Bryant Planning Commission Meeting

Boswell Municipal Complex - City Hall Court Room

210 SW 3rd Street

YouTube: https://www.youtube.com/c/bryantarkansas

Date: November 14, 2024 - **Time:** 6:00 PM

Call to Order

Approval of Minutes

1. **Planning Commission Meeting Minutes 10/14/2024**
   - 2024-10-14 Planning Commission Meeting Minutes.pdf

Announcements

DRC Report

2. **104 Rich Street - Conditional Use Permit** - Accessory Structure

   Steven Wise - Requesting Approval for CUP for Accessory Structure that exceeds 25% SQFT of the primary structure. - RECOMMENDED APPROVAL

3. **Bryant Seminary - Hwy 5** - Site Plan

   PLE - Requesting Site Plan Approval - RECOMMENDED APPROVAL

4. **Glenn Hills Estates - Replat** - Lot 6

   Hope Consulting - Requesting Approval for Replat - RECOMMENDED APPROVAL

5. **Midtown Phase 3** - Final Plat

   Hope Consulting - Requesting Final Plat Approval - RECOMMENDED APPROVAL

6. **Cornerstone Montessori Christian Academy - 4910 Springhill Rd** - Waiver

   Hope Consulting - Requesting Approval for Waiver on Half-Street Improvements until Permanent Building is built.

7. **Hillcrest Addition Subdivision - 3927 Springhill Road** - Preliminary Plat

   Tim Lemons - Requesting Preliminary Plat Approval

8. **Marketplace II Subdivision - Lot 17R & 18R** - Site Plans

   Bart Ferguson - Requesting Site Plan Approvals for Lot 17R and 18R - APPROVED, Contingent upon Planning Items Being Met

   - 0920-LND18R-01.pdf
   - 0920-LND17R-01.pdf
   - 0920-PLN17R-01.pdf
   - 0920-PLN18R-01.pdf

9. **Hawkins Valley Ph.1** - Preliminary Plat

GarNat Engineering - Requesting Preliminary Plat Approval - APPROVAL FOR MINOR GRADING - Approval given for the developer to begin moving dirt to figure out the grades for proposed streets. Developer to meet with city to discuss the proposed roads on the Master Transportation Plan.

- 0919-PLN-01.pdf

10. **Window World of Little Rock - 511 Boone Road** - Sign Permit

Zach Black - Requesting Sign Permit Approval - STAFF APPROVED

- 92925-SGNAPP-01.pdf

11. **Willow & Grace Boutique - 307 Progress Way, Ste 700-800** - Sign Permit

L Graphics - Requesting Sign Permit Approval - STAFF APPROVED

- 92920-SGNAPP-01.pdf

12. **Bryant Mail and Print Center - 5313 HWY 5, Ste 305** - Sign Permit

L Graphics - Requesting Sign Permit Approval - STAFF APPROVED

- 92921-SGNAPP-01.pdf

Public Hearing

13. **104 Rich Street - Conditional Use Permit** - Accessory Structure

Steven Wise - Requesting Approval for CUP for Accessory Structure that exceeds 25% SQFT of the primary Structure.

- 0924-APP-01.pdf

Old Business

New Business

14. **Bryant Seminary - Hwy 5** - Site Plan

PLE - Requesting Site Plan Approval

- 0919-PLN-03.pdf
- 0919-drn-02.pdf
- 0919-rsp-01.pdf
- 0919-pln-02.pdf

15. **Glenn Hills Estates - Replat** - Lot 6

Hope Consulting - Requesting Approval for Replat

- 0896-SWR-01.pdf
- 0896-LTR-01.pdf
- 0896-PLN-01.pdf

16. **Midtown Phase 3** - Final Plat

Hope Consulting - Requesting Final Plat Approval

- 0917-ASB-02.pdf
- 0917-PLN-03.pdf
- 0917-ELC-01.pdf
- 0917-BNDLTR-01.pdf
- 0917-LTR-01.pdf

17. **Cornerstone Montessori Christian Academy - 4910 Springhill Rd** - Waiver

Hope Consulting - Requesting Approval for Waiver on Half-Street Improvements until Permanent Building is built.

- 0923-LTR-01.pdf

18. Hillcrest Addition Subdivision - 3927 Springhill Road - Preliminary Plat

Tim Lemons - Requesting Preliminary Plat Approval

- 0890-LTR-02.pdf
- 0890-PLN-05.pdf
- 0890-RSP-04.pdf
- 0890-DRN-06.pdf
- 0890-SWP-02.pdf
- 0890-SWP-01.pdf
- 0890-BOA-01.pdf
- 0890-LTR-01.pdf

Adjournments

Bryant Planning Commission Meeting Minutes
Monday, October 14, 2024
Boswell Municipal Complex – City Hall Courtroom
6:00 PM

Agenda

CALL TO ORDER

- Chairman Lance Penfield calls the meeting to order.
- Commissioners Present: Statton, Johnson, Penfield, Hooten, Erwin, Speed
- Commissioners Absent: Burgess, Edwards

ANNOUNCEMENTS

None

APPROVAL OF MINUTES

1. **Planning Commission Meeting Minutes 9/9/2024**

   Motion to Approve Minutes made by Commissioner Johnson, Seconded by Commissioner Hooten. Voice Vote, Yays 6, Nays 0, Burgess, Edwards Absent

Vice-Chairman Hooten read the DRC Report.

DRC REPORT

2. **Skye Blue Duplexes Subdivision- Conditional Use Permits**

   Hope Consulting - Requesting Approval for Conditional Use Permits for Duplexes on Lots 1, 2, 3, and 4 of Skye Blue Duplexes Subdivision - RECOMMENDED APPROVAL - Contingent upon the Approval of Subdivision Plat 3.

3. **Tanglewood Dr- Conditional Use Permit**

   Peter Bluemmel - Requesting Approval for Conditional Use Permit for Accessory Dwelling Unit - RECOMMENDED APPROVAL

4. **Skye Blue Duplexes Subdivision- Preliminary Plat**

   Hope Consulting - Requesting Preliminary Plat Approval and Waiver on Half Street Improvements Including Sidewalk RECOMMENDED APPROVAL, Contingent Upon Addressing Remaining Comments

5. **First Southern Baptist Church - 604 S Reynolds Rd- Site Plan**

   Hope Consulting - Requesting Site Plan Approval - RECOMMENDED APPROVAL, Contingent upon Addressing Remaining Comments

6. **302 Court Street - Midtown Bryant- Minor Exception from Midtown Code**

   Zach Smith - Requesting approval for minor exception from Midtown Code on location of parking - APPROVED

7. **Brew Coffee - 2006 N Reynolds- Site Plan**

   Brian Evans - Requesting Site Plan Approval - APPROVED

8. **Take 5 Carwash - 3017 Marketplace Ave- Site Plan**

   James Needham - Requesting Approval for Site Plan Changes - APPROVED

9. **Rookh - 22000 I-30- Sign Permit**

   Seiz Sign Company - Requesting Sign Permit Approval - STAFF APPROVED

10. **7 Brew Coffee - 2006 N Reynolds Road- Sign Permit**

    Springfield Sign - Requesting Sign Permit Approval - STAFF APPROVED

11. **Bath & Body Works - 7341 Alcoa Rd- Sign Permit**

    Arkansas Sign & Neon - Requesting Sign Permit Approval - STAFF APPROVED

12. **Fiiz Drinks - 1812 N Reynolds Road- Sign Permit**

    Little Rock Conway Signs - Requesting Sign Permit Approval - STAFF APPROVED

13. **Fun Town RV - 22524 I-30- Sign Permit**

    Action Signs - Requesting Sign Permit Approval - STAFF APPROVED

14. **Goodwill - 5914 HWY 5- Sign Permit**

    Ace Sign Company - Requesting Sign Permit Approval - STAFF APPROVED

15. **Fence Brokers - 25736 I-30- Sign Permit**

    Signs & Lines - Requesting Sign Permit Approval - STAFF APPROVED

16. **Little Life Academy - 4200 HWY 5- Playground Renovations**

    Seth Jeffery - Requesting Approval for Playground Renovations on Site - APPROVED

PUBLIC HEARING

17.Skye Blue Duplexes Subdivision- Conditional Use Permits

Hope Consulting - Requesting Approval for Conditional Use Permits for Duplexes on Lots 1, 2, 3, and 4 of Skye Blue Duplexes Subdivision

Jonathan Hope stated that the traffic concerns of the last layout have been addressed by putting the parking at the rear of the lots and putting in one drive as an entrance and one drive as an exit.

Colton Leonard stated there had been no phone calls regarding this public hearing.

After a brief discussion on the project, Chairman Penfield asked for anyone wishing to speak to come forward and talk at the podium.

Hearing none and seeing no one coming forward, Chairman Penfield called for a roll call vote to approve. 5 Yays, 0 nays. 1 Abstain, 2 Absent.

18.3 Tanglewood Dr- Conditional Use Permit

Peter Bluemmel - Requesting Approval for Conditional Use Permit for Accessory Dwelling Unit

After a brief discussion, Chairman Penfield asked for anyone wishing to speak to come forward and talk at the podium. Jacob Brady spoke in favor of the CUP. Chairman Penfield called for a roll call vote to approve. 6 Yays, 0 Nays, 2 Absent.

Motion to Close Public Hearing made by Commissioner Statton, Seconded by Commissioner Erwin. Voice Vote, 6 Yays, 0 nays. 2 Absent.

NEW BUSINESS

19.Skye Blue Duplexes Subdivision- Preliminary Plat

Hope Consulting - Requesting Approval for Preliminary Plat

Colton Leonard stated that the parking had been moved to the rear of the buildings. Frontage will be facing Hurricane Lake Rd.

Matthew Finley approached the podium and answered several questions asked of him. Commissioner Hooten asked if a taper could be added to the entrance drive. Hope Engineering agreed to modify the plat to reflect that change.

After a brief discussion, Chairman Penfield called for a roll call vote to approve. 6 Yays, 0 Nays, 2 Absent.

20.First Southern Baptist Church - 605 S Reynolds Rd- Site Plan

Hope Consulting - Requesting Site Plan Approval

After a brief discussion, Chairman Penfield called for a roll call vote to approve. 6 Yays, 0 Nays, 2 Absent.

ADJOURNMENT

Motion to Adjourn made by Commissioner Statton, Seconded by Commissioner Hooten. Voice Vote 6 Yays, 0 Nays, Burgess, Edwards Absent. Meeting was adjourned.

______________________________ ______________

Chairman, Lance Penfield *Date*

______________________________ ______________

Secretary, Tracy Picanco *Date*

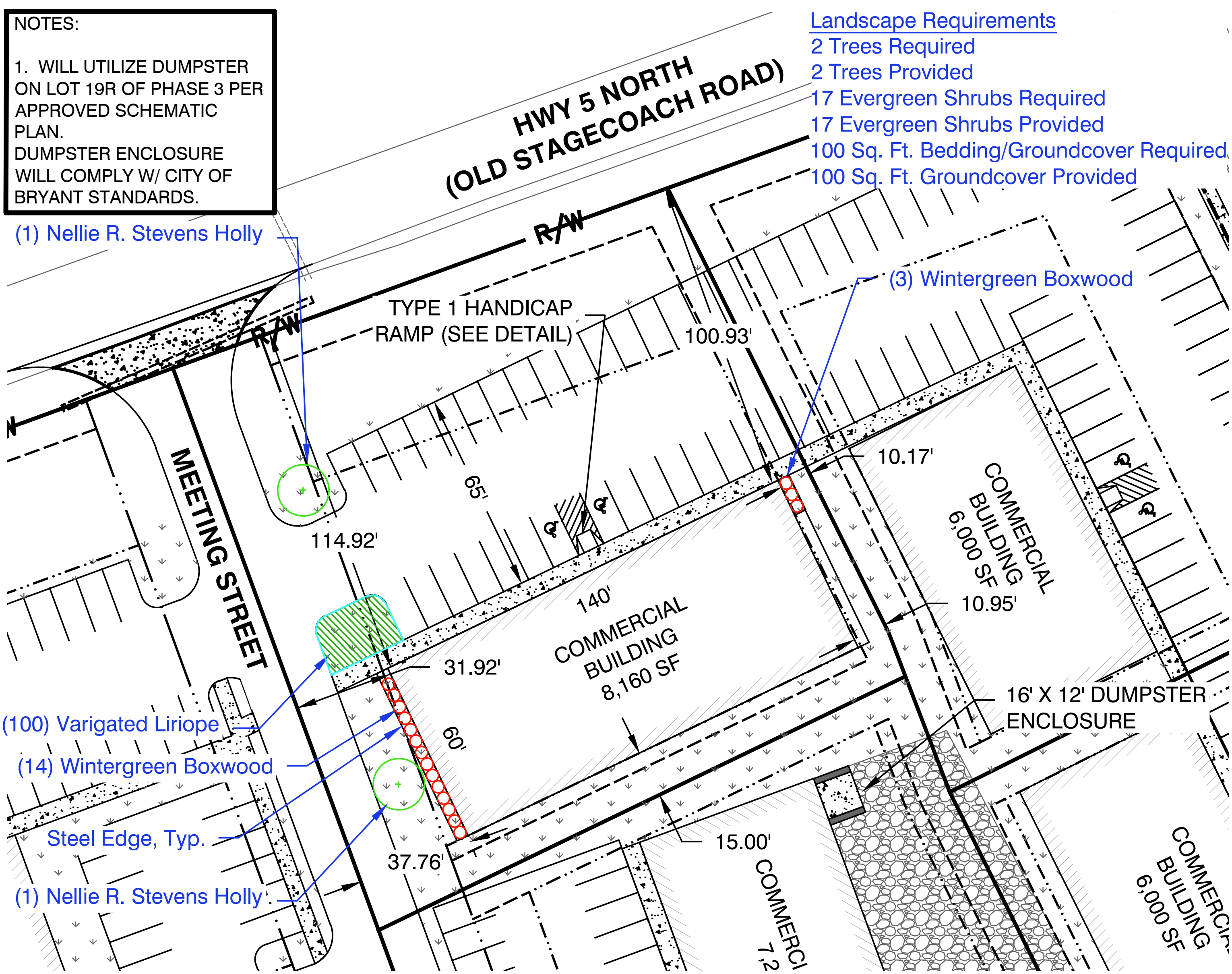
GNE Designing our client's success

P.O. Box 116 — 3825 Mt Carmel Rd
Benton, AR 72018 — Bryant, AR 72022
Ph (501) 408-4650 — garnatengineering@gmail.com

FOR EXCLUSIVE USE & BENEFIT OF:

Name: BART FERGUSON

LEGEND
- Computed point
- Found monument
- Set #4 RB/Plas. Cap
(M)-Measured
(R)-Record
(P)-Platted



PROPERTY DESCRIPTION:

LOT 18R

50' 25' 0 50'

JOB NUMBER:

18087
MARKET PLACE II
PHASE 3

10/03/24

PLOT PLAN

This Plot Plan depicts the lot as it appears on the subdivision final plat. This drawing does not represent an actual survey.

According the the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for Saline County unincorporated areas, panel # 05125C0240E dated JUNE 05, 2020 , no portion , dated of the property described hereon does lie within the 100 year flood hazard boundary.

N

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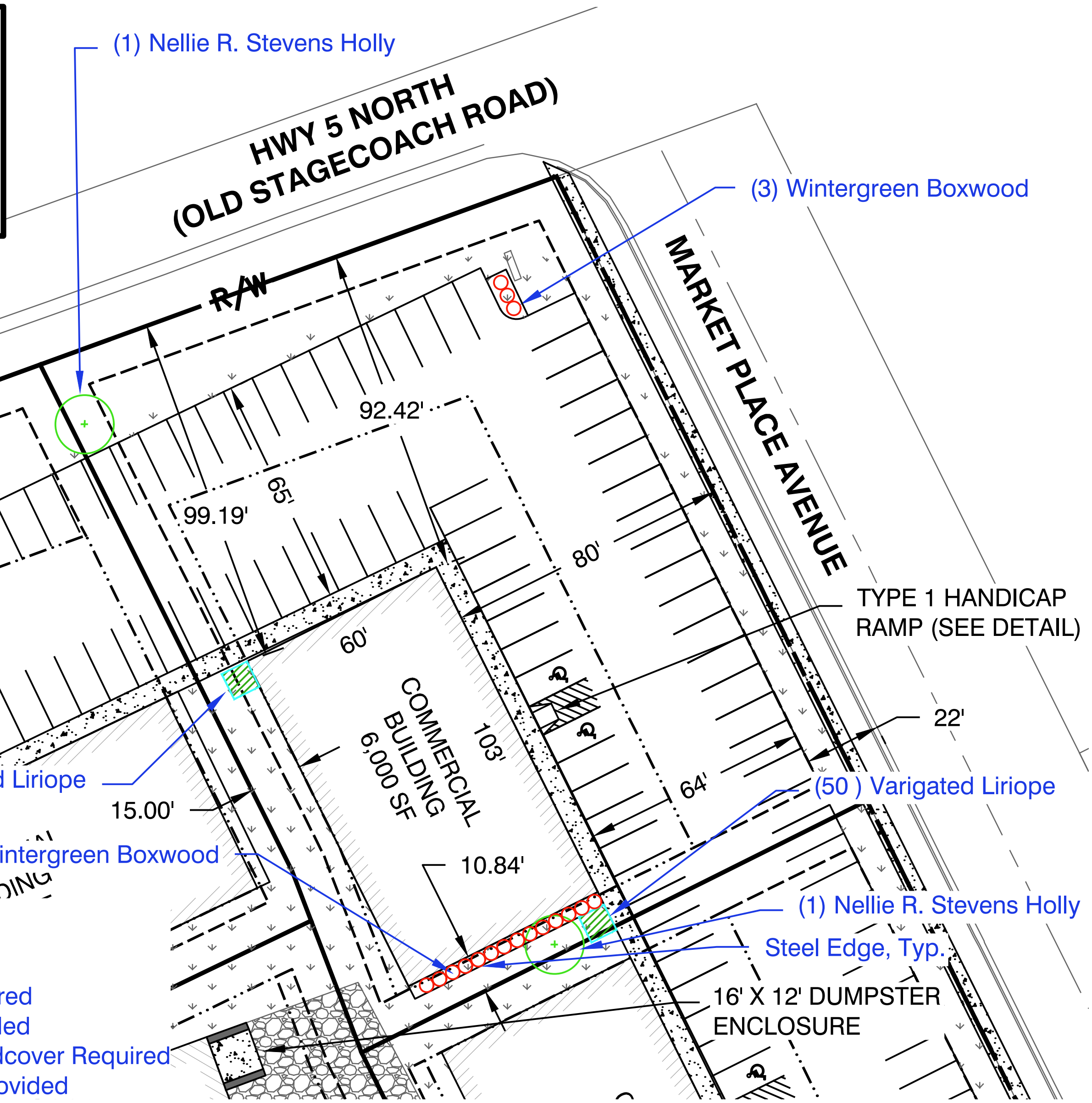
NOTES:

1. WILL UTILIZE DUMPSTER ON LOT 19R OF PHASE 3 PER APPROVED SCHEMATIC PLAN.
DUMPSTER ENCLOSURE WILL COMPLY W/ CITY OF BRYANT STANDARDS.



Landscape Requirements

2 Trees Required
2 Trees Provided
17 Evergreen Shrubs Required
17 Evergreen Shrubs Provided
100 Sq. Ft. Bedding/Groundcover Required
100 Sq. Ft. Groundcover Provided

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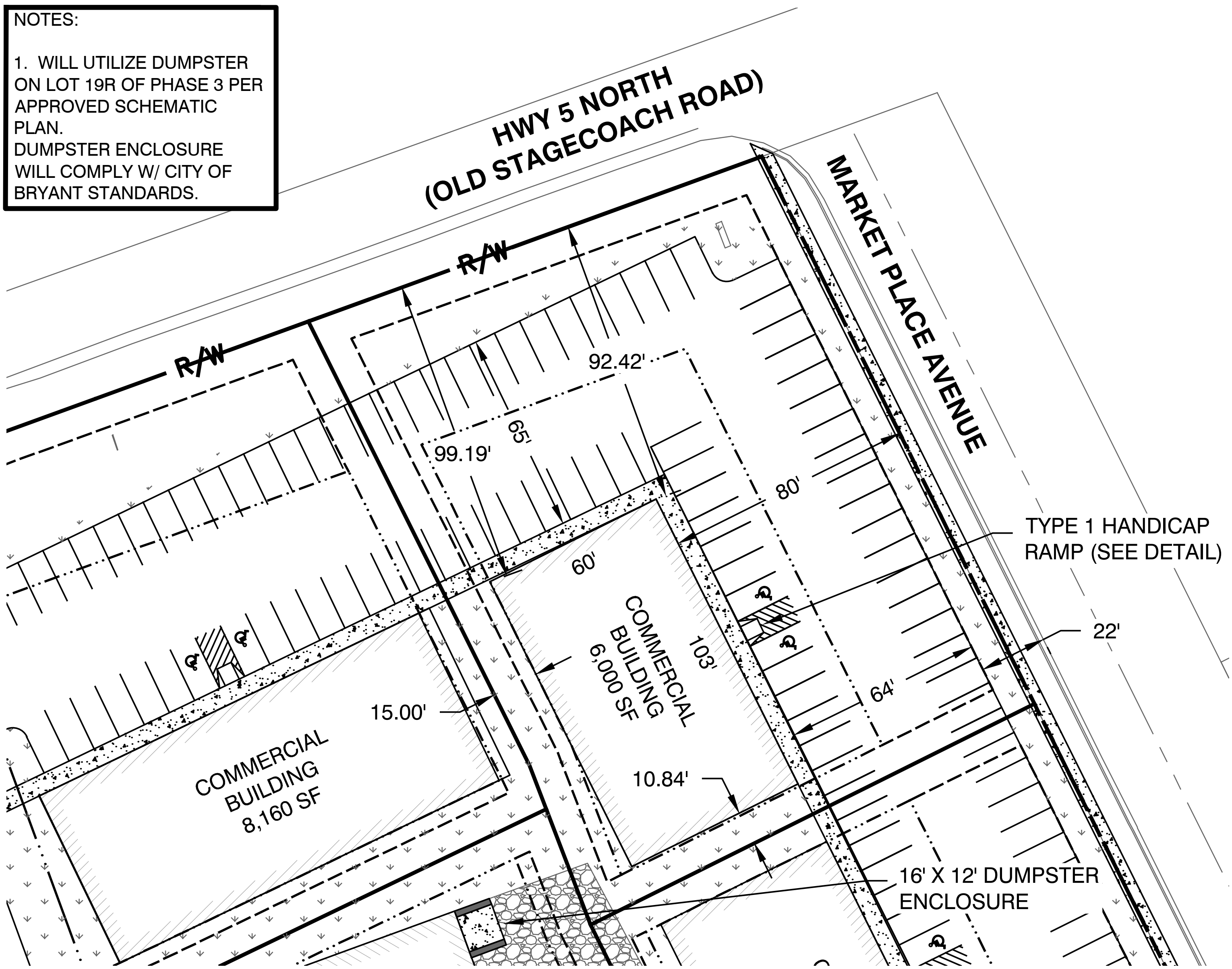

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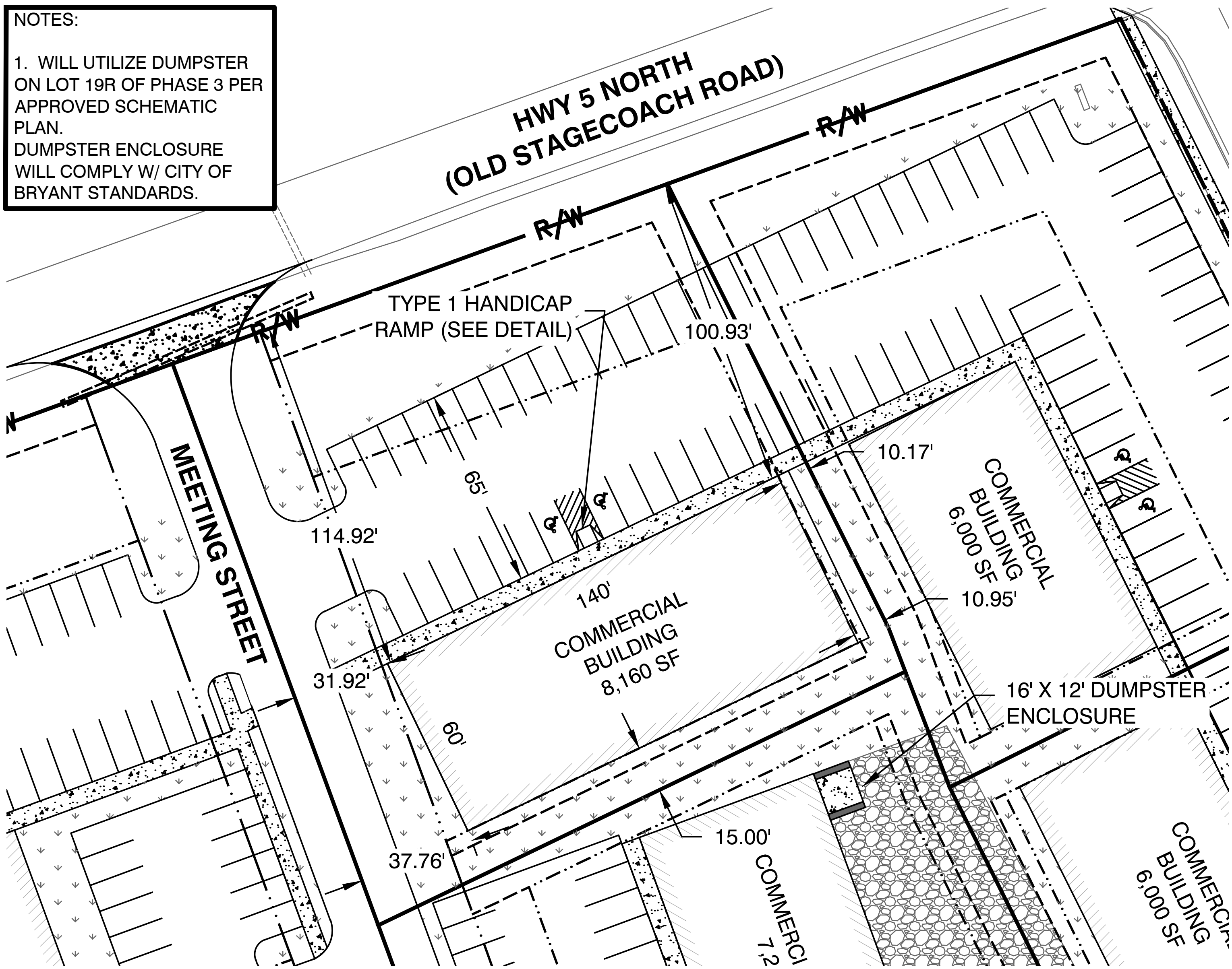

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N

Symbol	Description	Abbreviation	Description	Symbol	Description
G	GAS METER	D	STORM DRAIN MANHOLE		ASPHALT
W	WATER METER	C/O	SEWER CLEANOUT		CONCRETE
	GUY WIRE	N	NORTH		
	POWER/UTILITY POLE	S	SOUTH		
T	TELEPHONE PEDESTAL	E	EAST		
S	SEWER MANHOLE	W	WEST		
WV	WATER VALVE	(M)	AS MEASURED	●	SET 1/2" REBAR w/ CAP #1853
	FIRE HYDRANT	(D)	PER DEED	⬟	SET COTTON-PICKER SPINDLE
	SIGNS	(R)	RECORDED	○	FOUND MONUMENT (DESC. NOTED)
	LIGHT POLE	R/W	RIGHT-OF-WAY	△	COMPUTED CORNER (NOT SET)
T	TELEPHONE MANHOLE	L.A.	LANDSCAPED AREA	A#	CORRESPONDS TO DRAWING NOTE
SS	SANITARY SEWER LINE	CR4	CAPPED 1/2" REBAR		
W	WATER LINE	CONC.	CONCRETE		
	STORM SEWER PIPE	P.O.C.	POINT OF COMMENCEMENT		
	ROADWAY CENTERLINE	P.O.B.	POINT OF BEGINNING		
	UTILITY EASEMENT	CMP	CORRUGATED METAL PIPE		
	BUILDING SETBACK LINE	RCP	REINFORCED CONCRETE PIPE		
R/W	ROADWAY RIGHT-OF-WAY	ESMT	EASEMENT		
OHE	OVERHEAD ELECTRIC LINES	HDPE	HIGH DENSITY POLYETHYLENE		
UGT	UNDERGROUND TELEPHONE	SUBD	SUBDIVISION		
G	UNDERGROUND GAS	FDC	FIRE DEPARTMENT CONNECTION		
F.O.	UNDERGROUND FIBER OPTIC	CPS	COTTON PICKER SPINDLE		
		P5	5/8" PIPE		

SHEET INDEX

Vicinity Map

SCALE 1" = 1000'

BRYANT SEMINARY

HIGHWAY 5
BRYANT, AR

GENERAL CONSTRUCTION NOTES

A. THE CONTRACTOR WILL BE HELD SOLELY RESPONSIBLE FOR DAMAGES OCCURRING TO ANY PROPERTY DURING THE CONSTRUCTION OF THIS PROJECT. SAID CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT PROPERTY DAMAGE.

B. IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL SOLELY AND COMPLETELY BE RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND WILL NOT BE LIMITED TO NORMAL WORKING HOURS.

C. THE DUTY OF THE LOCAL UTILITY PROVIDER TO CONDUCT CONSTRUCTION INSPECTION REVIEWS OF THE CONTRACTOR'S PERFORMANCE IS NOT AN INSPECTION OR REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES IN, ON, OR NEAR THE CONSTRUCTION SITE.

D. ALL WATER AND SEWER IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST REVISION TO THE LOCAL PROVIDER'S WATER AND WASTEWATER (SANITARY SEWER) STANDARD SPECIFICATIONS.

E. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF ALL UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH PROPOSED IMPROVEMENTS SHOWN ON THE PLAN.

F. CONTRACTOR IS TO REMOVE AND DISPOSE OF ALL DEBRIS, RUBBISH, AND OTHER MATERIALS RESULTING FROM PREVIOUS AND CURRENT DEMOLITION OPERATIONS. DISPOSAL WILL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND/OR FEDERAL REGULATIONS GOVERNING SUCH OPERATIONS.

G. PRIOR TO INSTALLATION OF ANY UTILITIES, THE CONTRACTOR IS TO EXCAVATE, VERIFY AND CALCULATE ALL CROSSINGS AND INFORM ANY AND ALL UTILITIES OF ANY CONFLICTS PRIOR TO CONSTRUCTION.

H. CONSTRUCTION SHALL NOT START ON ANY WATER UTILITY TIE-INS UNTIL APPROVAL IS GIVEN BY THE LOCAL UTILITY PROVIDER. SAID CONTRACTOR SHALL NOT OPERATE ANY VALVE, HYDRANT, OR WATER UTILITY APPURTENANCE NOR SHALL HE ATTACH TO OR TAP ANY WATER UTILITY MAIN WITHOUT APPROVAL. THE CONTRACTOR SHALL BEAR THE COST AND CONSEQUENCE OF ANY DISRUPTION OF UTILITY OPERATION CAUSED BY CONSTRUCTION.

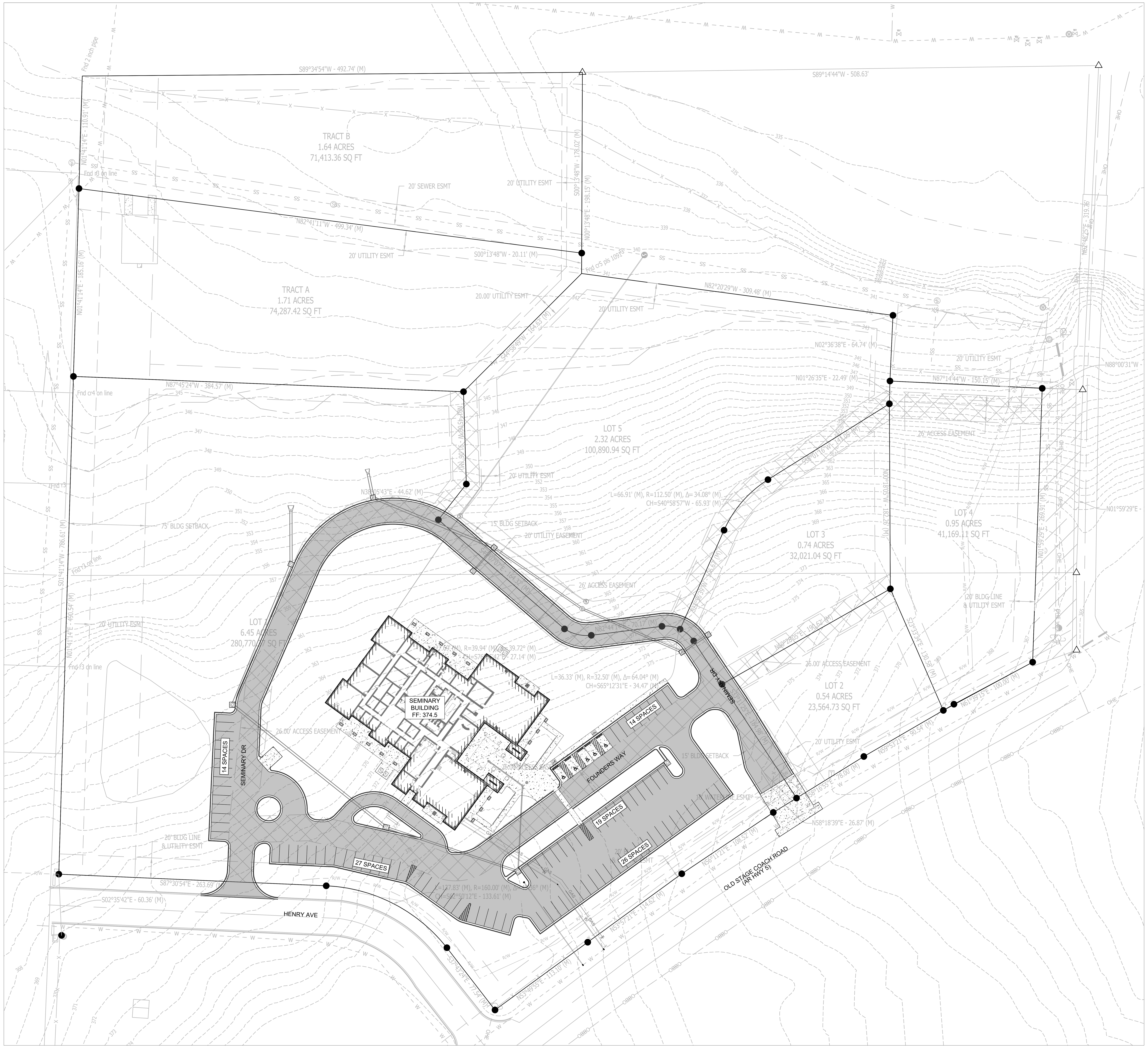
I. FIBER OPTIC CABLE ON AND/OR ADJACENT TO THIS SITE WERE NOT LOCATED BY THE SURVEY AND ARE NOT SHOWN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ANY FIBER OPTIC CABLES ASSOCIATED WITH THIS SITE AND TAKE ALL NECESSARY AND REQUIRED PRECAUTIONS TO PROTECT ANY EXISTING FIBER OPTIC CABLES. CONTRACTORS SHALL COORDINATE ALL EFFORTS WITH OWNER OF FIBER OPTIC CABLES OR THEIR DESIGNATED REPRESENTATIVE.

J. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING "ONECALL" SERVICE TO MARK ALL UTILITIES PRIOR TO ANY DEMOLITION, EARTHWORK, OR UTILITY WORK ON THIS SITE.

DEVIATIONS/VARIANCES

PHILLIP LEWIS ENGINEERING, INC.
Structural + Civil Consultants

23620 Interstate 30 | Bryant, Arkansas
PH: 501-350-9840



SITE LAYOUT PLAN

SCALE 1" = 50'

N

0 50'

1" = 50'-0"

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PHILLIP LEWIS ENGINEERING, INC.
Structural + Civil Consultants
23620 Interstate 30 | Bryant, Arkansas
PH: 501-350-9840

REVISION:

BRYANT SEMINARY
HIGHWAY 5
BRYANT, ARKANSAS

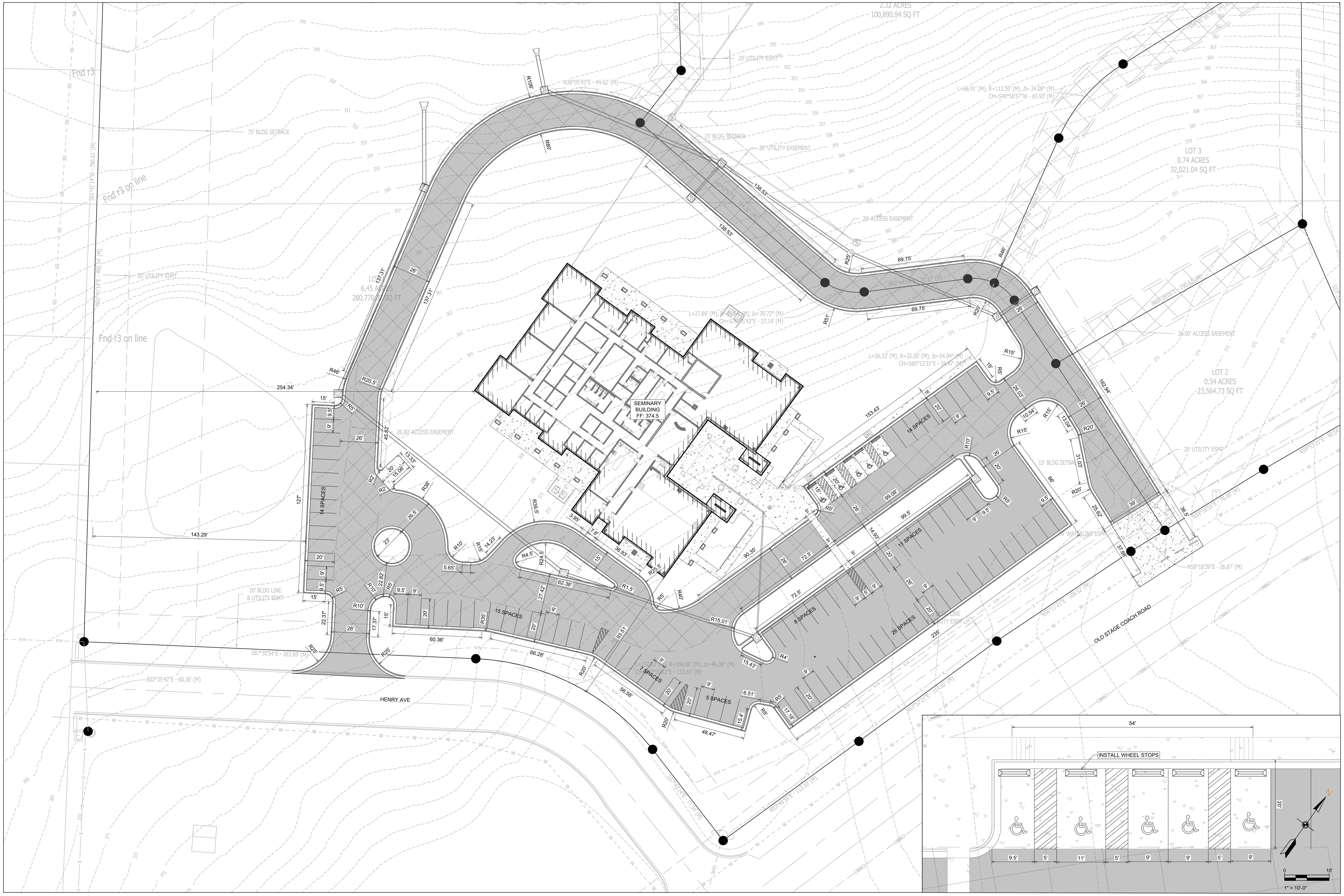
PHILLIP LEWIS ENGINEERING, INC.
No. 566

PROJECT NUMBER:

SHEET ISSUE DATE:
10-09-2024

PAGE TITLE:
OVERALL
SITE PLAN

SHEET NUMBER:
C1.1



SITE PLAN

SCALE 1" = 30'

ADA PARKING STALLS

SCALE 1" = 10'

1" = 30'-0"

GENERAL SITE NOTES

1. TOTAL NEW DEVELOPMENT AREA = (+/-) 4.96 ACRES
2. PROPERTY IS ZONED C-2
3. 100 PARKING SPACES PROVIDED INCLUDING 5 ADA ACCESSIBLE PARKING SPACES
4. ALL DIMENSIONS ARE TO THE BACK OF CURB AND/OR EDGE OF PAVEMENT
5. DAMAGE TO PUBLIC AND PRIVATE PROPERTY DUE TO HAULING OPERATIONS OR OPERATIONS OF CONSTRUCTION RELATED EQUIPMENT FROM A CONSTRUCTION SITE SHALL BE REPAIRED BY THE THE RESPONSIBLE PARTY PRIOR TO THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY.
6. REPAIR, REPLACE, OR EXTEND EXISTING DAMAGED OR MISSING CURB AND GUTTER, SIDEWALK OR RAMPS WITHIN THE PUBLIC RIGHT OF WAY.
7. ALL SIGNAGE, PAVEMENT MARKING AND PARKING LOT STRIPING SHALL CONFORM TO REQUIREMENTS GIVEN IN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). MUTCD REQUIRES THAT PARKING SPACES BE MARKED IN WHITE.

PHILLIP LEWIS ENGINEERING, INC.
Structural + Civil Consultants
23620 Interstate 30 | Bryant, Arkansas
PH: 501-350-9840

REVISION:

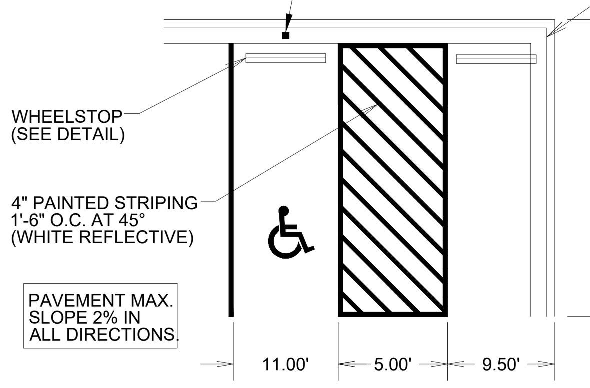
BRYANT SEMINARY
HIGHWAY 5
BRYANT, ARKANSAS

PROJECT NUMBER:

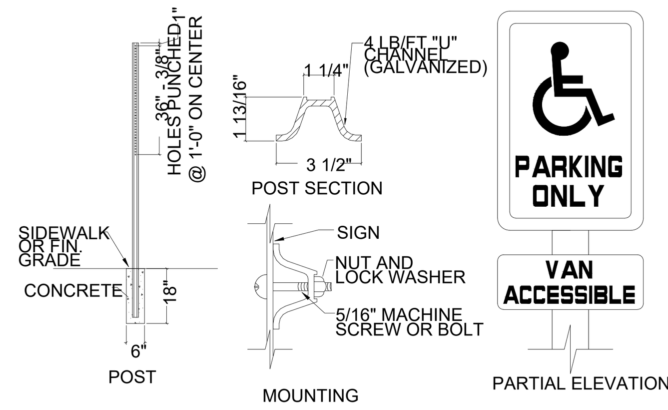
SHEET ISSUE DATE:
10-09-2024

PAGE TITLE:
SITE PLAN

SHEET NUMBER:
C1.2



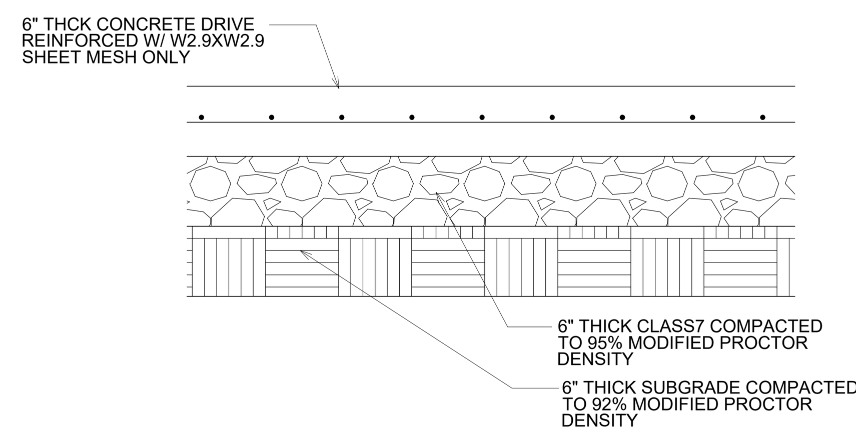
TYPICAL ACCESSIBLE PARKING STALLS



HANDICAP SIGN DETAIL

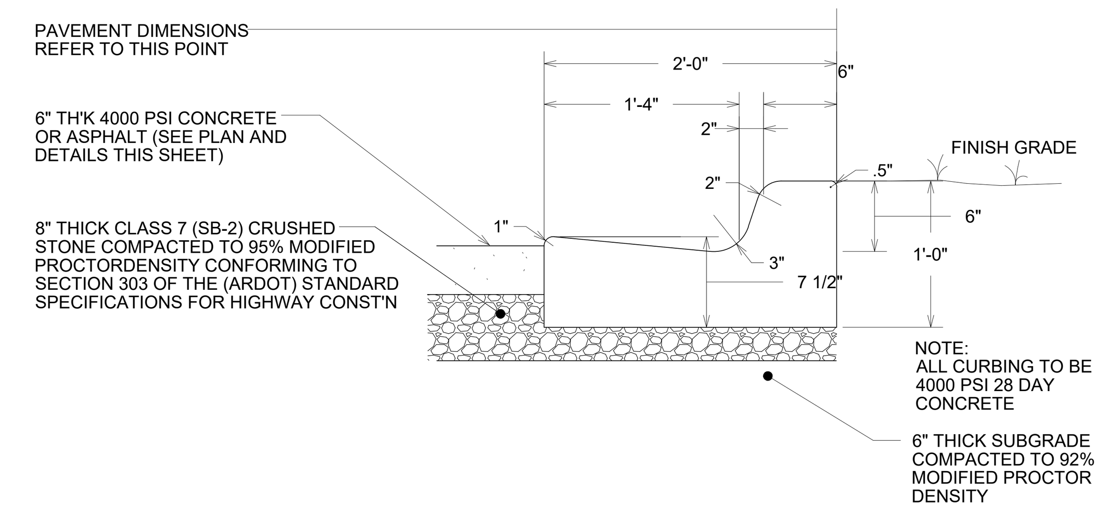
NOT TO SCALE

NOTE:
HANDICAP SIGNAGE SHALL BE IN STRICT COMPLIANCE WITH CURRENT FEDERAL AND LOCAL LAW REQUIREMENTS



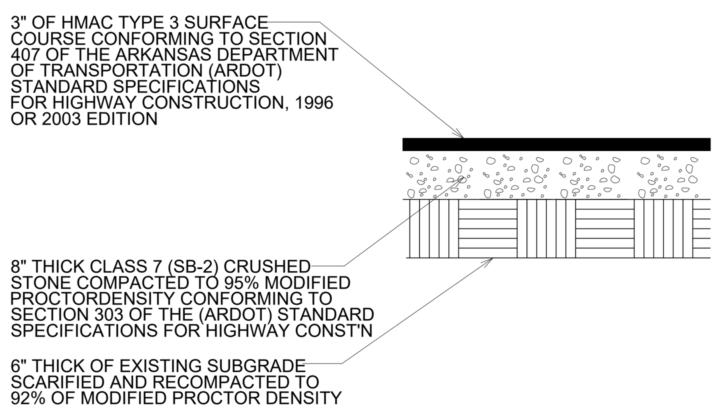
CONCRETE DRIVE SECTION

NOT TO SCALE



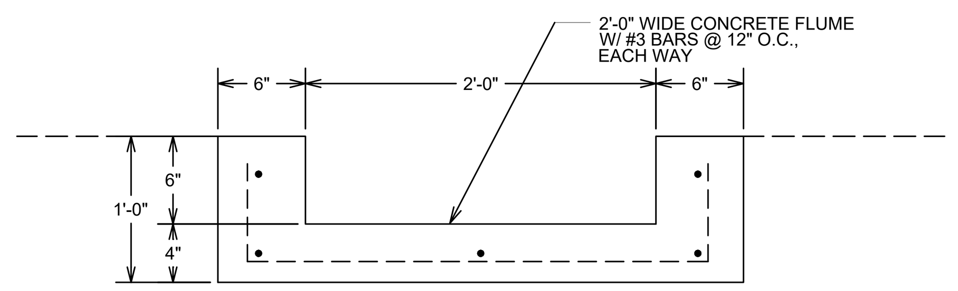
2'-0" CONCRETE CURB & GUTTER

NOT TO SCALE



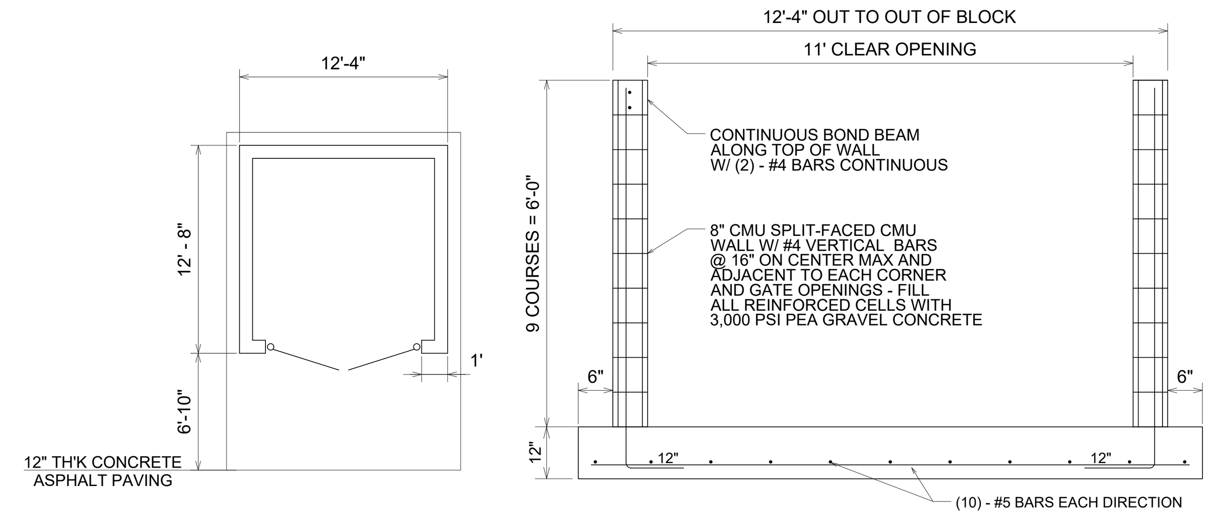
HMAC ASPHALT SURFACE COURSE

NOT TO SCALE



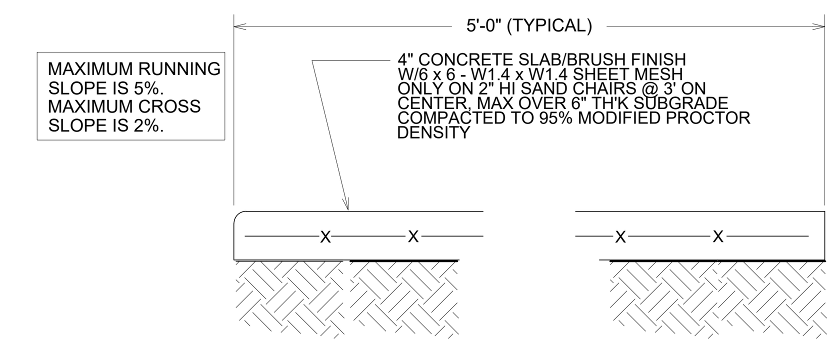
CONCRETE FLUME DETAIL

NOT TO SCALE



DUMPSTER PAD/ENCLOSURE DETAIL

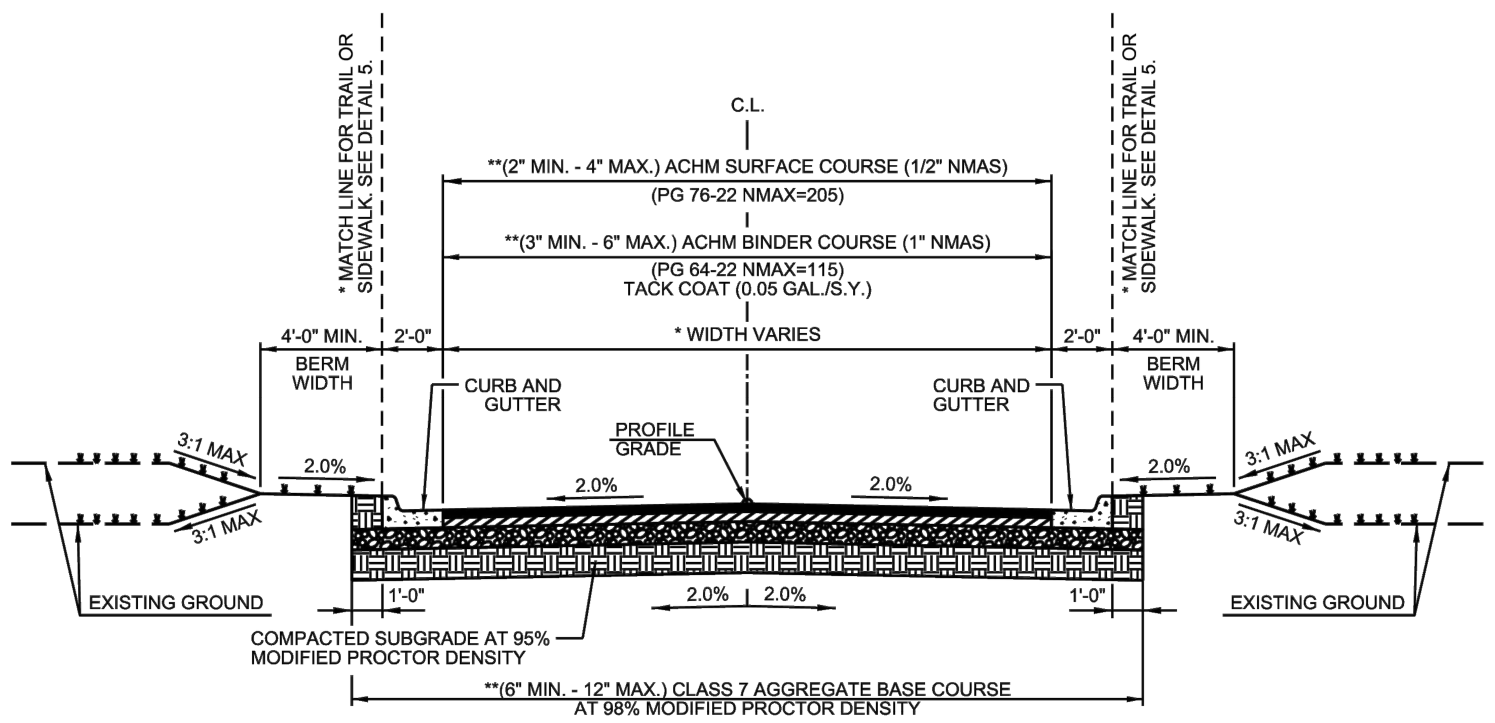
NOT TO SCALE

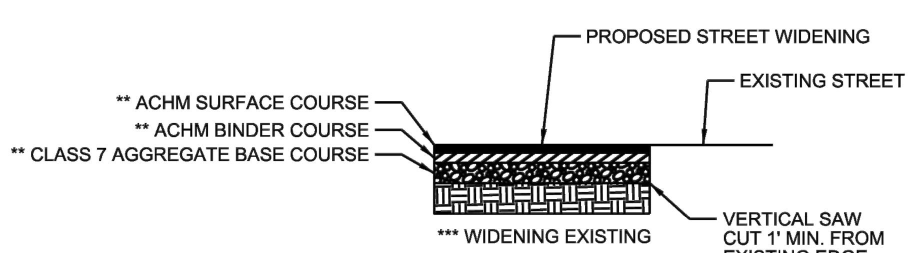


CONCRETE WALK SECTION

NOT TO SCALE

NOTE:
ALL SIDEWALK JOINTS TO BE STEEL TROWELED. ALL JOINT EDGES AND SHALL BE SPACED AT 5 FEET ON CENTER MAXIMUM IN ALL DIRECTIONS AND SHALLBE STEEL TROWELED ON A RADIUS NOT TO EXCEED ONE-HALF INCH.





GENERAL NOTES

1. IN AREAS TO RECEIVE BITUMINOUS PAVING, CONCRETE DRIVEWAYS OR CURB AND GUTTER, SUBGRADE SHALL BE COMPACTED TO A DENSITY NOT LESS THAN 95% OF MAXIMUM MODIFIED DENSITY OBTAINED AT OPTIMUM MOISTURE CONTENT.
2. FOR AREAS OF SUBGRADE PREPARATION TO RECEIVE CONCRETE SIDEWALKS, SUBGRADE SHALL BE COMPACTED TO DENSITY OF 90% MAXIMUM MODIFIED DENSITY.
3. CRUSHED STONE - MATERIAL IN EACH COURSE SHALL BE COMPACTED TO A DENSITY OF 98% MAXIMUM MODIFIED DENSITY.
4. ACHM BASE COURSE (4" MIN. - 12" MAX) (1 1/2" NMAS) MAY BE USED IF INCLUDED IN AN APPROVED PAVEMENT DESIGN.

* CROSS SECTIONS AND RIGHT-OF-WAY SHALL ADHERE TO THE MINIMUM WIDTH REQUIREMENTS SHOWN IN THE CITY OF BRYANT MASTER TRANSPORTATION PLAN. THE DEVELOPMENT REVIEW COMMITTEE SHALL DETERMINE WHICH VERSION OF STREET CLASSIFICATION AND WHAT WIDTHS WILL BE REQUIRED.

** THICKNESS TO BE DETERMINED BY PAVEMENT DESIGN IN ACCORDANCE WITH SECTION 5.0 OF THE MINIMUM STANDARD SPECIFICATIONS FOR STREETS.

*** PAVEMENT RECONSTRUCTION TO CENTERLINE IS REQUIRED WHEN EXISTING STREET DOES NOT MEET THESE STANDARDS.

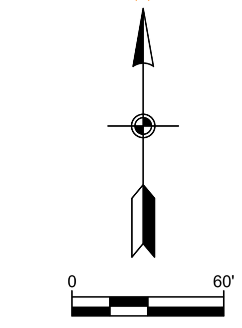
CITY OF BRYANT

TYPICAL SECTION MINOR ARTERIAL

ISSUE DATE **AUGUST 2021**

REVISION DATE

DETAIL 1



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Structural + Civil Consultants
23620 Interstate 30 | Bryant, Arkansas
PH: 501-350-9840

REVISION:

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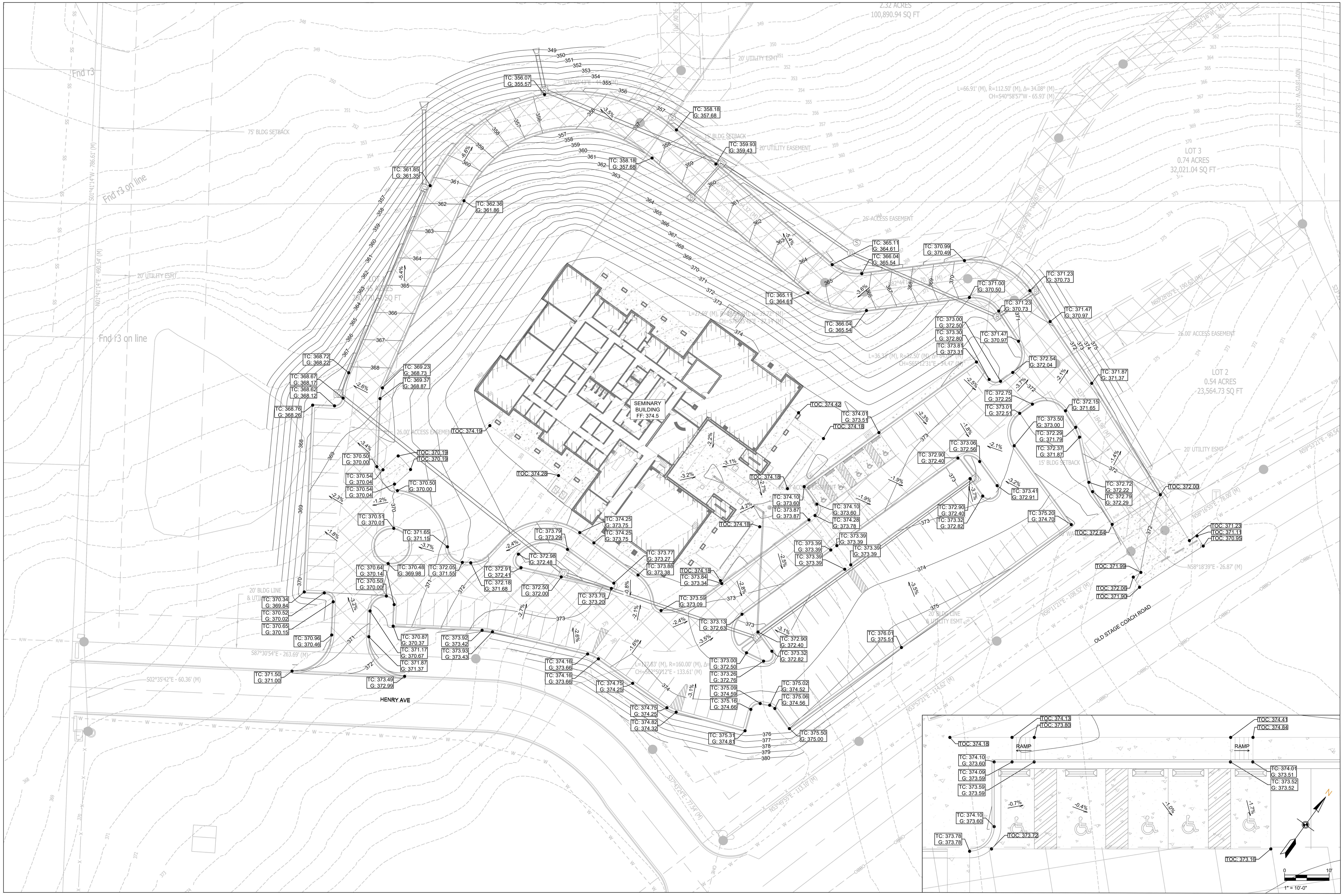
HIGHWAY 5
BRYANT, ARKANSAS

PROJECT NUMBER:

SHEET ISSUE DATE:
10-09-2024

PAGE TITLE:
SITE DETAILS

SHEET NUMBER:
C1.3



GRADING PLAN

SCALE 1" = 30'

TC = TOP OF CURB ELEVATION
G = GUTTER ELEVATION
TOC = TOP OF CONCRETE ELEVATION
FG = FINAL GRADE ELEVATION
TP = TOP OF PAVEMENT ELEVATION
EG = EXISTING GRADE ELEVATION

N
0 30'
1" = 30'-0"

ADA PARKING STALLS

SCALE 1" = 10'

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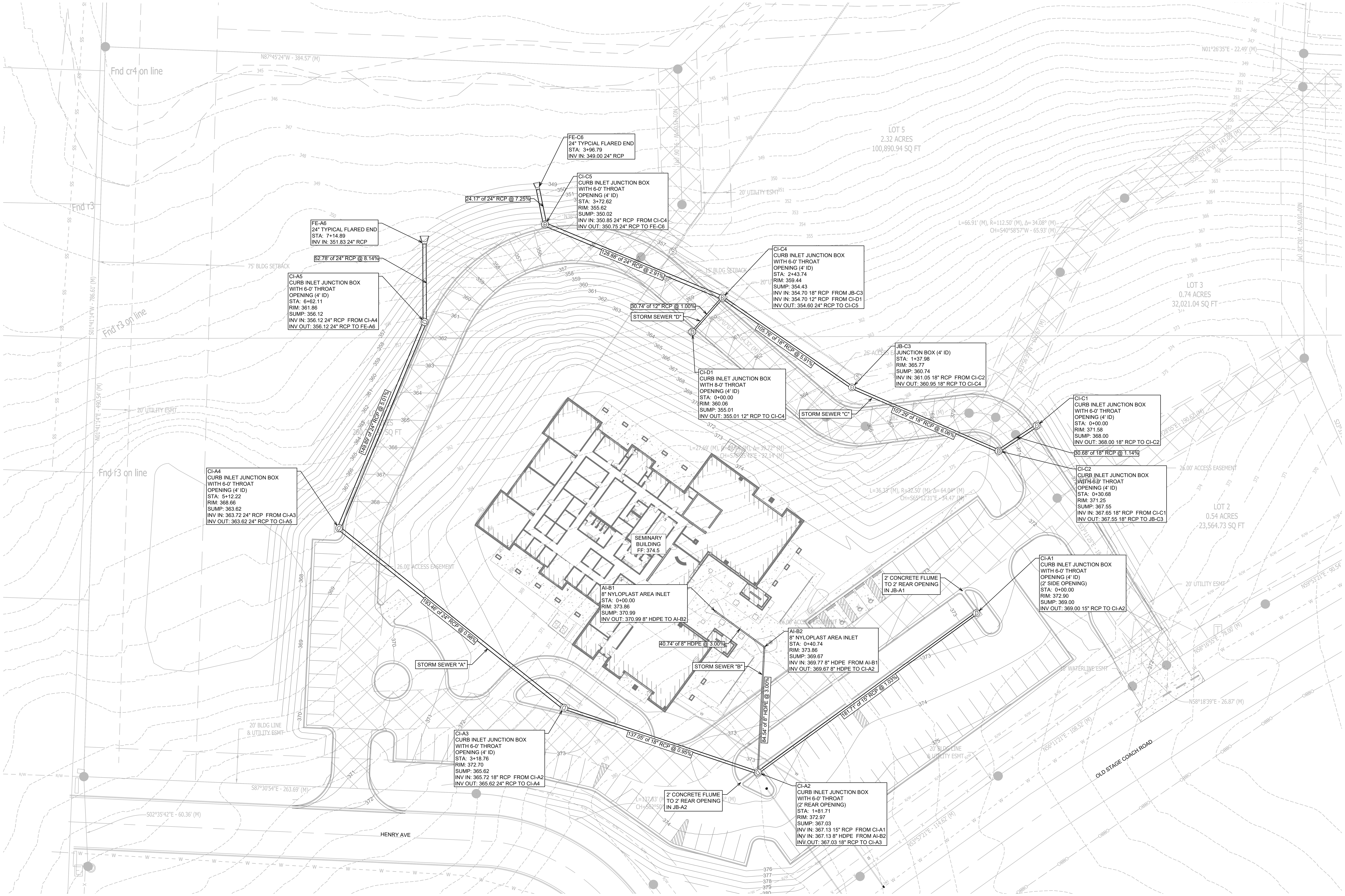
PAGE TITLE:
GRADING PLAN

SHEET NUMBER:
C1.4



STORM SEWER PLAN

SCALE 1" = 30'

N

0 30'

1" = 30'-0"

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CERTIFICATE OF AUTHORIZATION
PHILLIP LEWIS ENGINEERING, INC.
No. 566
ARKANSAS ENGINEERS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9540
PHILLIP A. LEWIS

PRELIMINARY NOT FOR CONSTRUCTION

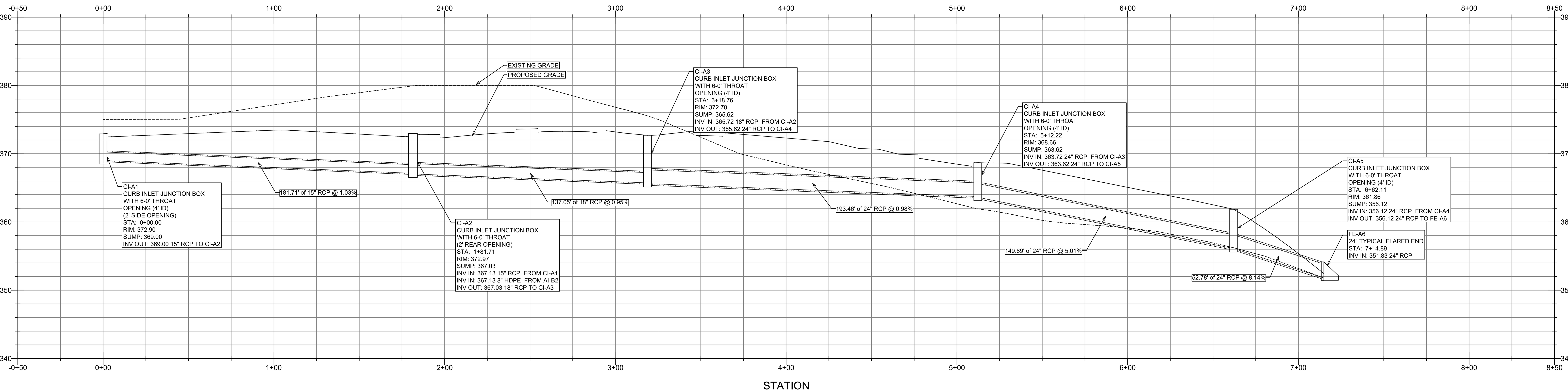
PROJECT NUMBER:

SHEET ISSUE DATE:
10-09-2024

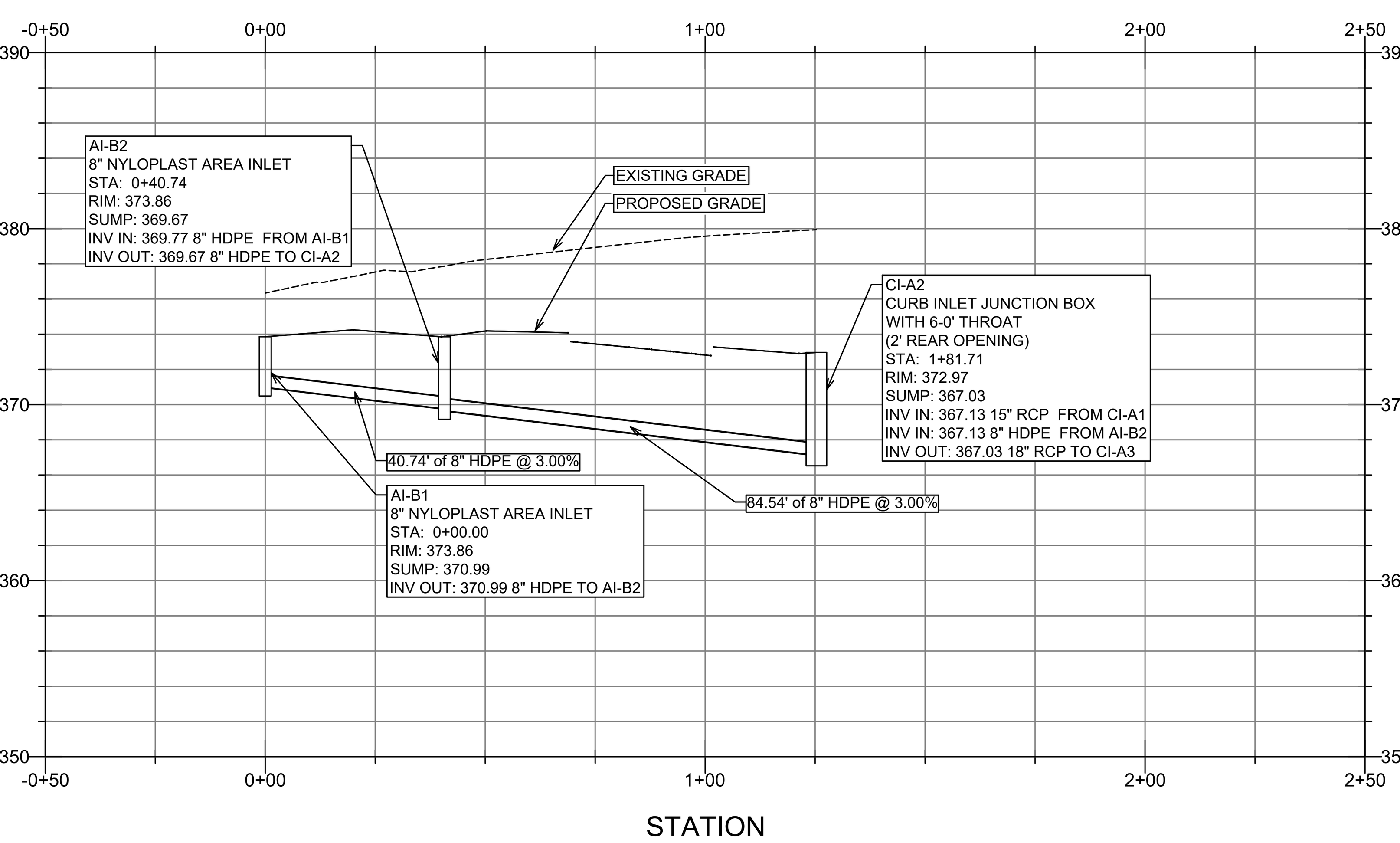
PAGE TITLE:
STORM
SEWER PLAN

SHEET NUMBER:
C1.5

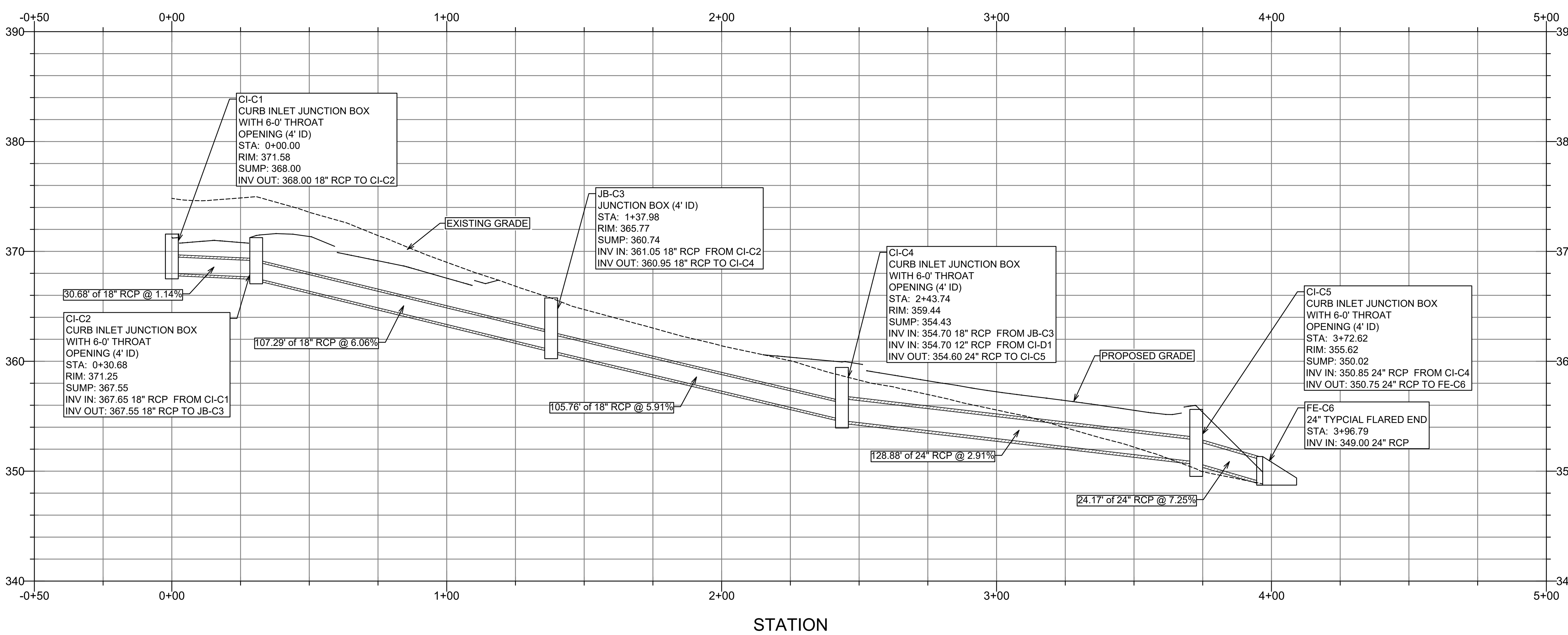
STORM SEWER A



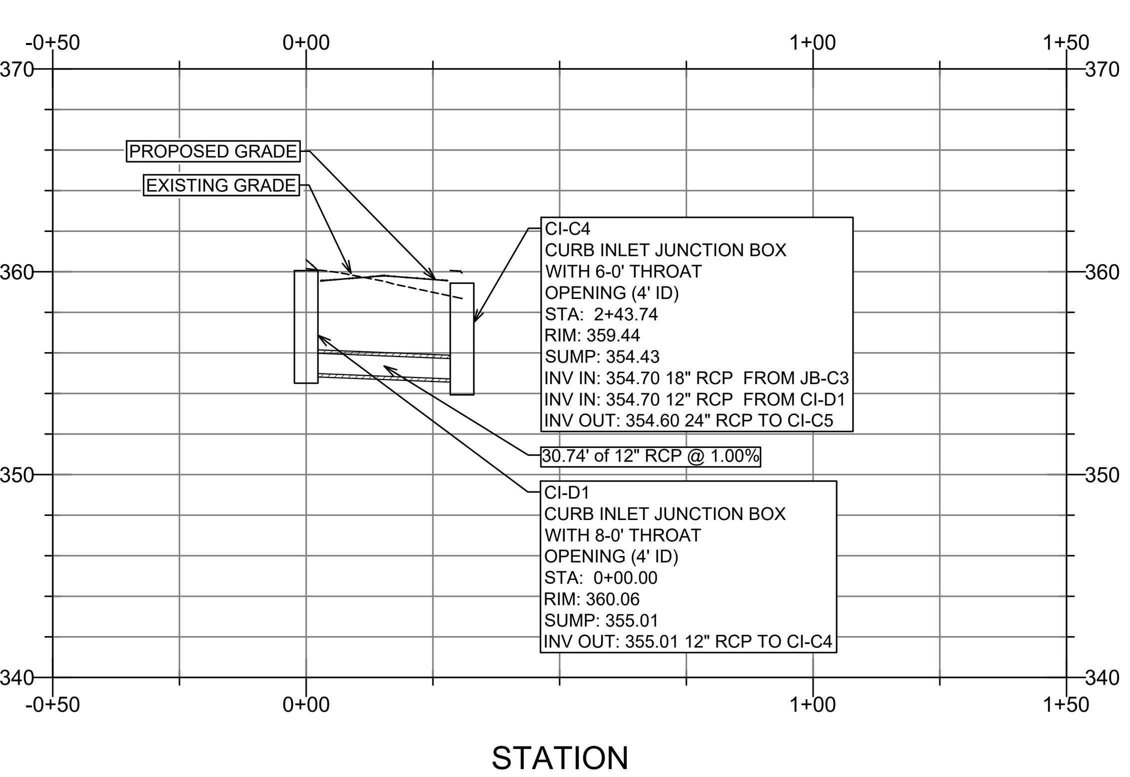
STORM SEWER B



STORM SEWER C



STORM SEWER D



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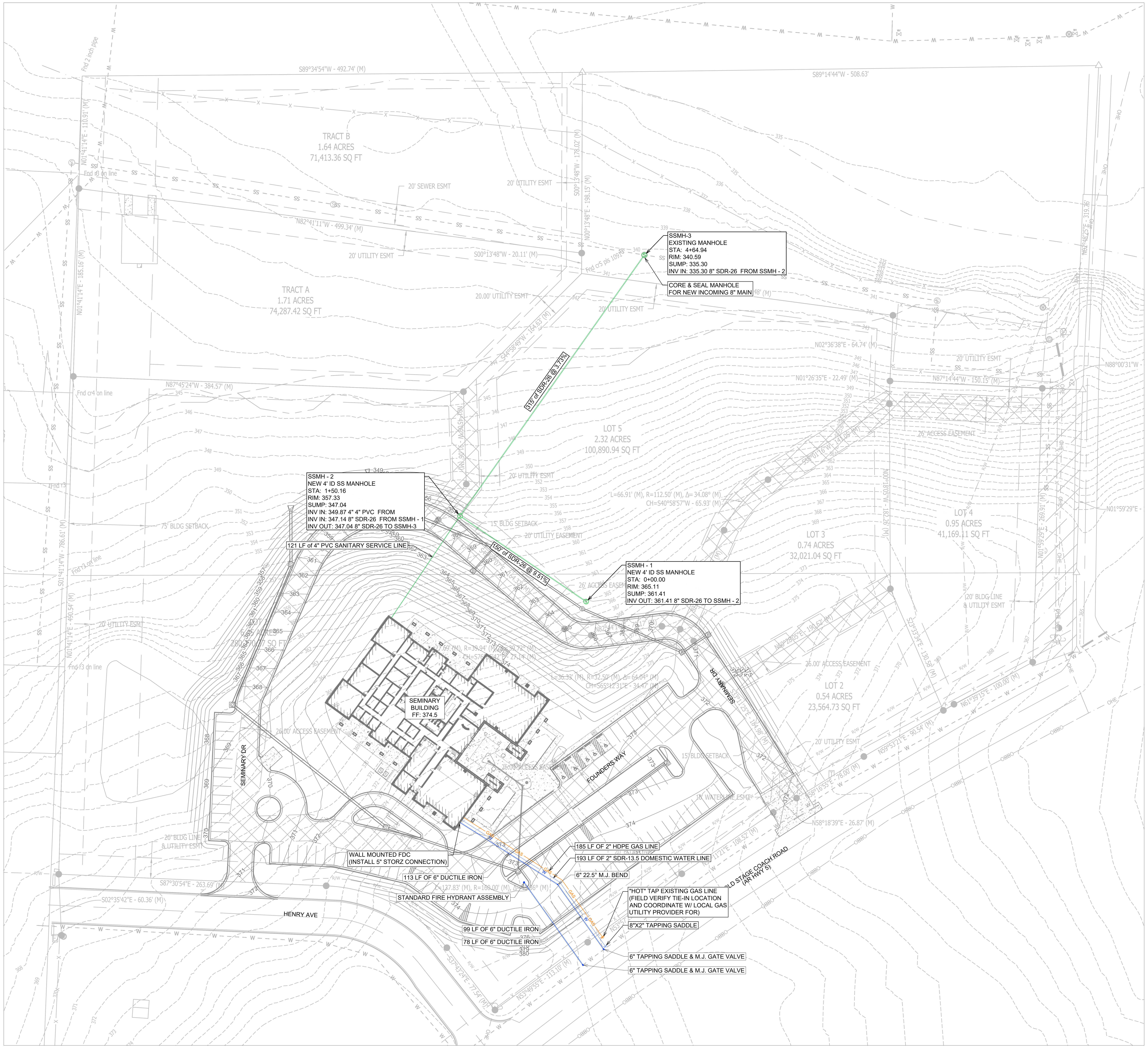
No. 9540
PHILLIP A. LEWIS

PROJECT NUMBER:

SHEET ISSUE DATE:
10-09-2024

PAGE TITLE:
STORM SEWER PROFILES

SHEET NUMBER:
C1.6



UTILITY PLAN

SCALE 1" = 50'

N

0 50'

1" = 50'-0"

GENERAL CONSTRUCTION NOTES

A. THE CONTRACTOR WILL BE HELD SOLELY RESPONSIBLE FOR DAMAGES OCCURRING TO ANY PROPERTY DURING THE CONSTRUCTION OF THIS PROJECT. SAID CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT PROPERTY DAMAGE.

B. IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL SOLELY AND COMPLETELY BE RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND WILL NOT BE LIMITED TO NORMAL WORKING HOURS.

C. THE DUTY OF THE LOCAL UTILITY PROVIDER TO CONDUCT CONSTRUCTION INSPECTION REVIEWS OF THE CONTRACTOR'S PERFORMANCE IS NOT AN INSPECTION OR REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES IN, ON, OR NEAR THE CONSTRUCTION SITE.

D. ALL WATER AND SEWER IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST REVISION TO THE LOCAL PROVIDER'S WATER AND WASTEWATER (SANITARY SEWER) STANDARD SPECIFICATIONS.

E. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF ALL UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH PROPOSED IMPROVEMENTS SHOWN ON THE PLAN.

F. CONTRACTOR IS TO REMOVE AND DISPOSE OF ALL DEBRIS, RUBBISH, AND OTHER MATERIALS RESULTING FROM PREVIOUS AND CURRENT DEMOLITION OPERATIONS. DISPOSAL WILL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND/OR FEDERAL REGULATIONS GOVERNING SUCH OPERATIONS.

G. PRIOR TO INSTALLATION OF ANY UTILITIES, THE CONTRACTOR IS TO EXCAVATE, VERIFY AND CALCULATE ALL CROSSINGS AND INFORM ANY AND ALL UTILITIES OF ANY CONFLICTS PRIOR TO CONSTRUCTION.

H. CONSTRUCTION SHALL NOT START ON ANY WATER UTILITY TIE-INS UNTIL APPROVAL IS GIVEN BY THE LOCAL UTILITY PROVIDER. SAID CONTRACTOR SHALL NOT OPERATE ANY VALVE, HYDRANT, OR WATER UTILITY APPURTENANCE NOR SHALL HE ATTACH TO OR TAP ANY WATER UTILITY MAIN WITHOUT APPROVAL. THE CONTRACTOR SHALL BEAR THE COST AND CONSEQUENCE OF ANY DISRUPTION OF UTILITY OPERATION CAUSED BY CONSTRUCTION.

I. FIBER OPTIC CABLE ON AND/OR ADJACENT TO THIS SITE WERE NOT LOCATED BY THE SURVEY AND ARE NOT SHOWN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ANY FIBER OPTIC CABLES ASSOCIATED WITH THIS SITE AND TAKE ALL NECESSARY AND REQUIRED PRECAUTIONS TO PROTECT ANY EXISTING FIBER OPTIC CABLES. CONTRACTORS SHALL COORDINATE ALL EFFORTS WITH OWNER OF FIBER OPTIC CABLES OR THEIR DESIGNATED REPRESENTATIVE.

J. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING "ONECALL" SERVICE TO MARK ALL UTILITIES PRIOR TO ANY DEMOLITION, EARTHWORK, OR UTILITY WORK ON THIS SITE.

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STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
PRELIMINARY NOT FOR CONSTRUCTION
9540
PHILLIP LEWIS

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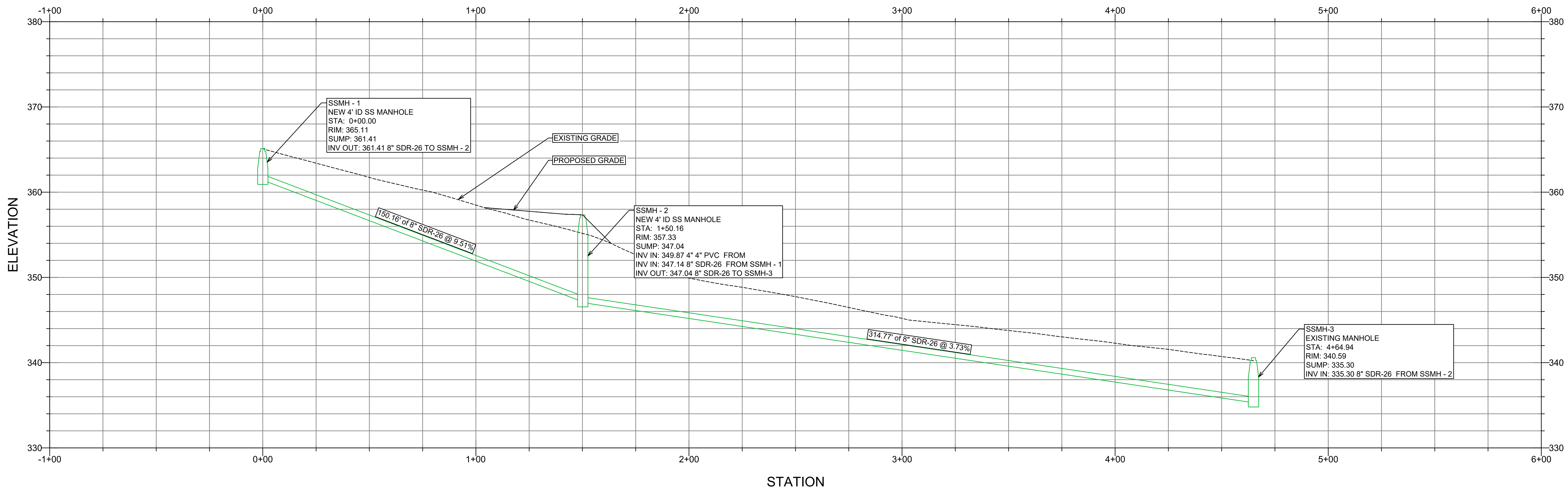
UTILITY PLAN

SHEET NUMBER:
C1.7

SANITARY SEWER



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PHILLIP A. LEWIS

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SHEET ISSUE DATE:
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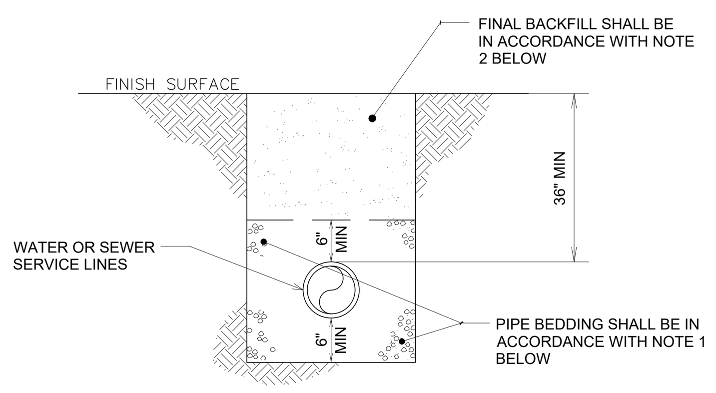
PAGE TITLE:
SANITARY SEWER PROFILE

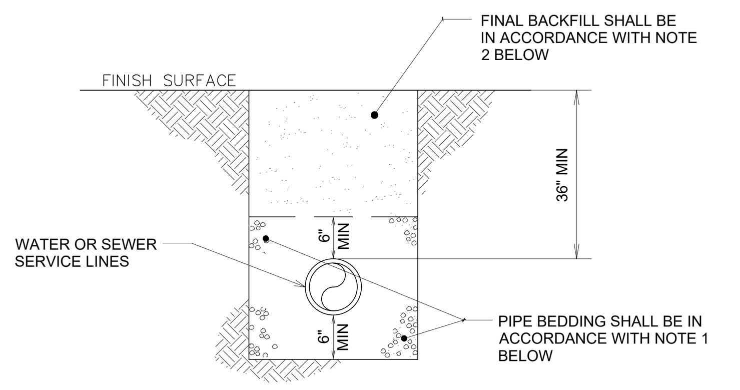
SHEET NUMBER:
C1.8



GAS LINE BEDDING DETAIL

NOT TO SCALE

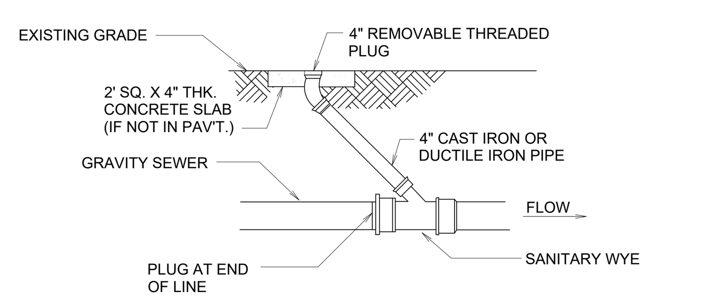
NOTES:
1. BEDDING SHALL BE "GRIT" PER ASTM 2774 OR ASTM D448 SIZE 67 A MINIMUM OF 6" ALL AROUND PIPE.
2. BEDDING SHALL BE CLEAN SAND A MINIMUM OF 6" ALL AROUND PIPE.
3. INITIAL BACKFILL NOT UNDER PAVED AREAS CAN BE CLASS III COMPACTED TO 90% STANDARD PROCTOR. ALL BACKFILL UNDER PAVED AREAS SHALL BE CLASS 7 CRUSHED STONE (SB-2) COMPACTED TO 95% STANDARD PROCTOR DENSITY.
3. ALL MATERIALS CLASSIFIED IN ACCORDANCE WITH ASTM D2321-89.
4. ALL MATERIALS SHALL BE INSTALLED IN MAXIMUM 8" LIFTS IN ACCORDANCE WITH ASTM D698. CLASS III AND IV-A MATERIALS SHALL BE COMPACTED TO NEAR OPTIMUM MOISTURE CONTENT.
5. FILL SALVAGED FROM EXCAVATION SHALL BE FREE OF DEBRIS, ORGANICS, AND ROCK LARGER THAN 3".
6. ALL TRENCH EXCAVATION SHALL BE SLOPED, SHORED, SHEETED, BRACED, OR OTHERWISE SUPPORTED IN COMPLIANCE WITH OSHA REGULATIONS AND LOCAL ORDINANCES.



WATER AND SEWER LINES BEDDING DETAIL

NOT TO SCALE

NOTES:
1. BEDDING SHALL BE "GRIT" PER ASTM 2774 OR ASTM D448 SIZE 67 A MINIMUM OF 6" ALL AROUND PIPE.
2. INITIAL BACKFILL NOT UNDER PAVED AREAS CAN BE CLASS III COMPACTED TO 90% STANDARD PROCTOR. ALL BACKFILL UNDER PAVED AREAS SHALL BE CLASS 7 CRUSHED STONE (SB-2) COMPACTED TO 95% STANDARD PROCTOR DENSITY.
3. ALL MATERIALS ARE CLASSIFIED IN ACCORDANCE WITH ASTM D2321-89.
4. ALL MATERIALS SHALL BE INSTALLED IN MAXIMUM 8" LIFTS IN ACCORDANCE WITH ASTM D698. CLASS III AND IV-A MATERIALS SHALL BE COMPACTED TO NEAR OPTIMUM MOISTURE CONTENT.
6. FILL SALVAGED FROM EXCAVATION SHALL BE FREE OF DEBRIS, ORGANICS, AND ROCKS LARGER THAN 3".
7. ALL TRENCH EXCAVATIONS SHALL BE SLOPED, SHORED, SHEETED, BRACED, OR OTHERWISE SUPPORTED IN COMPLIANCE WITH OSHA REGULATIONS AND LOCAL ORDINANCES.

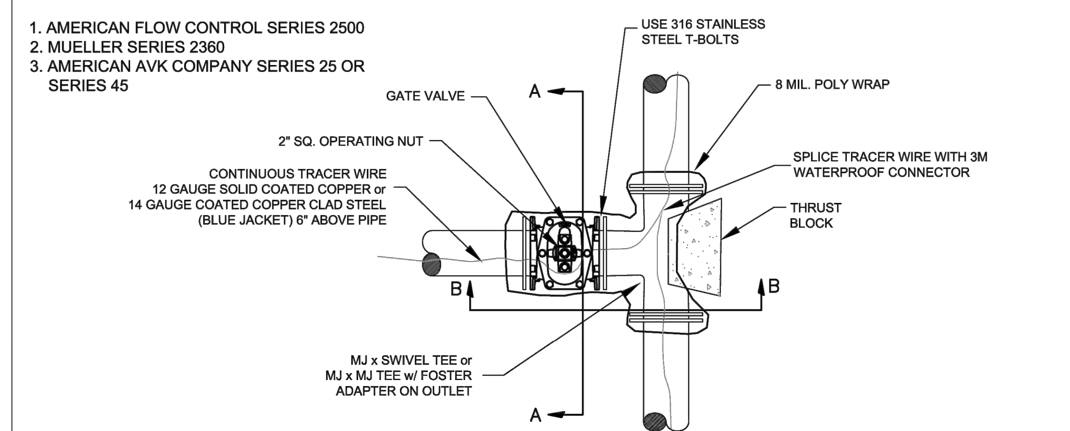


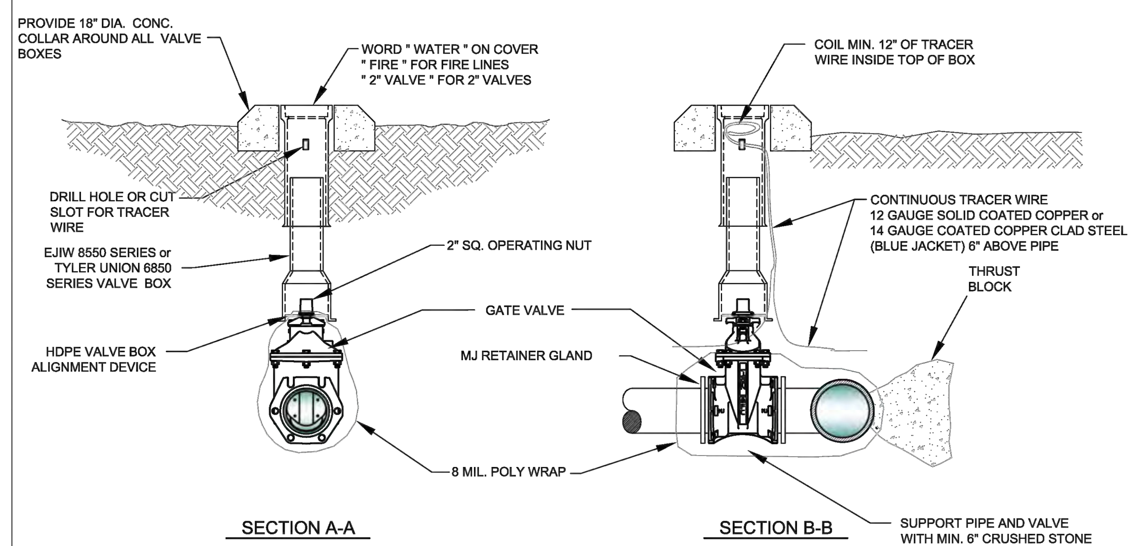
THROUGH FLOW CLEANOUT

NOT TO SCALE

PERMITTED VALVES

1. AMERICAN FLOW CONTROL SERIES 2500
2. MUELLER SERIES 2360
3. AMERICAN AVK COMPANY SERIES 25 OR SERIES 45





NOTES:

1. ALL VALVES SHALL BE SECURELY ANCHORED TO THE TEE.
2. ALL HARDWARE SHALL BE 316 STAINLESS STEEL.
3. IF DEPTH OF BURY EXCEEDS 4 FT., A VALVE STEM EXTENSION SHALL BE REQUIRED. THE VALVE STEM EXTENSION NUT SHALL BE WITHIN 24-INCHES TO 12-INCHES OF THE FINISHED SURFACE.

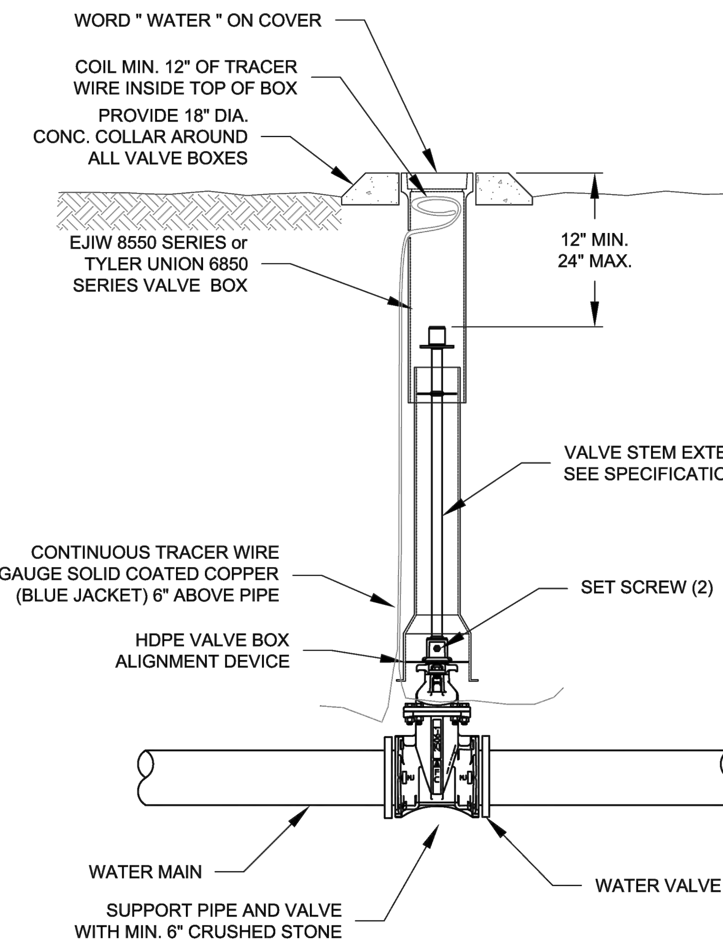
GATE VALVE DETAIL

2" - 12"

CITY OF BRYANT, AR WATER UTILITIES 210 S.W. 3rd. STREET BRYANT, AR PHONE: (501) 943-0488	TITLE: WATER DETAILS DESCRIPTION: GATE VALVE	DATE: APRIL 2015 REVISED	SHEET: W4
DRAWN BY:	CHECKED BY:	FILE: W4-Gate Valve.dwg	

NOTES:

1. OPERATING NUT EXTENSIONS SHALL BE USED WHEN THE TOP OF THE OPERATING NUT IS GREATER THAN 4 FEET FROM THE TOP OF FINISHED SURFACE.
2. THE STEM EXTENSION SHALL BE OF ADEQUATE LENGTH TO REACH FROM THE VALVE OPERATING NUT TO A POINT WITHIN 24-INCHES TO 12-INCHES OF THE FINISHED SURFACE.

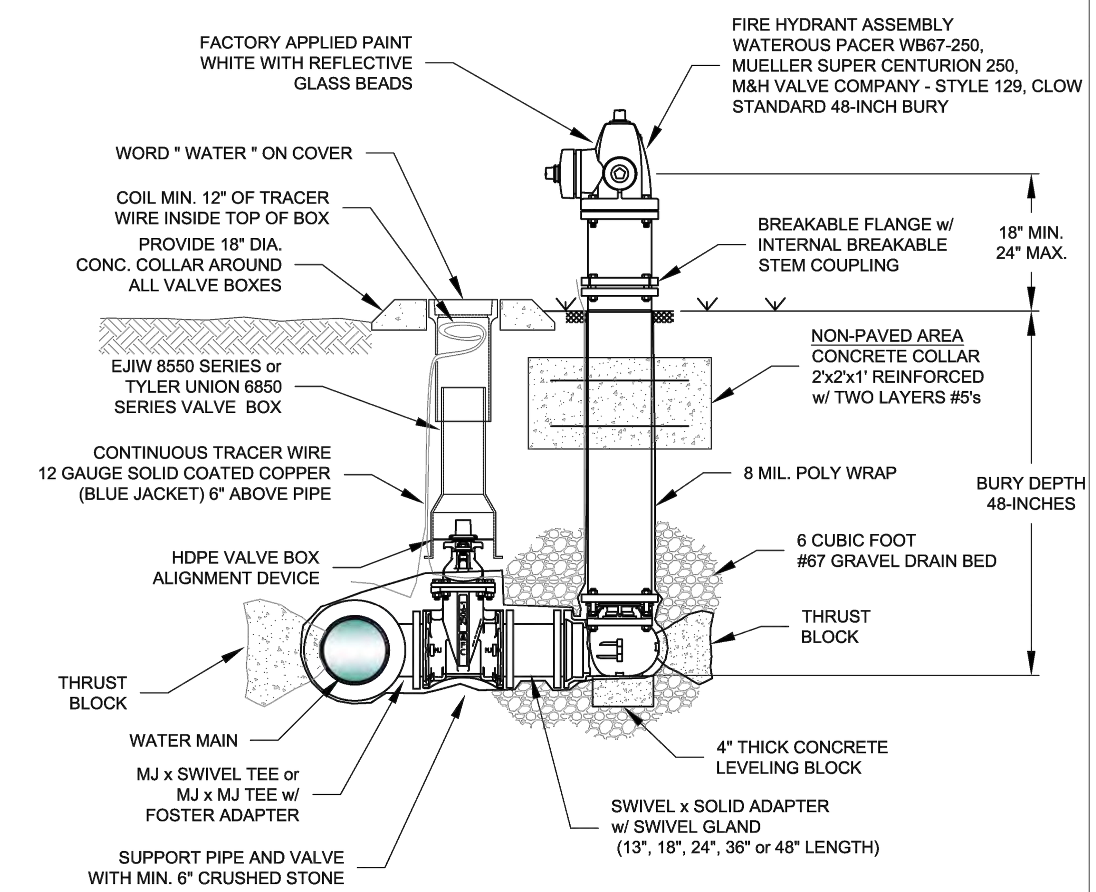


VALVE WITH STEM EXTENSION

CITY OF BRYANT, AR WATER UTILITIES 210 S.W. 3rd. STREET BRYANT, AR PHONE: (501) 943-0488	TITLE: WATER DETAILS DESCRIPTION: VALVE STEM EXTENSION	DATE: APRIL 2015 REVISED	SHEET: W7
DRAWN BY:	CHECKED BY:	FILE: W7-Valve Stem Extension.dwg	

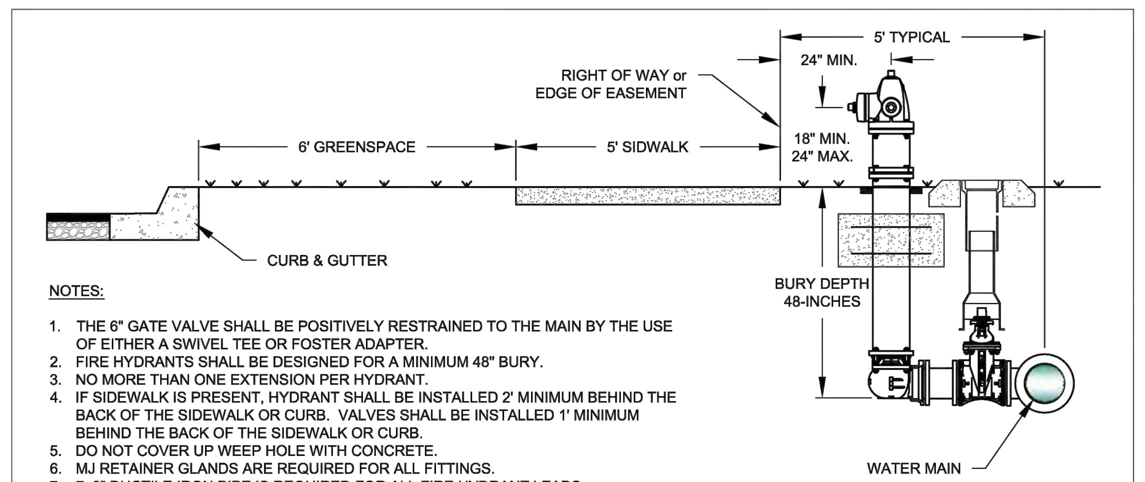
NOTES:

1. THE 6" GATE VALVE SHALL BE POSITIVELY RESTRAINED TO THE MAIN BY THE USE OF EITHER A SWIVEL TEE OR FOSTER ADAPTER.
2. FIRE HYDRANTS SHALL BE DESIGNED FOR A MINIMUM 48" BURY.
3. BURY LINE OF HYDRANT SHALL BE NO LESS THAN THE PROPOSED FINISHED ELEVATION OF BACK OF CURB, OR SIDEWALK, WHICHEVER IS GREATER.
4. NO MORE THAN ONE EXTENSION PER HYDRANT.
5. IF SIDEWALK IS PRESENT, HYDRANT SHALL BE INSTALLED 2' MINIMUM BEHIND THE BACK OF THE SIDEWALK OR CURB. VALVES SHALL BE INSTALLED 1' MINIMUM BEHIND THE BACK OF THE SIDEWALK OR CURB.
6. DO NOT COVER UP WEEP HOLE WITH CONCRETE.
7. MJ RETAINER GLANDS ARE REQUIRED FOR ALL FITTINGS.
8. 7. 6" DUCTILE IRON PIPE IS REQUIRED FOR ALL FIRE HYDRANT LEADS GREATER THAN 48-INCHES FROM THE MAIN VALVE.
9. AN ADDITIONAL GUARDIAN VALVE IS REQUIRED FOR ALL FIRE HYDRANT LEADS GREATER THAN 30 FEET IN LENGTH.



