30' @ 12.06 hrs Surf.Area= 2,683 sf Storage= 494 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 3.1 min (733.3 - 730.2)

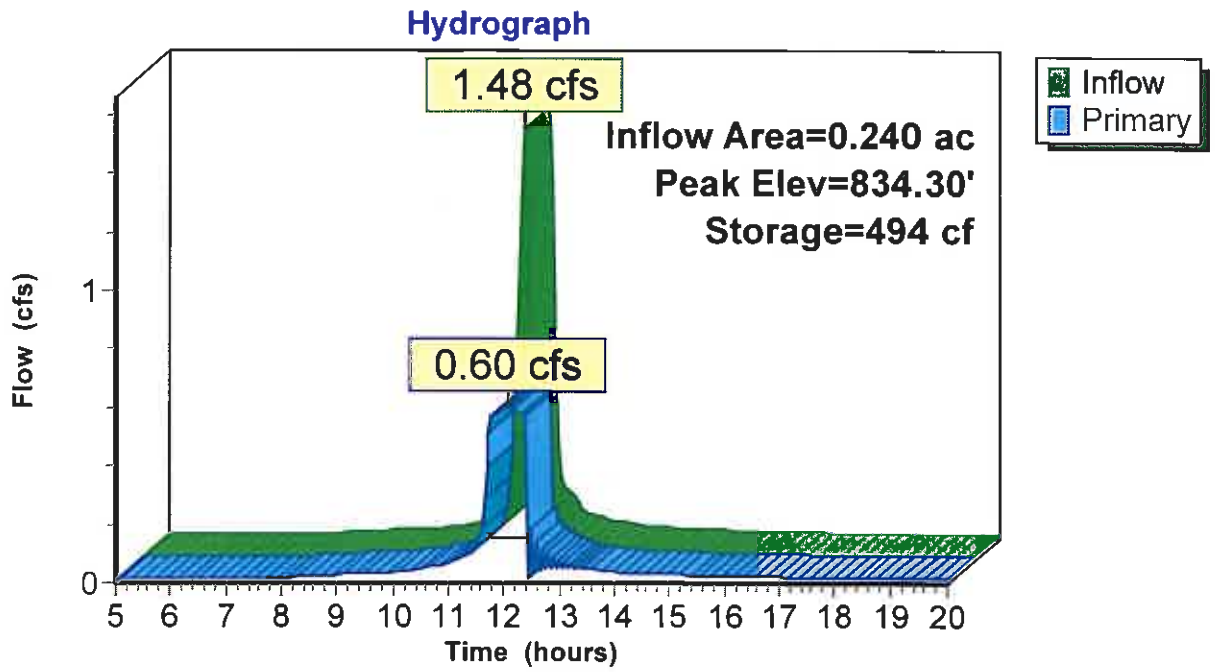
Volume	Invert	Avail.Storage	Storage Description
#1	830.68'	2,473 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
830.68	4	0	0
831.89	4	5	5
833.94	4	8	13
834.75	6,070	2,460	2,473

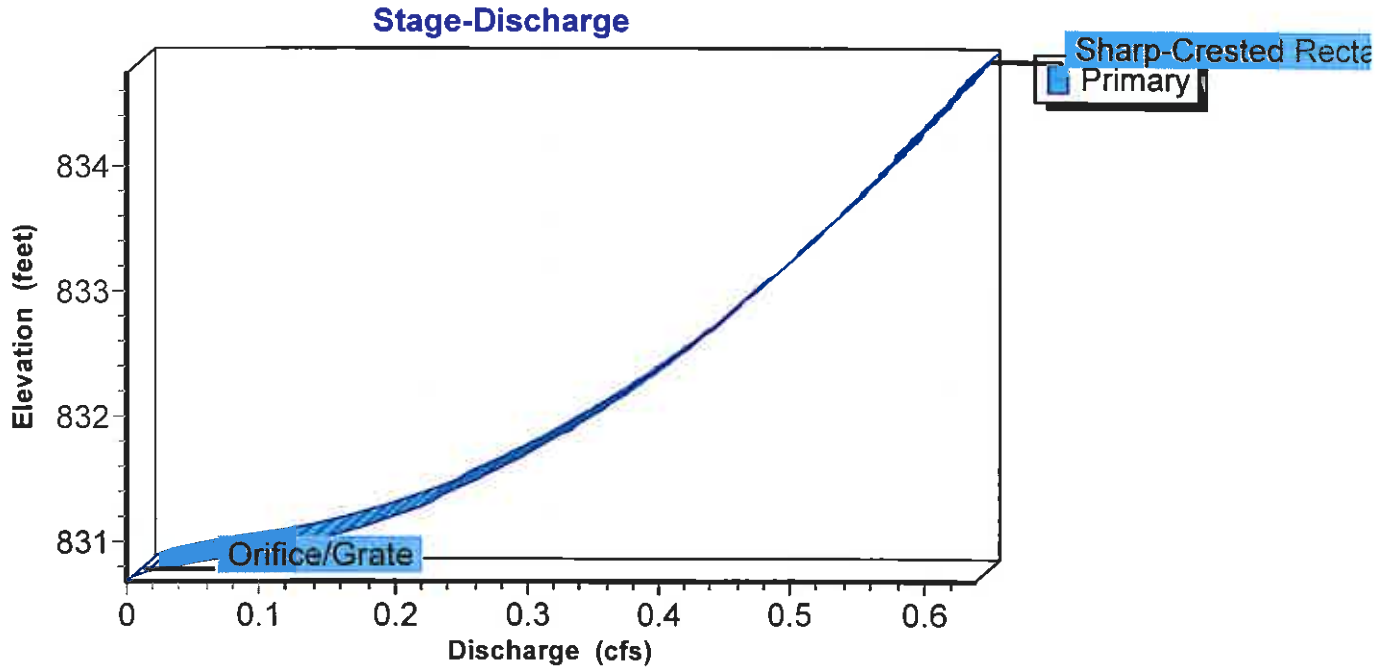
Device	Routing	Invert	Outlet Devices
#1	Primary	834.75'	**10.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	830.68'	**3.5" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.60 cfs @ 12.06 hrs HW=834.29' (Free Discharge)
↑—**1=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
└—**2=Orifice/Grate** (Orifice Controls 0.60 cfs @ 8.97 fps)

Pond 2a: CB



Pond 2a: CB



Stage-Discharge for Pond 2a: CB

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
830.68	0.00	831.72	0.30	832.76	0.45	833.80	0.55
830.70	0.00	831.74	0.31	832.78	0.45	833.82	0.56
830.72	0.00	831.76	0.31	832.80	0.45	833.84	0.56
830.74	0.01	831.78	0.31	832.82	0.45	833.86	0.56
830.76	0.01	831.80	0.32	832.84	0.46	833.88	0.56
830.78	0.02	831.82	0.32	832.86	0.46	833.90	0.56
830.80	0.03	831.84	0.32	832.88	0.46	833.92	0.57
830.82	0.04	831.86	0.33	832.90	0.46	833.94	0.57
830.84	0.05	831.88	0.33	832.92	0.47	833.96	0.57
830.86	0.06	831.90	0.33	832.94	0.47	833.98	0.57
830.88	0.07	831.92	0.34	832.96	0.47	834.00	0.57
830.90	0.09	831.94	0.34	832.98	0.47	834.02	0.57
830.92	0.10	831.96	0.34	833.00	0.47	834.04	0.58
830.94	0.11	831.98	0.35	833.02	0.48	834.06	0.58
830.96	0.12	832.00	0.35	833.04	0.48	834.08	0.58
830.98	0.13	832.02	0.35	833.06	0.48	834.10	0.58
831.00	0.13	832.04	0.35	833.08	0.48	834.12	0.58
831.02	0.14	832.06	0.36	833.10	0.49	834.14	0.59
831.04	0.15	832.08	0.36	833.12	0.49	834.16	0.59
831.06	0.16	832.10	0.36	833.14	0.49	834.18	0.59
831.08	0.16	832.12	0.37	833.16	0.49	834.20	0.59
831.10	0.17	832.14	0.37	833.18	0.49	834.22	0.59
831.12	0.17	832.16	0.37	833.20	0.50	834.24	0.59
831.14	0.18	832.18	0.37	833.22	0.50	834.26	0.60
831.16	0.19	832.20	0.38	833.24	0.50	834.28	0.60
831.18	0.19	832.22	0.38	833.26	0.50	834.30	0.60
831.20	0.20	832.24	0.38	833.28	0.50	834.32	0.60
831.22	0.20	832.26	0.39	833.30	0.51	834.34	0.60
831.24	0.21	832.28	0.39	833.32	0.51	834.36	0.60
831.26	0.21	832.30	0.39	833.34	0.51	834.38	0.61
831.28	0.22	832.32	0.39	833.36	0.51	834.40	0.61
831.30	0.22	832.34	0.40	833.38	0.51	834.42	0.61
831.32	0.23	832.36	0.40	833.40	0.52	834.44	0.61
831.34	0.23	832.38	0.40	833.42	0.52	834.46	0.61
831.36	0.24	832.40	0.40	833.44	0.52	834.48	0.61
831.38	0.24	832.42	0.41	833.46	0.52	834.50	0.62
831.40	0.24	832.44	0.41	833.48	0.52	834.52	0.62
831.42	0.25	832.46	0.41	833.50	0.53	834.54	0.62
831.44	0.25	832.48	0.41	833.52	0.53	834.56	0.62
831.46	0.26	832.50	0.42	833.54	0.53	834.58	0.62
831.48	0.26	832.52	0.42	833.56	0.53	834.60	0.62
831.50	0.26	832.54	0.42	833.58	0.53	834.62	0.63
831.52	0.27	832.56	0.42	833.60	0.54	834.64	0.63
831.54	0.27	832.58	0.43	833.62	0.54	834.66	0.63
831.56	0.28	832.60	0.43	833.64	0.54	834.68	0.63
831.58	0.28	832.62	0.43	833.66	0.54	834.70	0.63
831.60	0.28	832.64	0.43	833.68	0.54	834.72	0.63
831.62	0.29	832.66	0.44	833.70	0.55	834.74	**0.64**
831.64	0.29	832.68	0.44	833.72	0.55		
831.66	0.29	832.70	0.44	833.74	0.55		
831.68	0.30	832.72	0.44	833.76	0.55		
831.70	0.30	832.74	0.45	833.78	0.55		