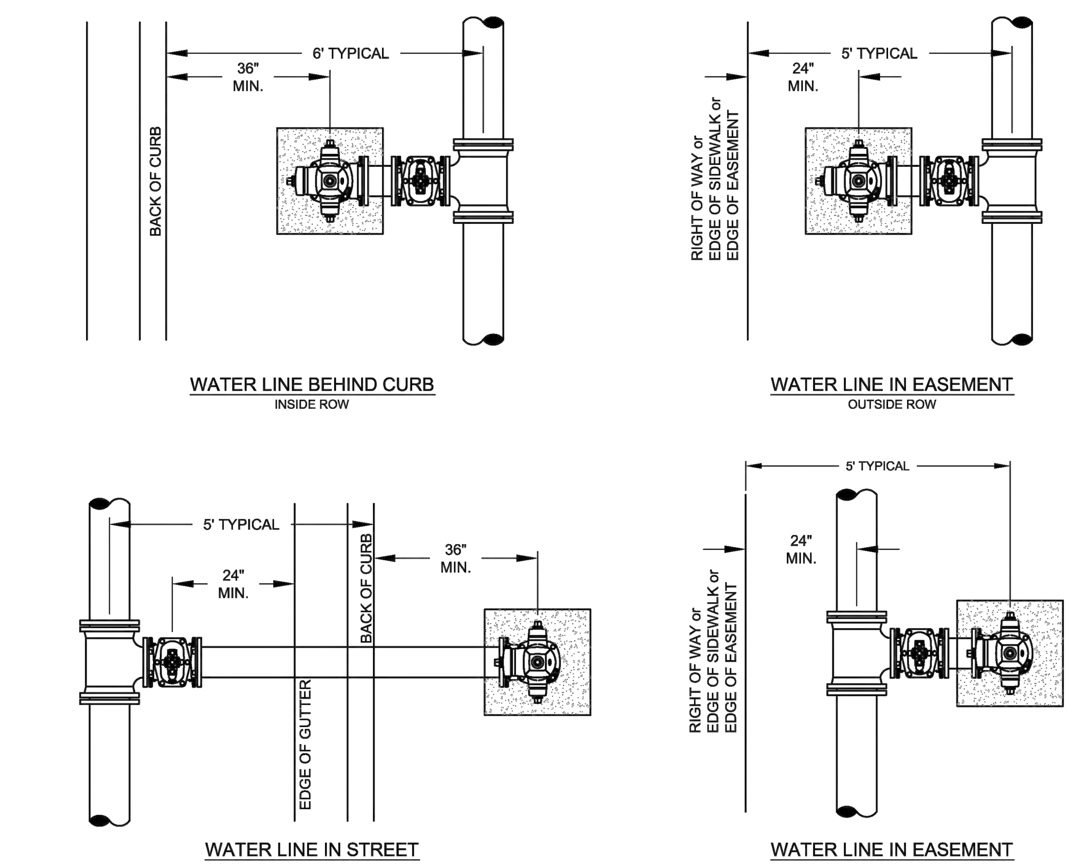
FIRE HYDRANT & VALVE CONNECTION

CITY OF BRYANT, AR WATER UTILITIES 210 S.W. 3rd. STREET BRYANT, AR PHONE: (501) 943-0488	TITLE: WATER DETAILS DESCRIPTION: FIRE HYDRANT AND VALVE CONNECTION	DATE: APRIL 2015 REVISED	SHEET: W8
DRAWN BY:	CHECKED BY:	FILE: W8-Fire Hydrant and Valve.dwg	

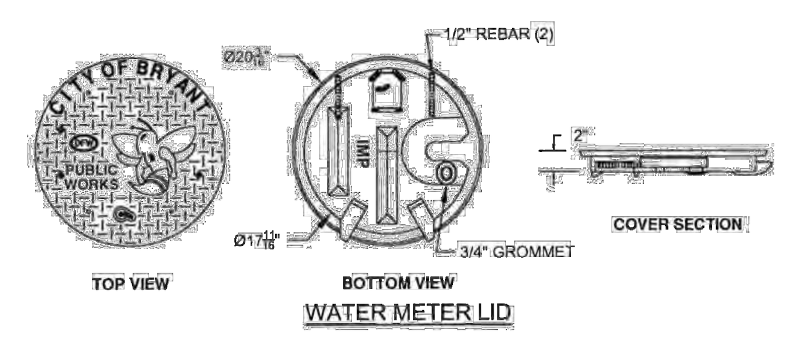


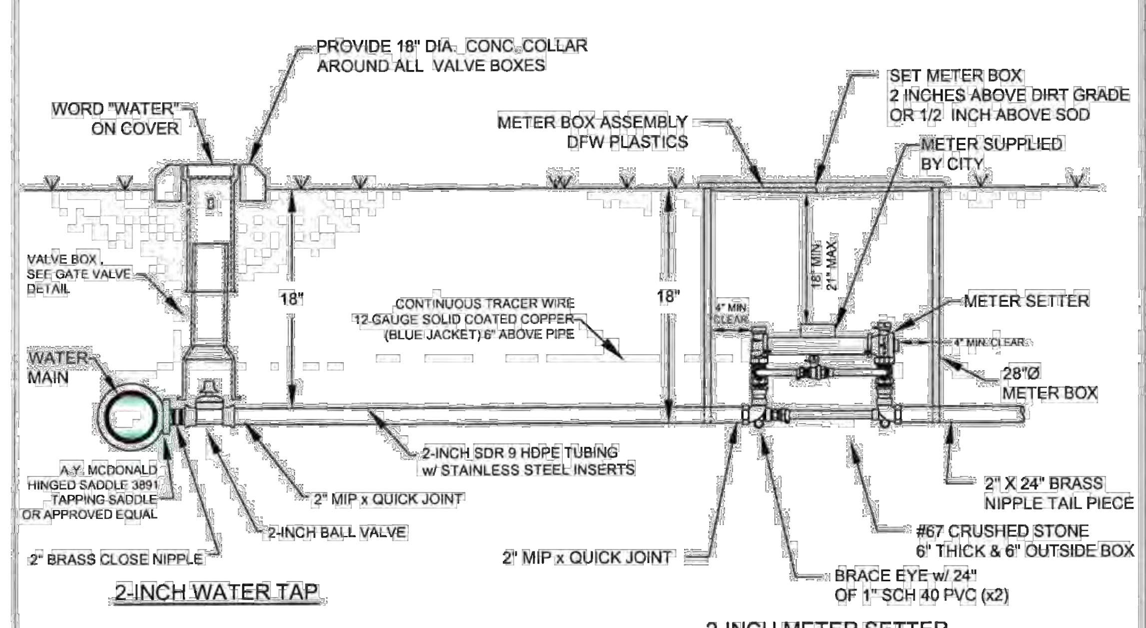
NOTES:

1. THE 6" GATE VALVE SHALL BE POSITIVELY RESTRAINED TO THE MAIN BY THE USE OF EITHER A SWIVEL TEE OR FOSTER ADAPTER.
2. FIRE HYDRANTS SHALL BE DESIGNED FOR A MINIMUM 48" BURY.
3. NO MORE THAN ONE EXTENSION PER HYDRANT.
4. IF SIDEWALK IS PRESENT, HYDRANT SHALL BE INSTALLED 2' MINIMUM BEHIND THE BACK OF THE SIDEWALK OR CURB. VALVES SHALL BE INSTALLED 1' MINIMUM BEHIND THE BACK OF THE SIDEWALK OR CURB.
5. DO NOT COVER UP WEEP HOLE WITH CONCRETE.
6. MJ RETAINER GLANDS ARE REQUIRED FOR ALL FITTINGS.
7. 6" DUCTILE IRON PIPE IS REQUIRED FOR ALL FIRE HYDRANT LEADS GREATER THAN 48-INCHES FROM THE MAIN VALVE.
8. AN ADDITIONAL GUARDIAN VALVE IS REQUIRED FOR ALL FIRE HYDRANT LEADS GREATER THAN 30 FEET IN LENGTH.



CITY OF BRYANT, AR WATER UTILITIES 210 S.W. 3rd. STREET BRYANT, AR PHONE: (501) 943-0488	TITLE: WATER DETAILS DESCRIPTION: FIRE HYDRANT PLACEMENT	DATE: APRIL 2015 REVISED	SHEET: W9
DRAWN BY:	CHECKED BY:	FILE: W9-Fire Hydrant Placement.dwg	





NOTES:

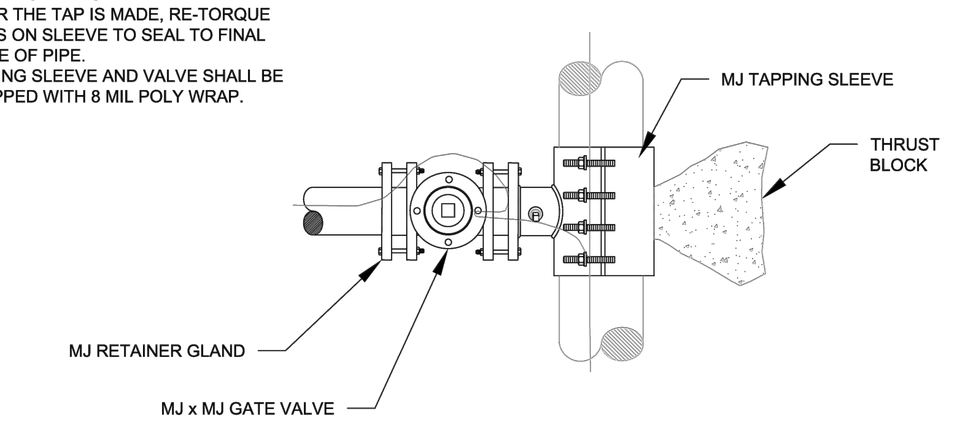
1. COORDINATE INSTALLATION AND CONFIGURATION OF ALL 1-1/2" AND LARGER METER SETTINGS WITH THE CITY.
2. ALL METER BOXES SHALL BE INSTALLED IN NON-PAVED AREAS. ANY METER BOX THAT GETS PLACED IN A PAVED AREA SHALL BE RELOCATED AT THE OWNER'S EXPENSE BEFORE A WATER METER WILL BE INSTALLED.
3. SUPPORT METER INSTALLATION WITH 1"x24" SCH40 PVC THROUGH EACH BRACE EYE.

2" WATER SERVICE AND WATER METER

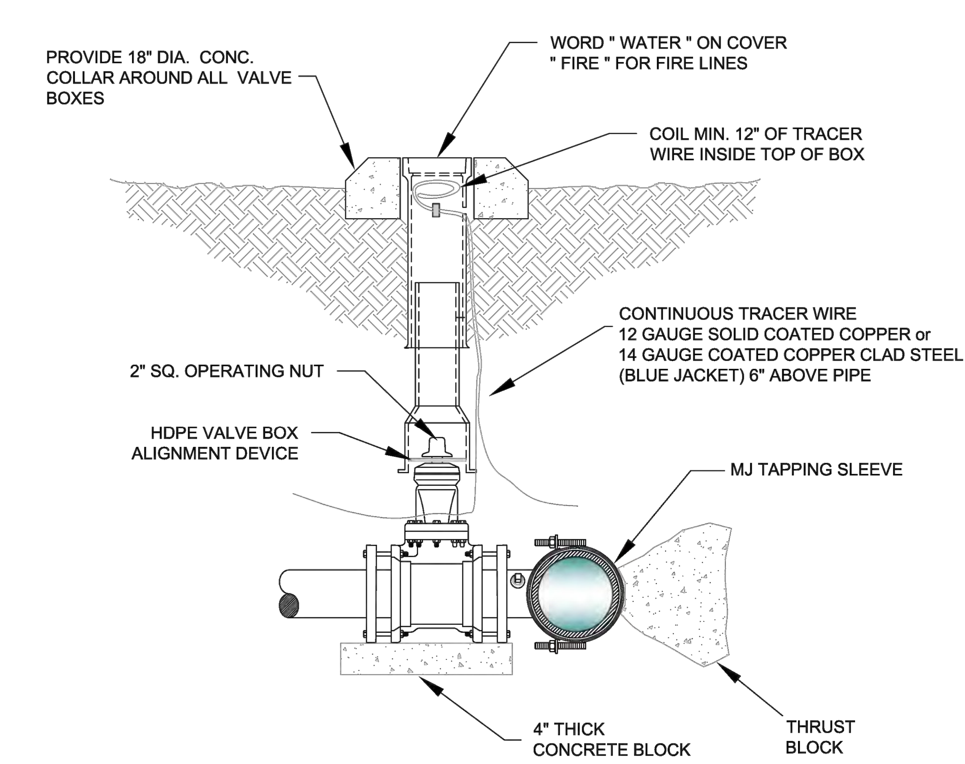
CITY OF BRYANT, AR WATER UTILITIES 210 S.W. 3rd. STREET BRYANT, AR PHONE: (501) 943-0488	TITLE: WATER DETAILS DESCRIPTION: 2" WATER METER	DATE: APRIL 2015 REVISED	SHEET: W12
DRAWN BY:	CHECKED BY:	FILE: W12-2 inch Water Meter.dwg	

NOTES:

1. TAPPING SLEEVE SHALL BE SMITH-BLAIR 662 OR FORD FAST.
2. AFTER THE TAP IS MADE, RE-TORQUE BOLTS ON SLEEVE TO SEAL TO FINAL SHAPE OF PIPE.
3. TAPPING SLEEVE AND VALVE SHALL BE WRAPPED WITH 8 MIL POLY WRAP.

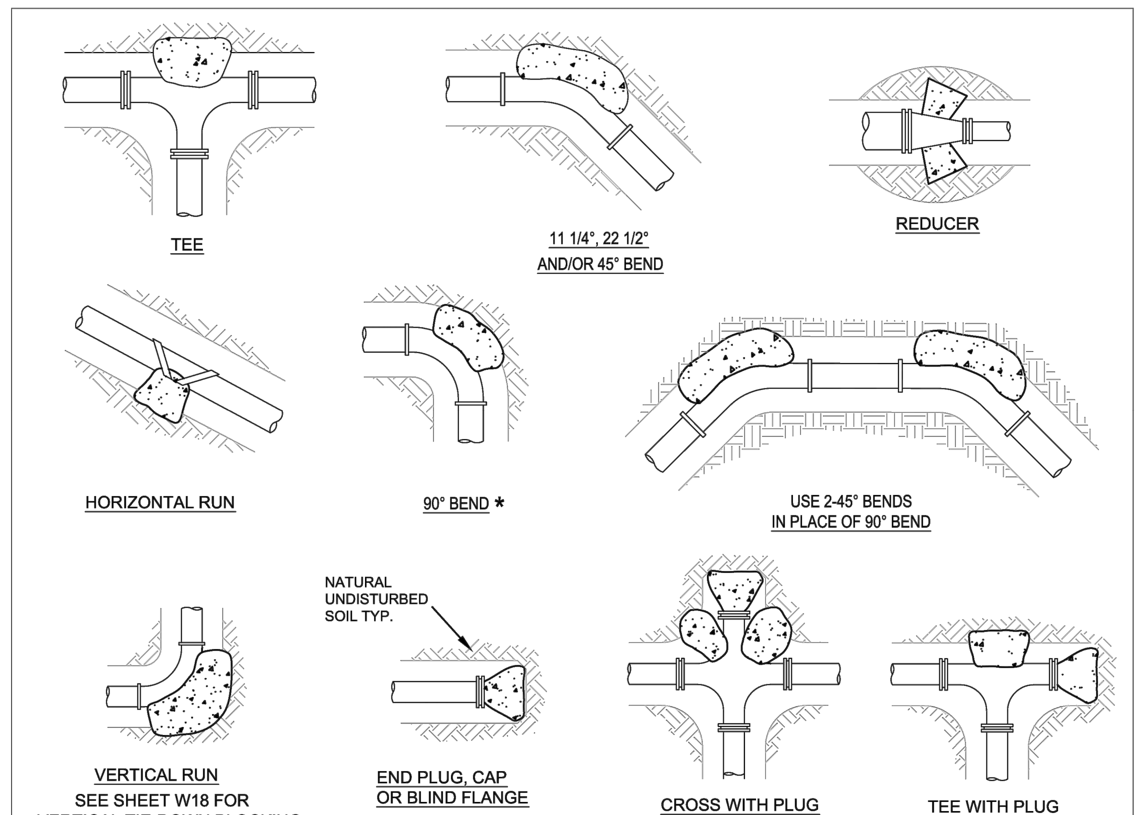


PLAN VIEW



PROFILE VIEW

CITY OF BRYANT, AR WATER UTILITIES 210 S.W. 3rd. STREET BRYANT, AR PHONE: (501) 943-0488	TITLE: WATER DETAILS DESCRIPTION: TAPPING SLEEVE AND VALVE	DATE: APRIL 2015 REVISED	SHEET: W13
DRAWN BY:	CHECKED BY:	FILE: W13-Tapping Sleeve and Valve.dwg	



THRUST BLOCK SCHEDULE

(2000 PSF SOIL, 200 PSI WATER PRESSURE, 100 PSI WATER HAMMER)

BEARING AREA OF THRUST BLOCKS IN SQ. FT. (HORIZONTAL BENDS)						VOLUME OF THRUST BLOCK IN CU. FEET (VERTICAL BENDS)						
FITTING SIZE	PLUG TEE OR CAP	BEND ANGLE				FITTING SIZE	BEND ANGLE				ROD DIAM.	EMBED-MENT
		90° *	45°	22 1/2°	11 1/4°		90° *	45°	22 1/2°	11 1/4°		
2, 3, & 4	1.9	2.7	1.4	0.7	0.4	2, 3, & 4	35.5	19.2	9.8	4.9	.50"	30"
6	5.6	7.9	4.3	2.2	1.1	6	105.8	57.2	29.2	14.7	.75"	30"
8	9.6	13.6	7.4	3.8	1.9	8	181.9	98.5	50.2	25.2	.75"	30"
12	20.5	29.0	15.7	8.0	4.0	12	387.1	209.5	106.8	53.7	1.0"	30"
16	35.7	50.4	27.3	13.9	7.0	16	672.6	364.0	185.6	93.2	1.0"	36"
18	44.8	63.4	34.3	17.5	18.8	18	844.7	457.2	233.1	117.1	1.0"	36"
24	78.4	110.9	60.0	30.6	15.4	24	1478.7	800.3	408.0	205.0	1.5"	36"

* 90 DEGREE BENDS SHALL ONLY BE USED ON A BY-EXCEPTION BASIS, AND MUST EACH BE SPECIFICALLY APPROVED BY CITY.

THRUST BLOCK NOTES:

1. CONCRETE FOR THRUST BLOCKS - CLASS A CONCRETE SHALL DEVELOP NOT LESS THAN 3000 P.S.I. COMPRESSIVE STRENGTH AT 28 DAYS AND BE PLACED AGAINST UNDISTURBED SOIL.
2. ALL BENDS, BOTH HORIZONTAL AND VERTICAL, SHALL BE BACKED WITH CONCRETE. VERTICAL BENDS SHALL BE PLACED ON CONCRETE PADS WHERE BENDS TURN UP, OR LOADED WHERE BENDS TURN DOWN.
3. WRAP PIPE JOINTS IN 8 MIL "POLYETHLENE" BEFORE PLACING CONCRETE.
4. BEARING AREA SHOWN IN TABLE, IS BASED UPON A 2000 LB/SF. SOIL BEARING, AND UPON A PIPELINE PRESSURE OF 200 psi. PLUS 100 psi. WATER HAMMER. AREAS SHOWN SHALL BE ADJUSTED, SHOULD FIELD CONDITIONS VARY.
5. MJ RESTRAINTS ARE REQUIRED FOR ALL FITTINGS.
6. USE LONG-RADIUS FITTINGS WHEREVER POSSIBLE.
7. ALL BOLTS FOR FITTINGS SHALL BE 316 STAINLESS STEEL.
8. ALL DUCTILE IRON PIPE IS REQUIRED TO BE FUSION-BONDED EPOXY COATED INSIDE AND OUTSIDE IN ACCORDANCE WITH ANSI/AWWA C116/A21.16.
9. UNIT WEIGHT OF CONCRETE FOR VERTICAL THRUST BLOCKS IS 150 LBS/CU. FT.

THRUST BLOCKING

CITY OF BRYANT, AR WATER UTILITIES 210 S.W. 3rd. STREET BRYANT, AR PHONE: (501) 943-0488	TITLE: WATER DETAILS DESCRIPTION: THRUST BLOCKING	DATE: APRIL 2015 REVISED	SHEET: W16
DRAWN BY:	CHECKED BY:	FILE: W16-Thrust Blocking.dwg	

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No. 566
ARKANSAS—ENGINEER

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PH: 501-350-9840

REVISION:

BRYANT SEMINARY
HIGHWAY 5
BRYANT, ARKANSAS

PROJECT NUMBER:

SHEET ISSUE DATE: 10-09-2024

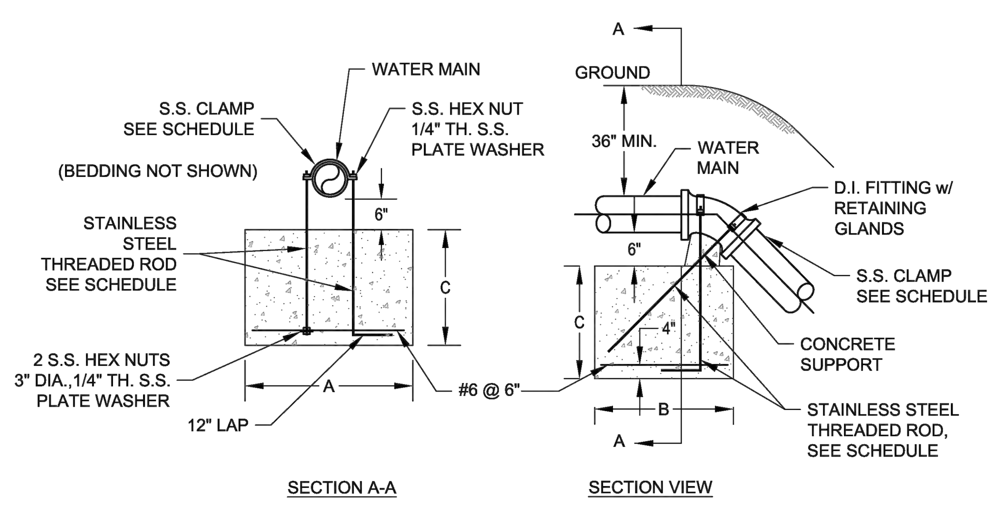
PAGE TITLE: UTILITY DETAILS

SHEET NUMBER: C1.9

BLOCKING SCHEDULE					
PIPE SIZE		BENDS			
		45°	22 1/2°	11 1/4°	ROD DIA.
VOLUME REQ'D (CU. FT.)		98.5	50.2	25.2	3/4 IN.
8"	A (FT.)	5.00'	4.00'	3.00'	
	B (FT.)	4.00'	3.20'	2.80'	
	C (FT.)	5.00'	4.00'	3.00'	
	MIN. CLAMP (2 EA.)	3/8 IN. x 2 IN.			
VOLUME REQ'D (CU. FT.)		209.5	106.8	53.7	3/4 IN.
12"	A (FT.)	6.00'	5.00'	4.00'	
	B (FT.)	6.00'	4.25'	3.50'	
	C (FT.)	6.00'	5.00'	4.00'	
	MIN. CLAMP (2 EA.)	1/2 IN. x 2 IN.			
VOLUME REQ'D (CU. FT.)		457.2	233.1	117.1	1 IN.
18"	A (FT.)	8.00'	6.50'	5.00'	
	B (FT.)	7.25'	5.50'	4.75'	
	C (FT.)	8.00'	6.50'	5.00'	
	MIN. CLAMP (2 EA.)	5/8 IN. x 3 IN.			
VOLUME REQ'D (CU. FT.)		800.3	408.0	205.0	1 1/4 IN.
24"	A (FT.)	9.50'	7.50'	6.00'	
	B (FT.)	9.00'	7.25'	5.75'	
	C (FT.)	9.50'	7.50'	6.00'	
	MIN. CLAMP (2 EA.)	5/8 IN. x 3 IN.			

VOLUME CALCULATED ON THE BASIS OF CONCRETE REACTING THRUST ON THE RESPECTIVE BENDS UNDER AN INTERNAL PRESSURE OF 250 PSI, 50 PSI SURGE AND THE WEIGHT OF CONCRETE IS 150 POUNDS PER CU. FT.

ALL FITTINGS SHALL BE MECHANICAL JOINTS WITH RETAINING GLANDS. BEDDING NOT SHOWN



VERTICAL TIE-DOWN BLOCKING

CITY OF BRYANT, AR
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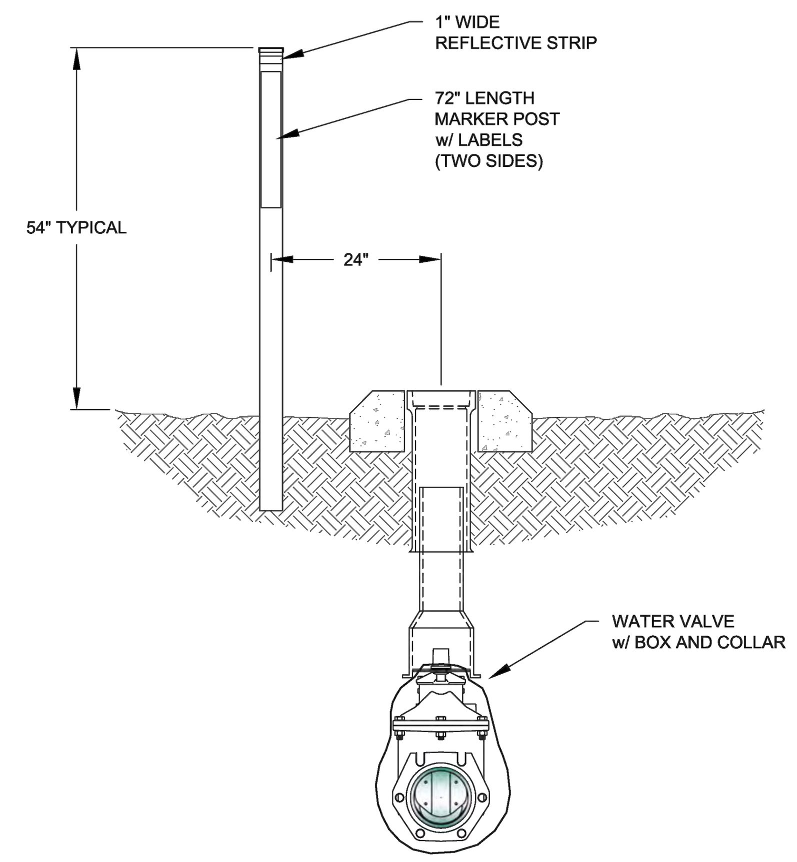
210 S.W. 3rd. STREET
BRYANT, AR
PHONE: (501) 943-0488

TITLE: **WATER DETAILS**
DESCRIPTION: VERTICAL TIE-DOWN BLOCKING
DATE: APRIL 2015
REVISED
SHEET: **W17**
DRAWN BY: CHECKED BY: FILE: W17-Vertical Tie-Down Blocking.dwg

NOTES:

1. WATER LINE MARKERS SHALL BE TRI-VIEW MARKING SYSTEM BY RHINO MARKING AND PROTECTION SYSTEMS OR CARSONITE INTERNATIONAL DUAL-SIDED UTILITY MARKER (CIB-380).
2. THE UPPERMOST PORTION OF THE CARSONITE MARKER SHALL BE MADE OF VISIBILITY ENHANCER (CVE-360).
3. TRI-VIEW MARKERS DO NOT REQUIRE VISIBILITY ENHANCERS.
4. AN ADDITIONAL WHITE 1" WIDE REFLECTIVE TAPE (3M OR EQUAL) SHALL BE PLACED AROUND THE FULL CIRCUMFERENCE OF THE TOP OF THE MARKER.



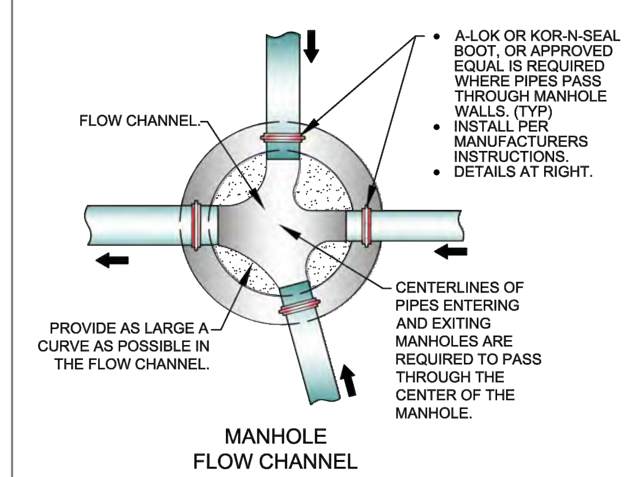
VALVE MARKER

CITY OF BRYANT, AR
WATER UTILITIES
210 S.W. 3rd. STREET
BRYANT, AR
PHONE: (501) 943-0488

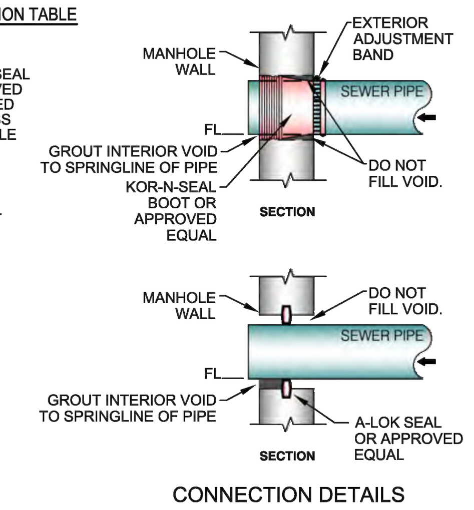
TITLE: **WATER DETAILS**
DESCRIPTION: VALVE MARKER
DATE: APRIL 2015
REVISED
SHEET: **W22**
DRAWN BY: CHECKED BY: FILE: W22-Valve Marker.dwg

Inside Diameter of Manhole	Minimum Wall Thickness	Base Thickness	Minimum Ring & Cover Size
4' DIA	5"	6"	24" (< or Equal to 24" Pipes)
5' DIA	7"	8"	
6' DIA	7"	8"	36" (> 24" Pipes)

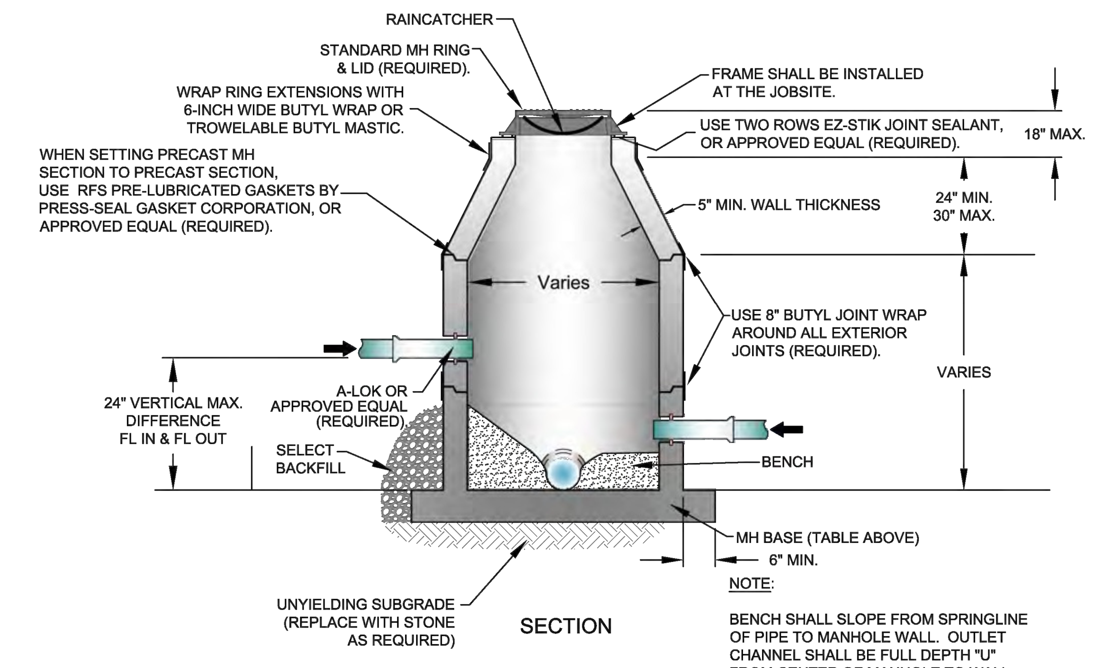
MANHOLE INFORMATION TABLE



MANHOLE FLOW CHANNEL



CONNECTION DETAILS



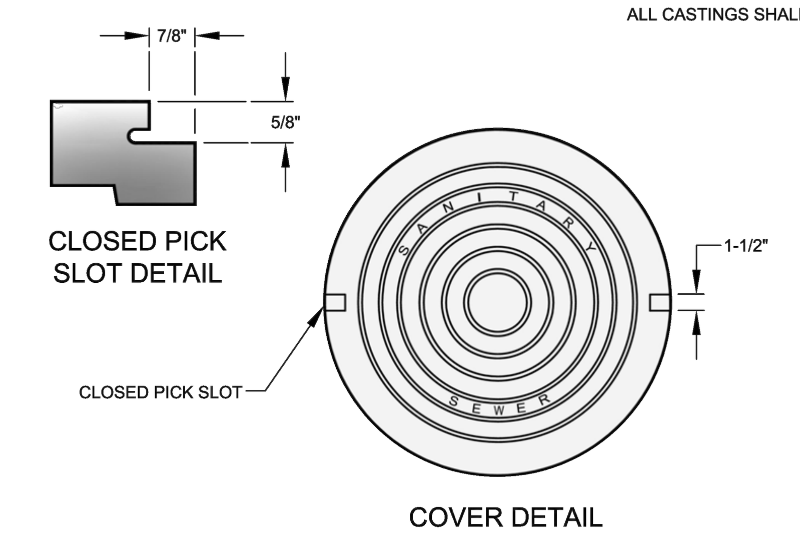
NOTE:
BENCH SHALL SLOPE FROM SPRINGLINE OF PIPE TO MANHOLE WALL. OUTLET CHANNEL SHALL BE FULL DEPTH "U" FROM CENTER OF MANHOLE TO WALL.

PRECAST MANHOLE

CITY OF BRYANT, AR
WATER UTILITIES
210 S.W. 3rd. STREET
BRYANT, AR
PHONE: (501) 943-0488

TITLE: **SEWER DETAILS**
DESCRIPTION: PRECAST MANHOLE
DATE: APRIL 2015
REVISED
SHEET: **S5**
DRAWN BY: CHECKED BY: FILE: S5-Precast Manhole.dwg

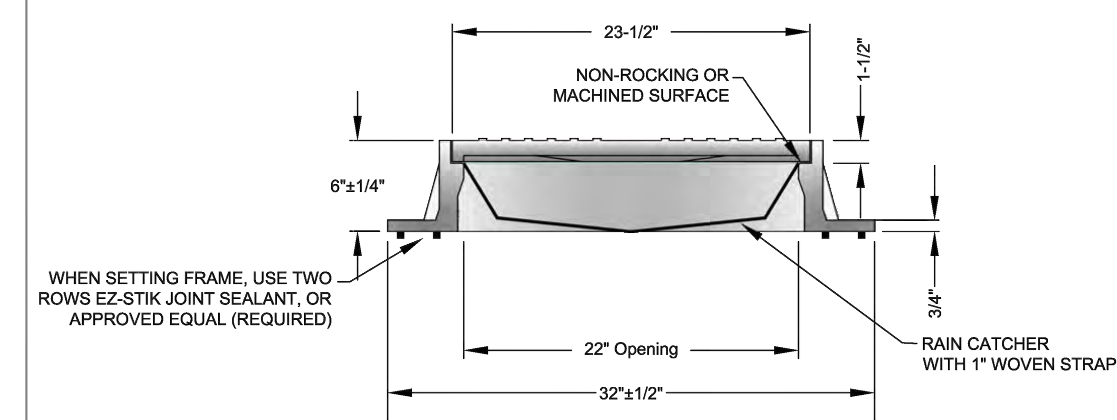
ALL CASTINGS SHALL BE "MADE IN USA"



COVER DETAIL

1. MINIMUM WEIGHT OF RING: 100 POUNDS
2. MINIMUM WEIGHT OF COVER: 110 POUNDS
3. COVERS ARE FURNISHED WITH TWO CLOSED PICK SLOTS.
4. CASTINGS SHALL BE "MADE IN USA"

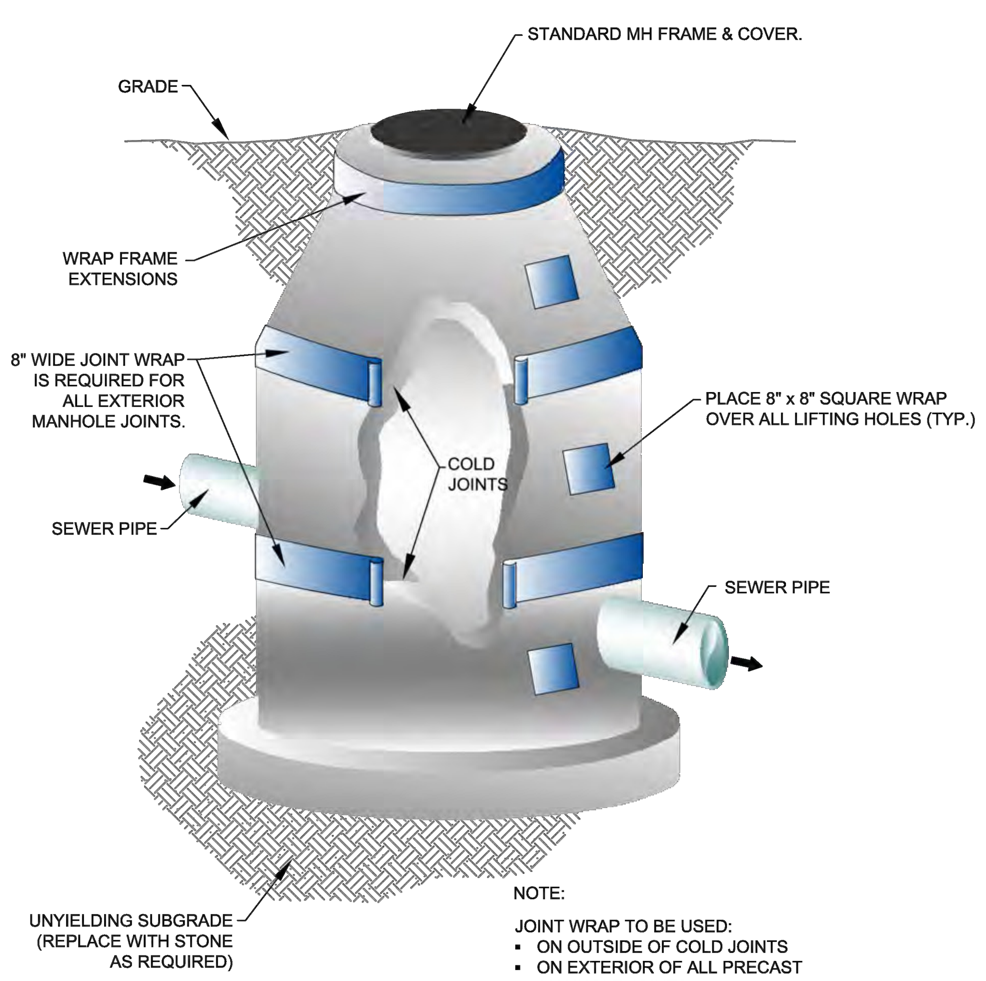
* DIMENSIONAL TOLERANCES SHALL NOT EXCEED 1/16 INCH PER FOOT



FRAME AND COVER DETAIL

CITY OF BRYANT, AR
WATER UTILITIES
210 S.W. 3rd. STREET
BRYANT, AR
PHONE: (501) 943-0488

TITLE: **SEWER DETAILS**
DESCRIPTION: MANHOLE FRAME AND COVER
DATE: APRIL 2015
REVISED
SHEET: **S6**
DRAWN BY: CHECKED BY: FILE: S6-Manhole Frame and Cover.dwg



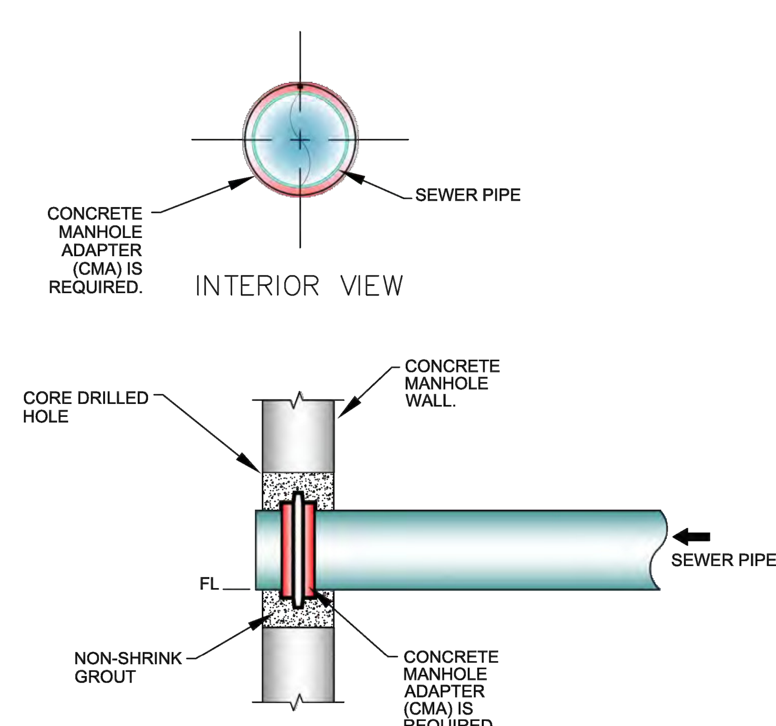
NOTE:
JOINT WRAP TO BE USED:
- ON OUTSIDE OF COLD JOINTS
- ON EXTERIOR OF ALL PRECAST MANHOLE JOINTS
- ON LIFT HOLES / SOCKETS

MANHOLE JOINT WRAP

CITY OF BRYANT, AR
WATER UTILITIES
210 S.W. 3rd. STREET
BRYANT, AR
PHONE: (501) 943-0488

TITLE: **SEWER DETAILS**
DESCRIPTION: MANHOLE JOINT WRAP
DATE: APRIL 2015
REVISED
SHEET: **S9**
DRAWN BY: CHECKED BY: FILE: S9-Manhole Joint Wrap.dwg

THE INSTALLATION SHALL BE DYE TESTED FOR ACCEPTANCE.



MANHOLE CORING DETAILS

CITY OF BRYANT, AR
WATER UTILITIES
210 S.W. 3rd. STREET
BRYANT, AR
PHONE: (501) 943-0488

TITLE: **SEWER DETAILS**
DESCRIPTION: MANHOLE CORING
DATE: APRIL 2015
REVISED
SHEET: **S11**
DRAWN BY: CHECKED BY: FILE: S11-Manhole Coring.dwg

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PAGE TITLE:
UTILITY DETAILS

SHEET NUMBER:
C1.10

PRE DRAINAGE MAP

SCALE 1" = 50'

N

0 50'

1" = 50'-0"

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ARKANSAS ENGINEER

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9540
PHILLIP A. LEWIS
PRELIMINARY NOT FOR CONSTRUCTION

PROJECT NUMBER:

SHEET ISSUE DATE:
10-09-2024

PAGE TITLE:
PRE DRAINAGE MAP

SHEET NUMBER:
C1.11

POST DRAINAGE MAP

SCALE 1" = 50'

GENERAL SITE NOTES

1. TOTAL NEW DEVELOPMENT AREA = (+/-) 1.12 ACRES
2. PROPERTY IS ZONED C-2
3. 43 PARKING SPACES PROVIDED INCLUDING 2 ADA ACCESSIBLE PARKING SPACES
4. ALL DIMENSIONS ARE TO THE BACK OF CURB AND/OR EDGE OF PAVEMENT
5. DAMAGE TO PUBLIC AND PRIVATE PROPERTY DUE TO HAULING OPERATIONS OR OPERATIONS OF CONSTRUCTION RELATED EQUIPMENT FROM A CONSTRUCTION SITE SHALL BE REPAIRED BY THE THE RESPONSIBLE PARTY PRIOR TO THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY.
6. REPAIR, REPLACE, OR EXTEND EXISTING DAMAGED OR MISSING CURB AND GUTTER, SIDEWALK OR RAMPS WITHIN THE PUBLIC RIGHT OF WAY.
7. ALL SIGNAGE, PAVEMENT MARKING AND PARKING LOT STRIPING SHALL CONFORM TO REQUIREMENTS GIVEN IN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). MUTCD REQUIRES THAT PARKING SPACES BE MARKED IN WHITE.

N

0 50'

1" = 50'-0"

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ARKANSAS ENGINEER

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9540
PHILLIP LEWIS

PROJECT NUMBER:

SHEET ISSUE DATE:
10-09-2024

PAGE TITLE:
POST DRAINAGE MAP

SHEET NUMBER:
C1.12

LANDSCAPE PLAN

SCALE 1" = 30'

NOTES:

1. LANDSCAPED AREAS TO BE AMENDED WITH 4" OF TOPSOIL, SCARIFY SOIL 3" PRIOR TO APPLICATION. ALL TOP SOIL SHALL BE PLACED IN COORDINATION WITH GRADING AND DRAINAGE PLANS TO ENSURE THAT THE GRADING AND DRAINAGE DESIGN FOR THE SITE IS MAINTAINED AFTER BEING SODDED OR SEEDED. EXISTING SOIL FROM THE SITE CAN BE STOCK PILED AND REUSED AS LONG AS IT IS OF QUALITY THAT ENCOURAGES ADEQUATE GROWTH OF PLANTING MATERIAL. THE CONTRACTOR IS RESPONSIBLE FOR ANY SOIL TESTING THAT MAY BE REQUIRED.
2. LANDSCAPE PLAN REPRESENTS RECOMMENDED SPECIES, SIZES, & LOCATIONS. OWNER SHALL CHANGE THE ITEMS TO EQUAL OR GREATER VALUE.

PLANT SCHEDULE

PLANT TYPE	SYMBOL	CODE	QTY	COMMON SPECIES	SCIENTIFIC NAME	CAL / SIZE
TREES		WO	15	WILLOW OAK	QUERCUS PHELLOS	MIN. 3" DIAMETER @ BASE AND 12' TALL
SHRUBS		BW	85	DWARF NANDINA	N. DOMESTICA "HARBOUR DWARF"	3 GAL
GROUND COVER		SO	61,425 SF	BERMUDA SOD		
		GS	36,022 SF	GRASS SEED		
			5,114 SF	LANDSCAPE BEDDING (TBD BY OWNER)		

N

0 30'
1" = 30'-0"

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SHEET ISSUE DATE:
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PAGE TITLE:
LANDSCAPE PLAN

SHEET NUMBER:
C1.13

LEGEND

DISTURBED AREA

UNDISTURBED AREA

SEDIMENT FENCE WITH WIRE BACKING

DRAINAGE DIRECTION

GENERAL CONSTRUCTION NOTES

A. THE CONTRACTOR WILL BE HELD SOLELY RESPONSIBLE FOR DAMAGES OCCURRING TO ANY PROPERTY DURING THE CONSTRUCTION OF THIS PROJECT. SAID CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT PROPERTY DAMAGE.

B. IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL SOLELY AND COMPLETELY BE RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND WILL NOT BE LIMITED TO NORMAL WORKING HOURS.

C. THE DUTY OF THE LOCAL UTILITY PROVIDER TO CONDUCT CONSTRUCTION INSPECTION REVIEWS OF THE CONTRACTOR'S PERFORMANCE IS NOT AN INSPECTION OR REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES IN, ON, OR NEAR THE CONSTRUCTION SITE.

D. ALL WATER AND SEWER IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST REVISION TO THE LOCAL PROVIDER'S WATER AND WASTEWATER (SANITARY SEWER) STANDARD SPECIFICATIONS.

E. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF ALL UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH PROPOSED IMPROVEMENTS SHOWN ON THE PLAN.

F. CONTRACTOR IS TO REMOVE AND DISPOSE OF ALL DEBRIS, RUBBISH, AND OTHER MATERIALS RESULTING FROM PREVIOUS AND CURRENT DEMOLITION OPERATIONS. DISPOSAL WILL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND/OR FEDERAL REGULATIONS GOVERNING SUCH OPERATIONS.

G. PRIOR TO INSTALLATION OF ANY UTILITIES, THE CONTRACTOR IS TO EXCAVATE, VERIFY AND CALCULATE ALL CROSSINGS AND INFORM ANY AND ALL UTILITIES OF ANY CONFLICTS PRIOR TO CONSTRUCTION.

H. CONSTRUCTION SHALL NOT START ON ANY WATER UTILITY TIE-INS UNTIL APPROVAL IS GIVEN BY THE LOCAL UTILITY PROVIDER. SAID CONTRACTOR SHALL NOT OPERATE ANY VALVE, HYDRANT, OR WATER UTILITY APPURTENANCE NOR SHALL HE ATTACH TO OR TAP ANY WATER UTILITY MAIN WITHOUT APPROVAL. THE CONTRACTOR SHALL BEAR THE COST AND CONSEQUENCE OF ANY DISRUPTION OF UTILITY OPERATION CAUSED BY CONSTRUCTION.

I. FIBER OPTIC CABLE ON AND/OR ADJACENT TO THIS SITE WERE NOT LOCATED BY THE SURVEY AND ARE NOT SHOWN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ANY FIBER OPTIC CABLES ASSOCIATED WITH THIS SITE AND TAKE ALL NECESSARY AND REQUIRED PRECAUTIONS TO PROTECT ANY EXISTING FIBER OPTIC CABLES. CONTRACTORS SHALL COORDINATE ALL EFFORTS WITH OWNER OF FIBER OPTIC CABLES OR THEIR DESIGNATED REPRESENTATIVE.

J. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING "ONECALL" SERVICE TO MARK ALL UTILITIES PRIOR TO ANY DEMOLITION, EARTHWORK, OR UTILITY WORK ON THIS SITE.

STORM WATER POLLUTION PREVENTION PLAN

SCALE 1" = 50'

INSTALL FILTER SOCKS AT ALL INLETS; MAINTAIN THROUGHOUT CONSTRUCTION.

N

0 50'

1" = 50'-0"

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STATE OF ARKANSAS
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No. 9540
PHILLIP A. LEWIS

PROJECT NUMBER:

SHEET ISSUE DATE:
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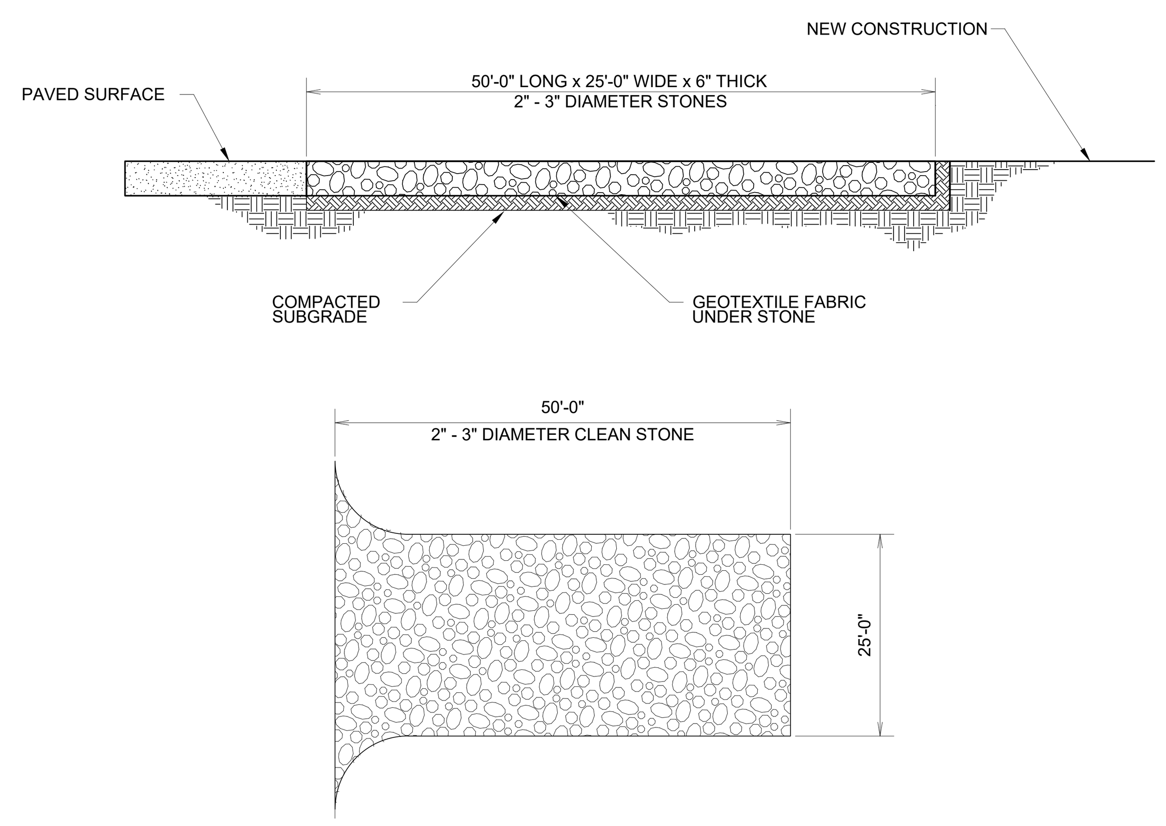
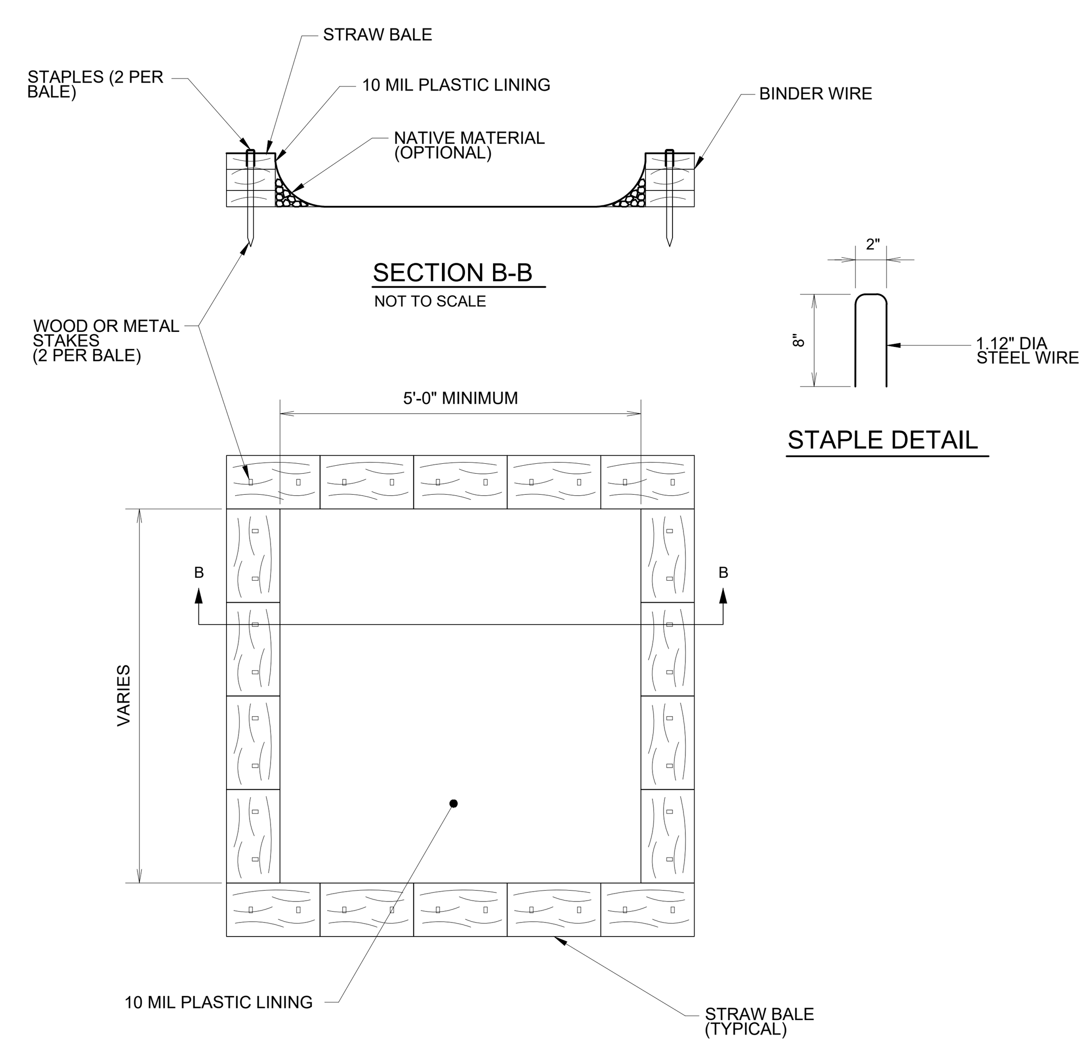
PAGE TITLE:
STORM WATER POLLUTION PREVENTION PLAN

SHEET NUMBER:
C1.14



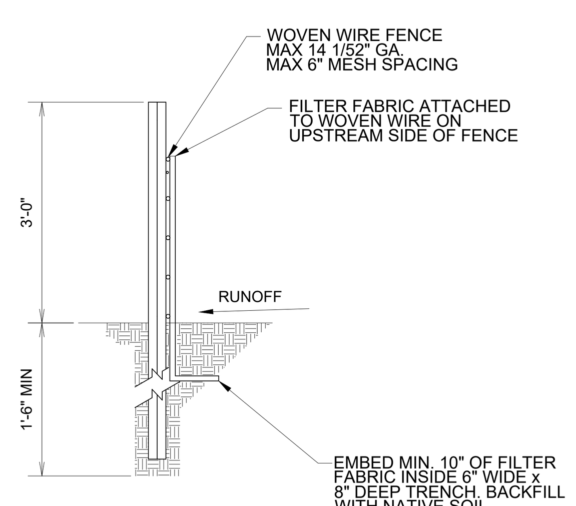
CONSTRUCTION ENTRANCE

NOT TO SCALE



CONCRETE WASHOUT

NOT TO SCALE



SILT FENCE

NOT TO SCALE

NOTES AND SPECIFICATIONS:

1. POSTS SHALL BE A MINIMUM OF 36 INCHES CONSTRUCTED OF EITHER OF THE FOLLOWING MATERIALS: STEEL "T" OR "U" TYPE, OR 2" x 2" HARDWOOD.
2. WOVEN WIRE USED AS ADDITIONAL FENCE SUPPORT SHALL BE MINIMUM 14.5 GA. WITH 6" MAXIMUM SPACING.
3. WOVEN WIRE SHALL BE PLACED ALONG THE UPHILL SIDE OF THE FENCE AND FASTENED WITH WIRE TIES OR 1" STAPLES ALONG THE UPHILL SIDE OF THE POSTS.
4. FILTER FABRIC SHALL BE FASTENED TO WOVEN WIRE ACCORDING TO MANUFACTURER'S RECOMMENDATION, OR WITH TIES EVERY 24" AT THE TOP AND MID-SECTIONS.
5. WHERE TWO PIECES OF FILTER FABRIC ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY 6 INCHES AND FOLDED TOGETHER.
6. WHERE TWO POSTS MEET TO JOIN FENCE SECTIONS, THE TOPS OF THE POSTS SHALL BE SECURED TOGETHER WITH WIRE.
7. THE FENCE SHALL BE CONSTRUCTED ALONG THE CONTOUR AS MUCH AS POSSIBLE.
8. ENDS OF FENCES SHALL BE EXTENDED UP THE SLOPE TO PRVENT RUNOFF FROM MIGRATING AROUND THE END OF THE FENCE.
9. INSPECTION OF THE FENCE SHALL BE PERFORMED WEEKLY, OR IMMEDIATELY AFTER A RAIN EVENT, OR WHEN BULGES APPEAR IN THE FENCE. ACCUMALTED SILT SHALL NOT BE ALLOWED TO EXCEED HALF THE HEIGHT OF THE FABRIC. REPAIR AND OR REPLACMENT OF DAMAGED FENCE SHALL BE COMPLETED PROMPTLY.
10. ACCUMULATED SILT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED SITE IN SUCH A MANNER THAT IT WILL NOT CONTRIBUTE TO OFF-SITE SILTATION.
11. ALL FENCING SHALL BE REMOVED WITH THE CONSTRUCTION SITE IS FULLY STABLIZED SO AS TO NOT IMPEDE STORM FLOW OR DRAINAGE.
12. PRE-FRABRICATED UNITS DO NOT REQUIRE THE USE OF WOVEN WIRE FENCE.

GENERAL CONSTRUCTION NOTES

A. THE CONTRACTOR WILL BE HELD SOLELY RESPONSIBLE FOR DAMAGES OCCURRING TO ANY PROPERTY DURING THE CONSTRUCTION OF THIS PROJECT. SAID CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT PROPERTY DAMAGE.

B. IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL SOLELY AND COMPLETELY BE RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND WILL NOT BE LIMITED TO NORMAL WORKING HOURS.

C. THE DUTY OF THE LOCAL UTILITY PROVIDER TO CONDUCT CONSTRUCTION INSPECTION REVIEWS OF THE CONTRACTOR'S PERFORMANCE IS NOT AN INSPECTION OR REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES IN, ON, OR NEAR THE CONSTRUCTION SITE.

D. ALL WATER AND SEWER IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST REVISION TO THE LOCAL PROVIDER'S WATER AND WASTEWATER (SANITARY SEWER) STANDARD SPECIFICATIONS.

E. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF ALL UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH PROPOSED IMPROVEMENTS SHOWN ON THE PLAN.

F. CONTRACTOR IS TO REMOVE AND DISPOSE OF ALL DEBRIS, RUBBISH, AND OTHER MATERIALS RESULTING FROM PREVIOUS AND CURRENT DEMOLITION OPERATIONS. DISPOSAL WILL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND/OR FEDERAL REGULATIONS GOVERNING SUCH OPERATIONS.

G. PRIOR TO INSTALLATION OF ANY UTILITIES, THE CONTRACTOR IS TO EXCAVATE, VERIFY AND CALCULATE ALL CROSSINGS AND INFORM ANY AND ALL UTILITIES OF ANY CONFLICTS PRIOR TO CONSTRUCTION.

H. CONSTRUCTION SHALL NOT START ON ANY WATER UTILITY TIE-INS UNTIL APPROVAL IS GIVEN BY THE LOCAL UTILITY PROVIDER. SAID CONTRACTOR SHALL NOT OPERATE ANY VALVE, HYDRANT, OR WATER UTILITY APPURTENANCE NOR SHALL HE ATTACH TO OR TAP ANY WATER UTILITY MAIN WITHOUT APPROVAL. THE CONTRACTOR SHALL BEAR THE COST AND CONSEQUENCE OF ANY DISRUPTION OF UTILITY OPERATION CAUSED BY CONSTRUCTION.

I. FIBER OPTIC CABLE ON AND/OR ADJACENT TO THIS SITE WERE NOT LOCATED BY THE SURVEY AND ARE NOT SHOWN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ANY FIBER OPTIC CABLES ASSOCIATED WITH THIS SITE AND TAKE ALL NECESSARY AND REQUIRED PRECAUTIONS TO PROTECT ANY EXISTING FIBER OPTIC CABLES. CONTRACTORS SHALL COORDINATE ALL EFFORTS WITH OWNER OF FIBER OPTIC CABLES OR THEIR DESIGNATED REPRESENTATIVE.

J. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING "ONECALL" SERVICE TO MARK ALL UTILITIES PRIOR TO ANY DEMOLITION, EARTHWORK, OR UTILITY WORK ON THIS SITE.

N

0 50'

1" = 50'-0"

PHILLIP LEWIS ENGINEERING, INC.
Structural + Civil Consultants
23620 Interstate 30 | Bryant, Arkansas
PH: 501-350-9840

REVISION:

BRYANT SEMINARY
HIGHWAY 5
BRYANT, ARKANSAS

PROJECT NUMBER:

SHEET ISSUE DATE:
10-09-2024

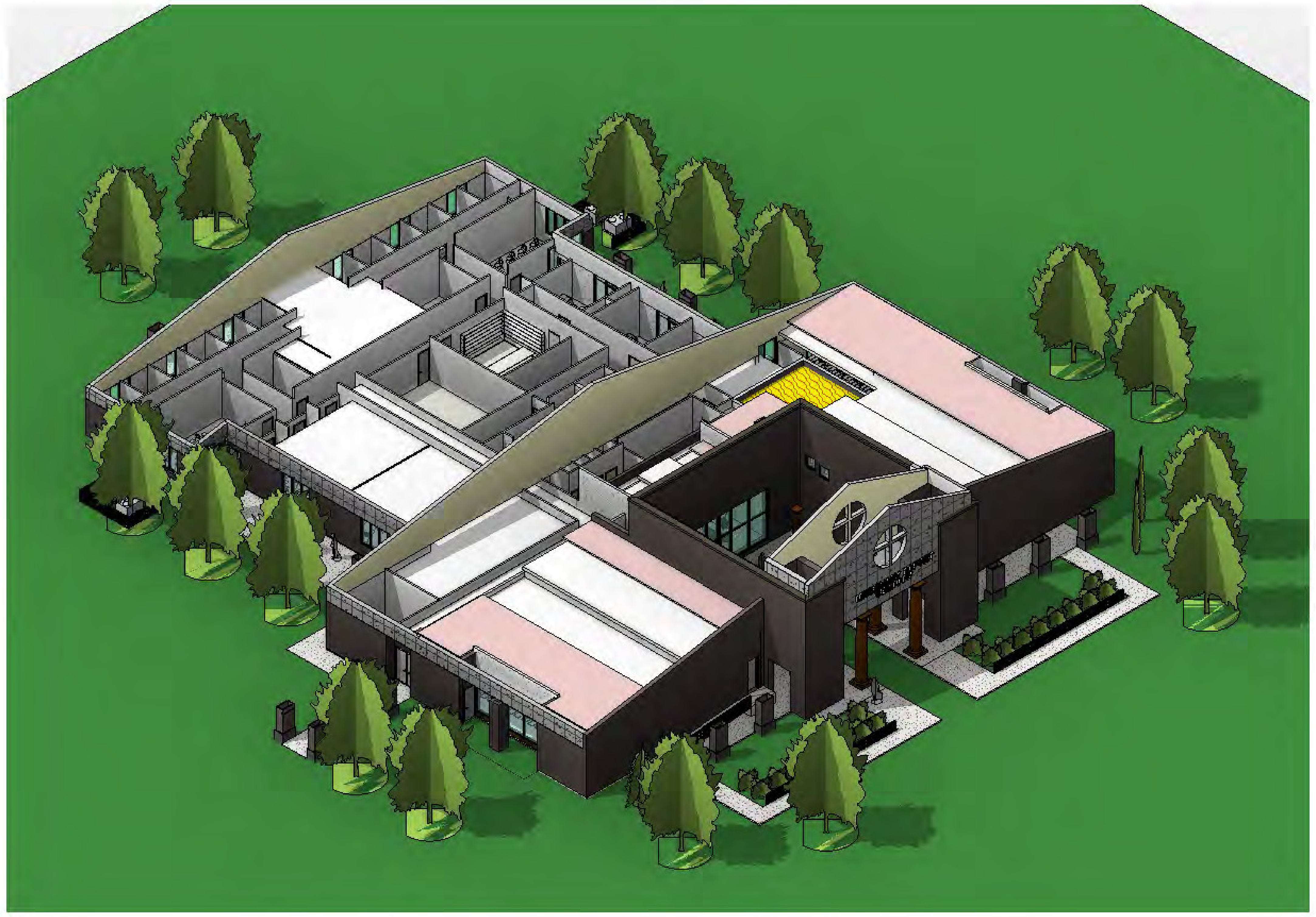
PAGE TITLE:
SWPPP DETAILS

SHEET NUMBER:
C1.15

1 3D-ISO-REAR-2

2 3D-ISO-FRONT-2

3 3D-ISO-NO ROOF



4 3D-ISO-NO ROOF -2

THE DRAINGS ON THS SHEET ARE PROVIDED FOR GENERAL CONCEPT OVERVIEW ONLY AND ARE NOT INTENDED TO BE ACCURATE OR COMPLETE - PLEASE SEE APPROPRIATE DETAIL SHEETS FOR MORE DETAILED AND DIMENSIONED INFORMATION. DO NOT USE THESE DRAINGS FOR SPECIFIC CONSTRUCTION DETAILS

REVISIONS	NO.	DATE
	NO.	
	NO.	
	NO.	
	NO.	
	NO.	
	NO.	

andrew hicks | architect

AHA

600 N Mission Blvd
Fayetteville, Arkansas 72701

m - 501.680.0789
o - 479.332.5050
www.andrewhicksarchitect.com

ANDREW HICKS ARCHITECT INC
REGISTERED ARCHITECT
NO. C-250
8/11/2024
ARKANSAS

A NEW SEMINARY FACILITY
AND RELATED SITE WORK
FOR
MISSIONARY BAPTIST SEMINARY

BRYANT, ARKANSAS 72022

3D VIEWS -ISO

ARCHITECT OF RECORD
ANDREW HICKS, ARCHITECT INC

ISSUE DATE: 8/11/2024

AA-1

2 3DP-EXT-FRONT-2

3 3DP-EXT-COURT-4

8 3DP-EXT-FRONT-1

6 3DP-EXT-FRONT-3

1 3DP-EXT-FRONT-5

REVISIONS							
NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.
DATE							

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600 N Mission Blvd
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ANDREW HICKS ARCHITECT INC
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ARKANSAS

A NEW SEMINARY FACILITY

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FOR
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3D VIEWS

ARCHITECT OF RECORD
ANDREW HICKS, ARCHITECT INC

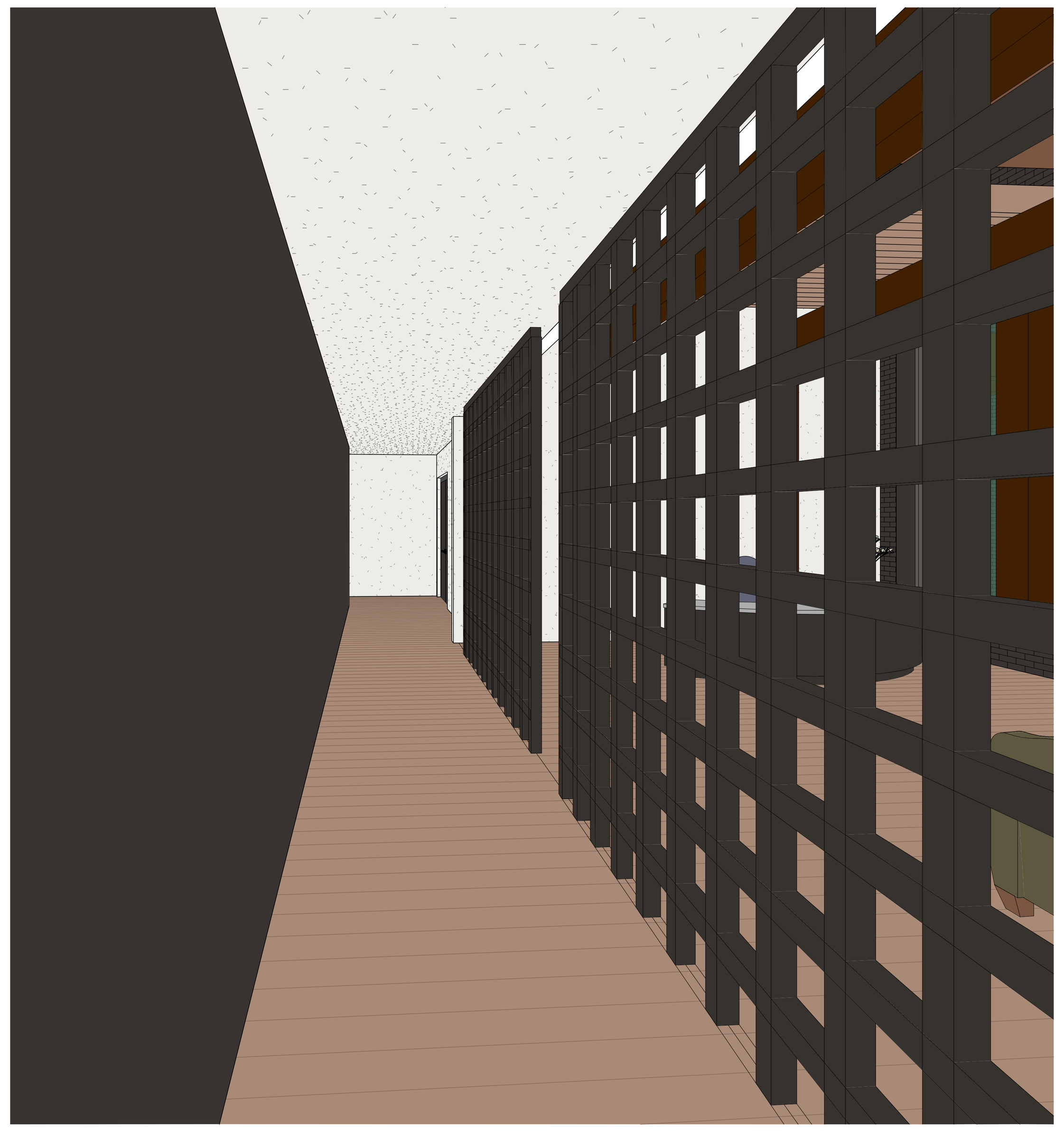
ISSUE DATE: 8/11/2024

AA-2

2 3DP-EXT-REAR-2

1 3DP-EXT-COURT-1

3 3DP-INT-LOBBY-5



4 3DP-INT-LOBBY-1

REVISIONS	NO.	DATE	NO.	NO.	NO.	NO.	NO.	NO.

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ANDREW HICKS ARCHITECT INC
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NO. C-250
8/11/2024
ARKANSAS

A NEW SEMINARY FACILITY
AND RELATED SITE WORK
FOR
MISSIONARY BAPTIST SEMINARY
BRYANT, ARKANSAS 72022

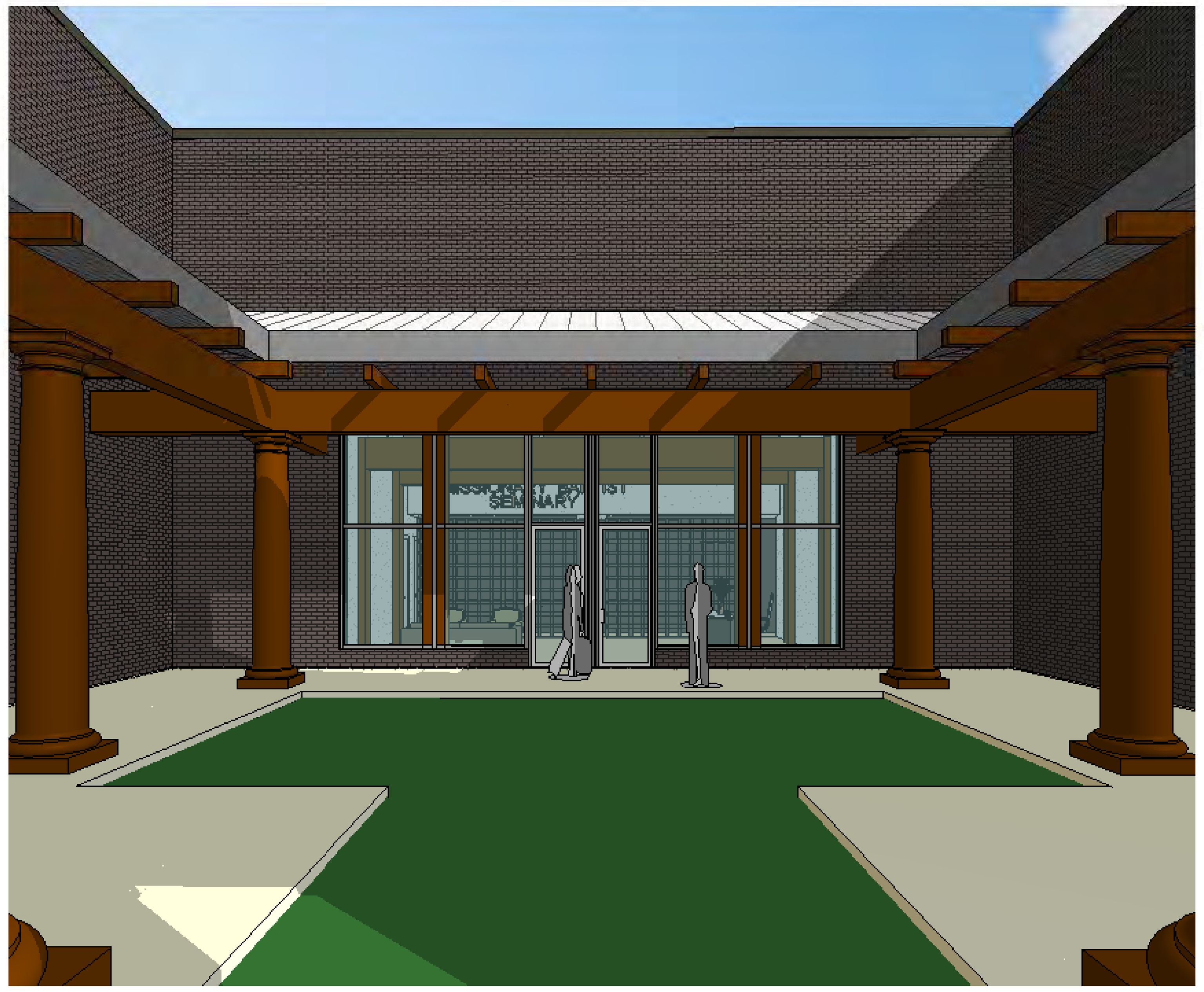
3D VIEWS

ARCHITECT OF RECORD
ANDREW HICKS, ARCHITECT INC

ISSUE DATE: 8/11/2024

AA-3

2 3DP-INT-LOBBY-2



1 3DP-INT-LOBBY-4

4 3DP-EXT-COURT-2

REVISIONS	NO.	DATE
	NO.	
	NO.	
	NO.	
	NO.	
	NO.	
	NO.	

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www.andrewhicksarchitect.com

ANDREW HICKS ARCHITECT INC. REGISTERED ARCHITECT NO. C-250 8/11/2024 ARKANSAS

A NEW SEMINARY FACILITY
AND RELATED SITE WORK
FOR
MISSIONARY BAPTIST SEMINARY
BRYANT, ARKANSAS 72022

3D VIEWS-INTERIOR

ARCHITECT OF RECORD
ANDREW HICKS, ARCHITECT INC

ISSUE DATE: 8/11/2024

AA-4

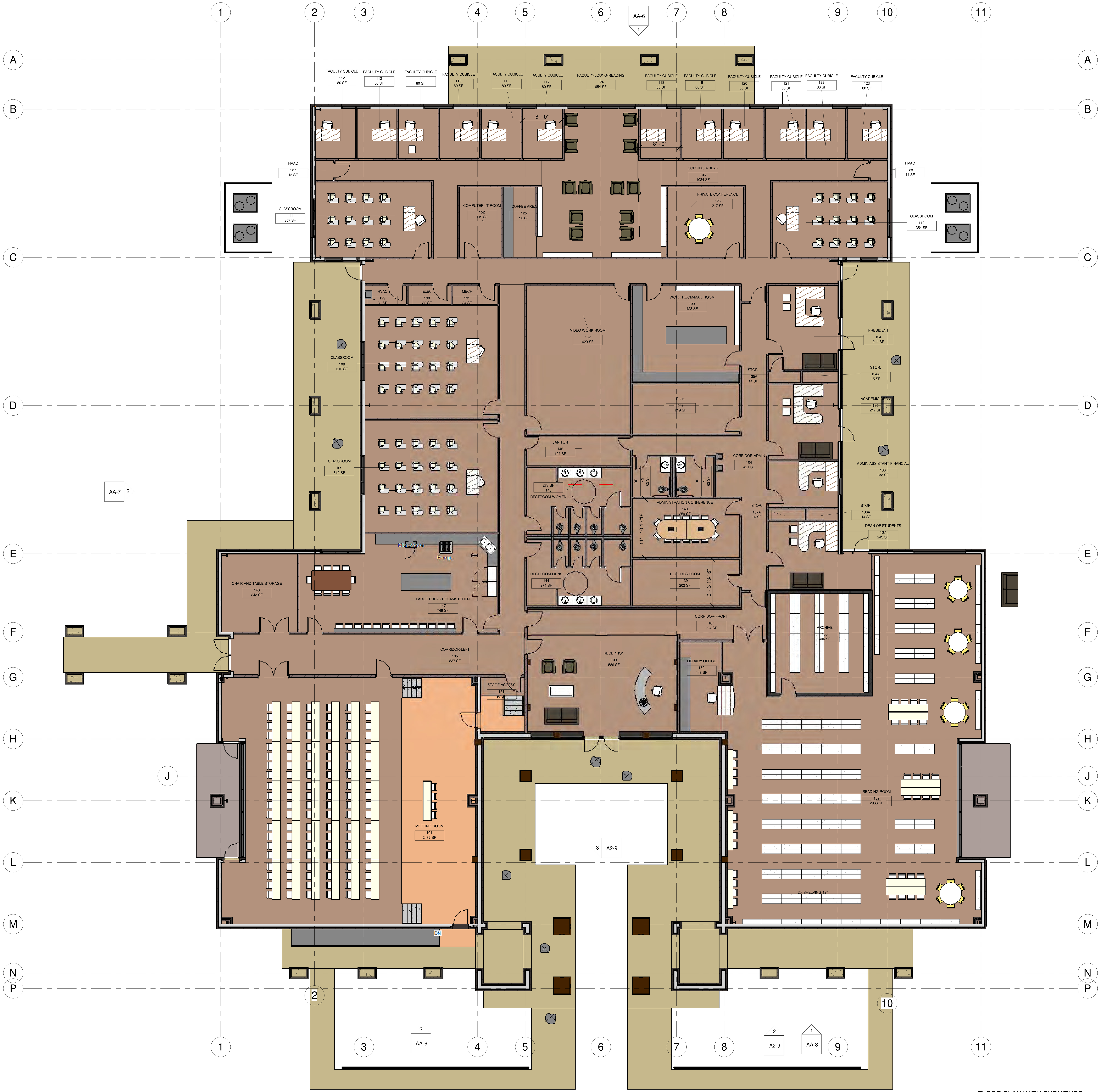
ROOM AREA SCHEDULE

ROOM NO.	ROOM NAME	Area	COMMENTS
100	RECEPTION	586 SF	
101	MEETING ROOM	2432 SF	
102	READING ROOM	2966 SF	
103	ARCHIVE	404 SF	
104	CORRIDOR-ADMIN	421 SF	
105	CORRIDOR-LEFT	837 SF	
106	CORRIDOR-REAR	1024 SF	
107	CORRIDOR-FRONT	284 SF	
108	CLASSROOM	612 SF	
109	CLASSROOM	612 SF	
110	CLASSROOM	354 SF	
111	CLASSROOM	357 SF	
112	FACULTY CUBICLE	80 SF	
113	FACULTY CUBICLE	80 SF	
114	FACULTY CUBICLE	80 SF	
115	FACULTY CUBICLE	80 SF	
116	FACULTY CUBICLE	80 SF	
117	FACULTY CUBICLE	80 SF	
118	FACULTY CUBICLE	80 SF	
119	FACULTY CUBICLE	80 SF	
120	FACULTY CUBICLE	80 SF	
121	FACULTY CUBICLE	80 SF	
122	FACULTY CUBICLE	80 SF	
123	FACULTY CUBICLE	80 SF	
124	FACULTY-LOUNG-READING	654 SF	
125	COFFEE AREA	93 SF	
126	PRIVATE CONFERENCE	217 SF	
127	HVAC	15 SF	
128	HVAC	14 SF	
129	HVAC	31 SF	
130	ELEC	32 SF	
131	MECH	34 SF	
132	VIDEO WORK ROOM	629 SF	
133	WORK ROOM/MAIL ROOM	423 SF	
134	PRESIDENT	244 SF	
134A	STOR.	15 SF	
135	ACADEMIC DEAN	217 SF	
135A	STOR.	14 SF	
136	ADMIN ASSISTANT-FINANCIAL	132 SF	
136A	STOR.	14 SF	
137	DEAN OF STUDENTS	243 SF	
137A	STOR.	16 SF	
139	RECORDS ROOM	202 SF	
140	ADMINISTRATION CONFERENCE	259 SF	
141	RR	62 SF	
142	RR	62 SF	
143	Room	219 SF	
144	RESTROOM-MENS	274 SF	
145	RESTROOM-WOMEN	278 SF	
146	JANITOR	127 SF	
147	LARGE BREAK ROOM/KITCHEN	746 SF	
148	CHAIR AND TABLE STORAGE	242 SF	
150	LIBRARY OFFICE	148 SF	
151	STAGE ACCESS	97 SF	
152	COMPUTER I/T ROOM	119 SF	

Grand total: 55

COMPARITIVE NUMBERS

TOTAL NEW BUILDING AREA	= 19,382 SF	APROXIMATE EXISTING BUILDING	=25,900 SF
NEW LIBRARY	= 2,966 SF	EXISTING LIBRARY	= 2,790 SF
NEW ARCHIVE	= 404 SF	EXISTING ARCHIVE	= 300 SF
NEW SHELVING	= 512 LIN FT	EXISTING SHELVES	= 464 LIN FT
NEW FACULTY LOUNGE	= 654 SF	EXISTING FACULTY LOUNGE	= 504 SF
NEW WORK ROOM	= 423 SF	EXISTING WORK ROOM	= 414 SF



1 FLOOR PLAN WITH FURNITURE
1/8" = 1'-0"

8/11/2024

ARCHITECT OF RECORD
ANDREW F. HICKS

A NEW SEMINARY FACILITY
AND RELATED SITE WORK
FOR
MISSIONARY BAPTIST SEMINARY
BRYANT, ARKANSAS 72022

andrew hicks | architect
AHA
600 N Mission Blvd
Fayetteville, Arkansas 72701
479-332-5050
501.219.1614
www.andrewhicksarchitect.com

ISSUE DATE: 8/11/2024

REVISIONS

NO.	DATE
NO.	
NO.	
NO.	
NO.	
NO.	
NO.	

FLOOR PLAN- FURNITURE

AA-5

(2) FRONT ELEVATION
3/16" = 1'-0"

(1) REAR ELEVATION
3/16" = 1'-0"

REVISIONS	NO.	NO.	NO.	NO.	NO.	NO.	NO.
DATE							

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600 N Mission Blvd
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m - 501.680.0789
o - 479.332.5050
www.andrewhicksarchitect.com

ANDREW HICKS ARCHITECT INC. REGISTERED ARCHITECT NO. C-250 ARKANSAS
8/11/2024

A NEW SEMINARY FACILITY
AND RELATED SITE WORK
FOR
MISSIONARY BAPTIST SEMINARY
BRYANT, ARKANSAS 72022

EXTERIOR ELEVATIONS

ARCHITECT OF RECORD
ANDREW HICKS, ARCHITECT INC

ISSUE DATE: 8/11/2024

AA-6

1 SIDE ELEVATION-RIGHT
3/16" = 1'-0"

2 SIDE ELEVATION-LEFT
3/16" = 1'-0"

REVISIONS

NO.	NO.	NO.	NO.	NO.	NO.	NO.
DATE						

andrew hicks | architect
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600 N Mission Blvd
Fayetteville, Arkansas 72701
m - 501.680.0789
o - 479.332.5050
www.andrewhicksarchitect.com

ANDREW HICKS ARCHITECT INC
REGISTERED ARCHITECT
NO. C-250
8/11/2024
ARKANSAS

A NEW SEMINARY FACILITY
AND RELATED SITE WORK
FOR
MISSIONARY BAPTIST SEMINARY

BRYANT, ARKANSAS 72022

EXTERIOR ELEVATIONS

ARCHITECT OF RECORD
ANDREW HICKS, ARCHITECT INC

ISSUE DATE: 8/11/2024

AA-7

1 ENLARGED ENTRY ELEVATION
3/8" = 1'-0"

REVISIONS

NO.	NO.	NO.	NO.	NO.	NO.	NO.
DATE						

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600 N Mission Blvd
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ANDREW HICKS ARCHITECT INC
REGISTERED ARCHITECT
NO. C-250
8/11/2024
ARKANSAS

A NEW SEMINARY FACILITY
AND RELATED SITE WORK
FOR
MISSIONARY BAPTIST SEMINARY

BRYANT, ARKANSAS 72022

EXTERIOR ELEVATIONS

ARCHITECT OF RECORD
ANDREW HICKS, ARCHITECT INC

ISSUE DATE: 8/11/2024

AA-8


Window World®
AMERICA'S EXTERIOR REMODELER℠


A
SIERRA

City of Bryant, Arkansas
Community Development
210 SW 3rd Street Bryant, AR 72022
501-943-0943

SIGN PERMIT APPLICATION

Applicants are advised to read the Sign Ordinance prior to completing and signing this form. The Sign Ordinance is available at www.cityofbryant.com under the Planning and Community Development tab.

Note: Electrical Permits may be Required, Please contact the Community Development Office for more information.

Date: 9/18/2024

Sign Co. or Sign Owner

Name L Graphics
Address 701 N. Reynolds Rd
City, State, Zip Bryant, AR 72022
Phone (501) 653-4444
Email Address Joe@LGraphix.com

Property Owner

Name Bart Furguson
Address 307 progress Dr Ste. 700-800
City, State, Zip Bryant, AR 72022
Phone (501) 840-2282
Email Address bFerg620@Gmail.Com

GENERAL INFORMATION

Name of Business Willow + Grace Boutique

Address/Location of sign 307 progress drive Ste 700-800

Zoning Classification ______

Please use following page to provide details on the signs requesting approval. Along with information provided on this application, **a Site Plan showing placement of sign(s) and any existing sign(s) on the property is** required to be submitted. **Renderings of the sign(s) showing the correct dimensions is also** **required** to be submitted with the application. A thirty-five dollar ($35) per sign payment will be collected at the time of permit issuance. According to the Sign Ordinance a fee for and sign variance or special sign permit request shall be one hundred dollars ($100). Additional documentation may be required by Sign Administrator.

READ CAREFULLY BEFORE SIGNING

I Joe Lam, do hereby certify that all information contained within this application is true and correct. I fully understand that the terms of the Sign Ordinance supersede the Sign Administrator's approval and that all signs must fully comply with all terms of the Sign Ordinance regardless of approval. I further certify that the proposed sign is authorized by the owner of the property and that I am authorized by the property owner to make this application. I understand that no sign may be placed in public right of way. I understand that I must comply with all Building and Electrical Codes and that it is my responsibility to obtain all necessary permits.

Use table below to enter information regarding each sign for approval. Please use each letter to reference each sign rendering.

SIGN	Type (Façade, Pole, Monument, other)	Dimensions (Height, Length, Width)	Sqft (Measured in whole as rectangle)	Height of Sign (Measured from lot surface)		Column for Admin Certifying Approval
				Top of Sign	Bottom of Sign	
A	Wall sign	72" X 74"	36	19	13	
B						
C						
E						
F						
G						


40 feet
307
Ste 800
307
Ste 700
WG
Willow + Grace
Boutique

City of Bryant, Arkansas
Community Development
210 SW 3rd Street Bryant, AR 72022
501-943-0943

SIGN PERMIT APPLICATION

Applicants are advised to read the Sign Ordinance prior to completing and signing this form. The Sign Ordinance is available at www.cityofbryant.com under the Planning and Community Development tab.

Note: Electrical Permits may be Required, Please contact the Community Development Office for more information.

Date: 10/1/2024

Sign Co. or Sign Owner

Name L Graphics
Address 701 N. Reynolds Rd
City, State, Zip Bryant, AR 72022
Phone (501) 653-4444
Email Address Joe@LGraphix.com

Property Owner

Name John A. Rees
Address 5313 Hwy 5
City, State, Zip Bryant, AR 72022
Phone (501) 519-7337
Email Address Jarees@reescommercial.com

GENERAL INFORMATION

Name of Business Bryant Mail and Print Center
Address/Location of sign 5313 Hwy 5 Ste 305 - Bryant, AR 72022
Zoning Classification ____________

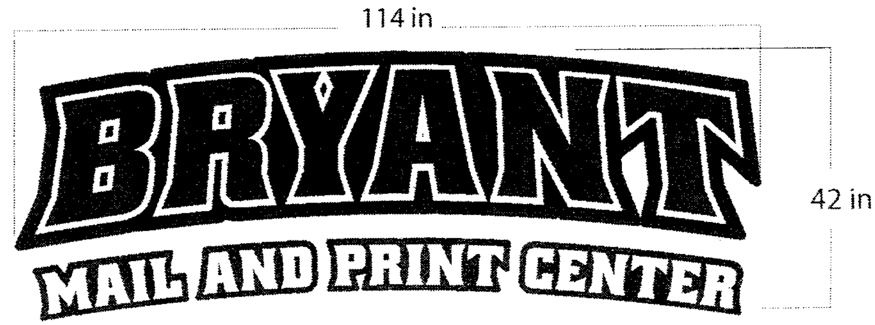
Please use following page to provide details on the signs requesting approval. Along with information provided on this application, a **Site Plan showing placement of sign(s) and any existing sign(s) on the property is required** to be submitted. **Renderings of the sign(s) showing the correct dimensions is also required** to be submitted with the application. A thirty-five dollar ($35) per sign payment will be collected at the time of permit issuance. According to the Sign Ordinance a fee for and sign variance or special sign permit request shall be one hundred dollars ($100). Additional documentation may be required by Sign Administrator.

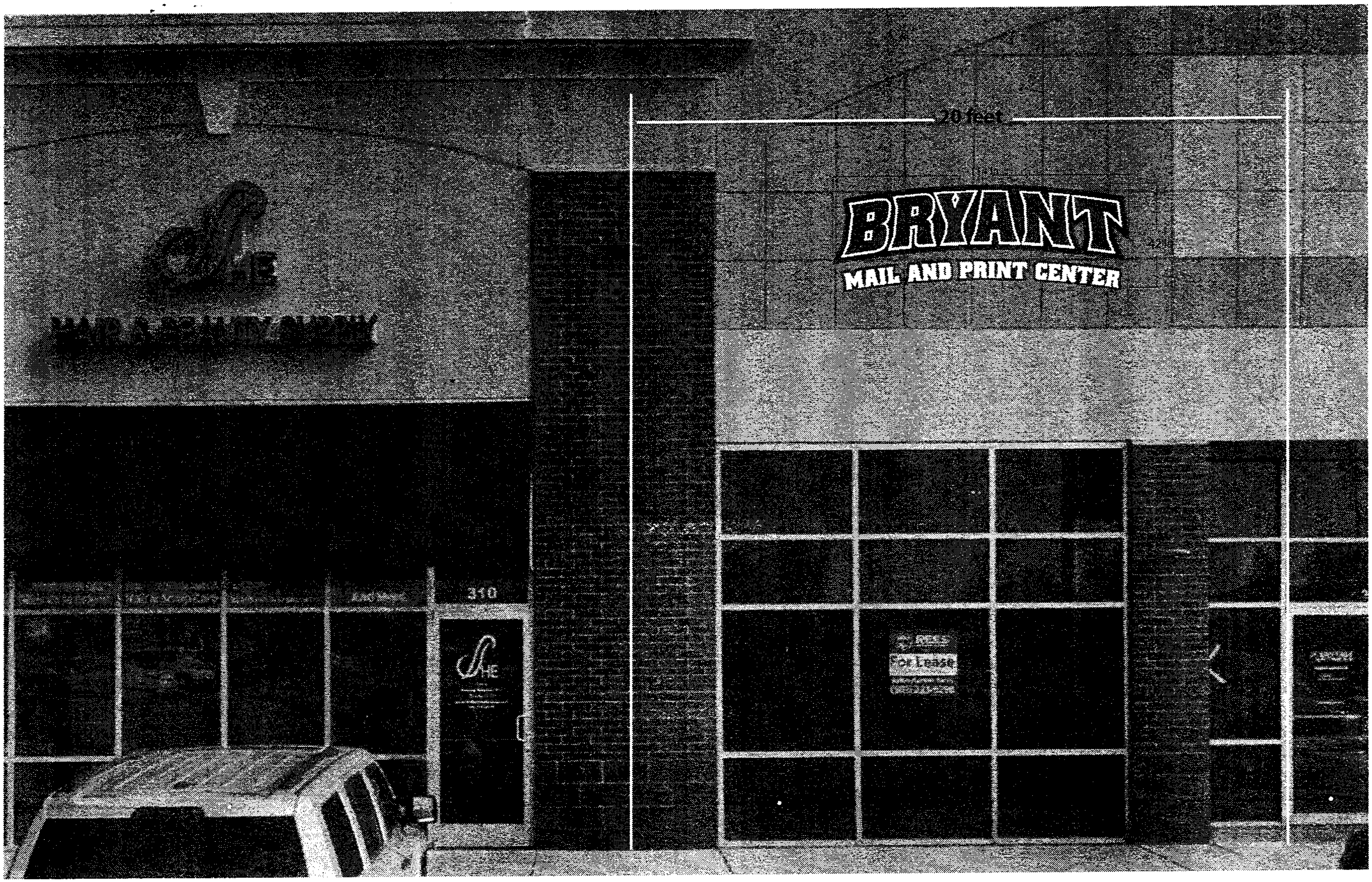
READ CAREFULLY BEFORE SIGNING

I Joe Lam, do hereby certify that all information contained within this application is true and correct. I fully understand that the terms of the Sign Ordinance supersede the Sign Administrator's approval and that all signs must fully comply with all terms of the Sign Ordinance regardless of approval. I further certify that the proposed sign is authorized by the owner of the property and that I am authorized by the property owner to make this application. I understand that no sign may be placed in public right of way. I understand that I must comply with all Building and Electrical Codes and that it is my responsibility to obtain all necessary permits.

Use table below to enter information regarding each sign for approval. Please use each letter to reference each sign rendering.

SIGN	Type (Façade, Pole, Monument, other)	Dimensions (Height, Length, Width)	Sqft (Measured in whole as rectangle)	Height of Sign (Measured from lot surface)		Column for Admin Certifying Approval
				Top of Sign	Bottom of Sign	
A	Wall signs	114" X 42"	33.6	20	16.5	
B						
C						
E						
F						
G						


114 in
BRYANT
MAIL AND PRINT CENTER
42 in


20 feet
BRYANT
MAIL AND PRINT CENTER
310
For Lease

City of Bryant, Arkansas
Community Development
210 SW 3rd Street Bryant, AR 72022
501-943-0943

Conditional Use Permit Application

Applicants are advised to read the Conditional Use Permit section of Bryant Zoning Code prior to completing and signing this form. The Zoning Code is available at www.cityofbryant.com under the Planning and Community Development tab.

Date: 10/20/2024

Applicant or Designee:

Name Steven Wise
Address 104 RICH ST
Phone (501)350-1410
Email Address: steven.wise@lrsd.org

Project Location:

Property Address 104 RICH STREET
BRYANT, AR 72022
Parcel Number ____
Zoning Classification ____

Property Owner (If different from Applicant):

Name SAME
Phone ____
Address ____
Email Address ____

Additional Information:

Legal Description (Attach description if necessary)
104 RICH ST

Description of Conditional Use Request (Attach any necessary drawings or images)
Installation of awning to cover RV & Boat (see attached)

Proposed/Current Use of Property RESIDENTAL

Application Checklist

Requirements for Submission

- ☐ Letter stating request of Conditional Use and reasoning for request
- ☐ Completed Conditional Use Permit Application
- ☐ Submit Conditional Use Permit Application Fee ($125)
- ☐ Submit Copy of completed Public Notice
- ☐ Publication: Public Notice shall be published at least one (1) time fifteen (15) days prior to the public hearing at which the variance will be heard. Once published please provide a proof of publication to the Community Development office.
- ☐ Posting of Property: The city shall provide a sign to post on the property involved for the fifteen (15) consecutive days leading up to Public hearing. One (1) sign is required for every two hundred (200) feet of street frontage.
- ☐ Submit eight (8) Copies of the Development Plan (Site Plan) showing:
    - Location, size, and use of buildings/signs/land or improvements
    - Location, size, and arrangement of driveways and parking. Ingress/Egress
    - Existing topography and proposed grading
    - Proposed and existing lighting
    - Proposed landscaping and screening
    - Use of adjacent properties
    - Scale, North Arrow, Vicinity Map
    - Additional information that may be requested by the administrative official due to unique conditions of the site.

Once the application is received, the material will be reviewed to make sure all the required information is provided. The applicant will be notified if additional information is required. The application will then go before the Development and Review Committee (DRC) for a recommendation to the Planning Commission. A public hearing will be held at this meeting for comments on the Conditional Use. After the public hearing, the Planning Commission will make a decision on the use.

Note: that this is not an exhaustive guideline regarding the Conditional Use Permit Process. Additional information is available in the Bryant Zoning Ordinance.

READ CAREFULLY BEFORE SIGNING

I Steven Wise, do hereby certify that all information contained within this application is true and correct. I further certify that the owner of the property authorizes this proposed application. I understand that I must comply with all City Codes and that it is my responsibility to obtain all necessary permits required.

TO:

City of Bryant, Arkansas

FROM:

Steven Wise, EdD

104 Rich Street

Bryant, Arkansas 72022

(501) 350-1410

steven.wise@lrsd.org

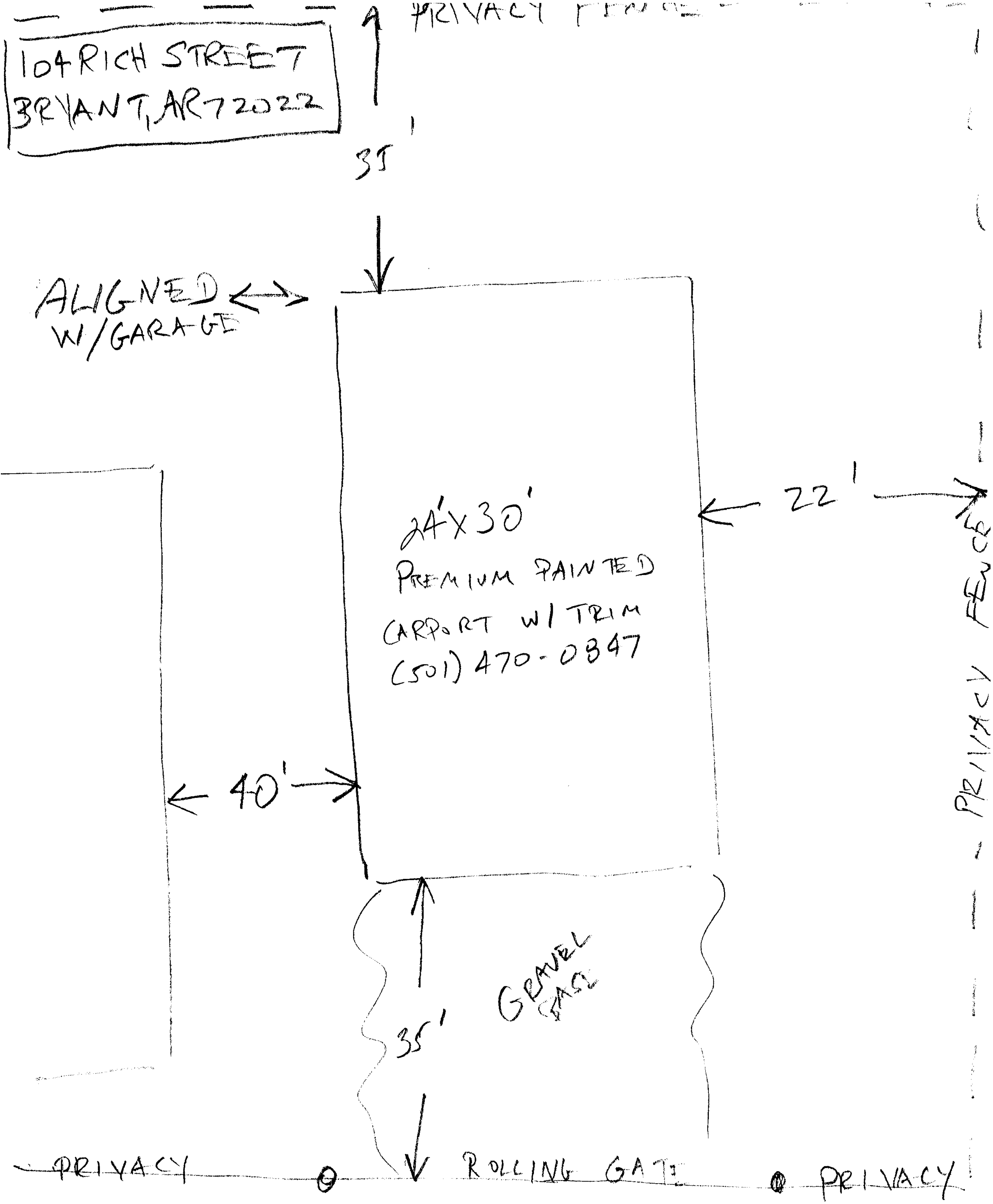
RE: Conditional Use Permit Application

Please seriously consider the attached permit for a high quality accessory structure to cover and protect my 30 ft travel trailer and boat from damages. My previous travel trailer was destroyed by falling limbs from my neighbor's large trees. I am relocating my new trailer to behind my privacy fence and installing an aesthetically pleasing awning matching the color of my house to protect my investment. I am scheduled for a major upgrade to my house in the next month and I am dedicated to improving the properties along Rich Street. Please help me keep the Heart of Bryant beating.

Thank you.

Steven Wise

Lifetime Resident



PRIVACY
104 RICH STREET
BRYANT, AR 72022
35'
ALIGNED W/GARAGE
24'X30'
PREMIUM PAINTED
CARPORT W/ TRIM
(501) 470-0847
22'
PRIVACY FENCE
40'
GRAVEL BASE
35'
PRIVACY
ROLLING GATE
PRIVACY

104 Rich Street

Bryant, Arkansas 72022

Owner: Steven Wise

104 Rich Street

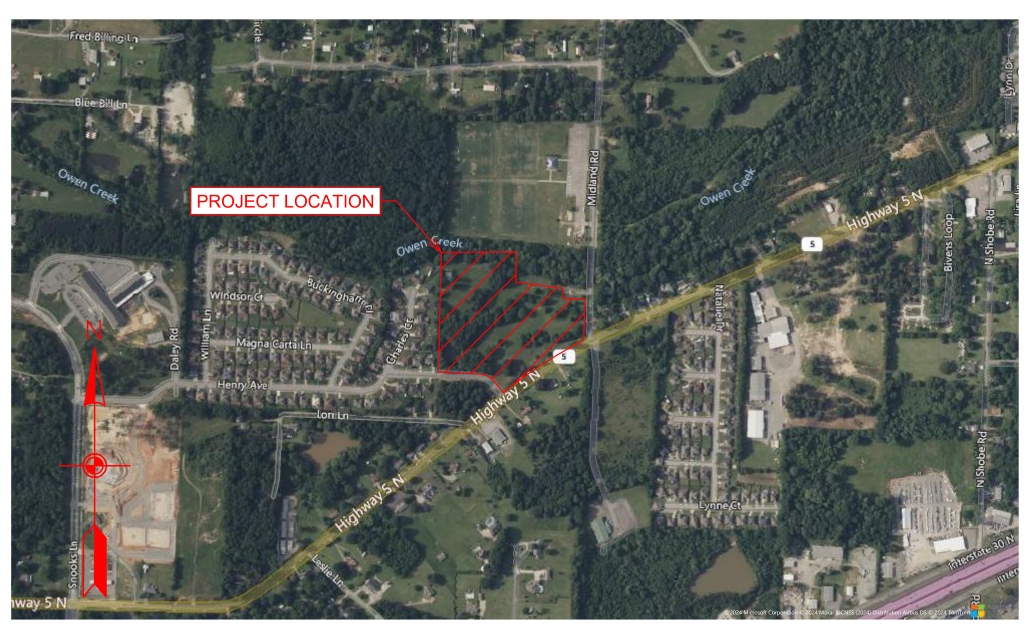
Bryant, Arkansas 72022

Owner: Steven Wise

	GAS METER		STORM DRAIN MANHOLE		ASPHALT
	WATER METER		SEWER CLEANOUT		CONCRETE
	GUY WIRE	N	NORTH		SET 1/2" REBAR w/ CAP #1853
	POWER/UTILITY POLE	S	SOUTH		SET COTTON-PICKER SPINDLE
	TELEPHONE PEDESTAL	E	EAST		FOUND MONUMENT (DESC. NOTED)
	SEWER MANHOLE	W	WEST		COMPUTED CORNER (NOT SET)
	WATER VALVE	(M)	AS MEASURED	A#	CORRESPONDS TO DRAWING NOTE
	FIRE HYDRANT	(D)	PER DEED		
	SIGNS	(R)	RECORDED		
	LIGHT POLE	R/W	RIGHT-OF-WAY		
	TELEPHONE MANHOLE	L.A.	LANDSCAPED AREA		
SS	SANITARY SEWER LINE	CR4	CAPPED 1/2" REBAR		
W	WATER LINE	CONC.	CONCRETE		
	STORM SEWER PIPE	P.O.C.	POINT OF COMMENCEMENT		
	ROADWAY CENTERLINE	P.O.B.	POINT OF BEGINNING		
	UTILITY EASEMENT	CMP	CORRUGATED METAL PIPE		
	BUILDING SETBACK LINE	RCP	REINFORCED CONCRETE PIPE		
R/W	ROADWAY RIGHT-OF-WAY	ESMT	EASEMENT		
OHE	OVERHEAD ELECTRIC LINES	HDPE	HIGH DENSITY POLYETHYLENE		
UGT	UNDERGROUND TELEPHONE	SUBD	SUBDIVISION		
G	UNDERGROUND GAS	FDC	FIRE DEPARTMENT CONNECTION		
F.O.	UNDERGROUND FIBER OPTIC	CPS	COTTON PICKER SPINDLE		
		P5	5/8" PIPE		

SHEET INDEX

SHEET NUMBER	SHEET TITLE
C1.0	COVER SHEET
C1.1	OVERALL SITE PLAN
C1.2	SITE PLAN
C1.3	SITE DETAILS
C1.4	GRADING PLAN
C1.5	STORM SEWER PLAN
C1.6	STORM SEWER PROFILE
C1.7	UTILITY PLAN
C1.8	SANITARY SEWER PROFILE
C1.9	UTILITY DETAILS
C1.10	UTILITY DETAILS
C1.11	PRE DRAINAGE MAP
C1.12	POST DRAINAGE MAP
C1.13	LANDSCAPE PLAN
C1.14	STORM WATER POLLUTION PREVENTION PLAN
C1.15	SWPPP DETAILS
AA-1	3D VIEWS -ISO
AA-2	3D VIEWS
AA-3	3D VIEWS
AA-4	3D VIEWS-INTERIOR
AA-5	FLOOR PLAN- FURNITURE
AA-6	EXTERIOR ELEVATIONS
AA-7	EXTERIOR ELEVATIONS
AA-8	EXTERIOR ELEVATIONS



Vicinity Map

SCALE 1" = 1000'

BRYANT SEMINARY

HIGHWAY 5
BRYANT, AR

GENERAL CONSTRUCTION NOTES

A. THE CONTRACTOR WILL BE HELD SOLELY RESPONSIBLE FOR DAMAGES OCCURRING TO ANY PROPERTY DURING THE CONSTRUCTION OF THIS PROJECT. SAID CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT PROPERTY DAMAGE.

B. IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL SOLELY AND COMPLETELY BE RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND WILL NOT BE LIMITED TO NORMAL WORKING HOURS.

C. THE DUTY OF THE LOCAL UTILITY PROVIDER TO CONDUCT CONSTRUCTION INSPECTION REVIEWS OF THE CONTRACTOR'S PERFORMANCE IS NOT AN INSPECTION OR REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES IN, ON, OR NEAR THE CONSTRUCTION SITE.

D. ALL WATER AND SEWER IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST REVISION TO THE LOCAL PROVIDER'S WATER AND WASTEWATER (SANITARY SEWER) STANDARD SPECIFICATIONS.

E. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF ALL UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH PROPOSED IMPROVEMENTS SHOWN ON THE PLAN.

F. CONTRACTOR IS TO REMOVE AND DISPOSE OF ALL DEBRIS, RUBBISH, AND OTHER MATERIALS RESULTING FROM PREVIOUS AND CURRENT DEMOLITION OPERATIONS. DISPOSAL WILL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND/OR FEDERAL REGULATIONS GOVERNING SUCH OPERATIONS.

G. PRIOR TO INSTALLATION OF ANY UTILITIES, THE CONTRACTOR IS TO EXCAVATE, VERIFY AND CALCULATE ALL CROSSINGS AND INFORM ANY AND ALL UTILITIES OF ANY CONFLICTS PRIOR TO CONSTRUCTION.

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J. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING "ONECALL" SERVICE TO MARK ALL UTILITIES PRIOR TO ANY DEMOLITION, EARTHWORK, OR UTILITY WORK ON THIS SITE.

811 Know what's below. Call before you dig.

DEVIATIONS/VARIANCES

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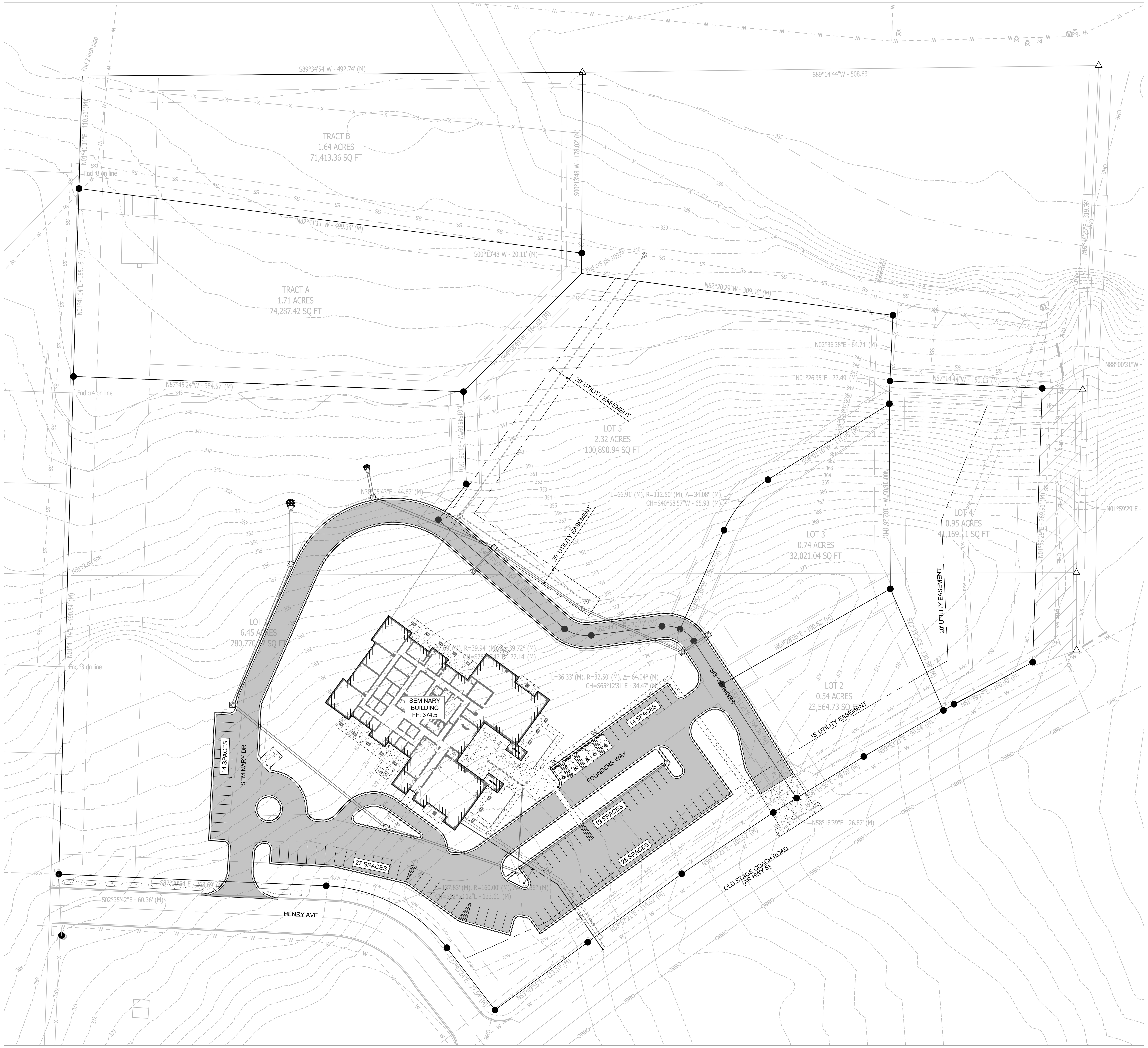

SITE LAYOUT PLAN

SCALE 1" = 50'

ADDITIONAL UTILITY EASEMENTS SHOWN ON THIS PLAN WILL BE GRANTED INDEPENTLY OR INCLUDED IN A FUTURE REPLAT PRIOR TO ANY CERTIFICATE OF OCCUPANCY

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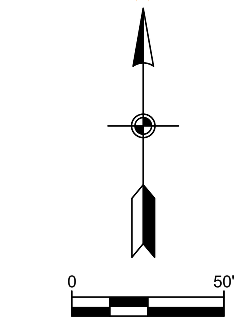

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REVISION:

BRYANT SEMINARY
HIGHWAY 5
BRYANT, ARKANSAS

CERTIFICATE OF AUTHORIZATION
PHILLIP LEWIS ENGINEERING, INC.
No. 566
ARKANSAS ENGINEER

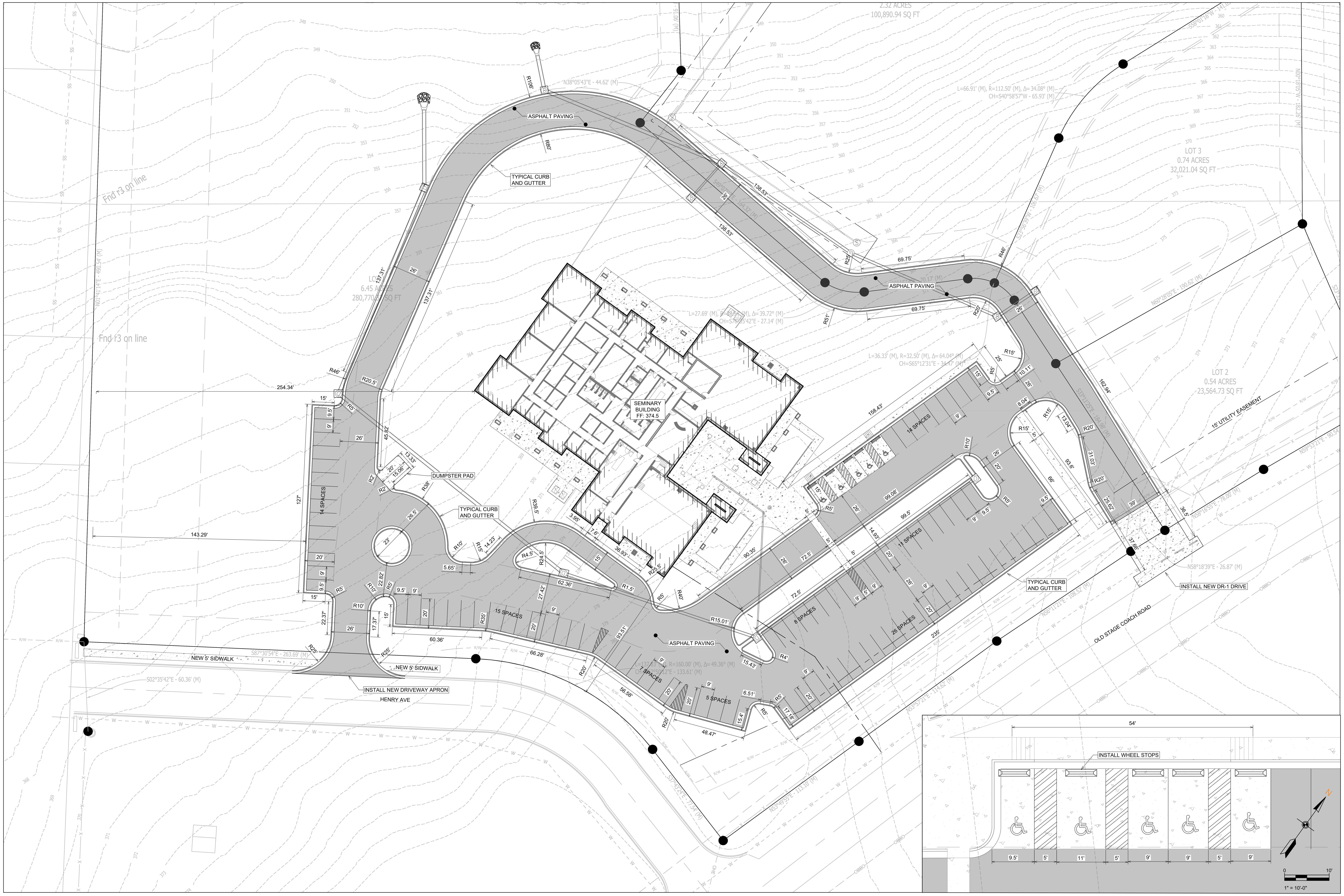
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9540
PHILLIP A. LEWIS

PROJECT NUMBER:

SHEET ISSUE DATE:
11-12-2024

PAGE TITLE:
OVERALL SITE PLAN

SHEET NUMBER:
C1.1



SITE PLAN

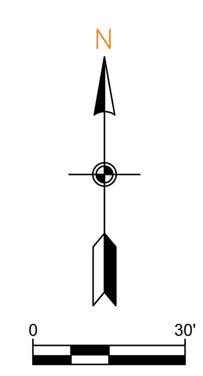
SCALE 1" = 30'

ADA PARKING STALLS

SCALE 1" = 10'

GENERAL SITE NOTES

1. TOTAL NEW DEVELOPMENT AREA = (+/-) 4.96 ACRES
2. PROPERTY IS ZONED C-2
3. 100 PARKING SPACES PROVIDED INCLUDING 5 ADA ACCESSIBLE PARKING SPACES
4. ALL DIMENSIONS ARE TO THE BACK OF CURB AND/OR EDGE OF PAVEMENT
5. DAMAGE TO PUBLIC AND PRIVATE PROPERTY DUE TO HAULING OPERATIONS OR OPERATIONS OF CONSTRUCTION RELATED EQUIPMENT FROM A CONSTRUCTION SITE SHALL BE REPAIRED BY THE THE RESPONSIBLE PARTY PRIOR TO THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY.
6. REPAIR, REPLACE, OR EXTEND EXISTING DAMAGED OR MISSING CURB AND GUTTER, SIDEWALK OR RAMPS WITHIN THE PUBLIC RIGHT OF WAY.
7. ALL SIGNAGE, PAVEMENT MARKING AND PARKING LOT STRIPING SHALL CONFORM TO REQUIREMENTS GIVEN IN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). MUTCD REQUIRES THAT PARKING SPACES BE MARKED IN WHITE.
8. ALL MECHANICAL EQUIPMENT WILL NEED TO BE SCREENED TO MEET THE CITY OF BRYANT COMMERCIAL DESIGN STANDARDS.



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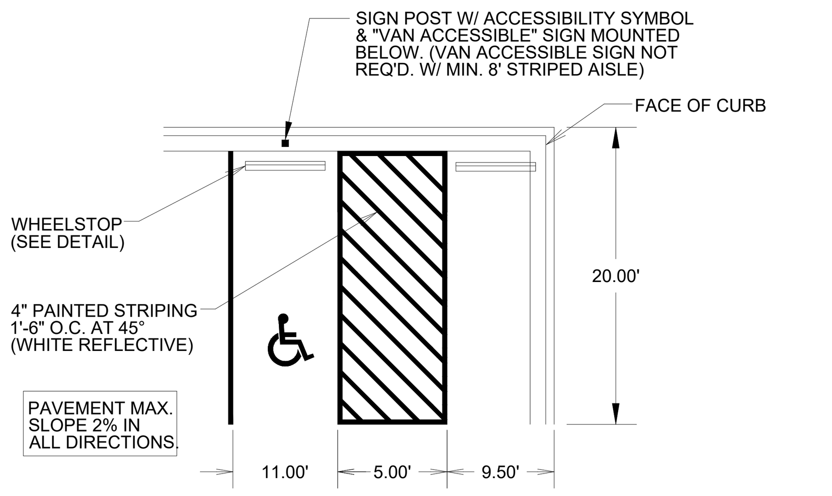
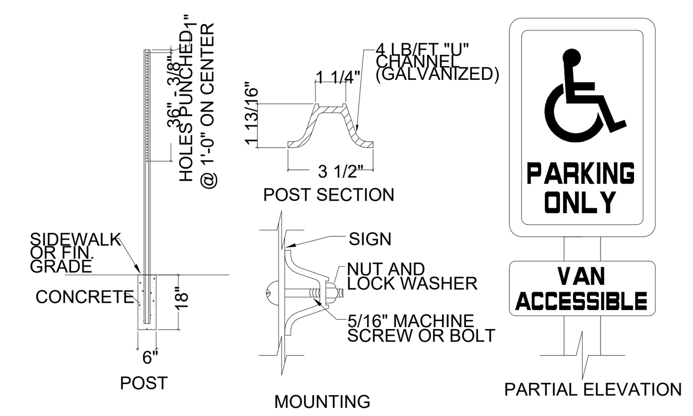
PAGE TITLE:
SITE PLAN

SHEET NUMBER:
C1.2



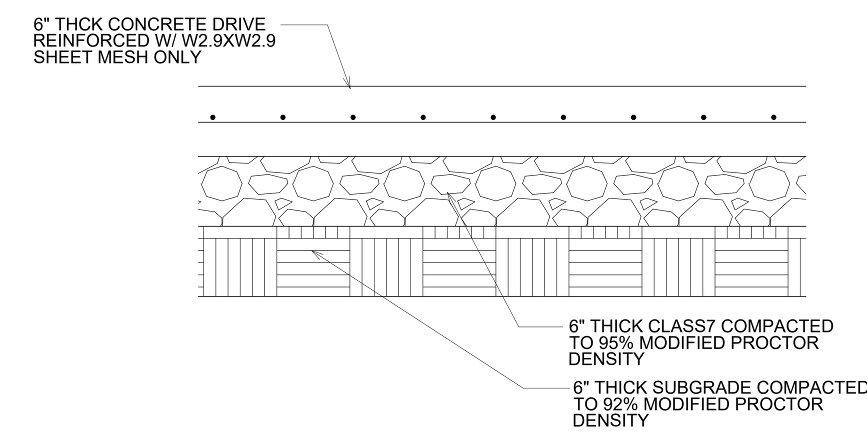
TYPICAL ACCESSIBLE PARKING STALLS



HANDICAP SIGN DETAIL

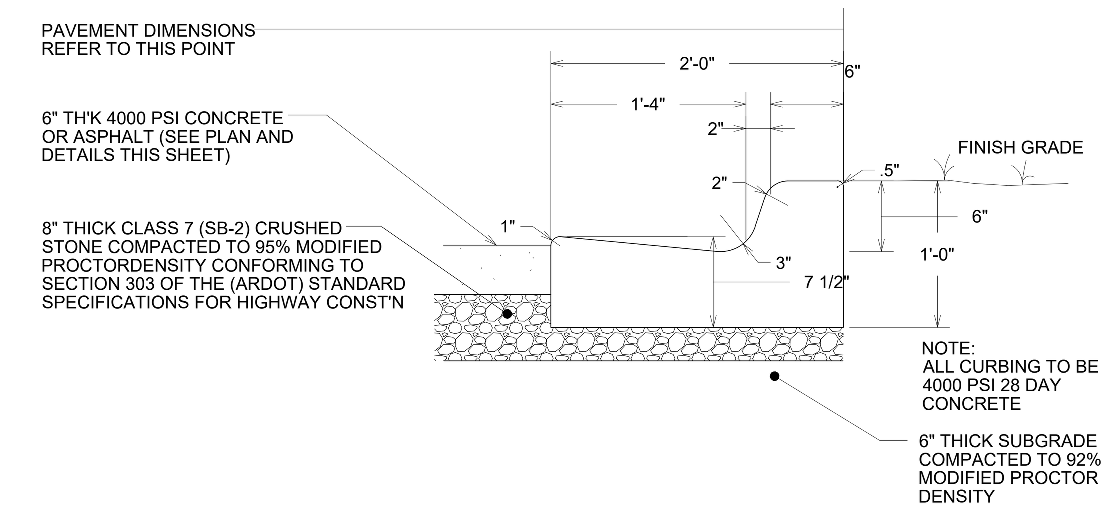
NOT TO SCALE

NOTE:
HANDICAP SIGNAGE SHALL BE IN STRICT COMPLIANCE WITH CURRENT FEDERAL AND LOCAL LAW REQUIREMENTS



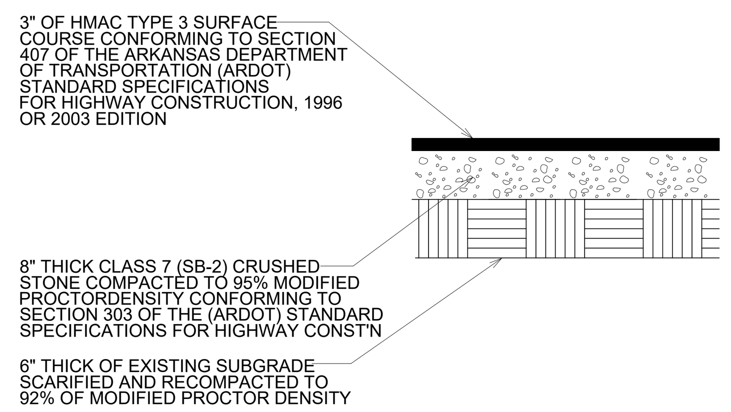
CONCRETE DRIVE SECTION

NOT TO SCALE



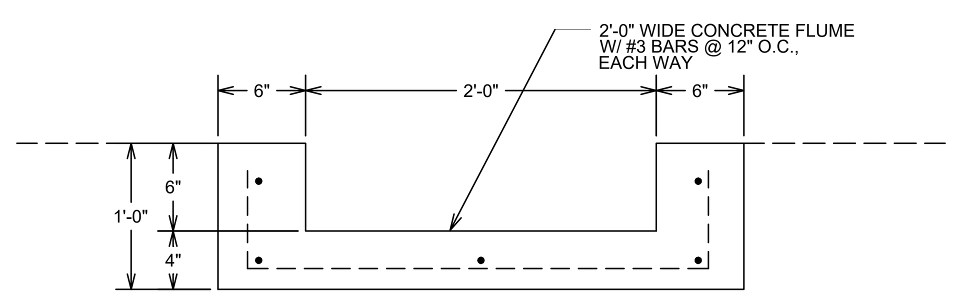
2'-0" CONCRETE CURB & GUTTER

NOT TO SCALE



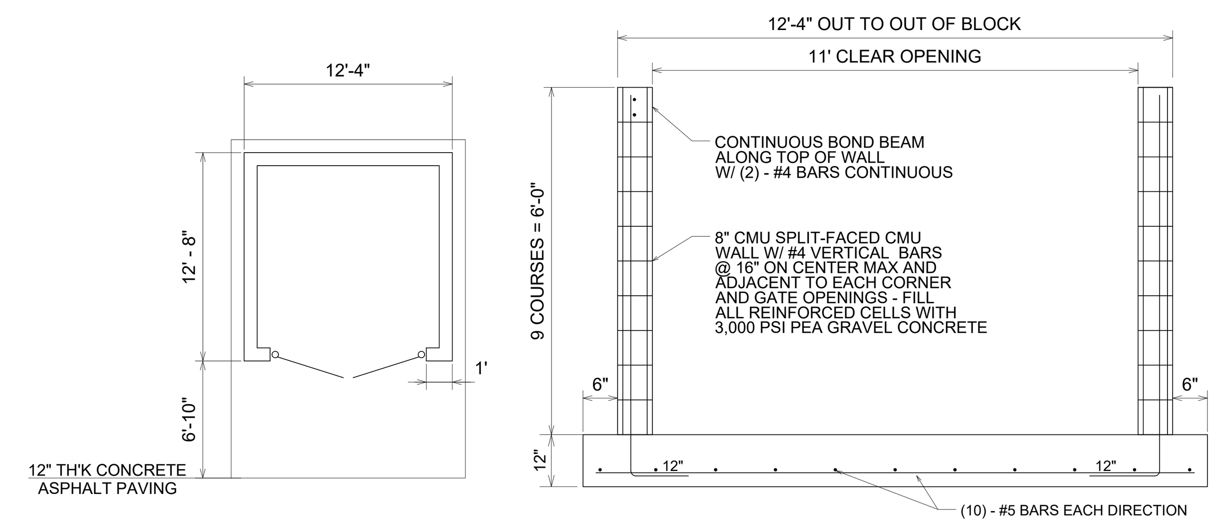
HMAC ASPHALT SURFACE COURSE

NOT TO SCALE



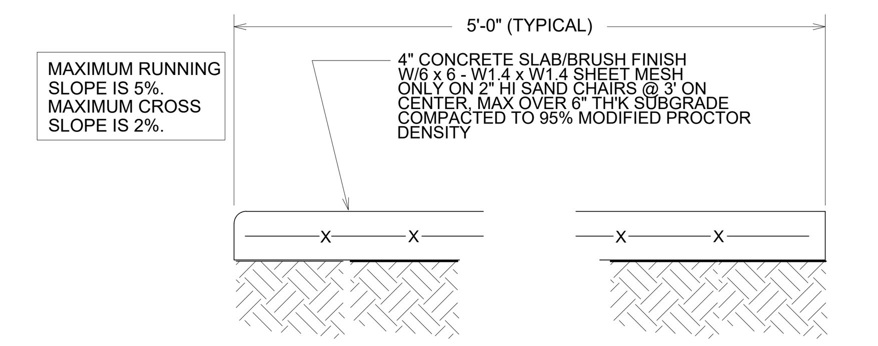
CONCRETE FLUME DETAIL

NOT TO SCALE



DUMPSTER PAD/ENCLOSURE DETAIL

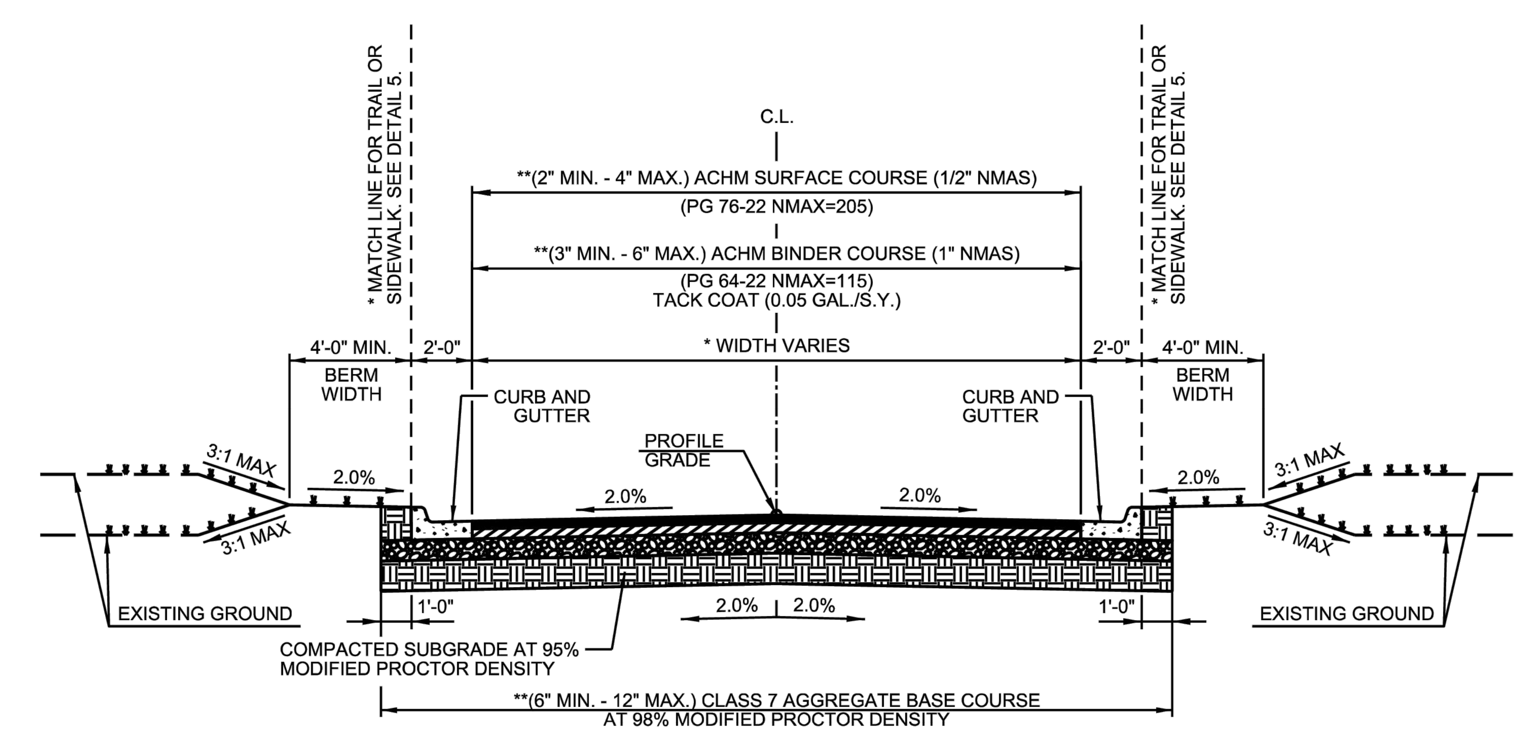
NOT TO SCALE

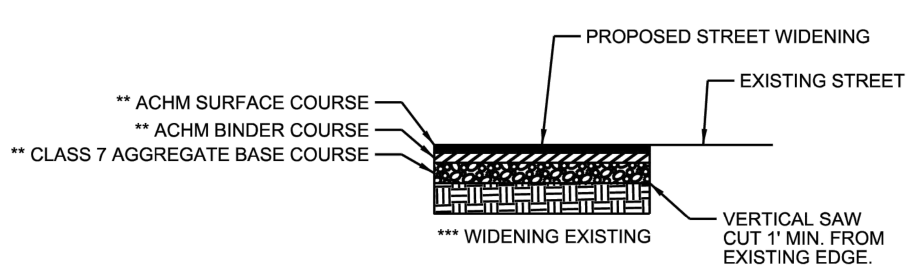


CONCRETE WALK SECTION

NOT TO SCALE

NOTE:
ALL SIDEWALK JOINTS TO BE STEEL TROWELED. ALL JOINT EDGES AND SHALL BE SPACED AT 5 FEET ON CENTER MAXIMUM IN ALL DIRECTIONS AND SHALLBE STEEL TROWELED ON A RADIUS NOT TO EXCEED ONE-HALF INCH.





GENERAL NOTES

1. IN AREAS TO RECEIVE BITUMINOUS PAVING, CONCRETE DRIVEWAYS OR CURB AND GUTTER, SUBGRADE SHALL BE COMPACTED TO A DENSITY NOT LESS THAN 95% OF MAXIMUM MODIFIED DENSITY OBTAINED AT OPTIMUM MOISTURE CONTENT.
2. FOR AREAS OF SUBGRADE PREPARATION TO RECEIVE CONCRETE SIDEWALKS, SUBGRADE SHALL BE COMPACTED TO DENSITY OF 90% MAXIMUM MODIFIED DENSITY.
3. CRUSHED STONE - MATERIAL IN EACH COURSE SHALL BE COMPACTED TO A DENSITY OF 98% MAXIMUM MODIFIED DENSITY.
4. ACHM BASE COURSE (4" MIN. - 12" MAX) (1 1/2" NMAS) MAY BE USED IF INCLUDED IN AN APPROVED PAVEMENT DESIGN.

* CROSS SECTIONS AND RIGHT-OF-WAY SHALL ADHERE TO THE MINIMUM WIDTH REQUIREMENTS SHOWN IN THE CITY OF BRYANT MASTER TRANSPORTATION PLAN. THE DEVELOPMENT REVIEW COMMITTEE SHALL DETERMINE WHICH VERSION OF STREET CLASSIFICATION AND WHAT WIDTHS WILL BE REQUIRED.

** THICKNESS TO BE DETERMINED BY PAVEMENT DESIGN IN ACCORDANCE WITH SECTION 5.0 OF THE MINIMUM STANDARD SPECIFICATIONS FOR STREETS.

*** PAVEMENT RECONSTRUCTION TO CENTERLINE IS REQUIRED WHEN EXISTING STREET DOES NOT MEET THESE STANDARDS.

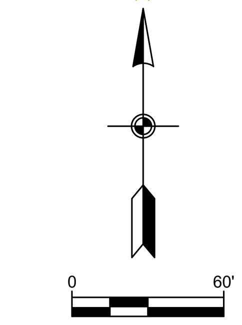
CITY OF BRYANT

TYPICAL SECTION
MINOR ARTERIAL

ISSUE DATE
AUGUST 2021

REVISION DATE

DETAIL 1



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PHILLIP LEWIS ENGINEERING, INC.
No. 566
ARKANSAS ENGINEERS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9540
PHILLIP A. LEWIS

PHILLIP LEWIS ENGINEERING, INC.
Structural + Civil Consultants
23620 Interstate 30 | Bryant, Arkansas
PH: 501-350-9840

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REVISION:

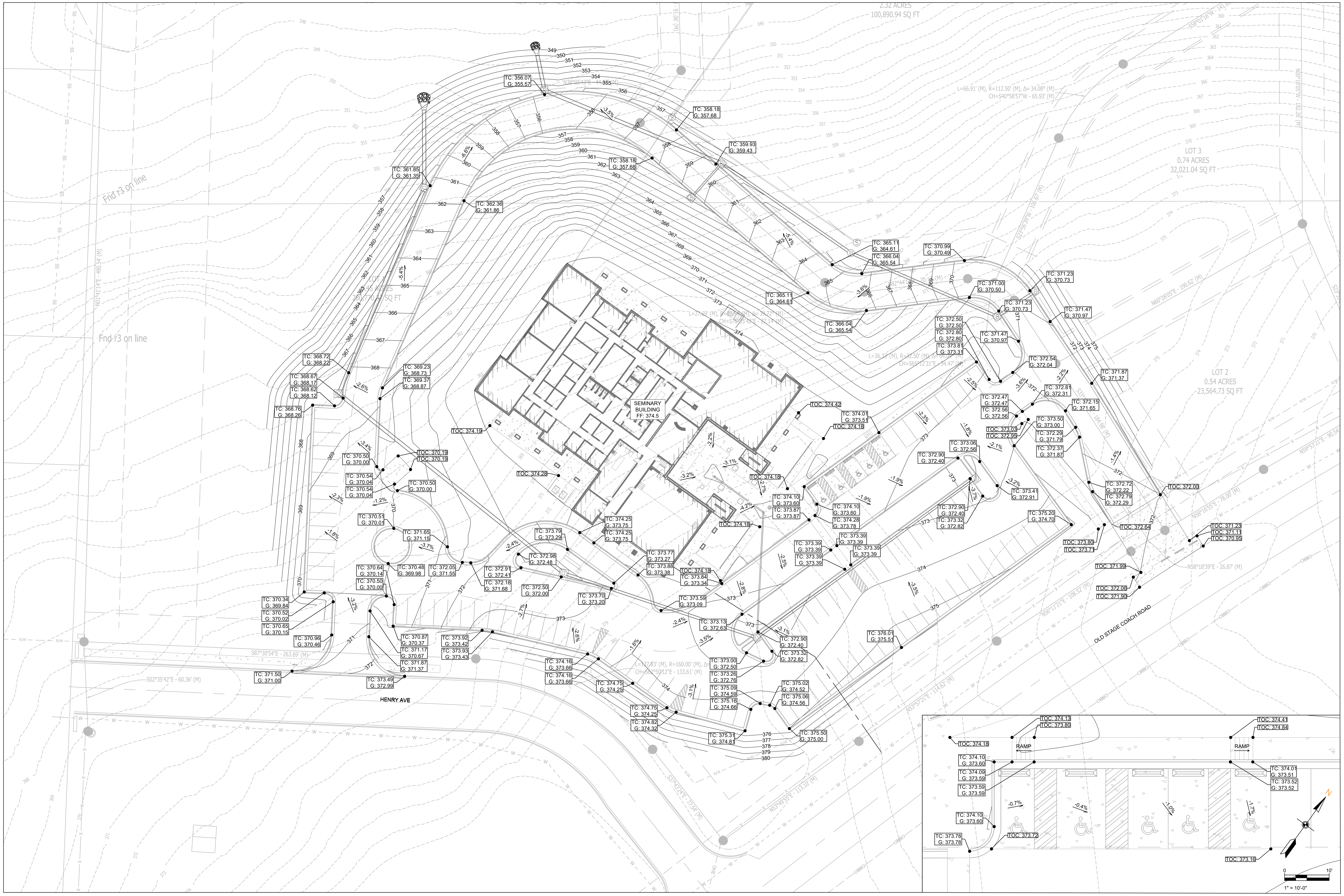
BRYANT SEMINARY
HIGHWAY 5
BRYANT, ARKANSAS

PROJECT NUMBER:

SHEET ISSUE DATE:
11-12-2024

PAGE TITLE:
SITE DETAILS

SHEET NUMBER:
C1.3



GRADING PLAN

SCALE 1" = 30'

TC = TOP OF CURB ELEVATION
G = GUTTER ELEVATION
TOC = TOP OF CONCRETE ELEVATION
FG = FINAL GRADE ELEVATION
TP = TOP OF PAVEMENT ELEVATION
EG = EXISTING GRADE ELEVATION

N

0 30'
1" = 30'-0"

ADA PARKING STALLS

SCALE 1" = 10'

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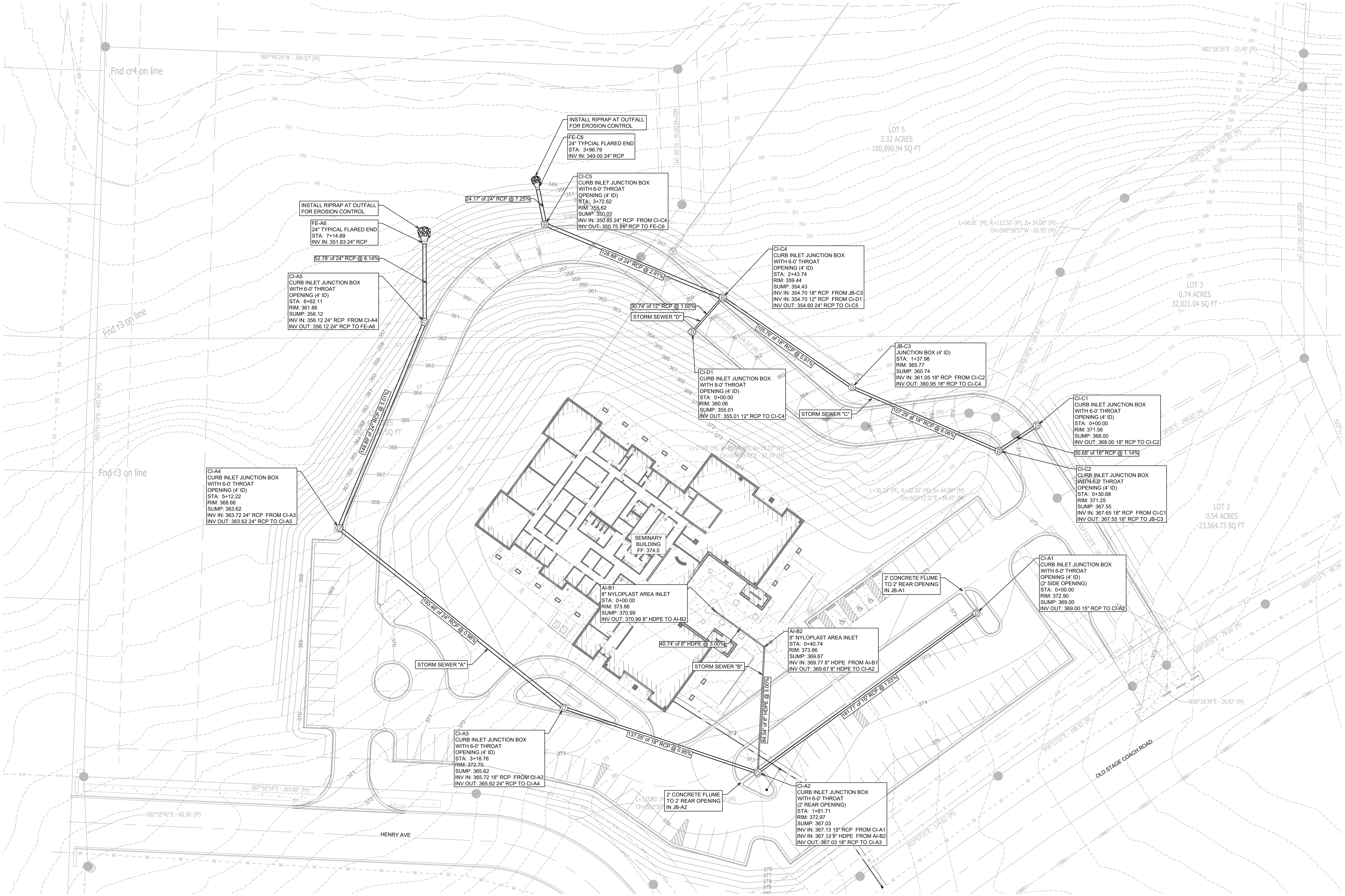
PAGE TITLE:
GRADING PLAN

SHEET NUMBER:
C1.4



STORM SEWER PLAN

SCALE 1" = 30'

N

0 30'

1" = 30'-0"

811
Know what's **below.**
Call before you dig.

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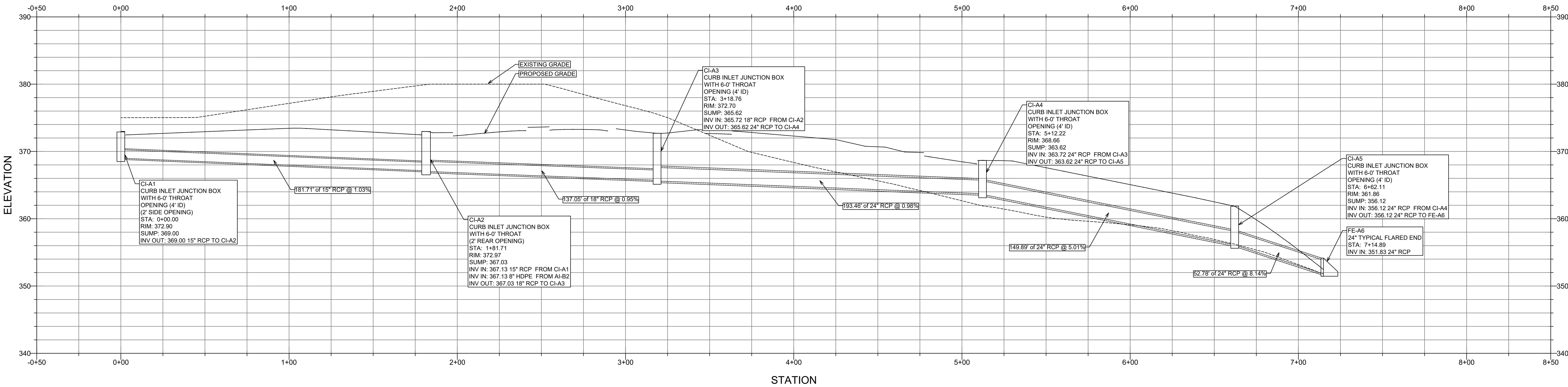
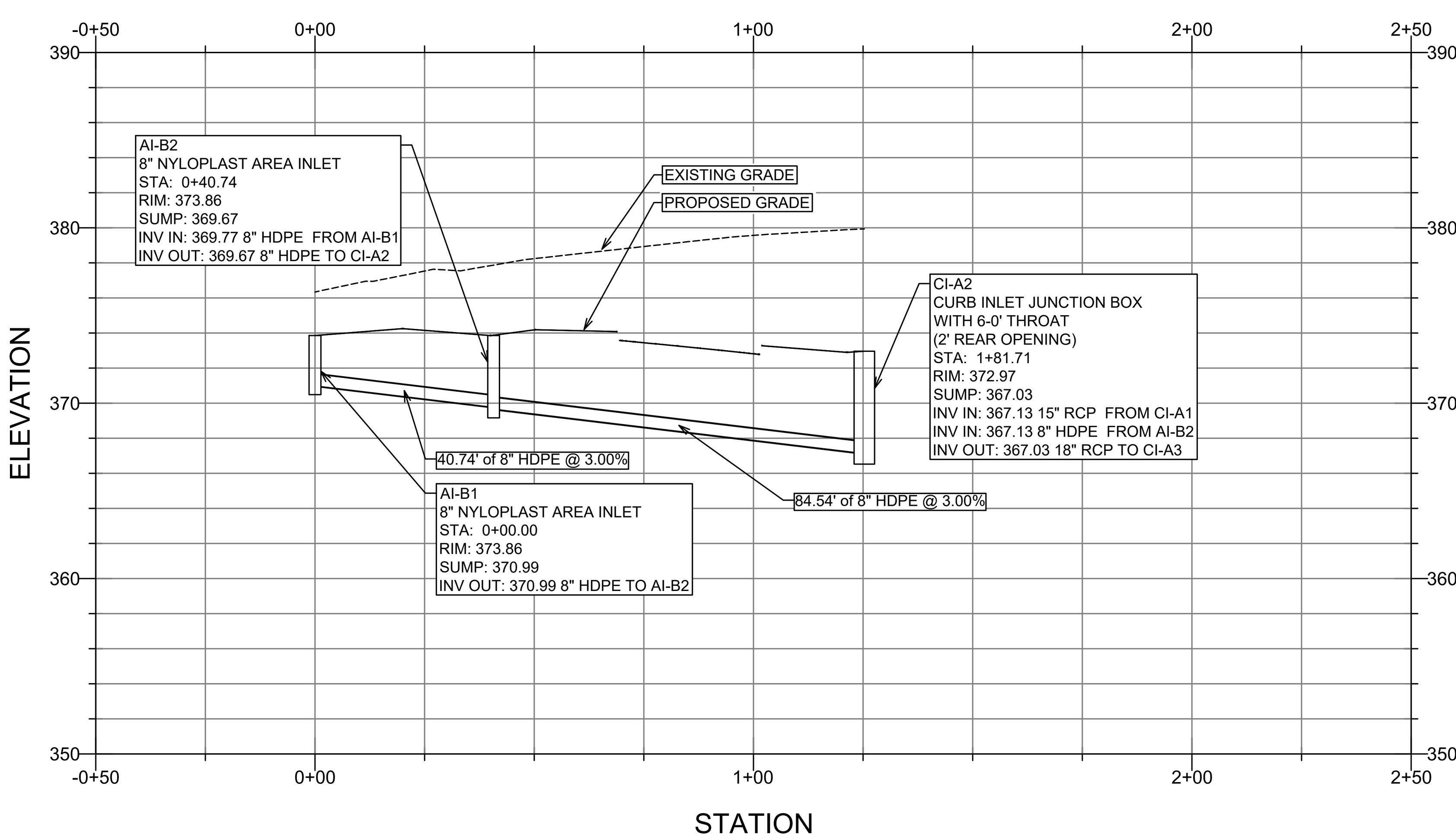
STORM
SEWER PLAN

SHEET NUMBER:
C1.5

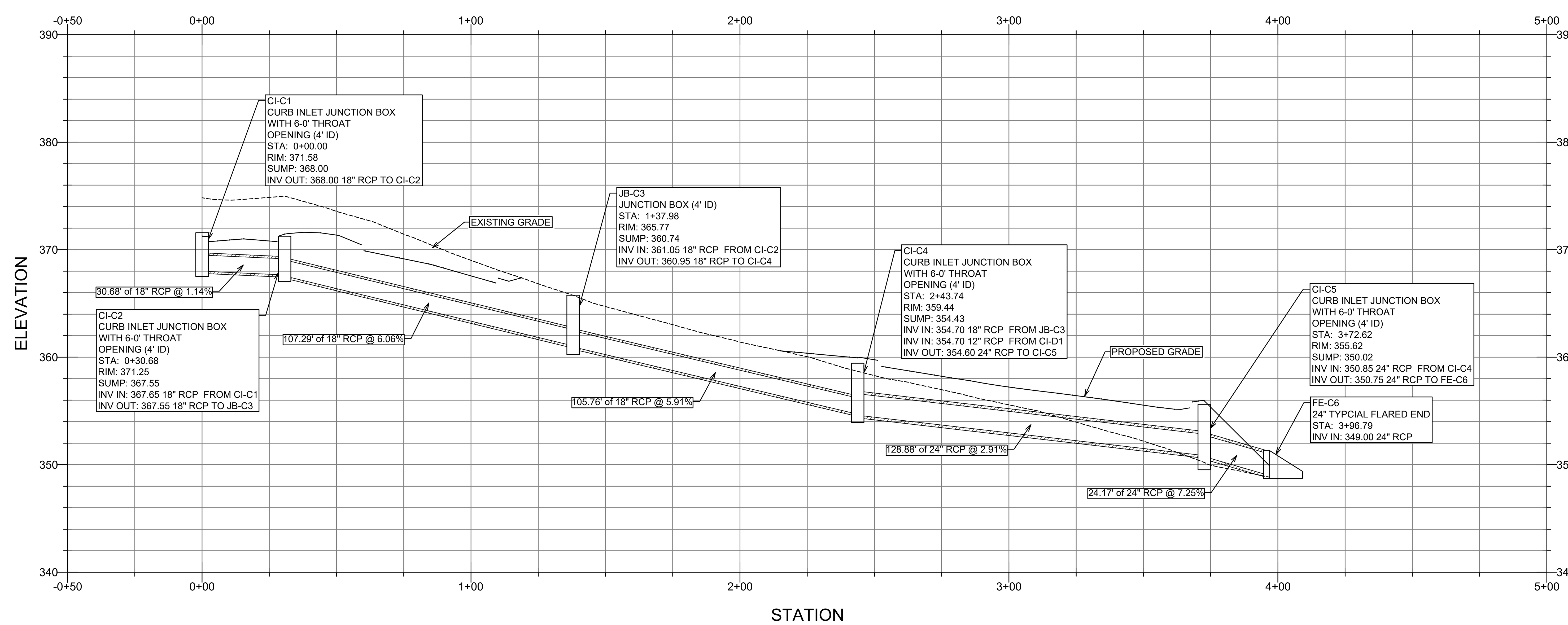
STORM SEWER A



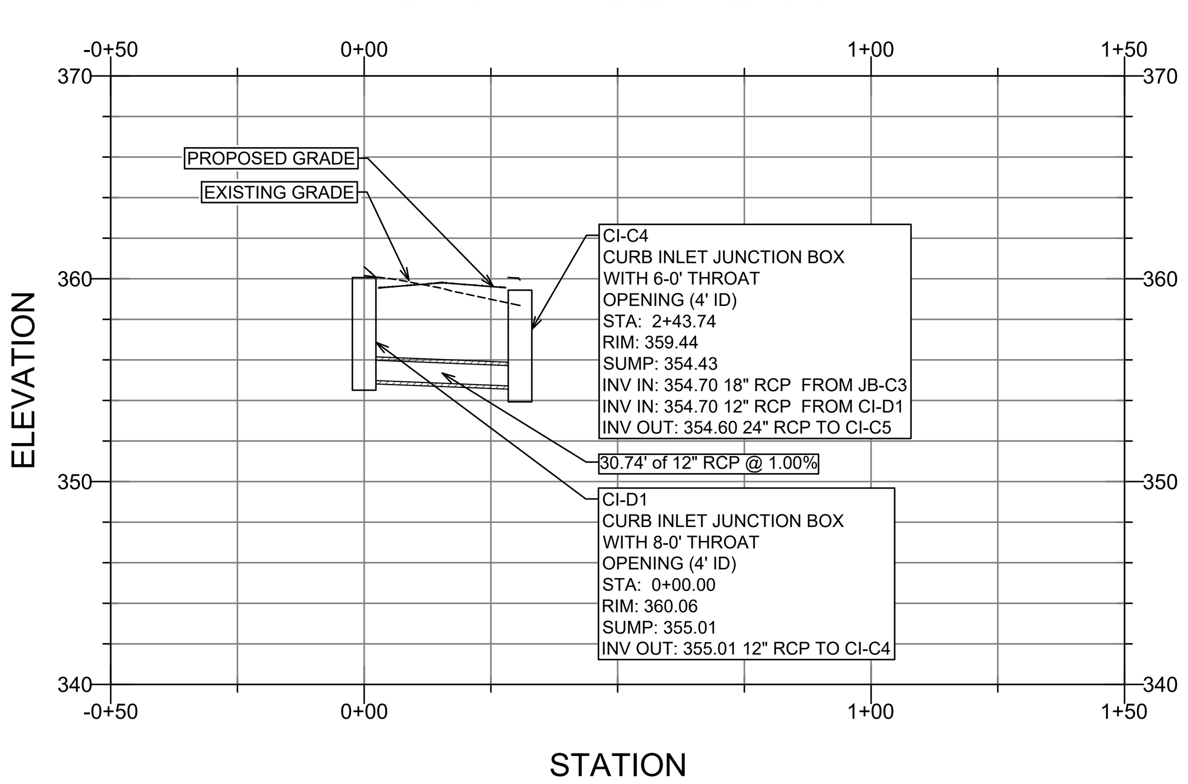
STORM SEWER B



STORM SEWER C



STORM SEWER D



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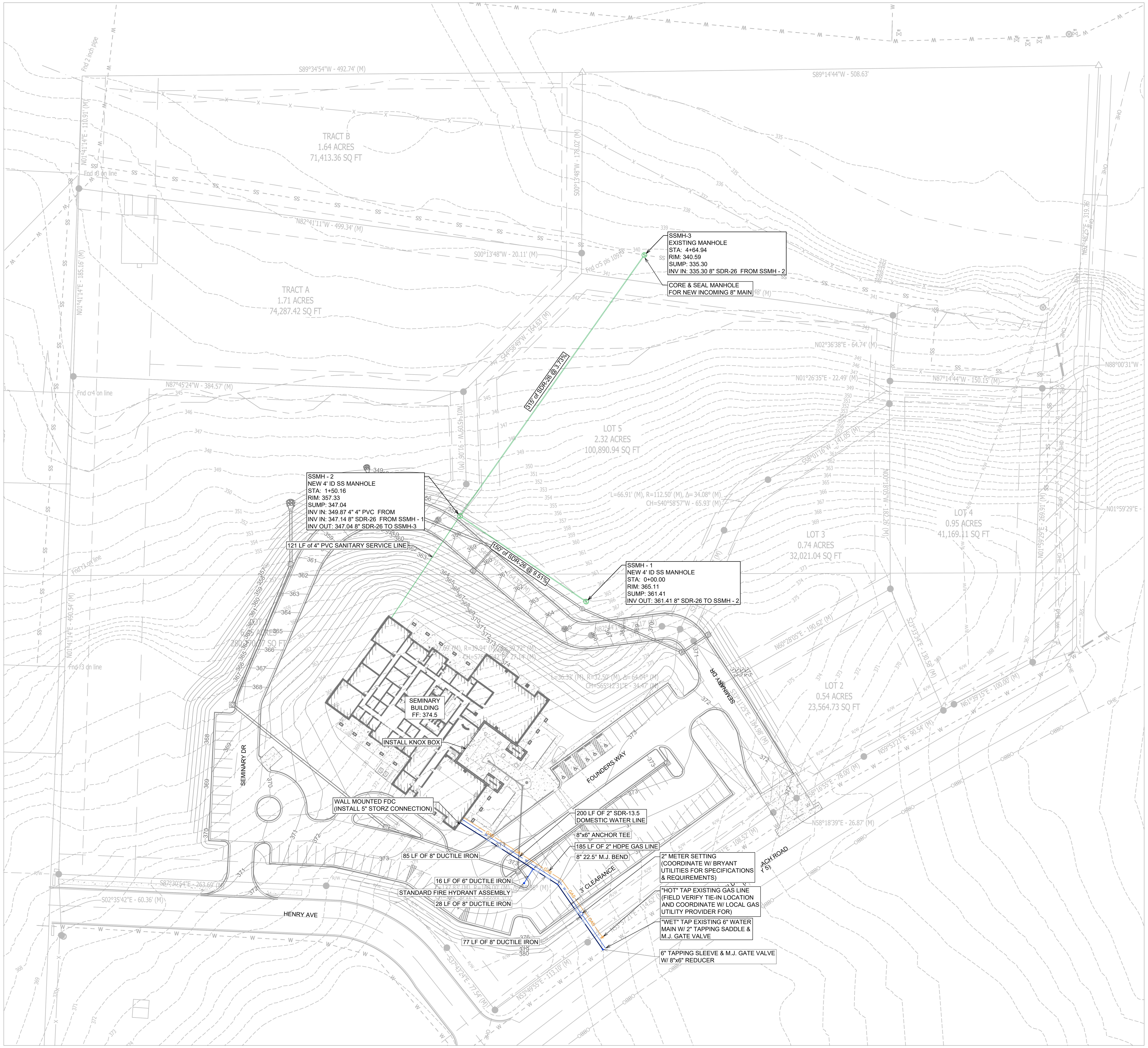
10-31-2024

PAGE TITLE:
STORM SEWER PROFILES

SHEET NUMBER:
C1.6



UTILITY PLAN

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F. CONTRACTOR IS TO REMOVE AND DISPOSE OF ALL DEBRIS, RUBBISH, AND OTHER MATERIALS RESULTING FROM PREVIOUS AND CURRENT DEMOLITION OPERATIONS. DISPOSAL WILL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND/OR FEDERAL REGULATIONS GOVERNING SUCH OPERATIONS.

G. PRIOR TO INSTALLATION OF ANY UTILITIES, THE CONTRACTOR IS TO EXCAVATE, VERIFY AND CALCULATE ALL CROSSINGS AND INFORM ANY AND ALL UTILITIES OF ANY CONFLICTS PRIOR TO CONSTRUCTION.

H. CONSTRUCTION SHALL NOT START ON ANY WATER UTILITY TIE-INS UNTIL APPROVAL IS GIVEN BY THE LOCAL UTILITY PROVIDER. SAID CONTRACTOR SHALL NOT OPERATE ANY VALVE, HYDRANT, OR WATER UTILITY APPURTENANCE NOR SHALL HE ATTACH TO OR TAP ANY WATER UTILITY MAIN WITHOUT APPROVAL. THE CONTRACTOR SHALL BEAR THE COST AND CONSEQUENCE OF ANY DISRUPTION OF UTILITY OPERATION CAUSED BY CONSTRUCTION.

I. FIBER OPTIC CABLE ON AND/OR ADJACENT TO THIS SITE WERE NOT LOCATED BY THE SURVEY AND ARE NOT SHOWN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ANY FIBER OPTIC CABLES ASSOCIATED WITH THIS SITE AND TAKE ALL NECESSARY AND REQUIRED PRECAUTIONS TO PROTECT ANY EXISTING FIBER OPTIC CABLES. CONTRACTORS SHALL COORDINATE ALL EFFORTS WITH OWNER OF FIBER OPTIC CABLES OR THEIR DESIGNATED REPRESENTATIVE.

J. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING "ONECALL" SERVICE TO MARK ALL UTILITIES PRIOR TO ANY DEMOLITION, EARTHWORK, OR UTILITY WORK ON THIS SITE.

811 Know what's **below.** **Call** before you dig.

N

0 50'

1" = 50'-0"

PHILLIP LEWIS ENGINEERING, INC.
Structural + Civil Consultants
23620 Interstate 30 | Bryant, Arkansas
PH: 501-350-9840

REVISION:

BRYANT SEMINARY
HIGHWAY 5
BRYANT, ARKANSAS

CERTIFICATE OF AUTHORIZATION
PHILLIP LEWIS ENGINEERING, INC.
No. 566
ARKANSAS ENGINEERS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9540
PHILLIP A. LEWIS

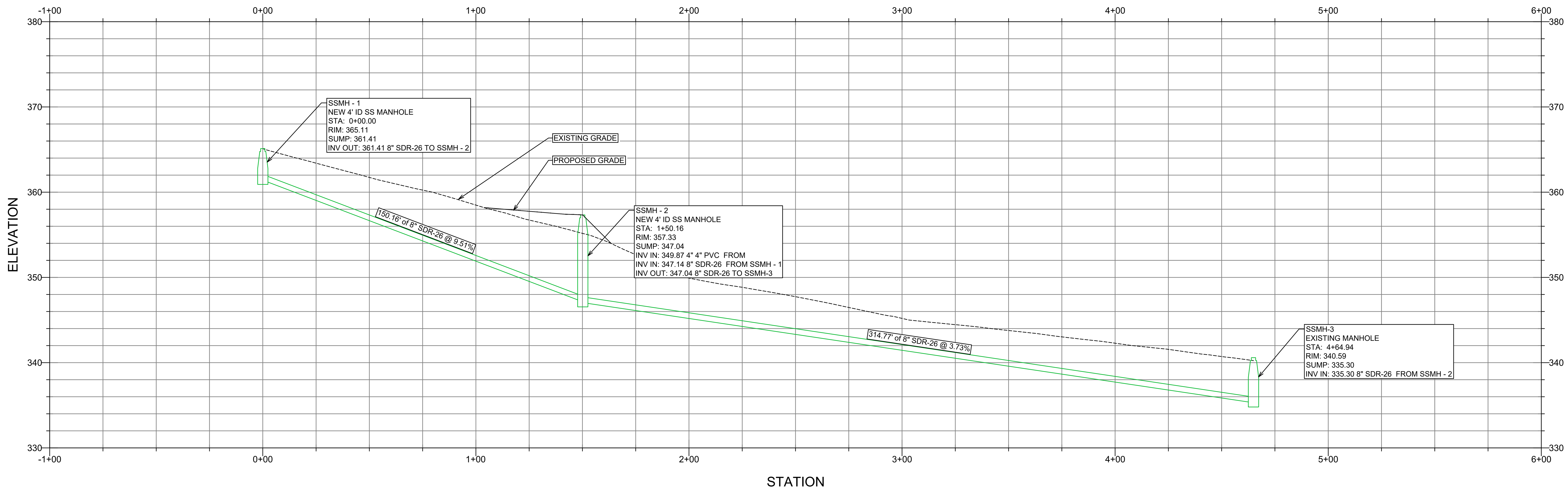
PROJECT NUMBER:

SHEET ISSUE DATE:
11-12-2024

PAGE TITLE:
UTILITY PLAN

SHEET NUMBER:
C1.7

SANITARY SEWER



PHILLIP LEWIS ENGINEERING, INC.
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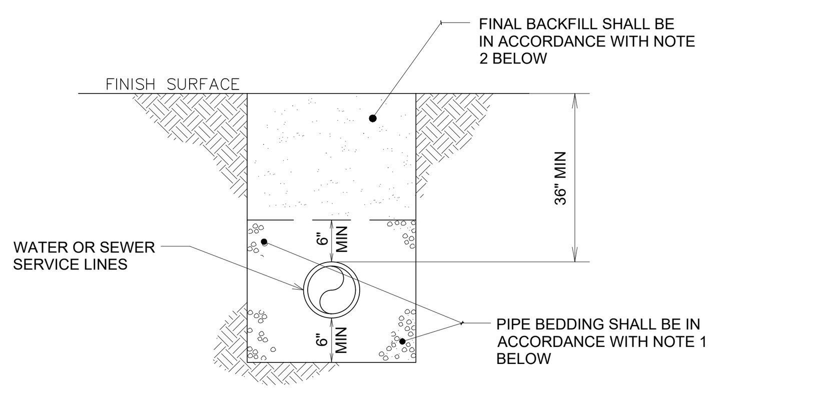
REGISTERED PROFESSIONAL ENGINEER
No. 9540
PHILLIP A. LEWIS

PROJECT NUMBER:

SHEET ISSUE DATE:
10-31-2024

PAGE TITLE:
SANITARY SEWER PROFILE

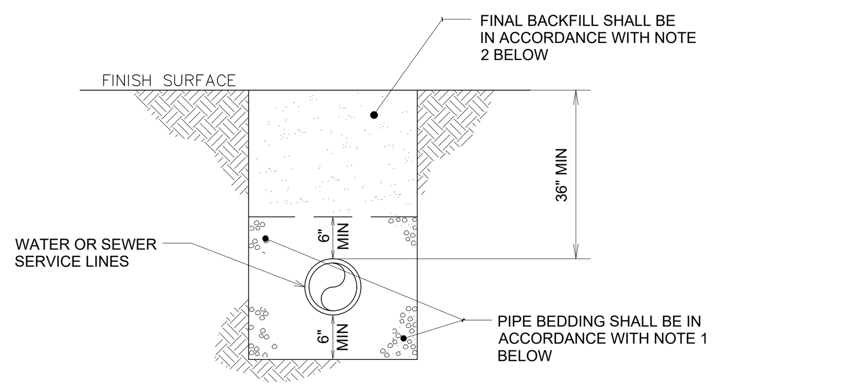
SHEET NUMBER:
C1.8



GAS LINE BEDDING DETAIL

NOT TO SCALE

NOTES:
1. BEDDING SHALL BE "GRIT" PER ASTM 2774 OR ASTM D448 SIZE 67 A MINIMUM OF 6" ALL AROUND PIPE.
1. BEDDING SHALL BE CLEAN SAND A MINIMUM OF 6" ALL AROUND PIPE.
2. INITIAL BACKFILL NOT UNDER PAVED AREAS CAN BE CLASS III COMPACTED TO 90% STANDARD PROCTOR. ALL BACKFILL UNDER PAVED AREAS SHALL BE CLASS 7 CRUSHED STONE (SB-2) COMPACTED TO 95% STANDARD PROCTOR DENSITY.
3. ALL MATERIALS CLASSIFIED IN ACCORDANCE WITH ASTM D2321-89.
4. ALL MATERIALS SHALL BE INSTALLED IN MAXIMUM 8" LIFTS IN ACCORDANCE WITH ASTM D698. CLASS III AND IV-A MATERIALS SHALL BE COMPACTED TO NEAR OPTIMUM MOISTURE CONTENT.
5. FILL SALVAGED FROM EXCAVATION SHALL BE FREE OF DEBRIS, ORGANICS, AND ROCK LARGER THAN 3".
6. ALL TRENCH EXCAVATION SHALL BE SLOPED, SHORED, SHEETED, BRACED, OR OTHERWISE SUPPORTED IN COMPLIANCE WITH OSHA REGULATIONS AND LOCAL ORDINANCES.



WATER AND SEWER LINES BEDDING DETAIL

NOT TO SCALE

NOTES:
1. BEDDING SHALL BE "GRIT" PER ASTM 2774 OR ASTM D448 SIZE 67 A MINIMUM OF 6" ALL AROUND PIPE.
2. INITIAL BACKFILL NOT UNDER PAVED AREAS CAN BE CLASS III COMPACTED TO 90% STANDARD PROCTOR. ALL BACKFILL UNDER PAVED AREAS SHALL BE CLASS 7 CRUSHED STONE (SB-2) COMPACTED TO 95% STANDARD PROCTOR DENSITY.
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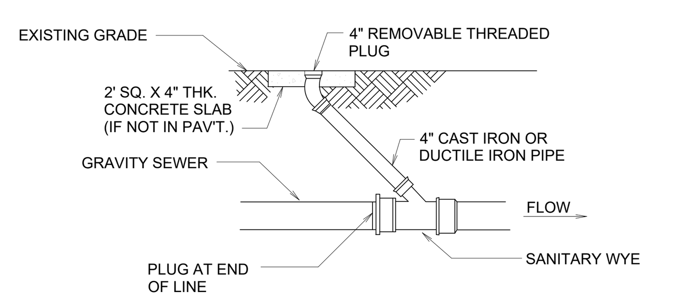
7. ALL TRENCH EXCAVATIONS SHALL BE SLOPED, SHORED, SHEETED, BRACED, OR OTHERWISE SUPPORTED IN COMPLIANCE WITH OSHA REGULATIONS AND LOCAL ORDINANCES.

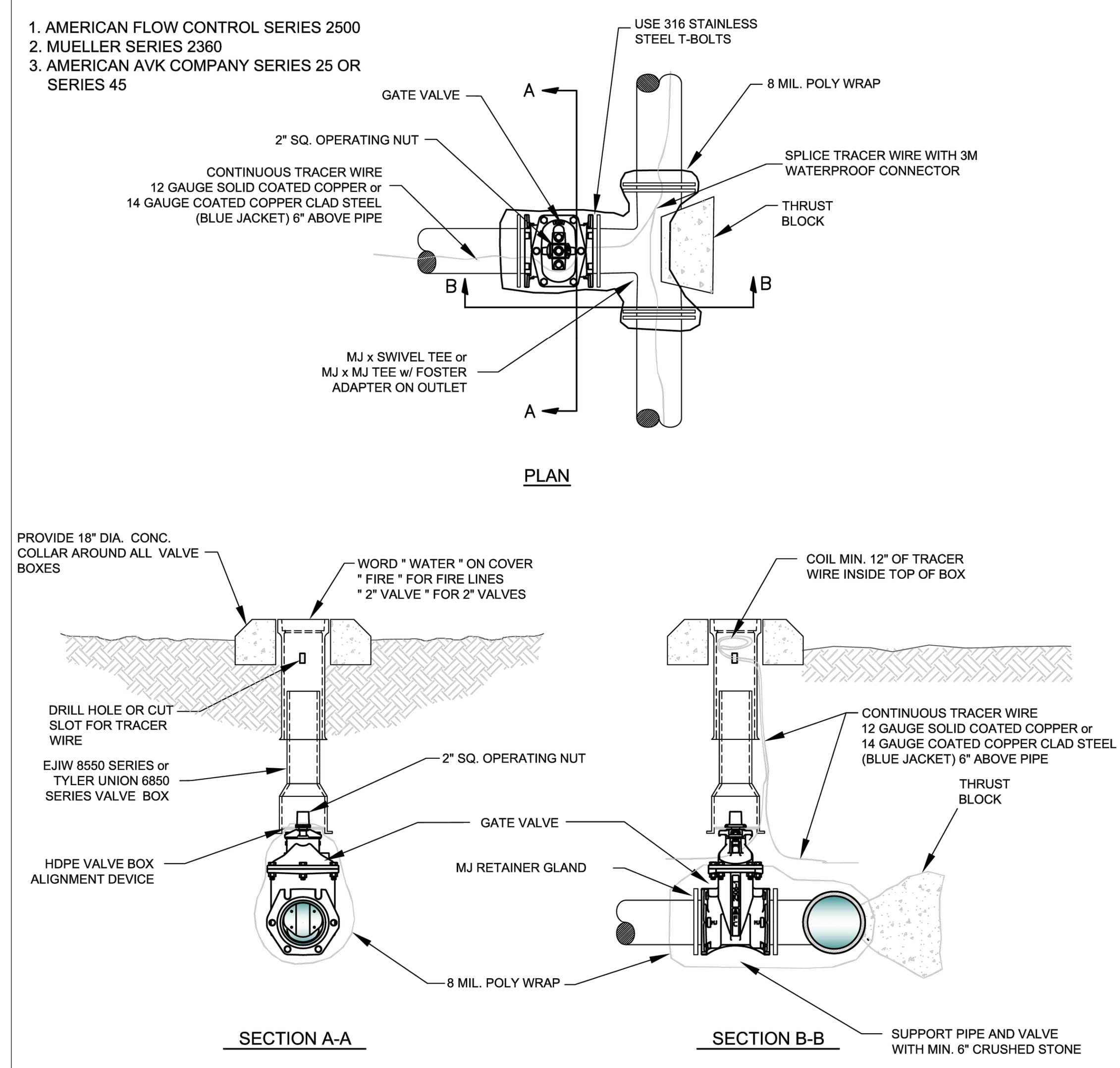


THROUGH FLOW CLEANOUT

NOT TO SCALE

PERMITTED VALVES

1. AMERICAN FLOW CONTROL SERIES 2500
2. MUELLER SERIES 2360
3. AMERICAN AVK COMPANY SERIES 25 OR SERIES 45



NOTES:

1. ALL VALVES SHALL BE SECURELY ANCHORED TO THE TEE.
2. ALL HARDWARE SHALL BE 316 STAINLESS STEEL.
3. IF DEPTH OF BURY EXCEEDS 4 FT., A VALVE STEM EXTENSION SHALL BE REQUIRED. THE VALVE STEM EXTENSION NUT SHALL BE WITHIN 24-INCHES TO 12-INCHES OF THE FINISHED SURFACE.

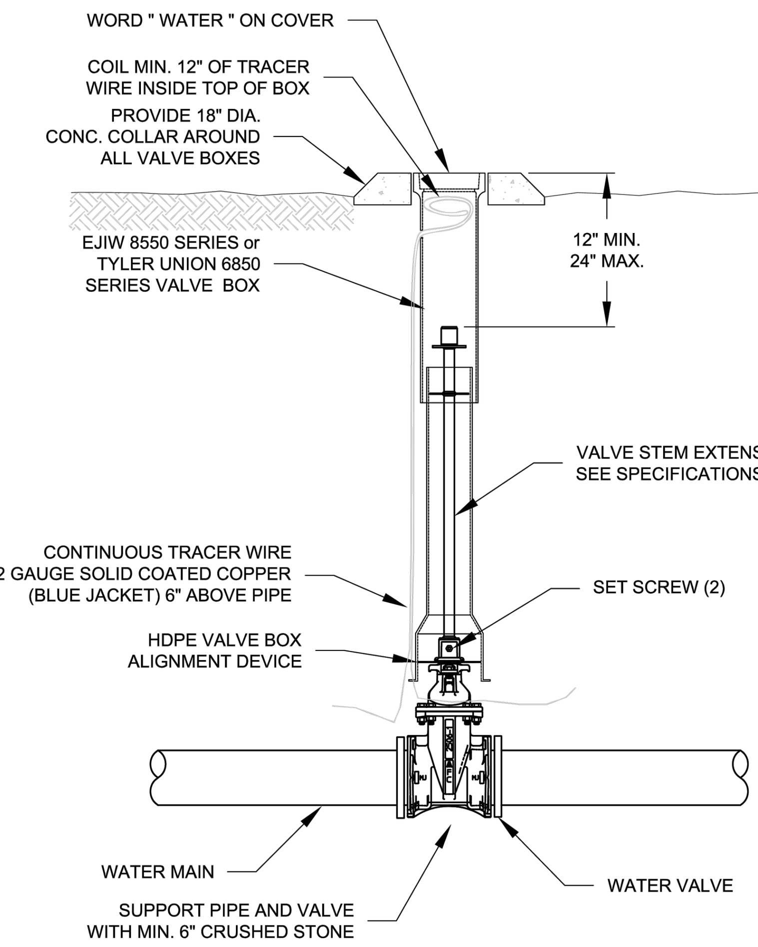
GATE VALVE DETAIL

2" - 12"

CITY OF BRYANT, AR WATER UTILITIES 210 S.W. 3rd. STREET BRYANT, AR PHONE: (501) 943-0468	TITLE: WATER DETAILS DESCRIPTION: GATE VALVE DRAWN BY: CHECKED BY: FILE: W4-Gate Valve.dwg	DATE: APRIL 2015 REVISED	SHEET: W4

NOTES:

1. OPERATING NUT EXTENSIONS SHALL BE USED WHEN THE TOP OF THE OPERATING NUT IS GREATER THAN 4 FEET FROM THE TOP OF FINISHED SURFACE.
2. THE STEM EXTENSION SHALL BE OF ADEQUATE LENGTH TO REACH FROM THE VALVE OPERATING NUT TO A POINT WITHIN 24-INCHES TO 12-INCHES OF THE FINISHED SURFACE.

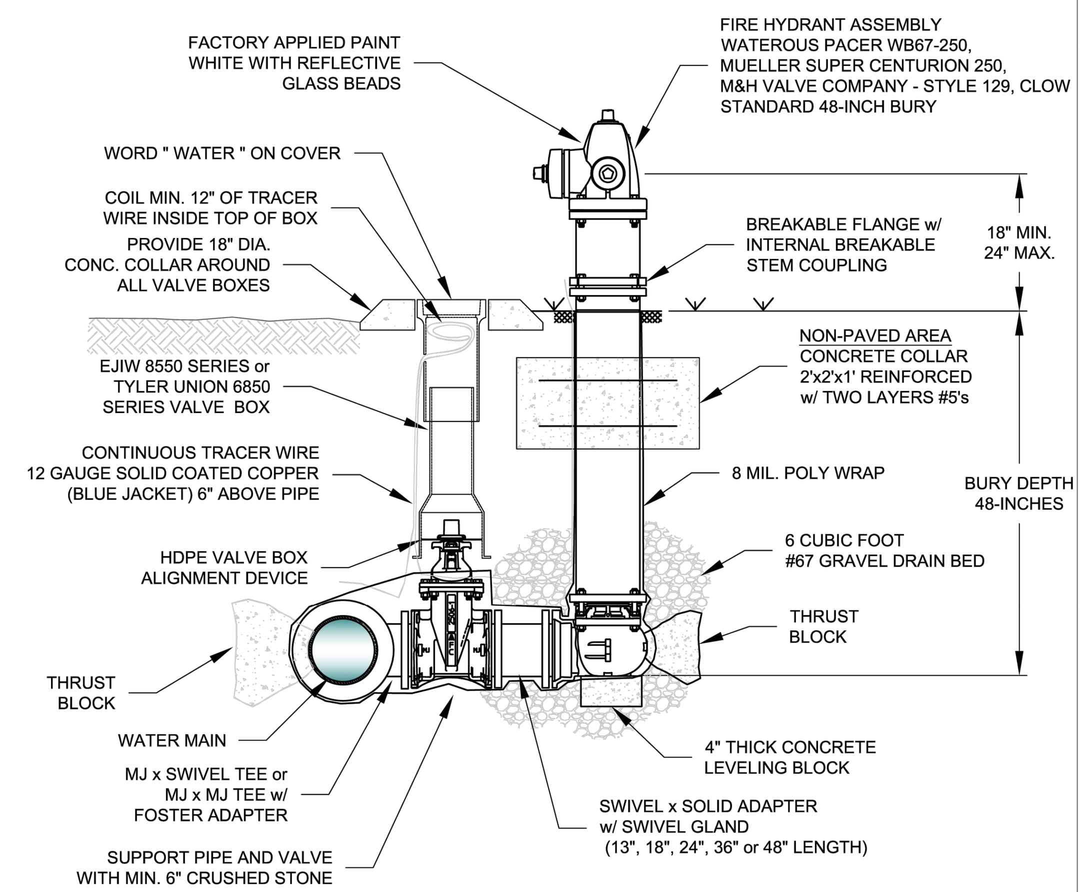


VALVE WITH STEM EXTENSION

CITY OF BRYANT, AR WATER UTILITIES 210 S.W. 3rd. STREET BRYANT, AR PHONE: (501) 943-0468	TITLE: WATER DETAILS DESCRIPTION: VALVE STEM EXTENSION DRAWN BY: CHECKED BY: FILE: W7-Valve Stem Extension.dwg	DATE: APRIL 2015 REVISED	SHEET: W7

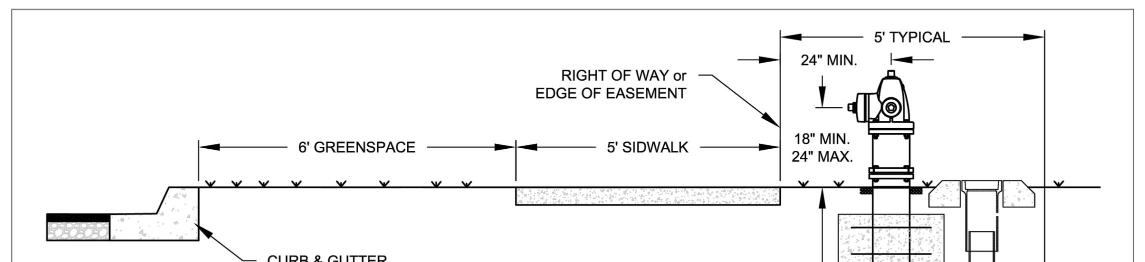
NOTES:

1. THE 6" GATE VALVE SHALL BE POSITIVELY RESTRAINED TO THE MAIN BY THE USE OF EITHER A SWIVEL TEE OR FOSTER ADAPTER.
2. FIRE HYDRANTS SHALL BE DESIGNED FOR A MINIMUM 48" BURY.
3. BURY LINE OF HYDRANT SHALL BE NO LESS THAN THE PROPOSED FINISHED ELEVATION OF BACK OF CURB, OR SIDEWALK, WHICHEVER IS GREATER.
4. NO MORE THAN ONE EXTENSION PER HYDRANT.
5. IF SIDEWALK IS PRESENT, HYDRANT SHALL BE INSTALLED 2' MINIMUM BEHIND THE BACK OF THE SIDEWALK OR CURB. VALVES SHALL BE INSTALLED 1' MINIMUM BEHIND THE BACK OF THE SIDEWALK OR CURB.
6. DO NOT COVER UP WEEP HOLE WITH CONCRETE.
7. MJ RETAINER GLANDS ARE REQUIRED FOR ALL FITTINGS.
8. 7. 6" DUCTILE IRON PIPE IS REQUIRED FOR ALL FIRE HYDRANT LEADS GREATER THAN 48-INCHES FROM THE MAIN VALVE.
9. AN ADDITIONAL GUARDIAN VALVE IS REQUIRED FOR ALL FIRE HYDRANT LEADS GREATER THAN 30 FEET IN LENGTH.



FIRE HYDRANT & VALVE CONNECTION

CITY OF BRYANT, AR WATER UTILITIES 210 S.W. 3rd. STREET BRYANT, AR PHONE: (501) 943-0468	TITLE: WATER DETAILS DESCRIPTION: FIRE HYDRANT AND VALVE CONNECTION DRAWN BY: CHECKED BY: FILE: W8-Fire Hydrant and Valve.dwg	DATE: APRIL 2015 REVISED	SHEET: W8



NOTES:

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2. FIRE HYDRANTS SHALL BE DESIGNED FOR A MINIMUM 48" BURY.
3. NO MORE THAN ONE EXTENSION PER HYDRANT.
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5. DO NOT COVER UP WEEP HOLE WITH CONCRETE.
6. MJ RETAINER GLANDS ARE REQUIRED FOR ALL FITTINGS.
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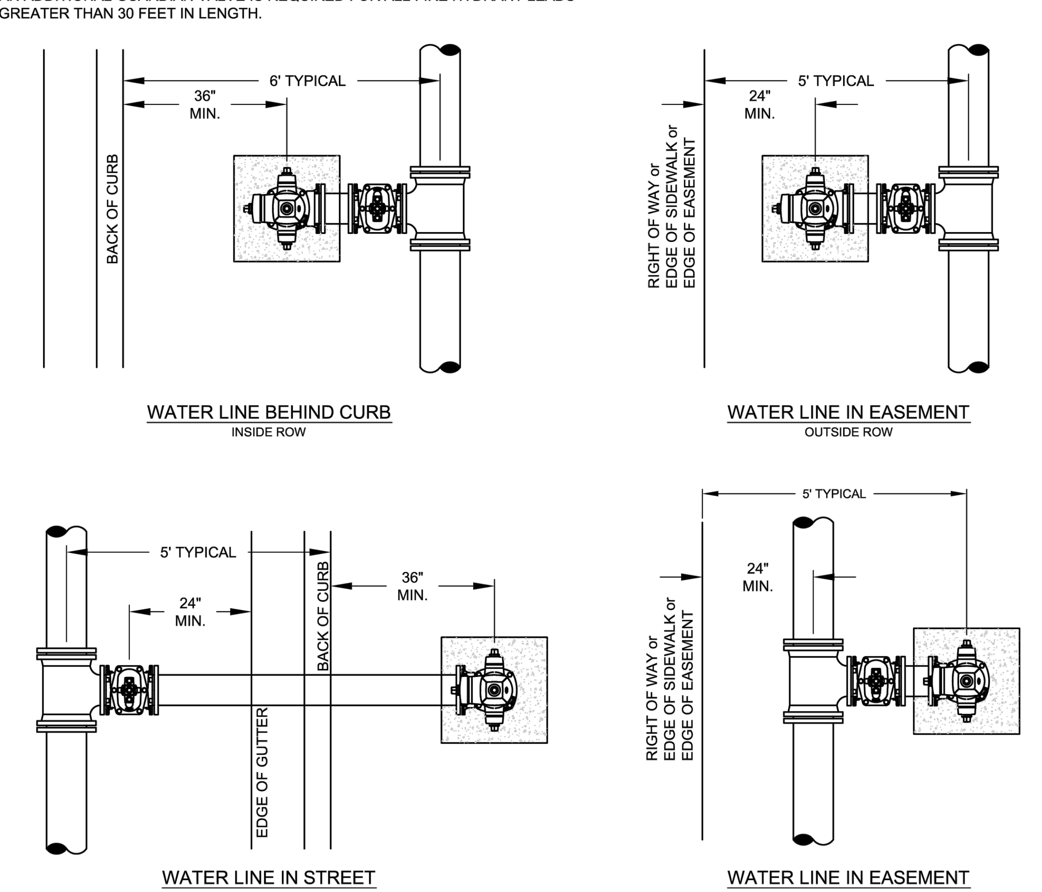
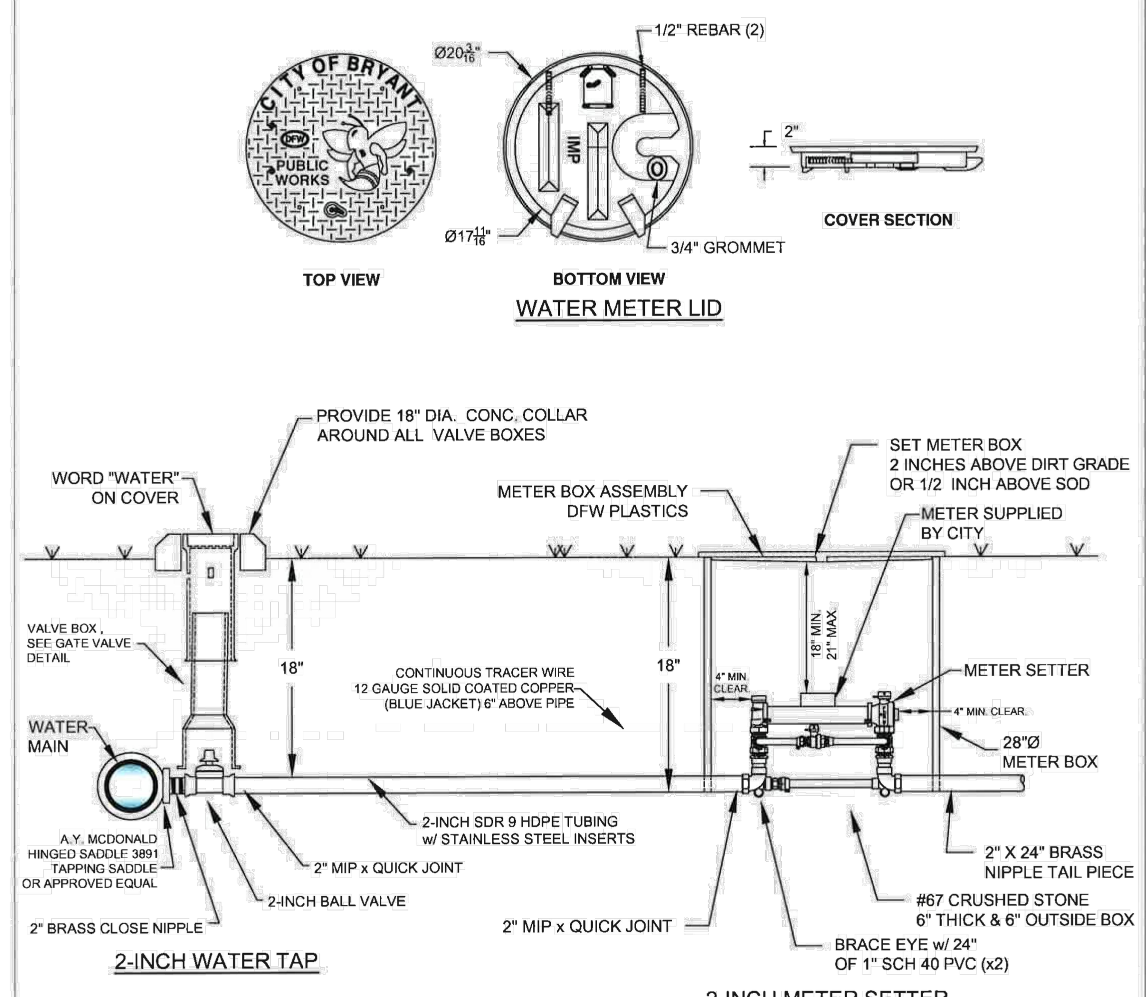
8. AN ADDITIONAL GUARDIAN VALVE IS REQUIRED FOR ALL FIRE HYDRANT LEADS GREATER THAN 30 FEET IN LENGTH.



CITY OF BRYANT, AR WATER UTILITIES 210 S.W. 3rd. STREET BRYANT, AR PHONE: (501) 943-0468	TITLE: WATER DETAILS DESCRIPTION: FIRE HYDRANT PLACEMENT DRAWN BY: CHECKED BY: FILE: W9-Fire Hydrant Placement.dwg	DATE: APRIL 2015 REVISED	SHEET: W9



NOTES:

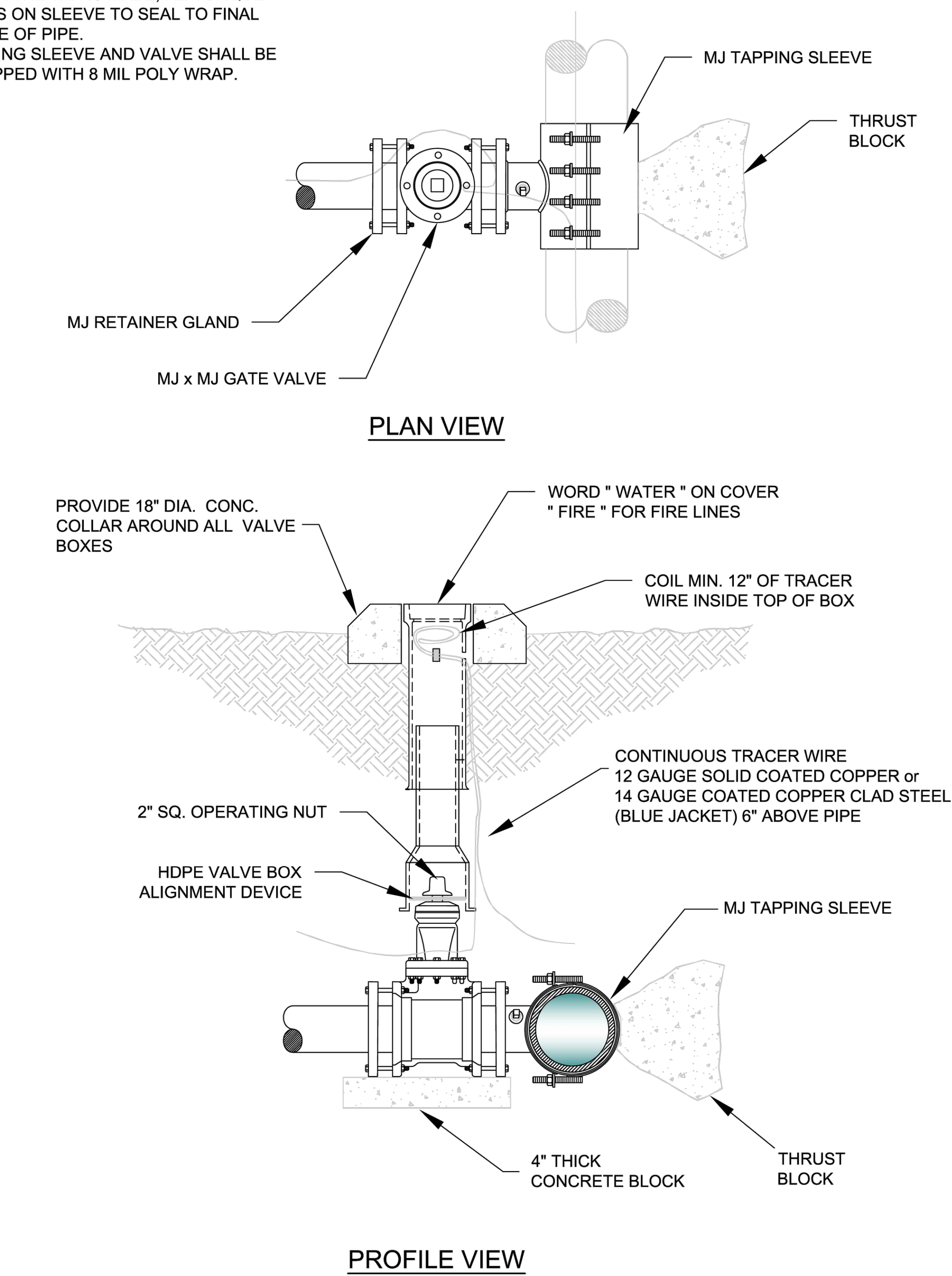
1. COORDINATE INSTALLATION AND CONFIGURATIONOF ALL 1-1/2" AND LARGER METER SETTINGS WITH THE CITY.
2. ALL METER BOXES SHALL BE INSTALLED IN NON-PAVED AREAS. ANY METER BOX THAT GETS PLACED IN A PAVED AREA SHALL BE RELOCATED AT THE OWNER'S EXPENSE BEFORE A WATER METER WILL BE INSTALLED.
3. SUPPORT METER INSTALLATION WITH 1"x24" SCH40 PVC THROUGH EACH BRACE EYE.

2" WATER SERVICE AND WATER METER

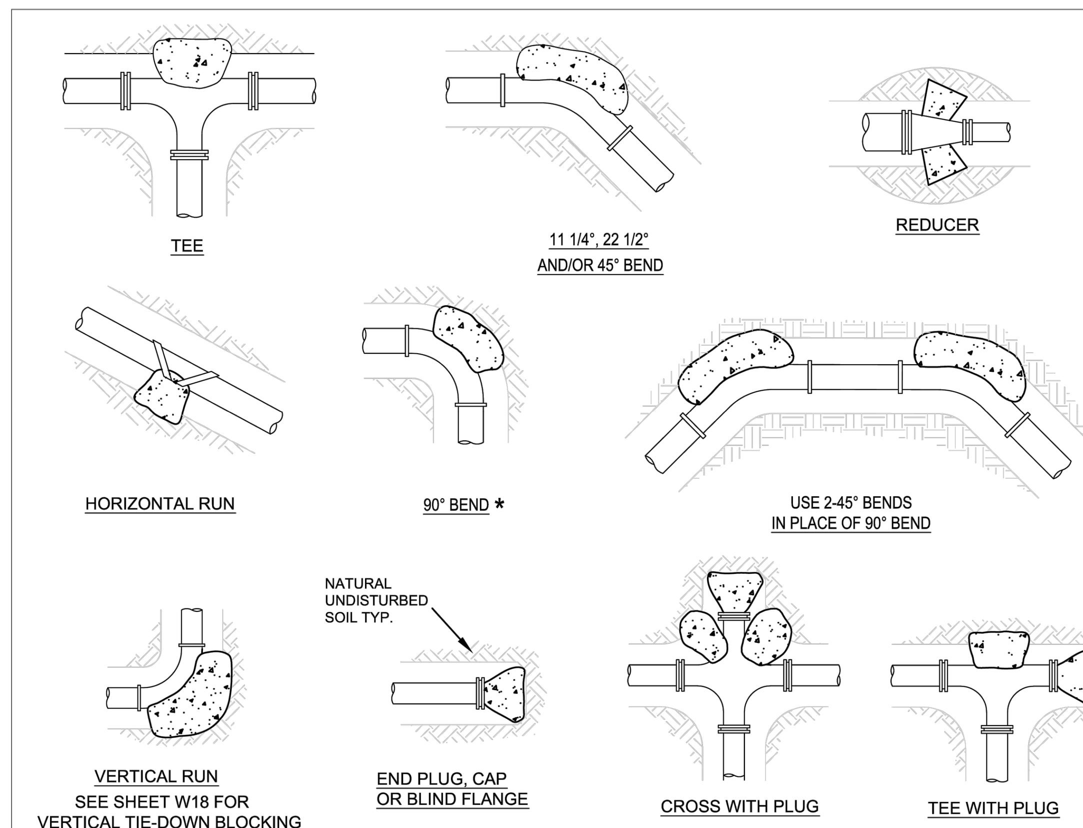
CITY OF BRYANT, AR WATER UTILITIES 210 S.W. 3rd. STREET BRYANT, AR PHONE: (501) 943-0468	TITLE: WATER DETAILS DESCRIPTION: 2" WATER METER DRAWN BY: CHECKED BY: FILE: W12-2 Inch Water Meter.dwg	DATE: APRIL 2015 REVISED	SHEET: W12

NOTES:

1. TAPPING SLEEVE SHALL BE SMITH-BLAIR 662 OR FORD FAST.
2. AFTER THE TAP IS MADE, RE-TORQUE BOLTS ON SLEEVE TO SEAL TO FINAL SHAPE OF PIPE.
3. TAPPING SLEEVE AND VALVE SHALL BE WRAPPED WITH 8 MIL POLY WRAP.



CITY OF BRYANT, AR WATER UTILITIES 210 S.W. 3rd. STREET BRYANT, AR PHONE: (501) 943-0468	TITLE: WATER DETAILS DESCRIPTION: TAPPING SLEEVE AND VALVE DRAWN BY: CHECKED BY: FILE: W13-Tapping Sleeve and Valve.dwg	DATE: APRIL 2015 REVISED	SHEET: W13



THRUST BLOCK SCHEDULE

(2000 PSF SOIL, 200 PSI WATER PRESSURE, 100 PSI WATER HAMMER)

BEARING AREA OF THRUST BLOCKS IN SQ. FT. (HORIZONTAL BENDS)						VOLUME OF THRUST BLOCK IN CU. FEET (VERTICAL BENDS)						
FITTING SIZE	PLUG TEE OR CAP	BEND ANGLE 90° *	45°	22 1/2°	11 1/4°	FITTING SIZE	BEND ANGLE 90° *	45°	22 1/2°	11 1/4°	ROD DIAM.	EMBED-MENT
2, 3, & 4	1.9	2.7	1.4	0.7	0.4	2, 3, & 4	35.5	19.2	9.8	4.9	.50"	30"
6	5.6	7.9	4.3	2.2	1.1	6	105.8	57.2	29.2	14.7	.75"	30"
8	9.6	13.6	7.4	3.8	1.9	8	181.9	98.5	50.2	25.2	.75"	30"
12	20.5	29.0	15.7	8.0	4.0	12	387.1	209.5	106.8	53.7	1.0"	30"
16	35.7	50.4	27.3	13.9	7.0	16	672.6	364.0	185.6	93.2	1.0"	36"
18	44.8	63.4	34.3	17.5	18.8	18	844.7	457.2	233.1	117.1	1.0"	36"
24	78.4	110.9	60.0	30.6	15.4	24	1478.7	800.3	408.0	205.0	1.5"	36"

* 90 DEGREE BENDS SHALL ONLY BE USED ON A BY-EXCEPTION BASIS, AND MUST EACH BE SPECIFICALLY APPROVED BY CITY.

THRUST BLOCK NOTES:

1. CONCRETE FOR THRUST BLOCKS - CLASS A CONCRETE SHALL DEVELOP NOT LESS THAN 3000 P.S.I. COMPRESSIVE STRENGTH AT 28 DAYS AND BE PLACED AGAINST UNDISTURBED SOIL.
2. ALL BENDS, BOTH HORIZONTAL AND VERTICAL, SHALL BE BACKED WITH CONCRETE. VERTICAL BENDS SHALL BE PLACED ON CONCRETE PADS WHERE BENDS TURN UP, OR LOADED WHERE BENDS TURN DOWN.
3. WRAP PIPE JOINTS IN 8 MIL "POLYETHLENE" BEFORE PLACING CONCRETE.
4. BEARING AREA SHOWN IN TABLE, IS BASED UPON A 2000 LB/SF. SOIL BEARING, AND UPON A PIPELINE PRESSURE OF 200 psi. PLUS 100 psi. WATER HAMMER. AREAS SHOWN SHALL BE ADJUSTED, SHOULD FIELD CONDITIONS VARY.
5. MJ RESTRAINTS ARE REQUIRED FOR ALL FITTINGS.
6. USE LONG-RADIUS FITTINGS WHEREVER POSSIBLE.
7. ALL BOLTS FOR FITTINGS SHALL BE 316 STAINLESS STEEL.
8. ALL DUCTILE IRON FITTINGS SHALL BE FUSION-BONDED EPOXY COATED INSIDE AND OUTSIDE IN ACCORDANCE WITH ANSI/AWWA C116/A21.16.
9. UNIT WEIGHT OF CONCRETE FOR VERTICAL THRUST BLOCKS IS 150 LBS/CU. FT.

THRUST BLOCKING

CITY OF BRYANT, AR WATER UTILITIES 210 S.W. 3rd. STREET BRYANT, AR PHONE: (501) 943-0468	TITLE: WATER DETAILS DESCRIPTION: THRUST BLOCKING DRAWN BY: CHECKED BY: FILE: W16-Thrust Blocking.dwg	DATE: APRIL 2015 REVISED	SHEET: W16

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Structural + Civil Consultants
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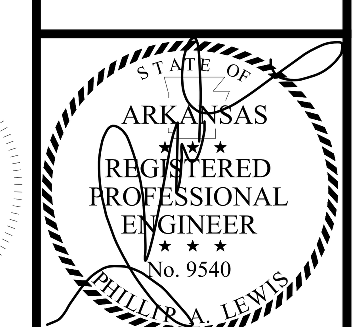
BRYANT, ARKANSAS



PROJECT NUMBER:

SHEET ISSUE DATE: 11-12-2024

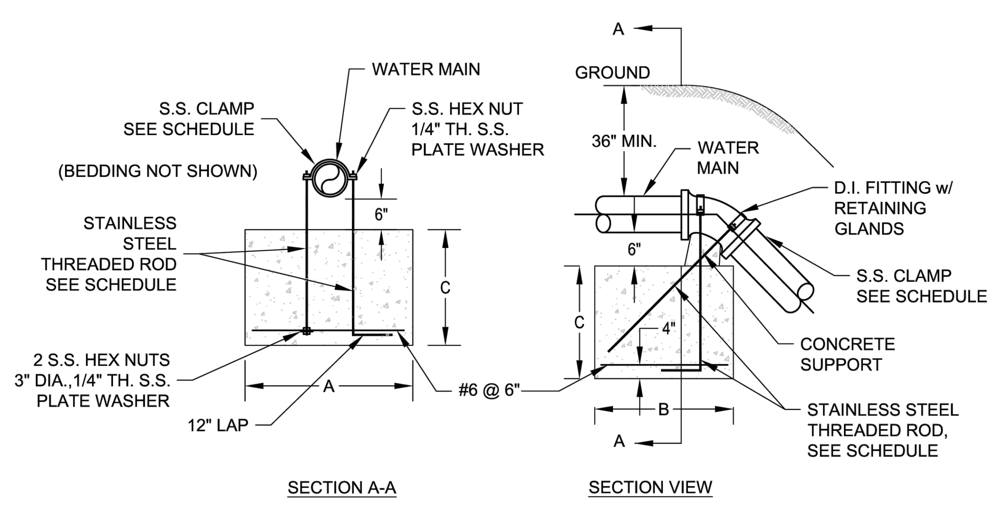
PAGE TITLE: UTILITY DETAILS

SHEET NUMBER: C1.9

BLOCKING SCHEDULE					
PIPE SIZE	BENDS				
		45°	22 1/2°	11 1/4°	ROD DIA.
VOLUME REQ'D (CU. FT.)		98.5	50.2	25.2	3/4 IN.
8"	A (FT.)	5.00'	4.00'	3.00'	
	B (FT.)	4.00'	3.20'	2.80'	
	C (FT.)	5.00'	4.00'	3.00'	
	MIN. CLAMP (2 EA.)	3/8 IN. x 2 IN.			
VOLUME REQ'D (CU. FT.)		209.5	106.8	53.7	3/4 IN.
12"	A (FT.)	6.00'	5.00'	4.00'	
	B (FT.)	6.00'	4.25'	3.50'	
	C (FT.)	6.00'	5.00'	4.00'	
	MIN. CLAMP (2 EA.)	1/2 IN. x 2 IN.			
VOLUME REQ'D (CU. FT.)		457.2	233.1	117.1	1 IN.
18"	A (FT.)	8.00'	6.50'	5.00'	
	B (FT.)	7.25'	5.50'	4.75'	
	C (FT.)	8.00'	6.50'	5.00'	
	MIN. CLAMP (2 EA.)	5/8 IN. x 3 IN.			
VOLUME REQ'D (CU. FT.)		800.3	408.0	205.0	1 1/4 IN.
24"	A (FT.)	9.50'	7.50'	6.00'	
	B (FT.)	9.00'	7.25'	5.75'	
	C (FT.)	9.50'	7.50'	6.00'	
	MIN. CLAMP (2 EA.)	5/8 IN. x 3 IN.			

VOLUME CALCULATED ON THE BASIS OF CONCRETE REACTING THRUST ON THE RESPECTIVE BENDS UNDER AN INTERNAL PRESSURE OF 250 PSI, 50 PSI SURGE AND THE WEIGHT OF CONCRETE IS 150 POUNDS PER CU. FT.

ALL FITTINGS SHALL BE MECHANICAL JOINTS WITH RETAINING GLANDS. BEDDING NOT SHOWN



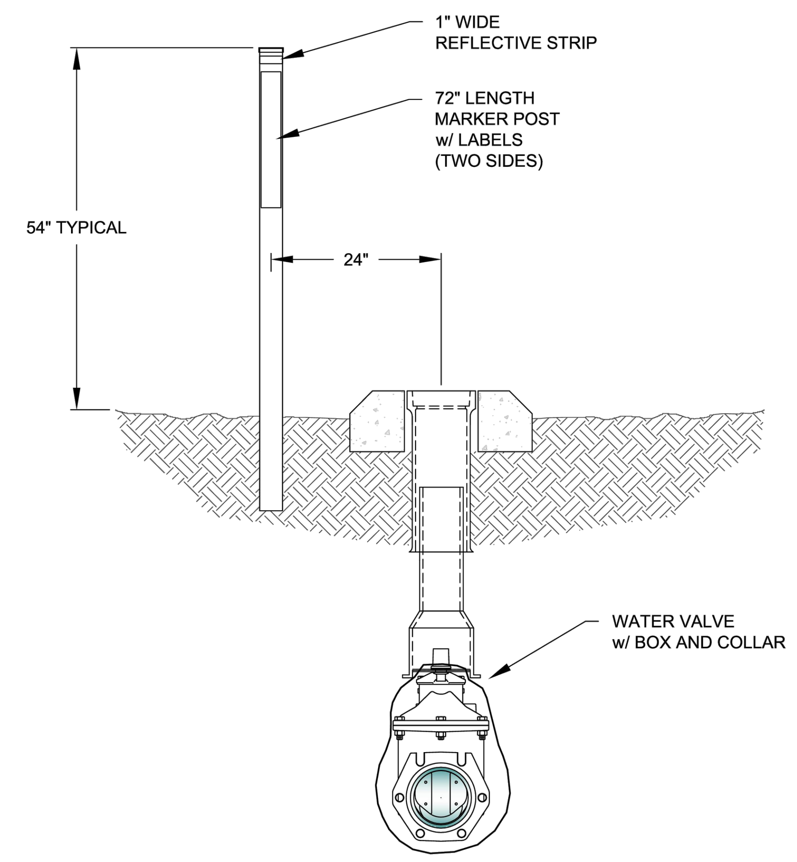
VERTICAL TIE-DOWN BLOCKING

CITY OF BRYANT, AR
WATER UTILITIES
210 S.W. 3rd. STREET
BRYANT, AR
PHONE: (501) 943-0488

TITLE: **WATER DETAILS**
DESCRIPTION: VERTICAL TIE-DOWN BLOCKING
DATE: APRIL 2015 REVISED
SHEET: **W17**
DRAWN BY: CHECKED BY: FILE: W17-Vertical Tie-Down Blocking.dwg

NOTES:

1. WATER LINE MARKERS SHALL BE TRI-VIEW MARKING SYSTEM BY RHINO MARKING AND PROTECTION SYSTEMS OR CARSONITE INTERNATIONAL DUAL-SIDED UTILITY MARKER (CIB-380).
2. THE UPPERMOST PORTION OF THE CARSONITE MARKER SHALL BE MADE OF VISIBILITY ENHANCER (CVE-360).
3. TRI-VIEW MARKERS DO NOT REQUIRE VISIBILITY ENHANCERS.
4. AN ADDITIONAL WHITE 1" WIDE REFLECTIVE TAPE (3M OR EQUAL) SHALL BE PLACED AROUND THE FULL CIRCUMFERENCE OF THE TOP OF THE MARKER.