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

Subcatchment Post1: Existing Site Runoff Area=0.280 ac 95.00% Impervious Runoff Depth>4.02"
Tc=5.0 min CN=97 Runoff=1.88 cfs 0.094 af

Subcatchment Post2: Proposed Site Runoff Area=0.240 ac 98.33% Impervious Runoff Depth>4.10"
Tc=5.0 min CN=98 Runoff=1.62 cfs 0.082 af

Pond 1: CB Peak Elev=834.49' Inflow=0.63 cfs 0.176 af
Outflow=0.63 cfs 0.176 af

Pond 2: CB Peak Elev=834.64' Storage=1,907 cf Inflow=2.47 cfs 0.176 af
Outflow=0.63 cfs 0.176 af

Pond 2a: CB Peak Elev=834.33' Storage=597 cf Inflow=1.62 cfs 0.082 af
Outflow=0.60 cfs 0.082 af

Summary for Subcatchment Post1: Existing Site

[49] Hint: Tc<2dt may require smaller dt

Runoff = 1.88 cfs @ 11.95 hrs, Volume= 0.094 af, Depth> 4.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-Year Rainfall=4.70"

Area (ac)	CN	Description
0.080	98	Roofs, HSG C
0.186	98	Paved parking, HSG C
0.014	74	>75% Grass cover, Good, HSG C
0.280	97	Weighted Average
0.014		5.00% Pervious Area
0.266		95.00% Impervious Area

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

Summary for Subcatchment Post2: Proposed Site

[49] Hint: Tc<2dt may require smaller dt

Runoff = 1.62 cfs @ 11.95 hrs, Volume= 0.082 af, Depth> 4.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-Year Rainfall=4.70"

Area (ac)	CN	Description
0.236	98	Paved parking, HSG C
0.004	74	>75% Grass cover, Good, HSG C
0.240	98	Weighted Average
0.004		1.67% Pervious Area
0.236		98.33% Impervious Area

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

Summary for Pond 1: CB

[82] Warning: Early inflow requires earlier time span
[57] Hint: Peaked at 834.49' (Flood elevation advised)
[79] Warning: Submerged Pond 2 Primary device # 2 by 3.81'

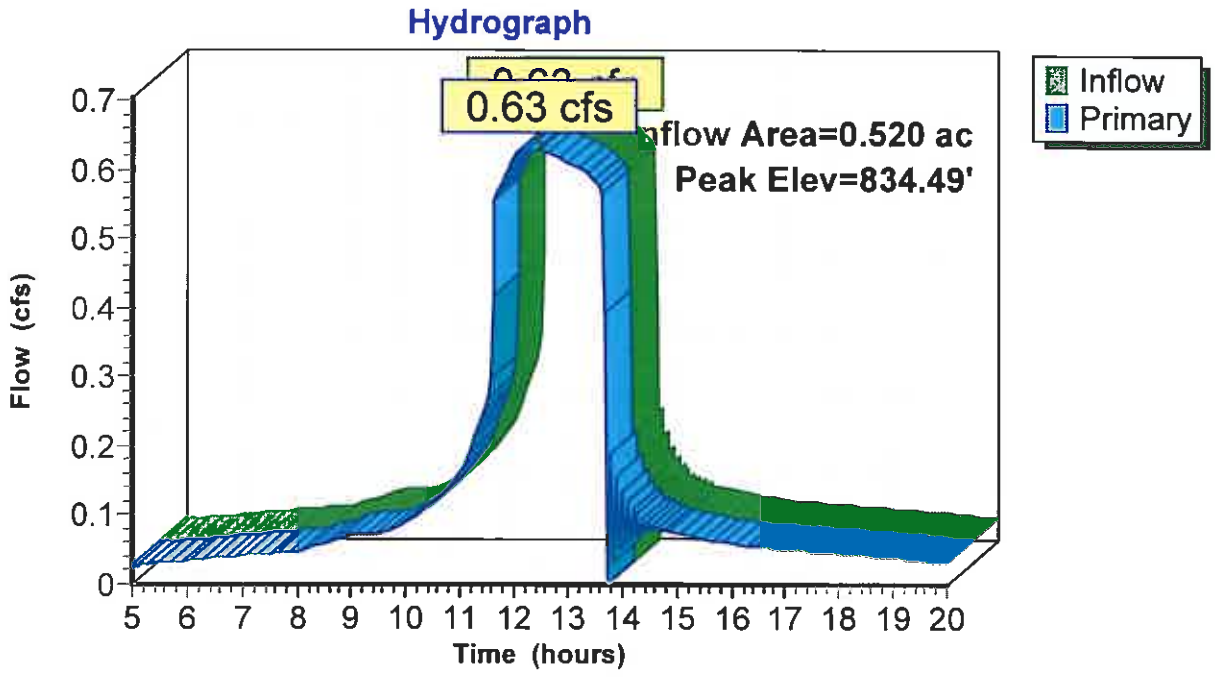
Inflow Area =	0.520 ac, 96.54% Impervious, Inflow Depth > 4.07"	for 50-Year event		
Inflow =	0.63 cfs @ 12.48 hrs, Volume=	0.176 af		
Outflow =	0.63 cfs @ 12.48 hrs, Volume=	0.176 af,	Atten= 0%,	Lag= 0.0 min
Primary =	0.63 cfs @ 12.48 hrs, Volume=	0.176 af		

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 834.49' @ 12.48 hrs

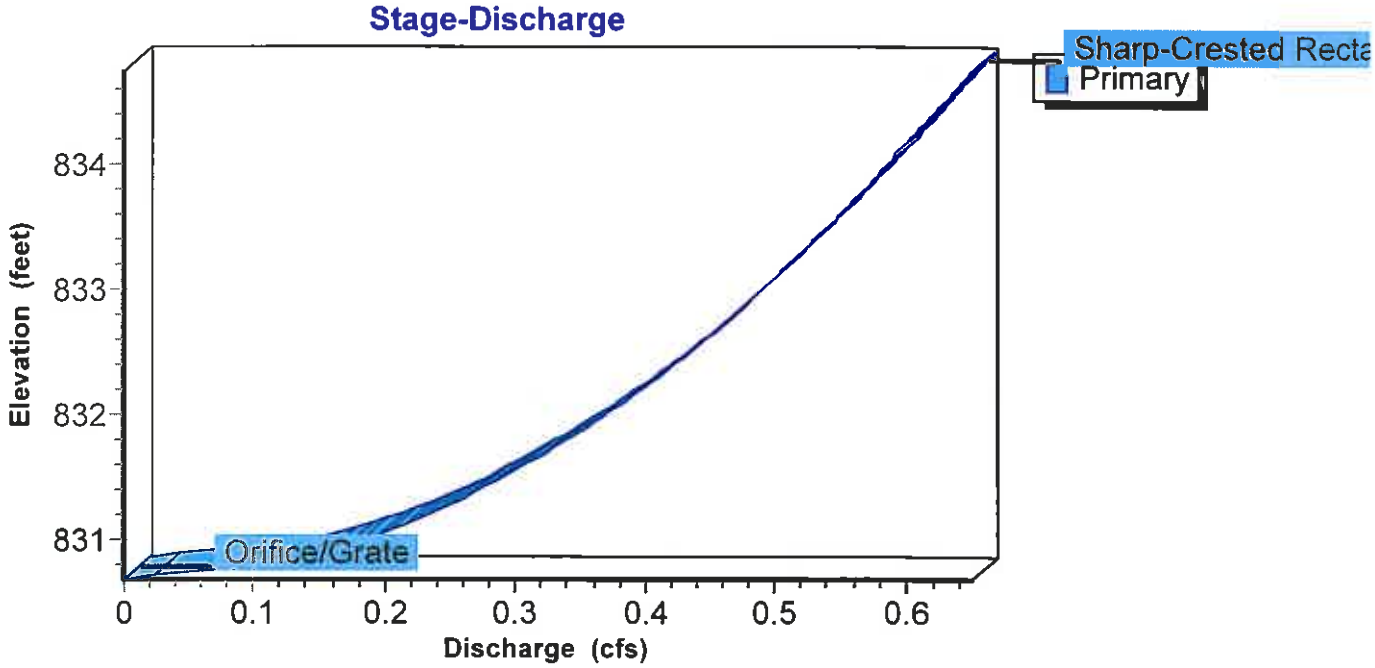
Device	Routing	Invert	Outlet Devices
#1	Primary	830.68'	**3.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	834.75'	**10.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.63 cfs @ 12.48 hrs HW=834.49' (Free Discharge)
└1=**Orifice/Grate** (Orifice Controls 0.63 cfs @ 9.40 fps)
└2=Sharp-Crested **Rectangular Weir** (Controls 0.00 cfs)

Pond 1: CB



Pond 1: CB


Stage-Discharge
Sharp-Crested Recta
Primary
Orifice/Grate
Elevation (feet)
834
833
832
831
0
0.1
0.2
0.3
0.4
0.5
0.6
Discharge (cfs)