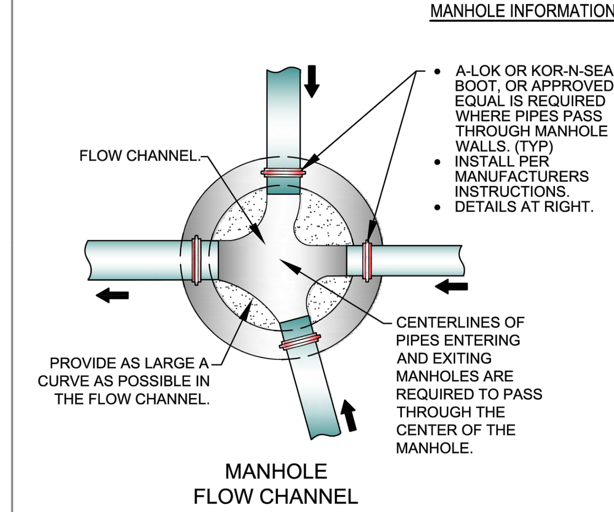
VALVE MARKER

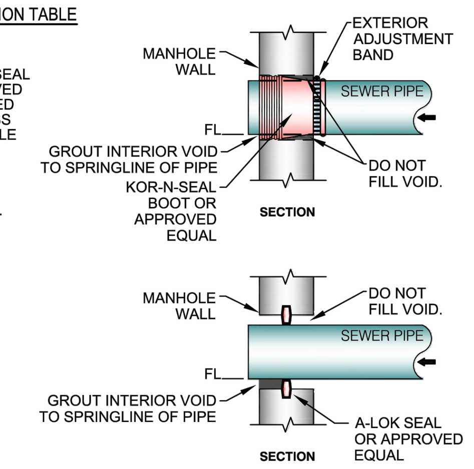
CITY OF BRYANT, AR
WATER UTILITIES
210 S.W. 3rd. STREET
BRYANT, AR
PHONE: (501) 943-0488

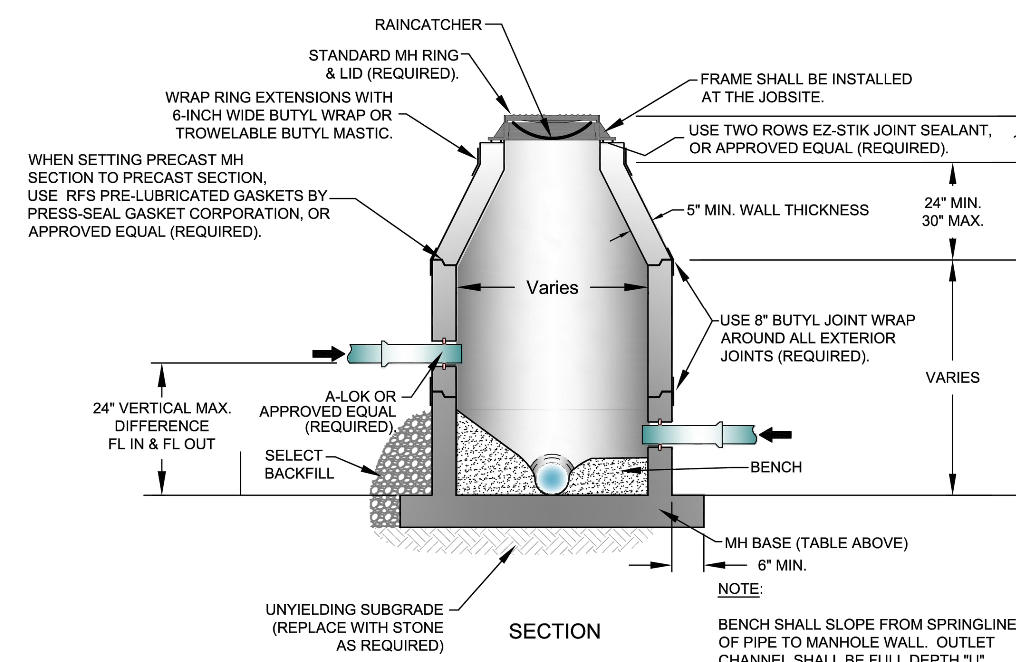
TITLE: **WATER DETAILS**
DESCRIPTION: VALVE MARKER
DATE: APRIL 2015 REVISED
SHEET: **W22**
DRAWN BY: CHECKED BY: FILE: W22-Valve Marker.dwg

Inside Diameter of Manhole	Minimum Wall Thickness	Base Thickness	Minimum Ring & Cover Size
4' DIA	5"	6"	24" (< or Equal to 24" Pipes)
5' DIA	7"	8"	
6' DIA	7"	8"	36" (> 24" Pipes)

MANHOLE INFORMATION TABLE







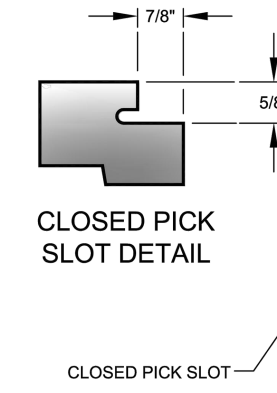
NOTE:
BENCH SHALL SLOPE FROM SPRINGLINE OF PIPE TO MANHOLE WALL. OUTLET CHANNEL SHALL BE FULL DEPTH "U" FROM CENTER OF MANHOLE TO MH WALL.

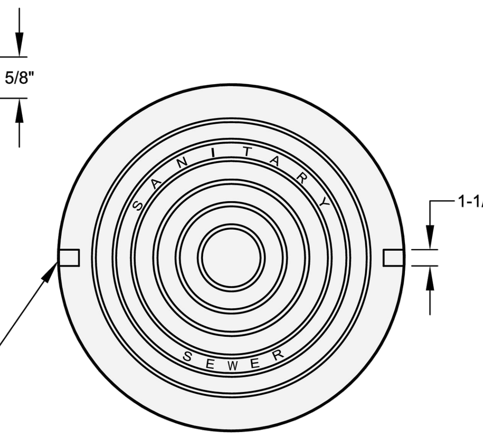
PRECAST MANHOLE

CITY OF BRYANT, AR
WATER UTILITIES
210 S.W. 3rd. STREET
BRYANT, AR
PHONE: (501) 943-0488

TITLE: **SEWER DETAILS**
DESCRIPTION: PRECAST MANHOLE
DATE: APRIL 2015 REVISED
SHEET: **S5**
DRAWN BY: CHECKED BY: FILE: S5-Precast Manhole.dwg

ALL CASTINGS SHALL BE "MADE IN USA"

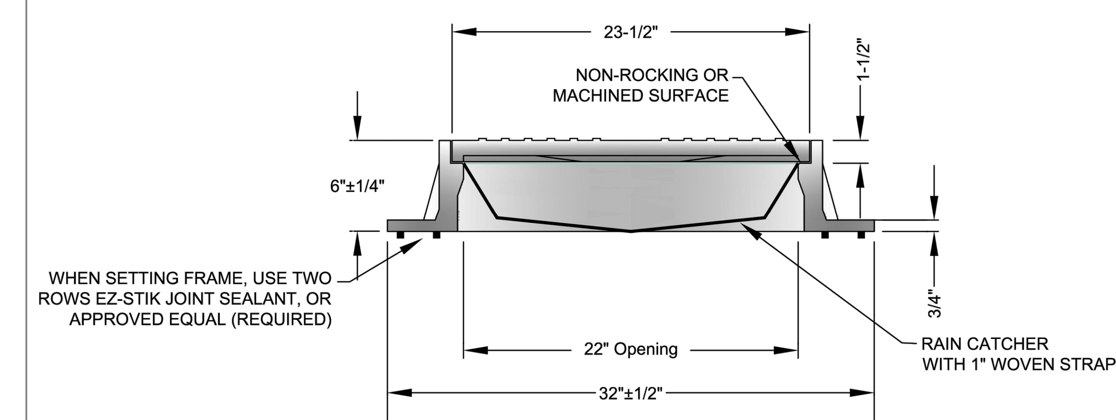




COVER DETAIL

1. MINIMUM WEIGHT OF RING: 100 POUNDS
2. MINIMUM WEIGHT OF COVER: 110 POUNDS
3. COVERS ARE FURNISHED WITH TWO CLOSED PICK SLOTS.
4. CASTINGS SHALL BE "MADE IN USA"

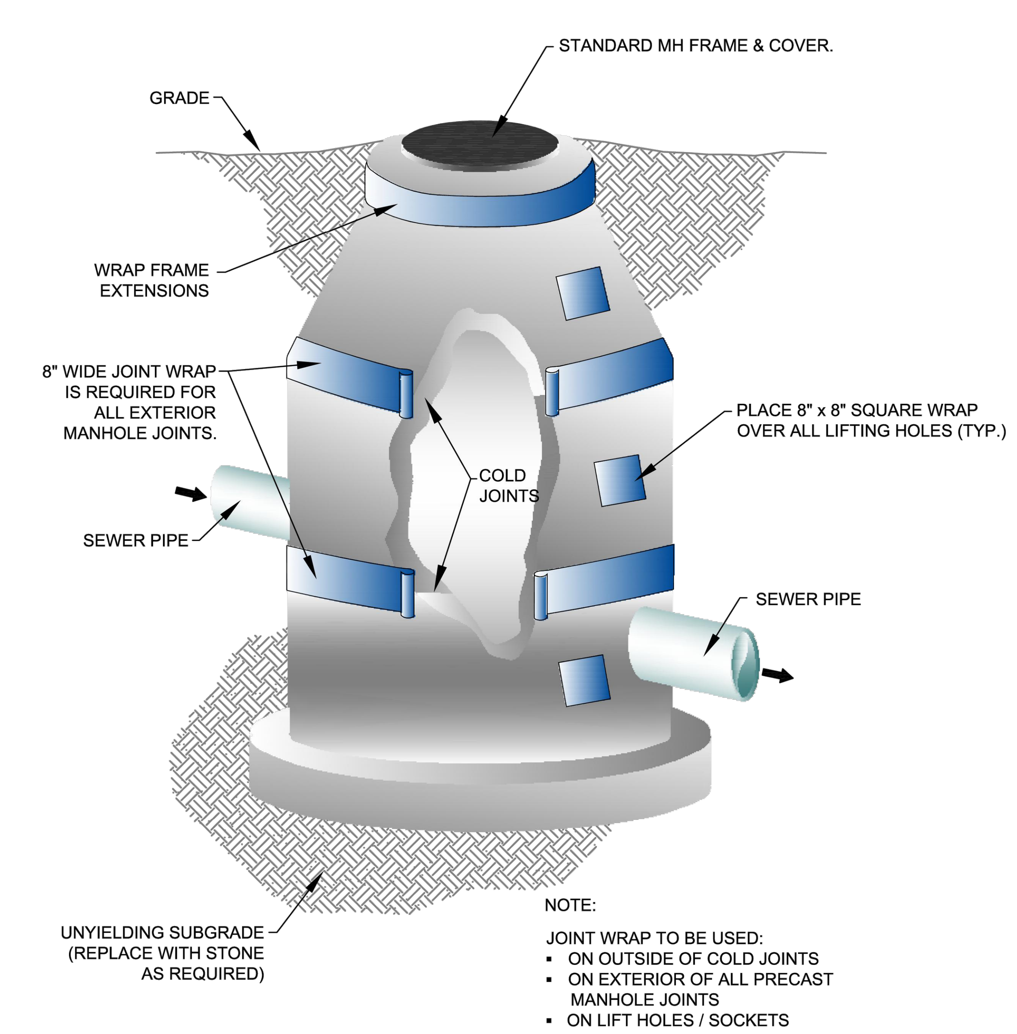
* DIMENSIONAL TOLERANCES SHALL NOT EXCEED 1/16 INCH PER FOOT



FRAME AND COVER DETAIL

CITY OF BRYANT, AR
WATER UTILITIES
210 S.W. 3rd. STREET
BRYANT, AR
PHONE: (501) 943-0488

TITLE: **SEWER DETAILS**
DESCRIPTION: MANHOLE FRAME AND COVER
DATE: APRIL 2015 REVISED
SHEET: **S6**
DRAWN BY: CHECKED BY: FILE: S6-Manhole Frame and Cover.dwg



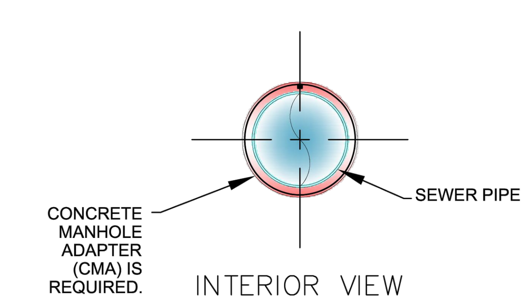
NOTE:
JOINT WRAP TO BE USED:
- ON OUTSIDE OF COLD JOINTS
- ON EXTERIOR OF ALL PRECAST MANHOLE JOINTS
- ON LIFT HOLES / SOCKETS

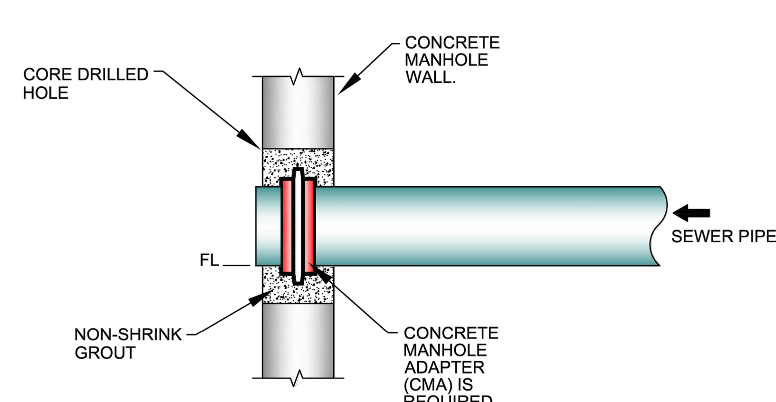
MANHOLE JOINT WRAP

CITY OF BRYANT, AR
WATER UTILITIES
210 S.W. 3rd. STREET
BRYANT, AR
PHONE: (501) 943-0488

TITLE: **SEWER DETAILS**
DESCRIPTION: MANHOLE JOINT WRAP
DATE: APRIL 2015 REVISED
SHEET: **S9**
DRAWN BY: CHECKED BY: FILE: S9-Manhole Joint Wrap.dwg

THE INSTALLATION SHALL BE DYE TESTED FOR ACCEPTANCE.





MANHOLE CORING DETAILS

CITY OF BRYANT, AR
WATER UTILITIES
210 S.W. 3rd. STREET
BRYANT, AR
PHONE: (501) 943-0488

TITLE: **SEWER DETAILS**
DESCRIPTION: MANHOLE CORING
DATE: APRIL 2015 REVISED
SHEET: **S11**
DRAWN BY: CHECKED BY: FILE: S11-Manhole Coring.dwg

CERTIFICATE OF AUTHORIZATION
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ARKANSAS-ENGINEER

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9540
PHILLIP A. LEWIS

PHILLIP LEWIS ENGINEERING, INC.
Structural + Civil Consultants
23620 Interstate 30 | Bryant, Arkansas
PH: 501-350-9840

PLE

REVISION:

BRYANT SEMINARY
HIGHWAY 5
BRYANT, ARKANSAS

PROJECT NUMBER:

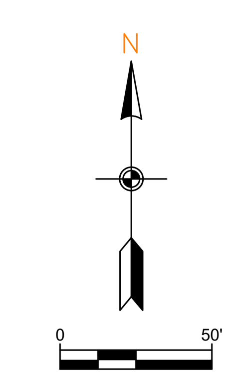
SHEET ISSUE DATE:
11-12-2024

PAGE TITLE:
UTILITY DETAILS

SHEET NUMBER:
C1.10

PRE DRAINAGE MAP

SCALE 1" = 50'



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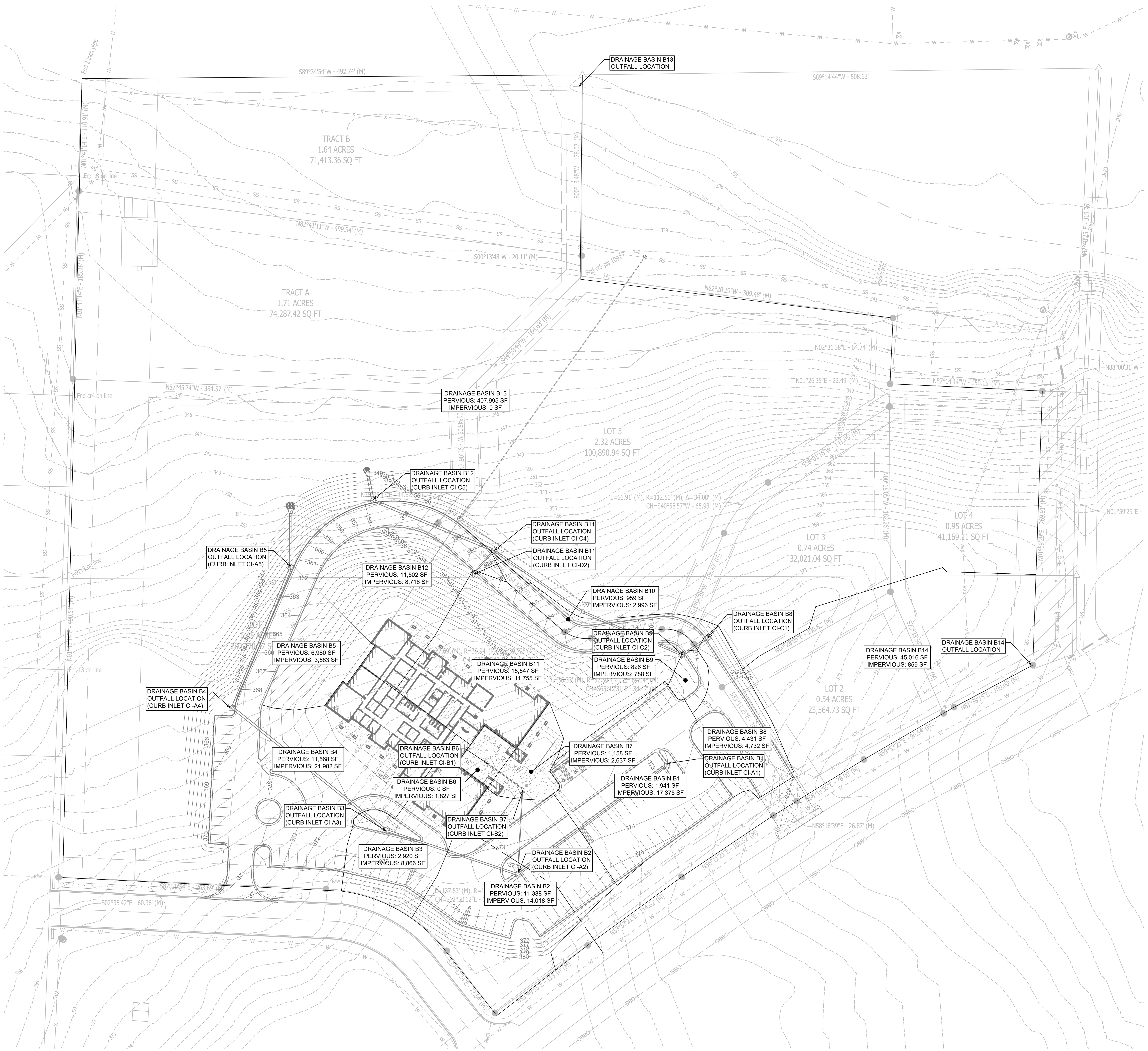
PHILLIP A. LEWIS

PROJECT NUMBER:

SHEET ISSUE DATE:
11-12-2024

PAGE TITLE:
PRE DRAINAGE MAP

SHEET NUMBER:
C1.11



POST DRAINAGE MAP

SCALE 1" = 50'

GENERAL SITE NOTES

1. TOTAL NEW DEVELOPMENT AREA = (+/-) 1.12 ACRES
2. PROPERTY IS ZONED C-2
3. 43 PARKING SPACES PROVIDED INCLUDING 2 ADA ACCESSIBLE PARKING SPACES
4. ALL DIMENSIONS ARE TO THE BACK OF CURB AND/OR EDGE OF PAVEMENT
5. DAMAGE TO PUBLIC AND PRIVATE PROPERTY DUE TO HAULING OPERATIONS OR OPERATIONS OF CONSTRUCTION RELATED EQUIPMENT FROM A CONSTRUCTION SITE SHALL BE REPAIRED BY THE THE RESPONSIBLE PARTY PRIOR TO THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY.
6. REPAIR, REPLACE, OR EXTEND EXISTING DAMAGED OR MISSING CURB AND GUTTER, SIDEWALK OR RAMPS WITHIN THE PUBLIC RIGHT OF WAY.
7. ALL SIGNAGE, PAVEMENT MARKING AND PARKING LOT STRIPING SHALL CONFORM TO REQUIREMENTS GIVEN IN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). MUTCD REQUIRES THAT PARKING SPACES BE MARKED IN WHITE.

N

1" = 50'-0"

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SHEET ISSUE DATE:
11-12-2024

PAGE TITLE:
POST DRAINAGE MAP

SHEET NUMBER:
C1.12

LANDSCAPE PLAN

SCALE 1" = 30'

NOTES:

1. LANDSCAPED AREAS TO BE AMENDED WITH 4" OF TOPSOIL, SCARIFY SOIL 3" PRIOR TO APPLICATION. ALL TOP SOIL SHALL BE PLACED IN COORDINATION WITH GRADING AND DRAINAGE PLANS TO ENSURE THAT THE GRADING AND DRAINAGE DESIGN FOR THE SITE IS MAINTAINED AFTER BEING SODDED OR SEEDED. EXISTING SOIL FROM THE SITE CAN BE STOCK PILED AND REUSED AS LONG AS IT IS OF QUALITY THAT ENCOURAGES ADEQUATE GROWTH OF PLANTING MATERIAL. THE CONTRACTOR IS RESPONSIBLE FOR ANY SOIL TESTING THAT MAY BE REQUIRED.
2. LANDSCAPE PLAN REPRESENTS RECOMMENDED SPECIES, SIZES, & LOCATIONS. OWNER SHALL CHANGE THE ITEMS TO EQUAL OR GREATER VALUE.

PLANT SCHEDULE

PLANT TYPE	SYMBOL	CODE	QTY	COMMON SPECIES	SCIENTIFIC NAME	CAL / SIZE
TREES		WO	15	WILLOW OAK	QUERCUS PHELLOS	MIN. 3" DIAMETER @ BASE AND 12' TALL
SHRUBS		BW	85	DWARF NANDINA	N. DOMESTICA "HARBOUR DWARF"	3 GAL
GROUND COVER		SO	61,425 SF	BERMUDA SOD		
		GS	36,022 SF	GRASS SEED		
			5,114 SF	LANDSCAPE BEDDING (TBD BY OWNER)		

N

0 30'

1" = 30'-0"

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11-12-2024

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LANDSCAPE PLAN

SHEET NUMBER:
C1.13

STORM WATER POLLUTION PREVENTION PLAN

SCALE 1" = 50'

INSTALL FILTER SOCKS AT ALL INLETS; MAINTAIN THROUGHOUT CONSTRUCTION.

LEGEND

DISTURBED AREA

UNDISTURBED AREA

SEDIMENT FENCE WITH WIRE BACKING

DRAINAGE DIRECTION

GENERAL CONSTRUCTION NOTES

A. THE CONTRACTOR WILL BE HELD SOLELY RESPONSIBLE FOR DAMAGES OCCURRING TO ANY PROPERTY DURING THE CONSTRUCTION OF THIS PROJECT. SAID CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT PROPERTY DAMAGE.

B. IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL SOLELY AND COMPLETELY BE RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND WILL NOT BE LIMITED TO NORMAL WORKING HOURS.

C. THE DUTY OF THE LOCAL UTILITY PROVIDER TO CONDUCT CONSTRUCTION INSPECTION REVIEWS OF THE CONTRACTOR'S PERFORMANCE IS NOT AN INSPECTION OR REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES IN, ON, OR NEAR THE CONSTRUCTION SITE.

D. ALL WATER AND SEWER IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST REVISION TO THE LOCAL PROVIDER'S WATER AND WASTEWATER (SANITARY SEWER) STANDARD SPECIFICATIONS.

E. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF ALL UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH PROPOSED IMPROVEMENTS SHOWN ON THE PLAN.

F. CONTRACTOR IS TO REMOVE AND DISPOSE OF ALL DEBRIS, RUBBISH, AND OTHER MATERIALS RESULTING FROM PREVIOUS AND CURRENT DEMOLITION OPERATIONS. DISPOSAL WILL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND/OR FEDERAL REGULATIONS GOVERNING SUCH OPERATIONS.

G. PRIOR TO INSTALLATION OF ANY UTILITIES, THE CONTRACTOR IS TO EXCAVATE, VERIFY AND CALCULATE ALL CROSSINGS AND INFORM ANY AND ALL UTILITIES OF ANY CONFLICTS PRIOR TO CONSTRUCTION.

H. CONSTRUCTION SHALL NOT START ON ANY WATER UTILITY TIE-INS UNTIL APPROVAL IS GIVEN BY THE LOCAL UTILITY PROVIDER. SAID CONTRACTOR SHALL NOT OPERATE ANY VALVE, HYDRANT, OR WATER UTILITY APPURTENANCE NOR SHALL HE ATTACH TO OR TAP ANY WATER UTILITY MAIN WITHOUT APPROVAL. THE CONTRACTOR SHALL BEAR THE COST AND CONSEQUENCE OF ANY DISRUPTION OF UTILITY OPERATION CAUSED BY CONSTRUCTION.

I. FIBER OPTIC CABLE ON AND/OR ADJACENT TO THIS SITE WERE NOT LOCATED BY THE SURVEY AND ARE NOT SHOWN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ANY FIBER OPTIC CABLES ASSOCIATED WITH THIS SITE AND TAKE ALL NECESSARY AND REQUIRED PRECAUTIONS TO PROTECT ANY EXISTING FIBER OPTIC CABLES. CONTRACTORS SHALL COORDINATE ALL EFFORTS WITH OWNER OF FIBER OPTIC CABLES OR THEIR DESIGNATED REPRESENTATIVE.

J. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING "ONECALL" SERVICE TO MARK ALL UTILITIES PRIOR TO ANY DEMOLITION, EARTHWORK, OR UTILITY WORK ON THIS SITE.

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STATE OF ARKANSAS
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11-12-2024

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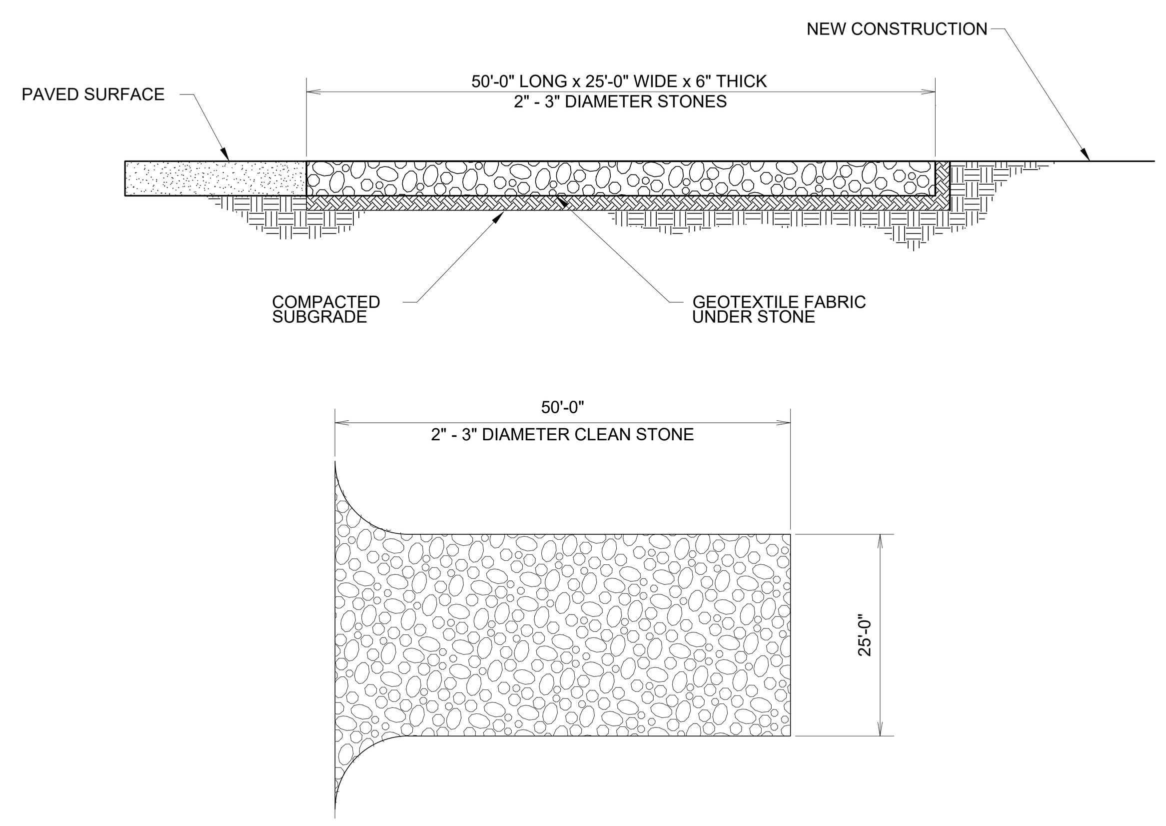
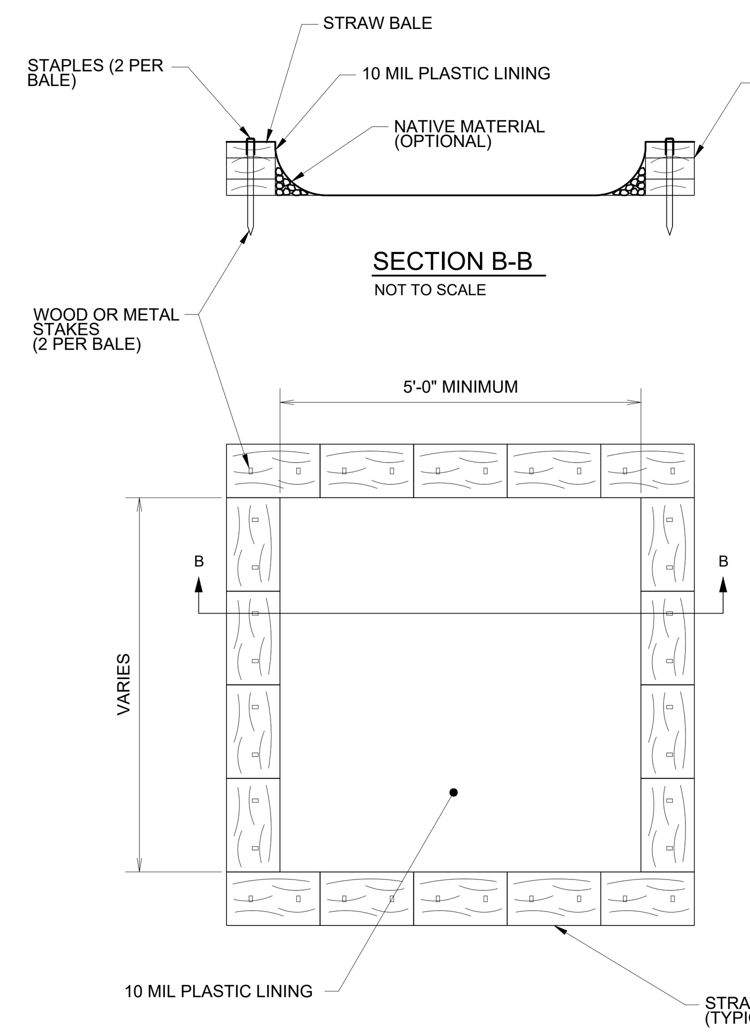
STORM WATER POLLUTION PREVENTION PLAN

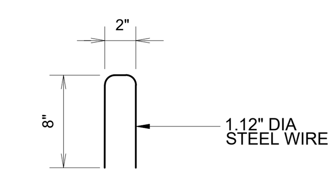
SHEET NUMBER:
C1.14



CONSTRUCTION ENTRANCE

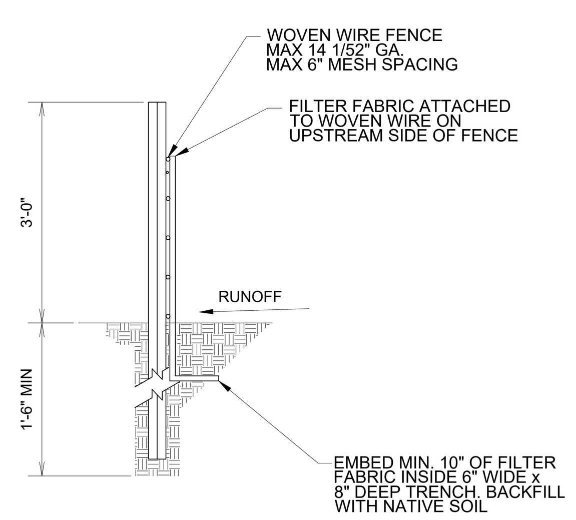
NOT TO SCALE





CONCRETE WASHOUT

NOT TO SCALE



SILT FENCE

NOT TO SCALE

NOTES AND SPECIFICATIONS:

1. POSTS SHALL BE A MINIMUM OF 36 INCHES CONSTRUCTED OF EITHER OF THE FOLLOWING MATERIALS: STEEL "T" OR "U" TYPE, OR 2" x 2" HARDWOOD.
2. WOVEN WIRE USED AS ADDITIONAL FENCE SUPPORT SHALL BE MINIMUM 14.5 GA. WITH 6" MAXIMUM SPACING.
3. WOVEN WIRE SHALL BE PLACED ALONG THE UPHILL SIDE OF THE FENCE AND FASTENED WITH WIRE TIES OR 1" STAPLES ALONG THE UPHILL SIDE OF THE POSTS.
4. FILTER FABRIC SHALL BE FASTENED TO WOVEN WIRE ACCORDING TO MANUFACTURER'S RECOMMENDATION, OR WITH TIES EVERY 24" AT THE TOP AND MID-SECTIONS.
5. WHERE TWO PIECES OF FILTER FABRIC ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY 6 INCHES AND FOLDED TOGETHER.
6. WHERE TWO POSTS MEET TO JOIN FENCE SECTIONS, THE TOPS OF THE POSTS SHALL BE SECURED TOGETHER WITH WIRE.
7. THE FENCE SHALL BE CONSTRUCTED ALONG THE CONTOUR AS MUCH AS POSSIBLE.
8. ENDS OF FENCES SHALL BE EXTENDED UP THE SLOPE TO PRVENT RUNOFF FROM MIGRATING AROUND THE END OF THE FENCE.
9. INSPECTION OF THE FENCE SHALL BE PERFORMED WEEKLY, OR IMMEDIATELY AFTER A RAIN EVENT, OR WHEN BULGES APPEAR IN THE FENCE. ACCUMALTED SILT SHALL NOT BE ALLOWED TO EXCEED HALF THE HEIGHT OF THE FABRIC. REPAIR AND OR REPLACMENT OF DAMAGED FENCE SHALL BE COMPLETED PROMPTLY.
10. ACCUMULATED SILT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED SITE IN SUCH A MANNER THAT IT WILL NOT CONTRIBUTE TO OFF-SITE SILTATION.
11. ALL FENCING SHALL BE REMOVED WITH THE CONSTRUCTION SITE IS FULLY STABLIZED SO AS TO NOT IMPEDE STORM FLOW OR DRAINAGE.
12. PRE-FRABRICATED UNITS DO NOT REQUIRE THE USE OF WOVEN WIRE FENCE.

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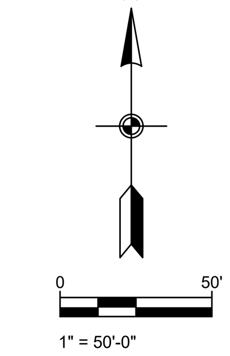

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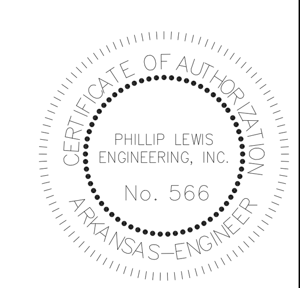
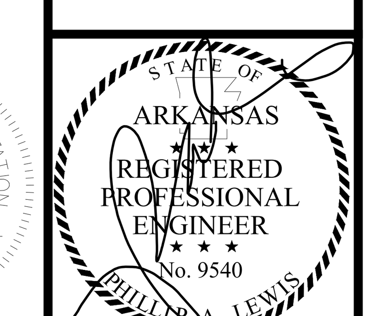




PROJECT NUMBER:

SHEET ISSUE DATE:
11-12-2024

PAGE TITLE:
SWPPP DETAILS

SHEET NUMBER:
C1.15

SEMINARY
DRAINAGE REPORT

Date: **10-31-2024**

Located in: **Bryant, Arkansas**

Prepared for:
City of Bryant, Arkansas

Prepared by:

PHILLIP LEWIS ENGINEERING
Structural + Civil Consultants
23620 Interstate 30 | Bryant, AR
PH: 501-350-9840

CERTIFICATION

I hereby state that this Final Drainage has been prepared by me or under my supervision and meets the standard of care and expertise which is usual and customary in this community of professional engineers. The analysis has been prepared utilizing procedures and practices by the City of Bryant and within the standard accepted practices.

___________________________________ DATE: 10-31-2024

Phillip A. Lewis, PE.

PROJECT LOCATION MAP

DESCRIPTION OF PROPERTY

The proposed project is for the consruction of a new Seminary located along Highway 5. The proposed development is a 20,000 sq. ft. building, public road and parking lot.

The intent of this drainage analysis is to adequately size the storm sewer system and summarize pre and post runoff conditions.

The existing ground coverage for the entire development drainage basin consists of and natural vegetation (2%-7% slope), hydrologic soil group B/C.

According to FEMA Flood Insurance Rate Map, Panel 05125C0240E, this property lies within Zone X, areas determined to be outside the 0.2% annual chance floodplain. A copy of the map can be found in the appendix.

DRAINAGE CRITERIA

In accordance with the requirements of the City of Bryant, the proposed developments drainage plan and this drainage report were developed with the criteria established in the Bryant Stormwater Management & Drainage Manual provided on cityofbryant.com.

All drainage calculations were performed using HydroCAD software to determine and analyze the changes in stormrunoff volume, flow rates, and design the outlet release structure. Hydraflow Express software was used to appropriately design and size all storm sewer inlets, pipes and channels.

Calculations were performed using the Rational Method, using NOAA rainfall data, Runoff Coefficient table (Bryant Stormwater Management & Drainage Manual, Table 400-2) and the pipe and intlet structure sizes were determined by the 25-year storm event.

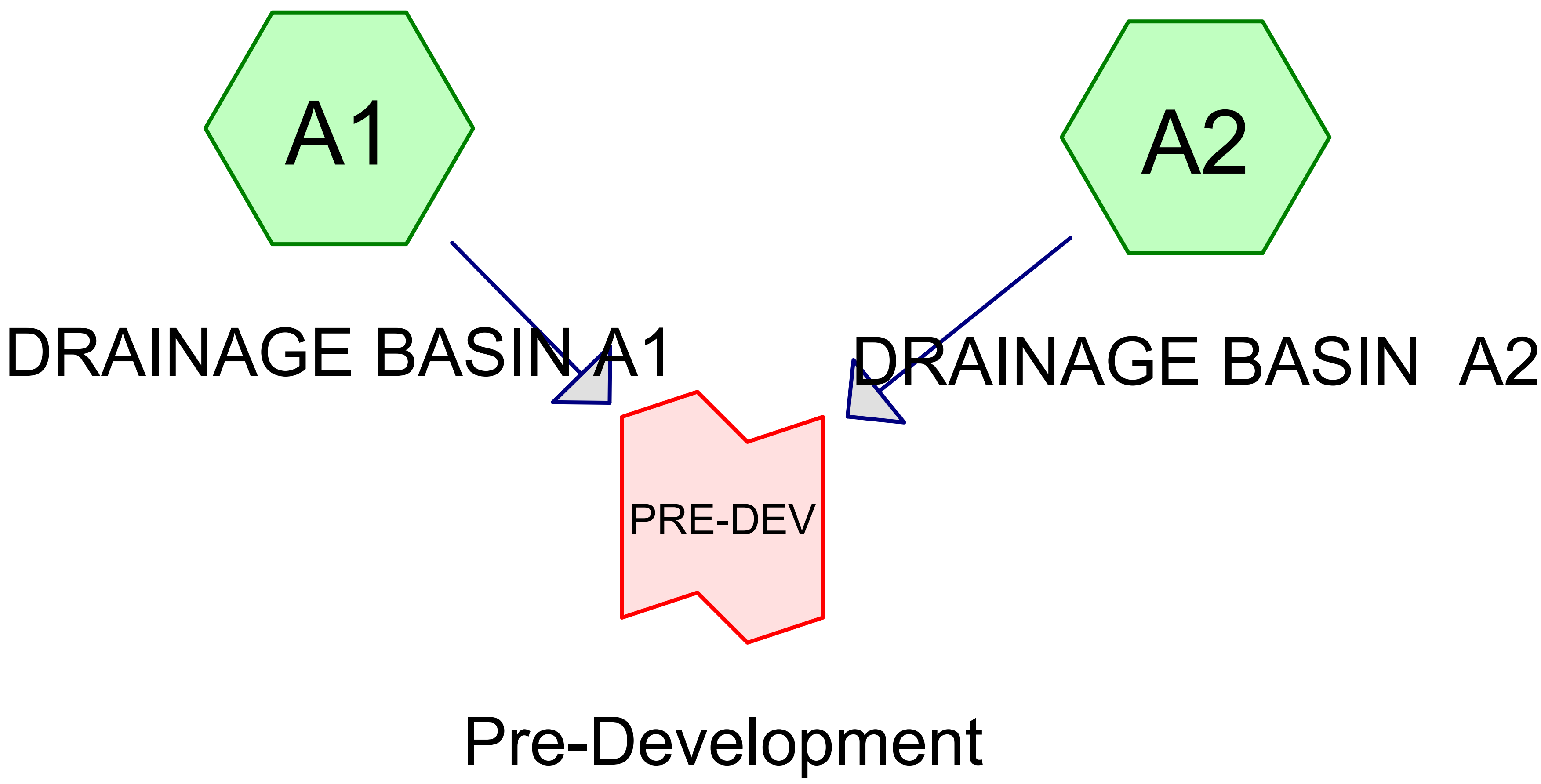
PROPOSED DRAINAGE SYSTEM

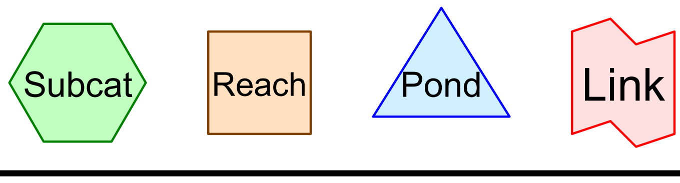
This develompent is designed to capture the majority of runoff within the public road and parking lot curb and gutter. The storm sewer system will consist of with “Nyloplast” area inlets and standard concrete curb inlets. These inlets were sized based on there independent drainage basin flow rate and the slope that the inlets will be placed at.

Overall Pre-development and Post-development runoff/discharge rates are compared below:

Storm Event	Pre-development Discharge (cfs)	Post-development Discharge (cfs)
2-yr	9.45	12.41
5-yr	11.27	14.80
10-yr	12.73	16.71
25-yr	14.61	19.18
100-yr	19.82	20.70

PRE DEVELOPMENT HYDROGRAPHS





Routing Diagram for Seminary Drainage
Prepared by Phillip Lewis Engineering, Printed 10/9/2024

Summary for Subcatchment A1: DRAINAGE BASIN A1

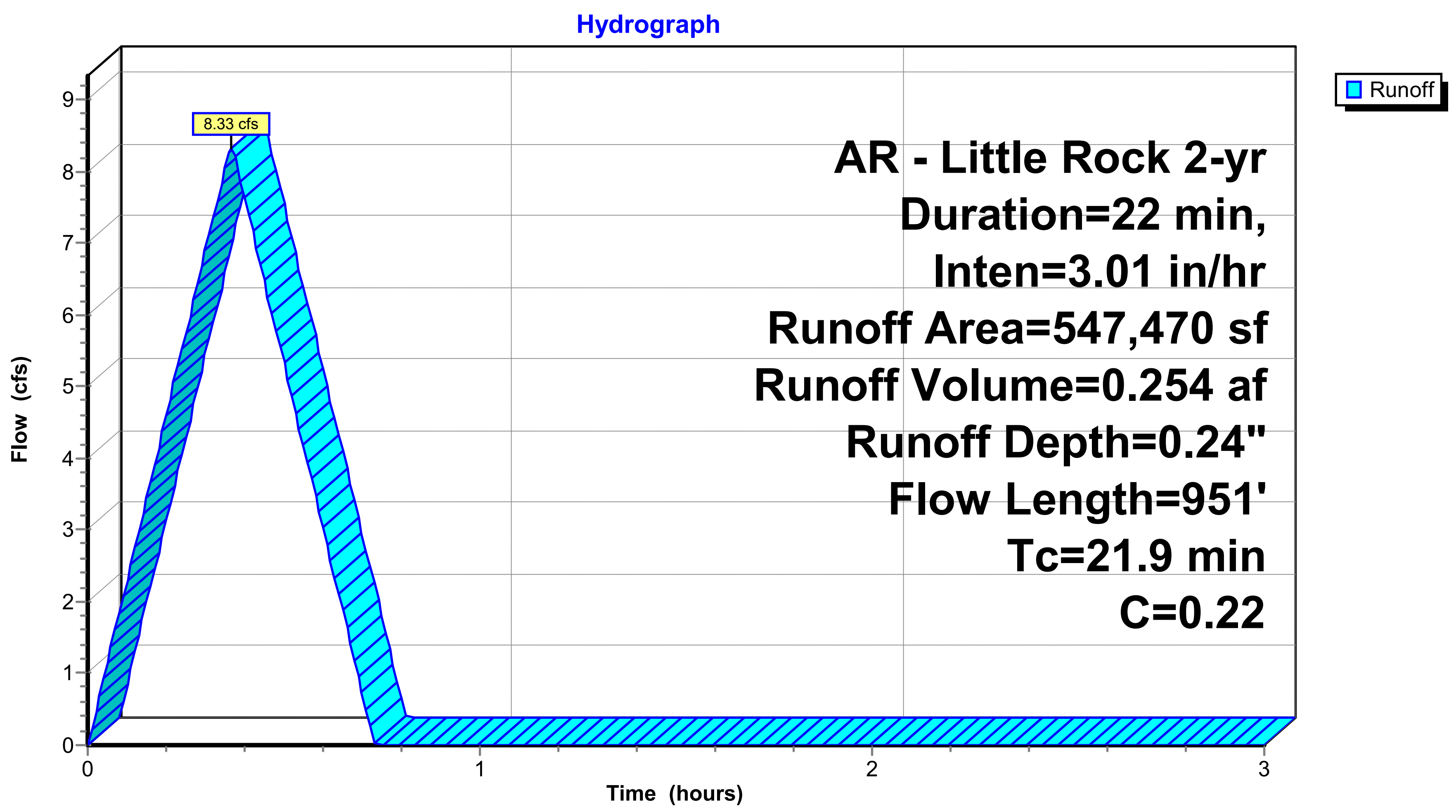
Runoff = 8.33 cfs @ 0.37 hrs, Volume= 0.254 af, Depth= 0.24"
Routed to Link PRE-DEV : Pre-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 2-yr Duration=22 min, Inten=3.01 in/hr

Area (sf)	C	Description
547,470	0.22	Sandy Soil 2-7% per manual (undeveloped)
547,470		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.2	96	0.0840	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 4.20"
0.7	76	0.0710	1.87		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.7	76	0.0660	1.80		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	47	0.0660	1.80		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.3	28	0.0640	1.77		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	25	0.0590	1.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.8	80	0.0580	1.69		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.2	107	0.0430	1.45		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.7	42	0.0180	0.94		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.7	49	0.0300	1.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.5	158	0.0220	1.04		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.1	67	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.1	45	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.3	55	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
21.9	951	Total			

Subcatchment A1: DRAINAGE BASIN A1



Summary for Subcatchment A2: DRAINAGE BASIN A2

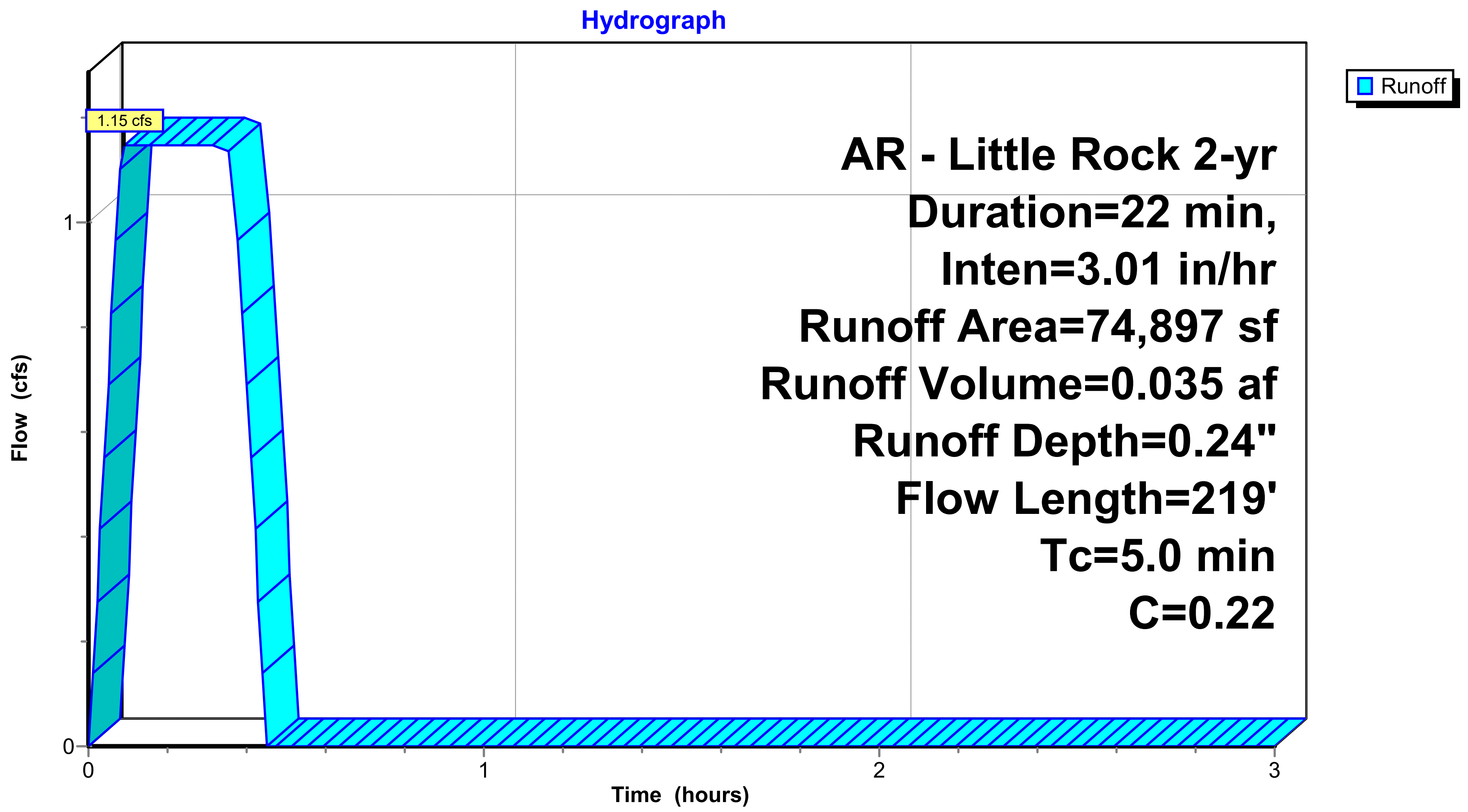
Runoff = 1.15 cfs @ 0.09 hrs, Volume= 0.035 af, Depth= 0.24"
Routed to Link PRE-DEV : Pre-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 2-yr Duration=22 min, Inten=3.01 in/hr

Area (sf)	C	Description
74,897	0.22	2-7% Sandy per LR Manual
74,897		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	12	0.0330	1.27		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.9	144	0.0310	1.23		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.3	18	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	45	0.0340	1.29		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.0					**Direct Entry, min adjustment**
5.0	219	Total			

Subcatchment A2: DRAINAGE BASIN A2

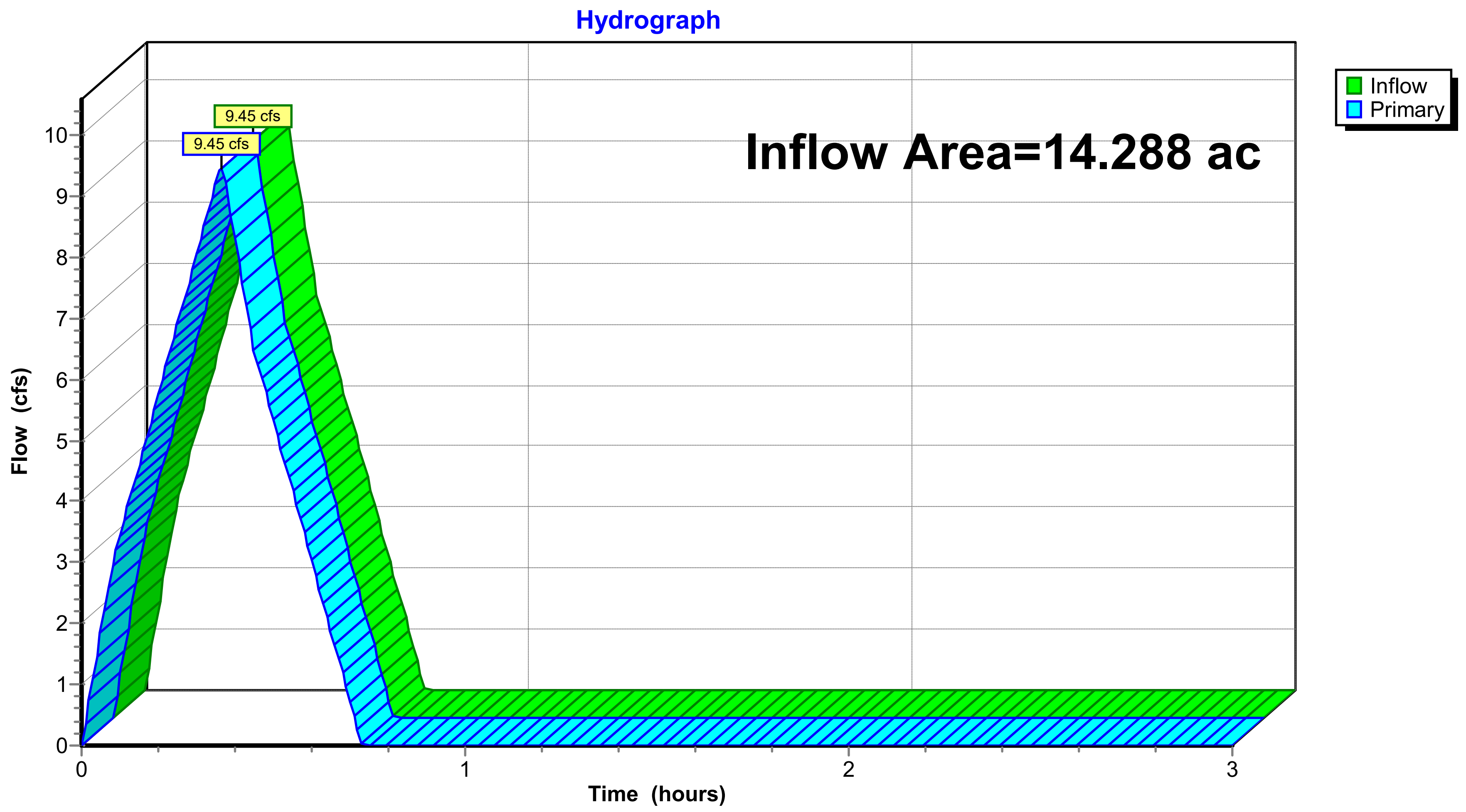


Summary for Link PRE-DEV: Pre-Development

Inflow Area = 14.288 ac, 0.00% Impervious, Inflow Depth = 0.24" for 2-yr event
Inflow = 9.45 cfs @ 0.36 hrs, Volume= 0.289 af
Primary = 9.45 cfs @ 0.36 hrs, Volume= 0.289 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Link PRE-DEV: Pre-Development



Summary for Subcatchment A1: DRAINAGE BASIN A1

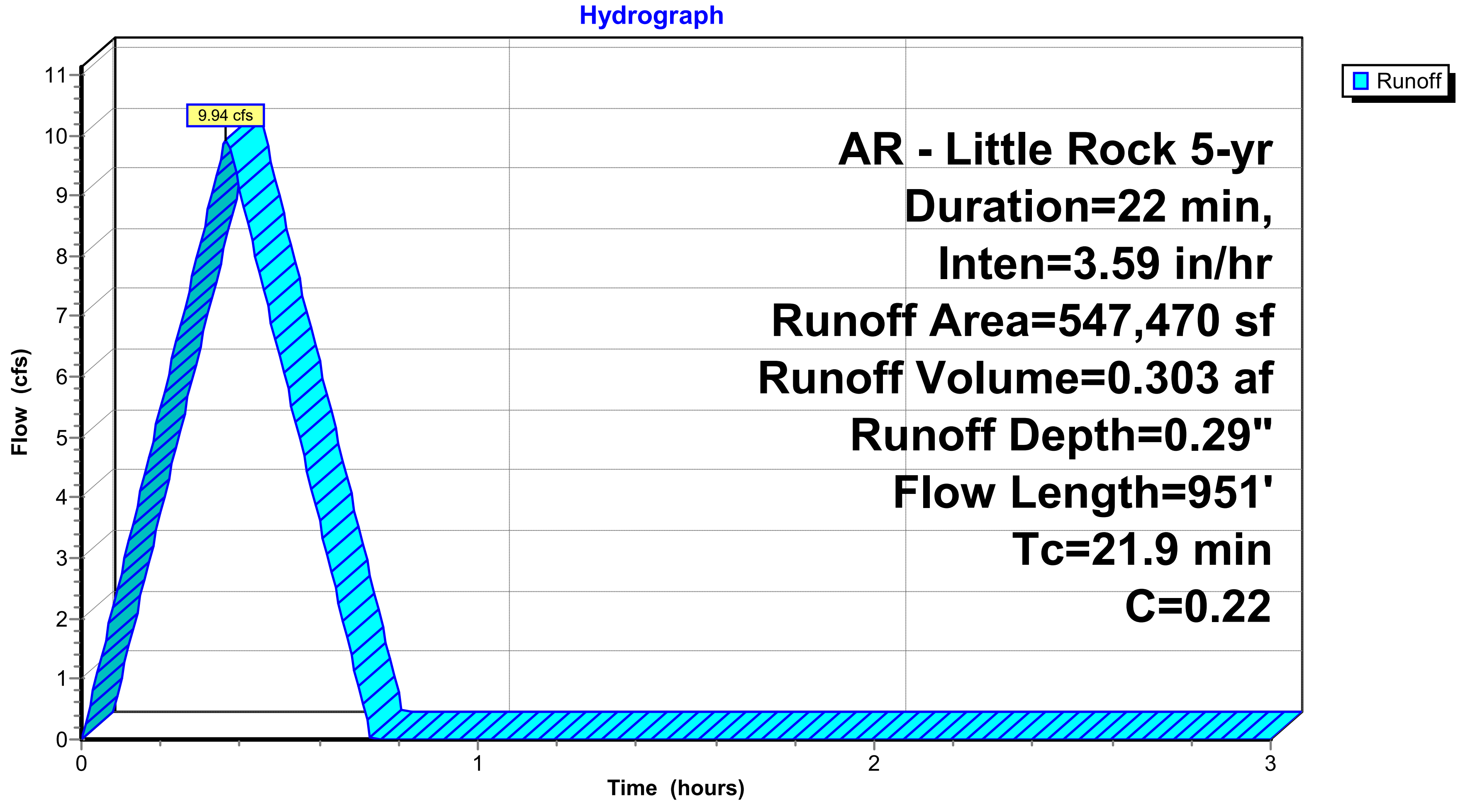
Runoff = 9.94 cfs @ 0.37 hrs, Volume= 0.303 af, Depth= 0.29"
Routed to Link PRE-DEV : Pre-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 5-yr Duration=22 min, Inten=3.59 in/hr

Area (sf)	C	Description
547,470	0.22	Sandy Soil 2-7% per manual (undeveloped)
547,470		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.2	96	0.0840	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 4.20"
0.7	76	0.0710	1.87		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.7	76	0.0660	1.80		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	47	0.0660	1.80		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.3	28	0.0640	1.77		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	25	0.0590	1.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.8	80	0.0580	1.69		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.2	107	0.0430	1.45		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.7	42	0.0180	0.94		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.7	49	0.0300	1.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.5	158	0.0220	1.04		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.1	67	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.1	45	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.3	55	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
21.9	951	Total			

Subcatchment A1: DRAINAGE BASIN A1



Summary for Subcatchment A2: DRAINAGE BASIN A2

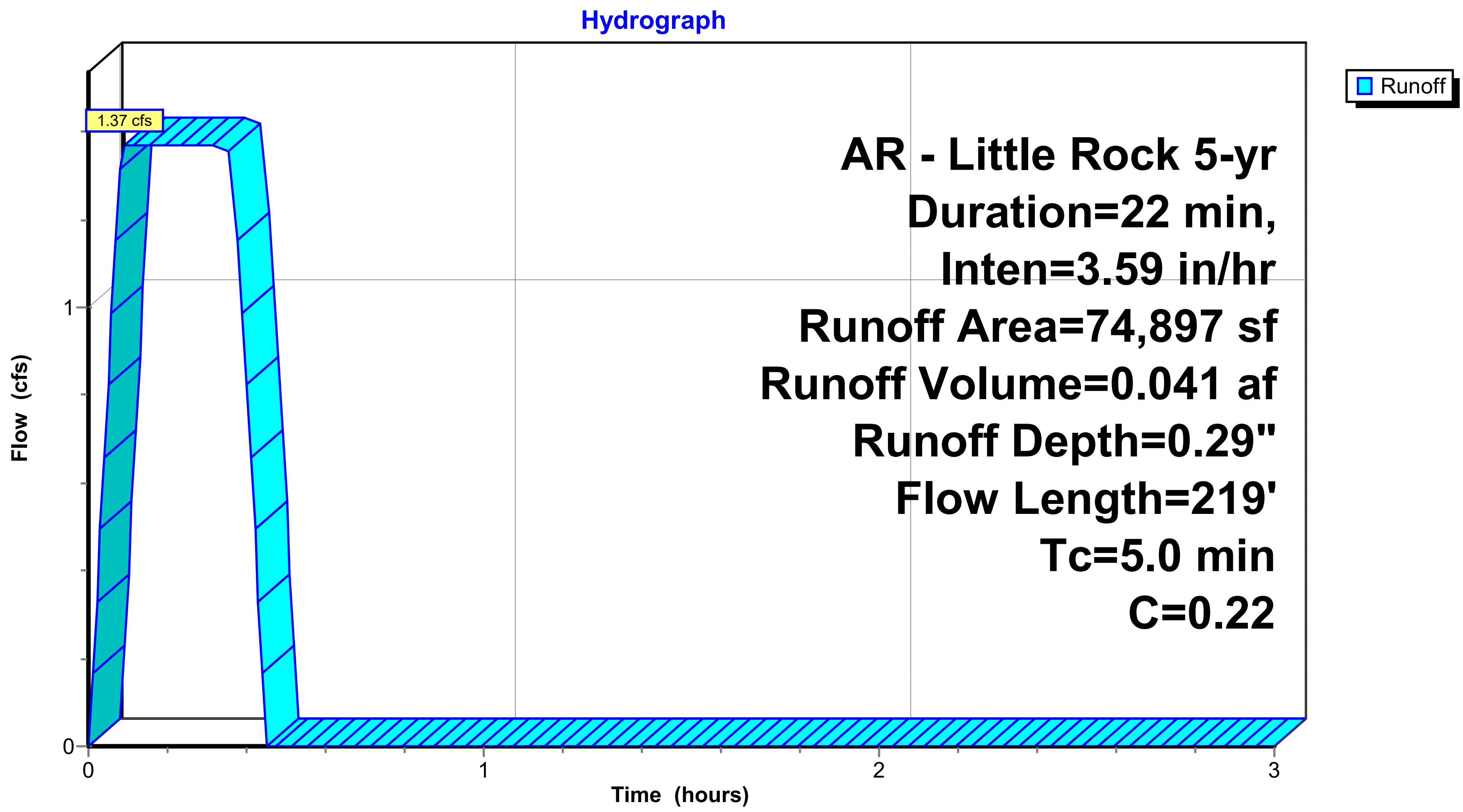
Runoff = 1.37 cfs @ 0.09 hrs, Volume= 0.041 af, Depth= 0.29"
Routed to Link PRE-DEV : Pre-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 5-yr Duration=22 min, Inten=3.59 in/hr

Area (sf)	C	Description
74,897	0.22	2-7% Sandy per LR Manual
74,897		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	12	0.0330	1.27		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.9	144	0.0310	1.23		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.3	18	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	45	0.0340	1.29		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.0					**Direct Entry, min adjustment**
5.0	219	Total			

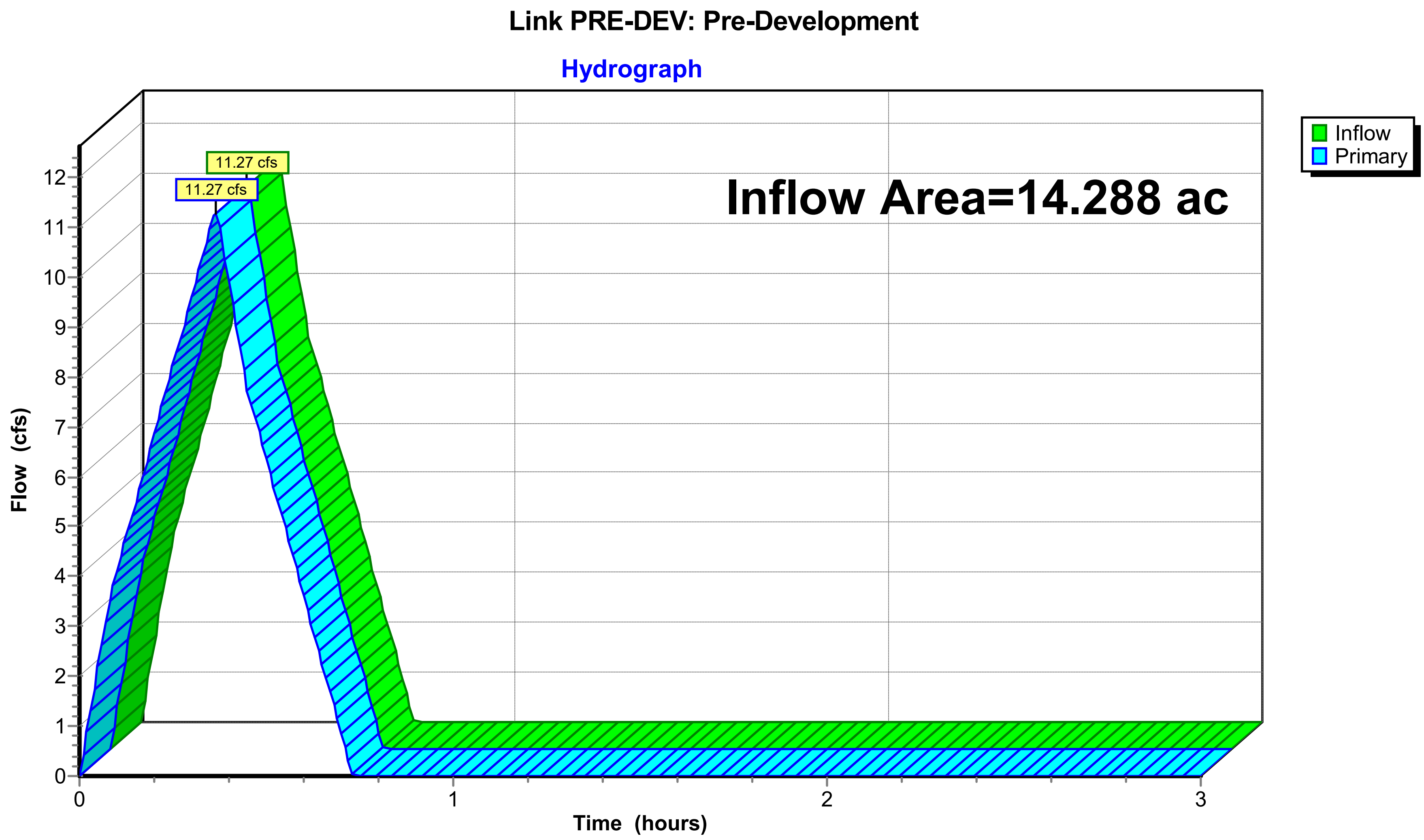
Subcatchment A2: DRAINAGE BASIN A2



Summary for Link PRE-DEV: Pre-Development

Inflow Area = 14.288 ac, 0.00% Impervious, Inflow Depth = 0.29" for 5-yr event
Inflow = 11.27 cfs @ 0.36 hrs, Volume= 0.345 af
Primary = 11.27 cfs @ 0.36 hrs, Volume= 0.345 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs



Summary for Subcatchment A1: DRAINAGE BASIN A1

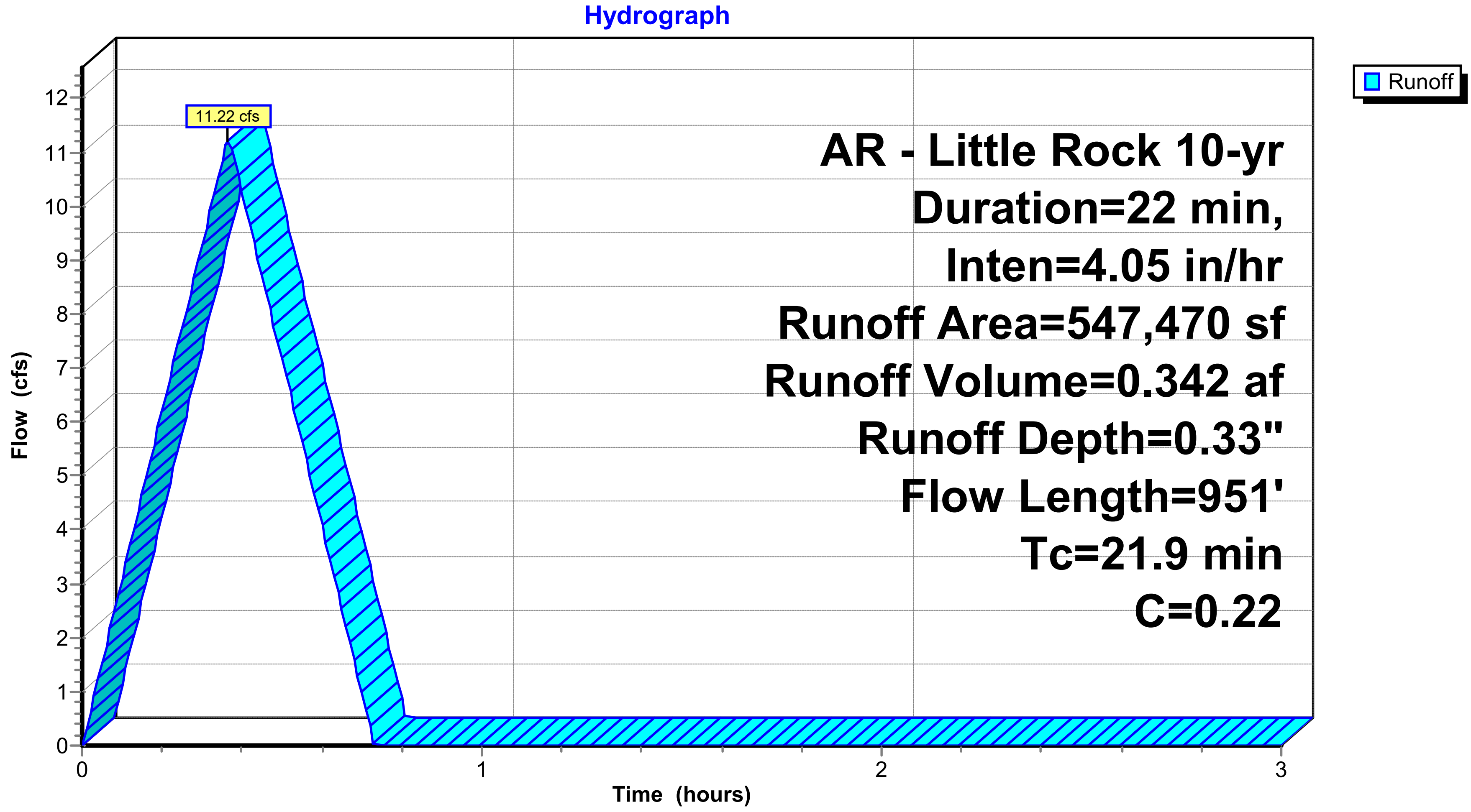
Runoff = 11.22 cfs @ 0.37 hrs, Volume= 0.342 af, Depth= 0.33"
Routed to Link PRE-DEV : Pre-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 10-yr Duration=22 min, Inten=4.05 in/hr

Area (sf)	C	Description
547,470	0.22	Sandy Soil 2-7% per manual (undeveloped)
547,470		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.2	96	0.0840	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 4.20"
0.7	76	0.0710	1.87		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.7	76	0.0660	1.80		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	47	0.0660	1.80		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.3	28	0.0640	1.77		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	25	0.0590	1.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.8	80	0.0580	1.69		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.2	107	0.0430	1.45		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.7	42	0.0180	0.94		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.7	49	0.0300	1.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.5	158	0.0220	1.04		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.1	67	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.1	45	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.3	55	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
21.9	951	Total			

Subcatchment A1: DRAINAGE BASIN A1



Summary for Subcatchment A2: DRAINAGE BASIN A2

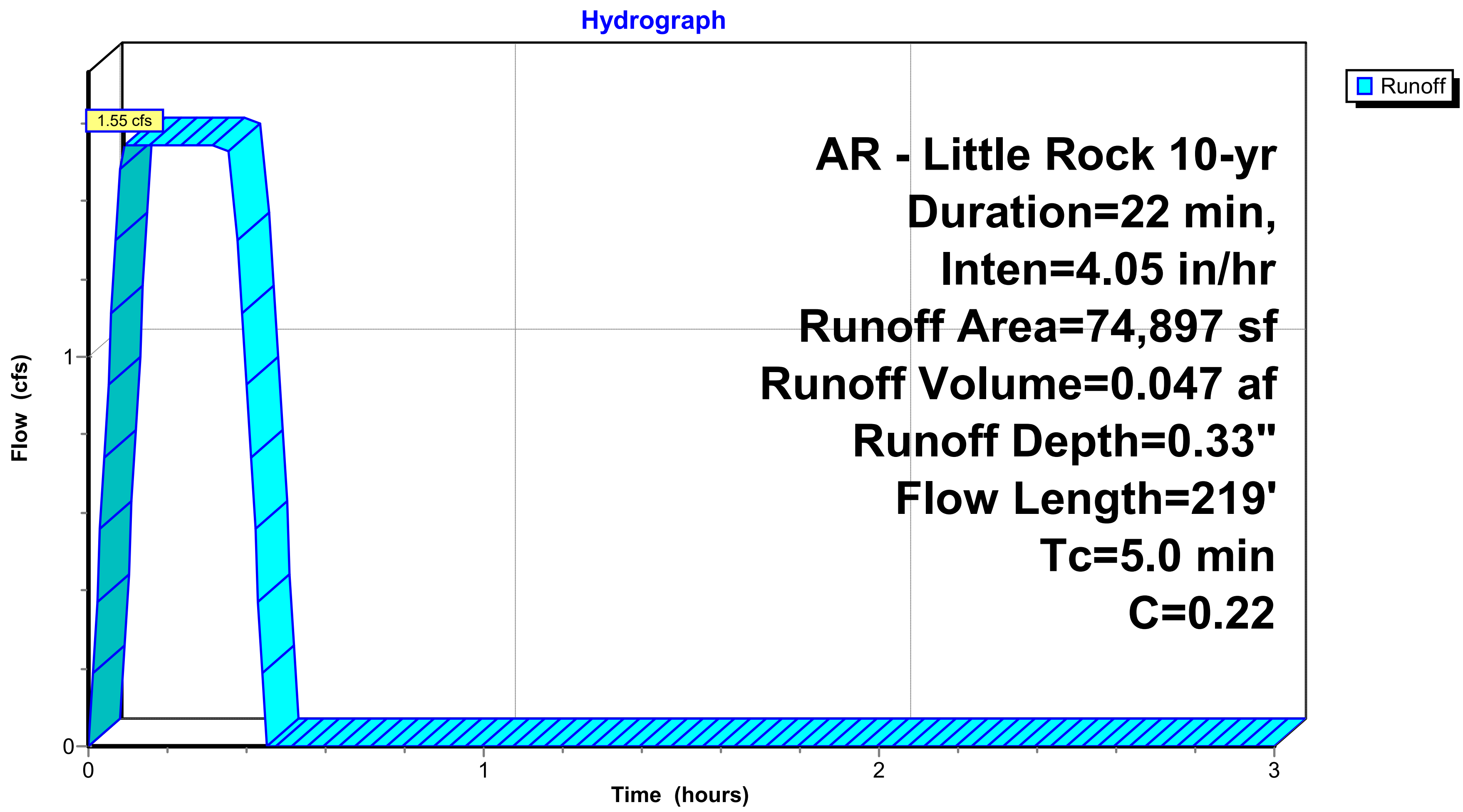
Runoff = 1.55 cfs @ 0.09 hrs, Volume= 0.047 af, Depth= 0.33"
Routed to Link PRE-DEV : Pre-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 10-yr Duration=22 min, Inten=4.05 in/hr

Area (sf)	C	Description
74,897	0.22	2-7% Sandy per LR Manual
74,897		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	12	0.0330	1.27		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.9	144	0.0310	1.23		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.3	18	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	45	0.0340	1.29		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.0					**Direct Entry, min adjustment**
5.0	219	Total			

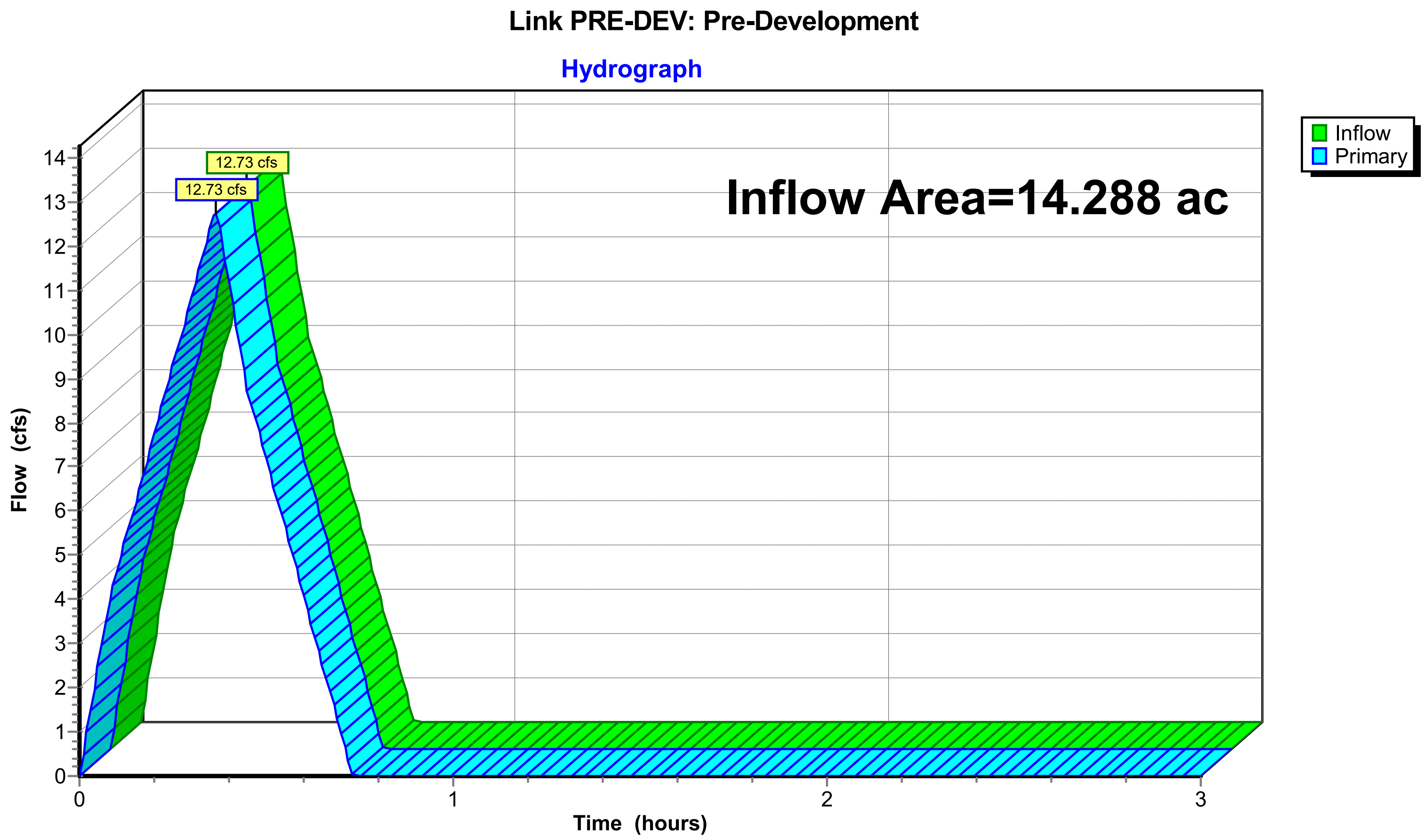
Subcatchment A2: DRAINAGE BASIN A2



Summary for Link PRE-DEV: Pre-Development

Inflow Area =	14.288 ac,	0.00% Impervious, Inflow Depth = 0.33"	for 10-yr event	
Inflow =	12.73 cfs @	0.36 hrs, Volume=	0.389 af	
Primary =	12.73 cfs @	0.36 hrs, Volume=	0.389 af,	Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs



Summary for Subcatchment A1: DRAINAGE BASIN A1

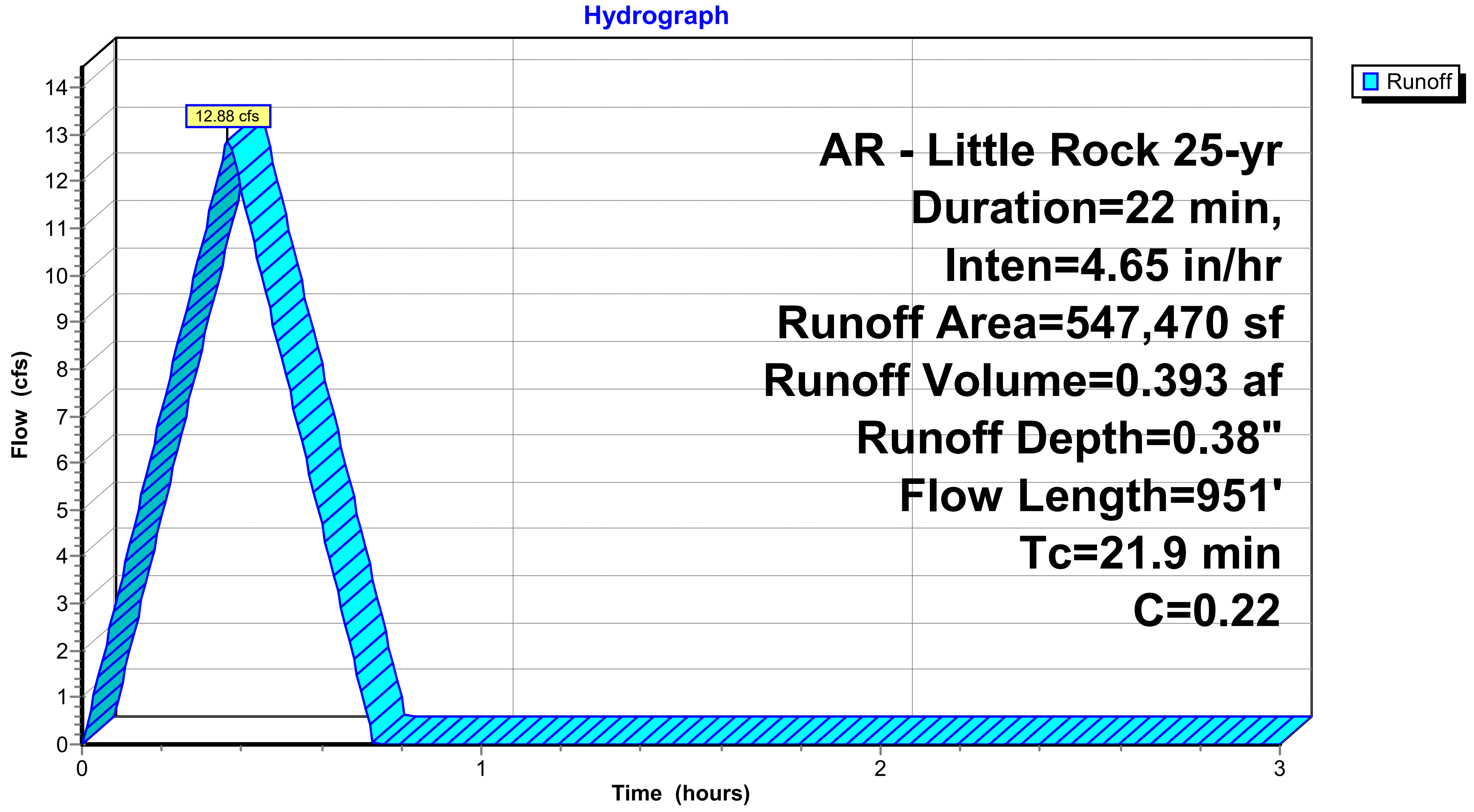
Runoff = 12.88 cfs @ 0.37 hrs, Volume= 0.393 af, Depth= 0.38"
Routed to Link PRE-DEV : Pre-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 25-yr Duration=22 min, Inten=4.65 in/hr

Area (sf)	C	Description
547,470	0.22	Sandy Soil 2-7% per manual (undeveloped)
547,470		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.2	96	0.0840	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 4.20"
0.7	76	0.0710	1.87		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.7	76	0.0660	1.80		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	47	0.0660	1.80		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.3	28	0.0640	1.77		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	25	0.0590	1.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.8	80	0.0580	1.69		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.2	107	0.0430	1.45		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.7	42	0.0180	0.94		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.7	49	0.0300	1.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.5	158	0.0220	1.04		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.1	67	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.1	45	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.3	55	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
21.9	951	Total			

Subcatchment A1: DRAINAGE BASIN A1



Summary for Subcatchment A2: DRAINAGE BASIN A2

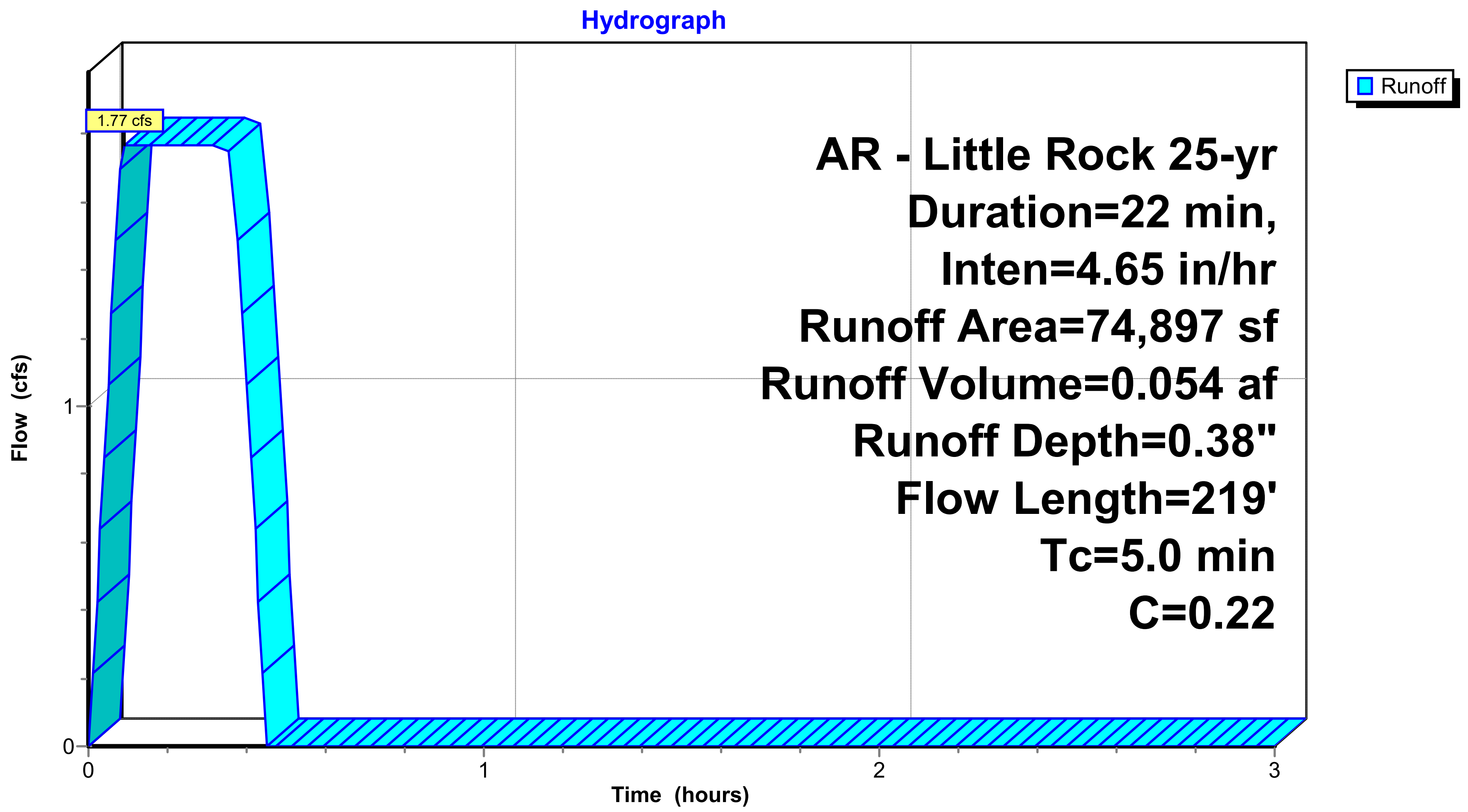
Runoff = 1.77 cfs @ 0.09 hrs, Volume= 0.054 af, Depth= 0.38"
Routed to Link PRE-DEV : Pre-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 25-yr Duration=22 min, Inten=4.65 in/hr

Area (sf)	C	Description
74,897	0.22	2-7% Sandy per LR Manual
74,897		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	12	0.0330	1.27		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.9	144	0.0310	1.23		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.3	18	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	45	0.0340	1.29		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.0					**Direct Entry, min adjustment**
5.0	219	Total			

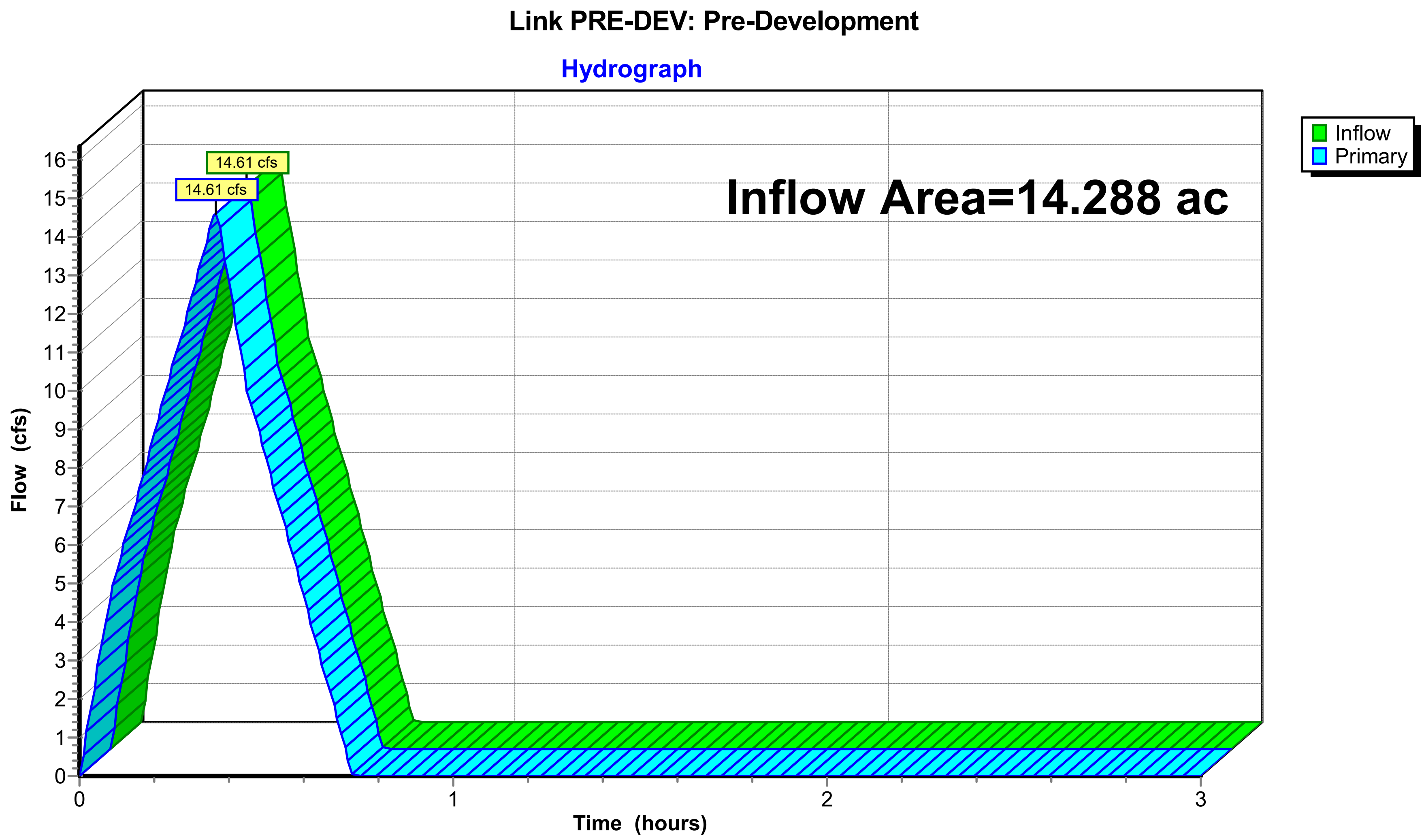
Subcatchment A2: DRAINAGE BASIN A2



Summary for Link PRE-DEV: Pre-Development

Inflow Area = 14.288 ac, 0.00% Impervious, Inflow Depth = 0.38" for 25-yr event
Inflow = 14.61 cfs @ 0.36 hrs, Volume= 0.447 af
Primary = 14.61 cfs @ 0.36 hrs, Volume= 0.447 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs



Summary for Subcatchment A1: DRAINAGE BASIN A1

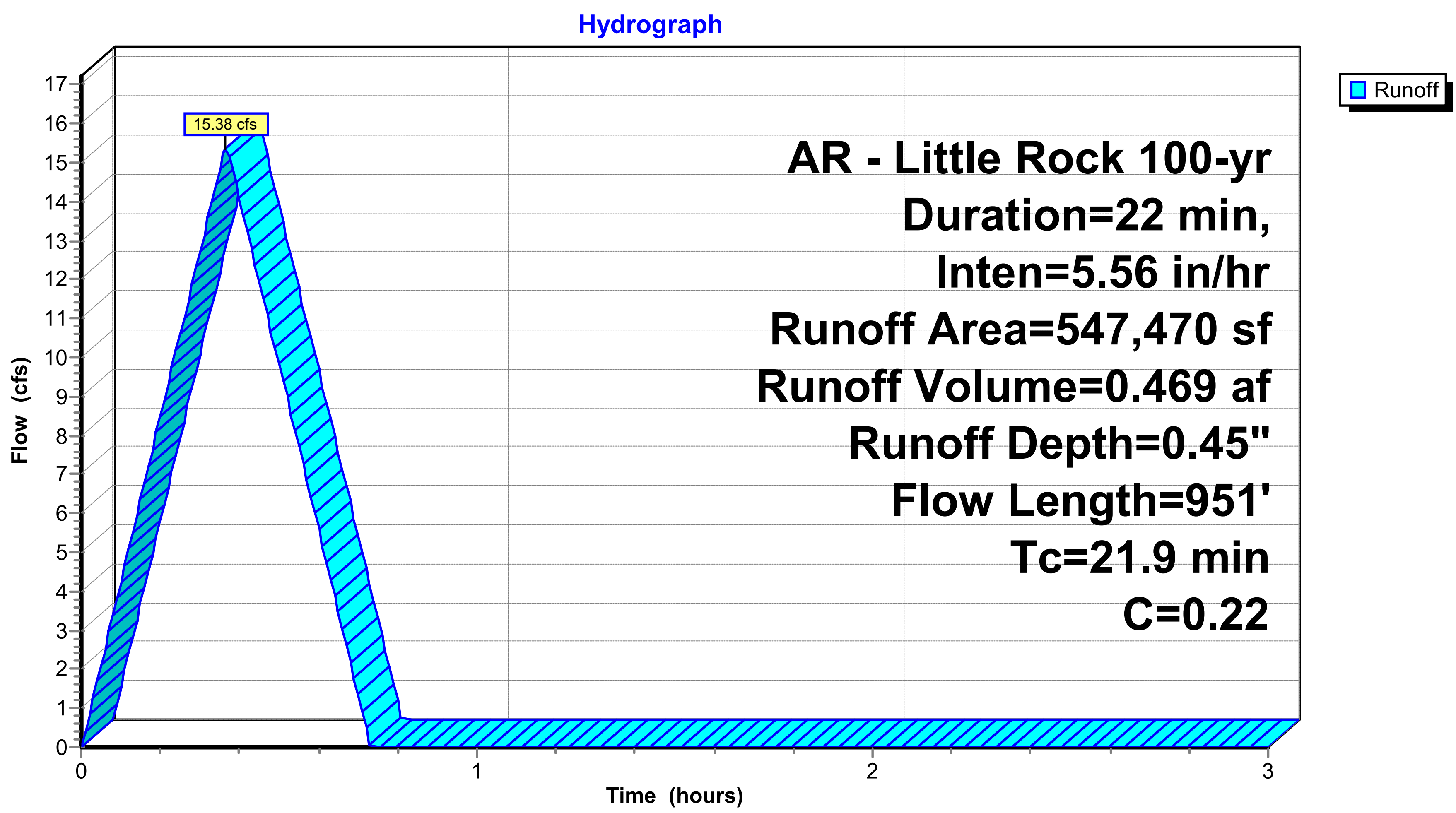
Runoff = 15.38 cfs @ 0.37 hrs, Volume= 0.469 af, Depth= 0.45"
Routed to Link PRE-DEV : Pre-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 100-yr Duration=22 min, Inten=5.56 in/hr

Area (sf)	C	Description
547,470	0.22	Sandy Soil 2-7% per manual (undeveloped)
547,470		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.2	96	0.0840	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 4.20"
0.7	76	0.0710	1.87		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.7	76	0.0660	1.80		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	47	0.0660	1.80		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.3	28	0.0640	1.77		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	25	0.0590	1.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.8	80	0.0580	1.69		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.2	107	0.0430	1.45		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.7	42	0.0180	0.94		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.7	49	0.0300	1.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.5	158	0.0220	1.04		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.1	67	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.1	45	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.3	55	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
21.9	951	Total			

Subcatchment A1: DRAINAGE BASIN A1



Summary for Subcatchment A2: DRAINAGE BASIN A2

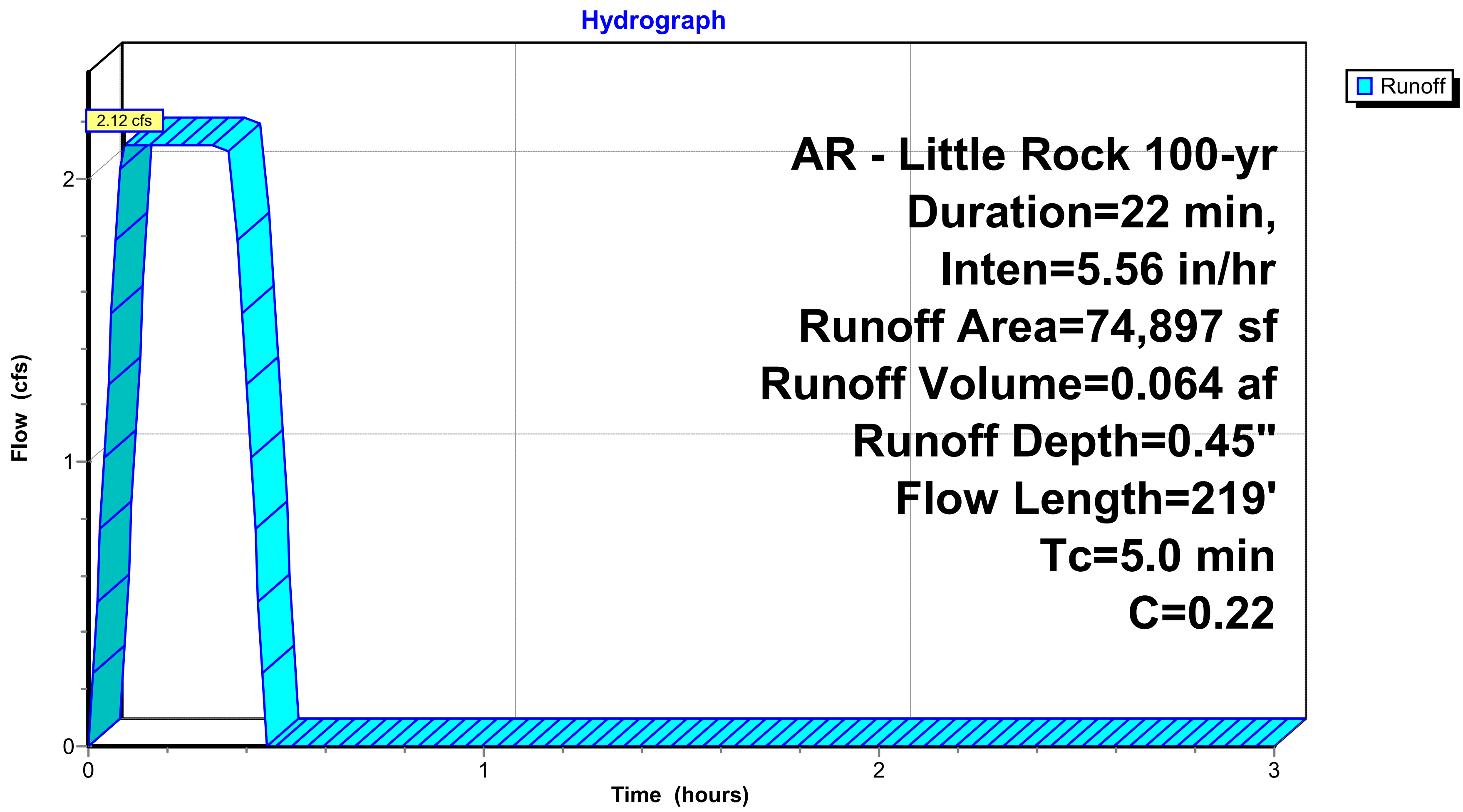
Runoff = 2.12 cfs @ 0.09 hrs, Volume= 0.064 af, Depth= 0.45"
Routed to Link PRE-DEV : Pre-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 100-yr Duration=22 min, Inten=5.56 in/hr

Area (sf)	C	Description
74,897	0.22	2-7% Sandy per LR Manual
74,897		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	12	0.0330	1.27		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.9	144	0.0310	1.23		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.3	18	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	45	0.0340	1.29		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.0					**Direct Entry, min adjustment**
5.0	219	Total			

Subcatchment A2: DRAINAGE BASIN A2

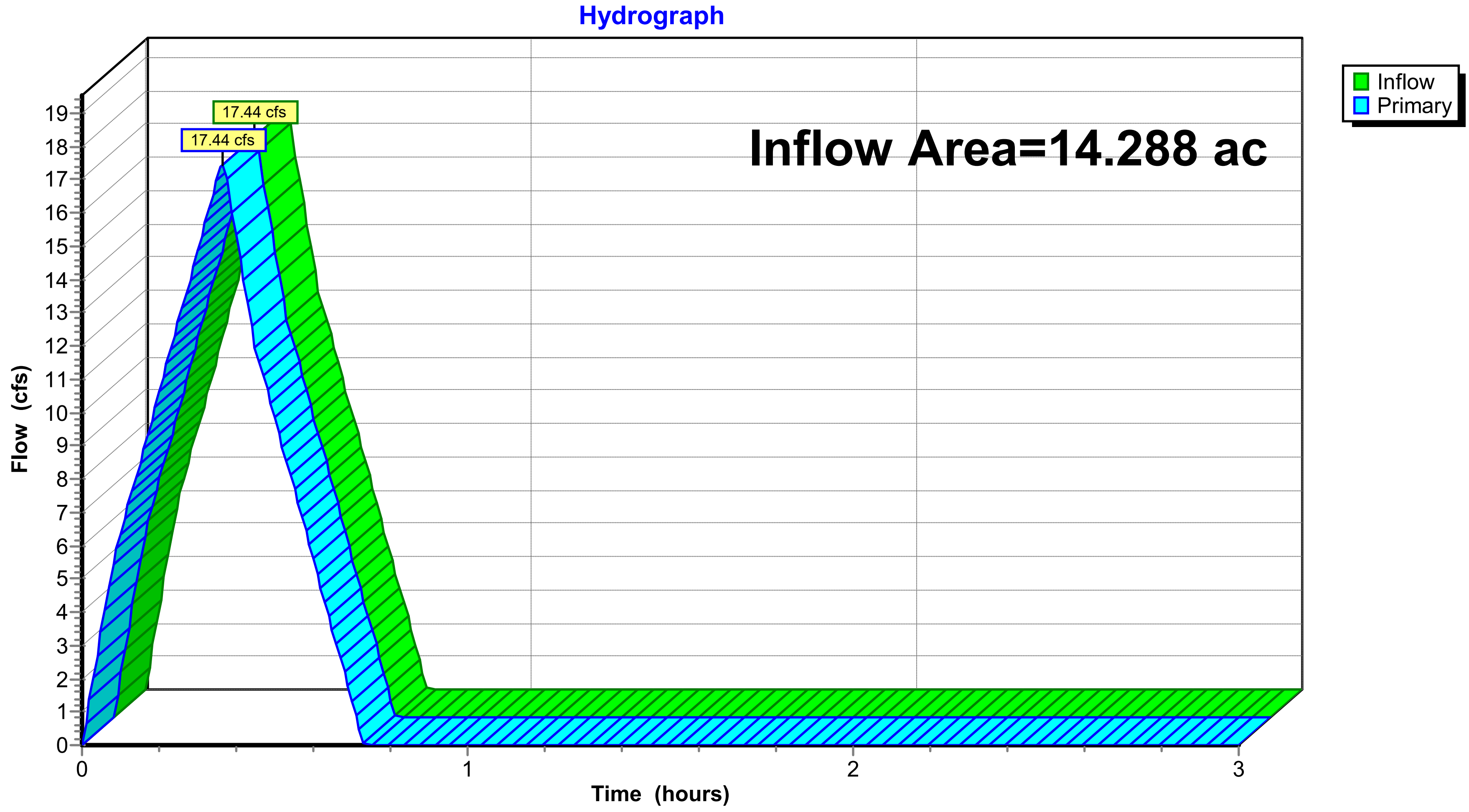


Summary for Link PRE-DEV: Pre-Development

Inflow Area =	14.288 ac,	0.00% Impervious, Inflow Depth = 0.45"		for 100-yr event
Inflow =	17.44 cfs @	0.36 hrs, Volume=	0.533 af	
Primary =	17.44 cfs @	0.36 hrs, Volume=	0.533 af, Atten= 0%, Lag= 0.0 min	

Primary outflow = Inflow, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Link PRE-DEV: Pre-Development



Summary for Subcatchment A1: DRAINAGE BASIN A1

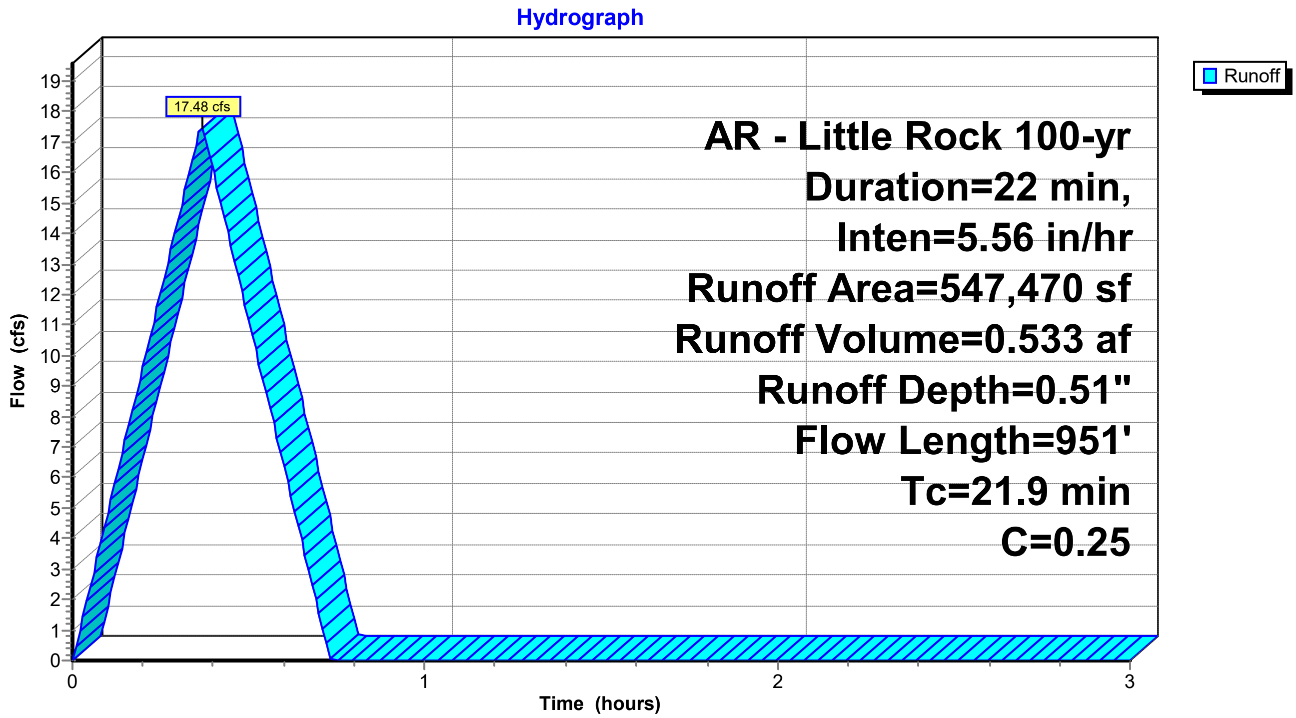
Runoff = 17.48 cfs @ 0.37 hrs, Volume= 0.533 af, Depth= 0.51"
Routed to Link PRE-DEV : Pre-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 100-yr Duration=22 min, Inten=5.56 in/hr