Stage-Discharge for Pond 1: CB

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
830.68	0.00	831.72	0.33	832.76	0.46	833.80	0.57
830.70	0.01	831.74	0.33	832.78	0.47	833.82	0.57
830.72	0.02	831.76	0.33	832.80	0.47	833.84	0.57
830.74	0.04	831.78	0.34	832.82	0.47	833.86	0.57
830.76	0.07	831.80	0.34	832.84	0.47	833.88	0.58
830.78	0.09	831.82	0.34	832.86	0.47	833.90	0.58
830.80	0.11	831.84	0.35	832.88	0.48	833.92	0.58
830.82	0.12	831.86	0.35	832.90	0.48	833.94	0.58
830.84	0.13	831.88	0.35	832.92	0.48	833.96	0.58
830.86	0.14	831.90	0.36	832.94	0.48	833.98	0.58
830.88	0.14	831.92	0.36	832.96	0.49	834.00	0.59
830.90	0.15	831.94	0.36	832.98	0.49	834.02	0.59
830.92	0.16	831.96	0.36	833.00	0.49	834.04	0.59
830.94	0.16	831.98	0.37	833.02	0.49	834.06	0.59
830.96	0.17	832.00	0.37	833.04	0.49	834.08	0.59
830.98	0.18	832.02	0.37	833.06	0.50	834.10	0.59
831.00	0.18	832.04	0.38	833.08	0.50	834.12	0.60
831.02	0.19	832.06	0.38	833.10	0.50	834.14	0.60
831.04	0.19	832.08	0.38	833.12	0.50	834.16	0.60
831.06	0.20	832.10	0.38	833.14	0.50	834.18	0.60
831.08	0.20	832.12	0.39	833.16	0.51	834.20	0.60
831.10	0.21	832.14	0.39	833.18	0.51	834.22	0.61
831.12	0.21	832.16	0.39	833.20	0.51	834.24	0.61
831.14	0.22	832.18	0.39	833.22	0.51	834.26	0.61
831.16	0.22	832.20	0.40	833.24	0.51	834.28	0.61
831.18	0.23	832.22	0.40	833.26	0.52	834.30	0.61
831.20	0.23	832.24	0.40	833.28	0.52	834.32	0.61
831.22	0.24	832.26	0.40	833.30	0.52	834.34	0.62
831.24	0.24	832.28	0.41	833.32	0.52	834.36	0.62
831.26	0.25	832.30	0.41	833.34	0.52	834.38	0.62
831.28	0.25	832.32	0.41	833.36	0.53	834.40	0.62
831.30	0.25	832.34	0.41	833.38	0.53	834.42	0.62
831.32	0.26	832.36	0.42	833.40	0.53	834.44	0.62
831.34	0.26	832.38	0.42	833.42	0.53	834.46	0.63
831.36	0.27	832.40	0.42	833.44	0.53	834.48	0.63
831.38	0.27	832.42	0.42	833.46	0.54	834.50	0.63
831.40	0.27	832.44	0.43	833.48	0.54	834.52	0.63
831.42	0.28	832.46	0.43	833.50	0.54	834.54	0.63
831.44	0.28	832.48	0.43	833.52	0.54	834.56	0.63
831.46	0.28	832.50	0.43	833.54	0.54	834.58	0.64
831.48	0.29	832.52	0.44	833.56	0.55	834.60	0.64
831.50	0.29	832.54	0.44	833.58	0.55	834.62	0.64
831.52	0.29	832.56	0.44	833.60	0.55	834.64	0.64
831.54	0.30	832.58	0.44	833.62	0.55	834.66	0.64
831.56	0.30	832.60	0.45	833.64	0.55	834.68	0.64
831.58	0.31	832.62	0.45	833.66	0.56	834.70	0.65
831.60	0.31	832.64	0.45	833.68	0.56	834.72	0.65
831.62	0.31	832.66	0.45	833.70	0.56	834.74	**0.65**
831.64	0.32	832.68	0.45	833.72	0.56		
831.66	0.32	832.70	0.46	833.74	0.56		
831.68	0.32	832.72	0.46	833.76	0.56		
831.70	0.32	832.74	0.46	833.78	0.57		

Summary for Pond 2: CB

[82] Warning: Early inflow requires earlier time span
[85] Warning: Oscillations may require Finer Routing>1
[81] Warning: Exceeded Pond 2a by 3.94' @ 12.55 hrs

Inflow Area = 0.520 ac, 96.54% Impervious, Inflow Depth > 4.06" for 50-Year event
Inflow = 2.47 cfs @ 11.95 hrs, Volume= 0.176 af
Outflow = 0.63 cfs @ 12.48 hrs, Volume= 0.176 af, Atten= 75%, Lag= 31.5 min
Primary = 0.63 cfs @ 12.48 hrs, Volume= 0.176 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 834.64' @ 12.48 hrs Surf.Area= 4,267 sf Storage= 1,907 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 17.5 min (750.7 - 733.1)

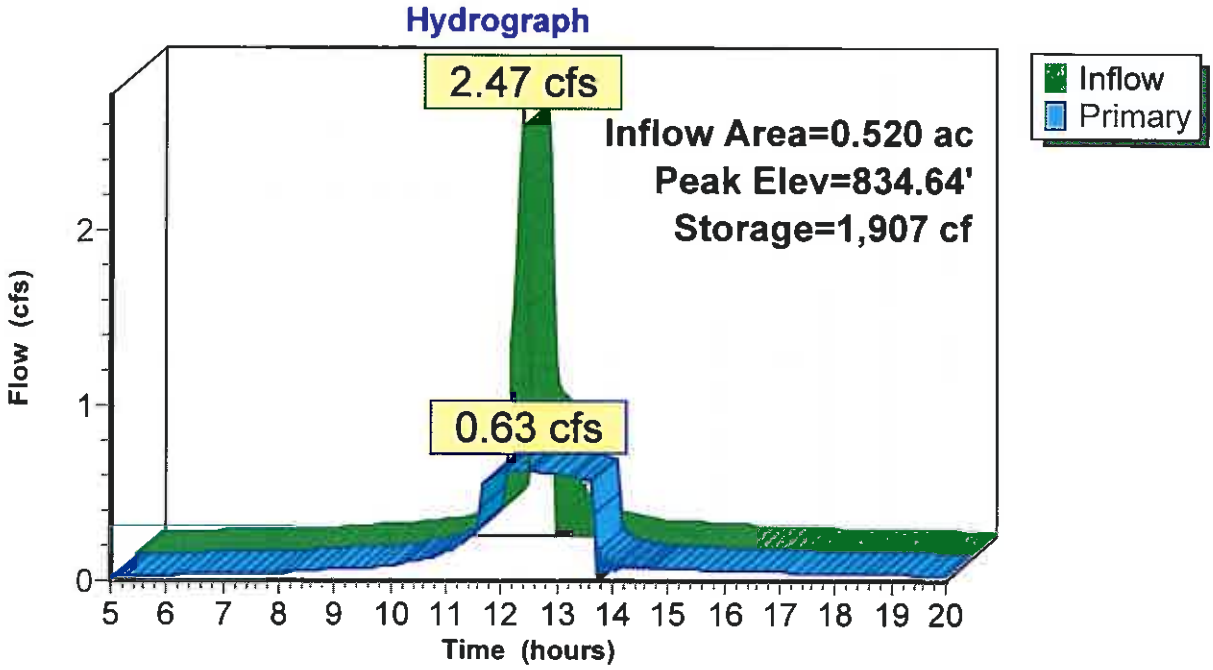
Volume	Invert	Avail.Storage	Storage Description
#1	830.68'	2,419 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
830.68	4	0	0
831.55	4	3	3
833.75	4	9	12
834.75	4,809	2,407	2,419

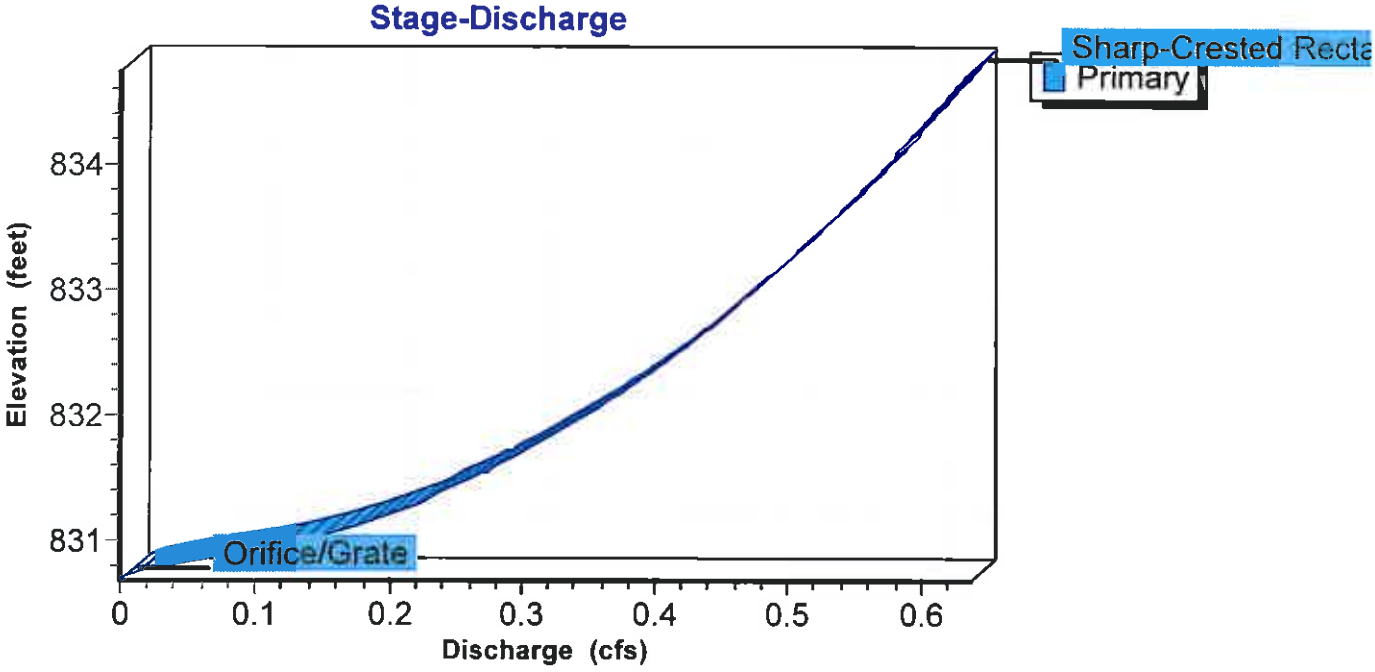
Device	Routing	Invert	Outlet Devices
#1	Primary	834.75'	**10.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	830.68'	**3.5" Vert. Orifice/Grate** C= 0.600