Area (sf)	C	Description
547,470	0.25	Sandy Soil 2-7% per manual (undeveloped)
547,470		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.2	96	0.0840	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 4.20"
0.7	76	0.0710	1.87		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.7	76	0.0660	1.80		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	47	0.0660	1.80		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.3	28	0.0640	1.77		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	25	0.0590	1.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.8	80	0.0580	1.69		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.2	107	0.0430	1.45		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.7	42	0.0180	0.94		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.7	49	0.0300	1.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.5	158	0.0220	1.04		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.1	67	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.1	45	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.3	55	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
21.9	951	Total			

Subcatchment A1: DRAINAGE BASIN A1



Summary for Subcatchment A2: DRAINAGE BASIN A2

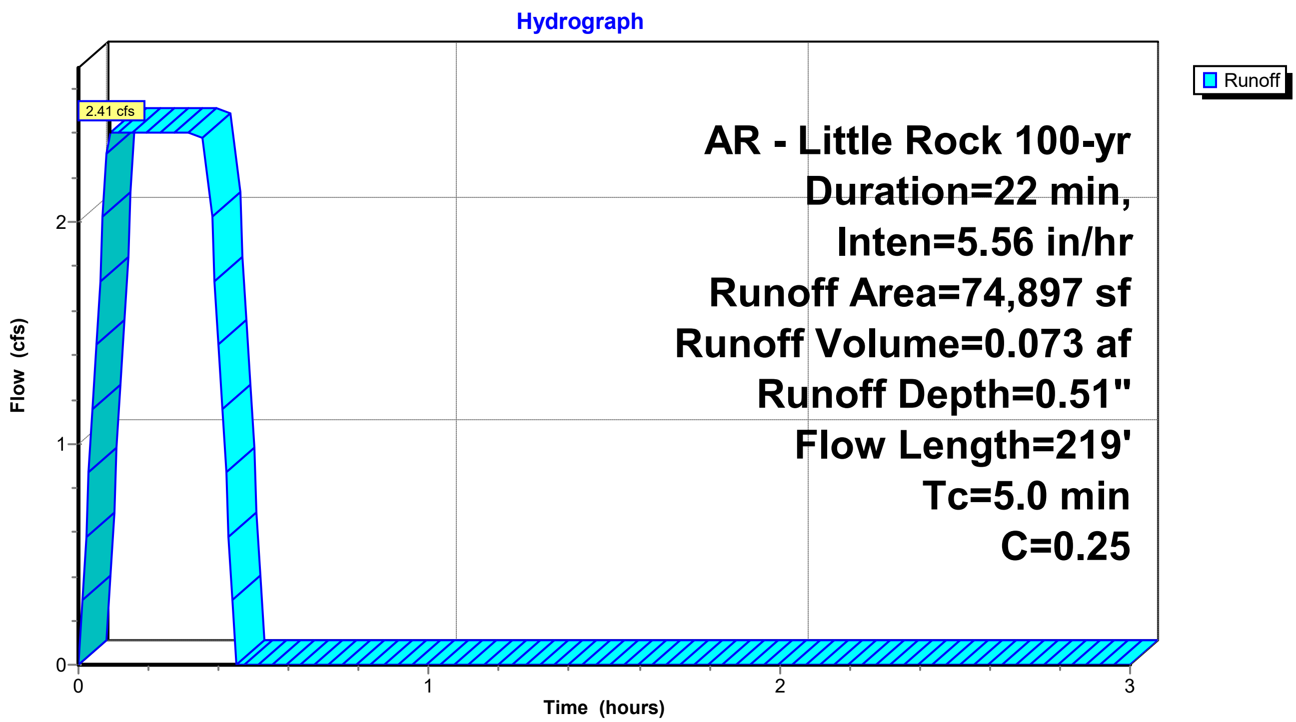
Runoff = 2.41 cfs @ 0.09 hrs, Volume= 0.073 af, Depth= 0.51"
Routed to Link PRE-DEV : Pre-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 100-yr Duration=22 min, Inten=5.56 in/hr

Area (sf)	C	Description
74,897	0.25	2-7% Sandy per LR Manual
74,897		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	12	0.0330	1.27		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.9	144	0.0310	1.23		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.3	18	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	45	0.0340	1.29		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.0					**Direct Entry, min adjustment**
5.0	219	Total			

Subcatchment A2: DRAINAGE BASIN A2

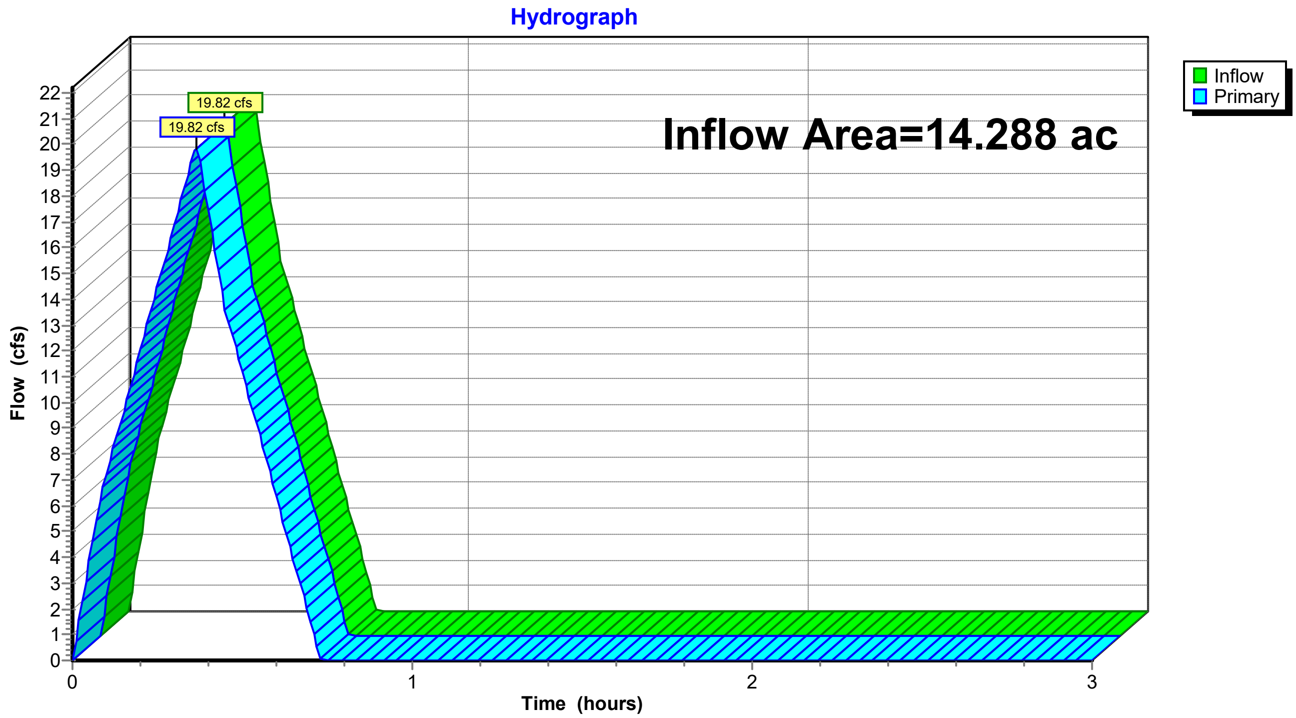


Summary for Link PRE-DEV: Pre-Development

Inflow Area =	14.288 ac,	0.00% Impervious,	Inflow Depth = 0.51"	for 100-yr event
Inflow =	19.82 cfs @	0.36 hrs, Volume=	0.606 af	
Primary =	19.82 cfs @	0.36 hrs, Volume=	0.606 af, Atten= 0%, Lag= 0.0 min	

Primary outflow = Inflow, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Link PRE-DEV: Pre-Development



POST DEVELOPMENT HYDROGRAPHS

Summary for Subcatchment DB-B1: Drainage Basin B1

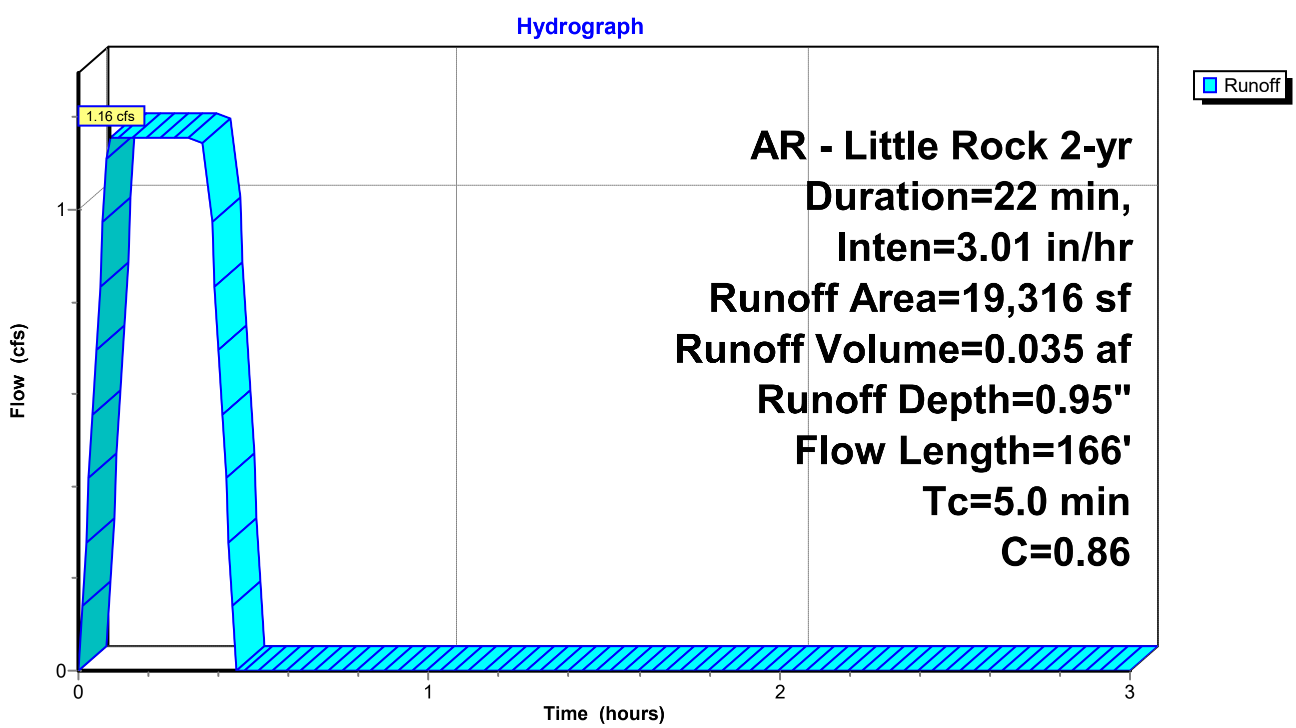
Runoff = 1.16 cfs @ 0.09 hrs, Volume= 0.035 af, Depth= 0.95"
Routed to Pond CI-A1 : CURB INLET A1

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 2-yr Duration=22 min, Inten=3.01 in/hr

Area (sf)	C	Description
1,941	0.30	Sandy Soil 2-7% per manual
17,375	0.92	Paved Areas
19,316	0.86	Weighted Average
19,316		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	33	0.0200	0.16		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
0.6	67	0.0350	1.82		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.5	66	0.0100	2.03		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
0.4					**Direct Entry, Minimum Adjustment**
5.0	166	Total			

Subcatchment DB-B1: Drainage Basin B1



Summary for Subcatchment DB-B10: Drainage Basin B10

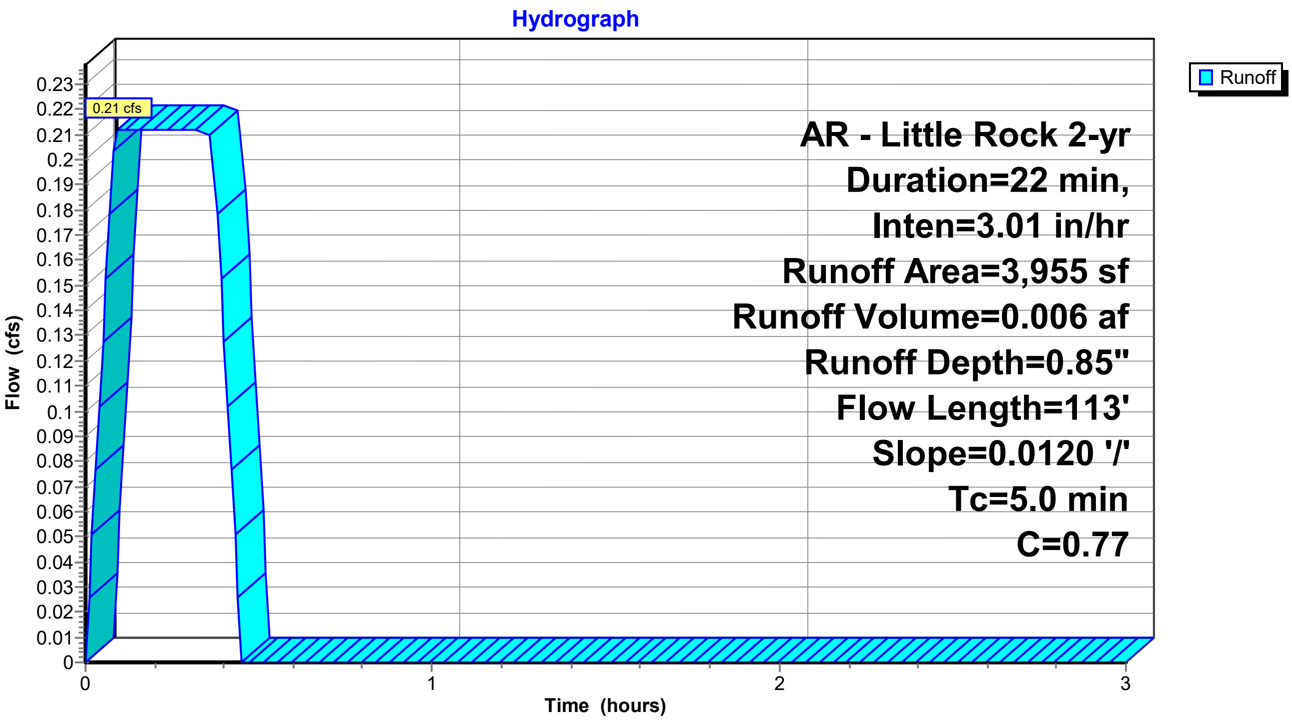
Runoff = 0.21 cfs @ 0.09 hrs, Volume= 0.006 af, Depth= 0.85"
Routed to Pond CI-C4 : CURB INLET C4

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 2-yr Duration=22 min, Inten=3.01 in/hr

Area (sf)	C	Description
959	0.30	Sandy Soil 2-7% per manual
2,996	0.92	Paved Areas
3,955	0.77	Weighted Average
3,955		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	113	0.0120	1.32		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
3.6					**Direct Entry, Minimum Adjustment**
5.0	113	Total			

Subcatchment DB-B10: Drainage Basin B10



Summary for Subcatchment DB-B11: Drainage Basin B11

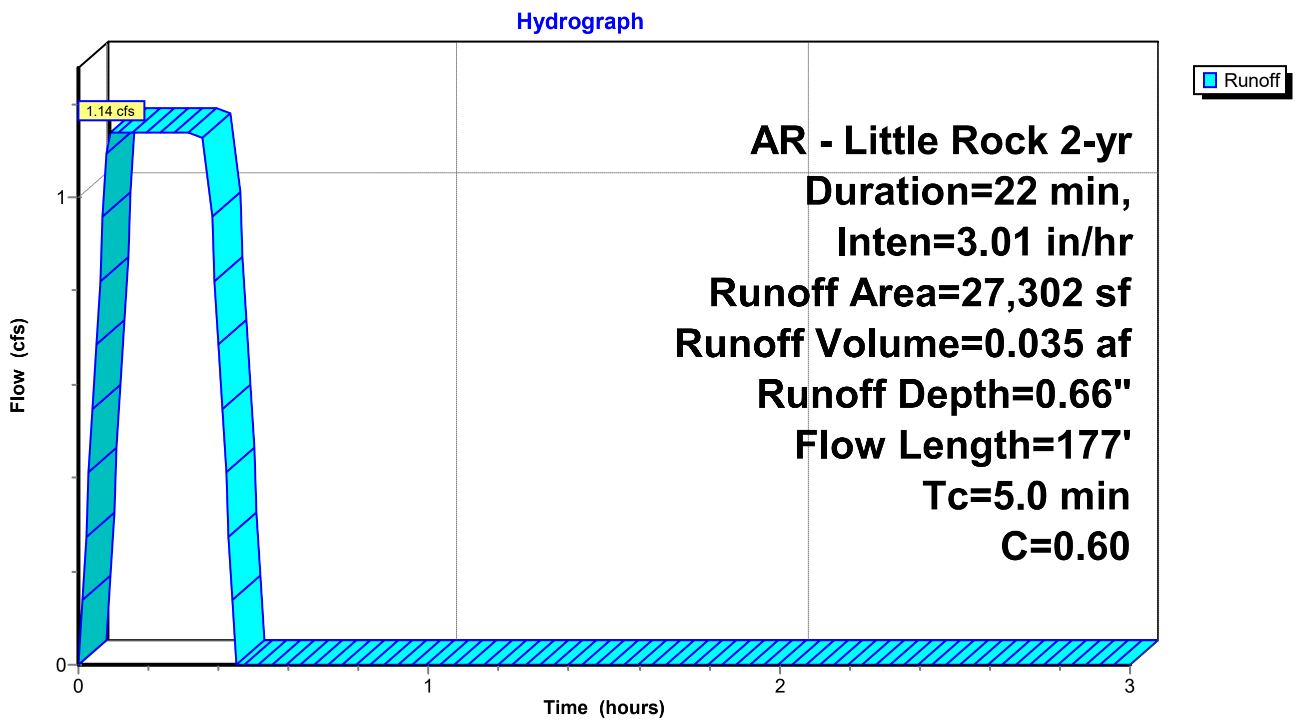
Runoff = 1.14 cfs @ 0.09 hrs, Volume= 0.035 af, Depth= 0.66"
Routed to Pond CI-D1 : CURB INLET D1

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 2-yr Duration=22 min, Inten=3.01 in/hr

Area (sf)	C	Description
15,547	0.35	Sandy Soil 2-7% per manual
11,755	0.92	Paved Areas
27,302	0.60	Weighted Average
27,302		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	65	0.3300	4.44		**Sheet Flow, Roof** Smooth surfaces n= 0.011 P2= 4.20"
0.2	69	0.1750	6.27		**Shallow Concentrated Flow, Greenspace** Grassed Waterway Kv= 15.0 fps
0.2	43	0.0500	4.54		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
4.4					**Direct Entry, Minimum Adjustment**
5.0	177	Total			

Subcatchment DB-B11: Drainage Basin B11



Summary for Subcatchment DB-B12: Drainage Basin B12

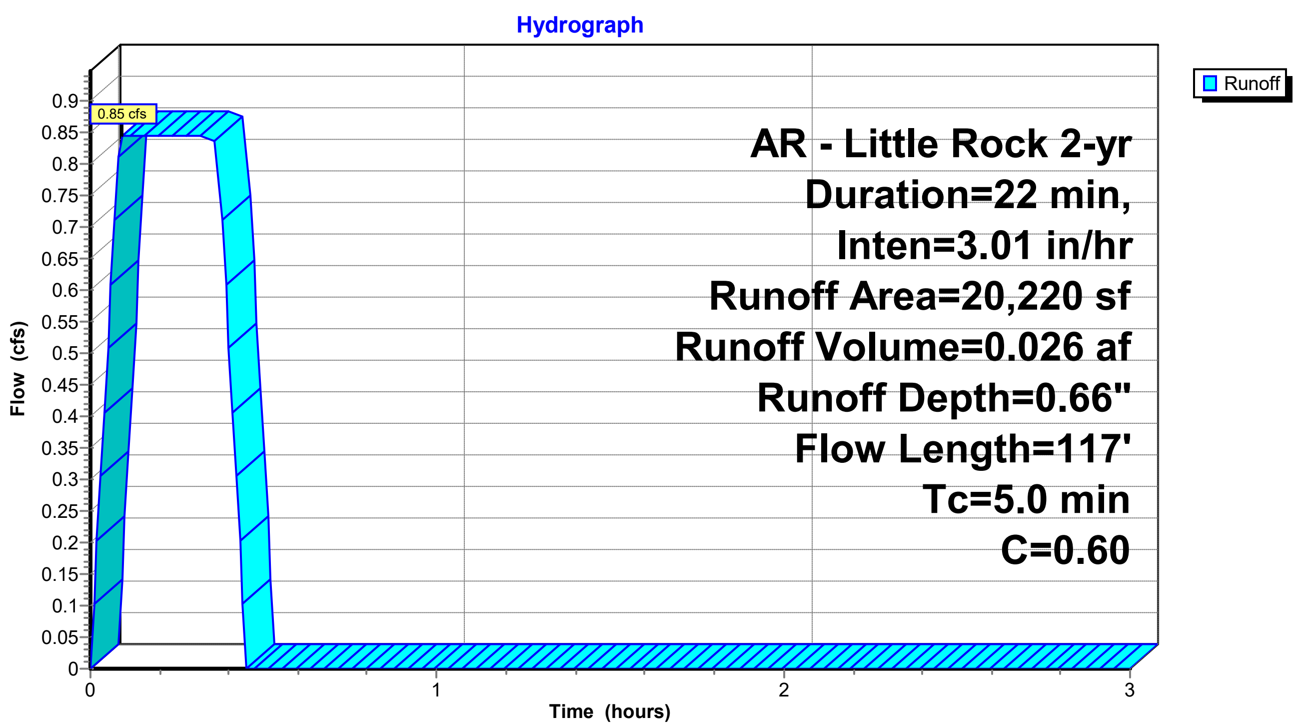
Runoff = 0.85 cfs @ 0.09 hrs, Volume= 0.026 af, Depth= 0.66"
Routed to Pond CI-C5 : CURB INLET C5

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 2-yr Duration=22 min, Inten=3.01 in/hr

Area (sf)	C	Description
11,502	0.35	Sandy Soil 2-7% per manual
8,718	0.92	Paved Areas
20,220	0.60	Weighted Average
20,220		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	26	0.0500	0.21		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
1.5	38	0.2360	0.43		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
1.1	28	0.2390	0.41		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
0.4	25	0.0180	1.15		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
5.0	117	Total			

Subcatchment DB-B12: Drainage Basin B12



Summary for Subcatchment DB-B13: DRAINAGE BASIN B13

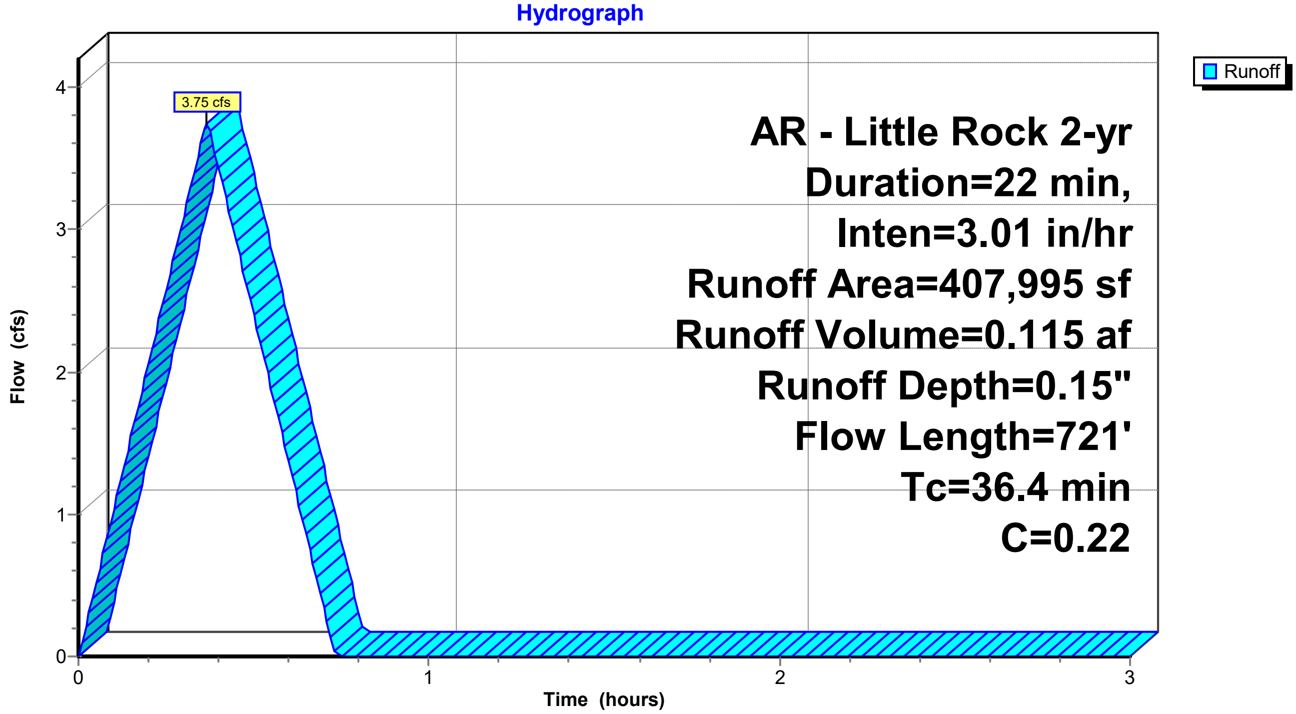
Runoff = 3.75 cfs @ 0.37 hrs, Volume= 0.115 af, Depth= 0.15"
Routed to Link POST-DEV : Post-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 2-yr Duration=22 min, Inten=3.01 in/hr

Area (sf)	C	Description
407,995	0.22	Sandy Soil 2-7% Per Manual
407,995		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	67	0.6600	0.73		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
1.2	46	0.5900	0.65		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
3.2	147	0.5100	0.77		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
1.8	63	0.3800	0.58		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
8.5	70	0.0100	0.14		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
4.8	163	0.2200	0.56		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
2.4	65	0.2000	0.45		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
6.3	48	0.0100	0.13		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
6.7	52	0.0100	0.13		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
36.4	721	Total			

Subcatchment DB-B13: DRAINAGE BASIN B13



Summary for Subcatchment DB-B14: DRAINAGE BASIN B14

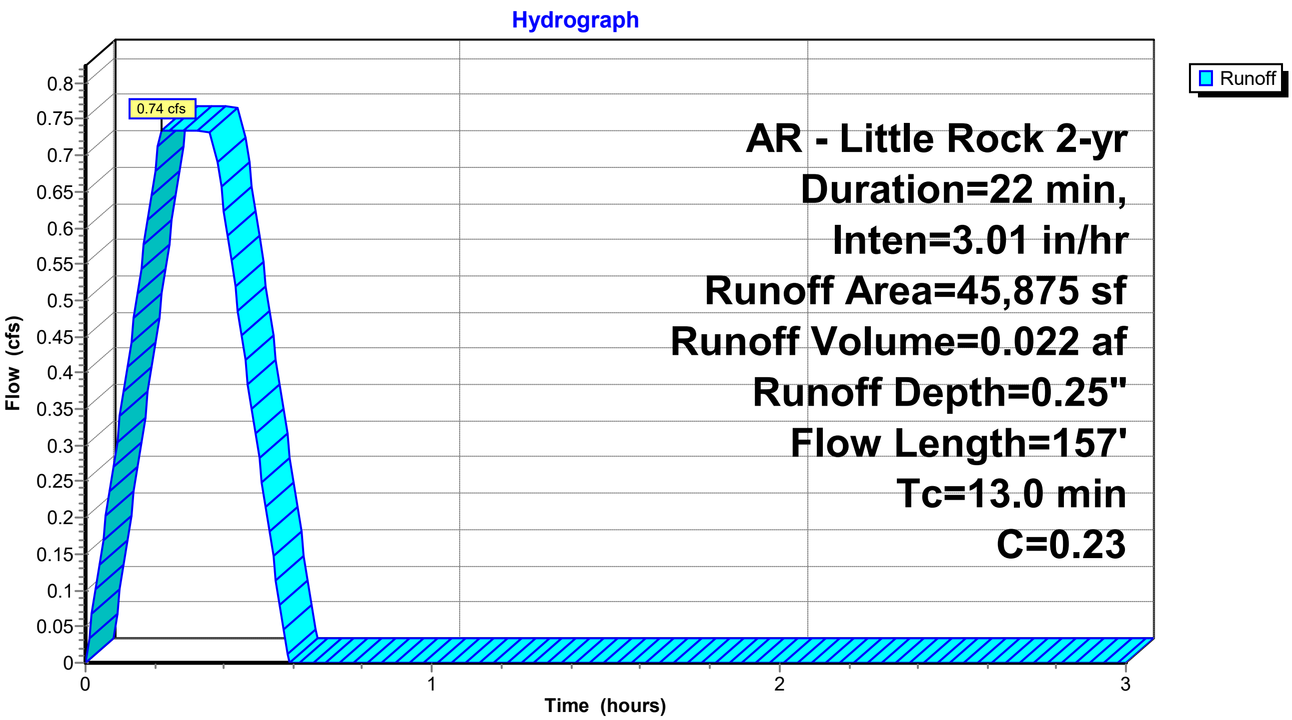
Runoff = 0.74 cfs @ 0.22 hrs, Volume= 0.022 af, Depth= 0.25"
Routed to Link POST-DEV : Post-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 2-yr Duration=22 min, Inten=3.01 in/hr

Area (sf)	C	Description
45,016	0.22	Sandy Soil 2-7% Per Manual
859	0.92	Paved Areas
45,875	0.23	Weighted Average
45,875		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	15	0.0100	0.10		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
5.2	78	0.0420	0.25		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
2.8	38	0.0480	0.23		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
2.5	26	0.0280	0.17		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
13.0	157	Total			

Subcatchment DB-B14: DRAINAGE BASIN B14



Summary for Subcatchment DB-B2: Drainage Basin B2

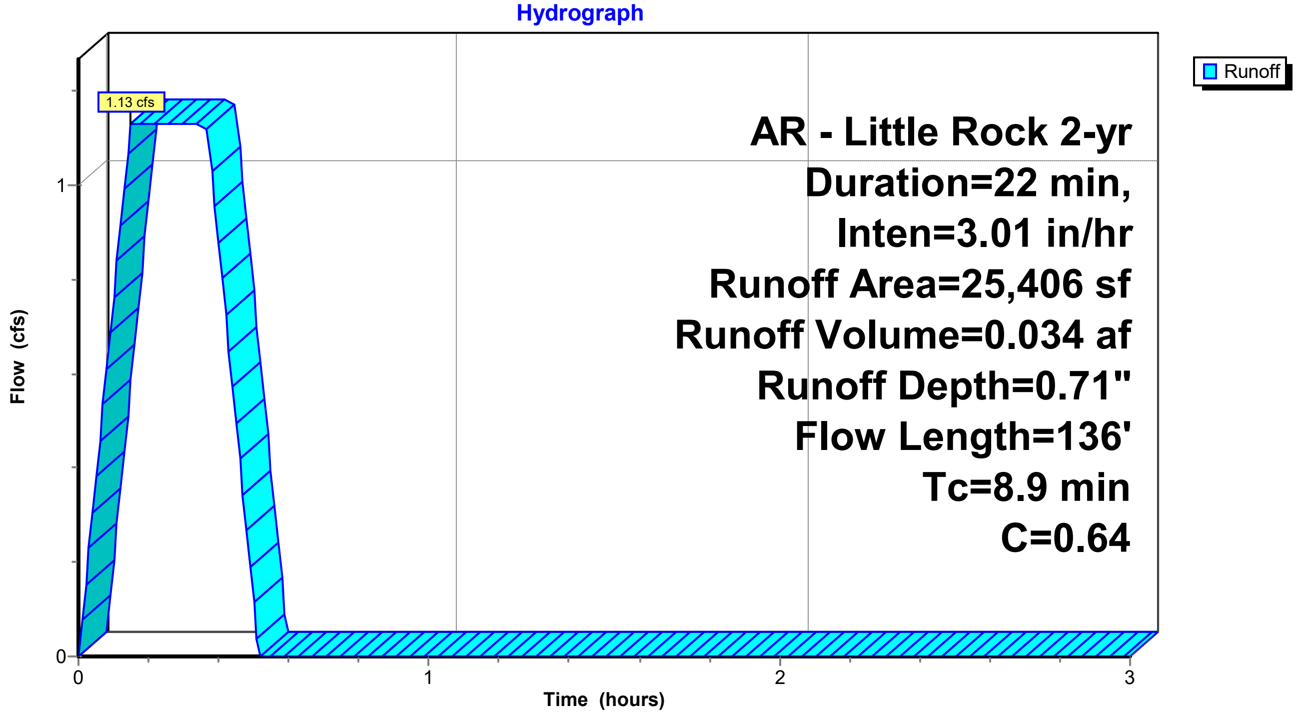
Runoff = 1.13 cfs @ 0.15 hrs, Volume= 0.034 af, Depth= 0.71"
Routed to Pond CI-A2 : CURB INLET A2

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 2-yr Duration=22 min, Inten=3.01 in/hr

Area (sf)	C	Description
11,388	0.30	Sandy Soil 2-7% per manual
14,018	0.92	Paved Areas
25,406	0.64	Weighted Average
25,406		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	57	0.0100	0.13		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
0.8	19	0.2480	0.38		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
0.2	14	0.0150	0.95		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.3	34	0.0600	1.97		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.2	12	0.0350	1.29		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.2					**Direct Entry, Minimum Adjustment**
8.9	136	Total			

Subcatchment DB-B2: Drainage Basin B2



Summary for Subcatchment DB-B3: Drainage Basin B3

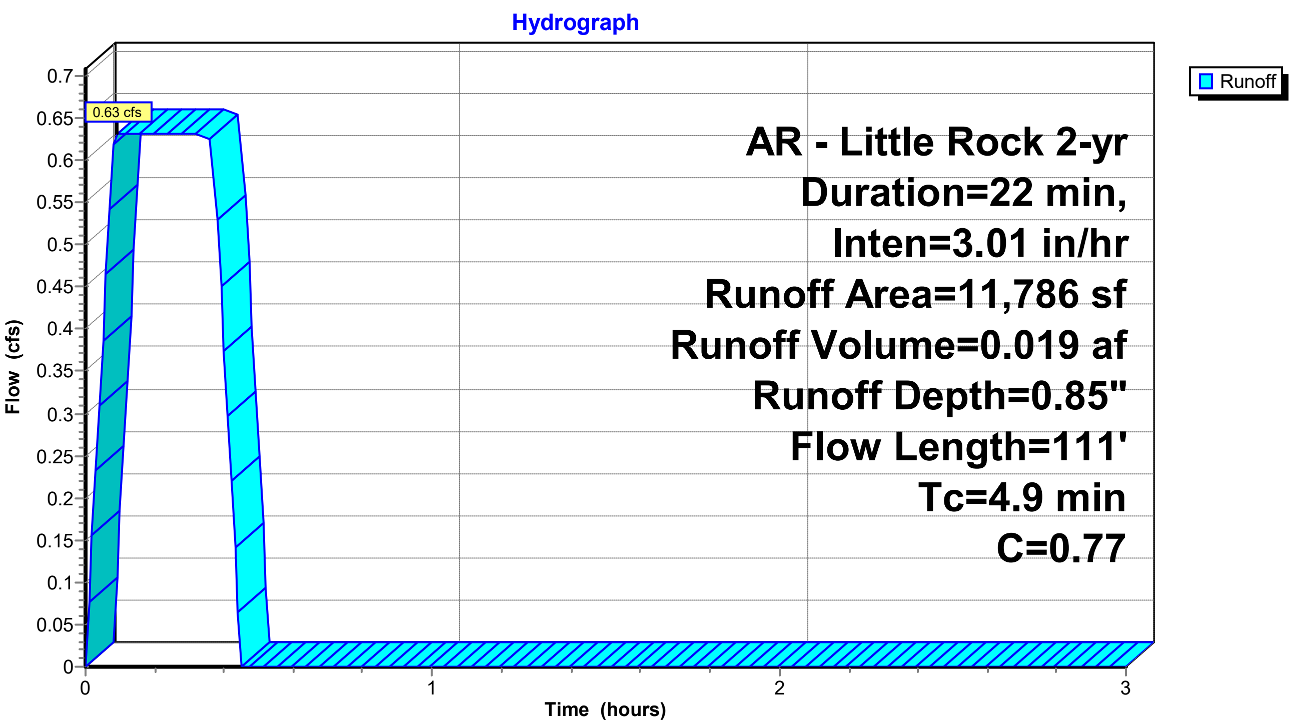
Runoff = 0.63 cfs @ 0.09 hrs, Volume= 0.019 af, Depth= 0.85"
Routed to Pond CI-A3 : CURB INLET A3

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 2-yr Duration=22 min, Inten=3.01 in/hr

Area (sf)	C	Description
2,920	0.30	Sandy Soil 2-7% per manual
8,866	0.92	Paved Areas
11,786	0.77	Weighted Average
11,786		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	19	0.2500	0.38		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
0.2	16	0.0290	1.27		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.6	38	0.0100	0.98		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.3	38	0.0100	2.03		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
3.0					**Direct Entry, Minimum Adjustment**
4.9	111	Total			

Subcatchment DB-B3: Drainage Basin B3



Summary for Subcatchment DB-B4: Drainage Basin B4

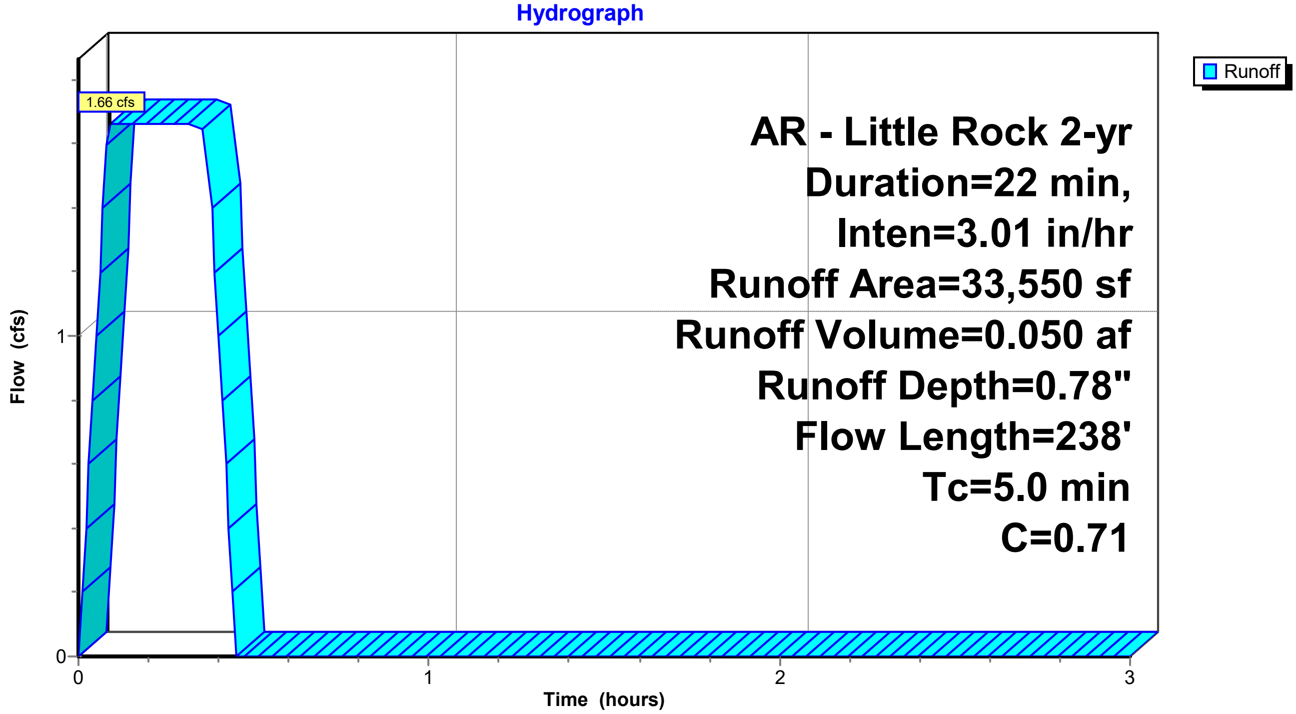
Runoff = 1.66 cfs @ 0.09 hrs, Volume= 0.050 af, Depth= 0.78"
Routed to Pond CI-A4 : CURB INLET A4

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 2-yr Duration=22 min, Inten=3.01 in/hr

Area (sf)	C	Description
11,568	0.30	Sandy Soil 2-7% per manual
21,982	0.92	Paved Areas
33,550	0.71	Weighted Average
33,550		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	48	0.0530	2.01		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.3	25	0.0310	1.42		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.6	14	0.0020	0.42		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.9	66	0.0130	1.22		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.4	59	0.0120	2.22		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
0.5	19	0.0010	0.64		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
0.0	7	0.0700	5.37		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
1.9					**Direct Entry, Minimum Adjustment**
5.0	238	Total			

Subcatchment DB-B4: Drainage Basin B4



Summary for Subcatchment DB-B5: Drainage Basin B5

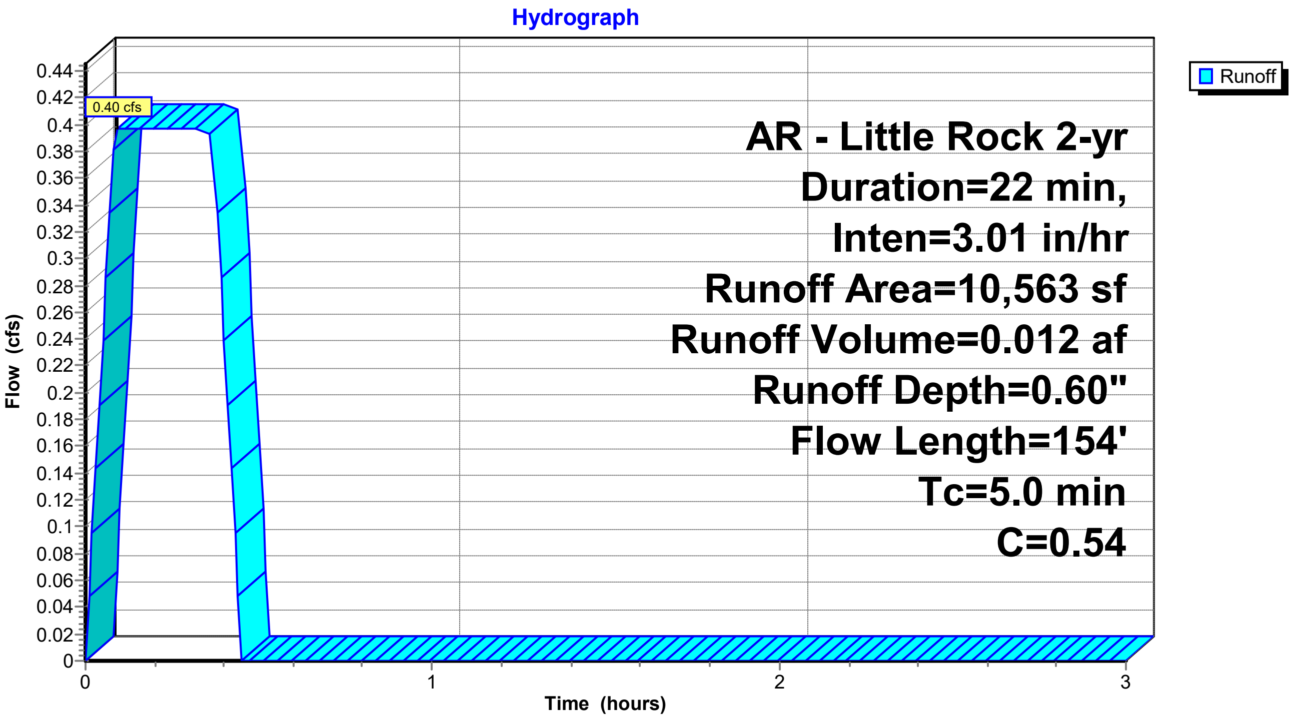
Runoff = 0.40 cfs @ 0.09 hrs, Volume= 0.012 af, Depth= 0.60"
Routed to Pond CI-A5 : CURB INLET A5

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 2-yr Duration=22 min, Inten=3.01 in/hr

Area (sf)	C	Description
6,980	0.35	Sandy Soil 2-7% per manual
3,583	0.92	Paved Areas
10,563	0.54	Weighted Average
10,563		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	19	0.0920	0.26		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
1.9	39	0.1260	0.34		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
0.5	66	0.0540	2.16		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.1	30	0.0500	4.54		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
1.3					**Direct Entry, Minimum Adjustment**
5.0	154	Total			

Subcatchment DB-B5: Drainage Basin B5



Summary for Subcatchment DB-B6: Drainage Basin B6

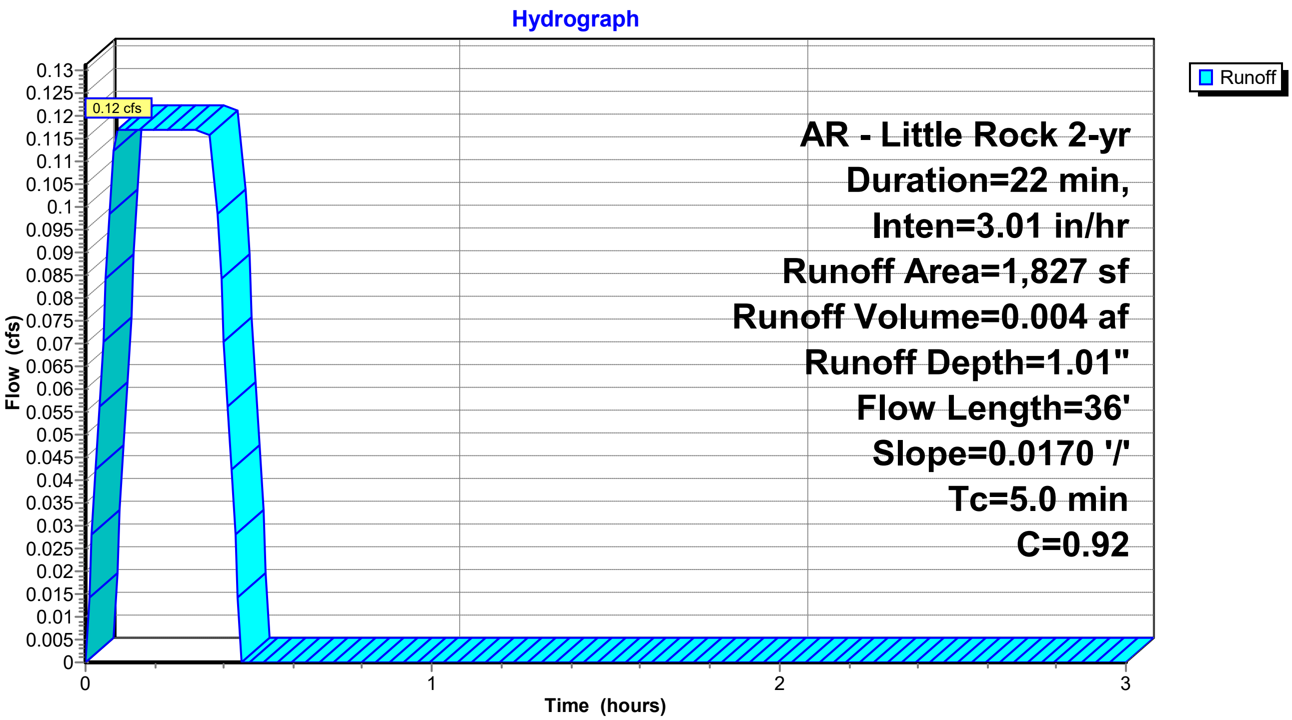
Runoff = 0.12 cfs @ 0.09 hrs, Volume= 0.004 af, Depth= 1.01"
Routed to Pond AI-B1 : AREA INLET B1

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 2-yr Duration=22 min, Inten=3.01 in/hr

Area (sf)	C	Description
0	0.30	Sandy Soil 2-7% per manual
1,827	0.92	Paved Areas
1,827	0.92	Weighted Average
1,827		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	36	0.0170	1.20		**Sheet Flow, Concrete** Smooth surfaces n= 0.011 P2= 4.20"
4.5					**Direct Entry, Minimum Adjustment**
5.0	36	Total			

Subcatchment DB-B6: Drainage Basin B6



Summary for Subcatchment DB-B7: Drainage Basin B7

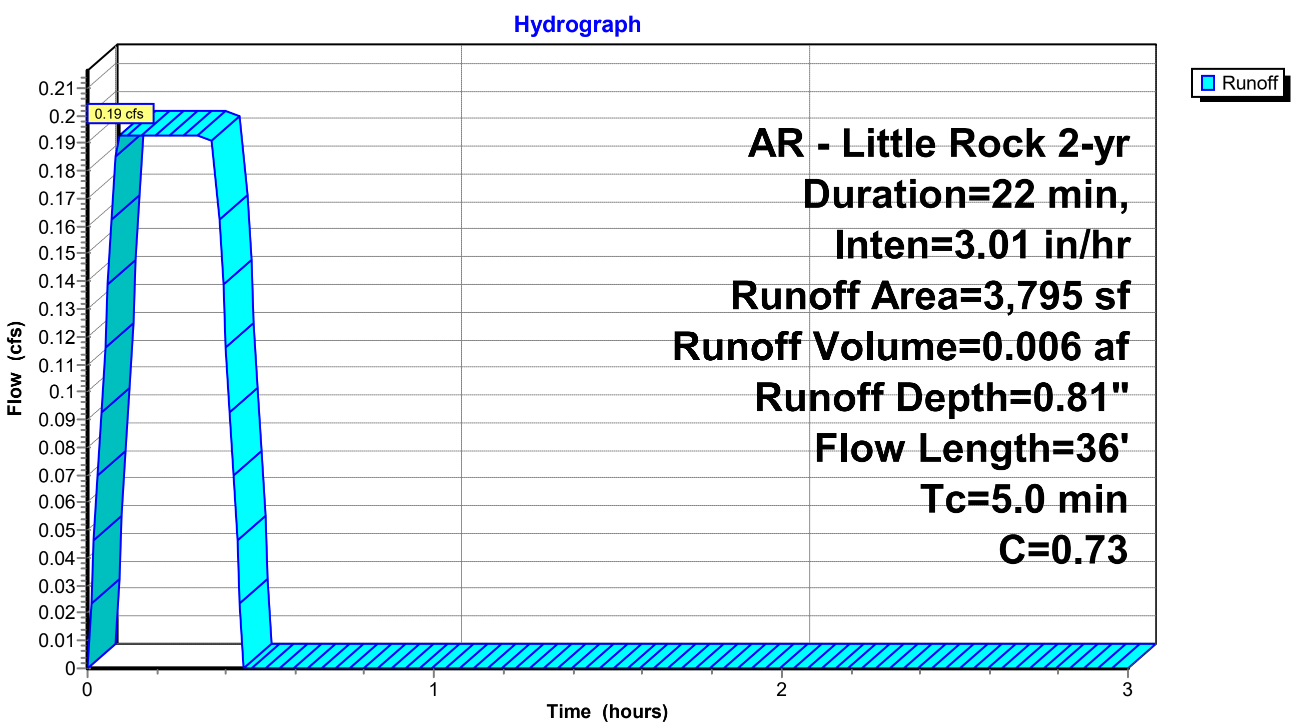
Runoff = 0.19 cfs @ 0.09 hrs, Volume= 0.006 af, Depth= 0.81"
Routed to Pond AI-B2 : AREA INLET B2

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 2-yr Duration=22 min, Inten=3.01 in/hr

Area (sf)	C	Description
1,158	0.30	Sandy Soil 2-7% per manual
2,637	0.92	Paved Areas
3,795	0.73	Weighted Average
3,795		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	24	0.0020	0.47		**Sheet Flow, Concrete** Smooth surfaces n= 0.011 P2= 4.20"
0.2	12	0.0160	0.94		**Sheet Flow, Concrete** Smooth surfaces n= 0.011 P2= 4.20"
4.0					**Direct Entry, Minimum Adjustment**
5.0	36	Total			

Subcatchment DB-B7: Drainage Basin B7



Summary for Subcatchment DB-B8: Drainage Basin B8

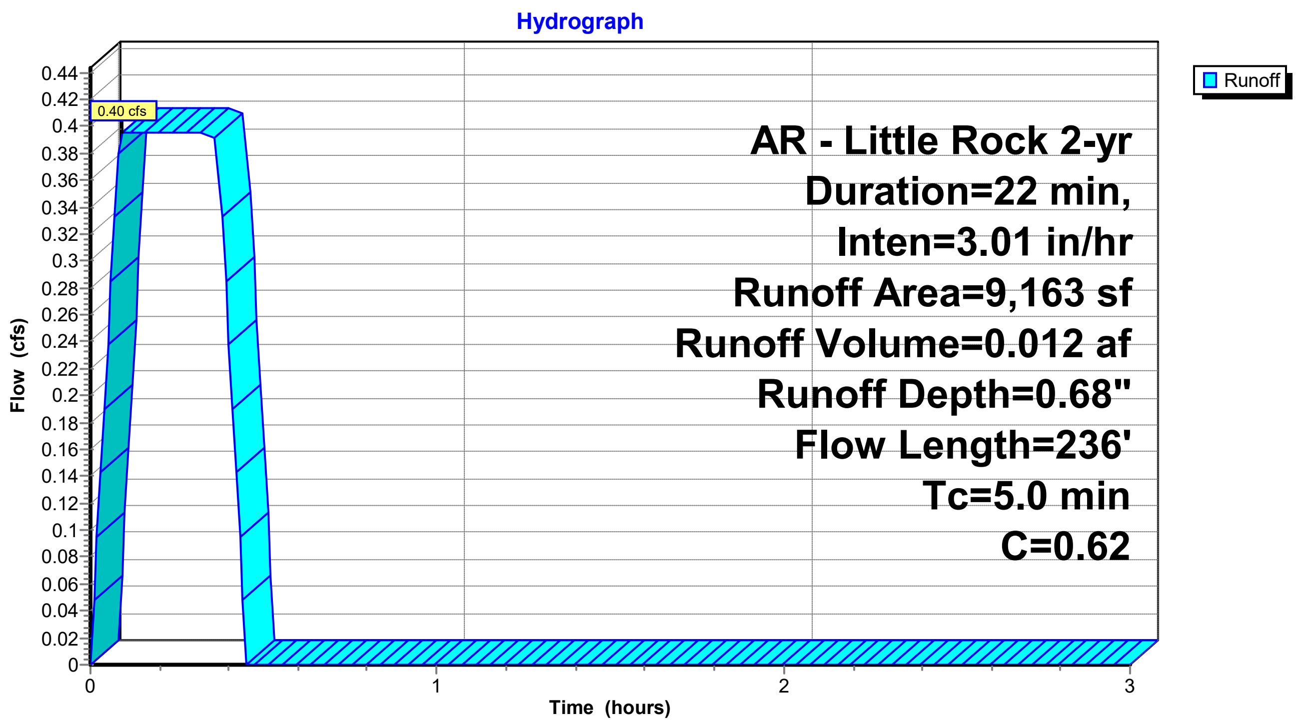
Runoff = 0.40 cfs @ 0.09 hrs, Volume= 0.012 af, Depth= 0.68"
Routed to Pond CI-C1 : CURB INLET C1

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 2-yr Duration=22 min, Inten=3.01 in/hr

Area (sf)	C	Description
4,431	0.30	Sadny Soil 2-7% per manual
4,732	0.92	Paved Areas
9,163	0.62	Weighted Average
9,163		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	33	0.0210	1.29		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.6	91	0.0620	2.43		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.8	112	0.0490	2.31		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
3.2					**Direct Entry, Minimum Adjustment**
5.0	236	Total			

Subcatchment DB-B8: Drainage Basin B8



Summary for Subcatchment DB-B9: Drainage Basin B9

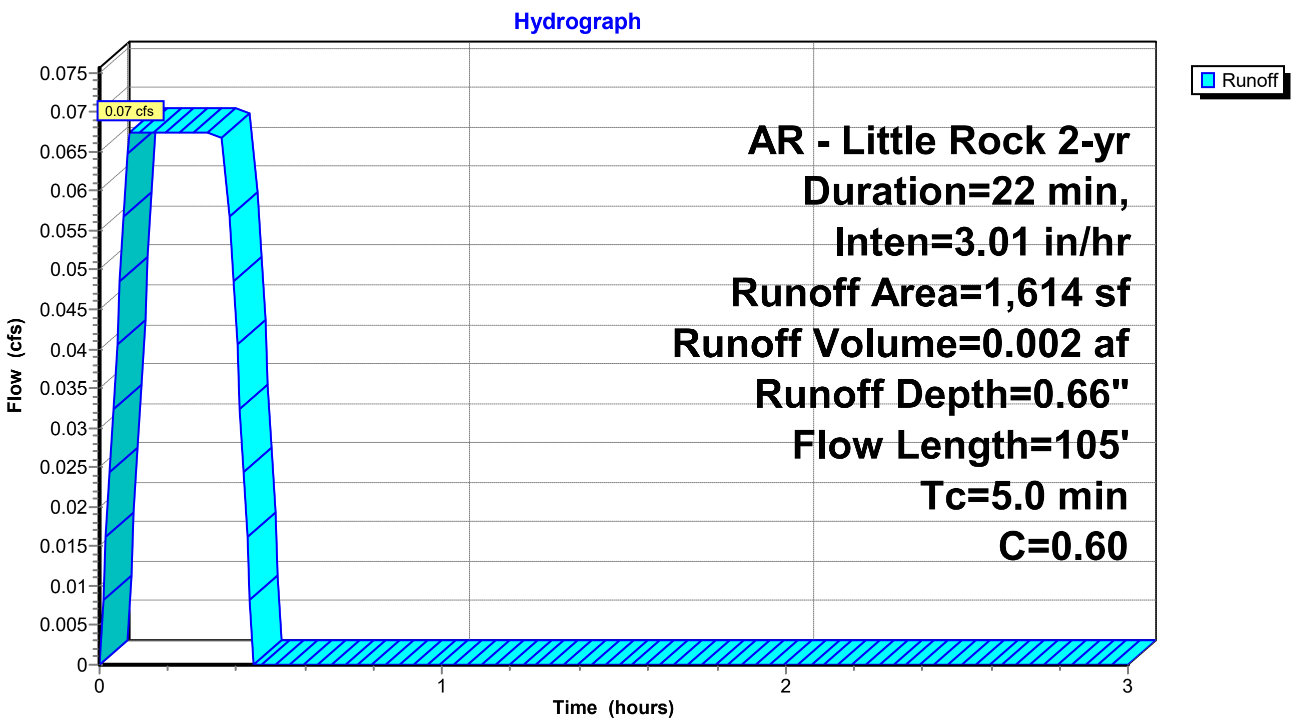
Runoff = 0.07 cfs @ 0.09 hrs, Volume= 0.002 af, Depth= 0.66"
Routed to Pond CI-C2 : CURB INLET C2

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 2-yr Duration=22 min, Inten=3.01 in/hr

Area (sf)	C	Description
826	0.30	Sandy Soil 2-7% per manual
788	0.92	Paved Areas
1,614	0.60	Weighted Average
1,614		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	62	0.0100	1.09		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.0	8	0.0230	3.08		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
0.2	35	0.0140	2.40		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
3.8					**Direct Entry, Minimum Adjustment**
5.0	105	Total			

Subcatchment DB-B9: Drainage Basin B9



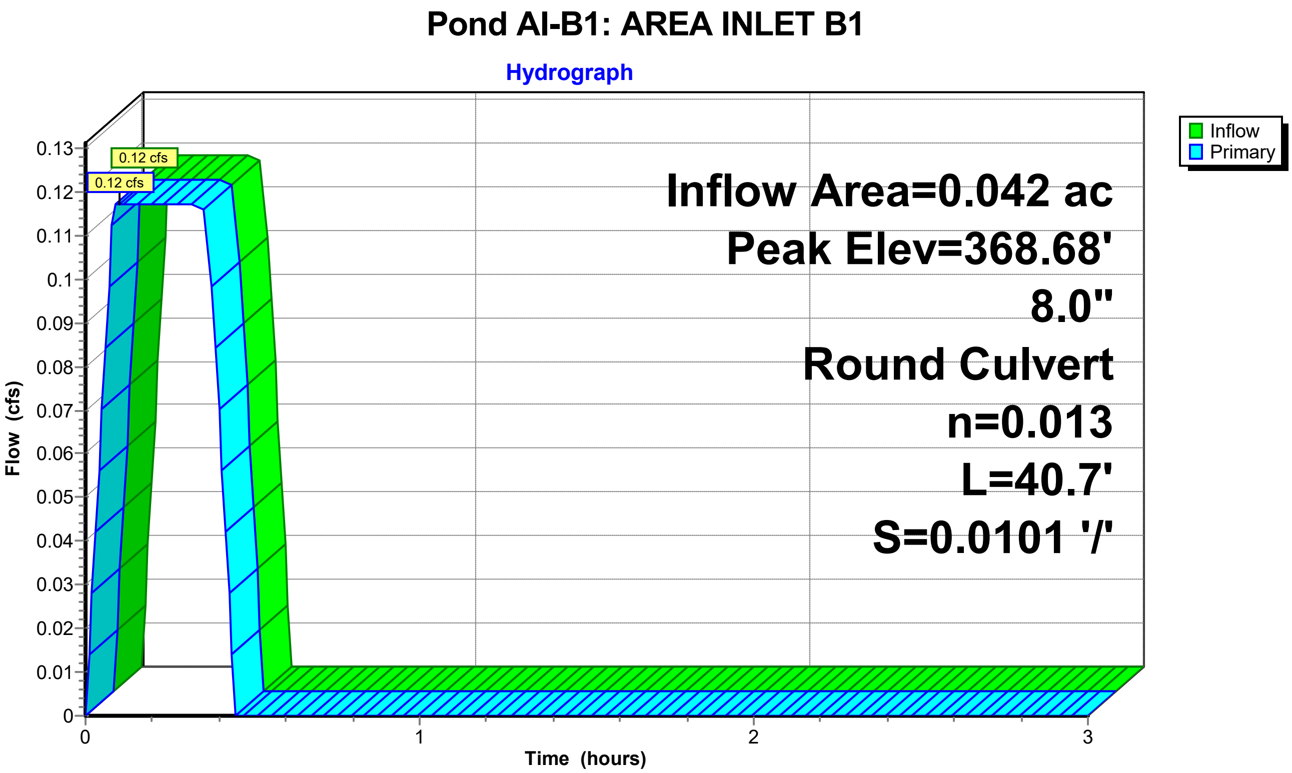
Summary for Pond AI-B1: AREA INLET B1

Inflow Area = 0.042 ac, 0.00% Impervious, Inflow Depth = 1.01" for 2-yr event
Inflow = 0.12 cfs @ 0.09 hrs, Volume= 0.004 af
Outflow = 0.12 cfs @ 0.10 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.6 min
Primary = 0.12 cfs @ 0.10 hrs, Volume= 0.004 af
Routed to Pond AI-B2 : AREA INLET B2

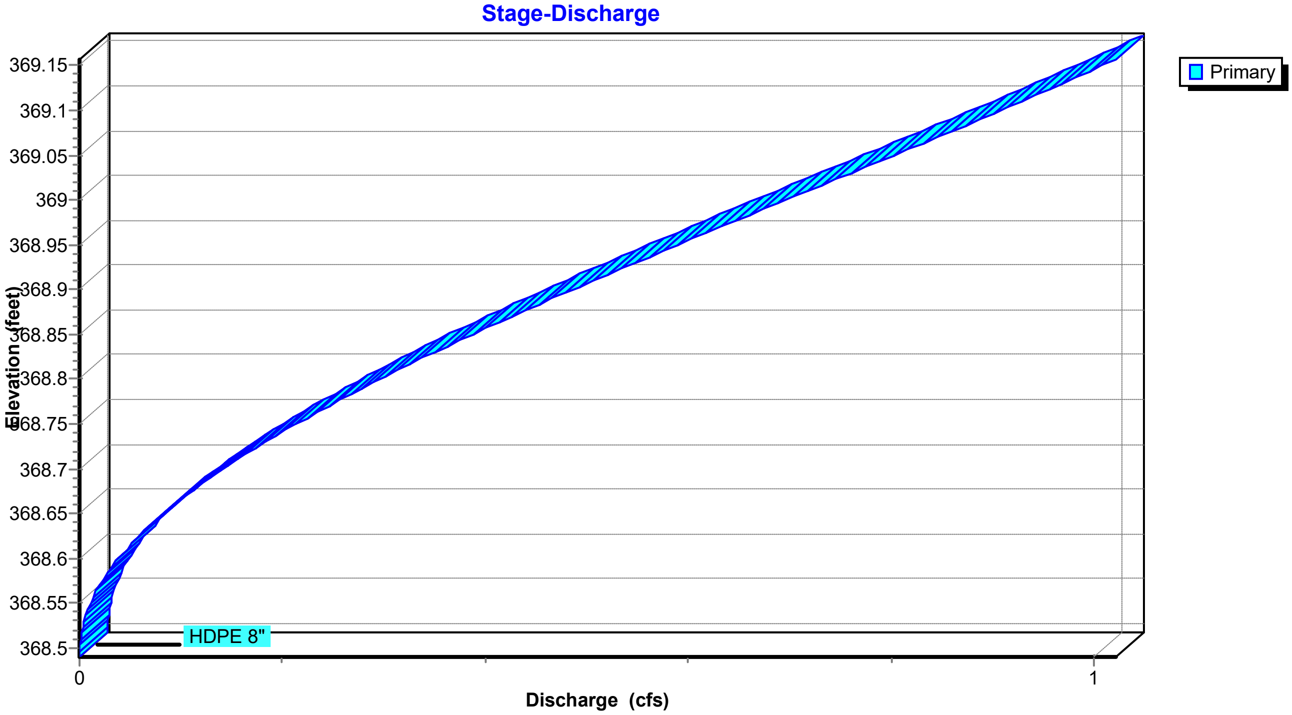
Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 368.68' @ 0.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	368.49'	**8.0" Round HDPE 8"** L= 40.7' Ke= 0.100 Inlet / Outlet Invert= 368.49' / 368.08' S= 0.0101 '/' Cc= 0.900 n= 0.013, Flow Area= 0.35 sf

Primary OutFlow Max=0.12 cfs @ 0.10 hrs HW=368.68' (Free Discharge)
1=HDPE 8" (Barrel Controls 0.12 cfs @ 2.14 fps)



Pond AI-B1: AREA INLET B1



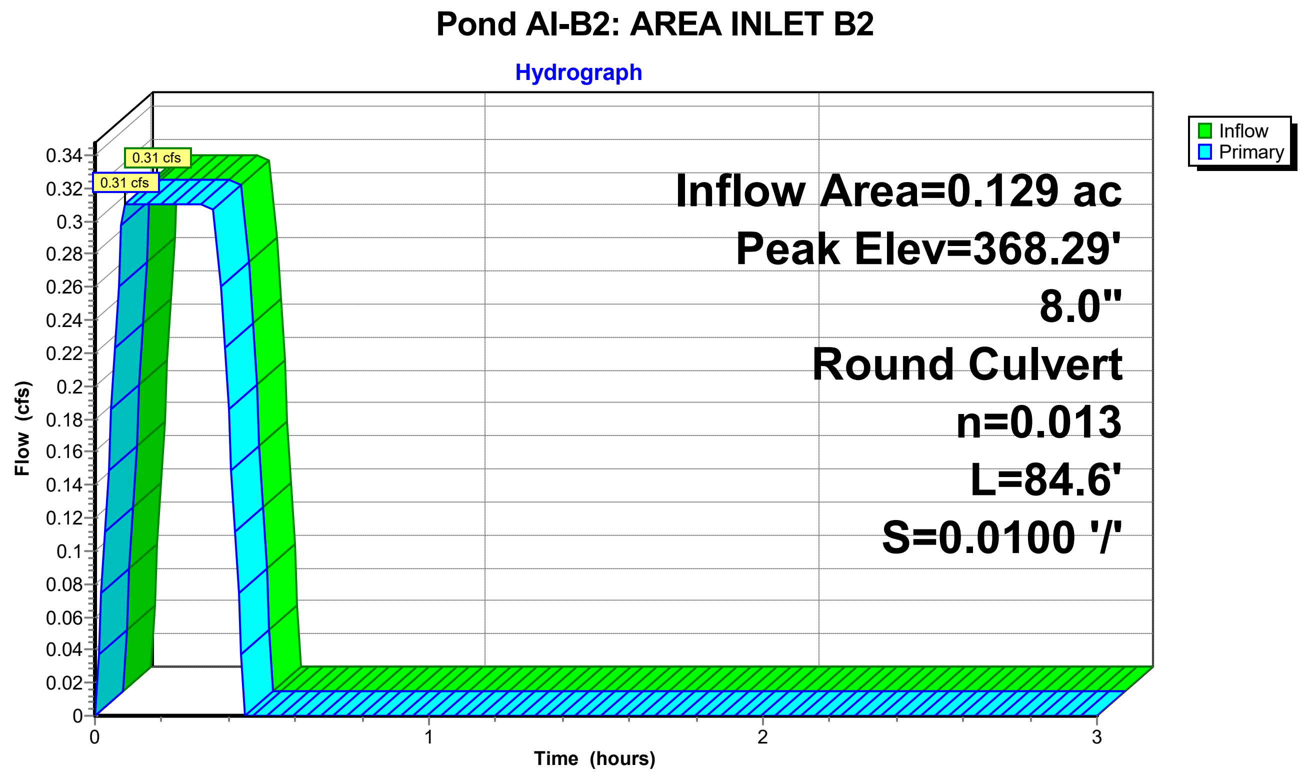
Summary for Pond AI-B2: AREA INLET B2

Inflow Area = 0.129 ac, 0.00% Impervious, Inflow Depth = 0.87" for 2-yr event
Inflow = 0.31 cfs @ 0.10 hrs, Volume= 0.009 af
Outflow = 0.31 cfs @ 0.09 hrs, Volume= 0.009 af, Atten= 0%, Lag= 0.0 min
Primary = 0.31 cfs @ 0.09 hrs, Volume= 0.009 af
Routed to Pond CI-A2 : CURB INLET A2

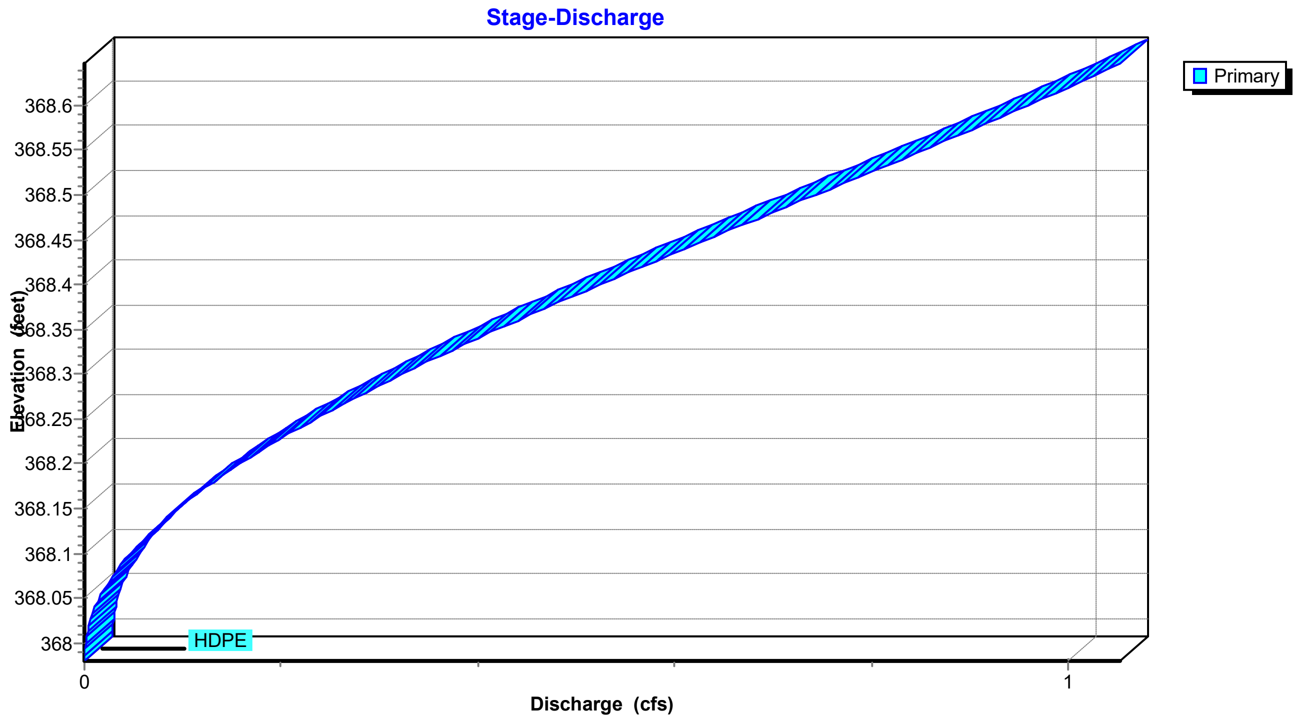
Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 368.29' @ 0.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	367.98'	**8.0" Round HDPE** L= 84.6' Ke= 0.100 Inlet / Outlet Invert= 367.98' / 367.13' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.35 sf

Primary OutFlow Max=0.31 cfs @ 0.09 hrs HW=368.29' (Free Discharge)
↑—**1=HDPE** (Barrel Controls 0.31 cfs @ 2.83 fps)



Pond AI-B2: AREA INLET B2



Summary for Pond CI-A1: CURB INLET A1

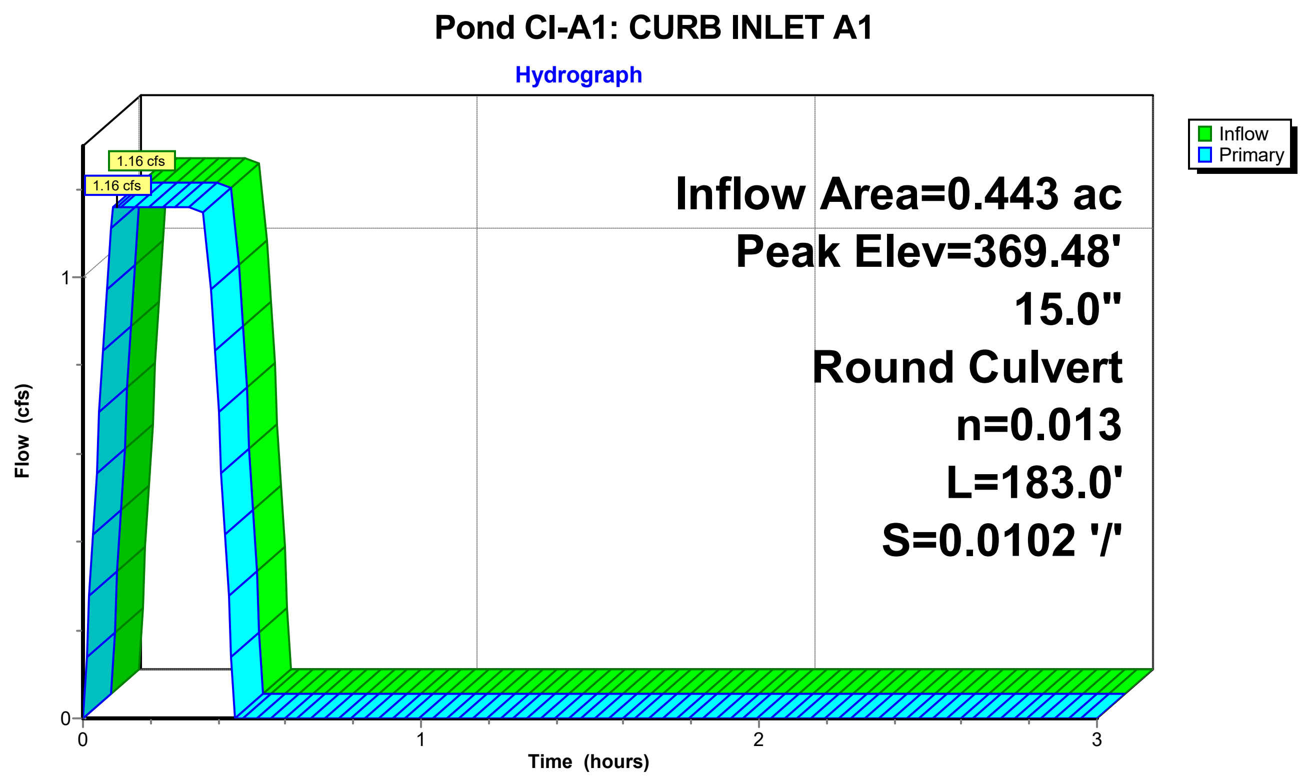
Inflow Area =	0.443 ac,	0.00% Impervious,	Inflow Depth =	0.95"	for 2-yr event
Inflow =	1.16 cfs @	0.09 hrs,	Volume=	0.035 af	
Outflow =	1.16 cfs @	0.10 hrs,	Volume=	0.035 af,	Atten= 0%, Lag= 0.6 min
Primary =	1.16 cfs @	0.10 hrs,	Volume=	0.035 af	

Routed to Pond CI-A2 : CURB INLET A2

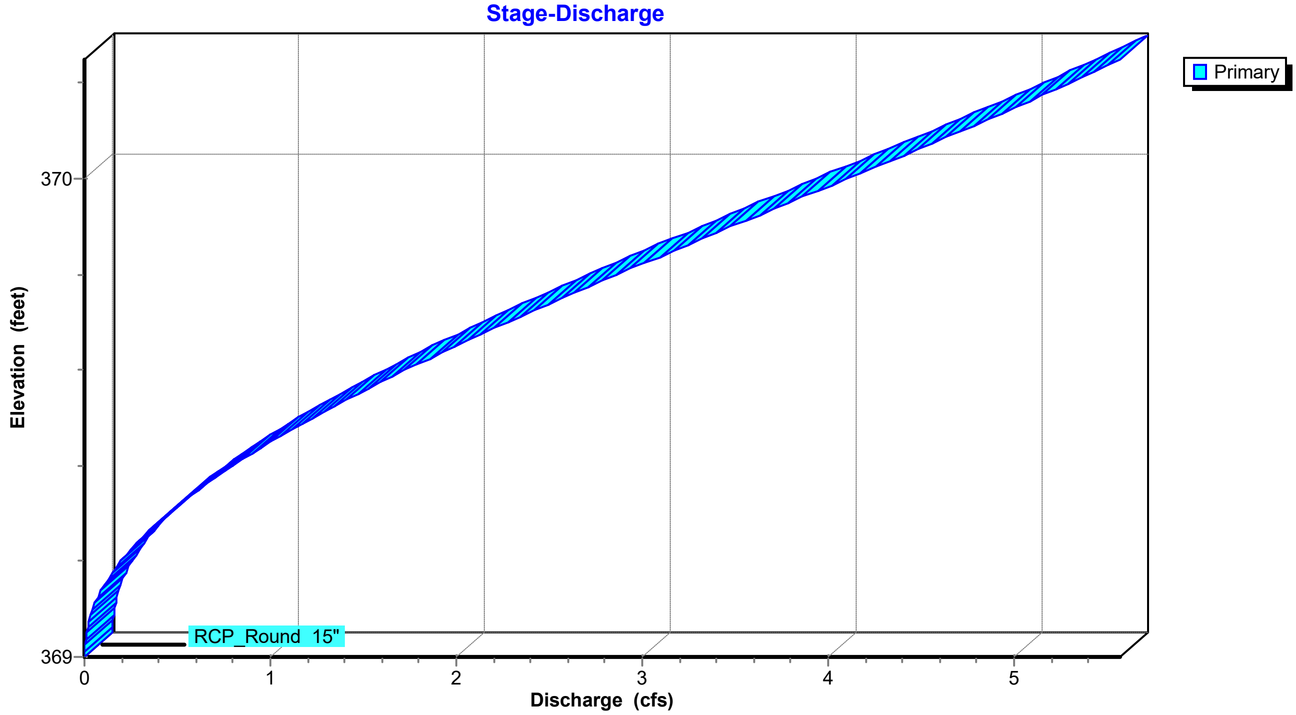
Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 369.48' @ 0.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	369.00'	**15.0" Round RCP_Round 15"** L= 183.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 369.00' / 367.13' S= 0.0102 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.23 sf

Primary OutFlow Max=1.16 cfs @ 0.10 hrs HW=369.48' (Free Discharge)
└─**1=RCP_Round 15"** (Barrel Controls 1.16 cfs @ 3.90 fps)



Pond CI-A1: CURB INLET A1



Summary for Pond CI-A2: CURB INLET A2

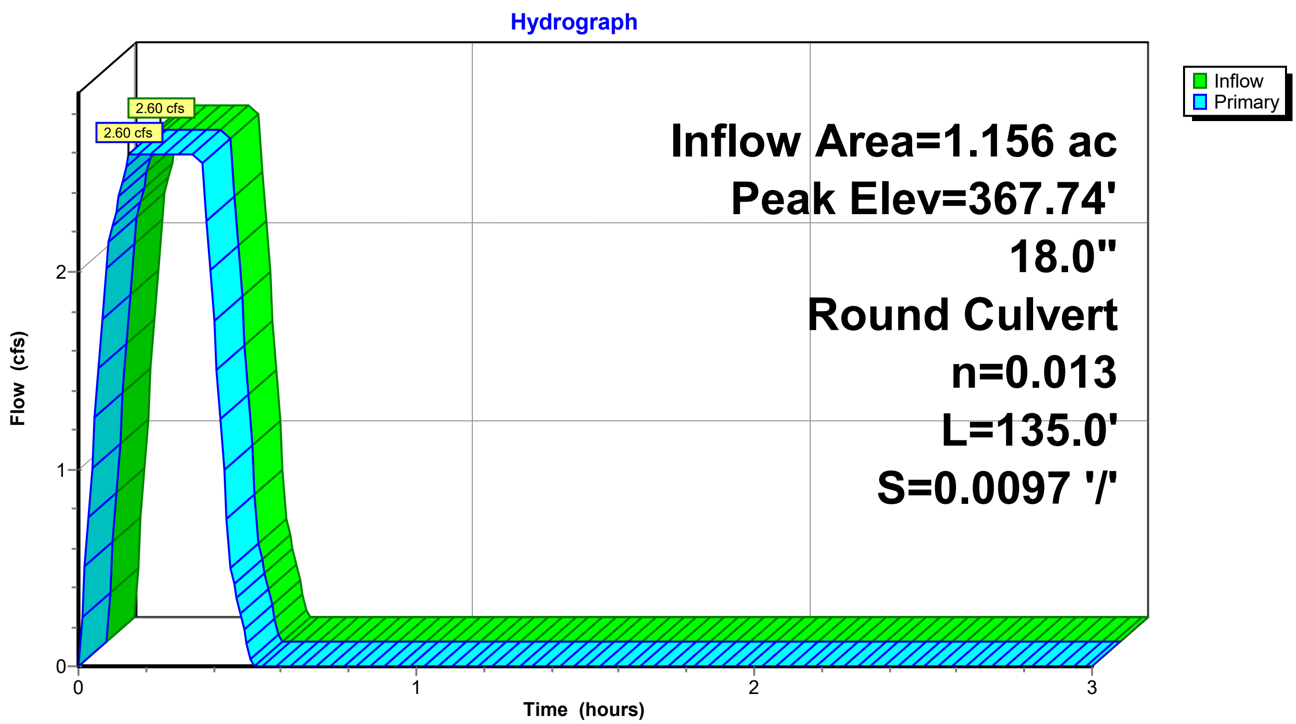
Inflow Area = 1.156 ac, 0.00% Impervious, Inflow Depth = 0.82" for 2-yr event
Inflow = 2.60 cfs @ 0.16 hrs, Volume= 0.079 af
Outflow = 2.60 cfs @ 0.15 hrs, Volume= 0.079 af, Atten= 0%, Lag= 0.0 min
Primary = 2.60 cfs @ 0.15 hrs, Volume= 0.079 af
Routed to Pond CI-A3 : CURB INLET A3

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 367.74' @ 0.15 hrs

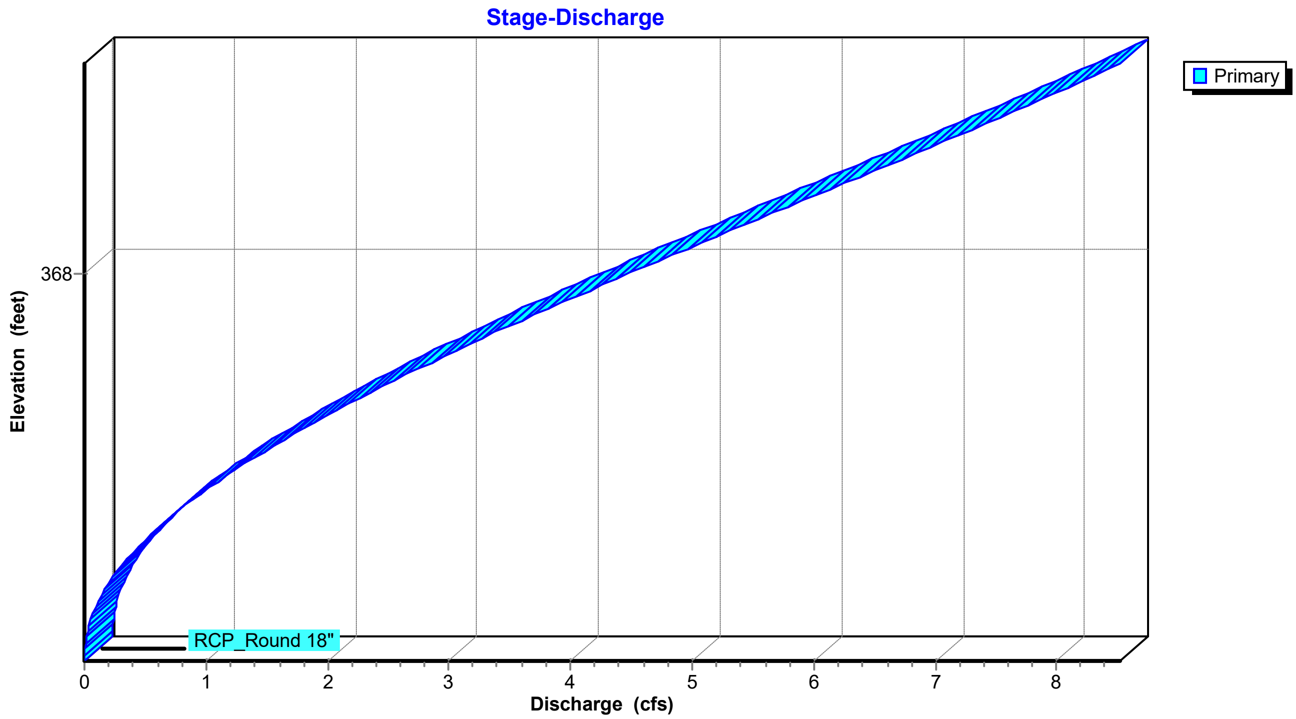
Device	Routing	Invert	Outlet Devices
#1	Primary	367.03'	**18.0" Round RCP_Round 18"** L= 135.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 367.03' / 365.72' S= 0.0097 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=2.60 cfs @ 0.15 hrs HW=367.74' (Free Discharge)
↑—**1=RCP_Round 18"** (Barrel Controls 2.60 cfs @ 4.61 fps)

Pond CI-A2: CURB INLET A2



Pond CI-A2: CURB INLET A2



Summary for Pond CI-A3: CURB INLET A3

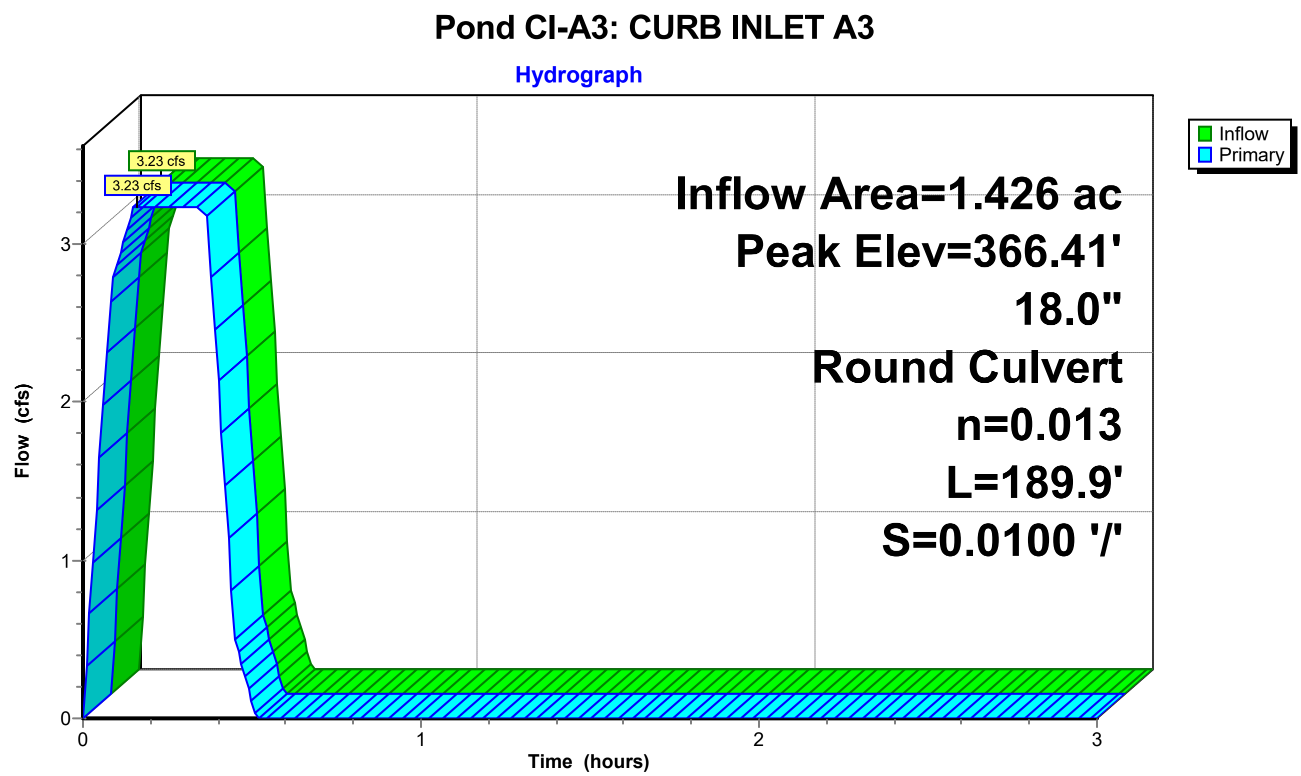
Inflow Area =	1.426 ac,	0.00% Impervious,	Inflow Depth = 0.82"	for 2-yr event	
Inflow =	3.23 cfs @	0.15 hrs,	Volume=	0.098 af	
Outflow =	3.23 cfs @	0.16 hrs,	Volume=	0.098 af,	Atten= 0%, Lag= 0.6 min
Primary =	3.23 cfs @	0.16 hrs,	Volume=	0.098 af	

Routed to Pond CI-A4 : CURB INLET A4

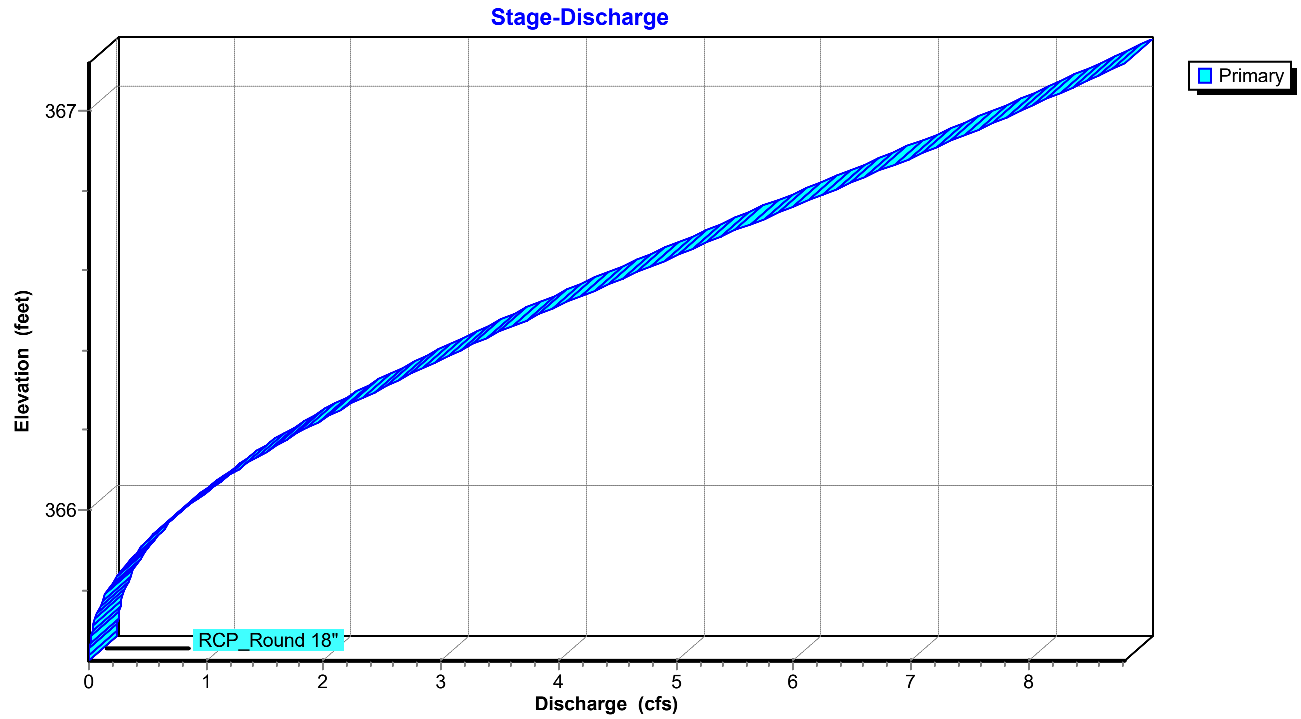
Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 366.41' @ 0.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	365.62'	**18.0" Round RCP_Round 18"** L= 189.9' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 365.62' / 363.72' S= 0.0100 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=3.23 cfs @ 0.16 hrs HW=366.41' (Free Discharge)
└**1=RCP_Round 18"** (Barrel Controls 3.23 cfs @ 4.99 fps)



Pond CI-A3: CURB INLET A3



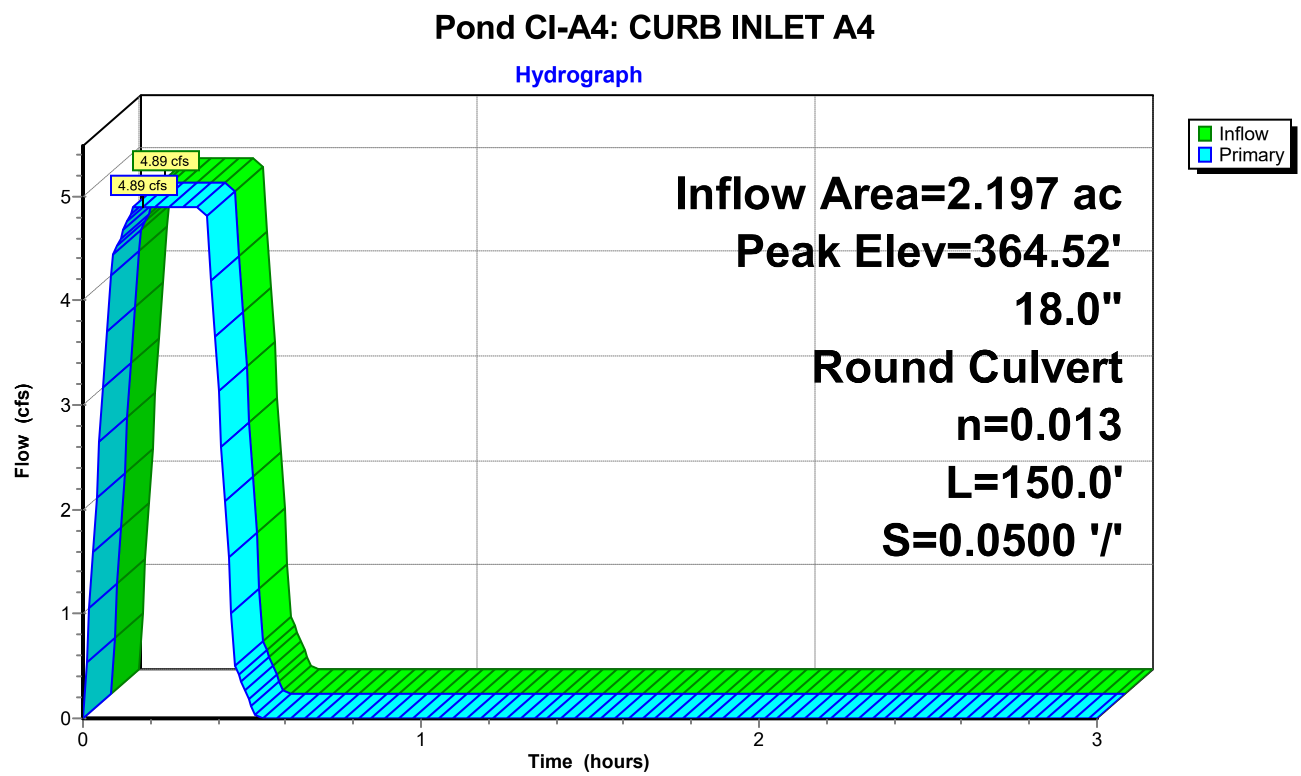
Summary for Pond CI-A4: CURB INLET A4

Inflow Area = 2.197 ac, 0.00% Impervious, Inflow Depth = 0.81" for 2-yr event
Inflow = 4.89 cfs @ 0.16 hrs, Volume= 0.148 af
Outflow = 4.89 cfs @ 0.18 hrs, Volume= 0.148 af, Atten= 0%, Lag= 1.2 min
Primary = 4.89 cfs @ 0.18 hrs, Volume= 0.148 af
Routed to Pond CI-A5 : CURB INLET A5

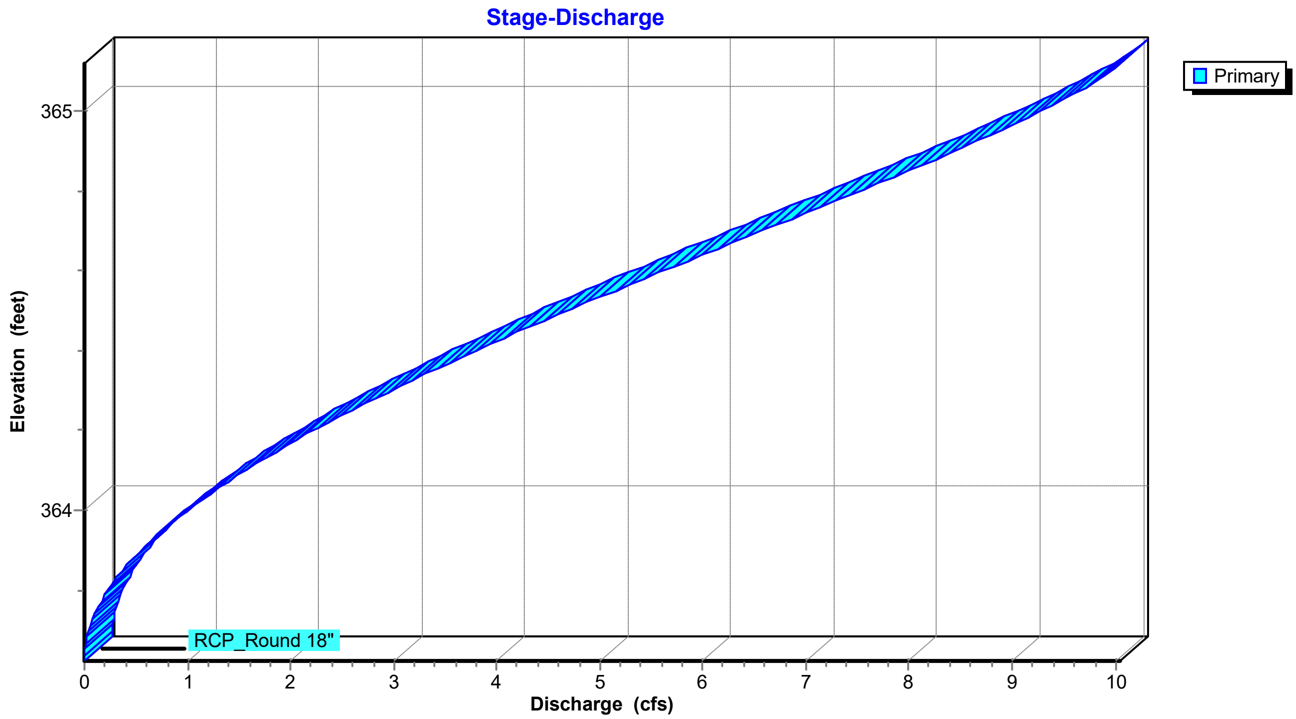
Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 364.52' @ 0.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	363.62'	**18.0" Round RCP_Round 18"** L= 150.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 363.62' / 356.12' S= 0.0500 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=4.89 cfs @ 0.18 hrs HW=364.52' (Free Discharge)
1=RCP_Round 18" (Inlet Controls 4.89 cfs @ 4.41 fps)



Pond CI-A4: CURB INLET A4



Summary for Pond CI-A5: CURB INLET A5

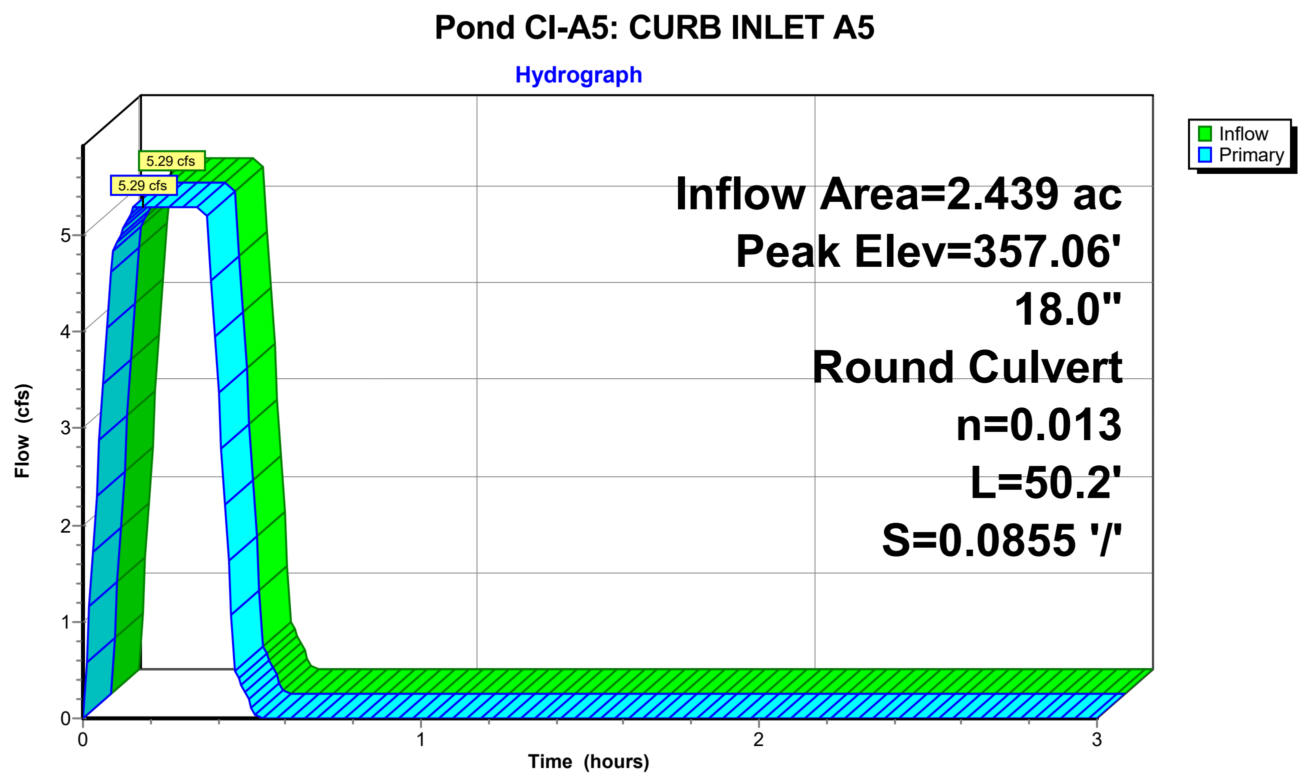
Inflow Area =	2.439 ac,	0.00% Impervious, Inflow Depth =	0.79"	for 2-yr event
Inflow =	5.29 cfs @	0.18 hrs, Volume=	0.160 af	
Outflow =	5.29 cfs @	0.18 hrs, Volume=	0.160 af,	Atten= 0%, Lag= 0.0 min
Primary =	5.29 cfs @	0.18 hrs, Volume=	0.160 af	

Routed to Link POST-DEV : Post-Development

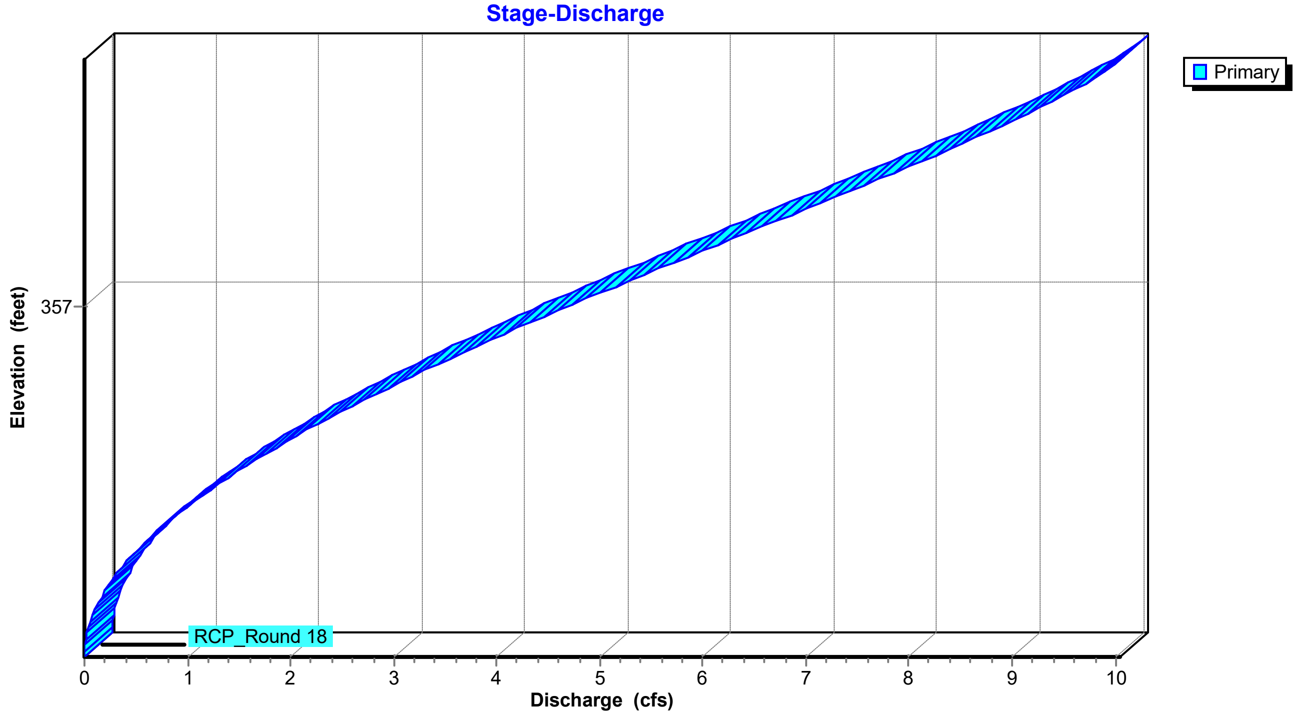
Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 357.06' @ 0.18 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	356.12'	**18.0" Round RCP_Round 18** L= 50.2' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 356.12' / 351.83' S= 0.0855 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=5.29 cfs @ 0.18 hrs HW=357.06' (Free Discharge)
↑—**1=RCP_Round 18** (Inlet Controls 5.29 cfs @ 4.51 fps)