Primary **OutFlow** Max=0.63 cfs @ 12.48 hrs HW=834.64' (Free Discharge)
↑—**1=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
└—2=Orifice/Grate (Orifice Controls 0.63 cfs @ 9.40 fps)

Pond 2: CB



Pond 2: CB



Stage-Discharge for Pond 2: CB

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
830.68	0.00	831.72	0.30	832.76	0.45	833.80	0.55
830.70	0.00	831.74	0.31	832.78	0.45	833.82	0.56
830.72	0.00	831.76	0.31	832.80	0.45	833.84	0.56
830.74	0.01	831.78	0.31	832.82	0.45	833.86	0.56
830.76	0.01	831.80	0.32	832.84	0.46	833.88	0.56
830.78	0.02	831.82	0.32	832.86	0.46	833.90	0.56
830.80	0.03	831.84	0.32	832.88	0.46	833.92	0.57
830.82	0.04	831.86	0.33	832.90	0.46	833.94	0.57
830.84	0.05	831.88	0.33	832.92	0.47	833.96	0.57
830.86	0.06	831.90	0.33	832.94	0.47	833.98	0.57
830.88	0.07	831.92	0.34	832.96	0.47	834.00	0.57
830.90	0.09	831.94	0.34	832.98	0.47	834.02	0.57
830.92	0.10	831.96	0.34	833.00	0.47	834.04	0.58
830.94	0.11	831.98	0.35	833.02	0.48	834.06	0.58
830.96	0.12	832.00	0.35	833.04	0.48	834.08	0.58
830.98	0.13	832.02	0.35	833.06	0.48	834.10	0.58
831.00	0.13	832.04	0.35	833.08	0.48	834.12	0.58
831.02	0.14	832.06	0.36	833.10	0.49	834.14	0.59
831.04	0.15	832.08	0.36	833.12	0.49	834.16	0.59
831.06	0.16	832.10	0.36	833.14	0.49	834.18	0.59
831.08	0.16	832.12	0.37	833.16	0.49	834.20	0.59
831.10	0.17	832.14	0.37	833.18	0.49	834.22	0.59
831.12	0.17	832.16	0.37	833.20	0.50	834.24	0.59
831.14	0.18	832.18	0.37	833.22	0.50	834.26	0.60
831.16	0.19	832.20	0.38	833.24	0.50	834.28	0.60
831.18	0.19	832.22	0.38	833.26	0.50	834.30	0.60
831.20	0.20	832.24	0.38	833.28	0.50	834.32	0.60
831.22	0.20	832.26	0.39	833.30	0.51	834.34	0.60
831.24	0.21	832.28	0.39	833.32	0.51	834.36	0.60
831.26	0.21	832.30	0.39	833.34	0.51	834.38	0.61
831.28	0.22	832.32	0.39	833.36	0.51	834.40	0.61
831.30	0.22	832.34	0.40	833.38	0.51	834.42	0.61
831.32	0.23	832.36	0.40	833.40	0.52	834.44	0.61
831.34	0.23	832.38	0.40	833.42	0.52	834.46	0.61
831.36	0.24	832.40	0.40	833.44	0.52	834.48	0.61
831.38	0.24	832.42	0.41	833.46	0.52	834.50	0.62
831.40	0.24	832.44	0.41	833.48	0.52	834.52	0.62
831.42	0.25	832.46	0.41	833.50	0.53	834.54	0.62
831.44	0.25	832.48	0.41	833.52	0.53	834.56	0.62
831.46	0.26	832.50	0.42	833.54	0.53	834.58	0.62
831.48	0.26	832.52	0.42	833.56	0.53	834.60	0.62
831.50	0.26	832.54	0.42	833.58	0.53	834.62	0.63
831.52	0.27	832.56	0.42	833.60	0.54	834.64	0.63
831.54	0.27	832.58	0.43	833.62	0.54	834.66	0.63
831.56	0.28	832.60	0.43	833.64	0.54	834.68	0.63
831.58	0.28	832.62	0.43	833.66	0.54	834.70	0.63
831.60	0.28	832.64	0.43	833.68	0.54	834.72	0.63
831.62	0.29	832.66	0.44	833.70	0.55	834.74	**0.64**
831.64	0.29	832.68	0.44	833.72	0.55		
831.66	0.29	832.70	0.44	833.74	0.55		
831.68	0.30	832.72	0.44	833.76	0.55		
831.70	0.30	832.74	0.45	833.78	0.55		

Summary for Pond 2a: CB

[82] Warning: Early inflow requires earlier time span
[85] Warning: Oscillations may require Finer Routing>1

Inflow Area = 0.240 ac, 98.33% Impervious, Inflow Depth > 4.10" for 50-Year event
Inflow = 1.62 cfs @ 11.95 hrs, Volume= 0.082 af
Outflow = 0.60 cfs @ 12.07 hrs, Volume= 0.082 af, Atten= 63%, Lag= 7.1 min
Primary = 0.60 cfs @ 12.07 hrs, Volume= 0.082 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 834.33' @ 12.07 hrs Surf.Area= 2,957 sf Storage= 597 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 3.9 min (733.6 - 729.7)

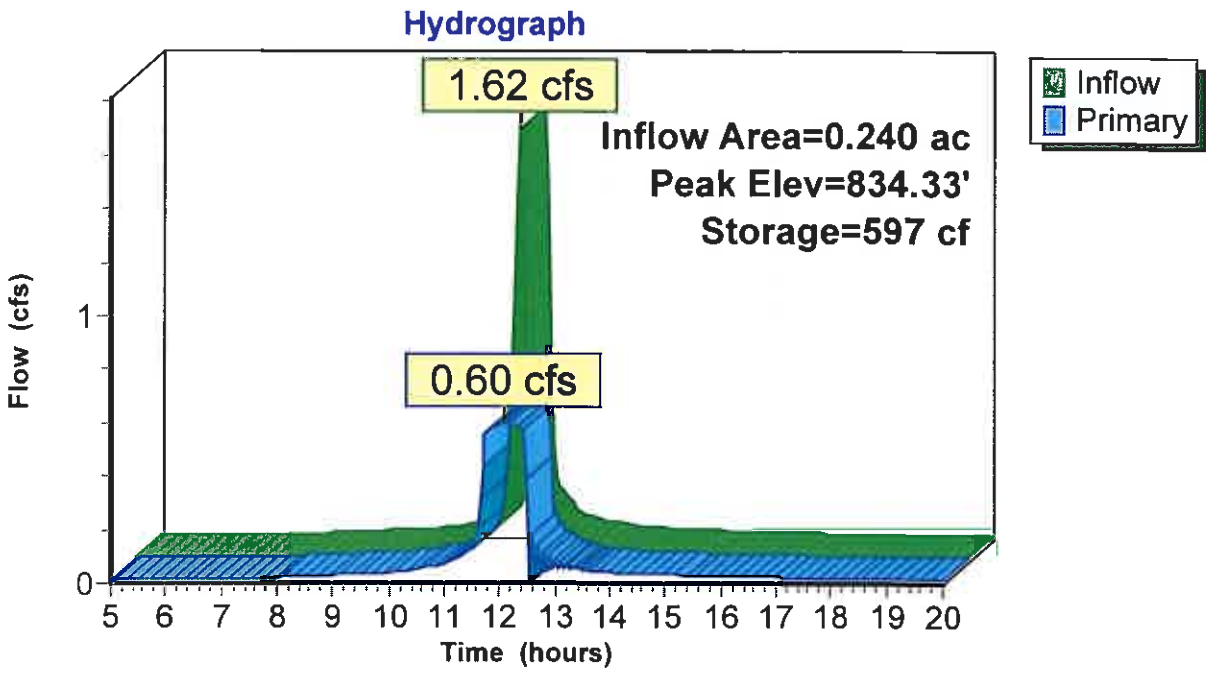
Volume	Invert	Avail.Storage	Storage Description
#1	830.68'	2,473 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
830.68	4	0	0
831.89	4	5	5
833.94	4	8	13
834.75	6,070	2,460	2,473

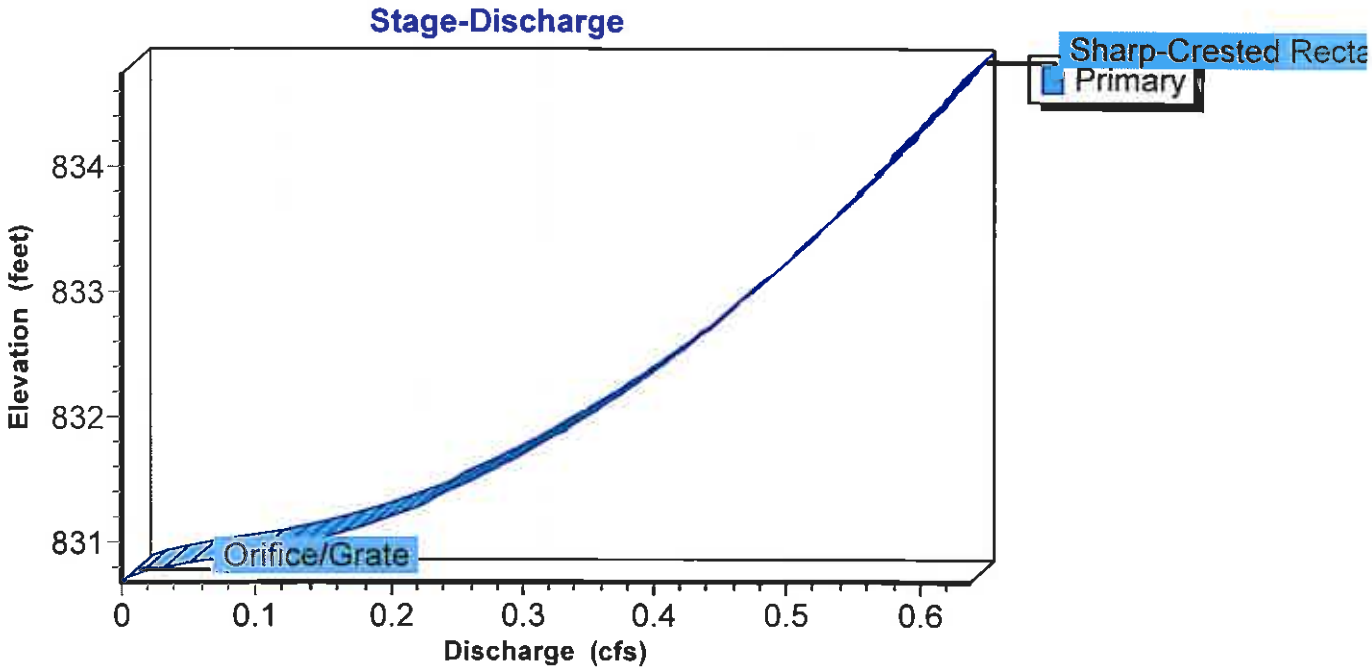
Device	Routing	Invert	Outlet Devices
#1	Primary	834.75'	**10.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	830.68'	**3.5" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.60 cfs @ 12.07 hrs HW=834.33' (Free Discharge)
↑—**1=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
└—**2=Orifice/Grate** (Orifice Controls 0.60 cfs @ 9.01 fps)