Pond CI-A5: CURB INLET A5



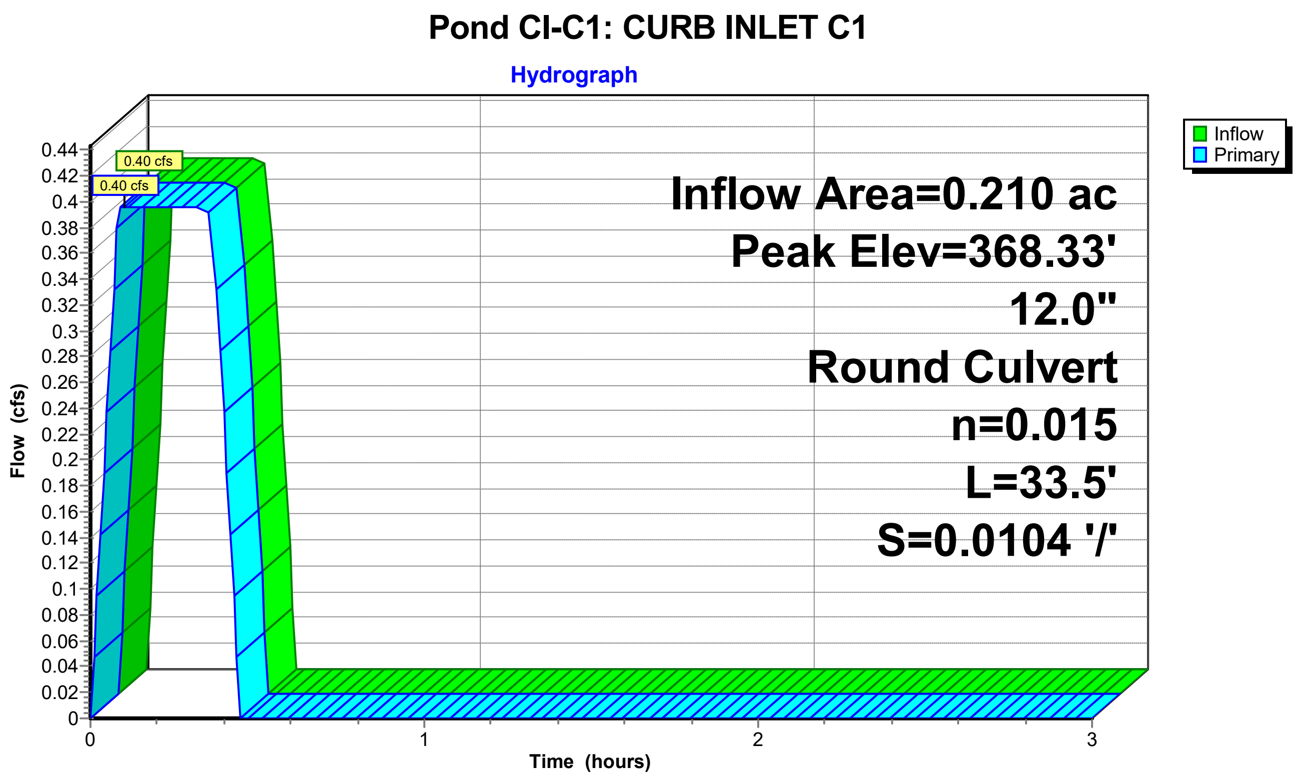
Summary for Pond CI-C1: CURB INLET C1

Inflow Area = 0.210 ac, 0.00% Impervious, Inflow Depth = 0.68" for 2-yr event
Inflow = 0.40 cfs @ 0.09 hrs, Volume= 0.012 af
Outflow = 0.40 cfs @ 0.10 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.6 min
Primary = 0.40 cfs @ 0.10 hrs, Volume= 0.012 af
Routed to Pond CI-C2 : CURB INLET C2

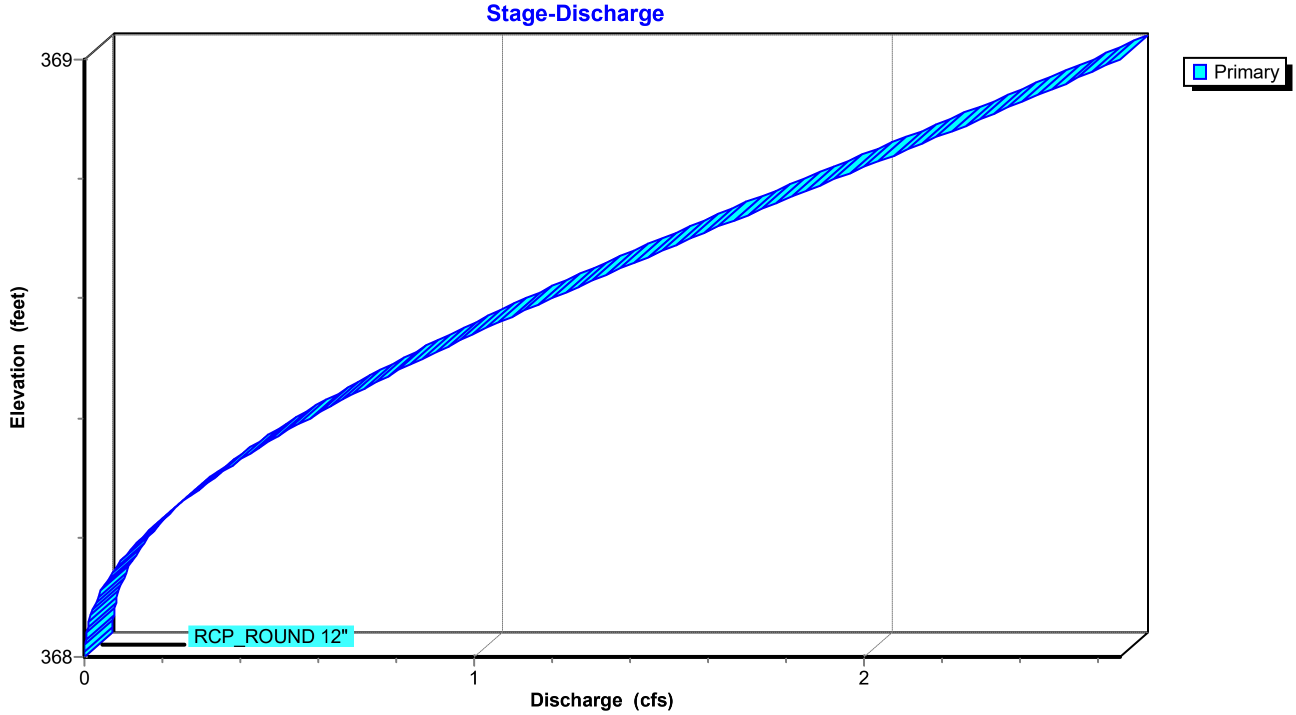
Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 368.33' @ 0.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	368.00'	**12.0" Round RCP_ROUND 12"** L= 33.5' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 368.00' / 367.65' S= 0.0104 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 0.79 sf

Primary OutFlow Max=0.40 cfs @ 0.10 hrs HW=368.33' (Free Discharge)
1=RCP_ROUND 12" (Barrel Controls 0.40 cfs @ 2.64 fps)



Pond CI-C1: CURB INLET C1



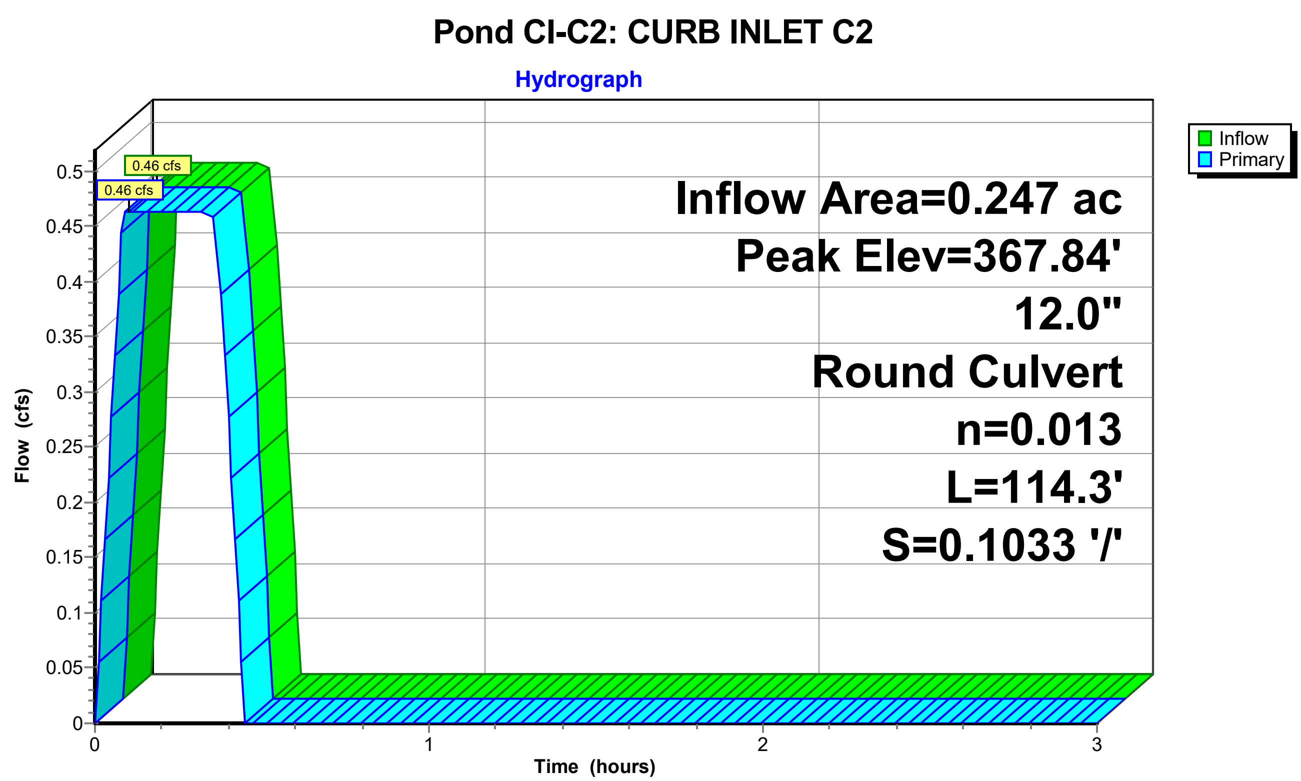
Summary for Pond CI-C2: CURB INLET C2

Inflow Area = 0.247 ac, 0.00% Impervious, Inflow Depth = 0.68" for 2-yr event
Inflow = 0.46 cfs @ 0.10 hrs, Volume= 0.014 af
Outflow = 0.46 cfs @ 0.10 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.0 min
Primary = 0.46 cfs @ 0.10 hrs, Volume= 0.014 af
Routed to Pond JB-C3 : JUNCTION BOX C3

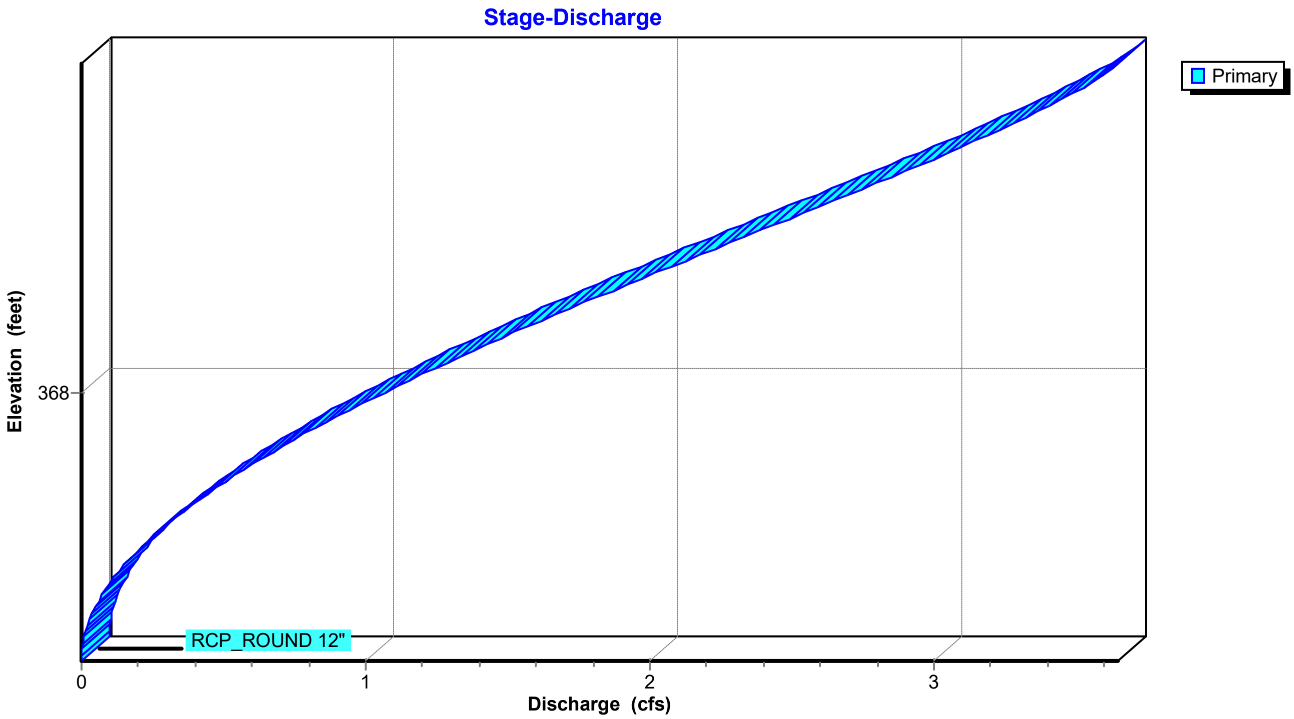
Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 367.84' @ 0.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	367.55'	**12.0" Round RCP_ROUND 12"** L= 114.3' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 367.55' / 355.74' S= 0.1033 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.46 cfs @ 0.10 hrs HW=367.84' (Free Discharge)
└**1=RCP_ROUND 12"** (Inlet Controls 0.46 cfs @ 2.49 fps)



Pond CI-C2: CURB INLET C2



Summary for Pond CI-C4: CURB INLET C4

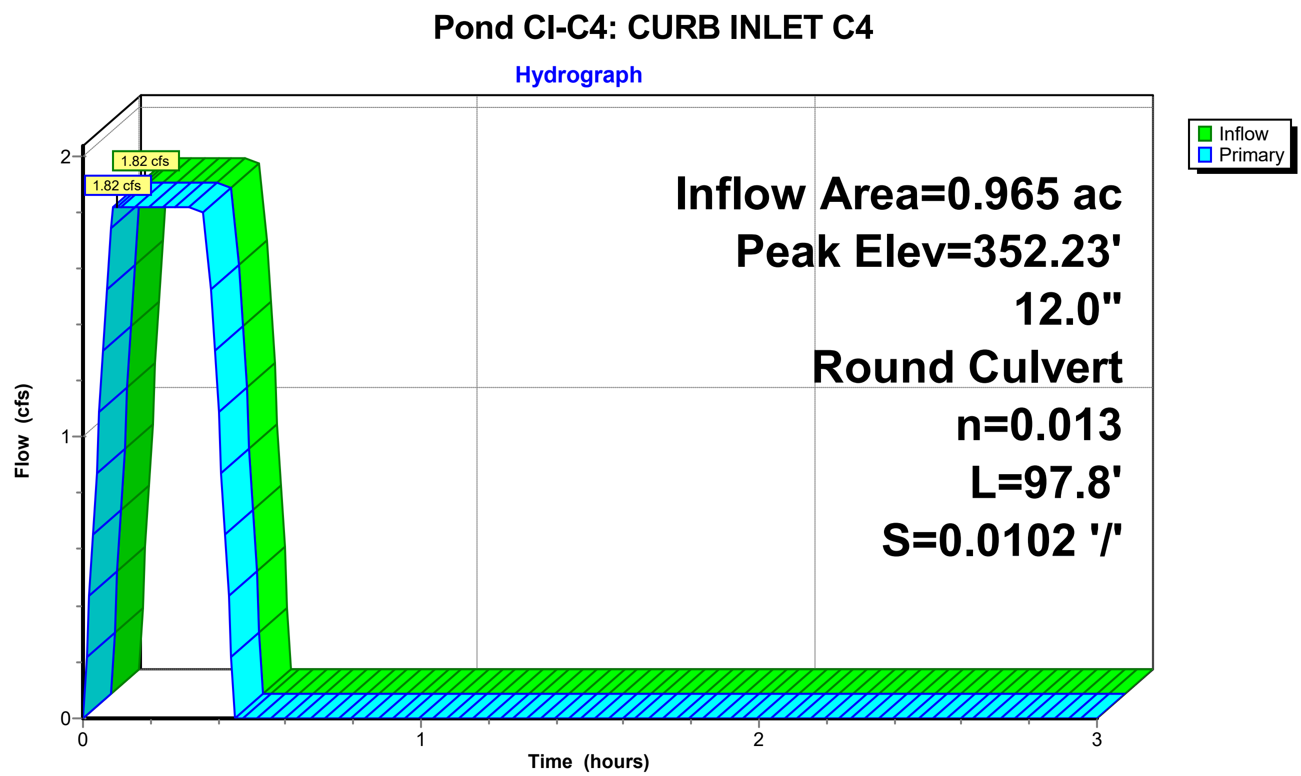
Inflow Area =	0.965 ac,	0.00% Impervious,	Inflow Depth = 0.68"	for 2-yr event
Inflow =	1.82 cfs @	0.10 hrs, Volume=	0.055 af	
Outflow =	1.82 cfs @	0.10 hrs, Volume=	0.055 af,	Atten= 0%, Lag= 0.0 min
Primary =	1.82 cfs @	0.10 hrs, Volume=	0.055 af	

Routed to Pond CI-C5 : CURB INLET C5

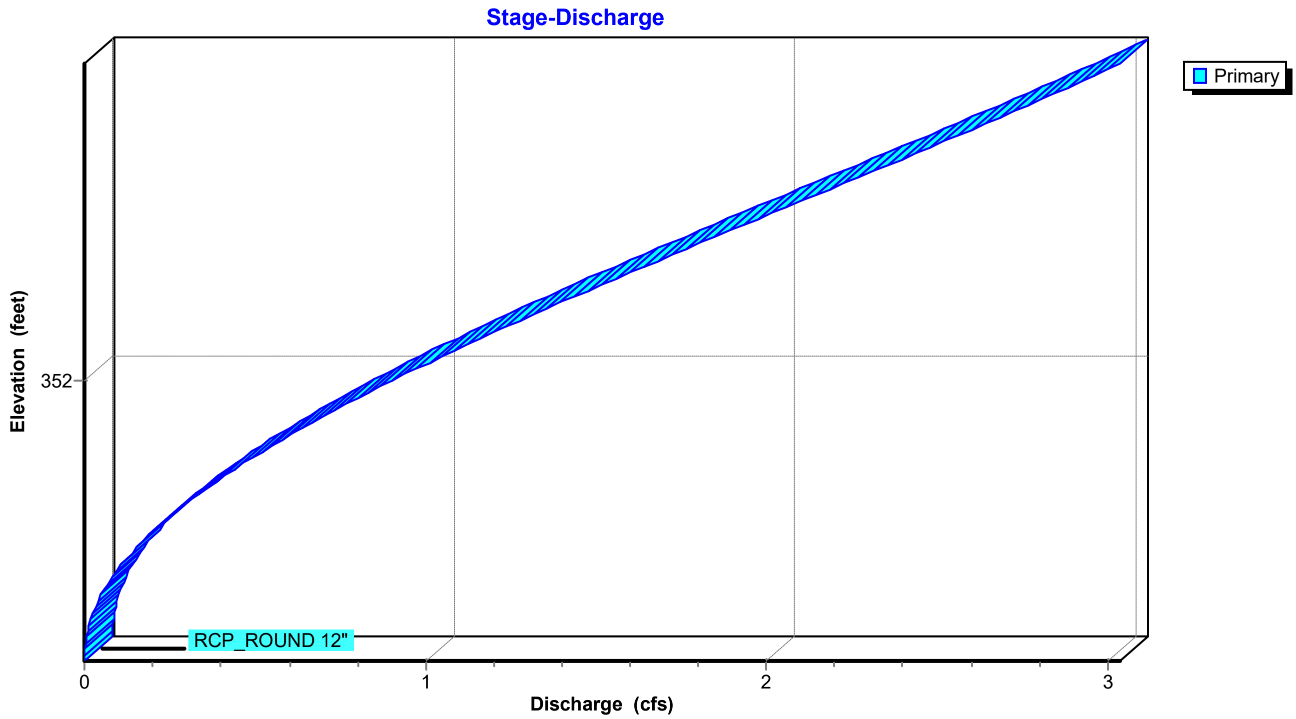
Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 352.23' @ 0.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	351.53'	**12.0" Round RCP_ROUND 12"** L= 97.8' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 351.53' / 350.53' S= 0.0102 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.82 cfs @ 0.10 hrs HW=352.23' (Free Discharge)
└**1=RCP_ROUND 12"** (Barrel Controls 1.82 cfs @ 4.33 fps)



Pond CI-C4: CURB INLET C4



Summary for Pond CI-C5: CURB INLET C5

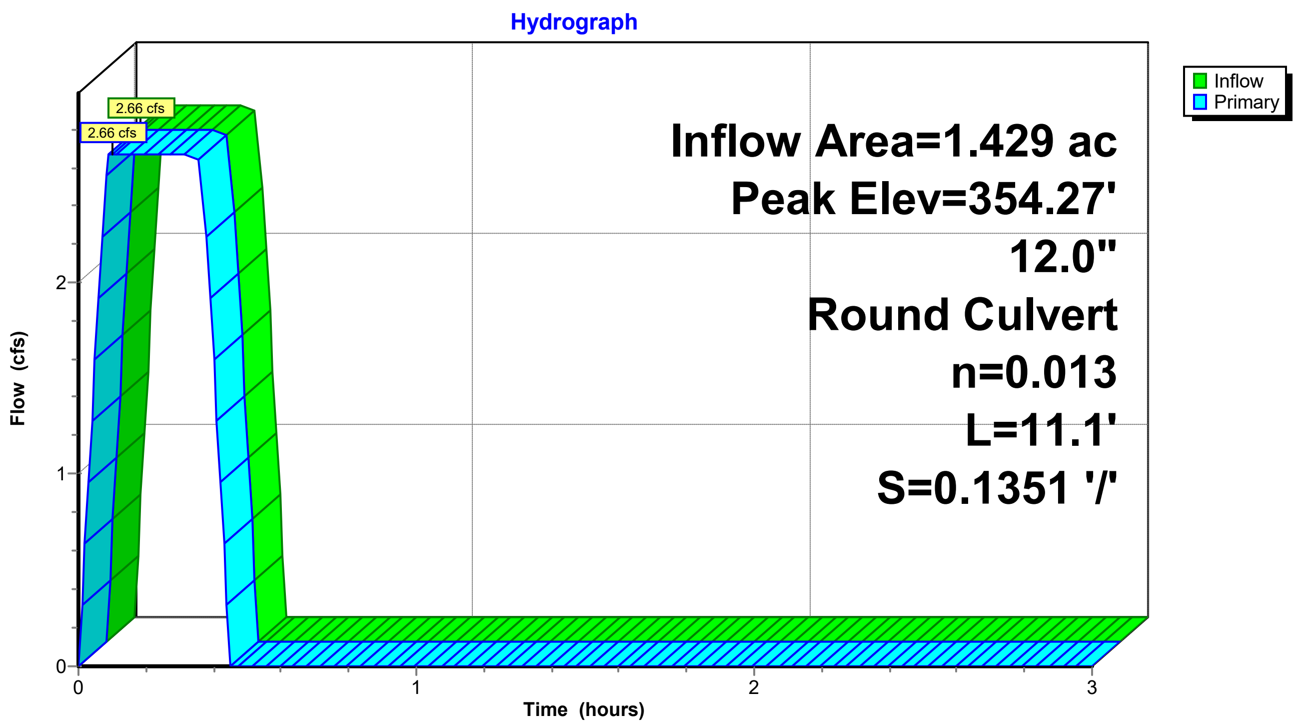
Inflow Area = 1.429 ac, 0.00% Impervious, Inflow Depth = 0.68" for 2-yr event
Inflow = 2.66 cfs @ 0.10 hrs, Volume= 0.081 af
Outflow = 2.66 cfs @ 0.10 hrs, Volume= 0.081 af, Atten= 0%, Lag= 0.0 min
Primary = 2.66 cfs @ 0.10 hrs, Volume= 0.081 af
Routed to Link POST-DEV : Post-Development

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 354.27' @ 0.09 hrs

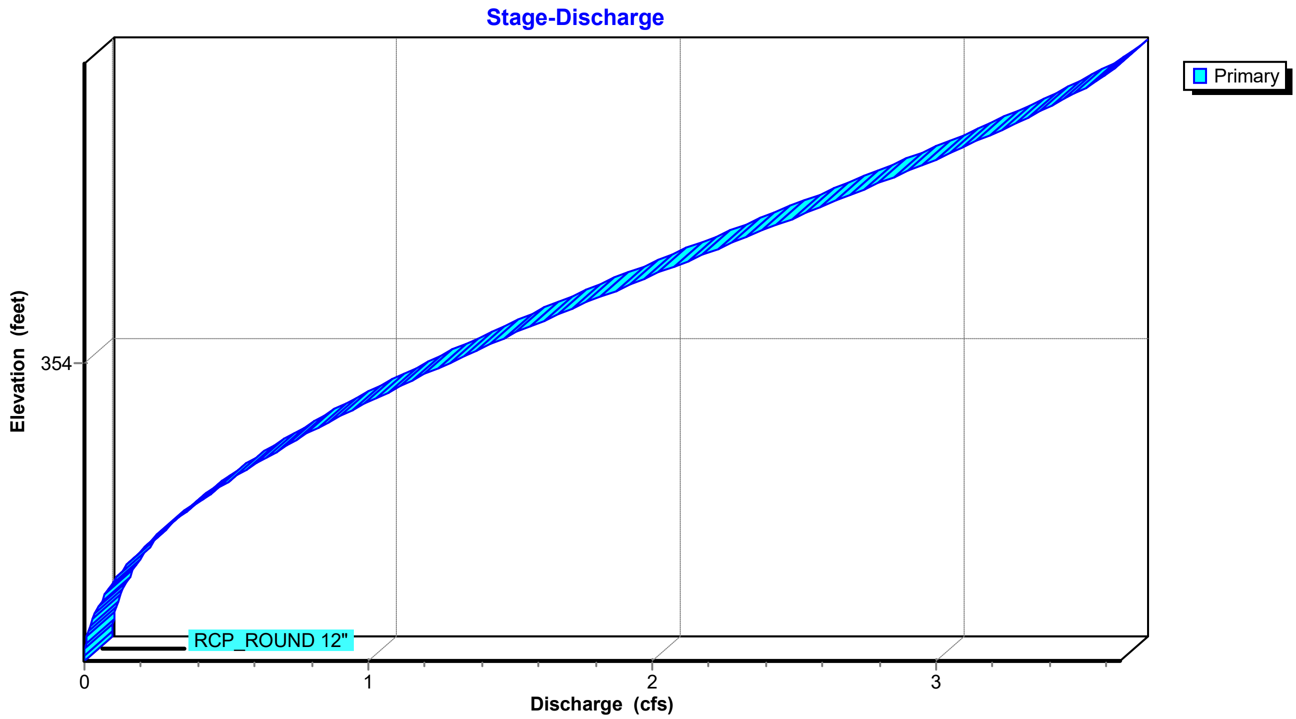
Device	Routing	Invert	Outlet Devices
#1	Primary	353.50'	**12.0" Round RCP_ROUND 12"** L= 11.1' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 353.50' / 352.00' S= 0.1351 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=2.66 cfs @ 0.10 hrs HW=354.27' (Free Discharge)
└─**1=RCP_ROUND 12"** (Inlet Controls 2.66 cfs @ 4.08 fps)

Pond CI-C5: CURB INLET C5



Pond CI-C5: CURB INLET C5



Summary for Pond CI-D1: CURB INLET D1

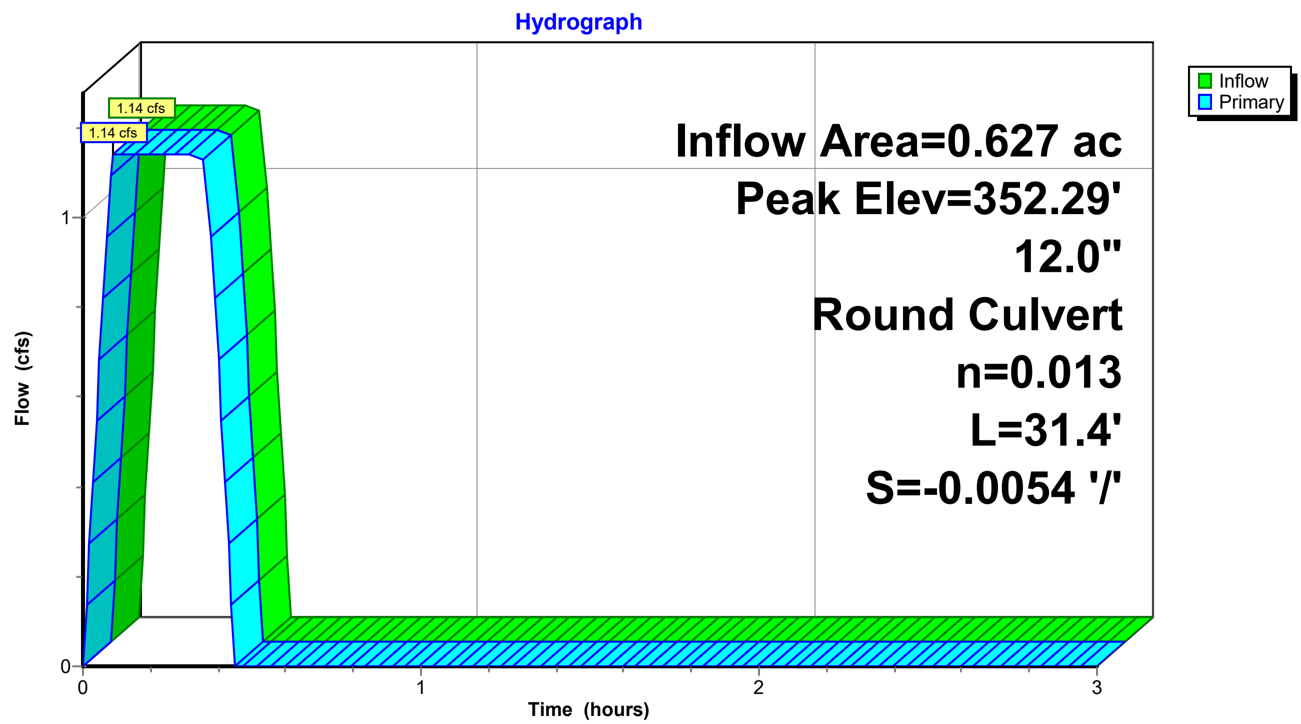
Inflow Area = 0.627 ac, 0.00% Impervious, Inflow Depth = 0.66" for 2-yr event
Inflow = 1.14 cfs @ 0.09 hrs, Volume= 0.035 af
Outflow = 1.14 cfs @ 0.09 hrs, Volume= 0.035 af, Atten= 0%, Lag= 0.0 min
Primary = 1.14 cfs @ 0.09 hrs, Volume= 0.035 af
Routed to Pond CI-C4 : CURB INLET C4

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 352.29' @ 0.09 hrs

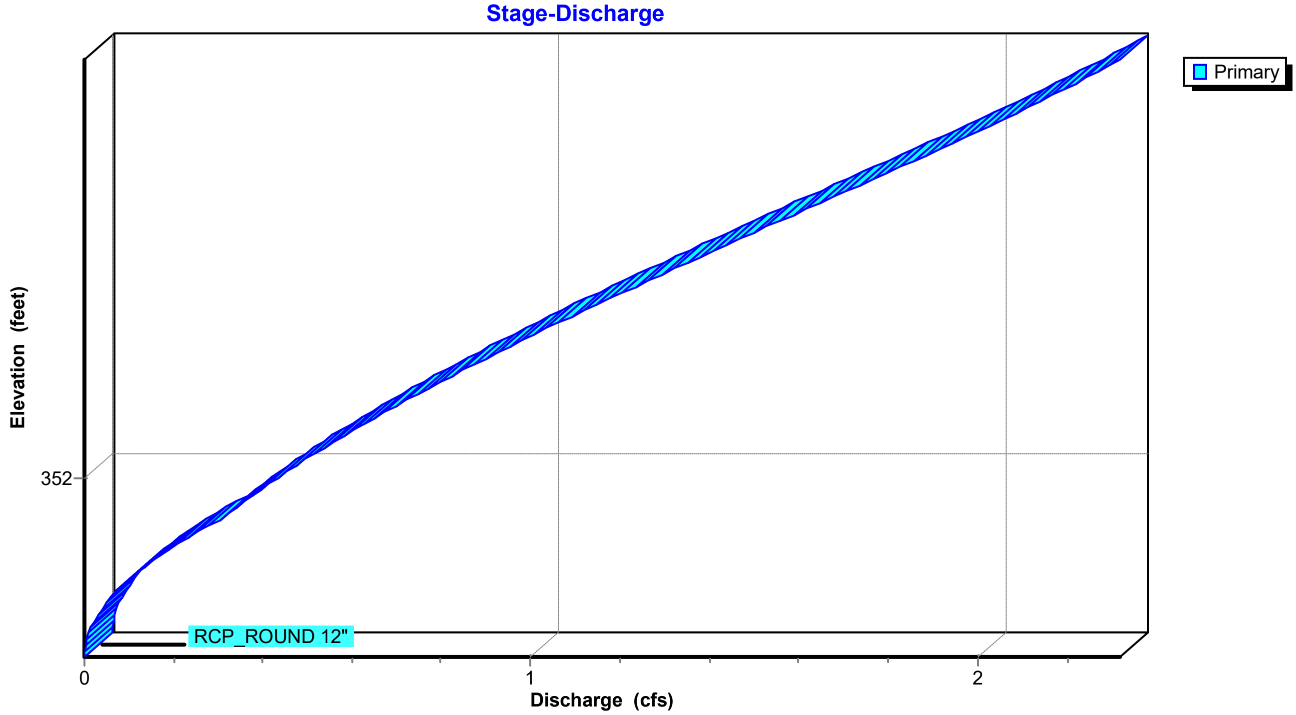
Device	Routing	Invert	Outlet Devices
#1	Primary	351.70'	**12.0" Round RCP_ROUND 12"** L= 31.4' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 351.53' / 351.70' S= -0.0054 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.14 cfs @ 0.09 hrs HW=352.29' (Free Discharge)
└**1=RCP_ROUND 12"** (Barrel Controls 1.14 cfs @ 2.48 fps)

Pond CI-D1: CURB INLET D1



Pond CI-D1: CURB INLET D1



Summary for Pond JB-C3: JUNCTION BOX C3

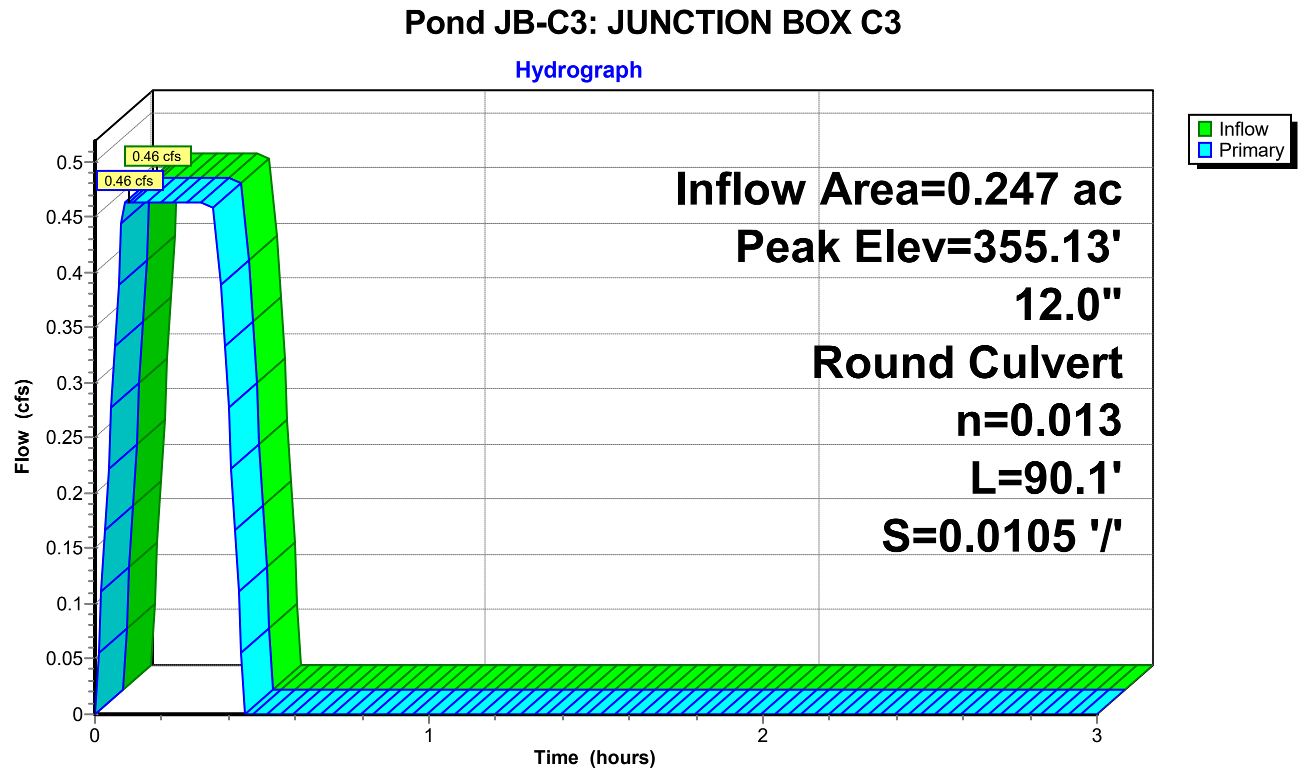
Inflow Area =	0.247 ac,	0.00% Impervious,	Inflow Depth = 0.68"	for 2-yr event	
Inflow =	0.46 cfs @	0.10 hrs,	Volume=	0.014 af	
Outflow =	0.46 cfs @	0.10 hrs,	Volume=	0.014 af,	Atten= 0%, Lag= 0.0 min
Primary =	0.46 cfs @	0.10 hrs,	Volume=	0.014 af	

Routed to Pond CI-C4 : CURB INLET C4

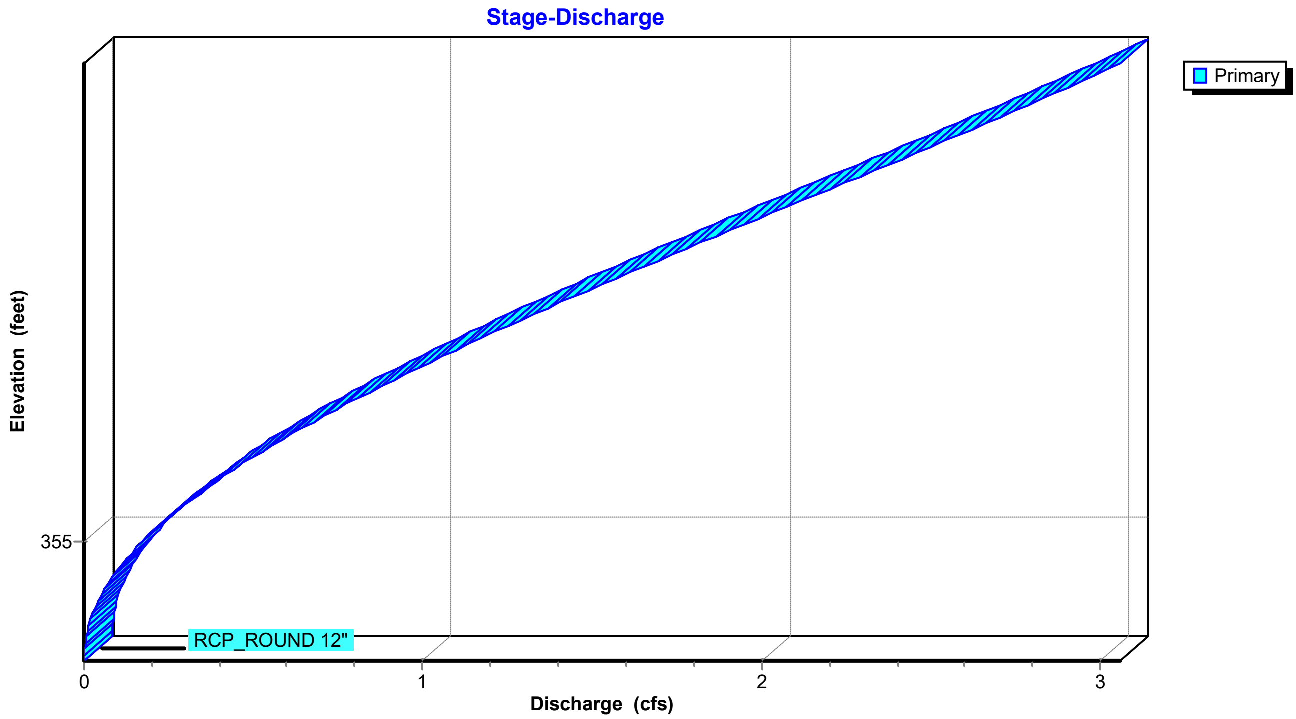
Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 355.13' @ 0.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	354.80'	**12.0" Round RCP_ROUND 12"** L= 90.1' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 354.80' / 353.85' S= 0.0105 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.46 cfs @ 0.10 hrs HW=355.13' (Free Discharge)
1=RCP_ROUND 12" (Barrel Controls 0.46 cfs @ 3.09 fps)



Pond JB-C3: JUNCTION BOX C3

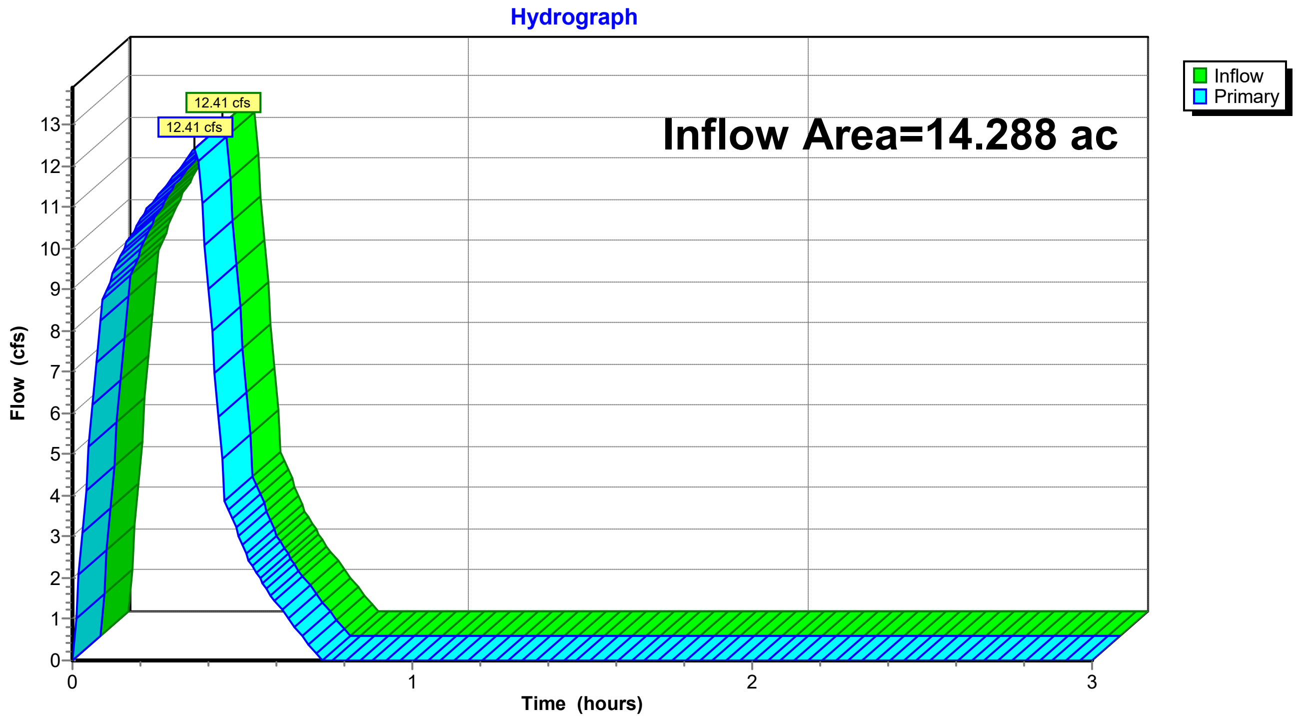


Summary for Link POST-DEV: Post-Development

Inflow Area =	14.288 ac,	0.00% Impervious, Inflow Depth =	0.32"	for 2-yr event
Inflow =	12.41 cfs @	0.36 hrs, Volume=	0.378 af	
Primary =	12.41 cfs @	0.36 hrs, Volume=	0.378 af,	Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Link POST-DEV: Post-Development



Summary for Subcatchment DB-B1: Drainage Basin B1

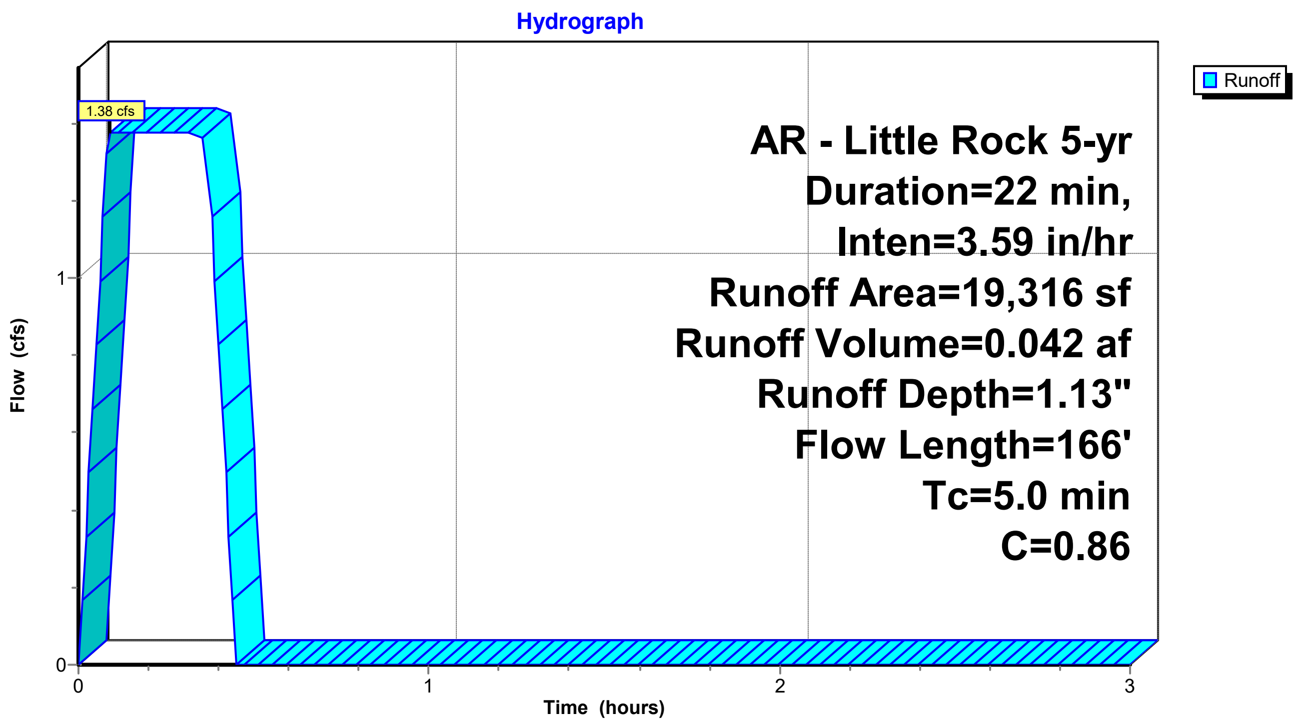
Runoff = 1.38 cfs @ 0.09 hrs, Volume= 0.042 af, Depth= 1.13"
Routed to Pond CI-A1 : CURB INLET A1

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 5-yr Duration=22 min, Inten=3.59 in/hr

Area (sf)	C	Description
1,941	0.30	Sandy Soil 2-7% per manual
17,375	0.92	Paved Areas
19,316	0.86	Weighted Average
19,316		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	33	0.0200	0.16		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
0.6	67	0.0350	1.82		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.5	66	0.0100	2.03		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
0.4					**Direct Entry, Minimum Adjustment**
5.0	166	Total			

Subcatchment DB-B1: Drainage Basin B1



Summary for Subcatchment DB-B10: Drainage Basin B10

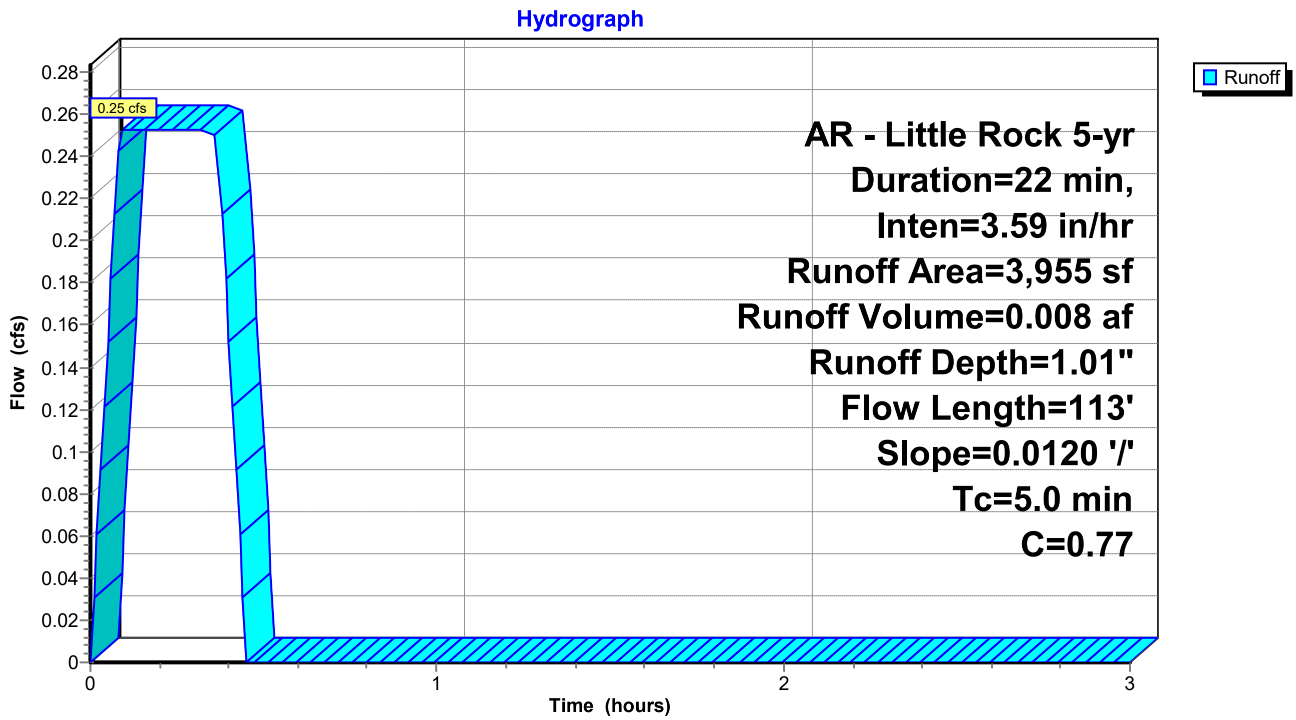
Runoff = 0.25 cfs @ 0.09 hrs, Volume= 0.008 af, Depth= 1.01"
Routed to Pond CI-C4 : CURB INLET C4

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 5-yr Duration=22 min, Inten=3.59 in/hr

Area (sf)	C	Description
959	0.30	Sandy Soil 2-7% per manual
2,996	0.92	Paved Areas
3,955	0.77	Weighted Average
3,955		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	113	0.0120	1.32		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
3.6					**Direct Entry, Minimum Adjustment**
5.0	113	Total			

Subcatchment DB-B10: Drainage Basin B10



Summary for Subcatchment DB-B11: Drainage Basin B11

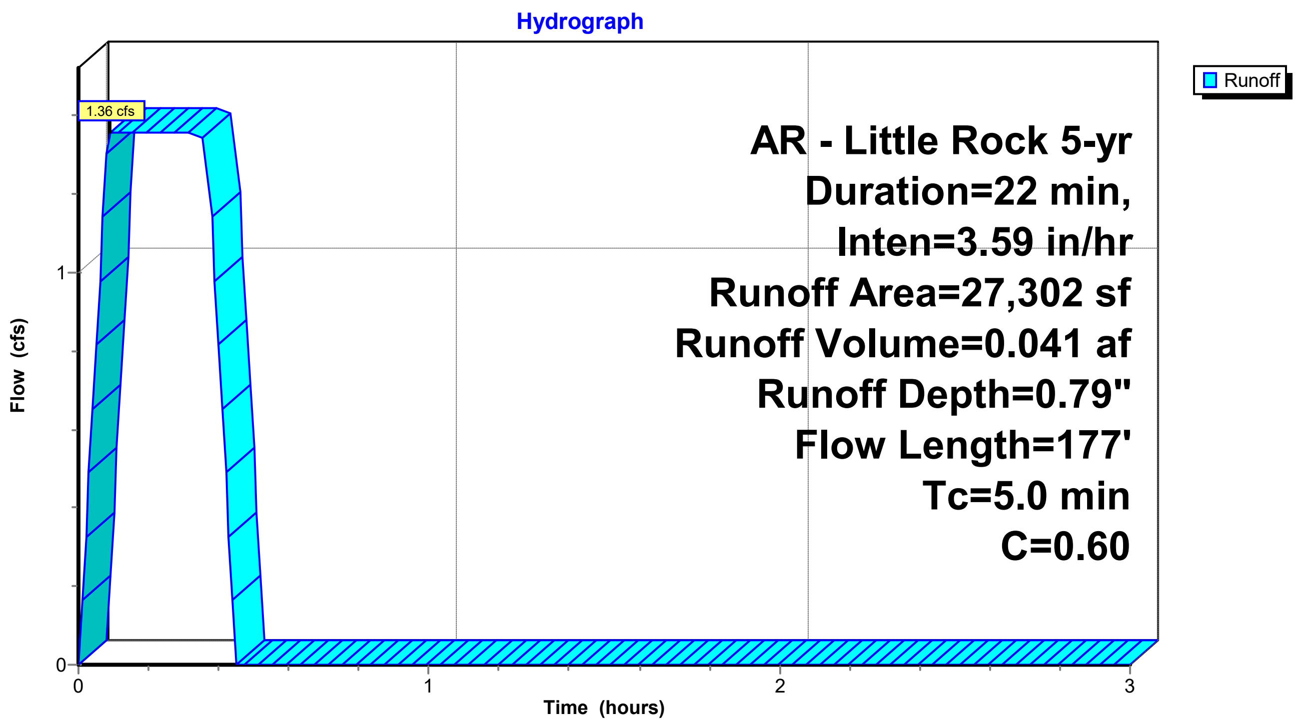
Runoff = 1.36 cfs @ 0.09 hrs, Volume= 0.041 af, Depth= 0.79"
Routed to Pond CI-D1 : CURB INLET D1

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 5-yr Duration=22 min, Inten=3.59 in/hr

Area (sf)	C	Description
15,547	0.35	Sandy Soil 2-7% per manual
11,755	0.92	Paved Areas
27,302	0.60	Weighted Average
27,302		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	65	0.3300	4.44		**Sheet Flow, Roof** Smooth surfaces n= 0.011 P2= 4.20"
0.2	69	0.1750	6.27		**Shallow Concentrated Flow, Greenspace** Grassed Waterway Kv= 15.0 fps
0.2	43	0.0500	4.54		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
4.4					**Direct Entry, Minimum Adjustment**
5.0	177	Total			

Subcatchment DB-B11: Drainage Basin B11



Summary for Subcatchment DB-B12: Drainage Basin B12

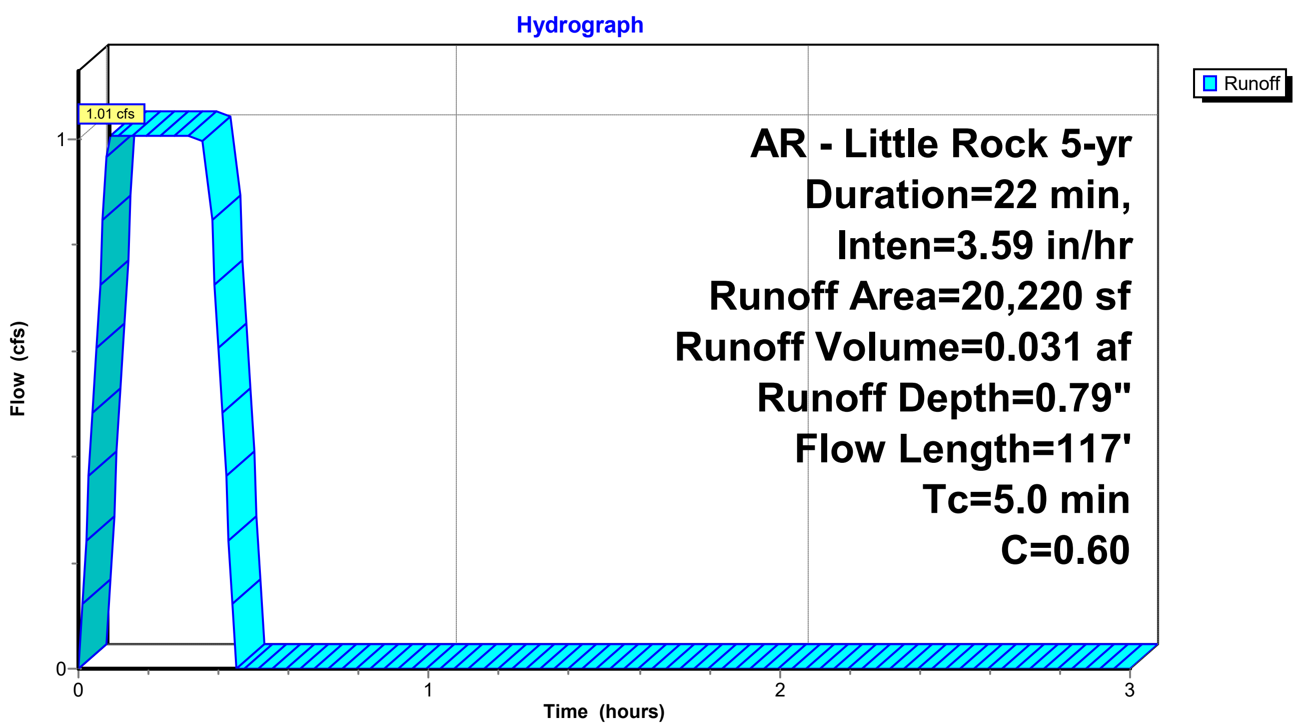
Runoff = 1.01 cfs @ 0.09 hrs, Volume= 0.031 af, Depth= 0.79"
Routed to Pond CI-C5 : CURB INLET C5

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 5-yr Duration=22 min, Inten=3.59 in/hr

Area (sf)	C	Description
11,502	0.35	Sandy Soil 2-7% per manual
8,718	0.92	Paved Areas
20,220	0.60	Weighted Average
20,220		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	26	0.0500	0.21		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
1.5	38	0.2360	0.43		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
1.1	28	0.2390	0.41		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
0.4	25	0.0180	1.15		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
5.0	117	Total			

Subcatchment DB-B12: Drainage Basin B12



Summary for Subcatchment DB-B13: DRAINAGE BASIN B13

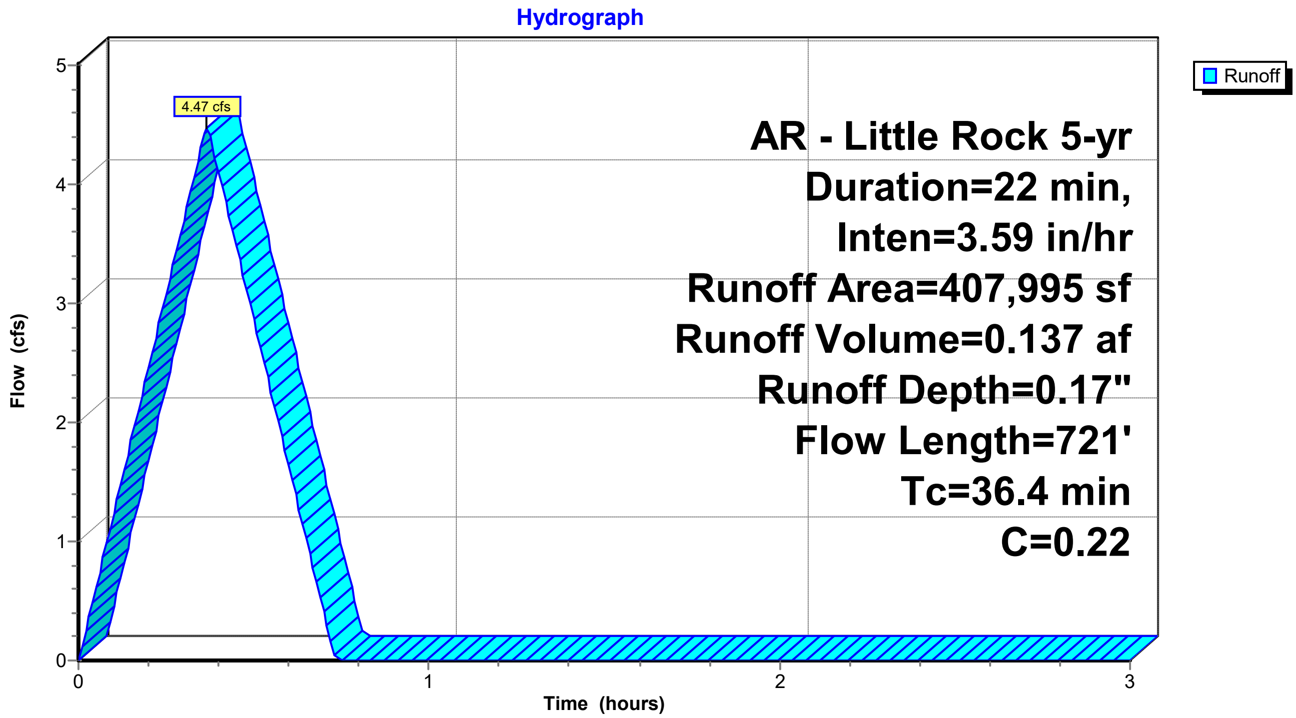
Runoff = 4.47 cfs @ 0.37 hrs, Volume= 0.137 af, Depth= 0.17"
Routed to Link POST-DEV : Post-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 5-yr Duration=22 min, Inten=3.59 in/hr

Area (sf)	C	Description
407,995	0.22	Sandy Soil 2-7% Per Manual
407,995		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	67	0.6600	0.73		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
1.2	46	0.5900	0.65		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
3.2	147	0.5100	0.77		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
1.8	63	0.3800	0.58		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
8.5	70	0.0100	0.14		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
4.8	163	0.2200	0.56		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
2.4	65	0.2000	0.45		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
6.3	48	0.0100	0.13		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
6.7	52	0.0100	0.13		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
36.4	721	Total			

Subcatchment DB-B13: DRAINAGE BASIN B13



Summary for Subcatchment DB-B14: DRAINAGE BASIN B14

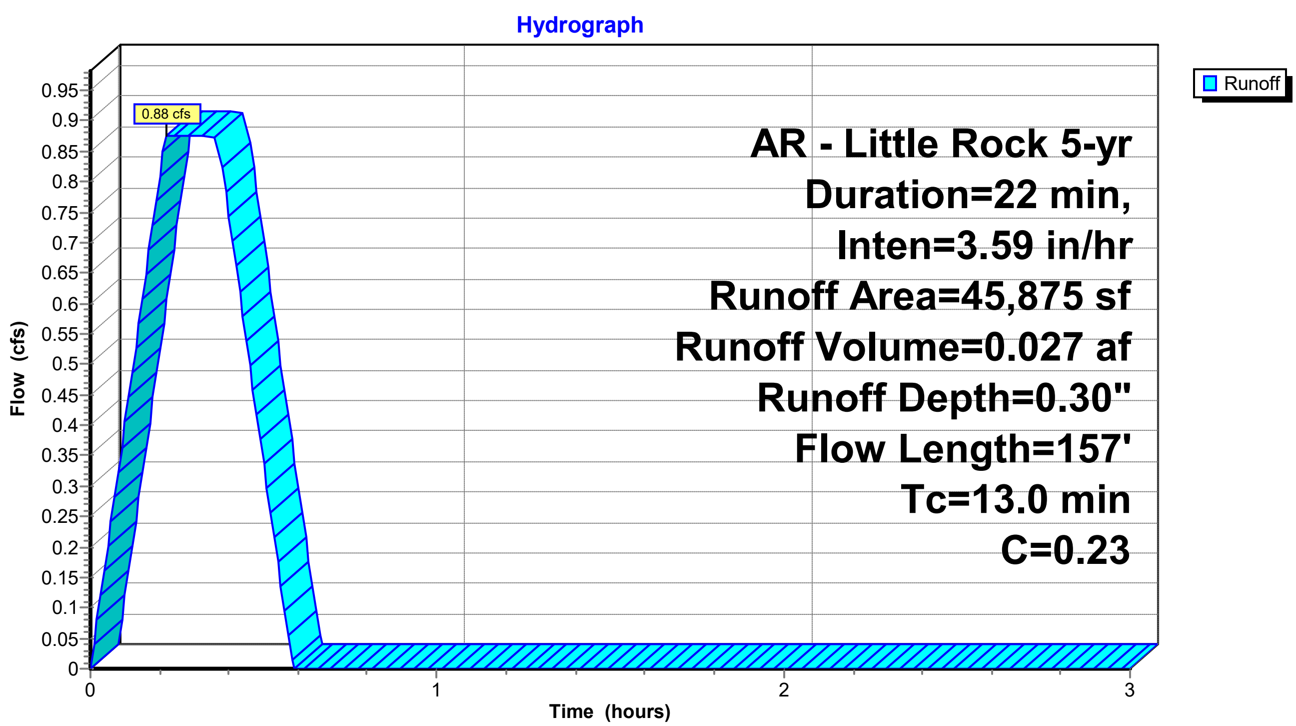
Runoff = 0.88 cfs @ 0.22 hrs, Volume= 0.027 af, Depth= 0.30"
Routed to Link POST-DEV : Post-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 5-yr Duration=22 min, Inten=3.59 in/hr

Area (sf)	C	Description
45,016	0.22	Sandy Soil 2-7% Per Manual
859	0.92	Paved Areas
45,875	0.23	Weighted Average
45,875		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	15	0.0100	0.10		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
5.2	78	0.0420	0.25		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
2.8	38	0.0480	0.23		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
2.5	26	0.0280	0.17		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
13.0	157	Total			

Subcatchment DB-B14: DRAINAGE BASIN B14



Summary for Subcatchment DB-B2: Drainage Basin B2

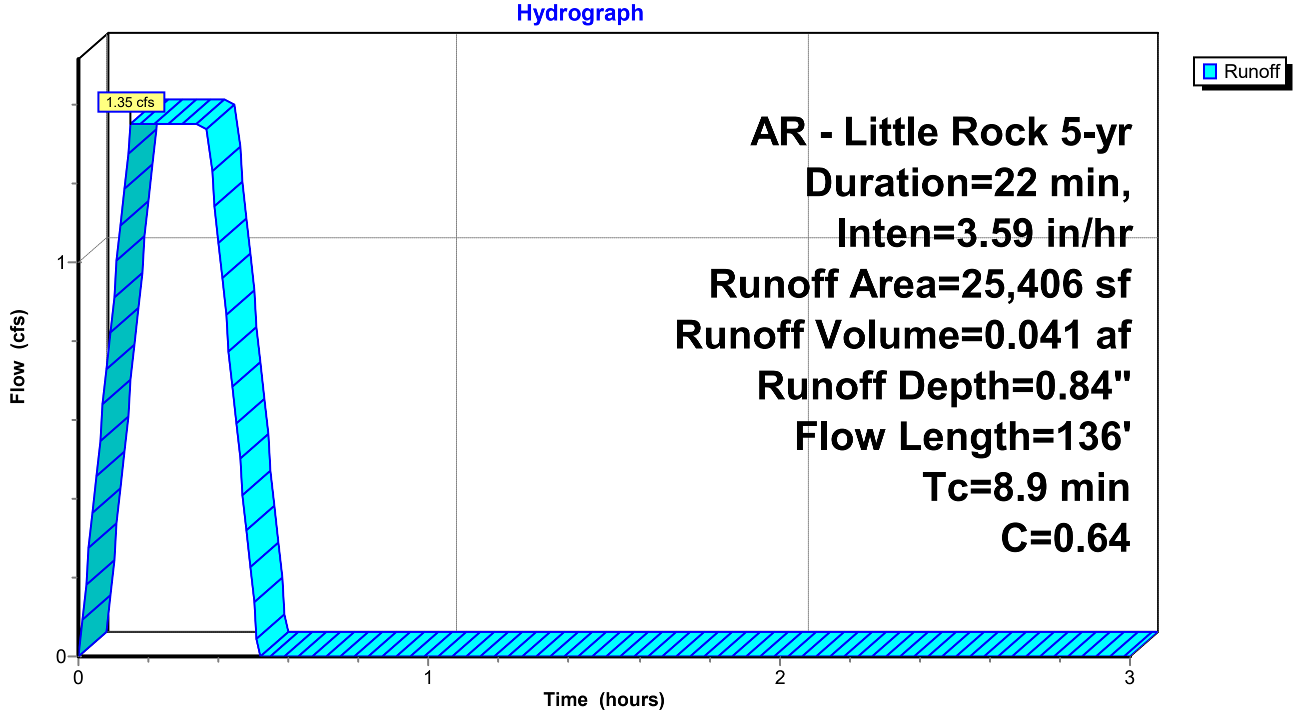
Runoff = 1.35 cfs @ 0.15 hrs, Volume= 0.041 af, Depth= 0.84"
Routed to Pond CI-A2 : CURB INLET A2

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 5-yr Duration=22 min, Inten=3.59 in/hr

Area (sf)	C	Description
11,388	0.30	Sandy Soil 2-7% per manual
14,018	0.92	Paved Areas
25,406	0.64	Weighted Average
25,406		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	57	0.0100	0.13		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
0.8	19	0.2480	0.38		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
0.2	14	0.0150	0.95		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.3	34	0.0600	1.97		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.2	12	0.0350	1.29		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.2					**Direct Entry, Minimum Adjustment**
8.9	136	Total			

Subcatchment DB-B2: Drainage Basin B2



Summary for Subcatchment DB-B3: Drainage Basin B3

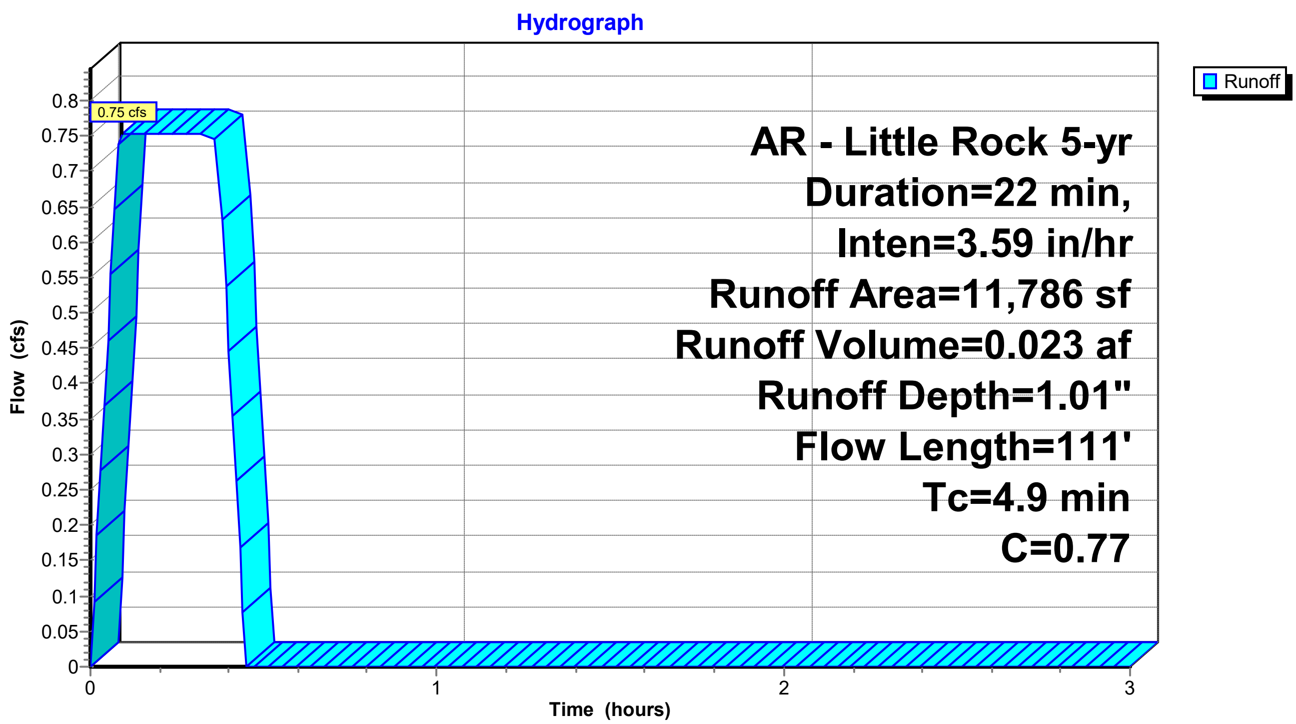
Runoff = 0.75 cfs @ 0.09 hrs, Volume= 0.023 af, Depth= 1.01"
Routed to Pond CI-A3 : CURB INLET A3

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 5-yr Duration=22 min, Inten=3.59 in/hr

Area (sf)	C	Description
2,920	0.30	Sandy Soil 2-7% per manual
8,866	0.92	Paved Areas
11,786	0.77	Weighted Average
11,786		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	19	0.2500	0.38		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
0.2	16	0.0290	1.27		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.6	38	0.0100	0.98		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.3	38	0.0100	2.03		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
3.0					**Direct Entry, Minimum Adjustment**
4.9	111	Total			

Subcatchment DB-B3: Drainage Basin B3



Summary for Subcatchment DB-B4: Drainage Basin B4

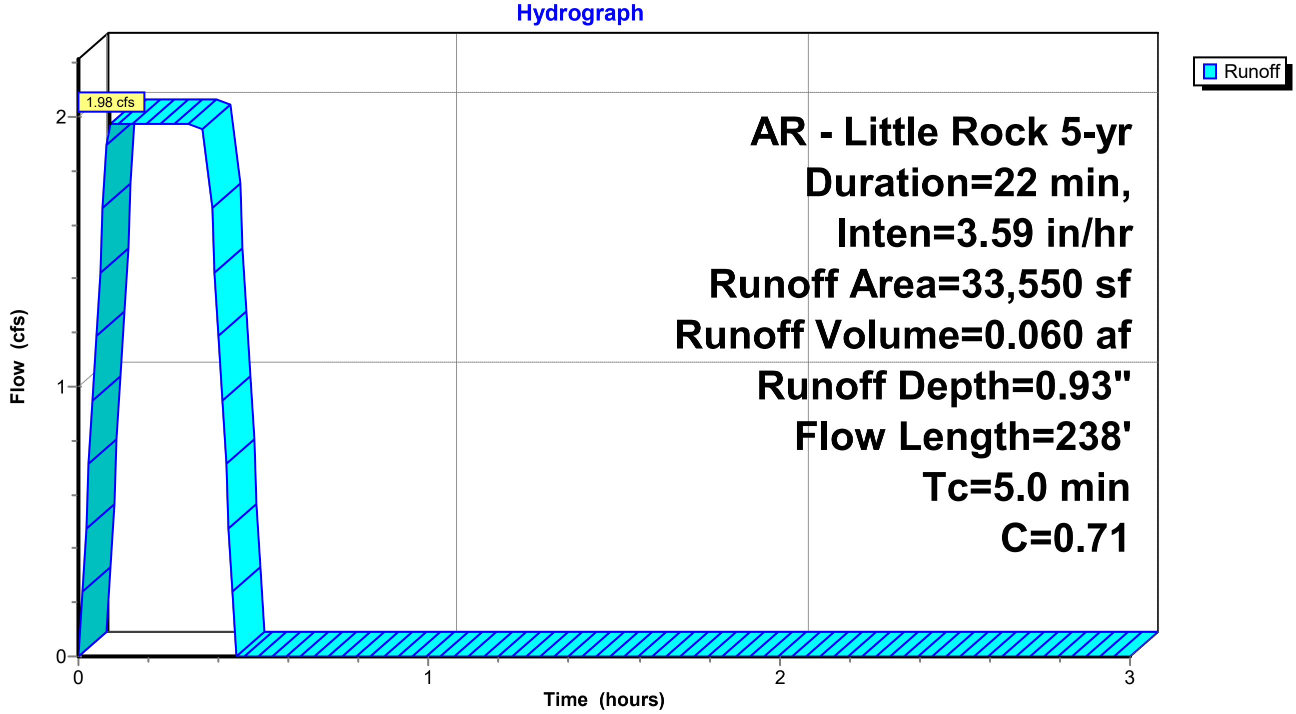
Runoff = 1.98 cfs @ 0.09 hrs, Volume= 0.060 af, Depth= 0.93"
Routed to Pond CI-A4 : CURB INLET A4

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 5-yr Duration=22 min, Inten=3.59 in/hr

Area (sf)	C	Description
11,568	0.30	Sandy Soil 2-7% per manual
21,982	0.92	Paved Areas
33,550	0.71	Weighted Average
33,550		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	48	0.0530	2.01		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.3	25	0.0310	1.42		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.6	14	0.0020	0.42		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.9	66	0.0130	1.22		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.4	59	0.0120	2.22		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
0.5	19	0.0010	0.64		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
0.0	7	0.0700	5.37		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
1.9					**Direct Entry, Minimum Adjustment**
5.0	238	Total			

Subcatchment DB-B4: Drainage Basin B4



Summary for Subcatchment DB-B5: Drainage Basin B5

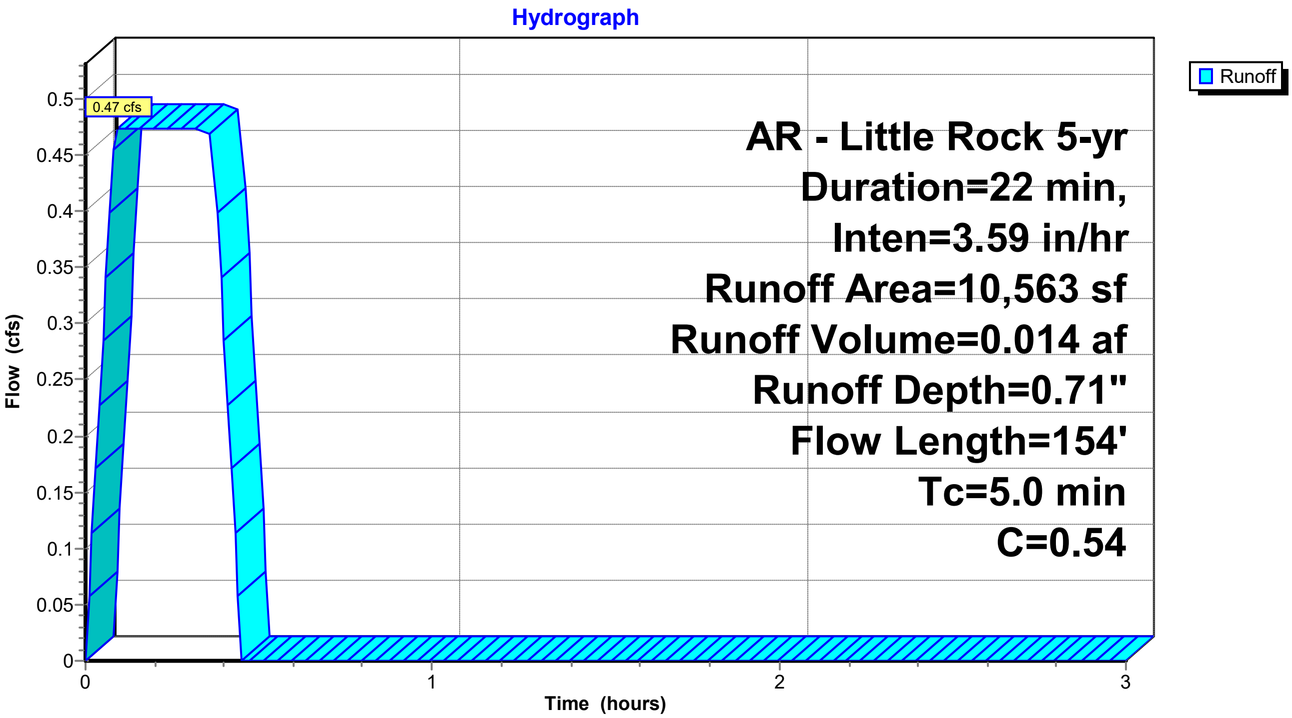
Runoff = 0.47 cfs @ 0.09 hrs, Volume= 0.014 af, Depth= 0.71"
Routed to Pond CI-A5 : CURB INLET A5

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 5-yr Duration=22 min, Inten=3.59 in/hr

Area (sf)	C	Description
6,980	0.35	Sandy Soil 2-7% per manual
3,583	0.92	Paved Areas
10,563	0.54	Weighted Average
10,563		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	19	0.0920	0.26		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
1.9	39	0.1260	0.34		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
0.5	66	0.0540	2.16		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.1	30	0.0500	4.54		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
1.3					**Direct Entry, Minimum Adjustment**
5.0	154	Total			

Subcatchment DB-B5: Drainage Basin B5



Summary for Subcatchment DB-B6: Drainage Basin B6

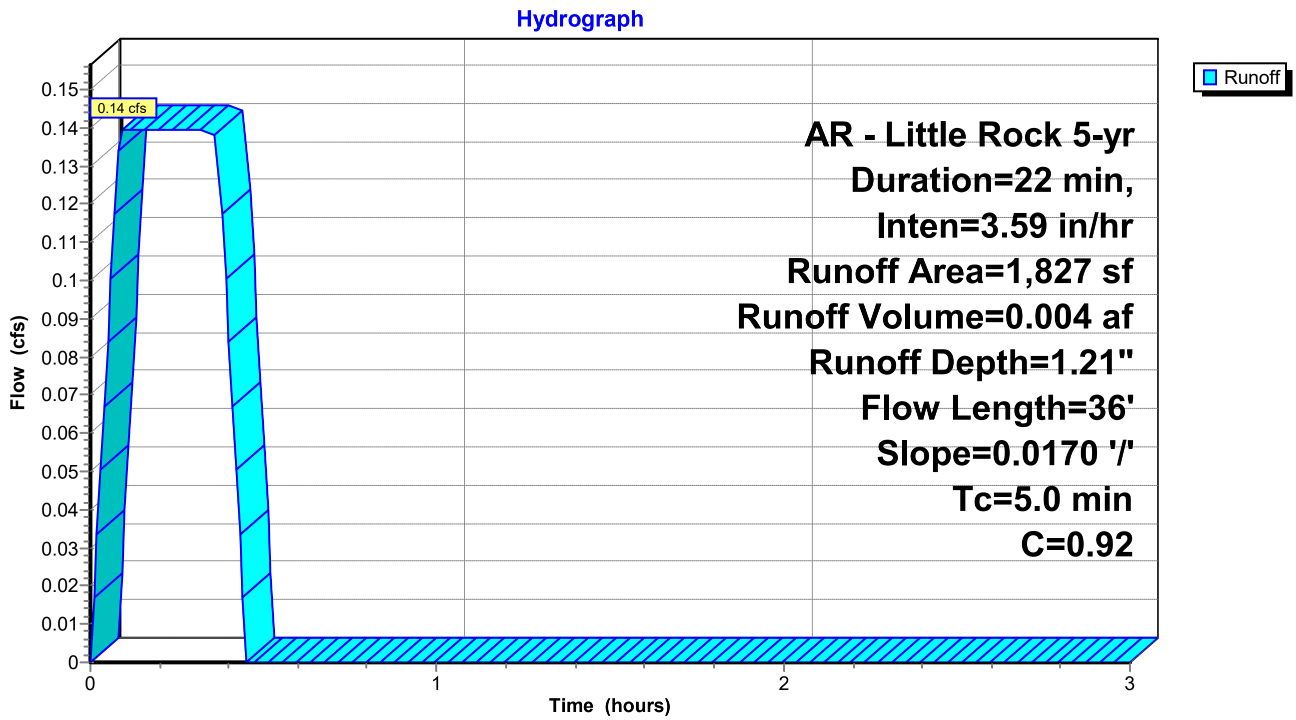
Runoff = 0.14 cfs @ 0.09 hrs, Volume= 0.004 af, Depth= 1.21"
Routed to Pond AI-B1 : AREA INLET B1

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 5-yr Duration=22 min, Inten=3.59 in/hr

Area (sf)	C	Description
0	0.30	Sandy Soil 2-7% per manual
1,827	0.92	Paved Areas
1,827	0.92	Weighted Average
1,827		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	36	0.0170	1.20		**Sheet Flow, Concrete** Smooth surfaces n= 0.011 P2= 4.20"
4.5					**Direct Entry, Minimum Adjustment**
5.0	36	Total			

Subcatchment DB-B6: Drainage Basin B6



Summary for Subcatchment DB-B7: Drainage Basin B7

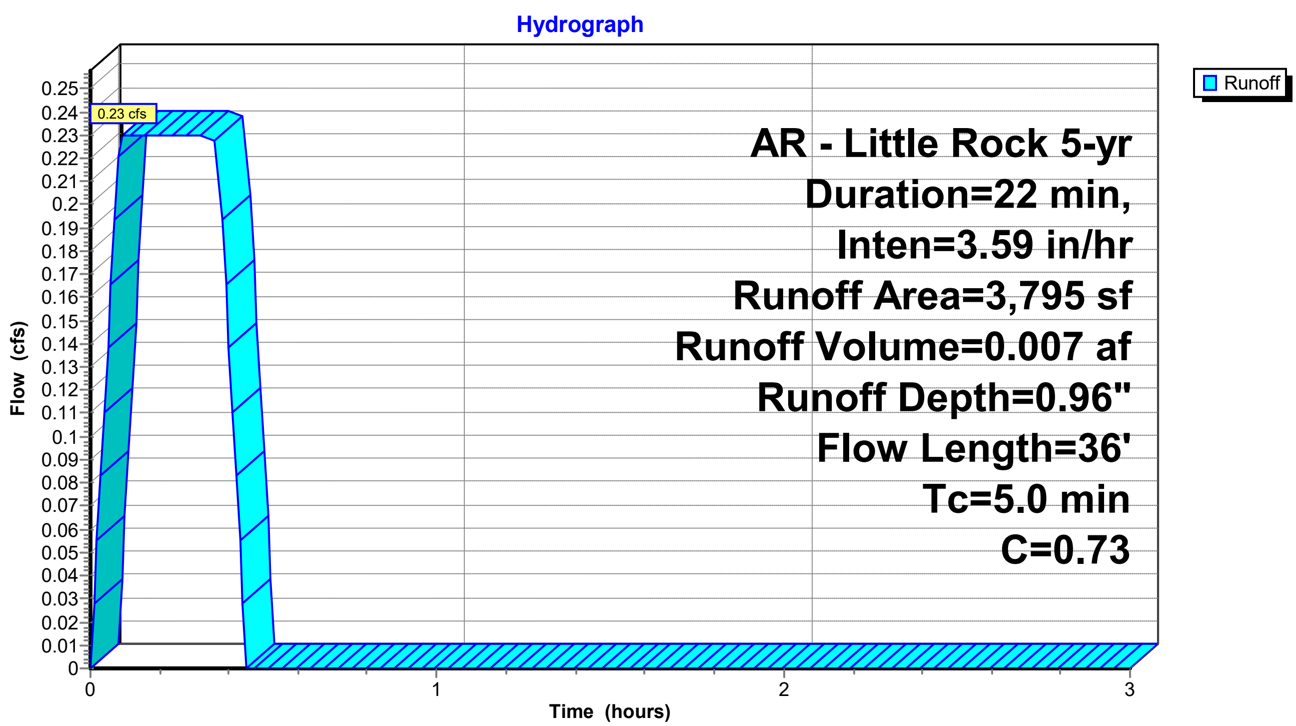
Runoff = 0.23 cfs @ 0.09 hrs, Volume= 0.007 af, Depth= 0.96"
Routed to Pond AI-B2 : AREA INLET B2

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 5-yr Duration=22 min, Inten=3.59 in/hr

Area (sf)	C	Description
1,158	0.30	Sandy Soil 2-7% per manual
2,637	0.92	Paved Areas
3,795	0.73	Weighted Average
3,795		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	24	0.0020	0.47		**Sheet Flow, Concrete** Smooth surfaces n= 0.011 P2= 4.20"
0.2	12	0.0160	0.94		**Sheet Flow, Concrete** Smooth surfaces n= 0.011 P2= 4.20"
4.0					**Direct Entry, Minimum Adjustment**
5.0	36	Total			

Subcatchment DB-B7: Drainage Basin B7



Summary for Subcatchment DB-B8: Drainage Basin B8

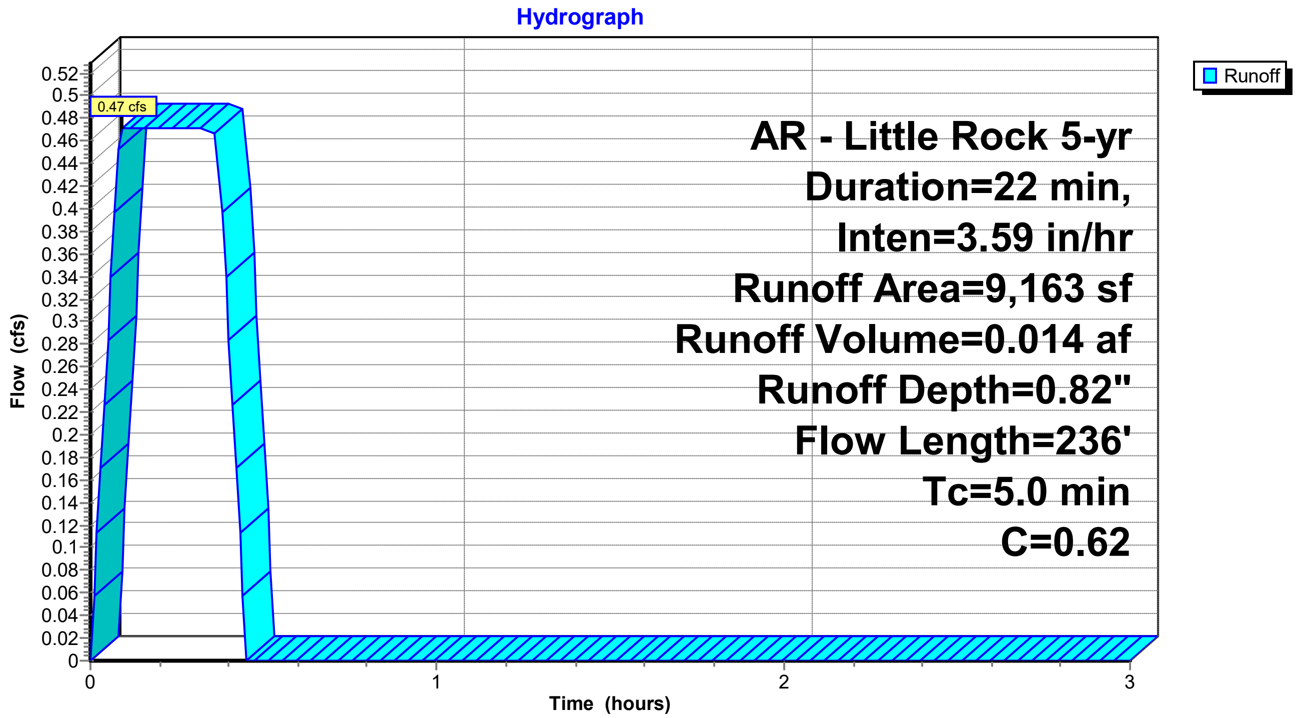
Runoff = 0.47 cfs @ 0.09 hrs, Volume= 0.014 af, Depth= 0.82"
Routed to Pond CI-C1 : CURB INLET C1

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 5-yr Duration=22 min, Inten=3.59 in/hr

Area (sf)	C	Description
4,431	0.30	Sadny Soil 2-7% per manual
4,732	0.92	Paved Areas
9,163	0.62	Weighted Average
9,163		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	33	0.0210	1.29		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.6	91	0.0620	2.43		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.8	112	0.0490	2.31		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
3.2					**Direct Entry, Minimum Adjustment**
5.0	236	Total			

Subcatchment DB-B8: Drainage Basin B8



Summary for Subcatchment DB-B9: Drainage Basin B9

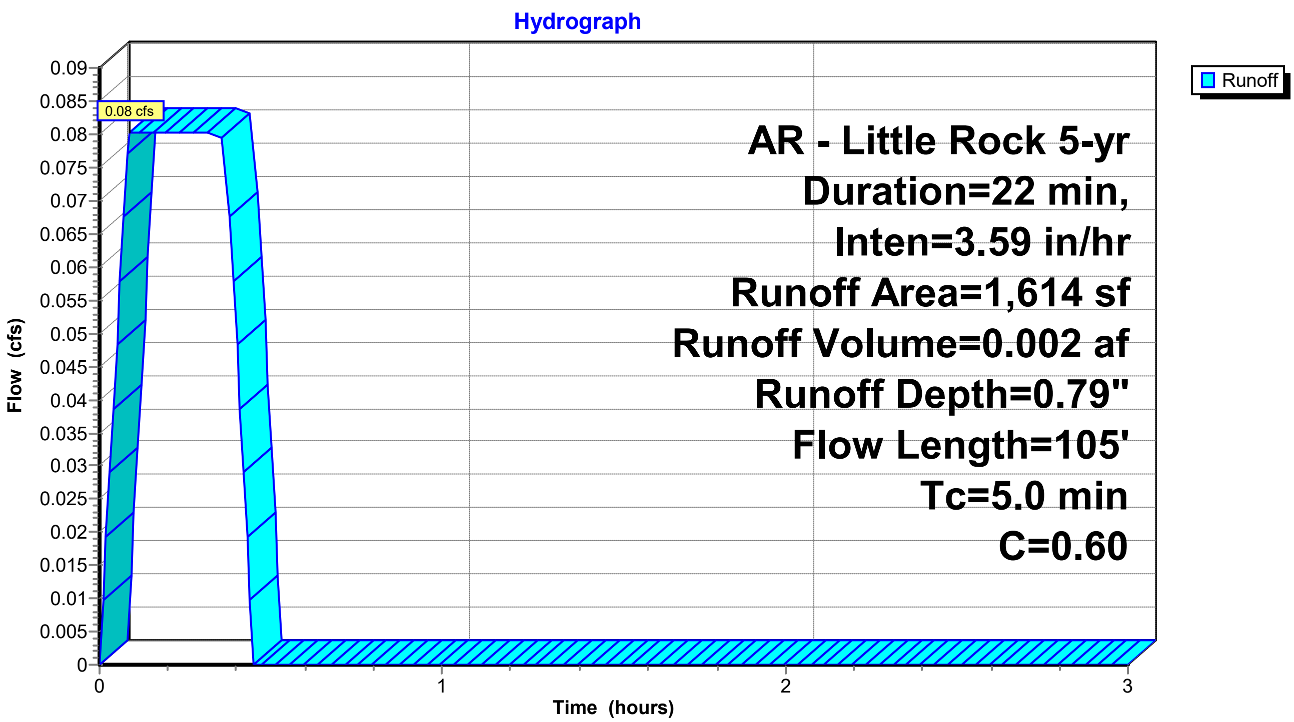
Runoff = 0.08 cfs @ 0.09 hrs, Volume= 0.002 af, Depth= 0.79"
Routed to Pond CI-C2 : CURB INLET C2

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 5-yr Duration=22 min, Inten=3.59 in/hr

Area (sf)	C	Description
826	0.30	Sandy Soil 2-7% per manual
788	0.92	Paved Areas
1,614	0.60	Weighted Average
1,614		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	62	0.0100	1.09		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.0	8	0.0230	3.08		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
0.2	35	0.0140	2.40		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
3.8					**Direct Entry, Minimum Adjustment**
5.0	105	Total			

Subcatchment DB-B9: Drainage Basin B9



Summary for Pond AI-B1: AREA INLET B1

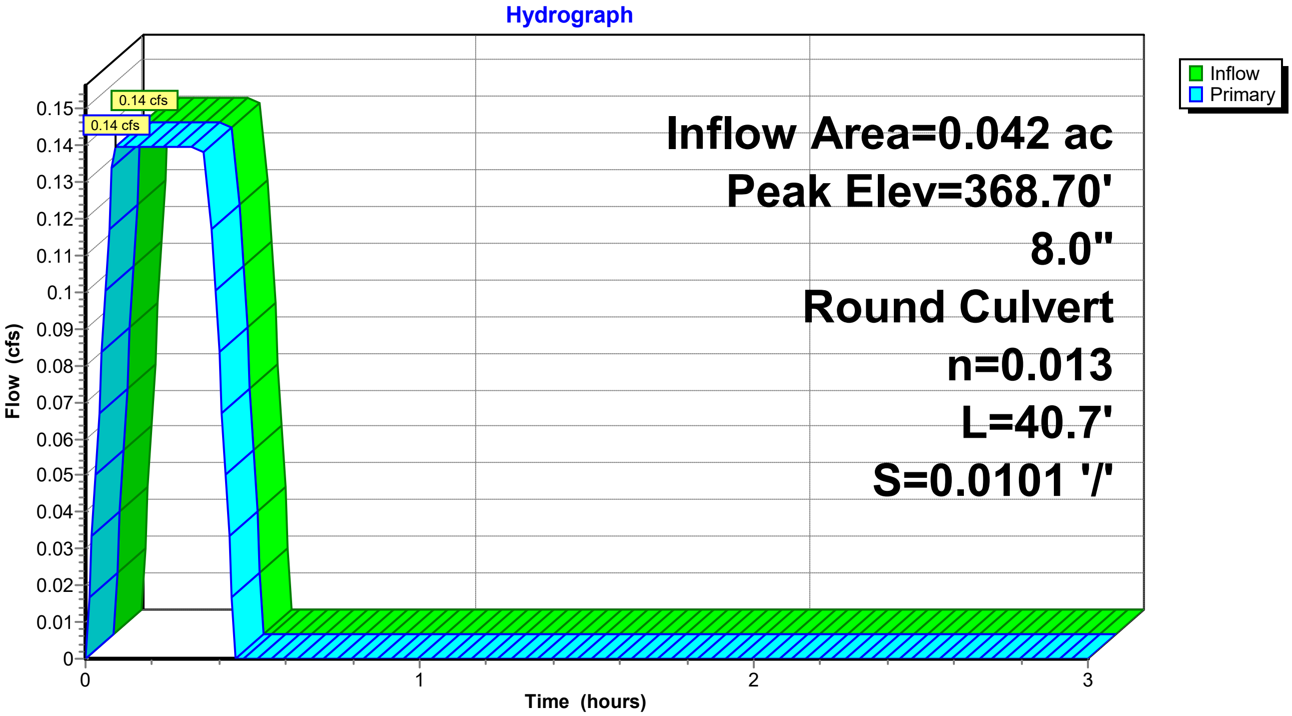
Inflow Area = 0.042 ac, 0.00% Impervious, Inflow Depth = 1.21" for 5-yr event
Inflow = 0.14 cfs @ 0.09 hrs, Volume= 0.004 af
Outflow = 0.14 cfs @ 0.09 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min
Primary = 0.14 cfs @ 0.09 hrs, Volume= 0.004 af
Routed to Pond AI-B2 : AREA INLET B2

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 368.70' @ 0.09 hrs

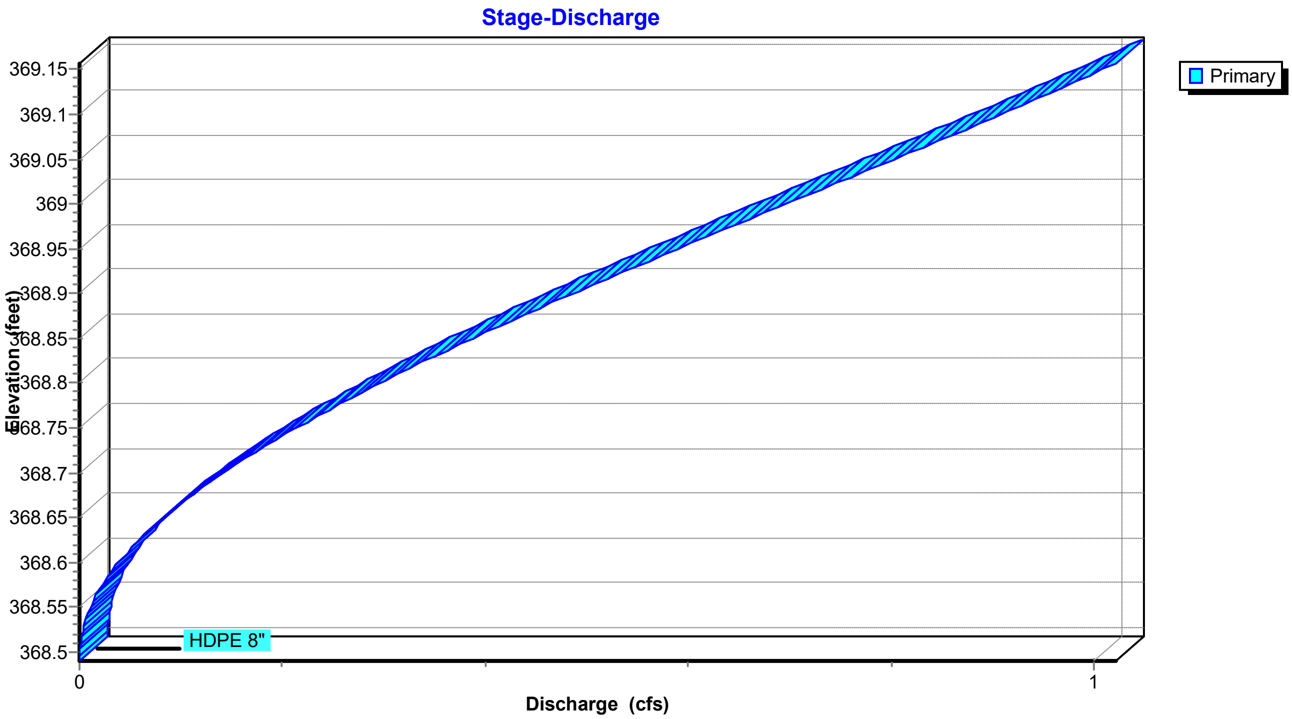
Device	Routing	Invert	Outlet Devices
#1	Primary	368.49'	**8.0" Round HDPE 8"** L= 40.7' Ke= 0.100 Inlet / Outlet Invert= 368.49' / 368.08' S= 0.0101 '/' Cc= 0.900 n= 0.013, Flow Area= 0.35 sf

Primary OutFlow Max=0.14 cfs @ 0.09 hrs HW=368.70' (Free Discharge)
↑—**1=HDPE 8"** (Barrel Controls 0.14 cfs @ 2.24 fps)

Pond AI-B1: AREA INLET B1



Pond AI-B1: AREA INLET B1



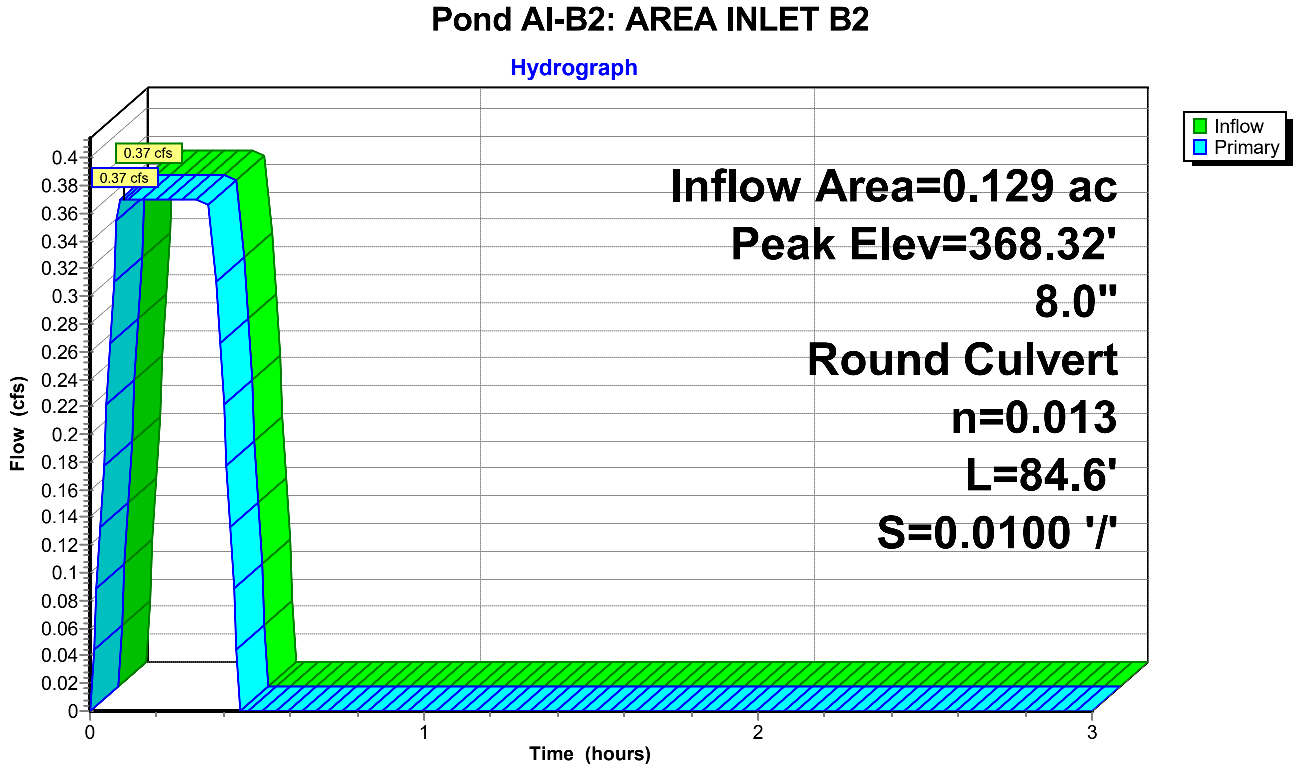
Summary for Pond AI-B2: AREA INLET B2

Inflow Area = 0.129 ac, 0.00% Impervious, Inflow Depth = 1.04" for 5-yr event
Inflow = 0.37 cfs @ 0.09 hrs, Volume= 0.011 af
Outflow = 0.37 cfs @ 0.10 hrs, Volume= 0.011 af, Atten= 0%, Lag= 0.6 min
Primary = 0.37 cfs @ 0.10 hrs, Volume= 0.011 af
Routed to Pond CI-A2 : CURB INLET A2