Pond 2a: CB



Pond 2a: CB



Stage-Discharge for Pond 2a: CB

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
830.68	0.00	831.72	0.30	832.76	0.45	833.80	0.55
830.70	0.00	831.74	0.31	832.78	0.45	833.82	0.56
830.72	0.00	831.76	0.31	832.80	0.45	833.84	0.56
830.74	0.01	831.78	0.31	832.82	0.45	833.86	0.56
830.76	0.01	831.80	0.32	832.84	0.46	833.88	0.56
830.78	0.02	831.82	0.32	832.86	0.46	833.90	0.56
830.80	0.03	831.84	0.32	832.88	0.46	833.92	0.57
830.82	0.04	831.86	0.33	832.90	0.46	833.94	0.57
830.84	0.05	831.88	0.33	832.92	0.47	833.96	0.57
830.86	0.06	831.90	0.33	832.94	0.47	833.98	0.57
830.88	0.07	831.92	0.34	832.96	0.47	834.00	0.57
830.90	0.09	831.94	0.34	832.98	0.47	834.02	0.57
830.92	0.10	831.96	0.34	833.00	0.47	834.04	0.58
830.94	0.11	831.98	0.35	833.02	0.48	834.06	0.58
830.96	0.12	832.00	0.35	833.04	0.48	834.08	0.58
830.98	0.13	832.02	0.35	833.06	0.48	834.10	0.58
831.00	0.13	832.04	0.35	833.08	0.48	834.12	0.58
831.02	0.14	832.06	0.36	833.10	0.49	834.14	0.59
831.04	0.15	832.08	0.36	833.12	0.49	834.16	0.59
831.06	0.16	832.10	0.36	833.14	0.49	834.18	0.59
831.08	0.16	832.12	0.37	833.16	0.49	834.20	0.59
831.10	0.17	832.14	0.37	833.18	0.49	834.22	0.59
831.12	0.17	832.16	0.37	833.20	0.50	834.24	0.59
831.14	0.18	832.18	0.37	833.22	0.50	834.26	0.60
831.16	0.19	832.20	0.38	833.24	0.50	834.28	0.60
831.18	0.19	832.22	0.38	833.26	0.50	834.30	0.60
831.20	0.20	832.24	0.38	833.28	0.50	834.32	0.60
831.22	0.20	832.26	0.39	833.30	0.51	834.34	0.60
831.24	0.21	832.28	0.39	833.32	0.51	834.36	0.60
831.26	0.21	832.30	0.39	833.34	0.51	834.38	0.61
831.28	0.22	832.32	0.39	833.36	0.51	834.40	0.61
831.30	0.22	832.34	0.40	833.38	0.51	834.42	0.61
831.32	0.23	832.36	0.40	833.40	0.52	834.44	0.61
831.34	0.23	832.38	0.40	833.42	0.52	834.46	0.61
831.36	0.24	832.40	0.40	833.44	0.52	834.48	0.61
831.38	0.24	832.42	0.41	833.46	0.52	834.50	0.62
831.40	0.24	832.44	0.41	833.48	0.52	834.52	0.62
831.42	0.25	832.46	0.41	833.50	0.53	834.54	0.62
831.44	0.25	832.48	0.41	833.52	0.53	834.56	0.62
831.46	0.26	832.50	0.42	833.54	0.53	834.58	0.62
831.48	0.26	832.52	0.42	833.56	0.53	834.60	0.62
831.50	0.26	832.54	0.42	833.58	0.53	834.62	0.63
831.52	0.27	832.56	0.42	833.60	0.54	834.64	0.63
831.54	0.27	832.58	0.43	833.62	0.54	834.66	0.63
831.56	0.28	832.60	0.43	833.64	0.54	834.68	0.63
831.58	0.28	832.62	0.43	833.66	0.54	834.70	0.63
831.60	0.28	832.64	0.43	833.68	0.54	834.72	0.63
831.62	0.29	832.66	0.44	833.70	0.55	834.74	**0.64**
831.64	0.29	832.68	0.44	833.72	0.55		
831.66	0.29	832.70	0.44	833.74	0.55		
831.68	0.30	832.72	0.44	833.76	0.55		
831.70	0.30	832.74	0.45	833.78	0.55		

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

Subcatchment Post1: Existing Site Runoff Area=0.280 ac 95.00% Impervious Runoff Depth>4.21"
Tc=5.0 min CN=97 Runoff=1.96 cfs 0.098 af

Subcatchment Post2: Proposed Site Runoff Area=0.240 ac 98.33% Impervious Runoff Depth>4.28"
Tc=5.0 min CN=98 Runoff=1.69 cfs 0.086 af

Pond 1: CB Peak Elev=834.52' Inflow=0.63 cfs 0.184 af
Outflow=0.63 cfs 0.184 af

Pond 2: CB Peak Elev=834.66' Storage=2,015 cf Inflow=2.56 cfs 0.184 af
Outflow=0.63 cfs 0.184 af

Pond 2a: CB Peak Elev=834.35' Storage=652 cf Inflow=1.69 cfs 0.086 af
Outflow=0.60 cfs 0.086 af

Summary for Subcatchment Post1: Existing Site

[49] Hint: Tc<2dt may require smaller dt

Runoff = 1.96 cfs @ 11.95 hrs, Volume= 0.098 af, Depth> 4.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year Rainfall=4.90"

Area (ac)	CN	Description
0.080	98	Roofs, HSG C
0.186	98	Paved parking, HSG C
0.014	74	>75% Grass cover, Good, HSG C
0.280	97	Weighted Average
0.014		5.00% Pervious Area
0.266		95.00% Impervious Area

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

Summary for Subcatchment Post2: Proposed Site

[49] Hint: Tc<2dt may require smaller dt

Runoff = 1.69 cfs @ 11.95 hrs, Volume= 0.086 af, Depth> 4.28"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year Rainfall=4.90"

Area (ac)	CN	Description
0.236	98	Paved parking, HSG C
0.004	74	>75% Grass cover, Good, HSG C
0.240	98	Weighted Average
0.004		1.67% Pervious Area
0.236		98.33% Impervious Area

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

Summary for Pond 1: CB

[82] Warning: Early inflow requires earlier time span
[57] Hint: Peaked at 834.52' (Flood elevation advised)
[79] Warning: Submerged Pond 2 Primary device # 2 by 3.84'

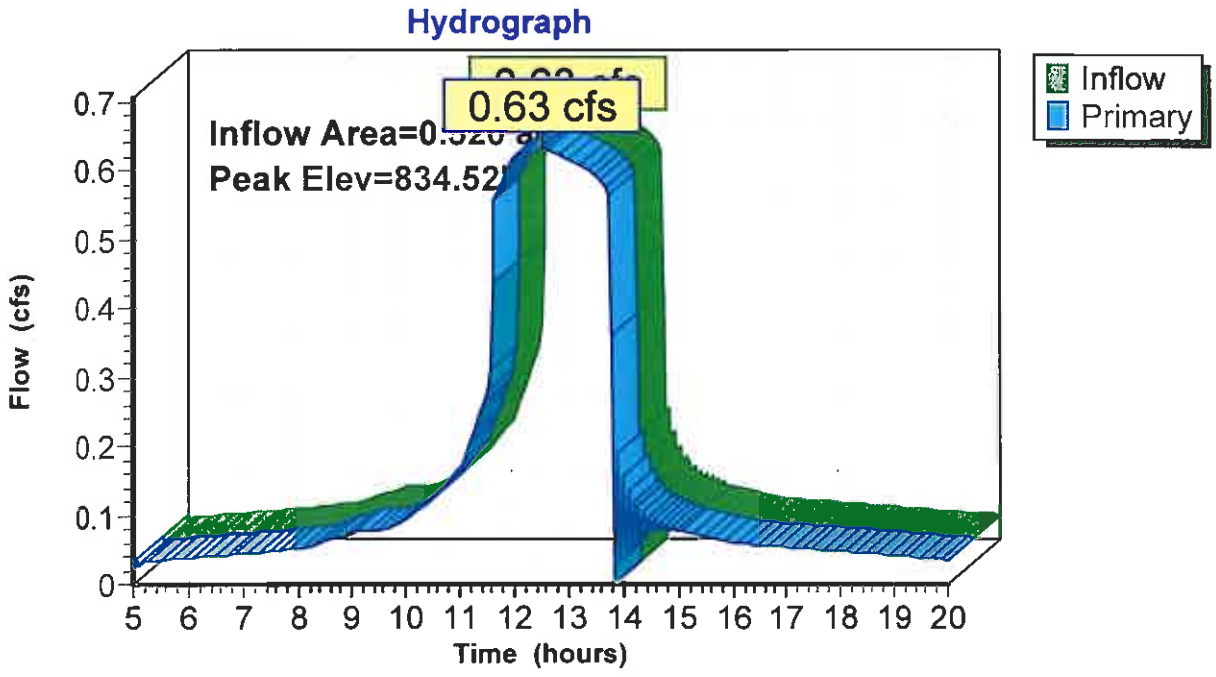
Inflow Area = 0.520 ac, 96.54% Impervious, Inflow Depth > 4.24" for 100-Year event
Inflow = 0.63 cfs @ 12.50 hrs, Volume= 0.184 af
Outflow = 0.63 cfs @ 12.50 hrs, Volume= 0.184 af, Atten= 0%, Lag= 0.0 min
Primary = 0.63 cfs @ 12.50 hrs, Volume= 0.184 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 834.52' @ 12.50 hrs

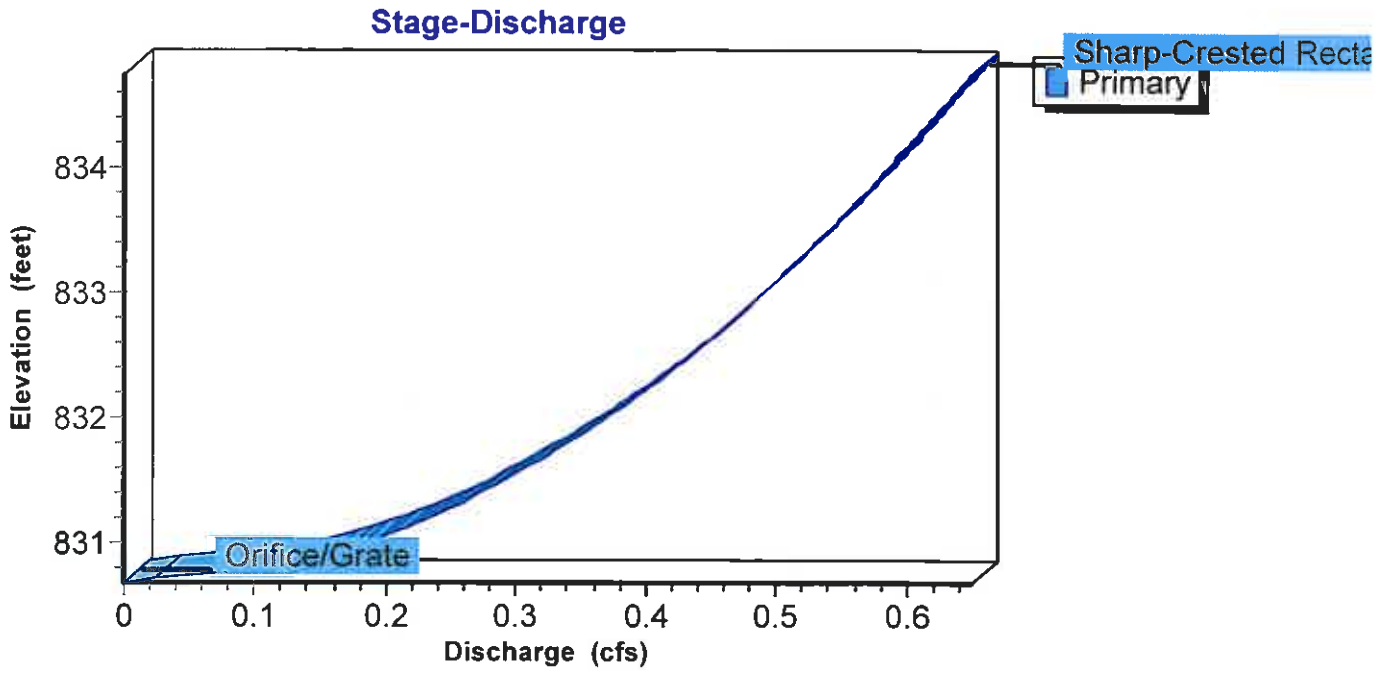
Device	Routing	Invert	Outlet Devices
#1	Primary	830.68'	**3.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	834.75'	**10.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.63 cfs @ 12.50 hrs HW=834.52' (Free Discharge)
└─**1=Orifice/Grate** (Orifice Controls 0.63 cfs @ 9.43 fps)
└─**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1: CB



Pond 1: CB


Stage-Discharge
Sharp-Crested Recta
Primary
Orifice/Grate
Elevation (feet)
834
833
832
831
0
0.1
0.2
0.3
0.4
0.5
0.6
Discharge (cfs)

Stage-Discharge for Pond 1: CB

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
830.68	0.00	831.72	0.33	832.76	0.46	833.80	0.57
830.70	0.01	831.74	0.33	832.78	0.47	833.82	0.57
830.72	0.02	831.76	0.33	832.80	0.47	833.84	0.57
830.74	0.04	831.78	0.34	832.82	0.47	833.86	0.57
830.76	0.07	831.80	0.34	832.84	0.47	833.88	0.58
830.78	0.09	831.82	0.34	832.86	0.47	833.90	0.58
830.80	0.11	831.84	0.35	832.88	0.48	833.92	0.58
830.82	0.12	831.86	0.35	832.90	0.48	833.94	0.58
830.84	0.13	831.88	0.35	832.92	0.48	833.96	0.58
830.86	0.14	831.90	0.36	832.94	0.48	833.98	0.58
830.88	0.14	831.92	0.36	832.96	0.49	834.00	0.59
830.90	0.15	831.94	0.36	832.98	0.49	834.02	0.59
830.92	0.16	831.96	0.36	833.00	0.49	834.04	0.59
830.94	0.16	831.98	0.37	833.02	0.49	834.06	0.59
830.96	0.17	832.00	0.37	833.04	0.49	834.08	0.59
830.98	0.18	832.02	0.37	833.06	0.50	834.10	0.59
831.00	0.18	832.04	0.38	833.08	0.50	834.12	0.60
831.02	0.19	832.06	0.38	833.10	0.50	834.14	0.60
831.04	0.19	832.08	0.38	833.12	0.50	834.16	0.60
831.06	0.20	832.10	0.38	833.14	0.50	834.18	0.60
831.08	0.20	832.12	0.39	833.16	0.51	834.20	0.60
831.10	0.21	832.14	0.39	833.18	0.51	834.22	0.61
831.12	0.21	832.16	0.39	833.20	0.51	834.24	0.61
831.14	0.22	832.18	0.39	833.22	0.51	834.26	0.61
831.16	0.22	832.20	0.40	833.24	0.51	834.28	0.61
831.18	0.23	832.22	0.40	833.26	0.52	834.30	0.61
831.20	0.23	832.24	0.40	833.28	0.52	834.32	0.61
831.22	0.24	832.26	0.40	833.30	0.52	834.34	0.62
831.24	0.24	832.28	0.41	833.32	0.52	834.36	0.62
831.26	0.25	832.30	0.41	833.34	0.52	834.38	0.62
831.28	0.25	832.32	0.41	833.36	0.53	834.40	0.62
831.30	0.25	832.34	0.41	833.38	0.53	834.42	0.62
831.32	0.26	832.36	0.42	833.40	0.53	834.44	0.62
831.34	0.26	832.38	0.42	833.42	0.53	834.46	0.63
831.36	0.27	832.40	0.42	833.44	0.53	834.48	0.63
831.38	0.27	832.42	0.42	833.46	0.54	834.50	0.63
831.40	0.27	832.44	0.43	833.48	0.54	834.52	0.63
831.42	0.28	832.46	0.43	833.50	0.54	834.54	0.63
831.44	0.28	832.48	0.43	833.52	0.54	834.56	0.63
831.46	0.28	832.50	0.43	833.54	0.54	834.58	0.64
831.48	0.29	832.52	0.44	833.56	0.55	834.60	0.64
831.50	0.29	832.54	0.44	833.58	0.55	834.62	0.64
831.52	0.29	832.56	0.44	833.60	0.55	834.64	0.64
831.54	0.30	832.58	0.44	833.62	0.55	834.66	0.64
831.56	0.30	832.60	0.45	833.64	0.55	834.68	0.64
831.58	0.31	832.62	0.45	833.66	0.56	834.70	0.65
831.60	0.31	832.64	0.45	833.68	0.56	834.72	0.65
831.62	0.31	832.66	0.45	833.70	0.56	834.74	**0.65**
831.64	0.32	832.68	0.45	833.72	0.56		
831.66	0.32	832.70	0.46	833.74	0.56		
831.68	0.32	832.72	0.46	833.76	0.56		
831.70	0.32	832.74	0.46	833.78	0.57		

Summary for Pond 2: CB

[82] Warning: Early inflow requires earlier time span
[85] Warning: Oscillations may require Finer Routing>1
[81] Warning: Exceeded Pond 2a by 3.90' @ 12.60 hrs

Inflow Area = 0.520 ac, 96.54% Impervious, Inflow Depth > 4.24" for 100-Year event
Inflow = 2.56 cfs @ 11.95 hrs, Volume= 0.184 af
Outflow = 0.63 cfs @ 12.50 hrs, Volume= 0.184 af, Atten= 75%, Lag= 33.1 min
Primary = 0.63 cfs @ 12.50 hrs, Volume= 0.184 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 834.66' @ 12.50 hrs Surf.Area= 4,387 sf Storage= 2,015 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 18.7 min (751.7 - 733.0)