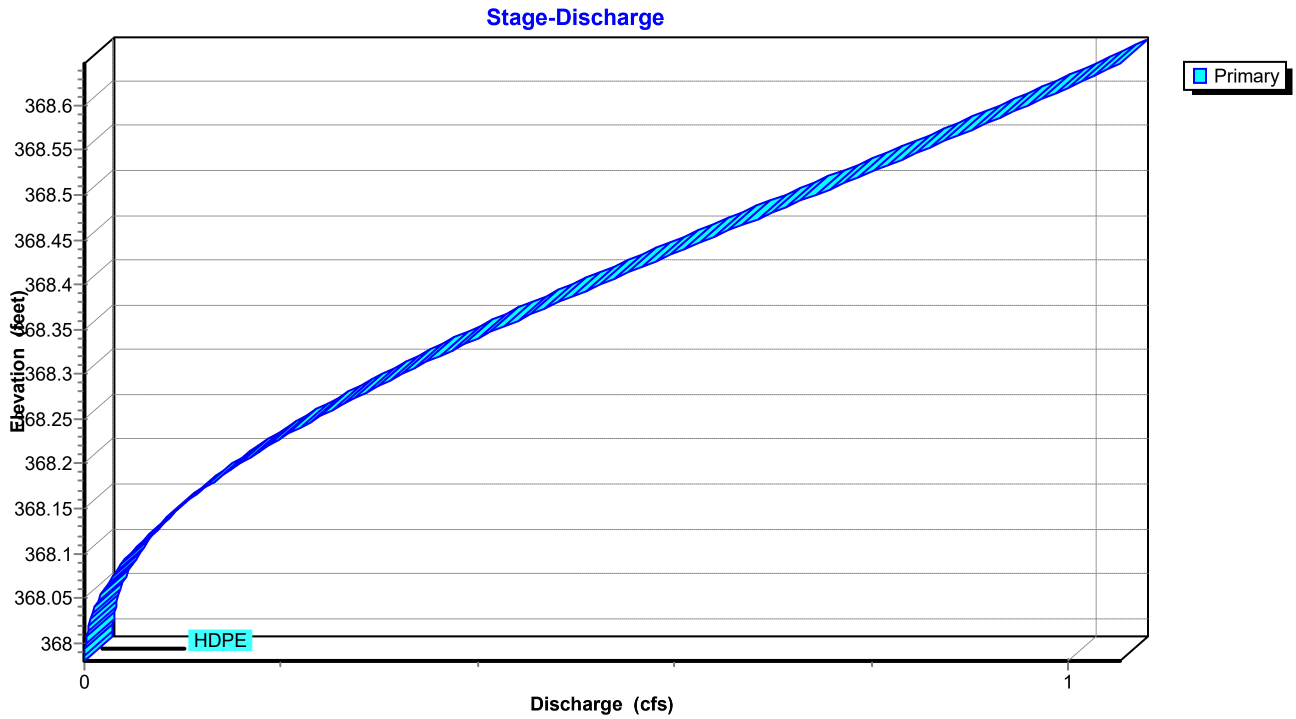
Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 368.32' @ 0.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	367.98'	**8.0" Round HDPE** L= 84.6' Ke= 0.100 Inlet / Outlet Invert= 367.98' / 367.13' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.35 sf

Primary OutFlow Max=0.37 cfs @ 0.10 hrs HW=368.32' (Free Discharge)
└─**1=HDPE** (Barrel Controls 0.37 cfs @ 2.96 fps)



Pond AI-B2: AREA INLET B2



Summary for Pond CI-A1: CURB INLET A1

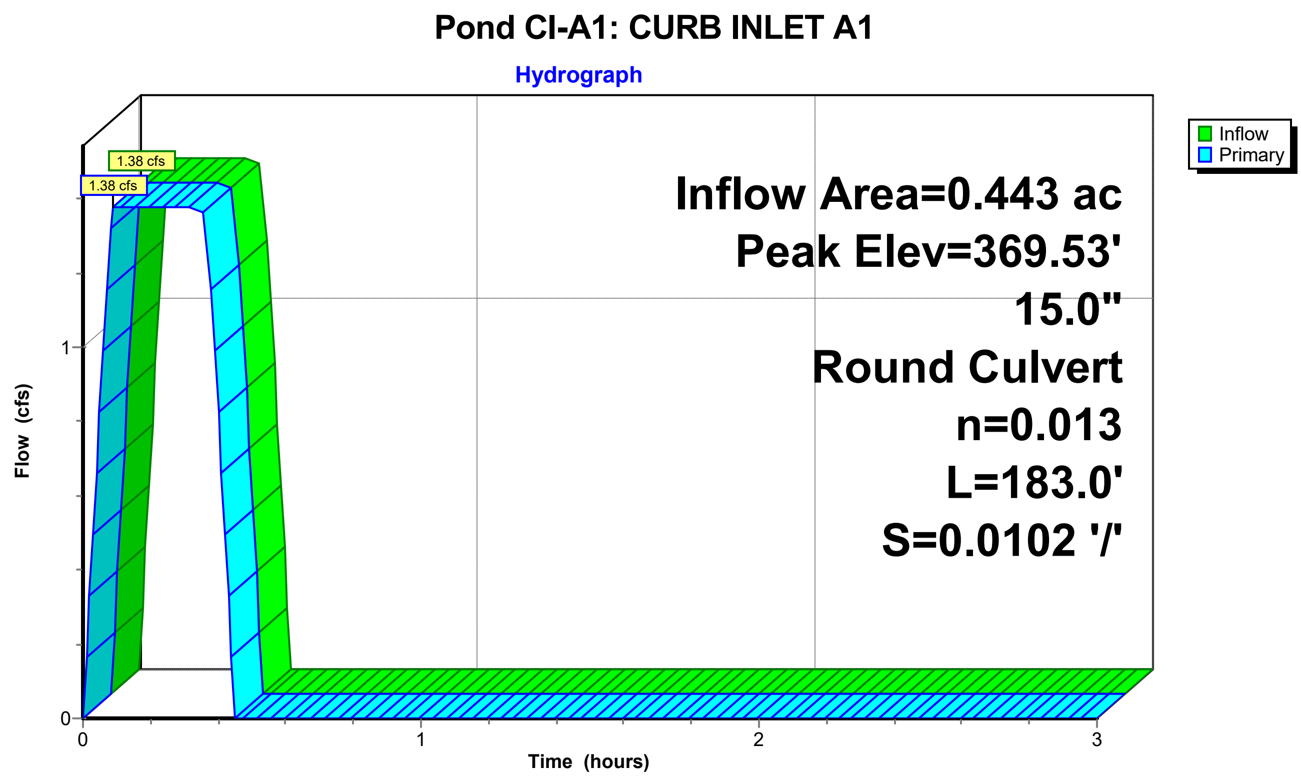
Inflow Area =	0.443 ac,	0.00% Impervious,	Inflow Depth =	1.13"	for 5-yr event
Inflow =	1.38 cfs @	0.09 hrs,	Volume=	0.042 af	
Outflow =	1.38 cfs @	0.09 hrs,	Volume=	0.042 af,	Atten= 0%, Lag= 0.0 min
Primary =	1.38 cfs @	0.09 hrs,	Volume=	0.042 af	

Routed to Pond CI-A2 : CURB INLET A2

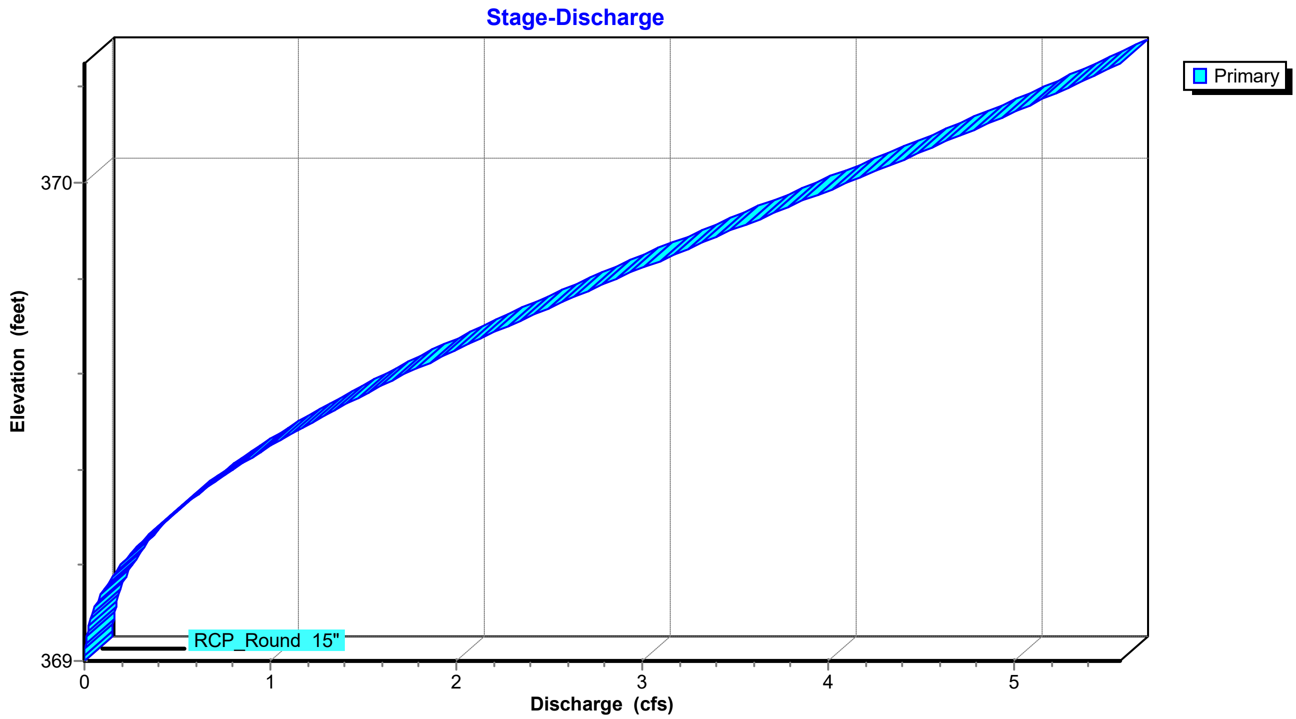
Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 369.53' @ 0.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	369.00'	**15.0" Round RCP_Round 15"** L= 183.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 369.00' / 367.13' S= 0.0102 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.23 sf

Primary OutFlow Max=1.38 cfs @ 0.09 hrs HW=369.53' (Free Discharge)
└─**1=RCP_Round 15"** (Barrel Controls 1.38 cfs @ 4.09 fps)



Pond CI-A1: CURB INLET A1



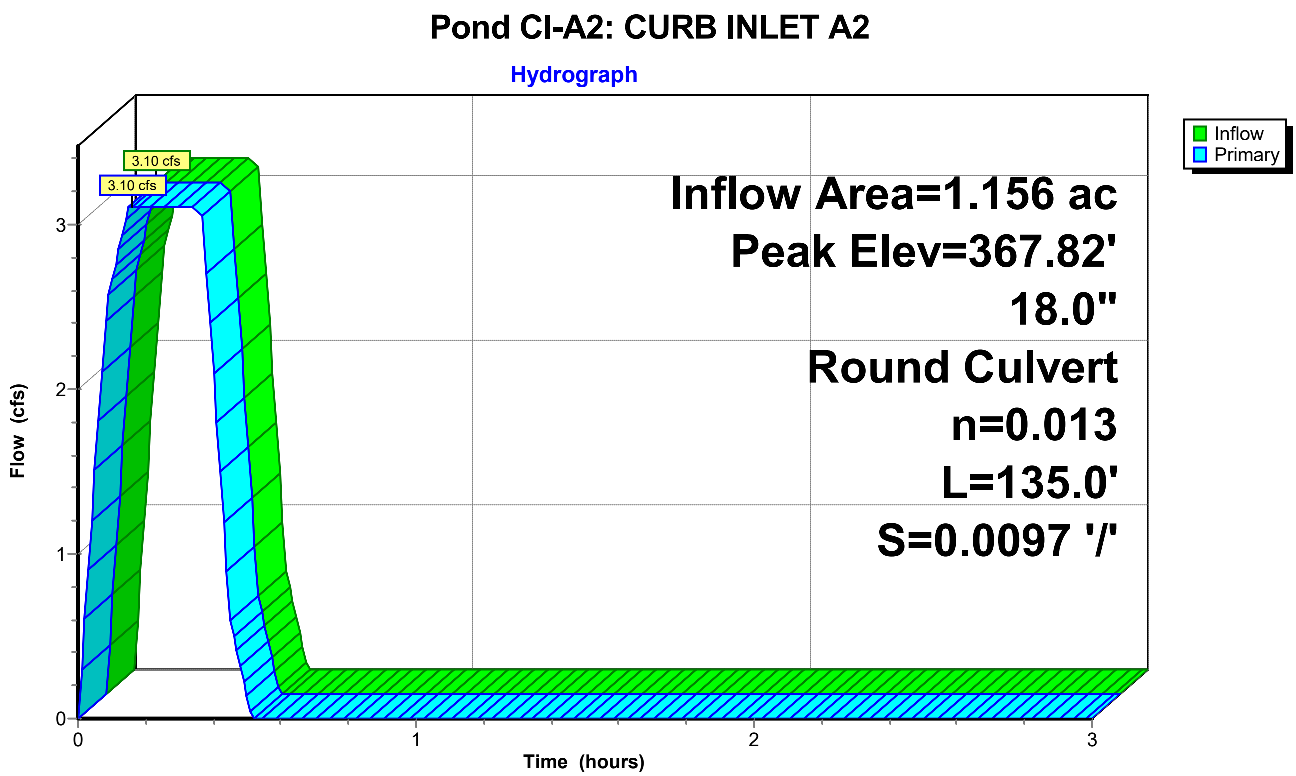
Summary for Pond CI-A2: CURB INLET A2

Inflow Area = 1.156 ac, 0.00% Impervious, Inflow Depth = 0.98" for 5-yr event
Inflow = 3.10 cfs @ 0.15 hrs, Volume= 0.094 af
Outflow = 3.10 cfs @ 0.16 hrs, Volume= 0.094 af, Atten= 0%, Lag= 0.6 min
Primary = 3.10 cfs @ 0.16 hrs, Volume= 0.094 af
Routed to Pond CI-A3 : CURB INLET A3

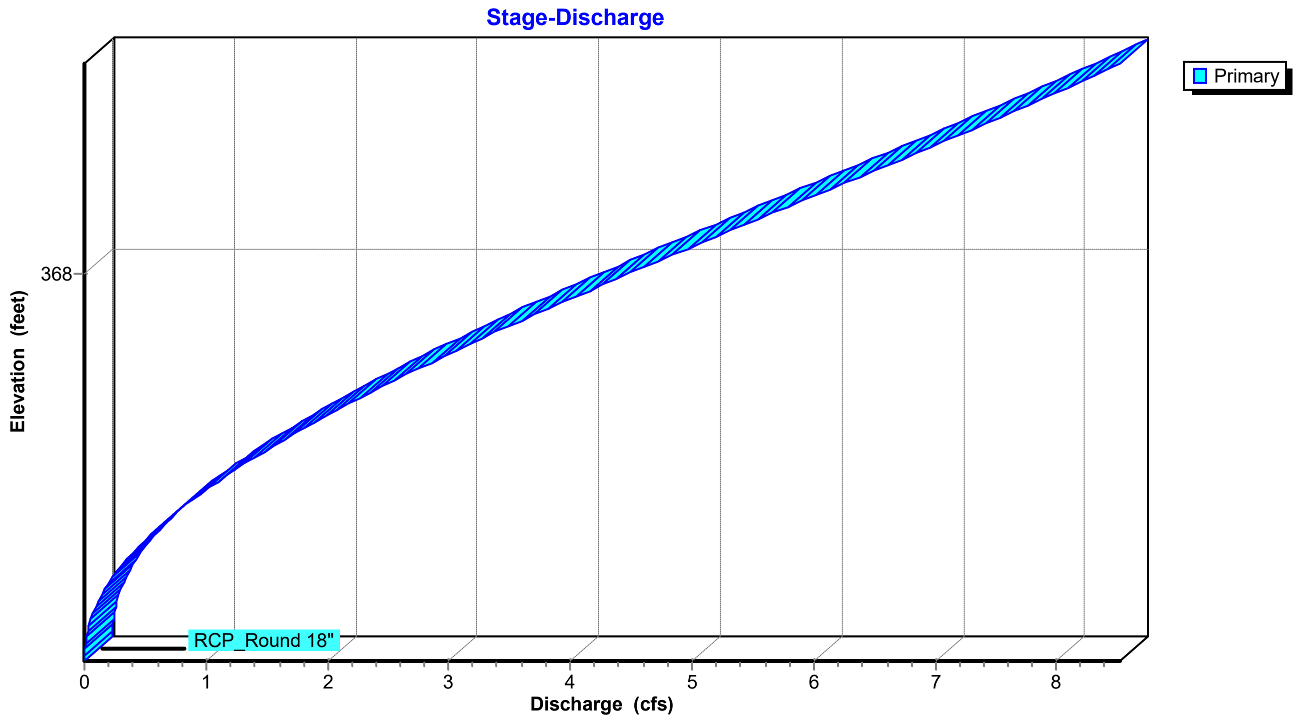
Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 367.82' @ 0.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	367.03'	**18.0" Round RCP_Round 18"** L= 135.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 367.03' / 365.72' S= 0.0097 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=3.10 cfs @ 0.16 hrs HW=367.82' (Free Discharge)
└**1=RCP_Round 18"** (Barrel Controls 3.10 cfs @ 4.81 fps)



Pond CI-A2: CURB INLET A2



Summary for Pond CI-A3: CURB INLET A3

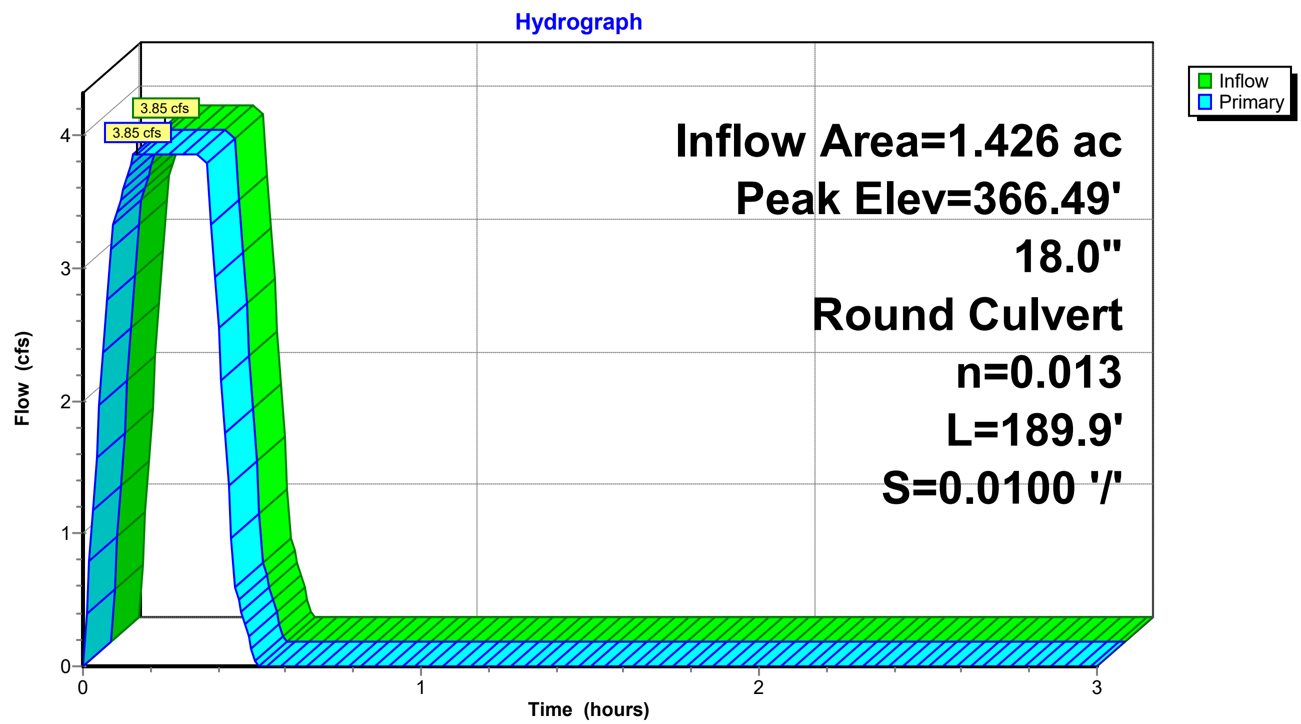
Inflow Area = 1.426 ac, 0.00% Impervious, Inflow Depth = 0.98" for 5-yr event
Inflow = 3.85 cfs @ 0.16 hrs, Volume= 0.117 af
Outflow = 3.85 cfs @ 0.16 hrs, Volume= 0.117 af, Atten= 0%, Lag= 0.0 min
Primary = 3.85 cfs @ 0.16 hrs, Volume= 0.117 af
Routed to Pond CI-A4 : CURB INLET A4

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 366.49' @ 0.15 hrs

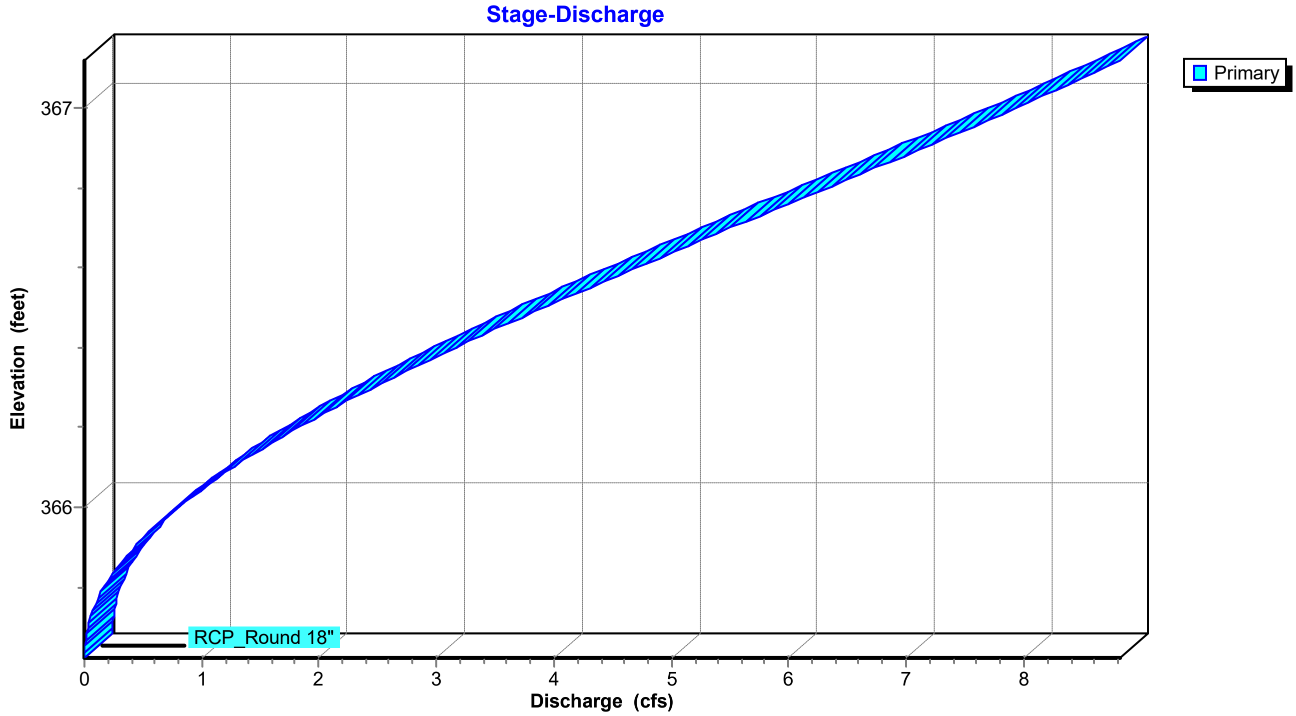
Device	Routing	Invert	Outlet Devices
#1	Primary	365.62'	**18.0" Round RCP_Round 18"** L= 189.9' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 365.62' / 363.72' S= 0.0100 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=3.85 cfs @ 0.16 hrs HW=366.49' (Free Discharge)
└**1=RCP_Round 18"** (Barrel Controls 3.85 cfs @ 5.21 fps)

Pond CI-A3: CURB INLET A3



Pond CI-A3: CURB INLET A3



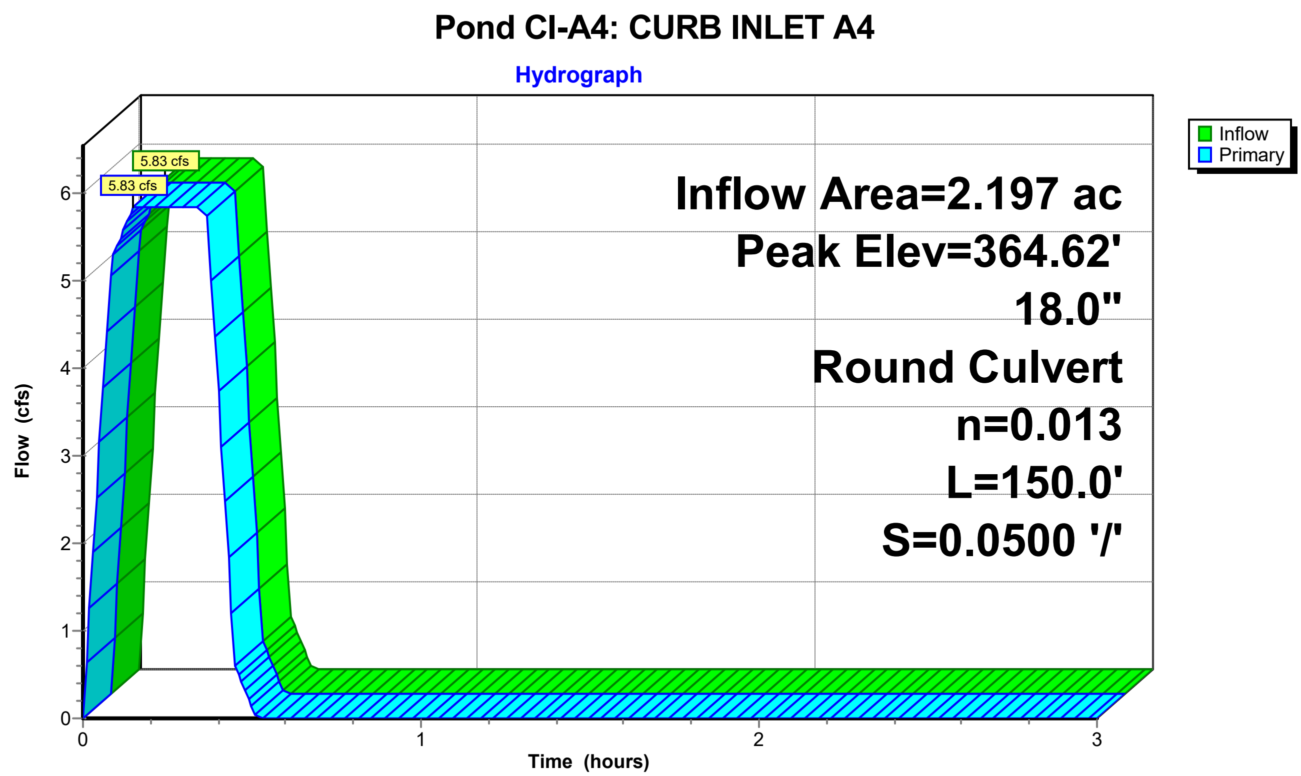
Summary for Pond CI-A4: CURB INLET A4

Inflow Area = 2.197 ac, 0.00% Impervious, Inflow Depth = 0.97" for 5-yr event
Inflow = 5.83 cfs @ 0.16 hrs, Volume= 0.177 af
Outflow = 5.83 cfs @ 0.15 hrs, Volume= 0.177 af, Atten= 0%, Lag= 0.0 min
Primary = 5.83 cfs @ 0.15 hrs, Volume= 0.177 af
Routed to Pond CI-A5 : CURB INLET A5

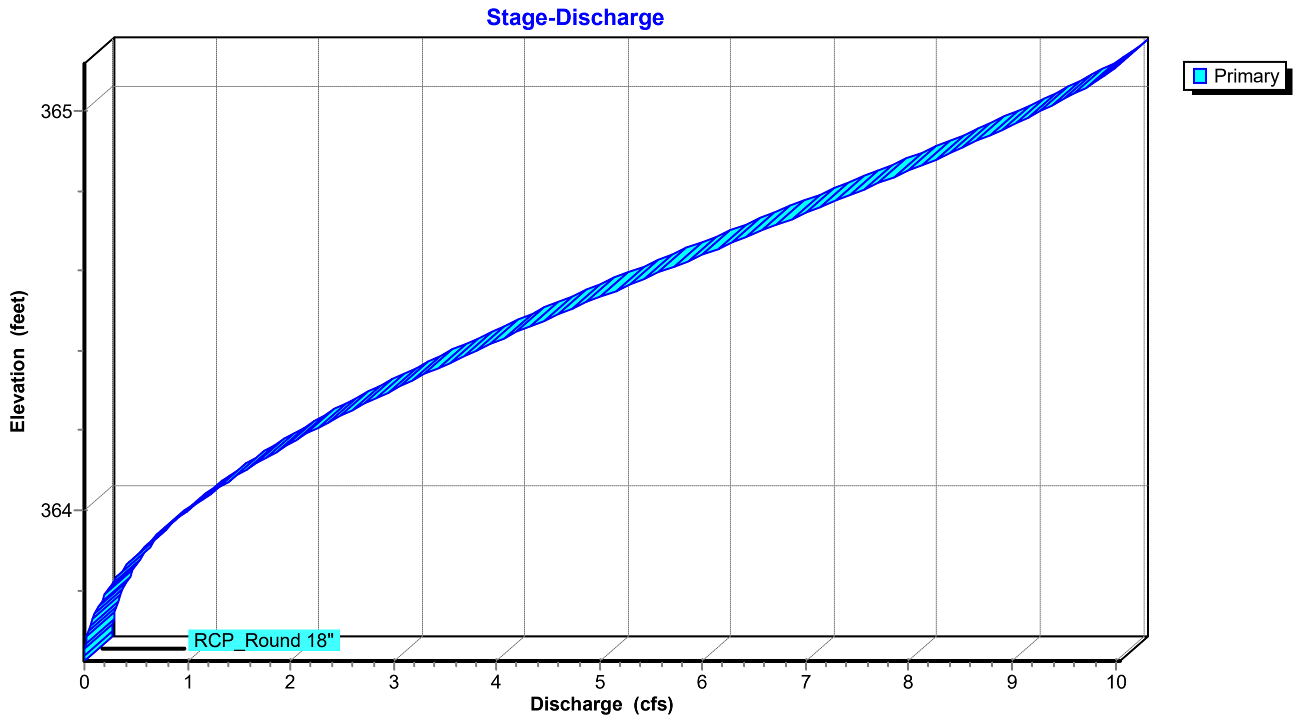
Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 364.62' @ 0.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	363.62'	**18.0" Round RCP_Round 18"** L= 150.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 363.62' / 356.12' S= 0.0500 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=5.83 cfs @ 0.15 hrs HW=364.62' (Free Discharge)
1=RCP_Round 18" (Inlet Controls 5.83 cfs @ 4.65 fps)



Pond CI-A4: CURB INLET A4



Summary for Pond CI-A5: CURB INLET A5

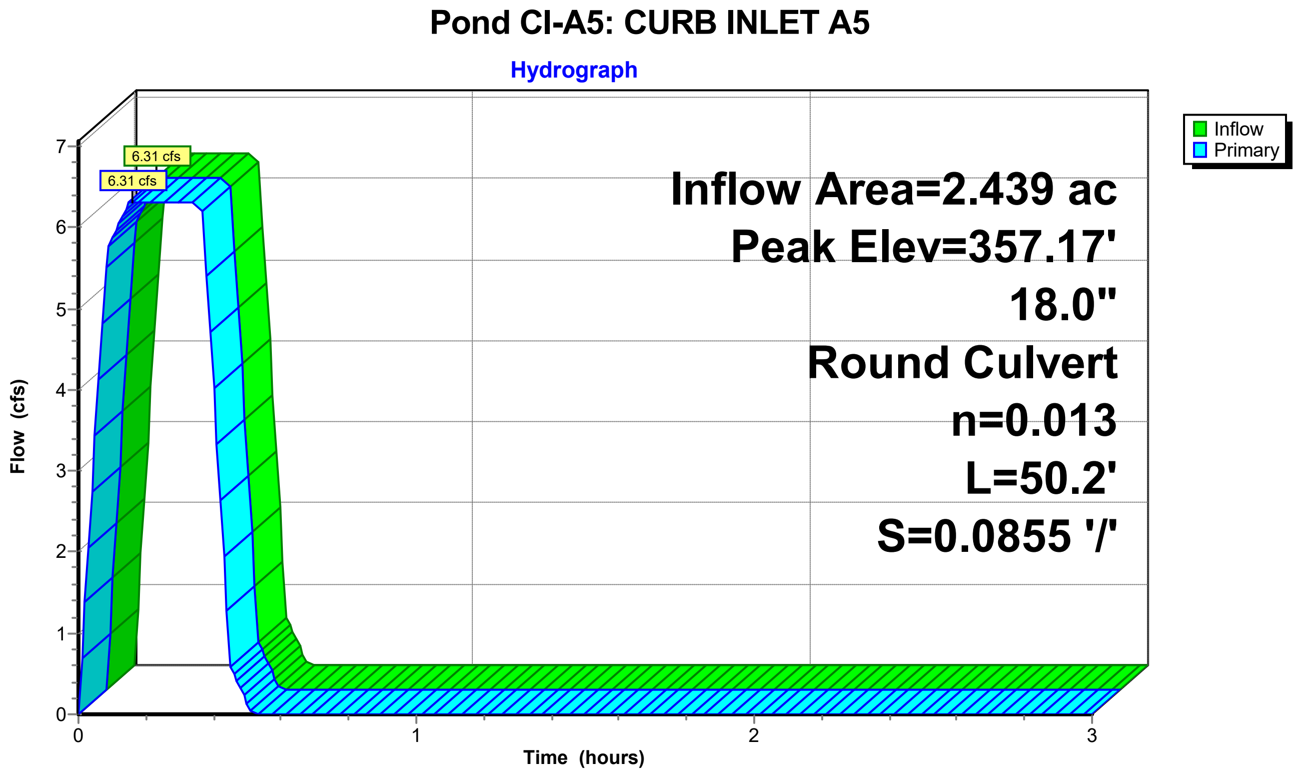
Inflow Area =	2.439 ac,	0.00% Impervious,	Inflow Depth = 0.94"	for 5-yr event	
Inflow =	6.31 cfs @	0.15 hrs,	Volume=	0.191 af	
Outflow =	6.31 cfs @	0.16 hrs,	Volume=	0.191 af,	Atten= 0%, Lag= 0.6 min
Primary =	6.31 cfs @	0.16 hrs,	Volume=	0.191 af	

Routed to Link POST-DEV : Post-Development

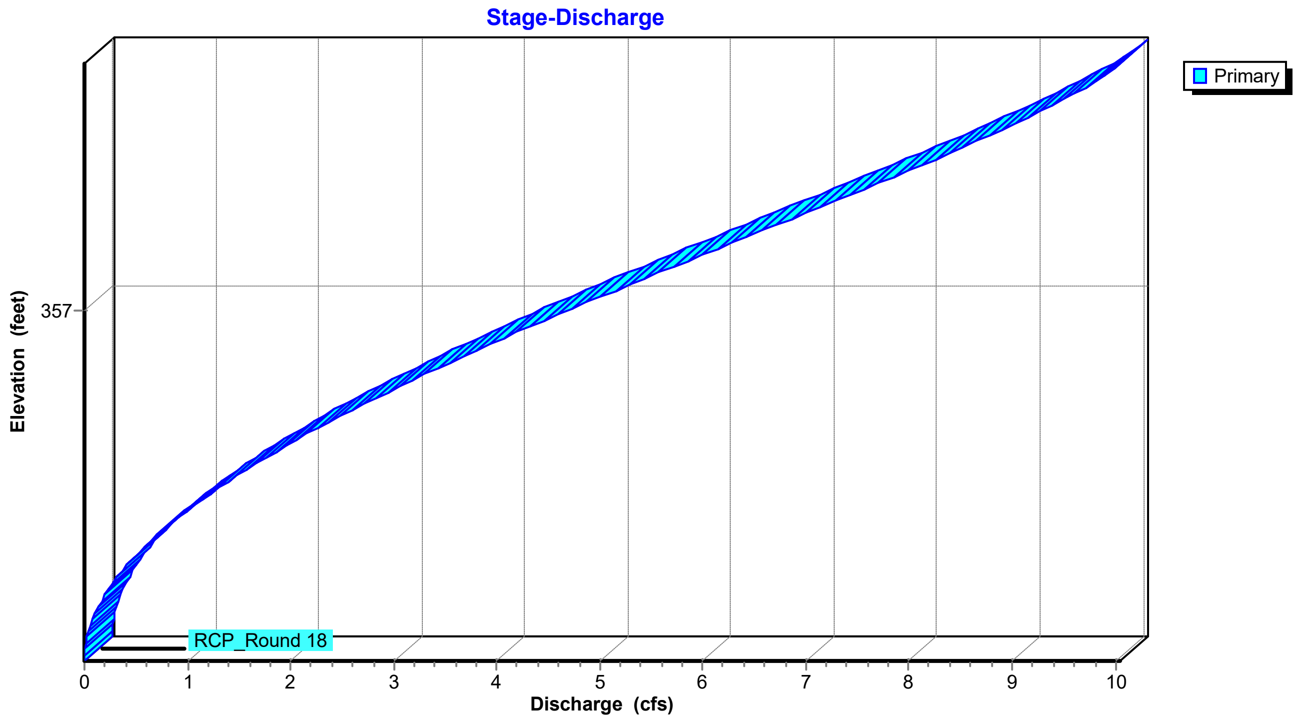
Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 357.17' @ 0.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	356.12'	**18.0" Round RCP_Round 18** L= 50.2' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 356.12' / 351.83' S= 0.0855 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=6.31 cfs @ 0.16 hrs HW=357.17' (Free Discharge)
└─**1=RCP_Round 18** (Inlet Controls 6.31 cfs @ 4.76 fps)



Pond CI-A5: CURB INLET A5



Summary for Pond CI-C1: CURB INLET C1

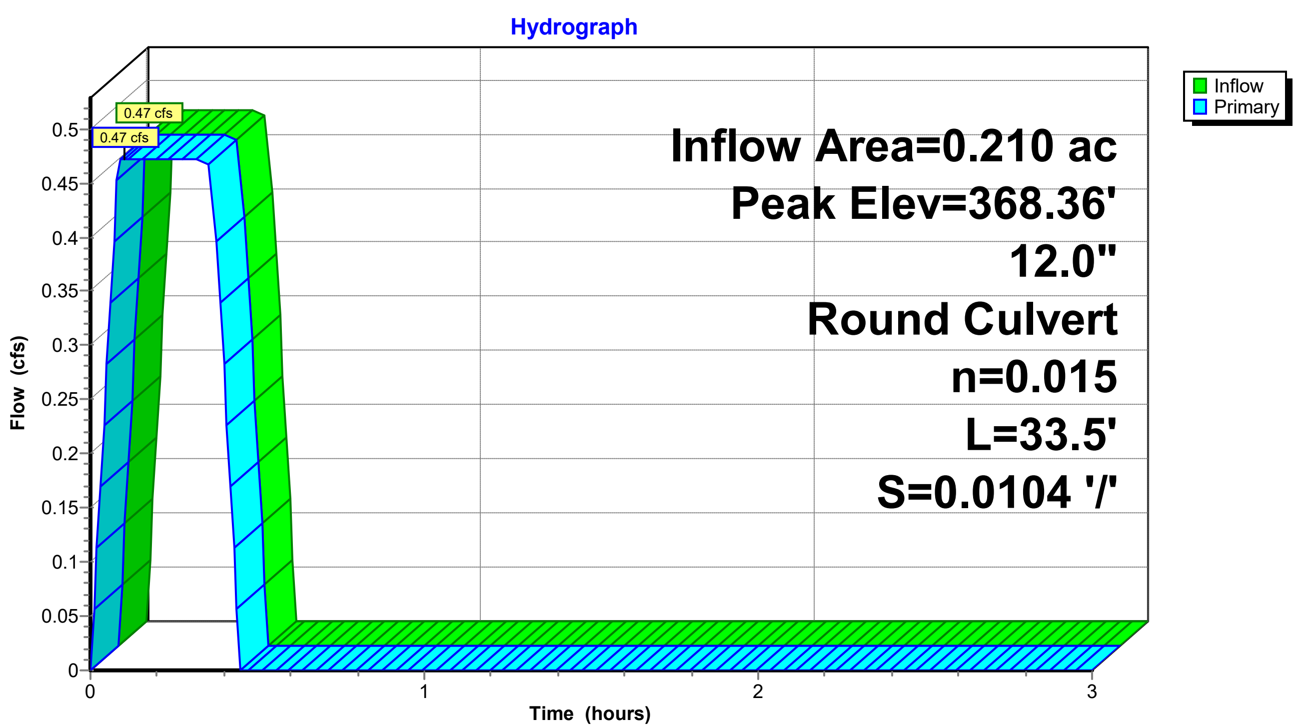
Inflow Area = 0.210 ac, 0.00% Impervious, Inflow Depth = 0.82" for 5-yr event
Inflow = 0.47 cfs @ 0.09 hrs, Volume= 0.014 af
Outflow = 0.47 cfs @ 0.10 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.6 min
Primary = 0.47 cfs @ 0.10 hrs, Volume= 0.014 af
Routed to Pond CI-C2 : CURB INLET C2

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 368.36' @ 0.09 hrs

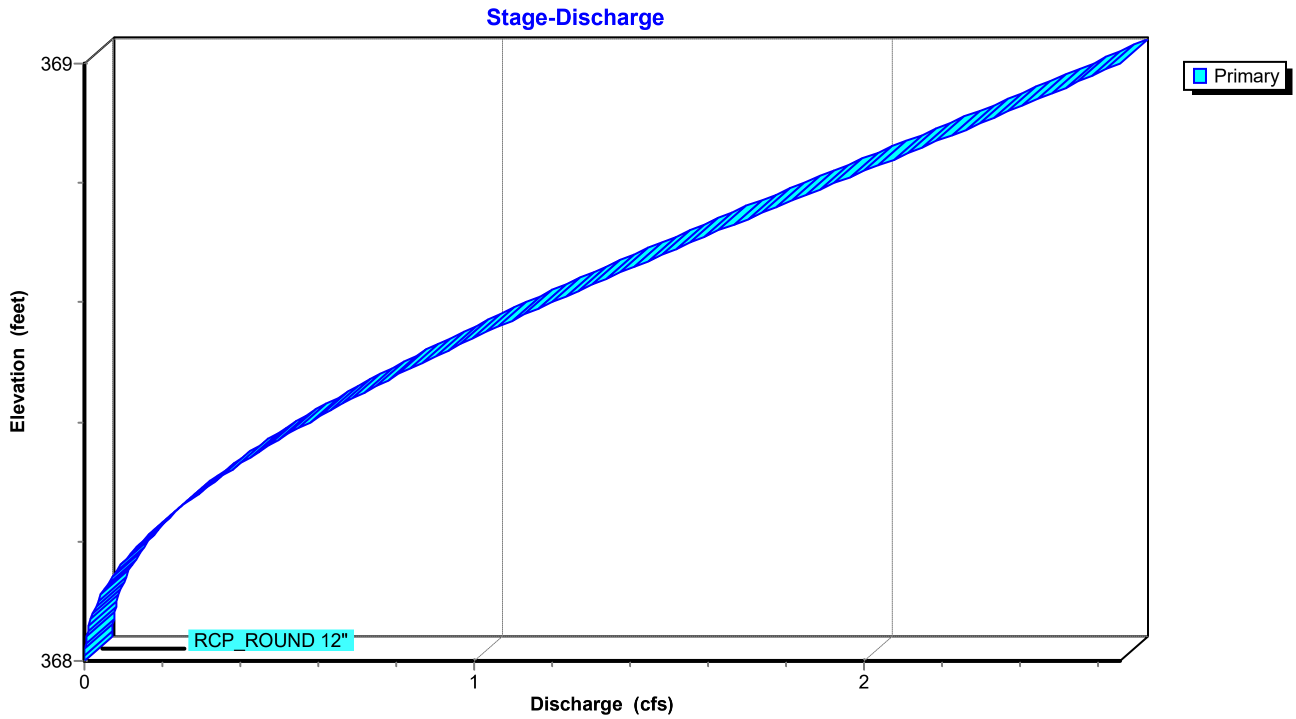
Device	Routing	Invert	Outlet Devices
#1	Primary	368.00'	**12.0" Round RCP_ROUND 12"** L= 33.5' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 368.00' / 367.65' S= 0.0104 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 0.79 sf

Primary OutFlow Max=0.47 cfs @ 0.10 hrs HW=368.36' (Free Discharge)
└─**1=RCP_ROUND 12"** (Barrel Controls 0.47 cfs @ 2.76 fps)

Pond CI-C1: CURB INLET C1



Pond CI-C1: CURB INLET C1



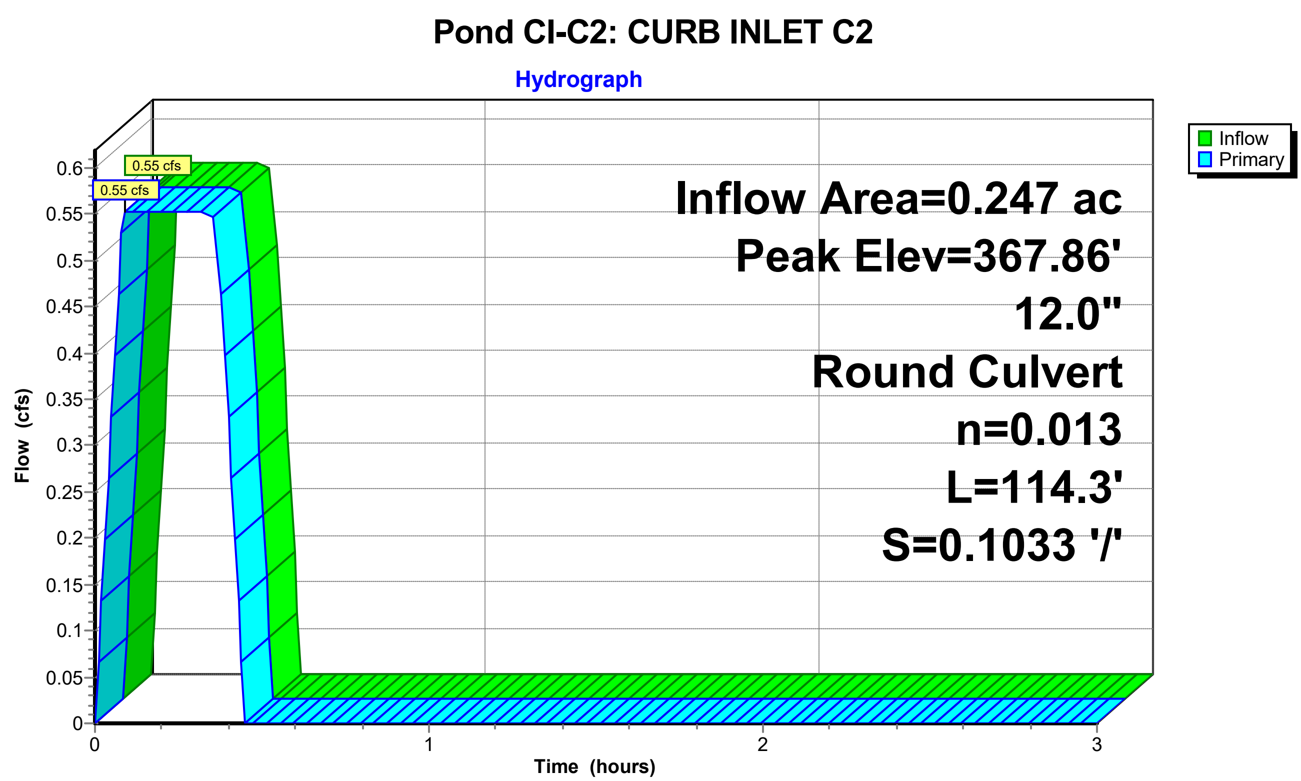
Summary for Pond CI-C2: CURB INLET C2

Inflow Area = 0.247 ac, 0.00% Impervious, Inflow Depth = 0.81" for 5-yr event
Inflow = 0.55 cfs @ 0.10 hrs, Volume= 0.017 af
Outflow = 0.55 cfs @ 0.09 hrs, Volume= 0.017 af, Atten= 0%, Lag= 0.0 min
Primary = 0.55 cfs @ 0.09 hrs, Volume= 0.017 af
Routed to Pond JB-C3 : JUNCTION BOX C3

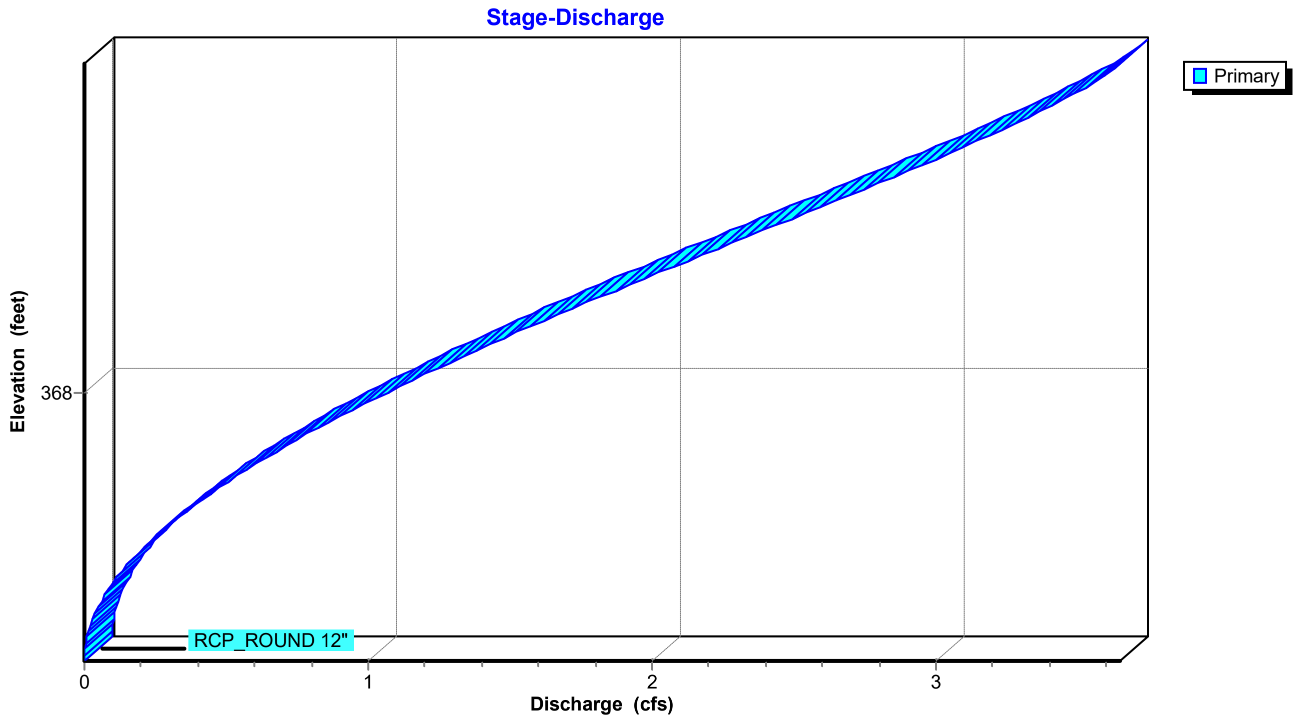
Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 367.86' @ 0.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	367.55'	**12.0" Round RCP_ROUND 12"** L= 114.3' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 367.55' / 355.74' S= 0.1033 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.55 cfs @ 0.09 hrs HW=367.86' (Free Discharge)
└**1=RCP_ROUND 12"** (Inlet Controls 0.55 cfs @ 2.61 fps)



Pond CI-C2: CURB INLET C2



Summary for Pond CI-C4: CURB INLET C4

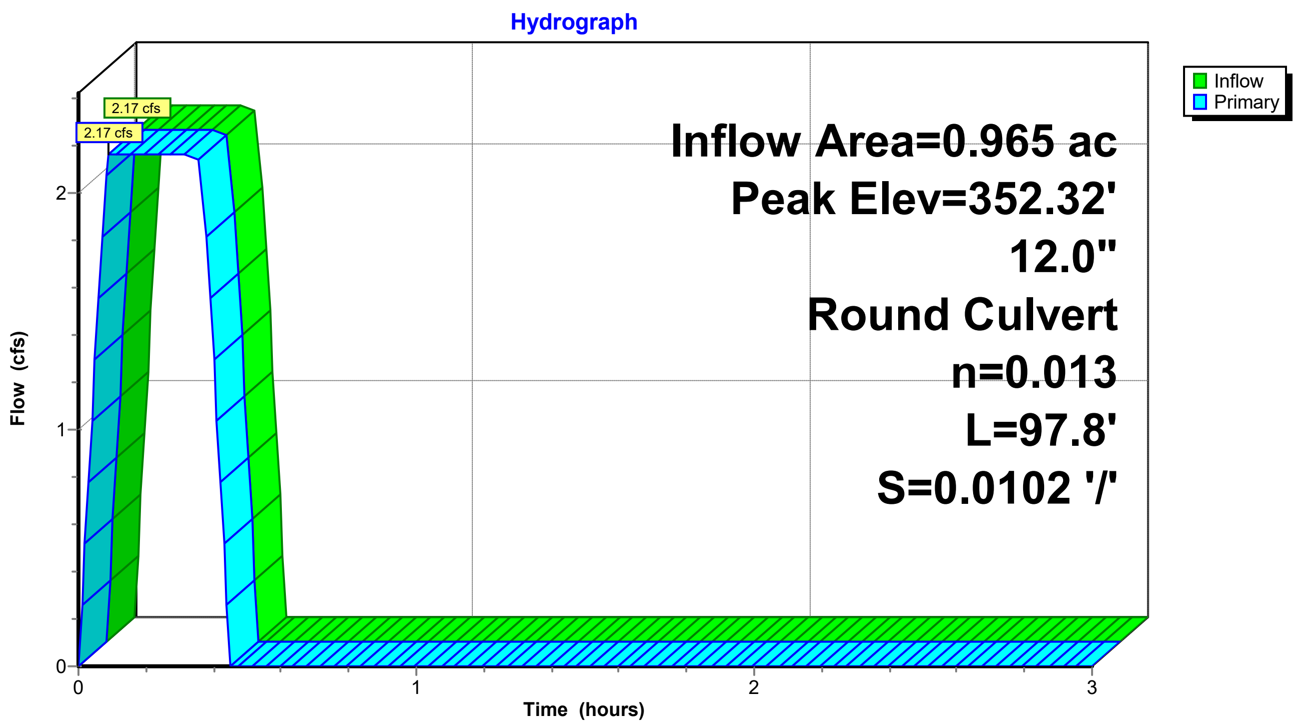
Inflow Area = 0.965 ac, 0.00% Impervious, Inflow Depth = 0.82" for 5-yr event
Inflow = 2.17 cfs @ 0.09 hrs, Volume= 0.066 af
Outflow = 2.17 cfs @ 0.09 hrs, Volume= 0.066 af, Atten= 0%, Lag= 0.0 min
Primary = 2.17 cfs @ 0.09 hrs, Volume= 0.066 af
Routed to Pond CI-C5 : CURB INLET C5

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 352.32' @ 0.09 hrs

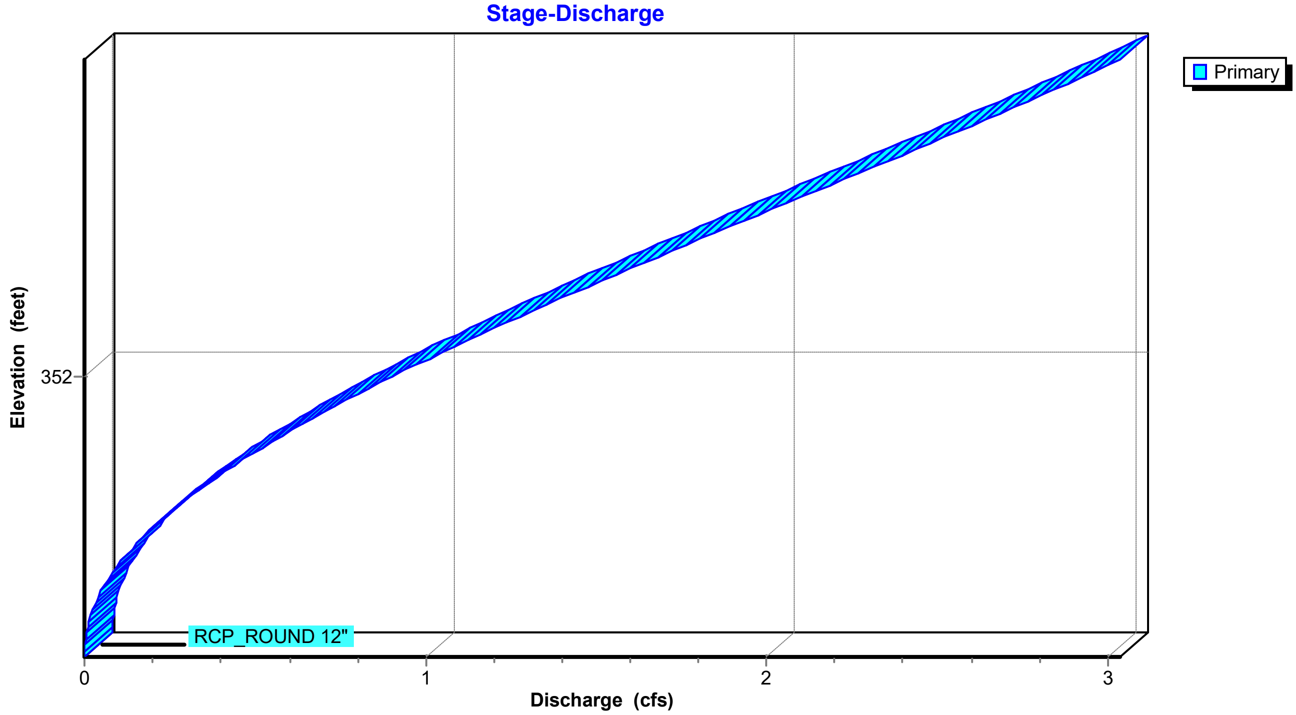
Device	Routing	Invert	Outlet Devices
#1	Primary	351.53'	**12.0" Round RCP_ROUND 12"** L= 97.8' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 351.53' / 350.53' S= 0.0102 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=2.17 cfs @ 0.09 hrs HW=352.32' (Free Discharge)
↑—**1=RCP_ROUND 12"** (Barrel Controls 2.17 cfs @ 4.50 fps)

Pond CI-C4: CURB INLET C4



Pond CI-C4: CURB INLET C4



Summary for Pond CI-C5: CURB INLET C5

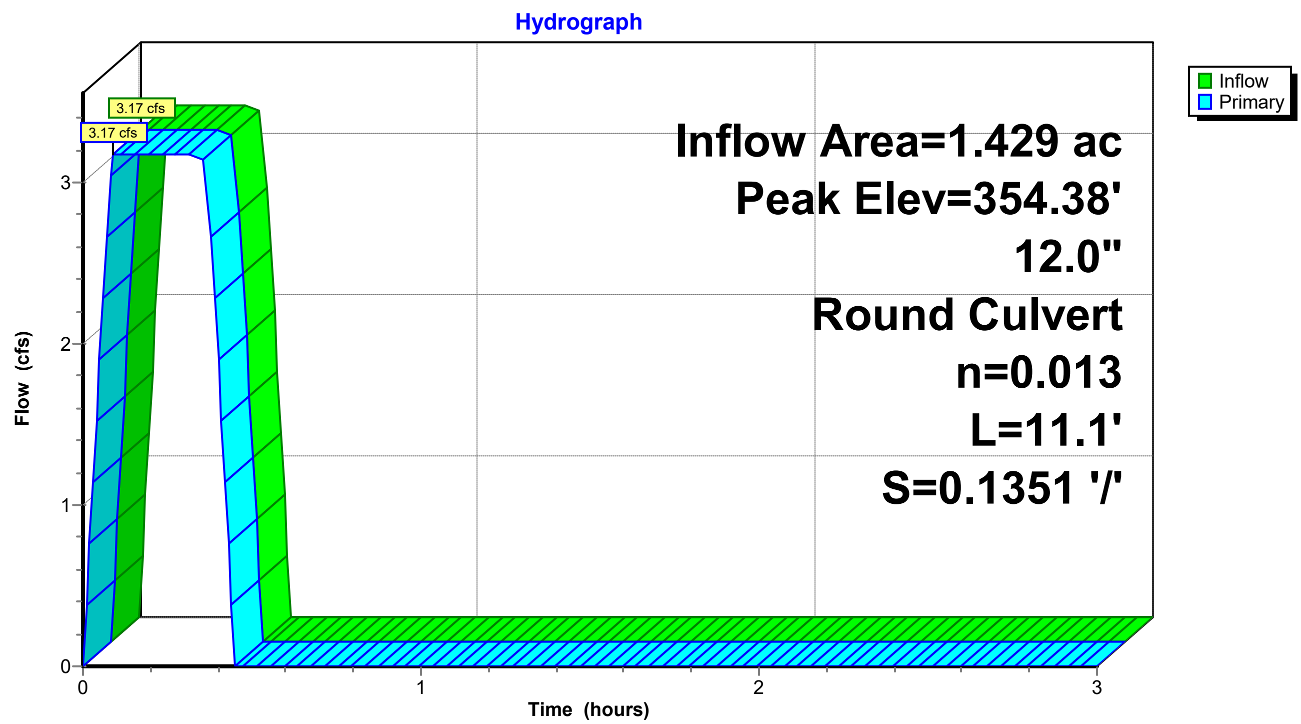
Inflow Area = 1.429 ac, 0.00% Impervious, Inflow Depth = 0.81" for 5-yr event
Inflow = 3.17 cfs @ 0.09 hrs, Volume= 0.096 af
Outflow = 3.17 cfs @ 0.09 hrs, Volume= 0.096 af, Atten= 0%, Lag= 0.0 min
Primary = 3.17 cfs @ 0.09 hrs, Volume= 0.096 af
Routed to Link POST-DEV : Post-Development

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 354.38' @ 0.09 hrs

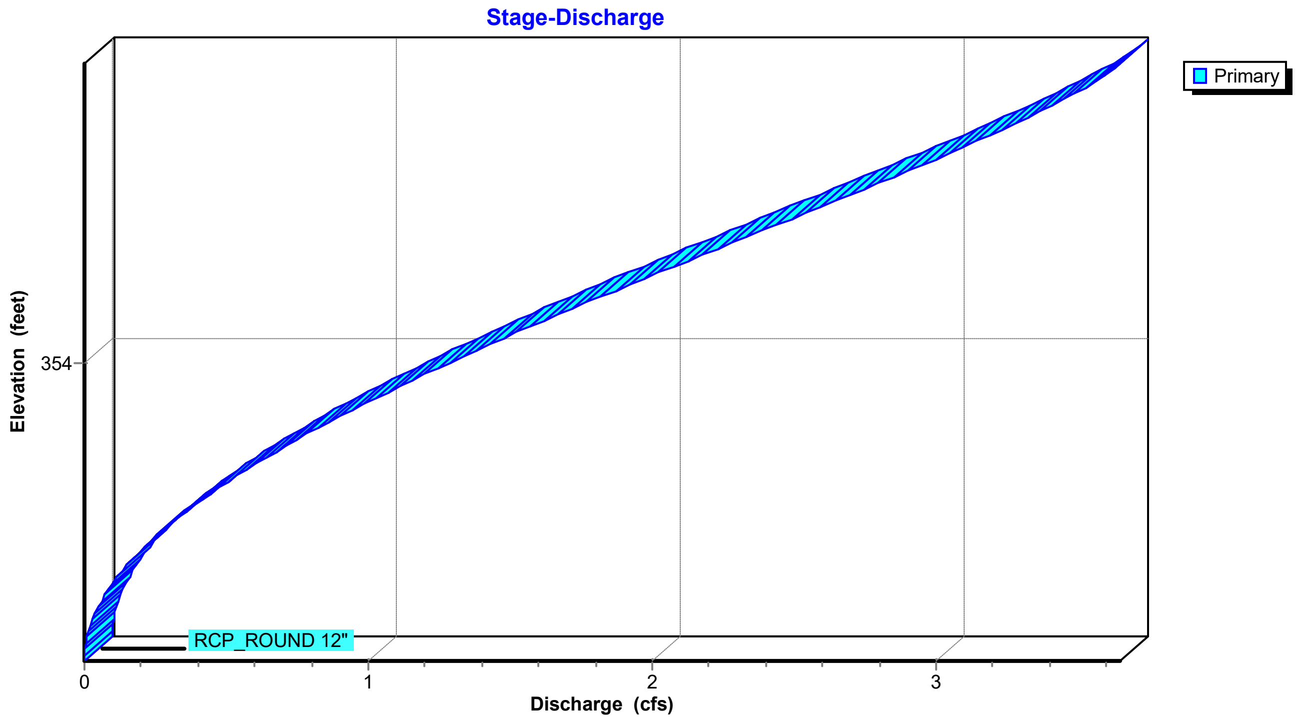
Device	Routing	Invert	Outlet Devices
#1	Primary	353.50'	**12.0" Round RCP_ROUND 12"** L= 11.1' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 353.50' / 352.00' S= 0.1351 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=3.17 cfs @ 0.09 hrs HW=354.38' (Free Discharge)
↑**1=RCP_ROUND 12"** (Inlet Controls 3.17 cfs @ 4.35 fps)

Pond CI-C5: CURB INLET C5



Pond CI-C5: CURB INLET C5



Summary for Pond CI-D1: CURB INLET D1

Inflow Area =	0.627 ac,	0.00% Impervious,	Inflow Depth = 0.79"	for 5-yr event	
Inflow =	1.36 cfs @	0.09 hrs,	Volume=	0.041 af	
Outflow =	1.36 cfs @	0.09 hrs,	Volume=	0.041 af,	Atten= 0%, Lag= 0.0 min
Primary =	1.36 cfs @	0.09 hrs,	Volume=	0.041 af	

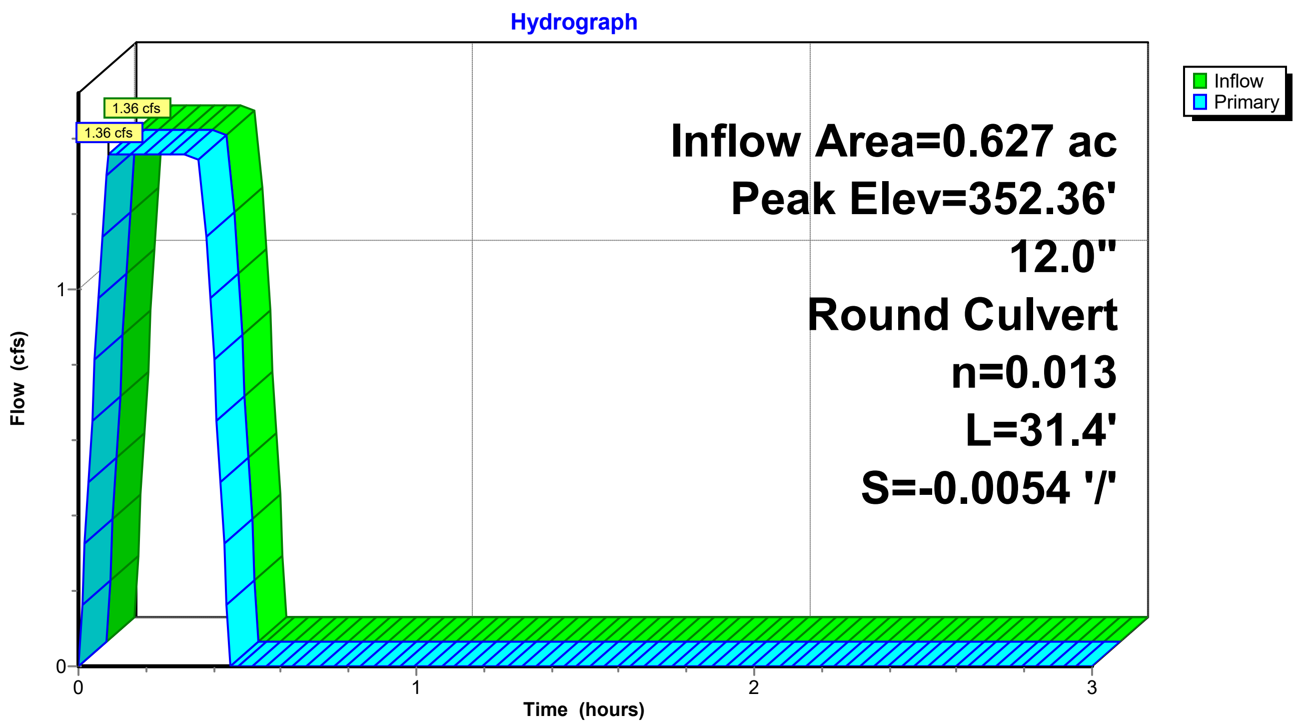
Routed to Pond CI-C4 : CURB INLET C4

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 352.36' @ 0.09 hrs

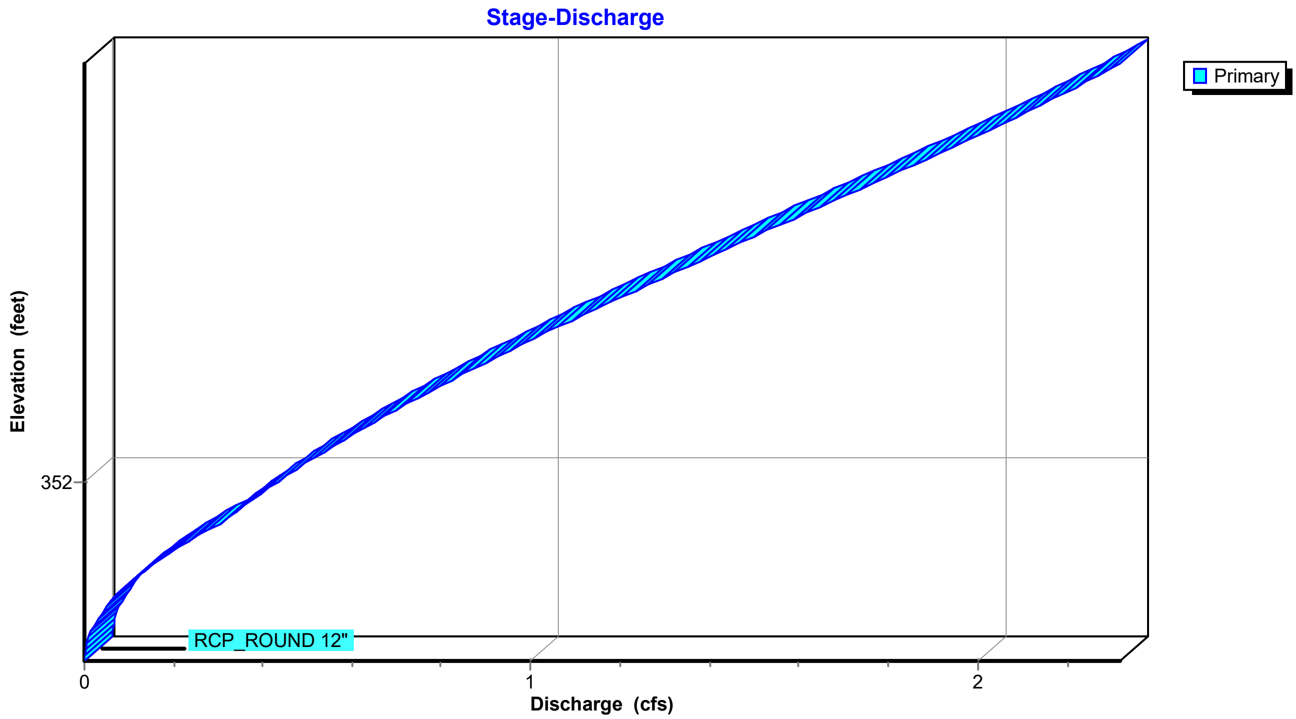
Device	Routing	Invert	Outlet Devices
#1	Primary	351.70'	**12.0" Round RCP_ROUND 12"** L= 31.4' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 351.53' / 351.70' S= -0.0054 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.36 cfs @ 0.09 hrs HW=352.36' (Free Discharge)
1=RCP_ROUND 12" (Barrel Controls 1.36 cfs @ 2.63 fps)

Pond CI-D1: CURB INLET D1



Pond CI-D1: CURB INLET D1



Summary for Pond JB-C3: JUNCTION BOX C3

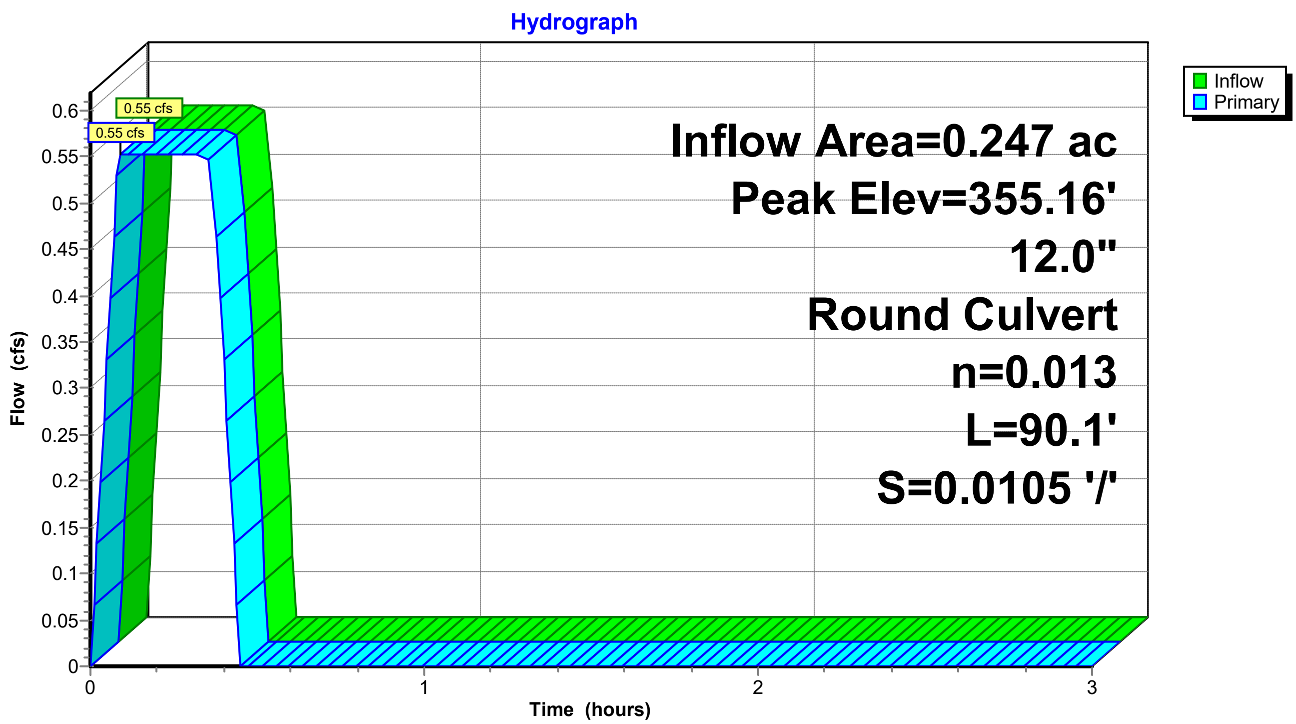
Inflow Area = 0.247 ac, 0.00% Impervious, Inflow Depth = 0.81" for 5-yr event
Inflow = 0.55 cfs @ 0.09 hrs, Volume= 0.017 af
Outflow = 0.55 cfs @ 0.09 hrs, Volume= 0.017 af, Atten= 0%, Lag= 0.0 min
Primary = 0.55 cfs @ 0.09 hrs, Volume= 0.017 af
Routed to Pond CI-C4 : CURB INLET C4

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 355.16' @ 0.09 hrs

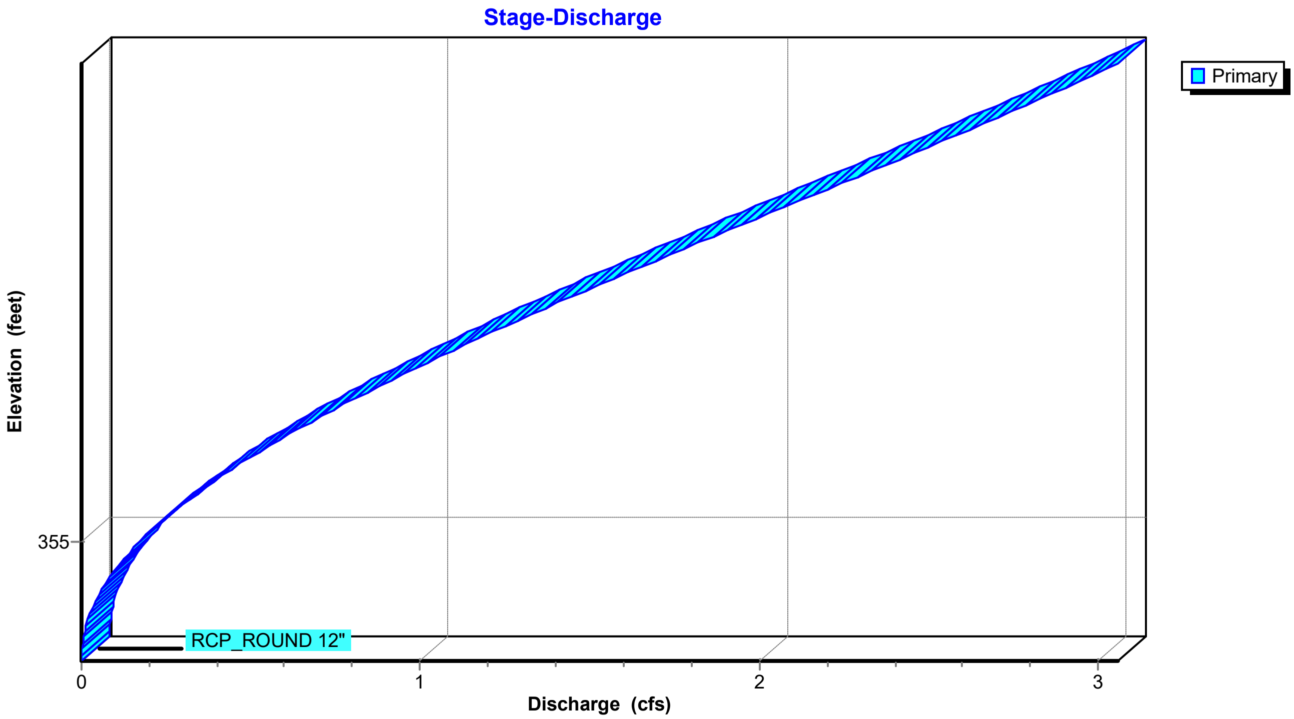
Device	Routing	Invert	Outlet Devices
#1	Primary	354.80'	**12.0" Round RCP_ROUND 12"** L= 90.1' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 354.80' / 353.85' S= 0.0105 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.55 cfs @ 0.09 hrs HW=355.16' (Free Discharge)
└─**1=RCP_ROUND 12"** (Barrel Controls 0.55 cfs @ 3.24 fps)

Pond JB-C3: JUNCTION BOX C3



Pond JB-C3: JUNCTION BOX C3

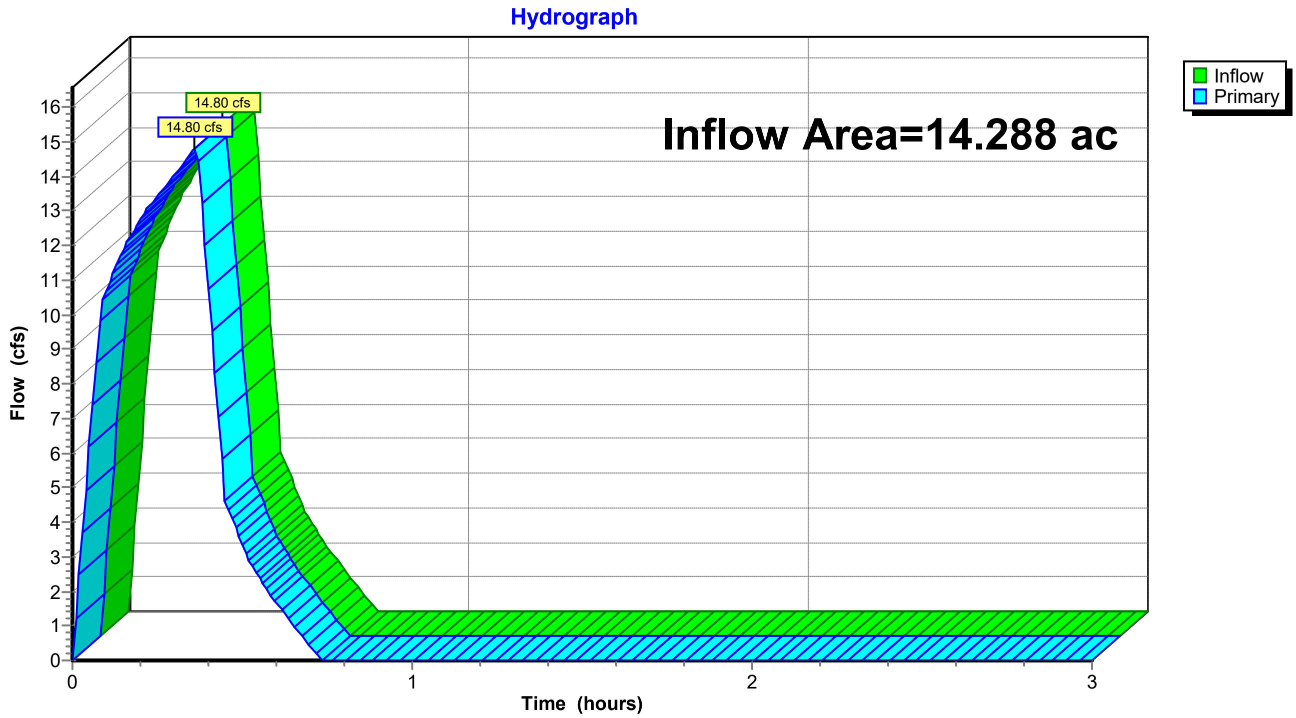


Summary for Link POST-DEV: Post-Development

Inflow Area =	14.288 ac,	0.00% Impervious,	Inflow Depth = 0.38"	for 5-yr event	
Inflow =	14.80 cfs @	0.36 hrs,	Volume=	0.450 af	
Primary =	14.80 cfs @	0.36 hrs,	Volume=	0.450 af,	Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Link POST-DEV: Post-Development



Summary for Subcatchment DB-B1: Drainage Basin B1

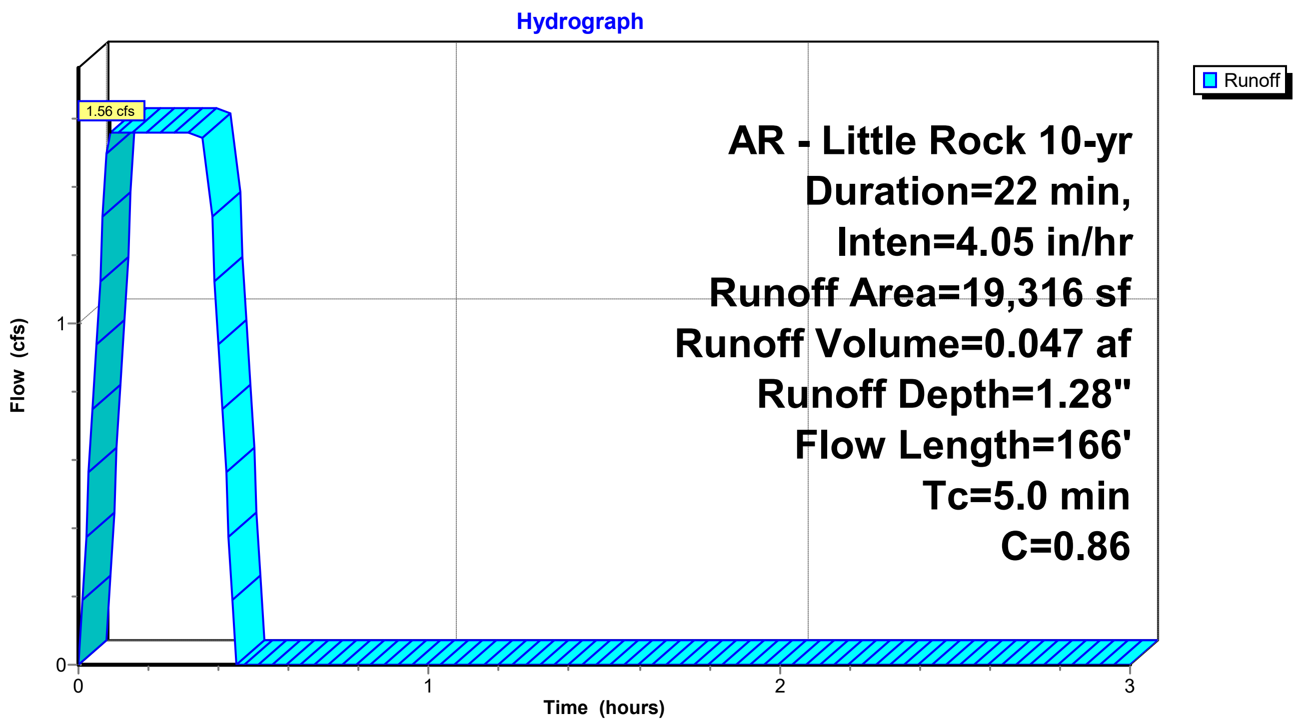
Runoff = 1.56 cfs @ 0.09 hrs, Volume= 0.047 af, Depth= 1.28"
Routed to Pond CI-A1 : CURB INLET A1

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 10-yr Duration=22 min, Inten=4.05 in/hr

Area (sf)	C	Description
1,941	0.30	Sandy Soil 2-7% per manual
17,375	0.92	Paved Areas
19,316	0.86	Weighted Average
19,316		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	33	0.0200	0.16		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
0.6	67	0.0350	1.82		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.5	66	0.0100	2.03		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
0.4					**Direct Entry, Minimum Adjustment**
5.0	166	Total			

Subcatchment DB-B1: Drainage Basin B1



Summary for Subcatchment DB-B10: Drainage Basin B10

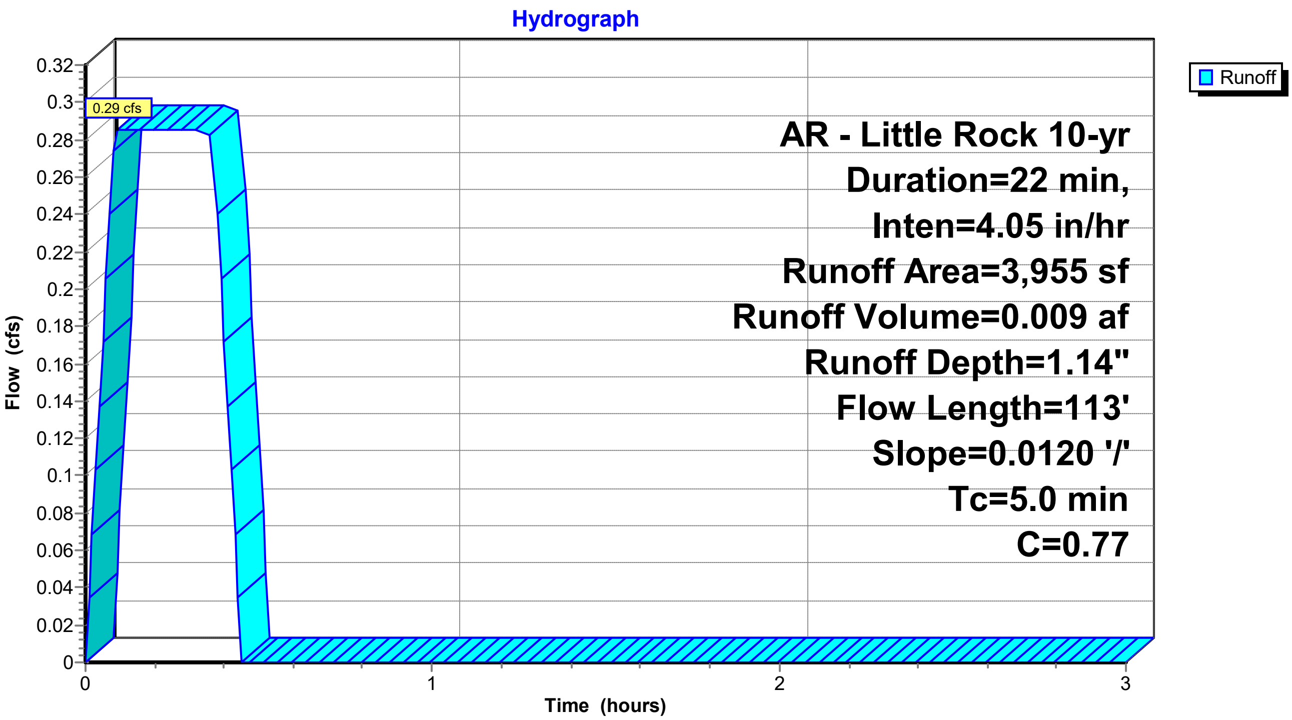
Runoff = 0.29 cfs @ 0.09 hrs, Volume= 0.009 af, Depth= 1.14"
Routed to Pond CI-C4 : CURB INLET C4

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 10-yr Duration=22 min, Inten=4.05 in/hr

Area (sf)	C	Description
959	0.30	Sandy Soil 2-7% per manual
2,996	0.92	Paved Areas
3,955	0.77	Weighted Average
3,955		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	113	0.0120	1.32		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
3.6					**Direct Entry, Minimum Adjustment**
5.0	113	Total			

Subcatchment DB-B10: Drainage Basin B10



Summary for Subcatchment DB-B11: Drainage Basin B11

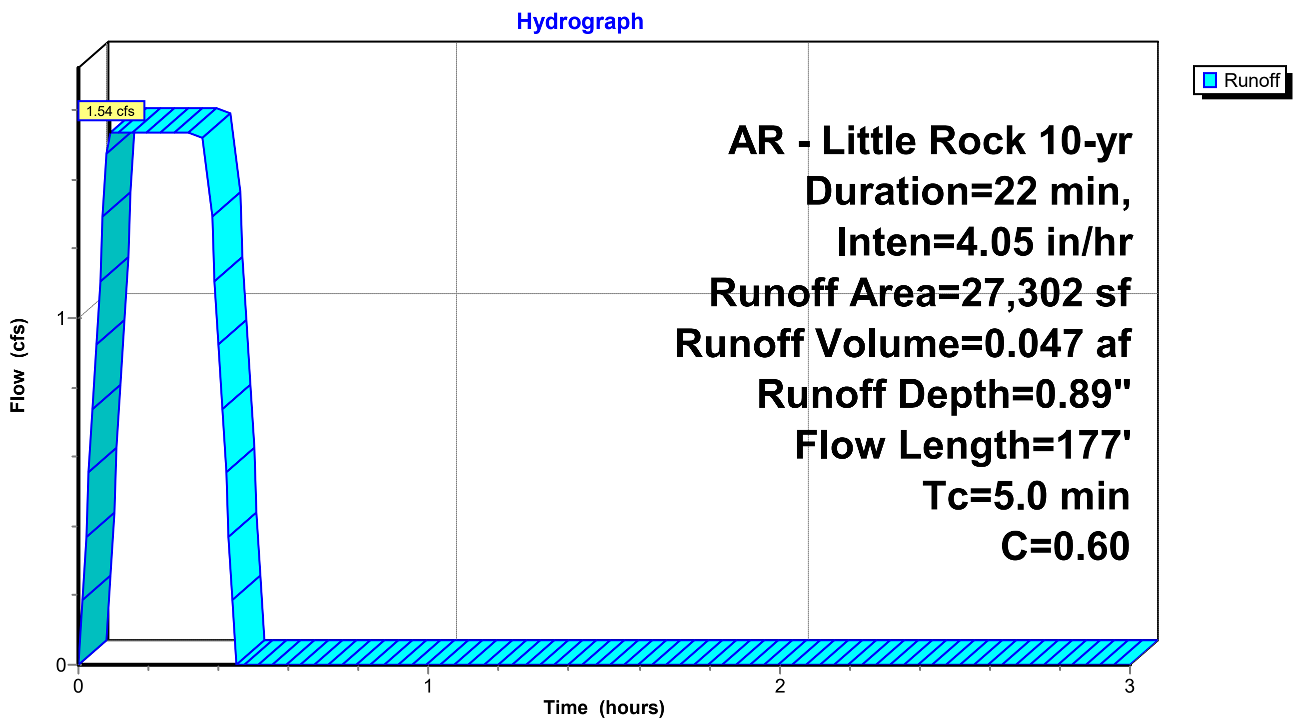
Runoff = 1.54 cfs @ 0.09 hrs, Volume= 0.047 af, Depth= 0.89"
Routed to Pond CI-D1 : CURB INLET D1

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 10-yr Duration=22 min, Inten=4.05 in/hr

Area (sf)	C	Description
15,547	0.35	Sandy Soil 2-7% per manual
11,755	0.92	Paved Areas
27,302	0.60	Weighted Average
27,302		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	65	0.3300	4.44		**Sheet Flow, Roof** Smooth surfaces n= 0.011 P2= 4.20"
0.2	69	0.1750	6.27		**Shallow Concentrated Flow, Greenspace** Grassed Waterway Kv= 15.0 fps
0.2	43	0.0500	4.54		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
4.4					**Direct Entry, Minimum Adjustment**
5.0	177	Total			

Subcatchment DB-B11: Drainage Basin B11



Summary for Subcatchment DB-B12: Drainage Basin B12

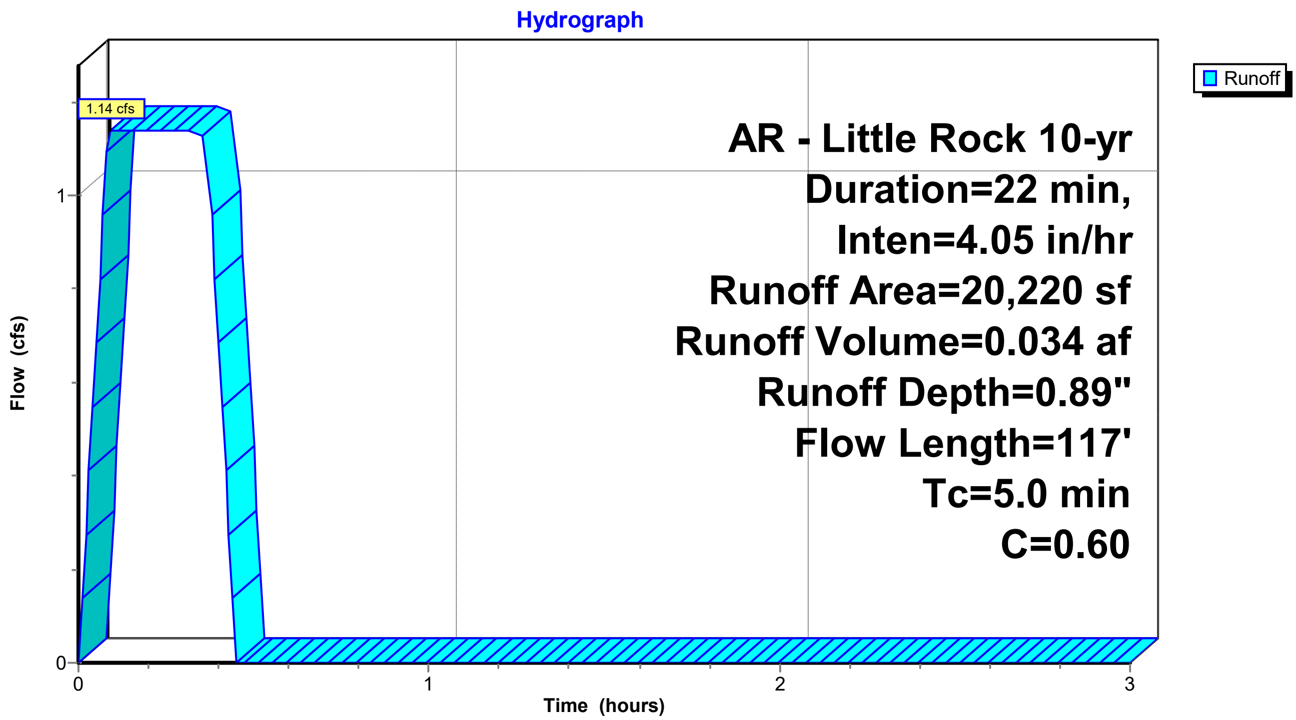
Runoff = 1.14 cfs @ 0.09 hrs, Volume= 0.034 af, Depth= 0.89"
Routed to Pond CI-C5 : CURB INLET C5

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 10-yr Duration=22 min, Inten=4.05 in/hr

Area (sf)	C	Description
11,502	0.35	Sandy Soil 2-7% per manual
8,718	0.92	Paved Areas
20,220	0.60	Weighted Average
20,220		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	26	0.0500	0.21		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
1.5	38	0.2360	0.43		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
1.1	28	0.2390	0.41		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
0.4	25	0.0180	1.15		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
5.0	117	Total			

Subcatchment DB-B12: Drainage Basin B12



Summary for Subcatchment DB-B13: DRAINAGE BASIN B13

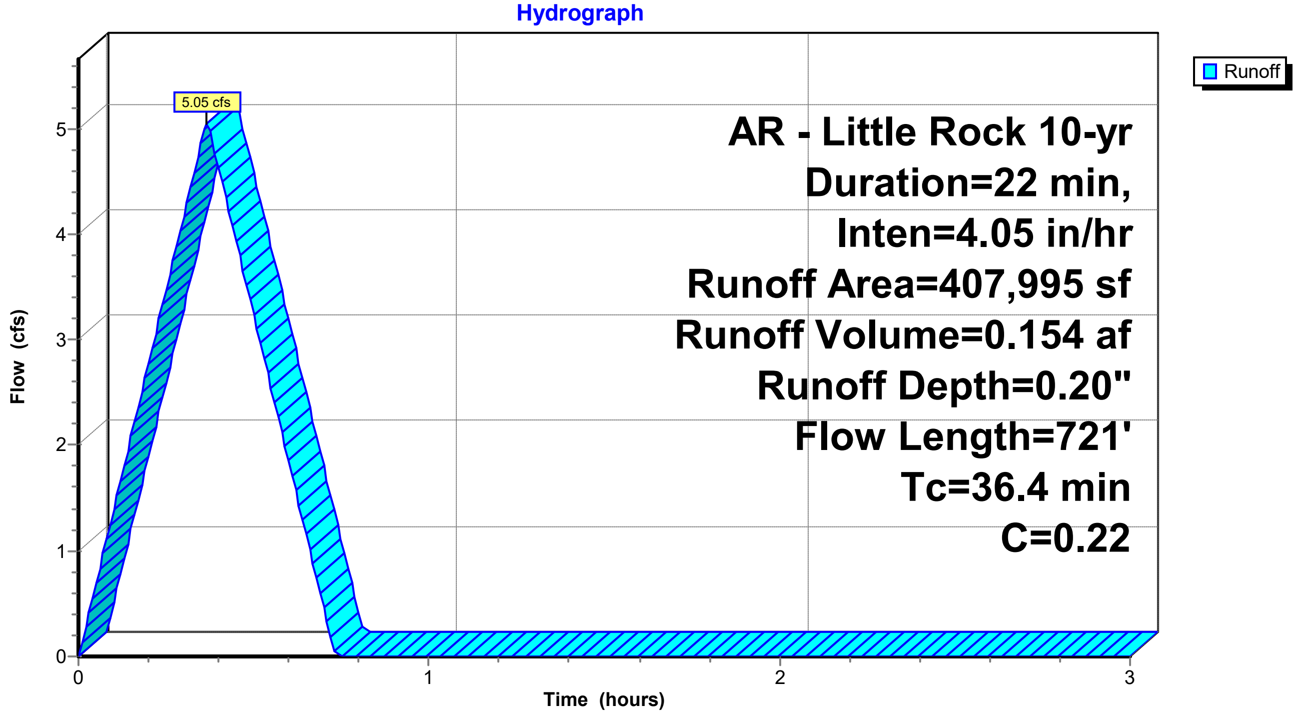
Runoff = 5.05 cfs @ 0.37 hrs, Volume= 0.154 af, Depth= 0.20"
Routed to Link POST-DEV : Post-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 10-yr Duration=22 min, Inten=4.05 in/hr

Area (sf)	C	Description
407,995	0.22	Sandy Soil 2-7% Per Manual
407,995		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	67	0.6600	0.73		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
1.2	46	0.5900	0.65		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
3.2	147	0.5100	0.77		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
1.8	63	0.3800	0.58		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
8.5	70	0.0100	0.14		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
4.8	163	0.2200	0.56		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
2.4	65	0.2000	0.45		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
6.3	48	0.0100	0.13		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
6.7	52	0.0100	0.13		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
36.4	721	Total			

Subcatchment DB-B13: DRAINAGE BASIN B13



Summary for Subcatchment DB-B14: DRAINAGE BASIN B14

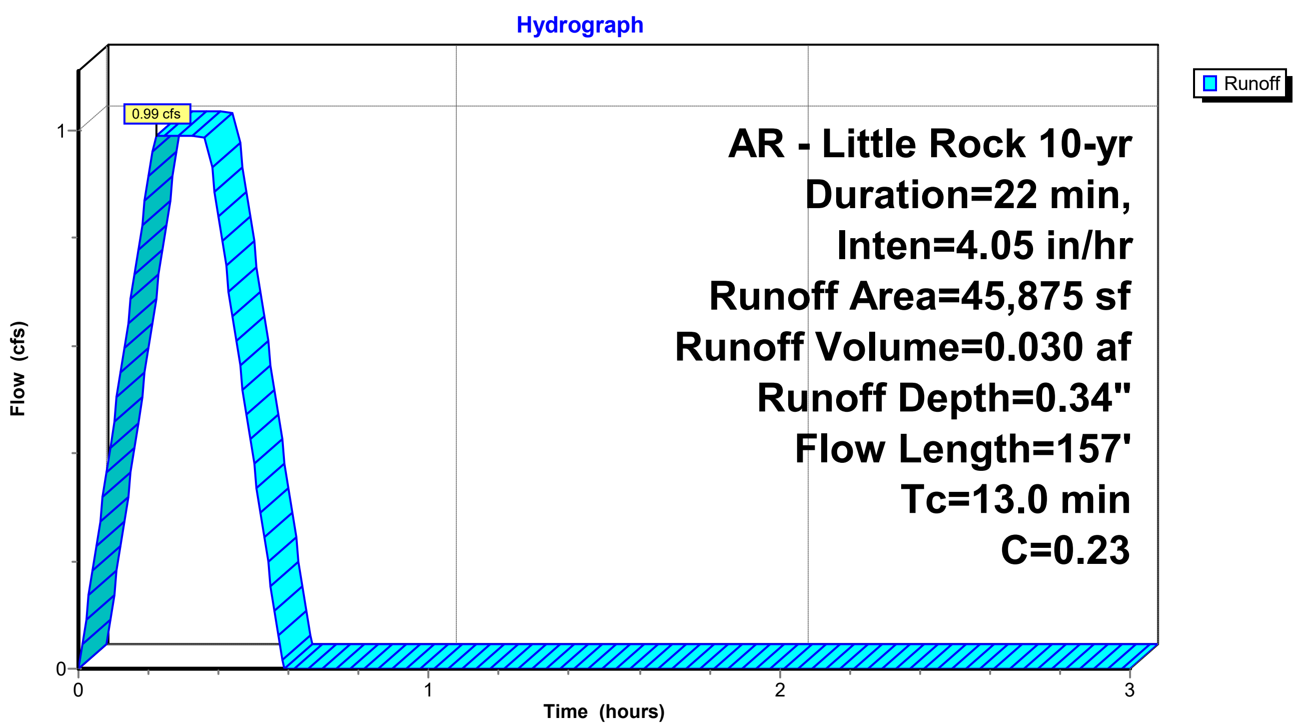
Runoff = 0.99 cfs @ 0.22 hrs, Volume= 0.030 af, Depth= 0.34"
Routed to Link POST-DEV : Post-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 10-yr Duration=22 min, Inten=4.05 in/hr

Area (sf)	C	Description
45,016	0.22	Sandy Soil 2-7% Per Manual
859	0.92	Paved Areas
45,875	0.23	Weighted Average
45,875		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	15	0.0100	0.10		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
5.2	78	0.0420	0.25		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
2.8	38	0.0480	0.23		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
2.5	26	0.0280	0.17		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
13.0	157	Total			

Subcatchment DB-B14: DRAINAGE BASIN B14



Summary for Subcatchment DB-B2: Drainage Basin B2

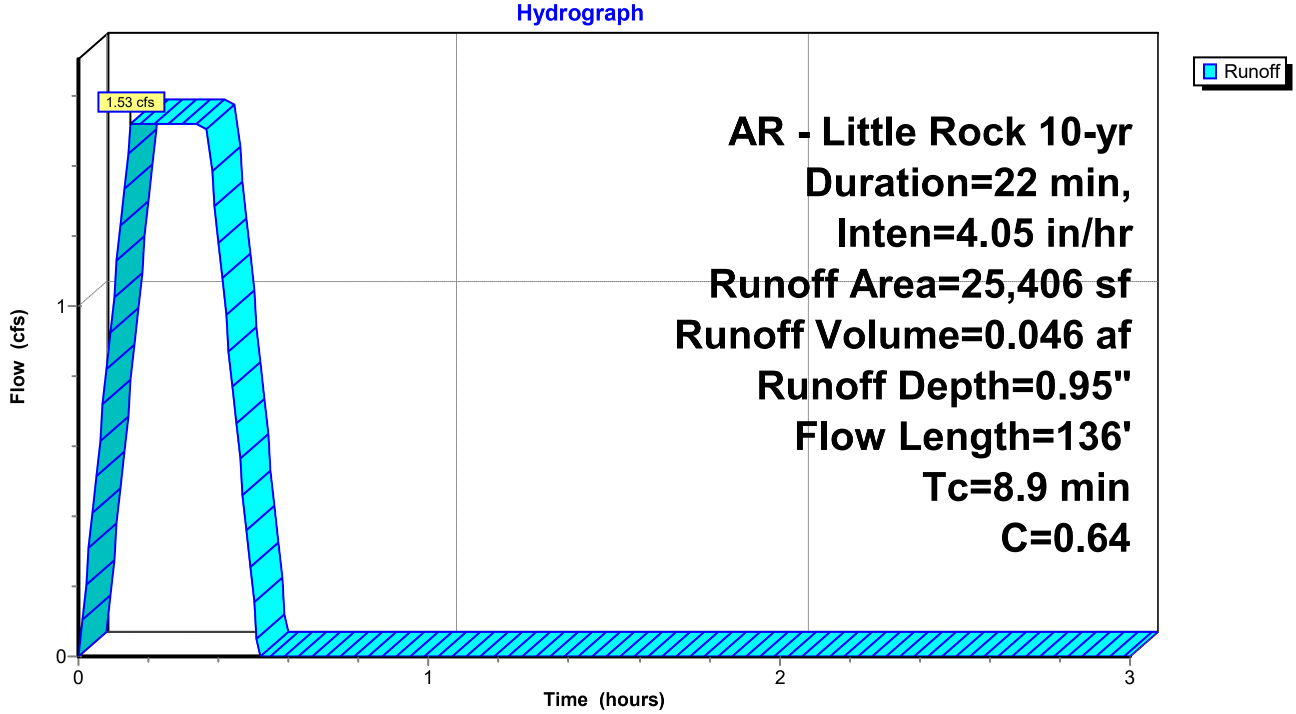
Runoff = 1.53 cfs @ 0.15 hrs, Volume= 0.046 af, Depth= 0.95"
Routed to Pond CI-A2 : CURB INLET A2

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 10-yr Duration=22 min, Inten=4.05 in/hr

Area (sf)	C	Description
11,388	0.30	Sandy Soil 2-7% per manual
14,018	0.92	Paved Areas
25,406	0.64	Weighted Average
25,406		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	57	0.0100	0.13		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
0.8	19	0.2480	0.38		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
0.2	14	0.0150	0.95		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.3	34	0.0600	1.97		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.2	12	0.0350	1.29		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.2					**Direct Entry, Minimum Adjustment**
8.9	136	Total			