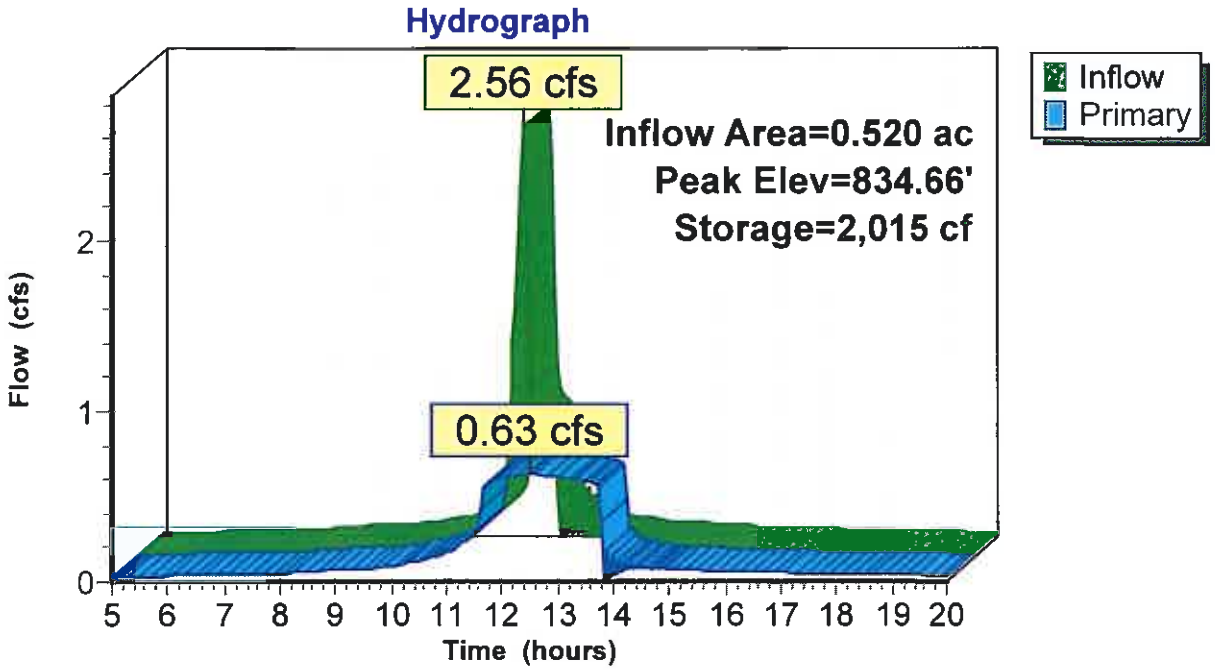
Volume	Invert	Avail.Storage	Storage Description
#1	830.68'	2,419 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
830.68	4	0	0
831.55	4	3	3
833.75	4	9	12
834.75	4,809	2,407	2,419

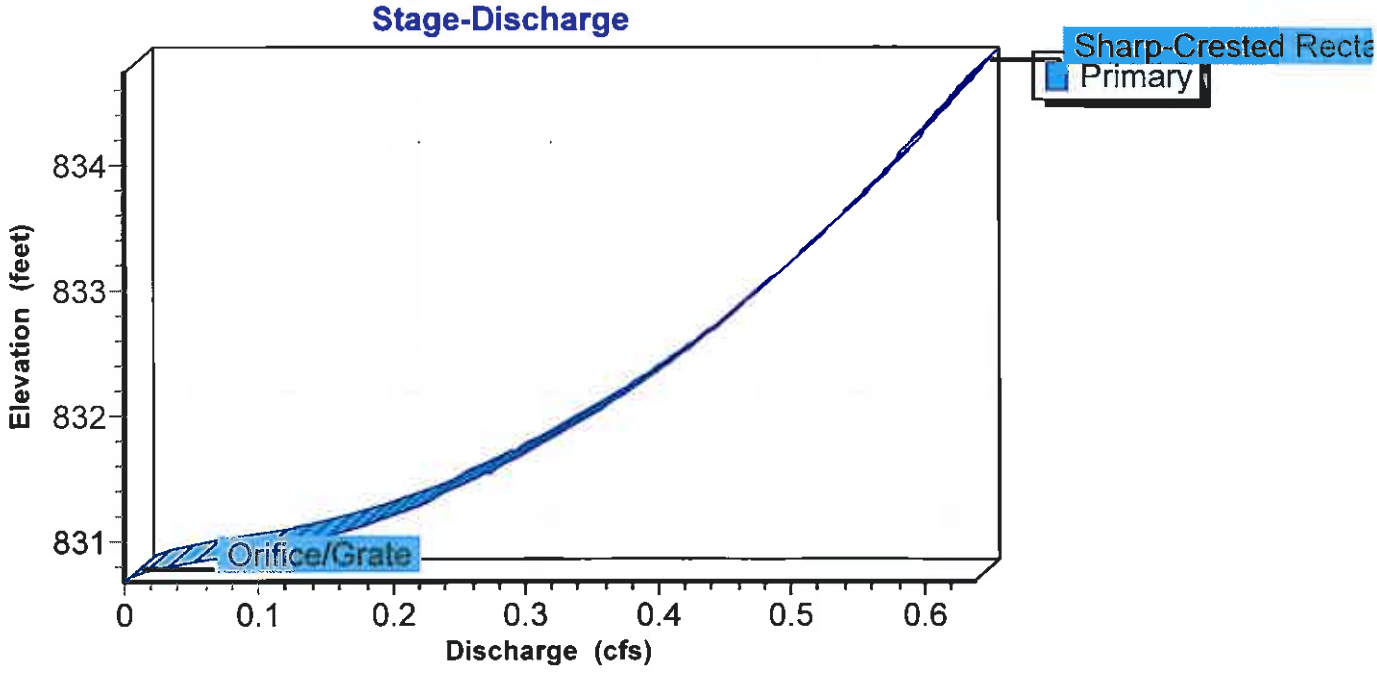
Device	Routing	Invert	Outlet Devices
#1	Primary	834.75'	**10.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	830.68'	**3.5" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.63 cfs @ 12.50 hrs HW=834.66' (Free Discharge)
↑—**1=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
└—**2=Orifice/Grate** (Orifice Controls 0.63 cfs @ 9.43 fps)

Pond 2: CB



Pond 2: CB



Stage-Discharge for Pond 2: CB

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
830.68	0.00	831.72	0.30	832.76	0.45	833.80	0.55
830.70	0.00	831.74	0.31	832.78	0.45	833.82	0.56
830.72	0.00	831.76	0.31	832.80	0.45	833.84	0.56
830.74	0.01	831.78	0.31	832.82	0.45	833.86	0.56
830.76	0.01	831.80	0.32	832.84	0.46	833.88	0.56
830.78	0.02	831.82	0.32	832.86	0.46	833.90	0.56
830.80	0.03	831.84	0.32	832.88	0.46	833.92	0.57
830.82	0.04	831.86	0.33	832.90	0.46	833.94	0.57
830.84	0.05	831.88	0.33	832.92	0.47	833.96	0.57
830.86	0.06	831.90	0.33	832.94	0.47	833.98	0.57
830.88	0.07	831.92	0.34	832.96	0.47	834.00	0.57
830.90	0.09	831.94	0.34	832.98	0.47	834.02	0.57
830.92	0.10	831.96	0.34	833.00	0.47	834.04	0.58
830.94	0.11	831.98	0.35	833.02	0.48	834.06	0.58
830.96	0.12	832.00	0.35	833.04	0.48	834.08	0.58
830.98	0.13	832.02	0.35	833.06	0.48	834.10	0.58
831.00	0.13	832.04	0.35	833.08	0.48	834.12	0.58
831.02	0.14	832.06	0.36	833.10	0.49	834.14	0.59
831.04	0.15	832.08	0.36	833.12	0.49	834.16	0.59
831.06	0.16	832.10	0.36	833.14	0.49	834.18	0.59
831.08	0.16	832.12	0.37	833.16	0.49	834.20	0.59
831.10	0.17	832.14	0.37	833.18	0.49	834.22	0.59
831.12	0.17	832.16	0.37	833.20	0.50	834.24	0.59
831.14	0.18	832.18	0.37	833.22	0.50	834.26	0.60
831.16	0.19	832.20	0.38	833.24	0.50	834.28	0.60
831.18	0.19	832.22	0.38	833.26	0.50	834.30	0.60
831.20	0.20	832.24	0.38	833.28	0.50	834.32	0.60
831.22	0.20	832.26	0.39	833.30	0.51	834.34	0.60
831.24	0.21	832.28	0.39	833.32	0.51	834.36	0.60
831.26	0.21	832.30	0.39	833.34	0.51	834.38	0.61
831.28	0.22	832.32	0.39	833.36	0.51	834.40	0.61
831.30	0.22	832.34	0.40	833.38	0.51	834.42	0.61
831.32	0.23	832.36	0.40	833.40	0.52	834.44	0.61
831.34	0.23	832.38	0.40	833.42	0.52	834.46	0.61
831.36	0.24	832.40	0.40	833.44	0.52	834.48	0.61
831.38	0.24	832.42	0.41	833.46	0.52	834.50	0.62
831.40	0.24	832.44	0.41	833.48	0.52	834.52	0.62
831.42	0.25	832.46	0.41	833.50	0.53	834.54	0.62
831.44	0.25	832.48	0.41	833.52	0.53	834.56	0.62
831.46	0.26	832.50	0.42	833.54	0.53	834.58	0.62
831.48	0.26	832.52	0.42	833.56	0.53	834.60	0.62
831.50	0.26	832.54	0.42	833.58	0.53	834.62	0.63
831.52	0.27	832.56	0.42	833.60	0.54	834.64	0.63
831.54	0.27	832.58	0.43	833.62	0.54	834.66	0.63
831.56	0.28	832.60	0.43	833.64	0.54	834.68	0.63
831.58	0.28	832.62	0.43	833.66	0.54	834.70	0.63
831.60	0.28	832.64	0.43	833.68	0.54	834.72	0.63
831.62	0.29	832.66	0.44	833.70	0.55	834.74	**0.64**
831.64	0.29	832.68	0.44	833.72	0.55		
831.66	0.29	832.70	0.44	833.74	0.55		
831.68	0.30	832.72	0.44	833.76	0.55		
831.70	0.30	832.74	0.45	833.78	0.55		

Summary for Pond 2a: CB

[82] Warning: Early inflow requires earlier time span
[85] Warning: Oscillations may require Finer Routing>1

Inflow Area = 0.240 ac, 98.33% Impervious, Inflow Depth > 4.28" for 100-Year event
Inflow = 1.69 cfs @ 11.95 hrs, Volume= 0.086 af
Outflow = 0.60 cfs @ 12.07 hrs, Volume= 0.086 af, Atten= 64%, Lag= 7.2 min
Primary = 0.60 cfs @ 12.07 hrs, Volume= 0.086 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 834.35' @ 12.07 hrs Surf.Area= 3,095 sf Storage= 652 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 4.3 min (733.7 - 729.4)

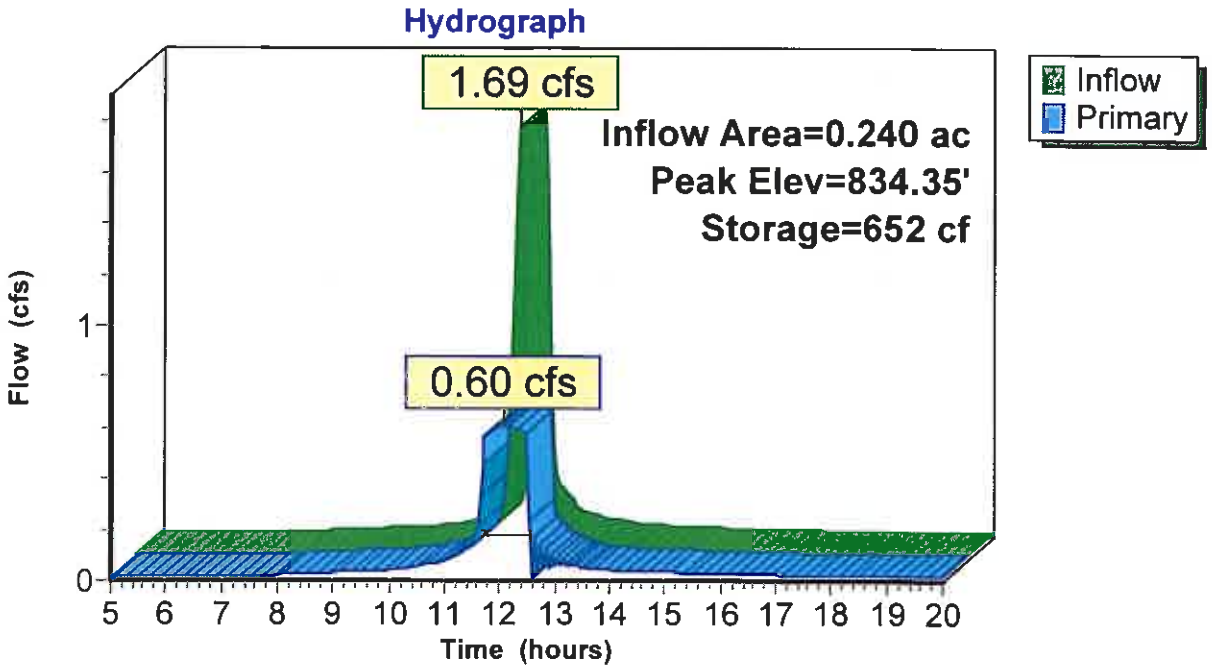
Volume	Invert	Avail.Storage	Storage Description
#1	830.68'	2,473 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
830.68	4	0	0
831.89	4	5	5
833.94	4	8	13
834.75	6,070	2,460	2,473

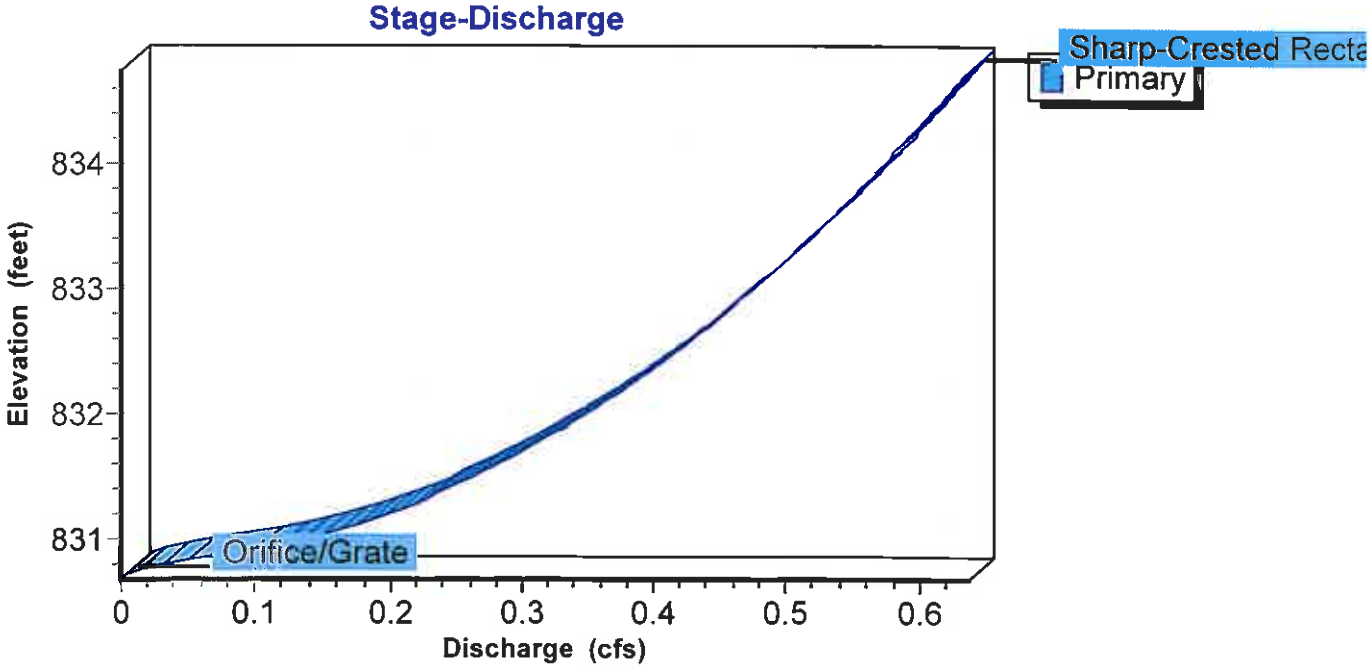
Device	Routing	Invert	Outlet Devices
#1	Primary	834.75'	**10.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	830.68'	**3.5" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.60 cfs @ 12.07 hrs HW=834.35' (Free Discharge)
↑—**1=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
└—**2=Orifice/Grate** (Orifice Controls 0.60 cfs @ 9.04 fps)

Pond 2a: CB



Pond 2a: CB



Stage-Discharge for Pond 2a: CB

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
830.68	0.00	831.72	0.30	832.76	0.45	833.80	0.55
830.70	0.00	831.74	0.31	832.78	0.45	833.82	0.56
830.72	0.00	831.76	0.31	832.80	0.45	833.84	0.56
830.74	0.01	831.78	0.31	832.82	0.45	833.86	0.56
830.76	0.01	831.80	0.32	832.84	0.46	833.88	0.56
830.78	0.02	831.82	0.32	832.86	0.46	833.90	0.56
830.80	0.03	831.84	0.32	832.88	0.46	833.92	0.57
830.82	0.04	831.86	0.33	832.90	0.46	833.94	0.57
830.84	0.05	831.88	0.33	832.92	0.47	833.96	0.57
830.86	0.06	831.90	0.33	832.94	0.47	833.98	0.57
830.88	0.07	831.92	0.34	832.96	0.47	834.00	0.57
830.90	0.09	831.94	0.34	832.98	0.47	834.02	0.57
830.92	0.10	831.96	0.34	833.00	0.47	834.04	0.58
830.94	0.11	831.98	0.35	833.02	0.48	834.06	0.58
830.96	0.12	832.00	0.35	833.04	0.48	834.08	0.58
830.98	0.13	832.02	0.35	833.06	0.48	834.10	0.58
831.00	0.13	832.04	0.35	833.08	0.48	834.12	0.58
831.02	0.14	832.06	0.36	833.10	0.49	834.14	0.59
831.04	0.15	832.08	0.36	833.12	0.49	834.16	0.59
831.06	0.16	832.10	0.36	833.14	0.49	834.18	0.59
831.08	0.16	832.12	0.37	833.16	0.49	834.20	0.59
831.10	0.17	832.14	0.37	833.18	0.49	834.22	0.59
831.12	0.17	832.16	0.37	833.20	0.50	834.24	0.59
831.14	0.18	832.18	0.37	833.22	0.50	834.26	0.60
831.16	0.19	832.20	0.38	833.24	0.50	834.28	0.60
831.18	0.19	832.22	0.38	833.26	0.50	834.30	0.60
831.20	0.20	832.24	0.38	833.28	0.50	834.32	0.60
831.22	0.20	832.26	0.39	833.30	0.51	834.34	0.60
831.24	0.21	832.28	0.39	833.32	0.51	834.36	0.60
831.26	0.21	832.30	0.39	833.34	0.51	834.38	0.61
831.28	0.22	832.32	0.39	833.36	0.51	834.40	0.61
831.30	0.22	832.34	0.40	833.38	0.51	834.42	0.61
831.32	0.23	832.36	0.40	833.40	0.52	834.44	0.61
831.34	0.23	832.38	0.40	833.42	0.52	834.46	0.61
831.36	0.24	832.40	0.40	833.44	0.52	834.48	0.61
831.38	0.24	832.42	0.41	833.46	0.52	834.50	0.62
831.40	0.24	832.44	0.41	833.48	0.52	834.52	0.62
831.42	0.25	832.46	0.41	833.50	0.53	834.54	0.62
831.44	0.25	832.48	0.41	833.52	0.53	834.56	0.62
831.46	0.26	832.50	0.42	833.54	0.53	834.58	0.62
831.48	0.26	832.52	0.42	833.56	0.53	834.60	0.62
831.50	0.26	832.54	0.42	833.58	0.53	834.62	0.63
831.52	0.27	832.56	0.42	833.60	0.54	834.64	0.63
831.54	0.27	832.58	0.43	833.62	0.54	834.66	0.63
831.56	0.28	832.60	0.43	833.64	0.54	834.68	0.63
831.58	0.28	832.62	0.43	833.66	0.54	834.70	0.63
831.60	0.28	832.64	0.43	833.68	0.54	834.72	0.63
831.62	0.29	832.66	0.44	833.70	0.55	834.74	**0.64**
831.64	0.29	832.68	0.44	833.72	0.55		
831.66	0.29	832.70	0.44	833.74	0.55		
831.68	0.30	832.72	0.44	833.76	0.55		
831.70	0.30	832.74	0.45	833.78	0.55		