Subcatchment DB-B2: Drainage Basin B2



Summary for Subcatchment DB-B3: Drainage Basin B3

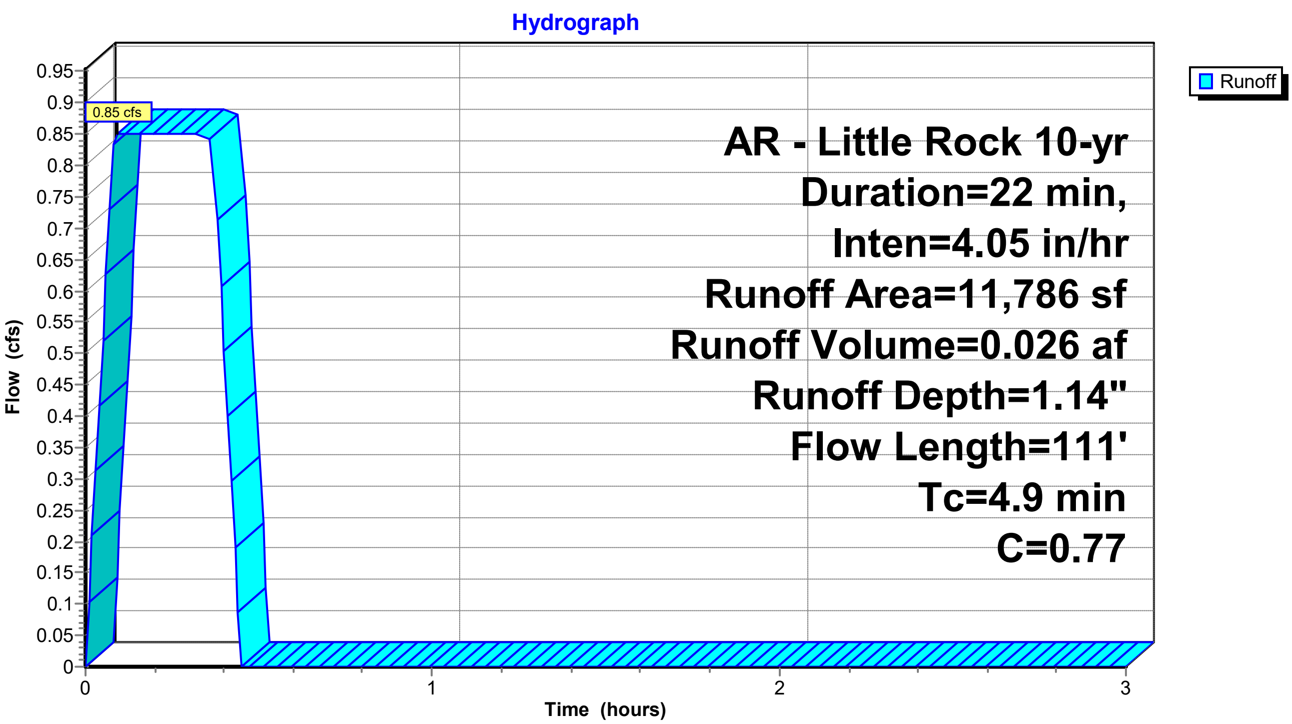
Runoff = 0.85 cfs @ 0.09 hrs, Volume= 0.026 af, Depth= 1.14"
Routed to Pond CI-A3 : CURB INLET A3

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 10-yr Duration=22 min, Inten=4.05 in/hr

Area (sf)	C	Description
2,920	0.30	Sandy Soil 2-7% per manual
8,866	0.92	Paved Areas
11,786	0.77	Weighted Average
11,786		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	19	0.2500	0.38		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
0.2	16	0.0290	1.27		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.6	38	0.0100	0.98		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.3	38	0.0100	2.03		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
3.0					**Direct Entry, Minimum Adjustment**
4.9	111	Total			

Subcatchment DB-B3: Drainage Basin B3



Summary for Subcatchment DB-B4: Drainage Basin B4

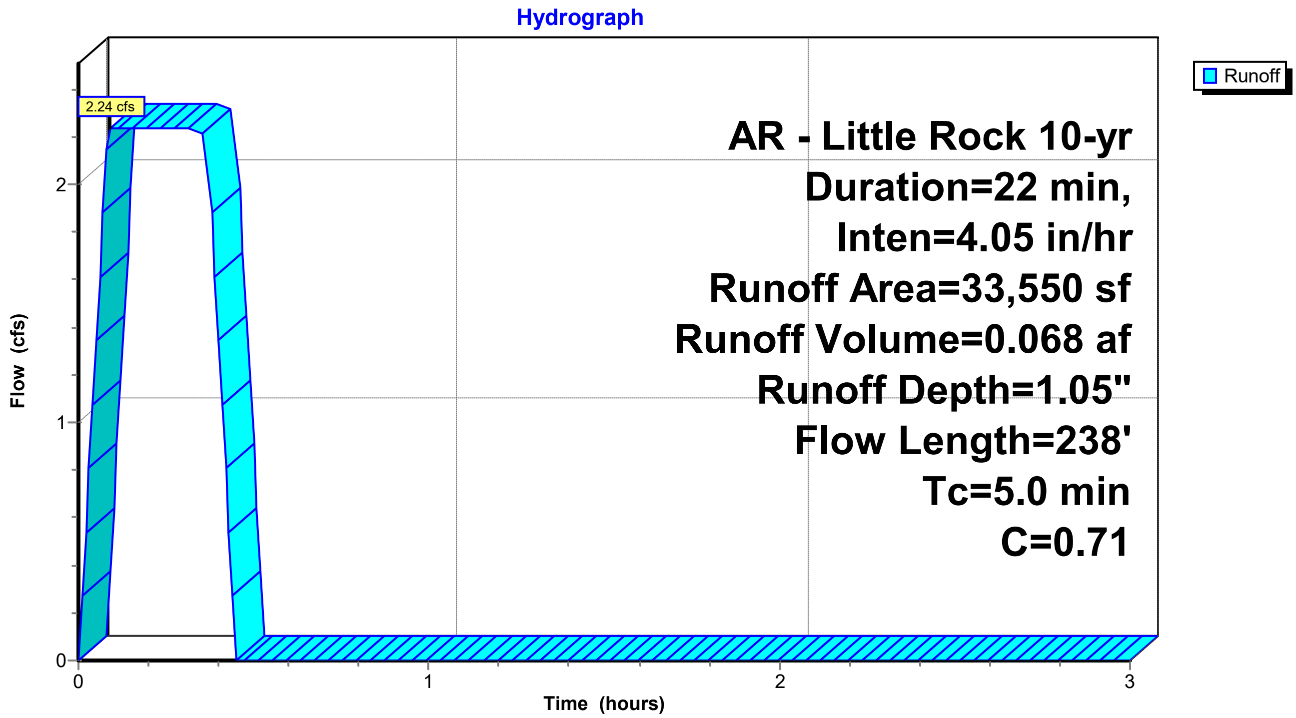
Runoff = 2.24 cfs @ 0.09 hrs, Volume= 0.068 af, Depth= 1.05"
Routed to Pond CI-A4 : CURB INLET A4

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 10-yr Duration=22 min, Inten=4.05 in/hr

Area (sf)	C	Description
11,568	0.30	Sandy Soil 2-7% per manual
21,982	0.92	Paved Areas
33,550	0.71	Weighted Average
33,550		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	48	0.0530	2.01		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.3	25	0.0310	1.42		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.6	14	0.0020	0.42		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.9	66	0.0130	1.22		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.4	59	0.0120	2.22		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
0.5	19	0.0010	0.64		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
0.0	7	0.0700	5.37		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
1.9					**Direct Entry, Minimum Adjustment**
5.0	238	Total			

Subcatchment DB-B4: Drainage Basin B4



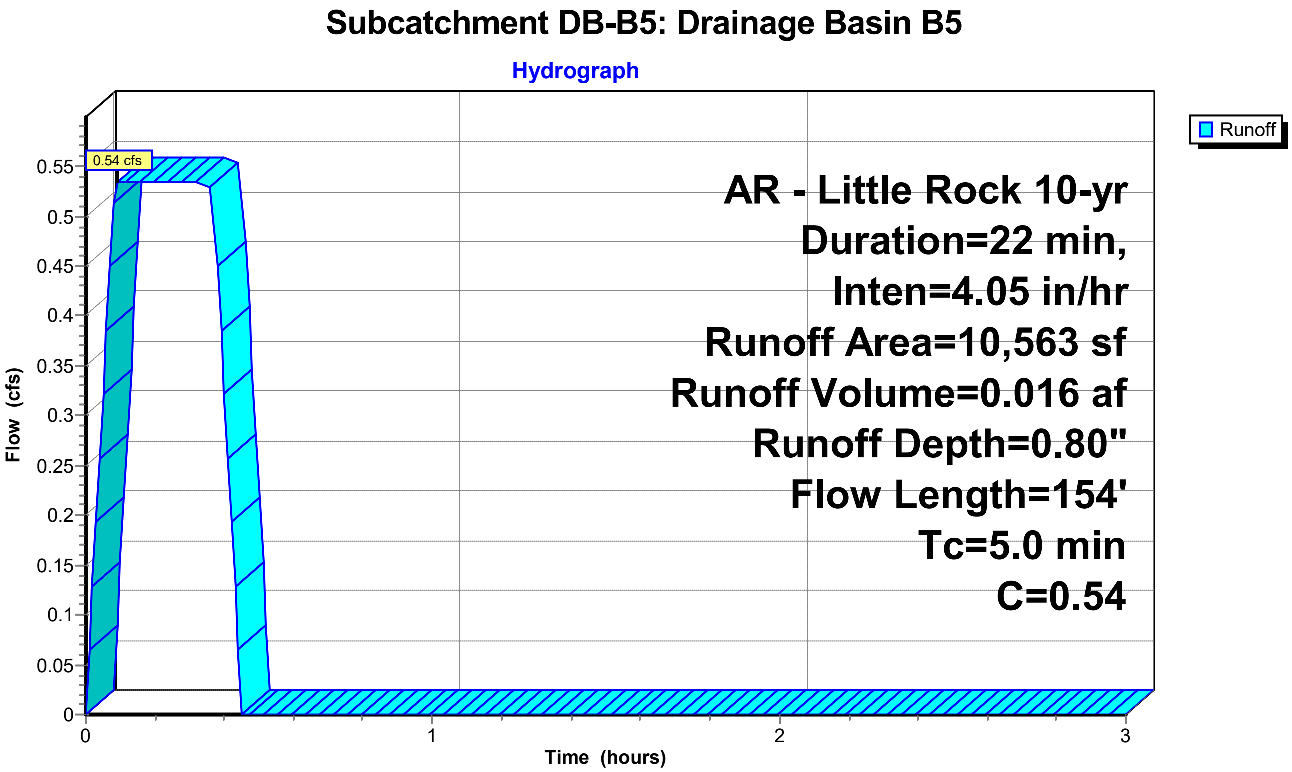
Summary for Subcatchment DB-B5: Drainage Basin B5

Runoff = 0.54 cfs @ 0.09 hrs, Volume= 0.016 af, Depth= 0.80"
Routed to Pond CI-A5 : CURB INLET A5

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 10-yr Duration=22 min, Inten=4.05 in/hr

Area (sf)	C	Description
6,980	0.35	Sandy Soil 2-7% per manual
3,583	0.92	Paved Areas
10,563	0.54	Weighted Average
10,563		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	19	0.0920	0.26		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
1.9	39	0.1260	0.34		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
0.5	66	0.0540	2.16		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.1	30	0.0500	4.54		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
1.3					**Direct Entry, Minimum Adjustment**
5.0	154	Total			



Summary for Subcatchment DB-B6: Drainage Basin B6

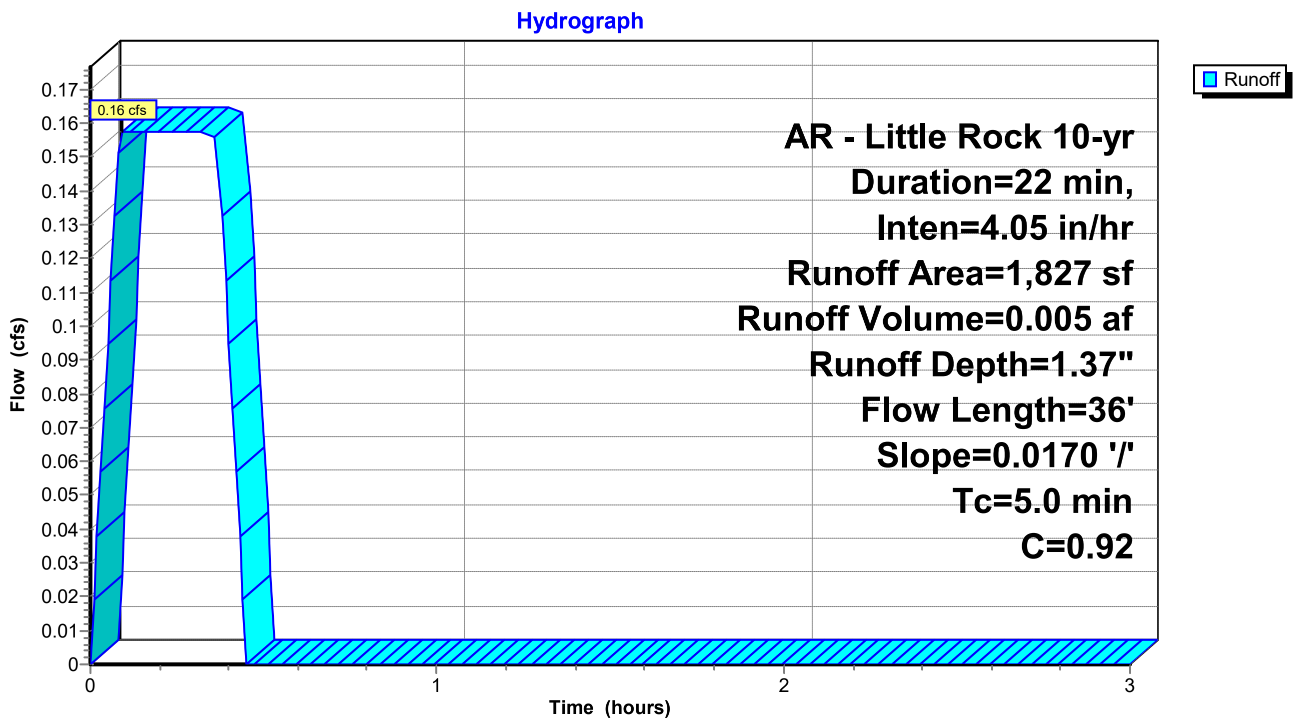
Runoff = 0.16 cfs @ 0.09 hrs, Volume= 0.005 af, Depth= 1.37"
Routed to Pond AI-B1 : AREA INLET B1

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 10-yr Duration=22 min, Inten=4.05 in/hr

Area (sf)	C	Description
0	0.30	Sandy Soil 2-7% per manual
1,827	0.92	Paved Areas
1,827	0.92	Weighted Average
1,827		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	36	0.0170	1.20		**Sheet Flow, Concrete** Smooth surfaces n= 0.011 P2= 4.20"
4.5					**Direct Entry, Minimum Adjustment**
5.0	36	Total			

Subcatchment DB-B6: Drainage Basin B6



Summary for Subcatchment DB-B7: Drainage Basin B7

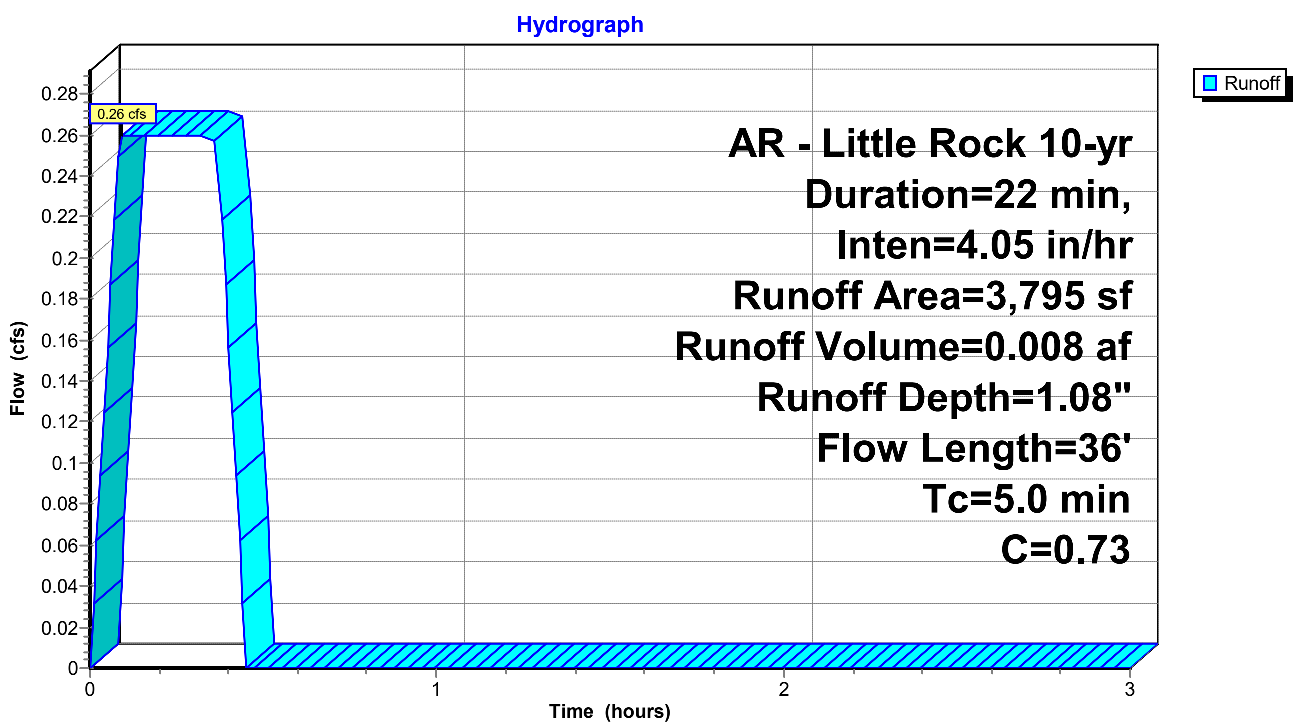
Runoff = 0.26 cfs @ 0.09 hrs, Volume= 0.008 af, Depth= 1.08"
Routed to Pond AI-B2 : AREA INLET B2

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 10-yr Duration=22 min, Inten=4.05 in/hr

Area (sf)	C	Description
1,158	0.30	Sandy Soil 2-7% per manual
2,637	0.92	Paved Areas
3,795	0.73	Weighted Average
3,795		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	24	0.0020	0.47		**Sheet Flow, Concrete** Smooth surfaces n= 0.011 P2= 4.20"
0.2	12	0.0160	0.94		**Sheet Flow, Concrete** Smooth surfaces n= 0.011 P2= 4.20"
4.0					**Direct Entry, Minimum Adjustment**
5.0	36	Total			

Subcatchment DB-B7: Drainage Basin B7



Summary for Subcatchment DB-B8: Drainage Basin B8

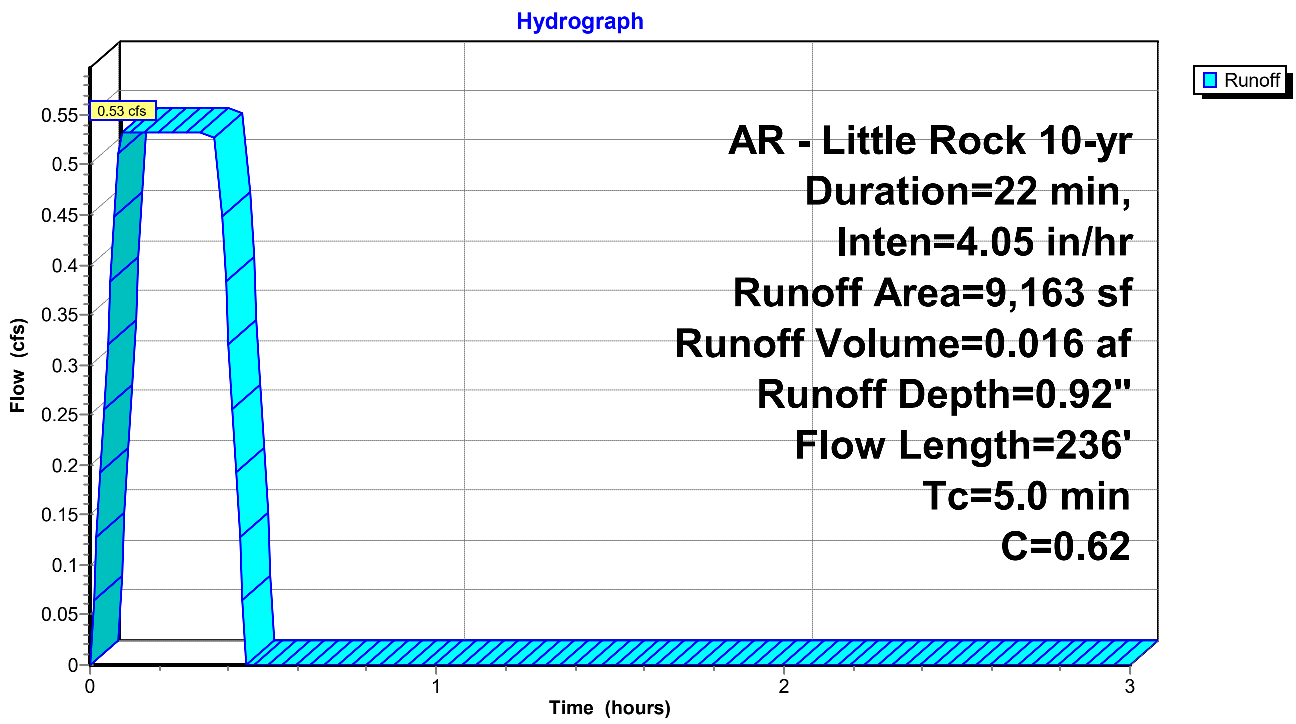
Runoff = 0.53 cfs @ 0.09 hrs, Volume= 0.016 af, Depth= 0.92"
Routed to Pond CI-C1 : CURB INLET C1

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 10-yr Duration=22 min, Inten=4.05 in/hr

Area (sf)	C	Description
4,431	0.30	Sadny Soil 2-7% per manual
4,732	0.92	Paved Areas
9,163	0.62	Weighted Average
9,163		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	33	0.0210	1.29		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.6	91	0.0620	2.43		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.8	112	0.0490	2.31		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
3.2					**Direct Entry, Minimum Adjustment**
5.0	236	Total			

Subcatchment DB-B8: Drainage Basin B8



Summary for Subcatchment DB-B9: Drainage Basin B9

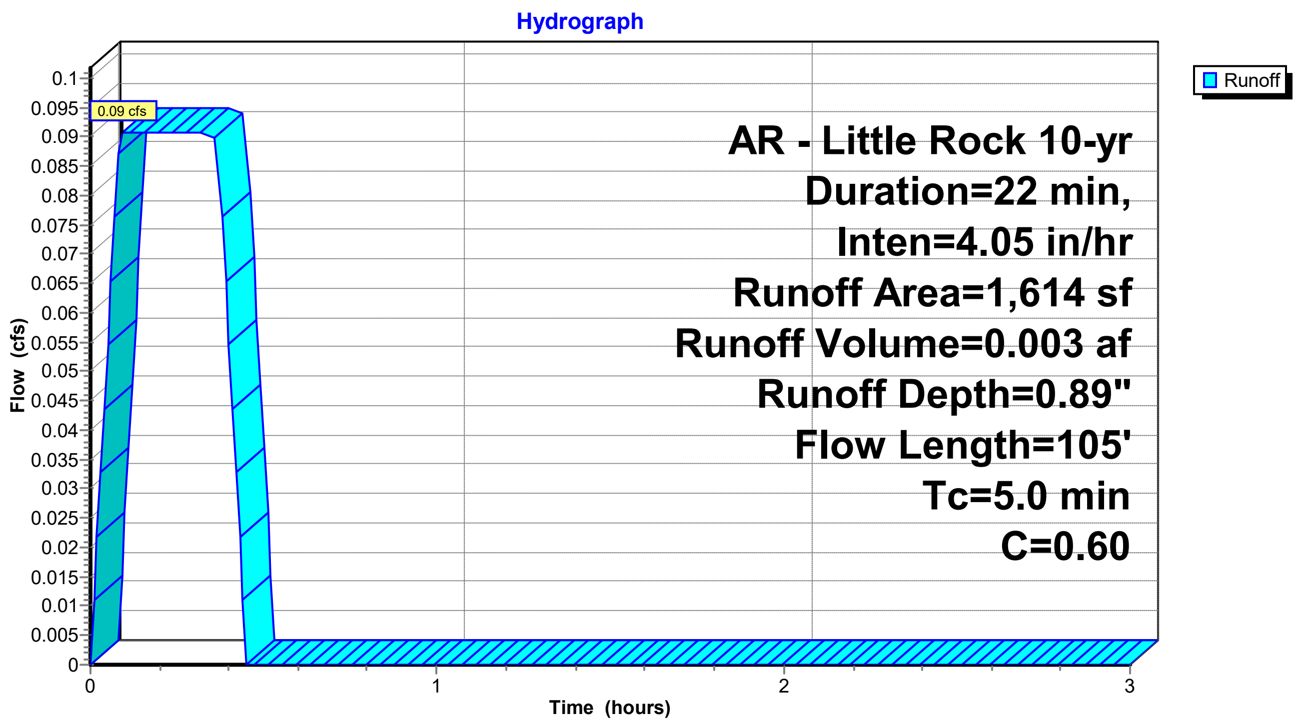
Runoff = 0.09 cfs @ 0.09 hrs, Volume= 0.003 af, Depth= 0.89"
Routed to Pond CI-C2 : CURB INLET C2

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 10-yr Duration=22 min, Inten=4.05 in/hr

Area (sf)	C	Description
826	0.30	Sandy Soil 2-7% per manual
788	0.92	Paved Areas
1,614	0.60	Weighted Average
1,614		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	62	0.0100	1.09		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.0	8	0.0230	3.08		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
0.2	35	0.0140	2.40		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
3.8					**Direct Entry, Minimum Adjustment**
5.0	105	Total			

Subcatchment DB-B9: Drainage Basin B9



Summary for Pond AI-B1: AREA INLET B1

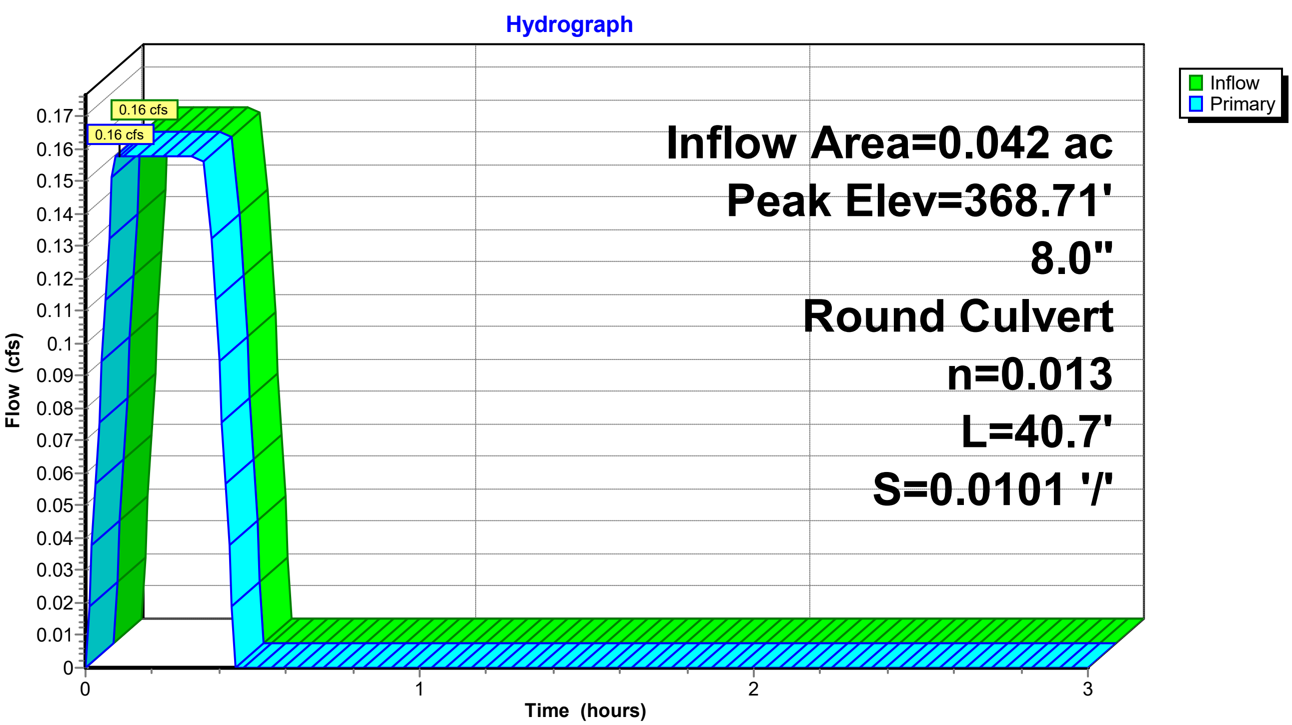
Inflow Area = 0.042 ac, 0.00% Impervious, Inflow Depth = 1.37" for 10-yr event
Inflow = 0.16 cfs @ 0.09 hrs, Volume= 0.005 af
Outflow = 0.16 cfs @ 0.10 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.6 min
Primary = 0.16 cfs @ 0.10 hrs, Volume= 0.005 af
Routed to Pond AI-B2 : AREA INLET B2

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 368.71' @ 0.09 hrs

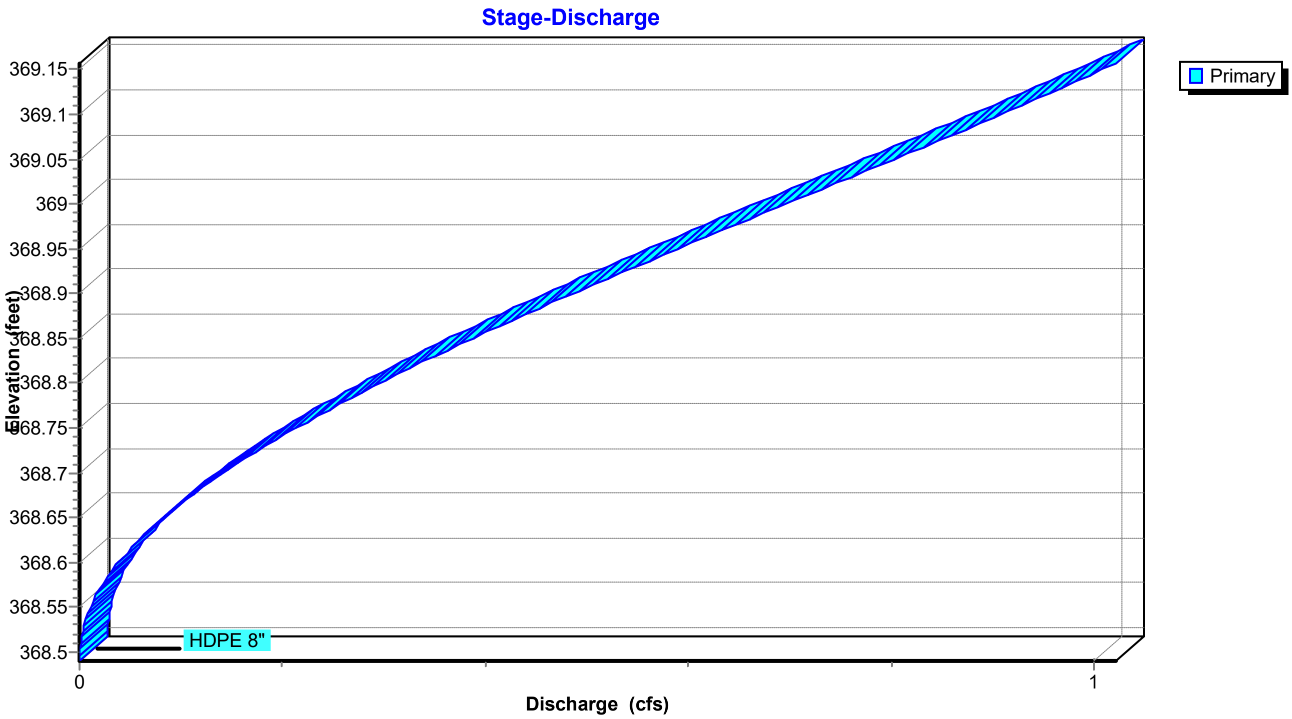
Device	Routing	Invert	Outlet Devices
#1	Primary	368.49'	**8.0" Round HDPE 8"** L= 40.7' Ke= 0.100 Inlet / Outlet Invert= 368.49' / 368.08' S= 0.0101 '/' Cc= 0.900 n= 0.013, Flow Area= 0.35 sf

Primary OutFlow Max=0.16 cfs @ 0.10 hrs HW=368.71' (Free Discharge)
↑—**1=HDPE 8"** (Barrel Controls 0.16 cfs @ 2.32 fps)

Pond AI-B1: AREA INLET B1



Pond AI-B1: AREA INLET B1



Summary for Pond AI-B2: AREA INLET B2

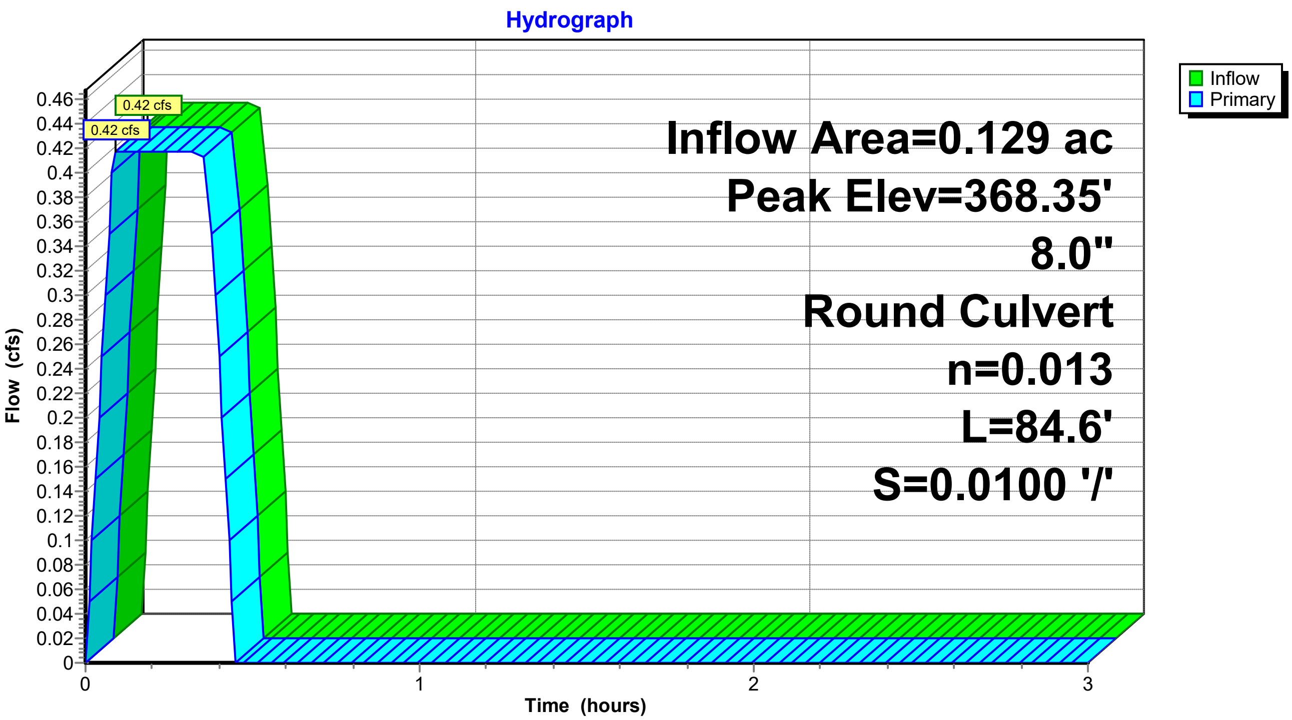
Inflow Area = 0.129 ac, 0.00% Impervious, Inflow Depth = 1.18" for 10-yr event
Inflow = 0.42 cfs @ 0.10 hrs, Volume= 0.013 af
Outflow = 0.42 cfs @ 0.09 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.0 min
Primary = 0.42 cfs @ 0.09 hrs, Volume= 0.013 af
Routed to Pond CI-A2 : CURB INLET A2

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 368.35' @ 0.09 hrs

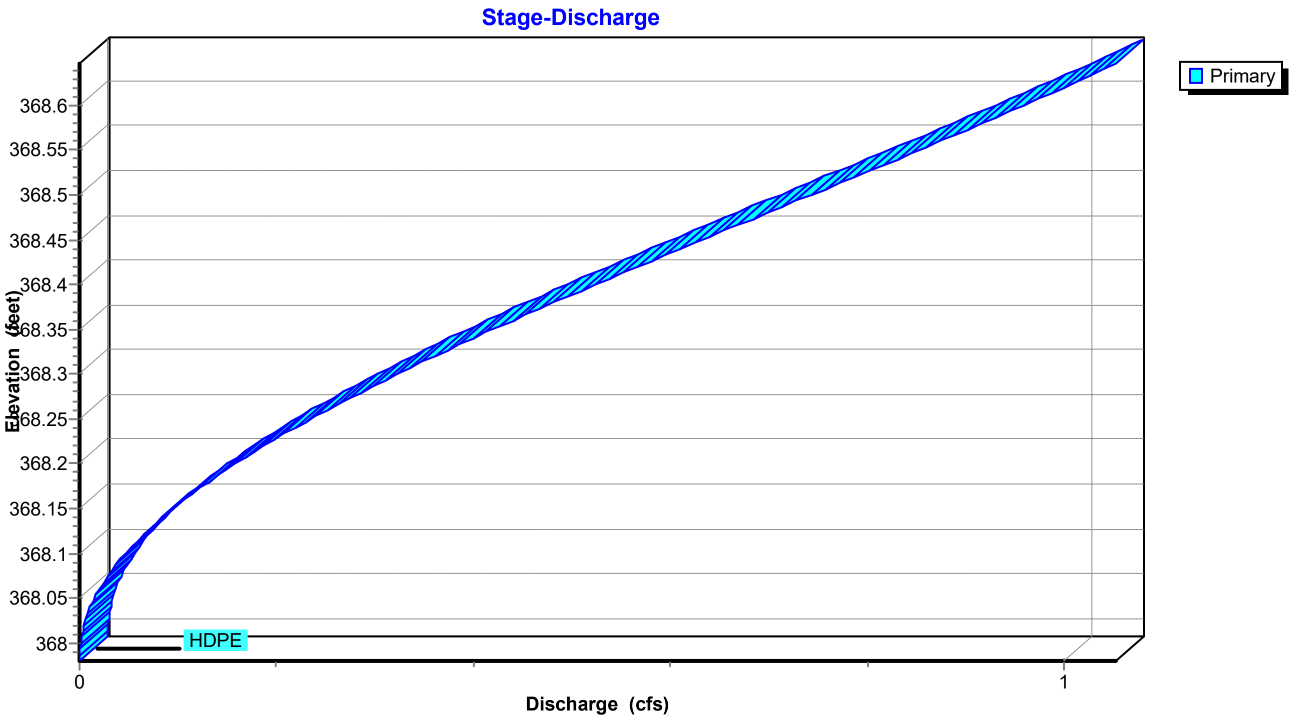
Device	Routing	Invert	Outlet Devices
#1	Primary	367.98'	**8.0" Round HDPE** L= 84.6' Ke= 0.100 Inlet / Outlet Invert= 367.98' / 367.13' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.35 sf

Primary OutFlow Max=0.42 cfs @ 0.09 hrs HW=368.35' (Free Discharge)
└─**1=HDPE** (Barrel Controls 0.42 cfs @ 3.05 fps)

Pond AI-B2: AREA INLET B2



Pond AI-B2: AREA INLET B2



Summary for Pond CI-A1: CURB INLET A1

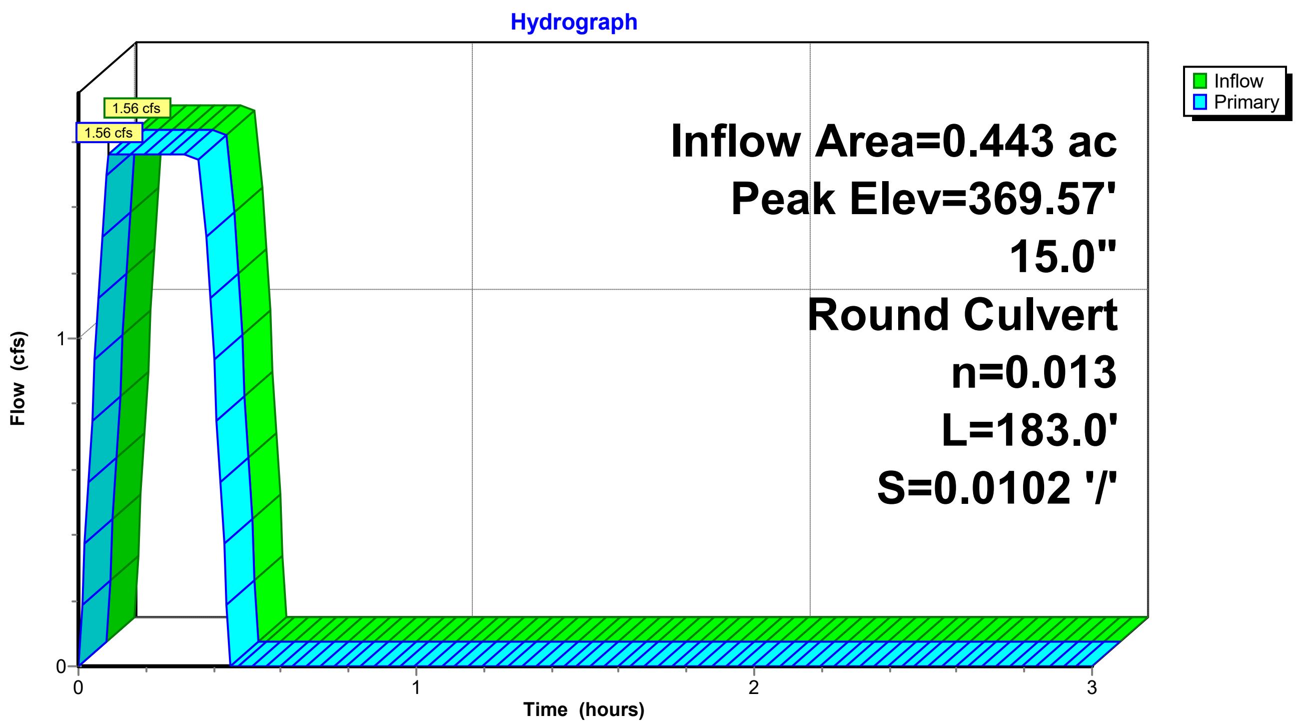
Inflow Area = 0.443 ac, 0.00% Impervious, Inflow Depth = 1.28" for 10-yr event
Inflow = 1.56 cfs @ 0.09 hrs, Volume= 0.047 af
Outflow = 1.56 cfs @ 0.09 hrs, Volume= 0.047 af, Atten= 0%, Lag= 0.0 min
Primary = 1.56 cfs @ 0.09 hrs, Volume= 0.047 af
Routed to Pond CI-A2 : CURB INLET A2

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 369.57' @ 0.09 hrs

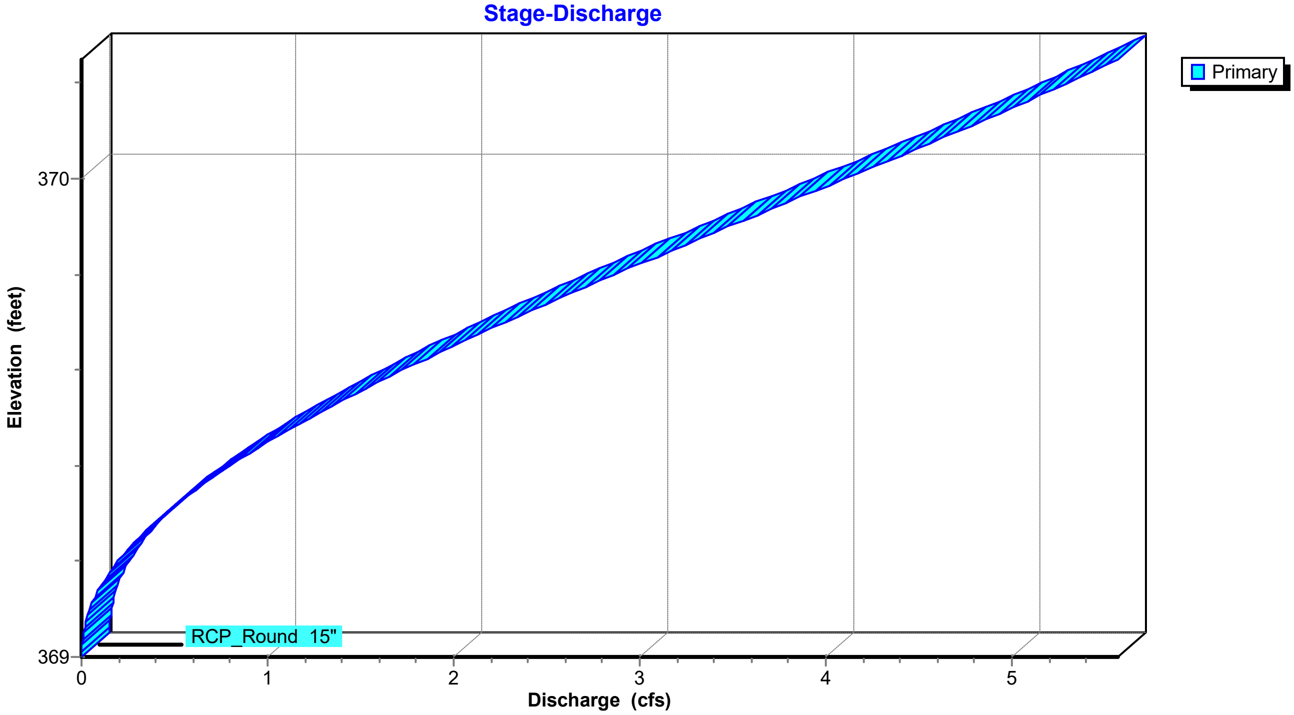
Device	Routing	Invert	Outlet Devices
#1	Primary	369.00'	**15.0" Round RCP_Round 15"** L= 183.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 369.00' / 367.13' S= 0.0102 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.23 sf

Primary OutFlow Max=1.56 cfs @ 0.09 hrs HW=369.57' (Free Discharge)
└**1=RCP_Round 15"** (Barrel Controls 1.56 cfs @ 4.22 fps)

Pond CI-A1: CURB INLET A1



Pond CI-A1: CURB INLET A1



Summary for Pond CI-A2: CURB INLET A2

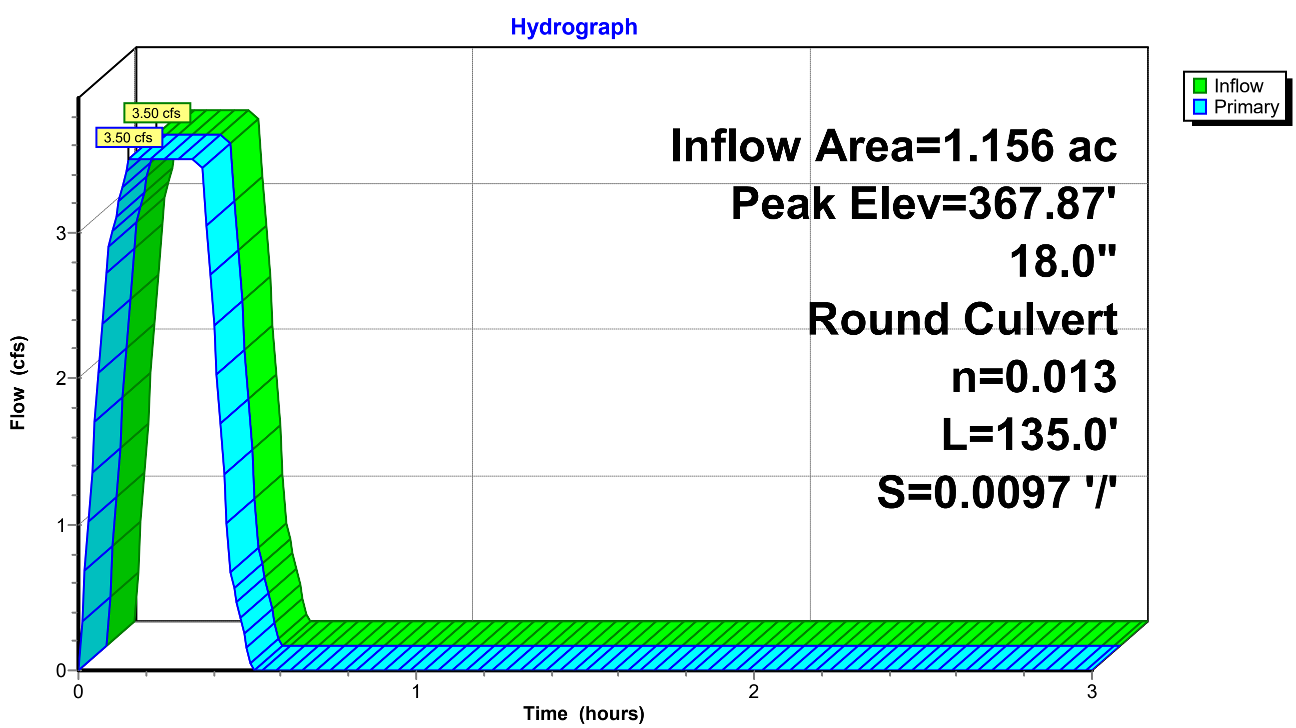
Inflow Area = 1.156 ac, 0.00% Impervious, Inflow Depth = 1.10" for 10-yr event
Inflow = 3.50 cfs @ 0.15 hrs, Volume= 0.106 af
Outflow = 3.50 cfs @ 0.15 hrs, Volume= 0.106 af, Atten= 0%, Lag= 0.0 min
Primary = 3.50 cfs @ 0.15 hrs, Volume= 0.106 af
Routed to Pond CI-A3 : CURB INLET A3

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 367.87' @ 0.15 hrs

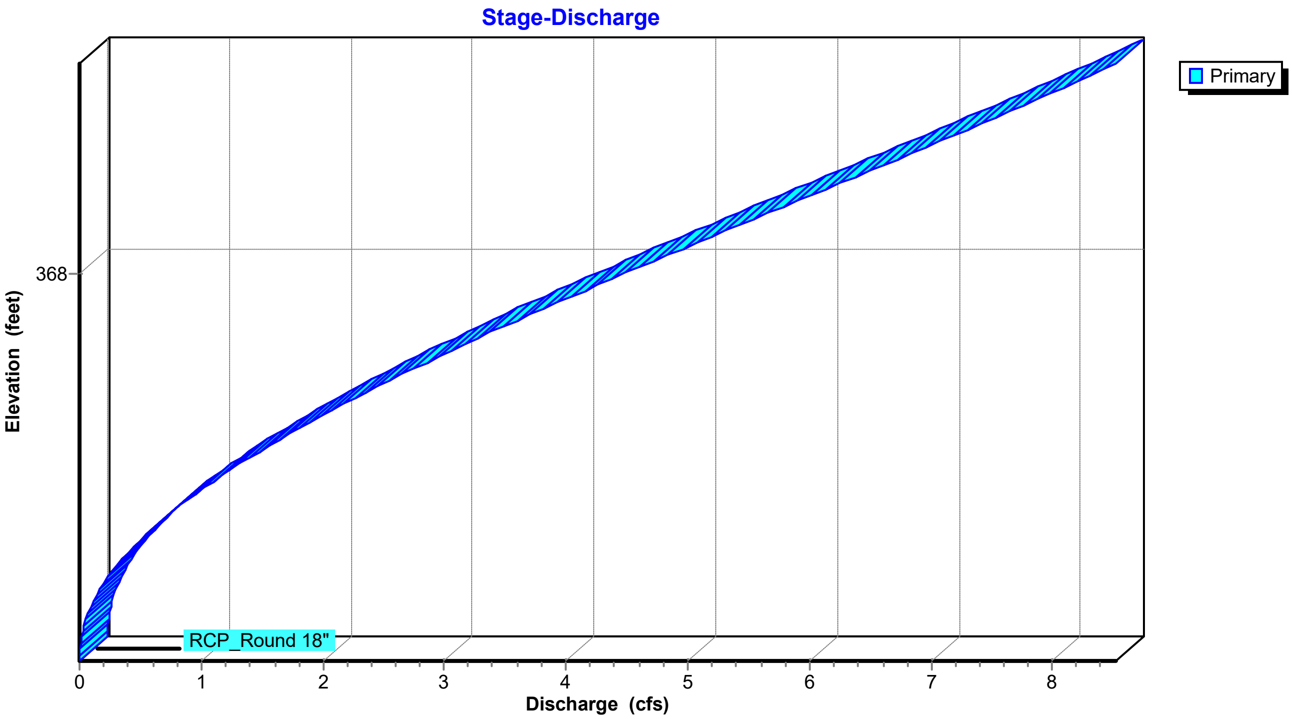
Device	Routing	Invert	Outlet Devices
#1	Primary	367.03'	**18.0" Round RCP_Round 18"** L= 135.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 367.03' / 365.72' S= 0.0097 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=3.50 cfs @ 0.15 hrs HW=367.87' (Free Discharge)
└─**1=RCP_Round 18"** (Barrel Controls 3.50 cfs @ 4.96 fps)

Pond CI-A2: CURB INLET A2



Pond CI-A2: CURB INLET A2



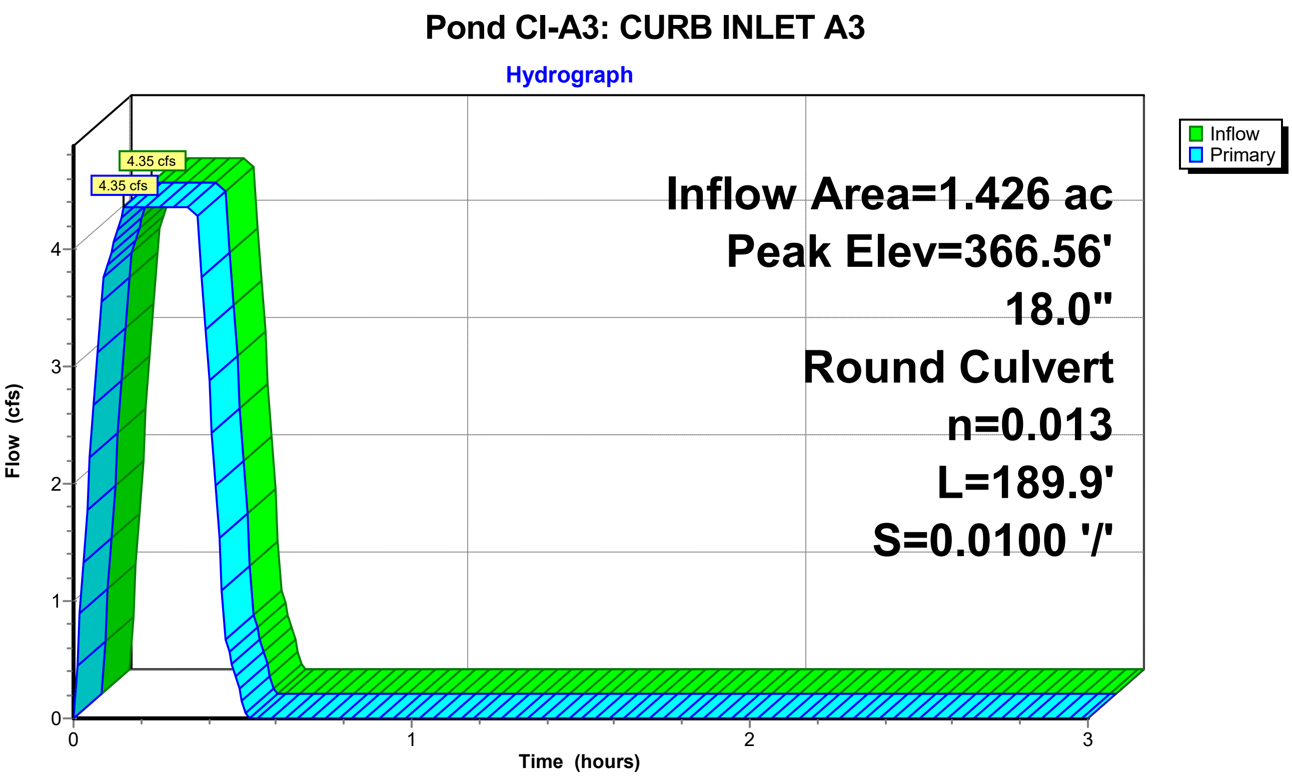
Summary for Pond CI-A3: CURB INLET A3

Inflow Area = 1.426 ac, 0.00% Impervious, Inflow Depth = 1.11" for 10-yr event
Inflow = 4.35 cfs @ 0.15 hrs, Volume= 0.132 af
Outflow = 4.35 cfs @ 0.15 hrs, Volume= 0.132 af, Atten= 0%, Lag= 0.0 min
Primary = 4.35 cfs @ 0.15 hrs, Volume= 0.132 af
Routed to Pond CI-A4 : CURB INLET A4

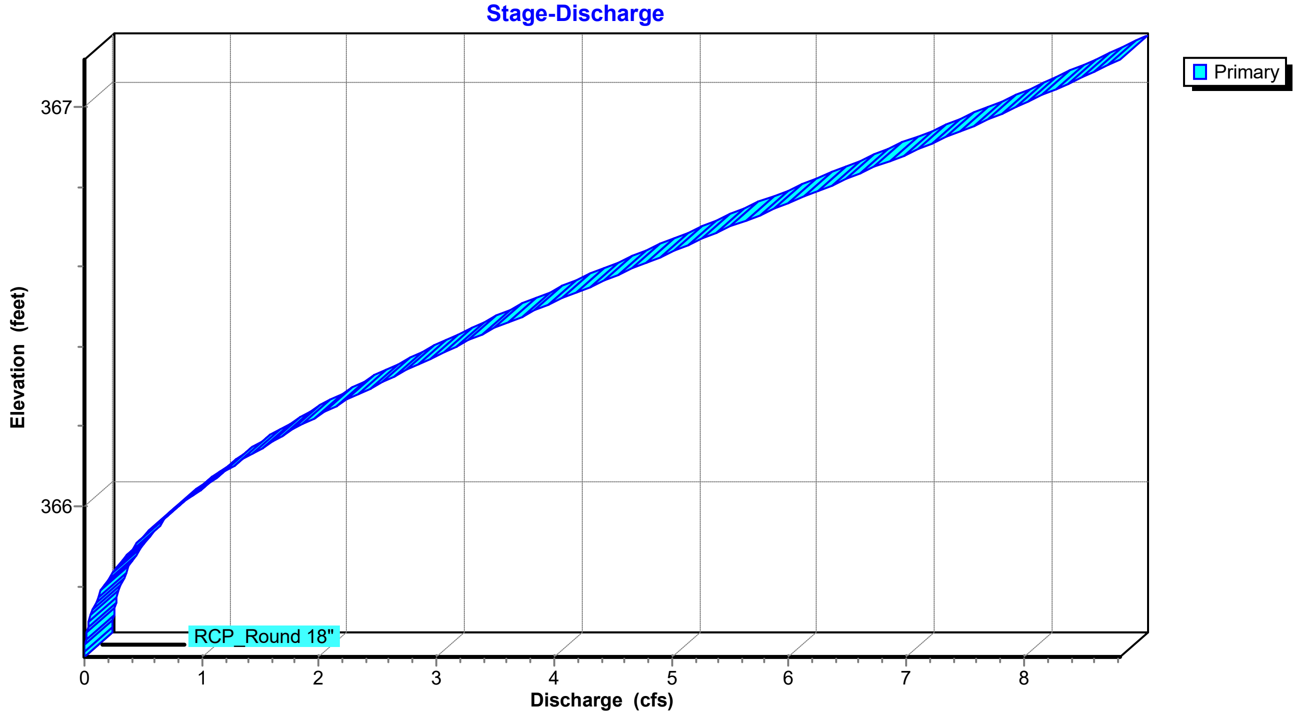
Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 366.56' @ 0.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	365.62'	**18.0" Round RCP_Round 18"** L= 189.9' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 365.62' / 363.72' S= 0.0100 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=4.35 cfs @ 0.15 hrs HW=366.56' (Free Discharge)
└—**1=RCP_Round 18"** (Barrel Controls 4.35 cfs @ 5.36 fps)



Pond CI-A3: CURB INLET A3



Summary for Pond CI-A4: CURB INLET A4

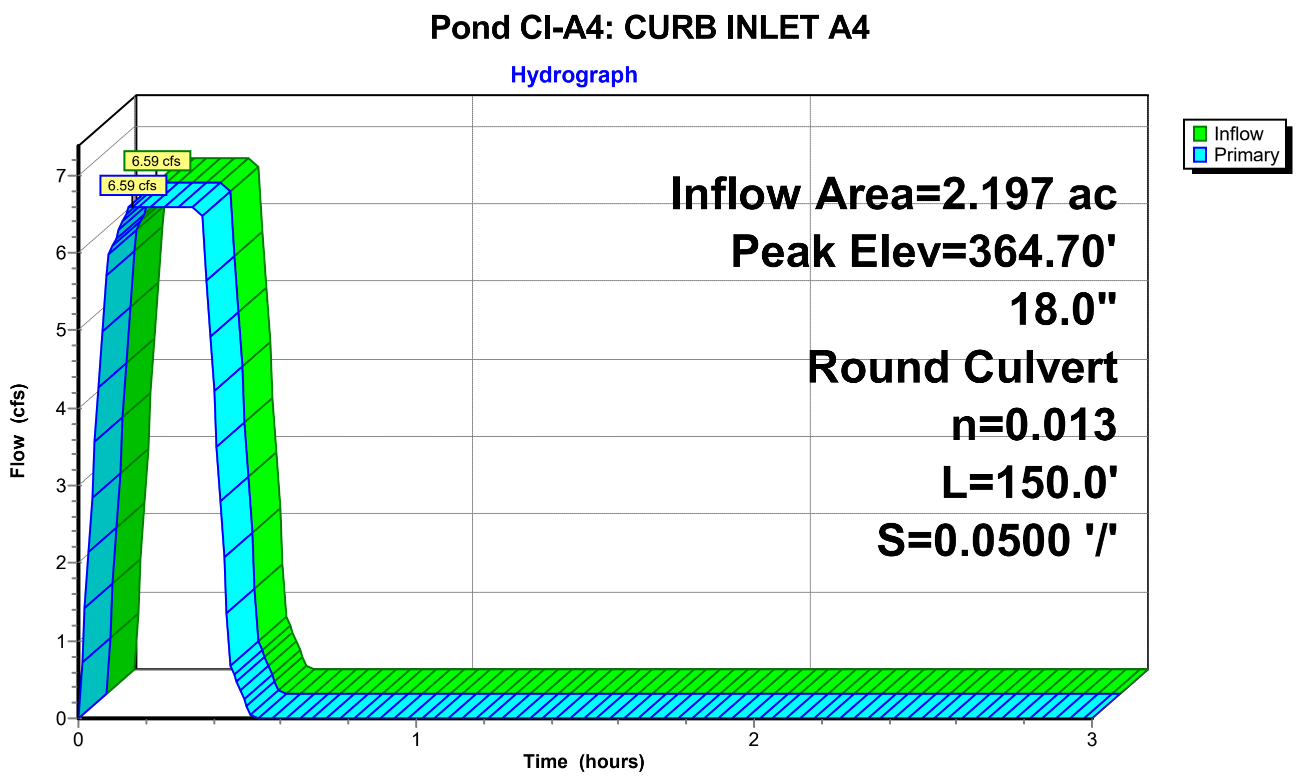
Inflow Area =	2.197 ac,	0.00% Impervious,	Inflow Depth =	1.09"	for 10-yr event
Inflow =	6.59 cfs @	0.15 hrs,	Volume=	0.200 af	
Outflow =	6.59 cfs @	0.16 hrs,	Volume=	0.200 af,	Atten= 0%, Lag= 0.6 min
Primary =	6.59 cfs @	0.16 hrs,	Volume=	0.200 af	

Routed to Pond CI-A5 : CURB INLET A5

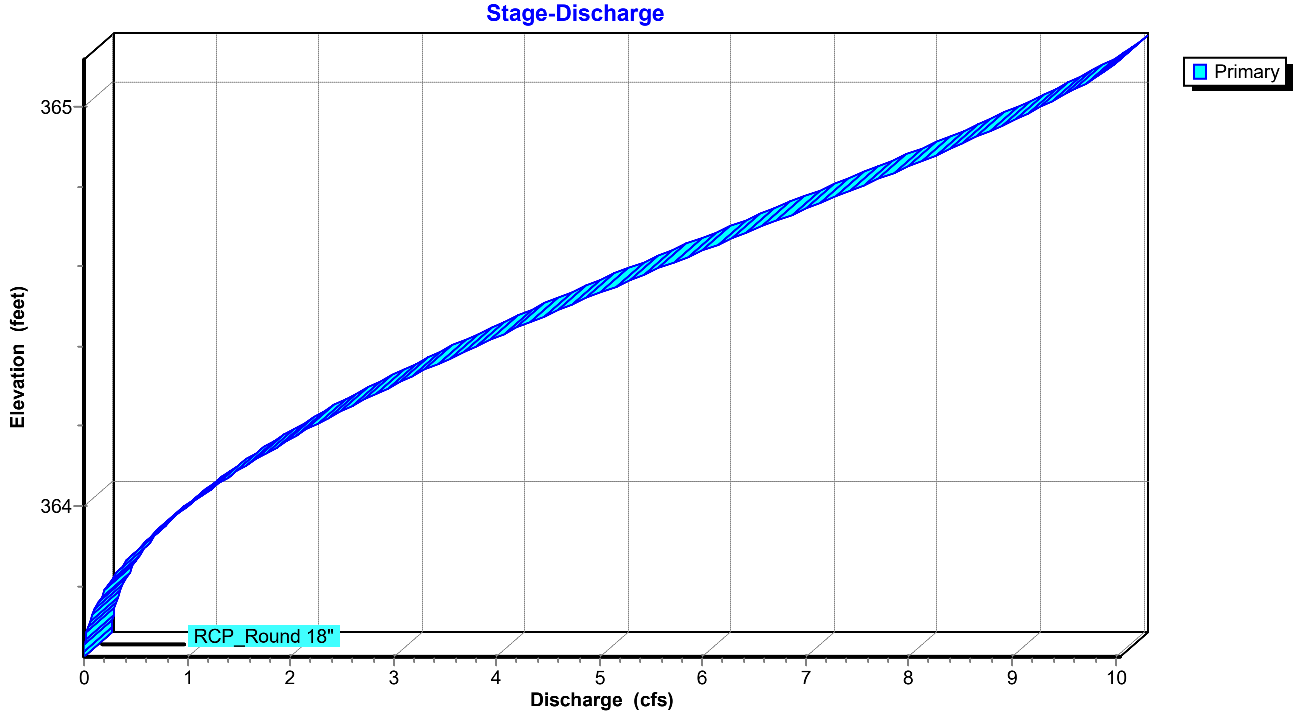
Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 364.70' @ 0.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	363.62'	**18.0" Round RCP_Round 18"** L= 150.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 363.62' / 356.12' S= 0.0500 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=6.59 cfs @ 0.16 hrs HW=364.70' (Free Discharge)
↑—**1=RCP_Round 18"** (Inlet Controls 6.59 cfs @ 4.83 fps)



Pond CI-A4: CURB INLET A4



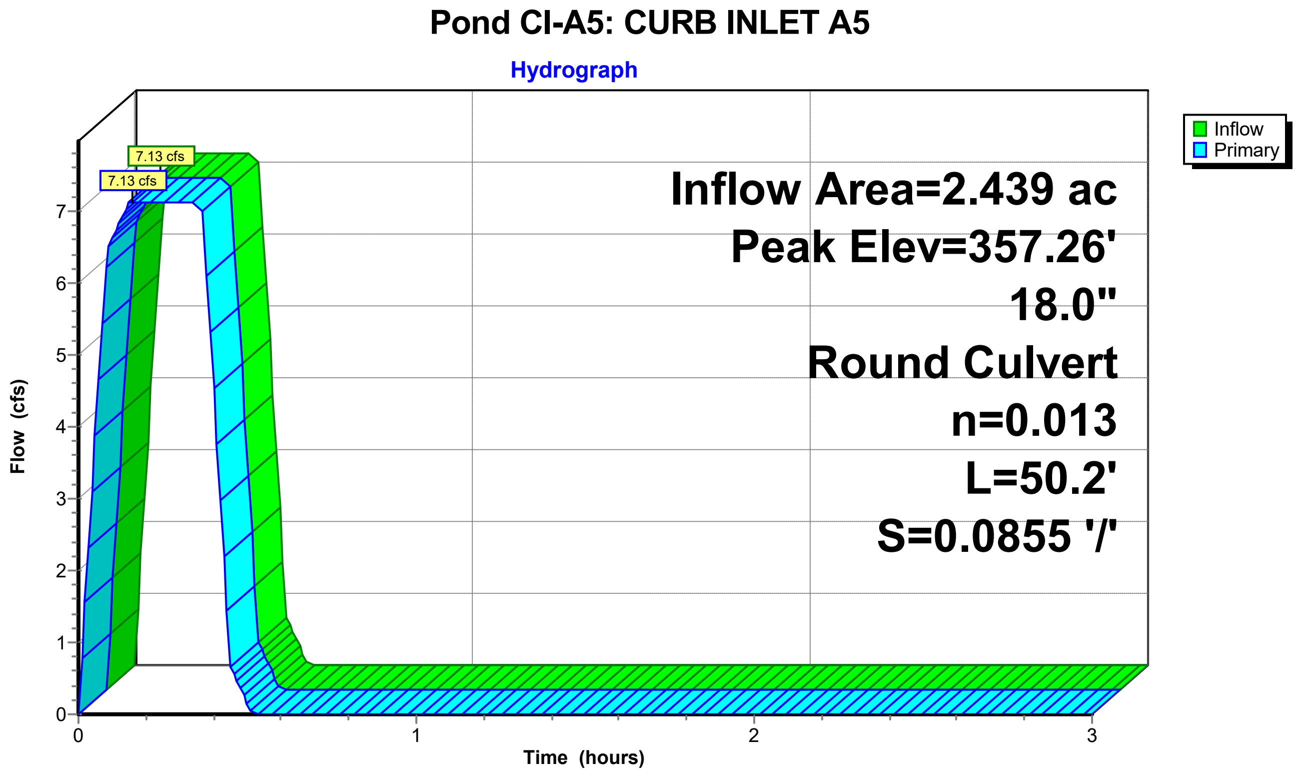
Summary for Pond CI-A5: CURB INLET A5

Inflow Area = 2.439 ac, 0.00% Impervious, Inflow Depth = 1.06" for 10-yr event
Inflow = 7.13 cfs @ 0.16 hrs, Volume= 0.216 af
Outflow = 7.13 cfs @ 0.16 hrs, Volume= 0.216 af, Atten= 0%, Lag= 0.0 min
Primary = 7.13 cfs @ 0.16 hrs, Volume= 0.216 af
Routed to Link POST-DEV : Post-Development

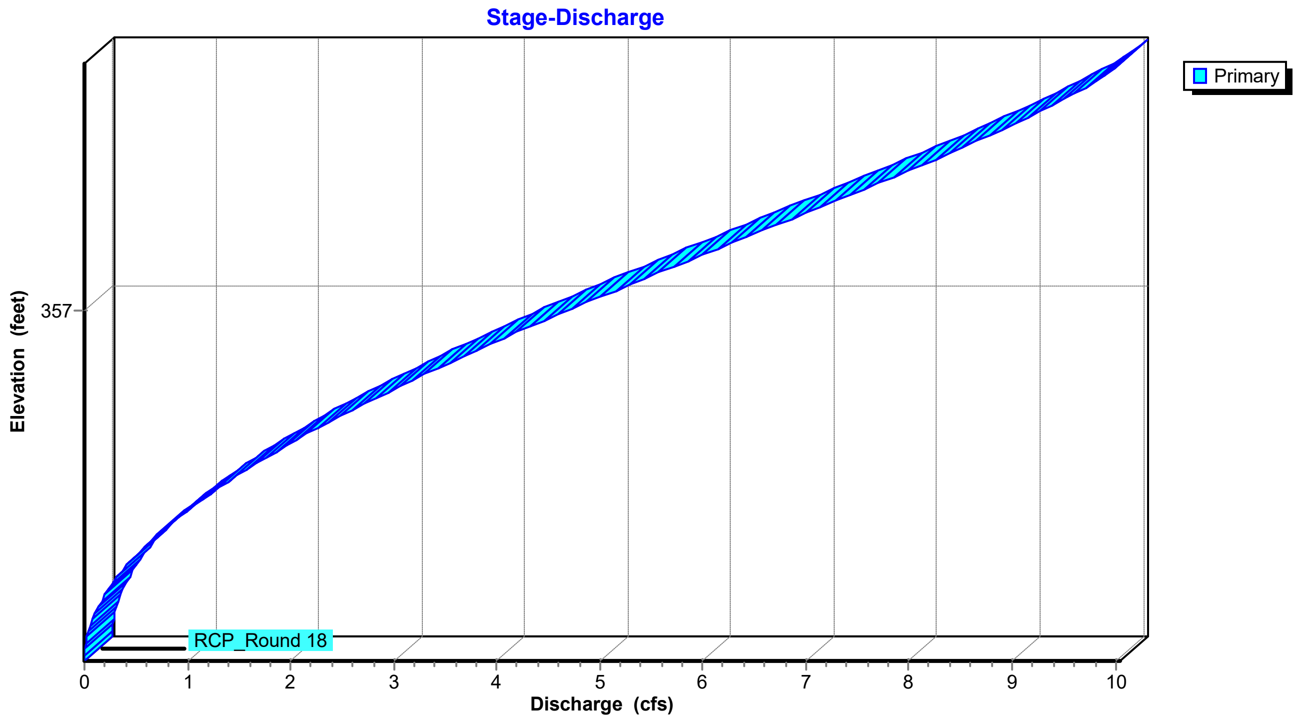
Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 357.26' @ 0.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	356.12'	**18.0" Round RCP_Round 18** L= 50.2' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 356.12' / 351.83' S= 0.0855 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=7.13 cfs @ 0.16 hrs HW=357.26' (Free Discharge)
└─**1=RCP_Round 18** (Inlet Controls 7.13 cfs @ 4.95 fps)



Pond CI-A5: CURB INLET A5



Summary for Pond CI-C1: CURB INLET C1

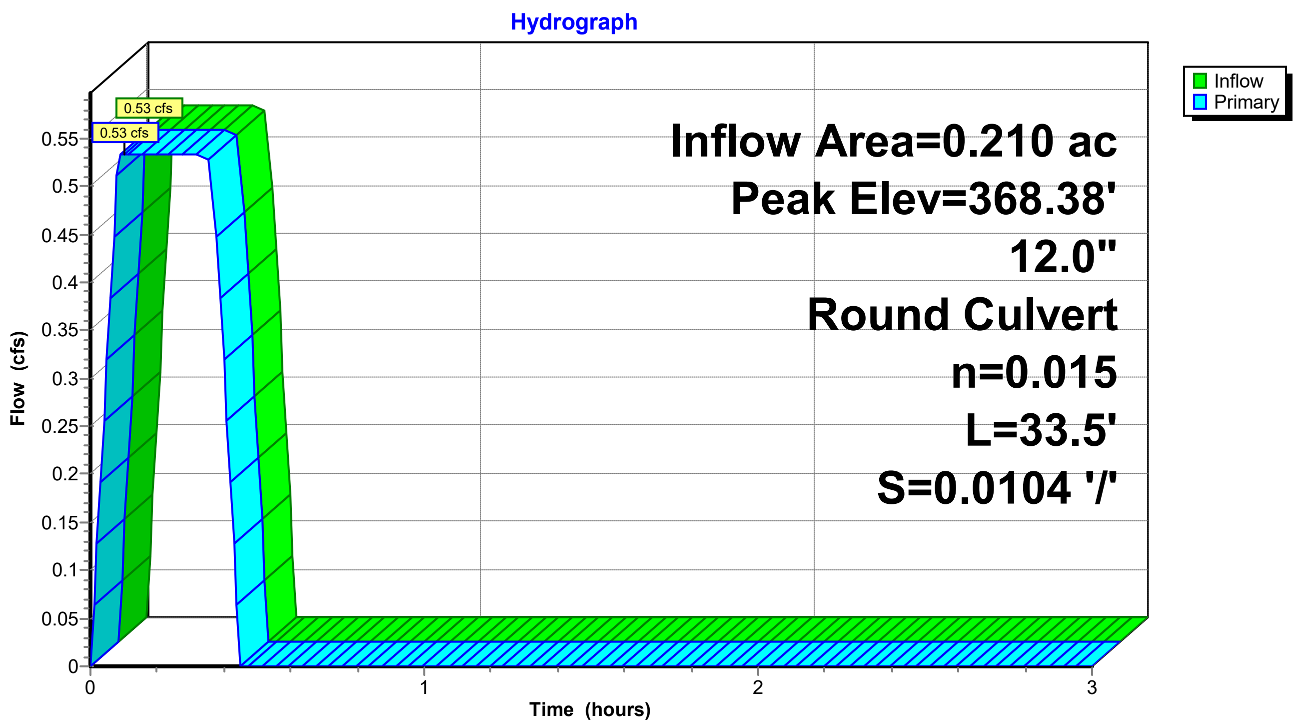
Inflow Area = 0.210 ac, 0.00% Impervious, Inflow Depth = 0.92" for 10-yr event
Inflow = 0.53 cfs @ 0.09 hrs, Volume= 0.016 af
Outflow = 0.53 cfs @ 0.10 hrs, Volume= 0.016 af, Atten= 0%, Lag= 0.6 min
Primary = 0.53 cfs @ 0.10 hrs, Volume= 0.016 af
Routed to Pond CI-C2 : CURB INLET C2

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 368.38' @ 0.09 hrs

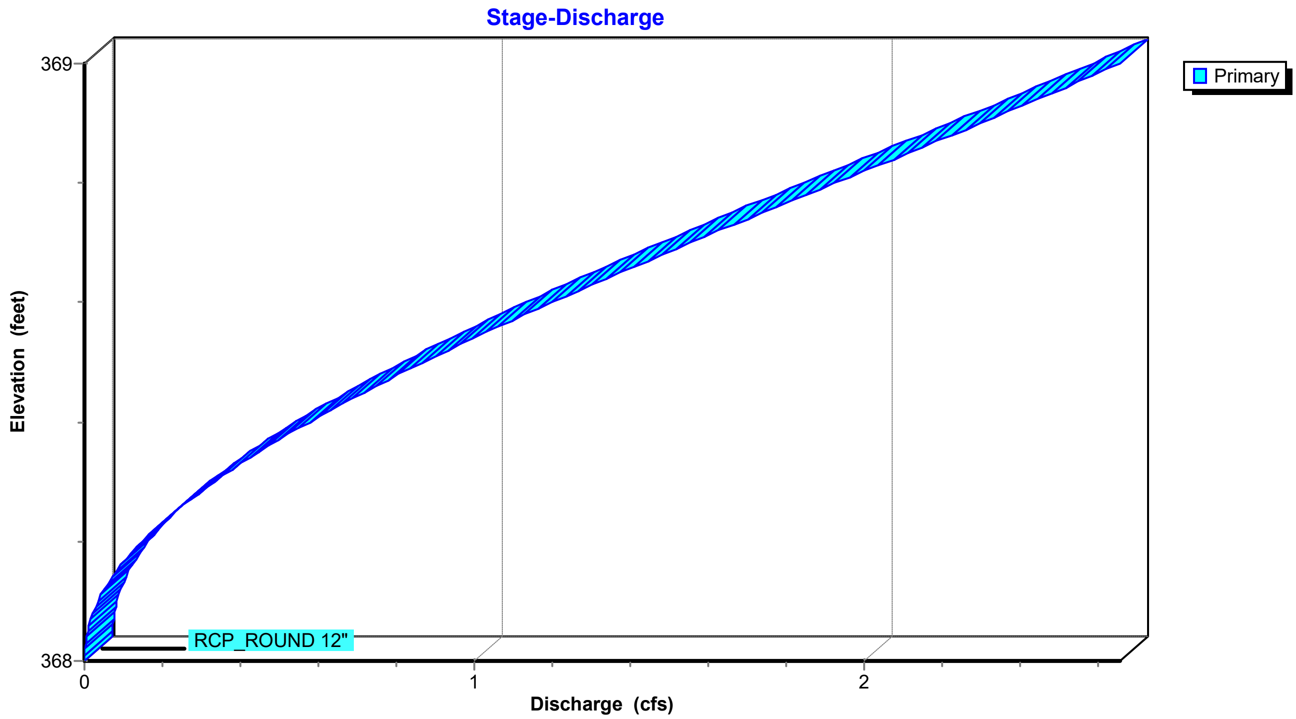
Device	Routing	Invert	Outlet Devices
#1	Primary	368.00'	**12.0" Round RCP_ROUND 12"** L= 33.5' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 368.00' / 367.65' S= 0.0104 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 0.79 sf

Primary OutFlow Max=0.53 cfs @ 0.10 hrs HW=368.38' (Free Discharge)
1=RCP_ROUND 12" (Barrel Controls 0.53 cfs @ 2.85 fps)

Pond CI-C1: CURB INLET C1



Pond CI-C1: CURB INLET C1



Summary for Pond CI-C2: CURB INLET C2

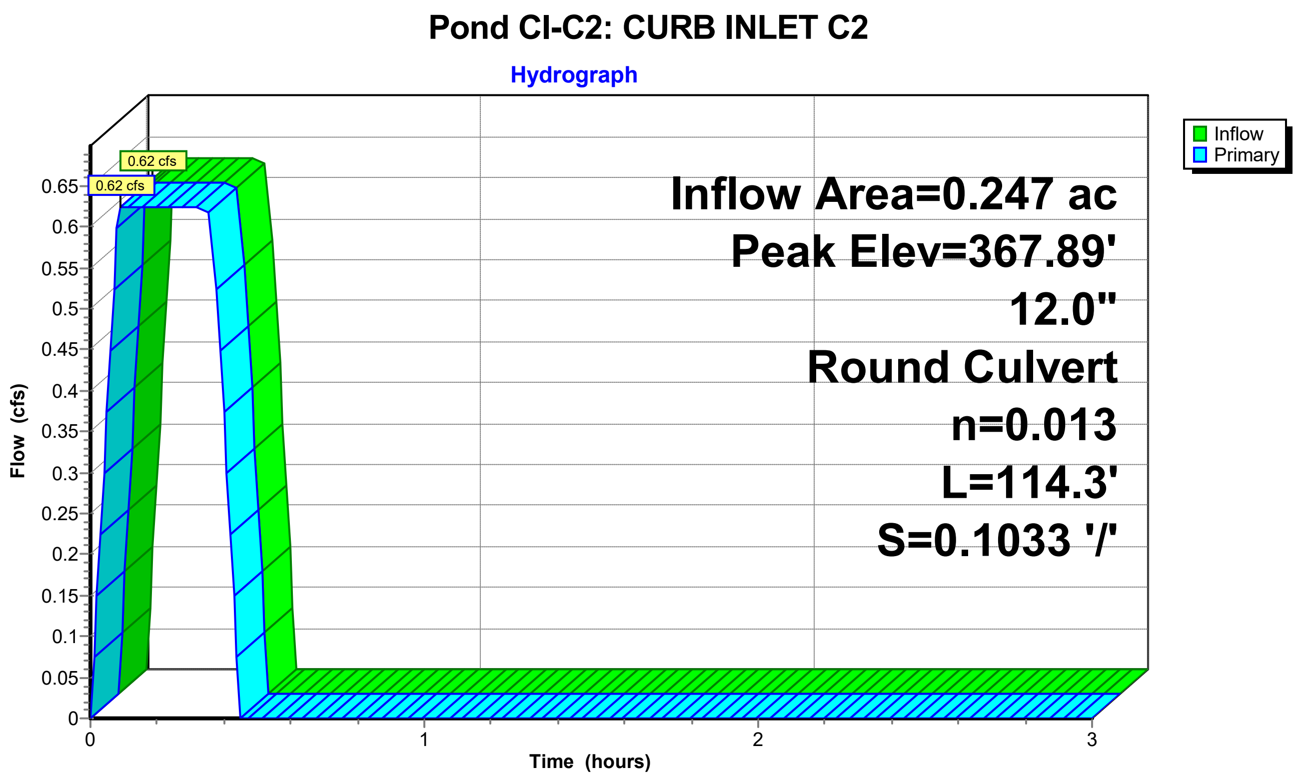
Inflow Area =	0.247 ac,	0.00% Impervious, Inflow Depth = 0.92"	for 10-yr event
Inflow =	0.62 cfs @	0.10 hrs, Volume=	0.019 af
Outflow =	0.62 cfs @	0.09 hrs, Volume=	0.019 af, Atten= 0%, Lag= 0.0 min
Primary =	0.62 cfs @	0.09 hrs, Volume=	0.019 af

Routed to Pond JB-C3 : JUNCTION BOX C3

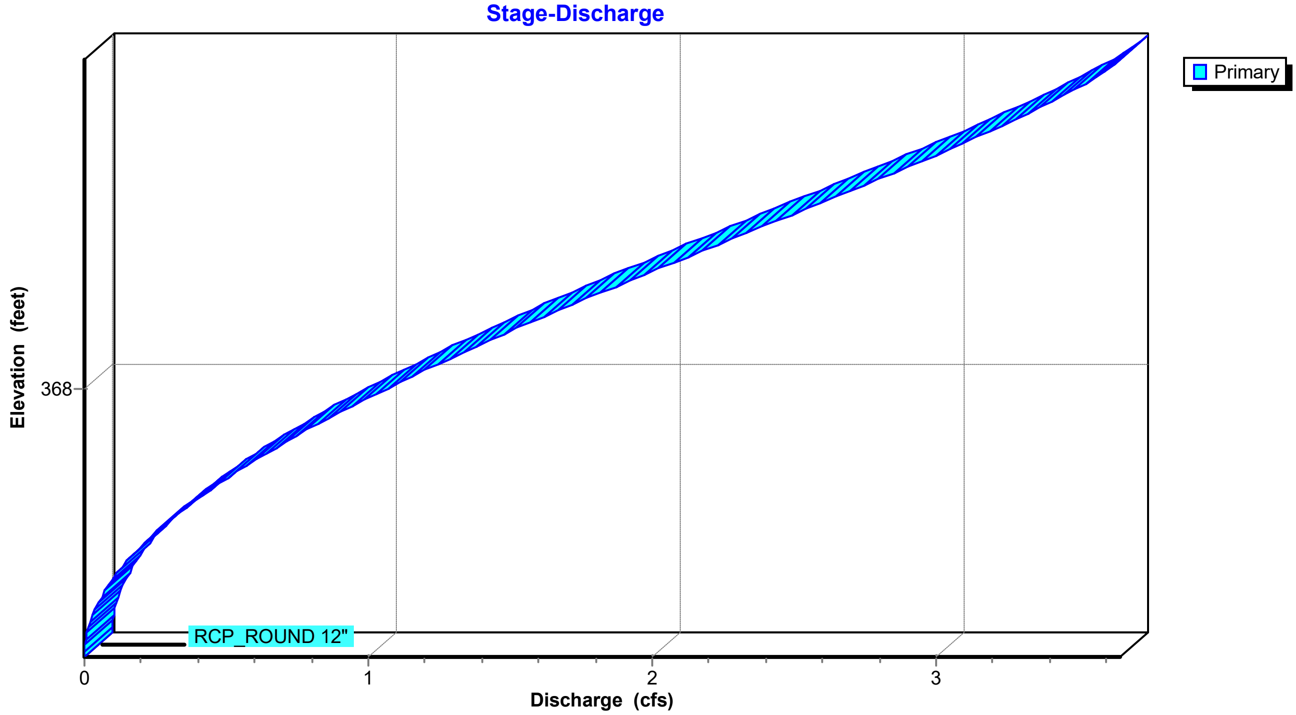
Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 367.89' @ 0.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	367.55'	**12.0" Round RCP_ROUND 12"** L= 114.3' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 367.55' / 355.74' S= 0.1033 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.62 cfs @ 0.09 hrs HW=367.89' (Free Discharge)
└─**1=RCP_ROUND 12"** (Inlet Controls 0.62 cfs @ 2.69 fps)



Pond CI-C2: CURB INLET C2



Summary for Pond CI-C4: CURB INLET C4

Inflow Area =	0.965 ac,	0.00% Impervious,	Inflow Depth = 0.92"	for 10-yr event
Inflow =	2.45 cfs @	0.10 hrs, Volume=	0.074 af	
Outflow =	2.45 cfs @	0.10 hrs, Volume=	0.074 af, Atten= 0%, Lag= 0.0 min	
Primary =	2.45 cfs @	0.10 hrs, Volume=	0.074 af	

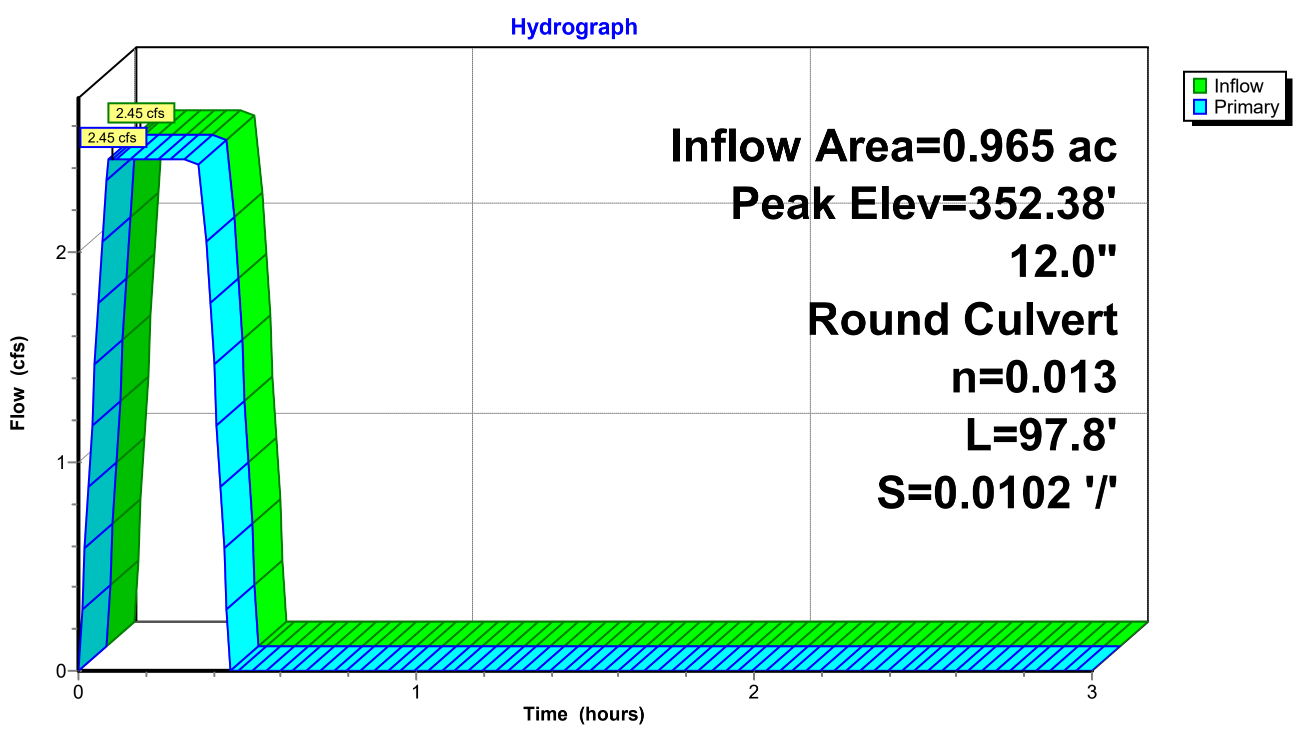
Routed to Pond CI-C5 : CURB INLET C5

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 352.38' @ 0.10 hrs

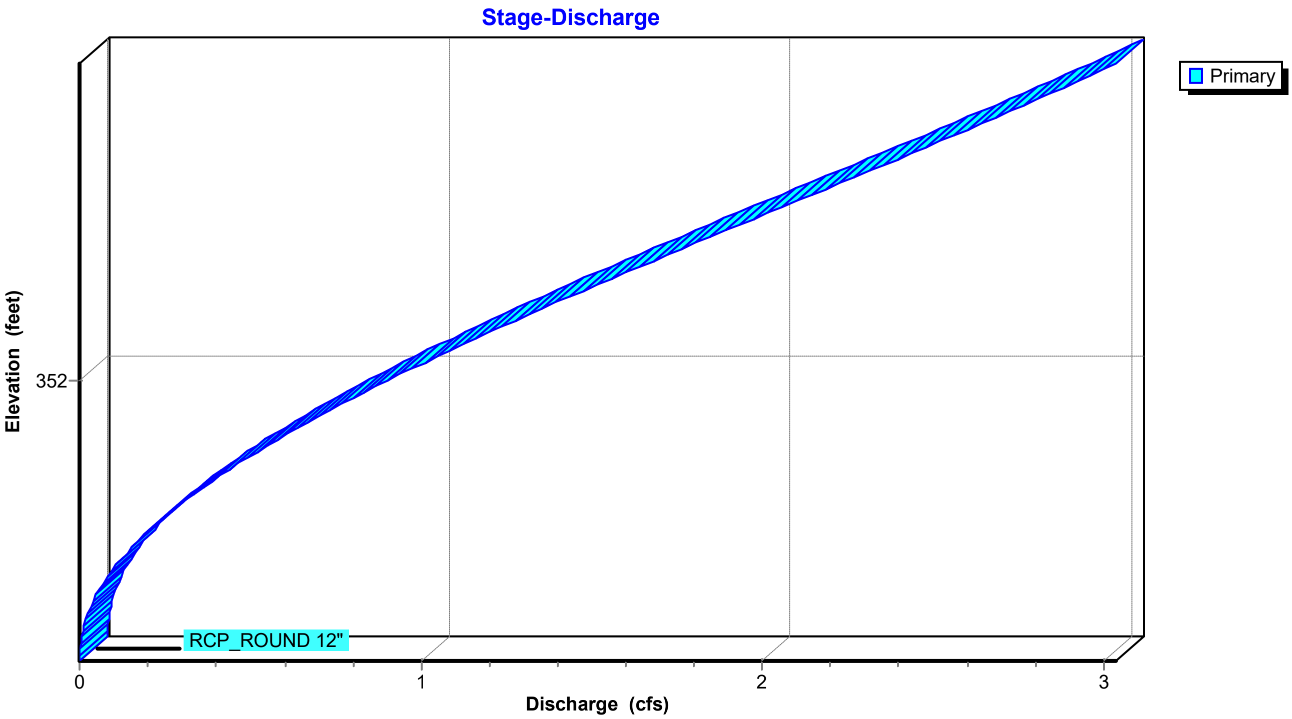
Device	Routing	Invert	Outlet Devices
#1	Primary	351.53'	**12.0" Round RCP_ROUND 12"** L= 97.8' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 351.53' / 350.53' S= 0.0102 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=2.45 cfs @ 0.10 hrs HW=352.38' (Free Discharge)
└**1=RCP_ROUND 12"** (Barrel Controls 2.45 cfs @ 4.62 fps)

Pond CI-C4: CURB INLET C4



Pond CI-C4: CURB INLET C4



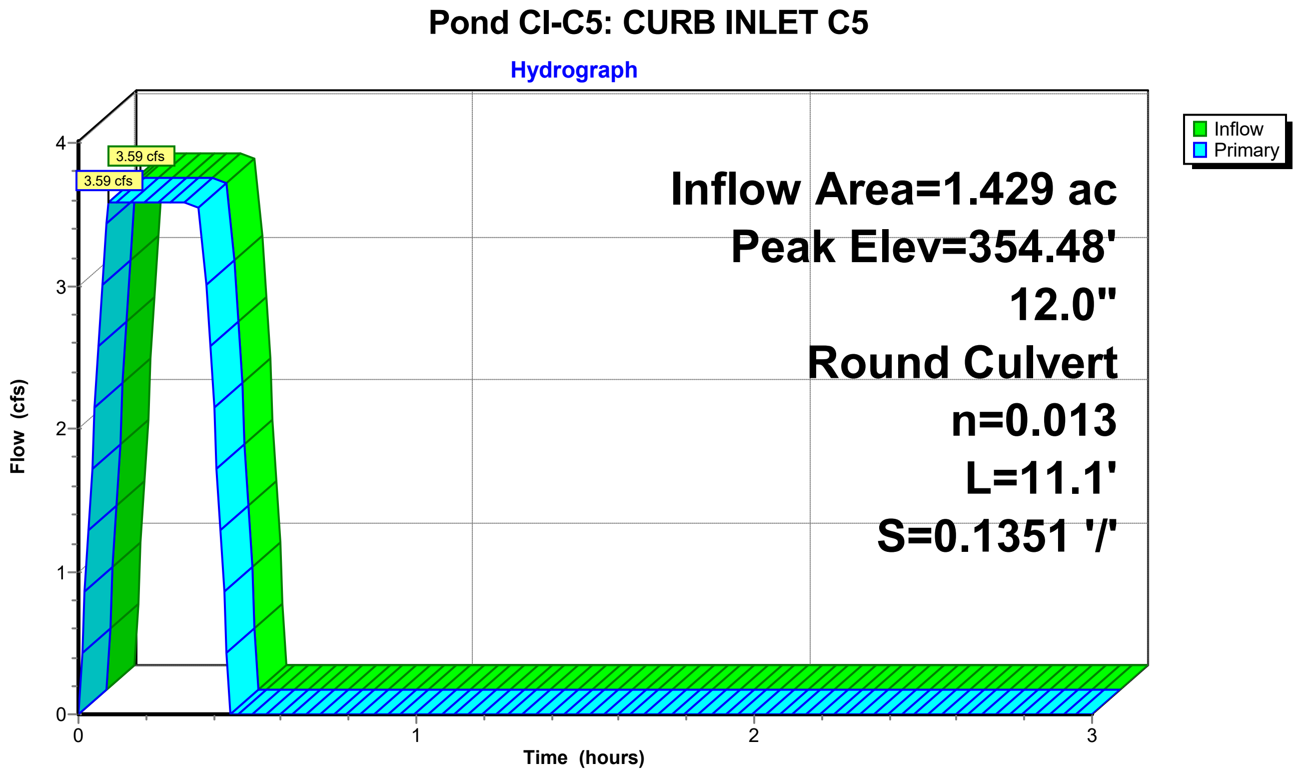
Summary for Pond CI-C5: CURB INLET C5

Inflow Area = 1.429 ac, 0.00% Impervious, Inflow Depth = 0.91" for 10-yr event
Inflow = 3.59 cfs @ 0.10 hrs, Volume= 0.109 af
Outflow = 3.59 cfs @ 0.09 hrs, Volume= 0.109 af, Atten= 0%, Lag= 0.0 min
Primary = 3.59 cfs @ 0.09 hrs, Volume= 0.109 af
Routed to Link POST-DEV : Post-Development

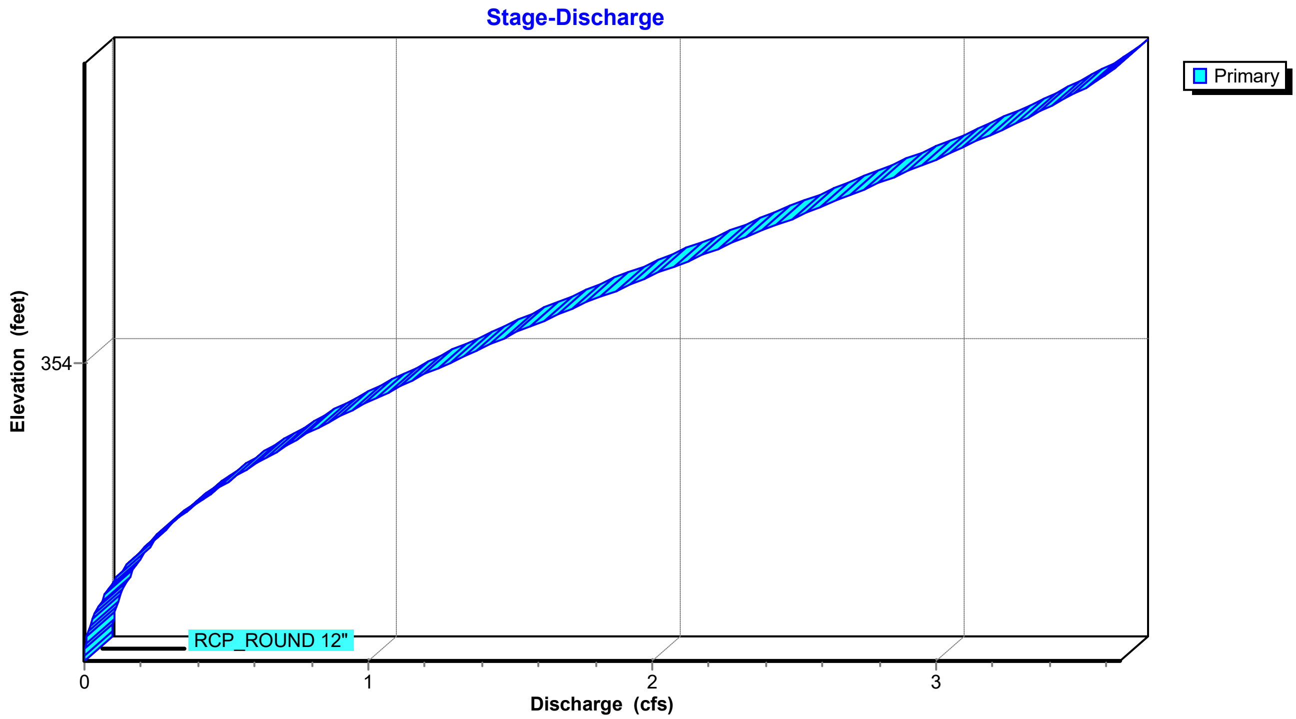
Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 354.48' @ 0.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	353.50'	**12.0" Round RCP_ROUND 12"** L= 11.1' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 353.50' / 352.00' S= 0.1351 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=3.59 cfs @ 0.09 hrs HW=354.48' (Free Discharge)
└─**1=RCP_ROUND 12"** (Inlet Controls 3.59 cfs @ 4.59 fps)



Pond CI-C5: CURB INLET C5



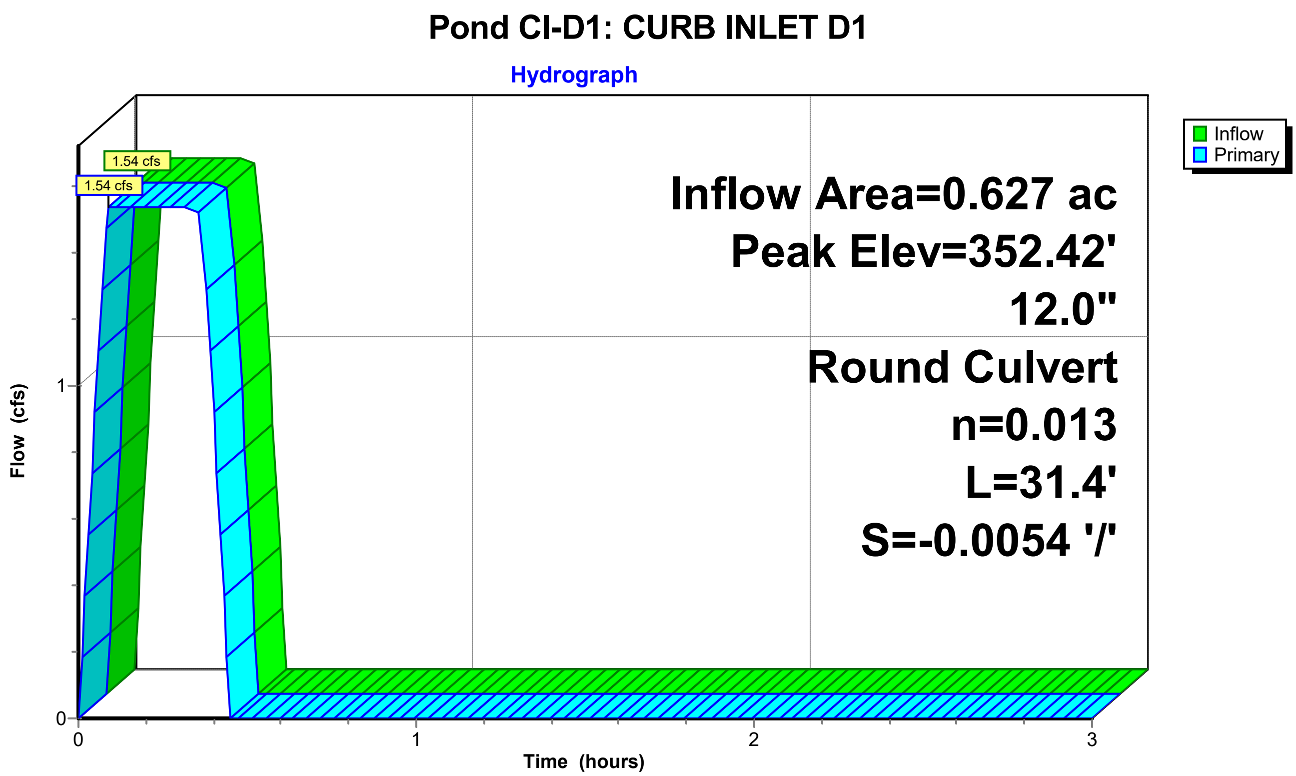
Summary for Pond CI-D1: CURB INLET D1

Inflow Area = 0.627 ac, 0.00% Impervious, Inflow Depth = 0.89" for 10-yr event
Inflow = 1.54 cfs @ 0.09 hrs, Volume= 0.047 af
Outflow = 1.54 cfs @ 0.09 hrs, Volume= 0.047 af, Atten= 0%, Lag= 0.0 min
Primary = 1.54 cfs @ 0.09 hrs, Volume= 0.047 af
Routed to Pond CI-C4 : CURB INLET C4

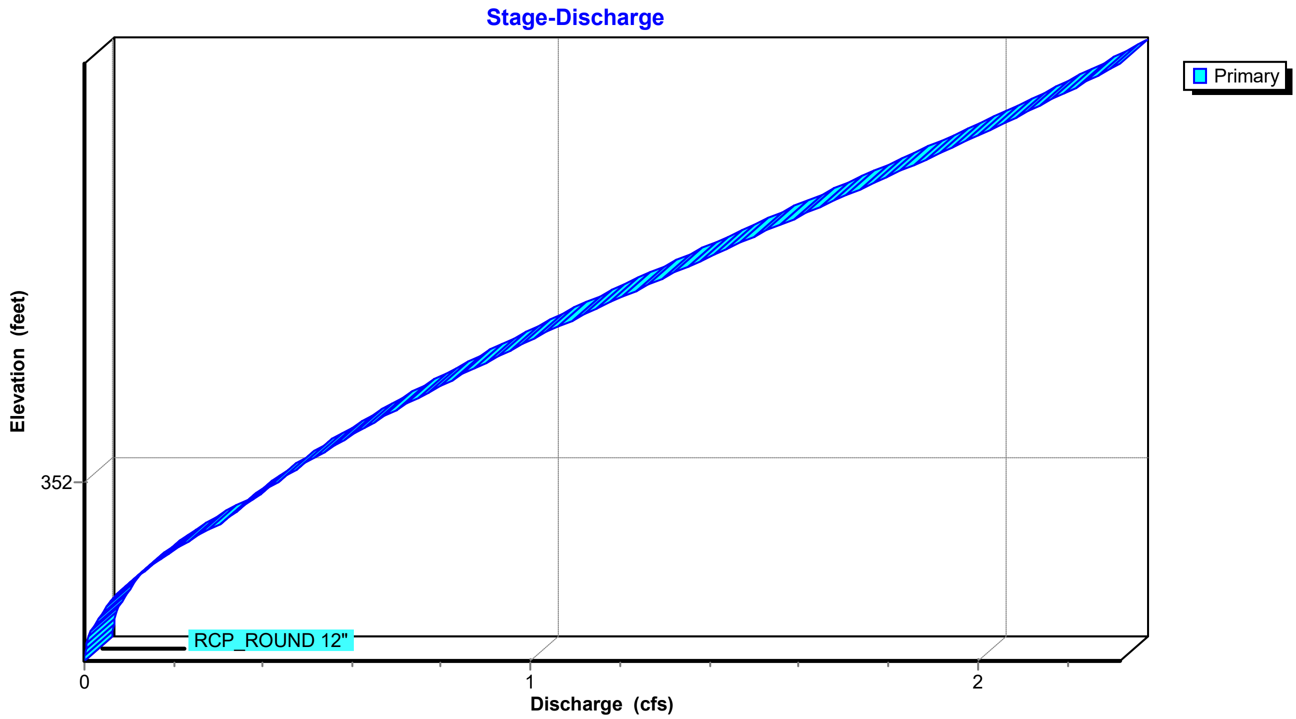
Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 352.42' @ 0.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	351.70'	**12.0" Round RCP_ROUND 12"** L= 31.4' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 351.53' / 351.70' S= -0.0054 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.54 cfs @ 0.09 hrs HW=352.42' (Free Discharge)
└─**1=RCP_ROUND 12"** (Barrel Controls 1.54 cfs @ 2.75 fps)



Pond CI-D1: CURB INLET D1



Summary for Pond JB-C3: JUNCTION BOX C3

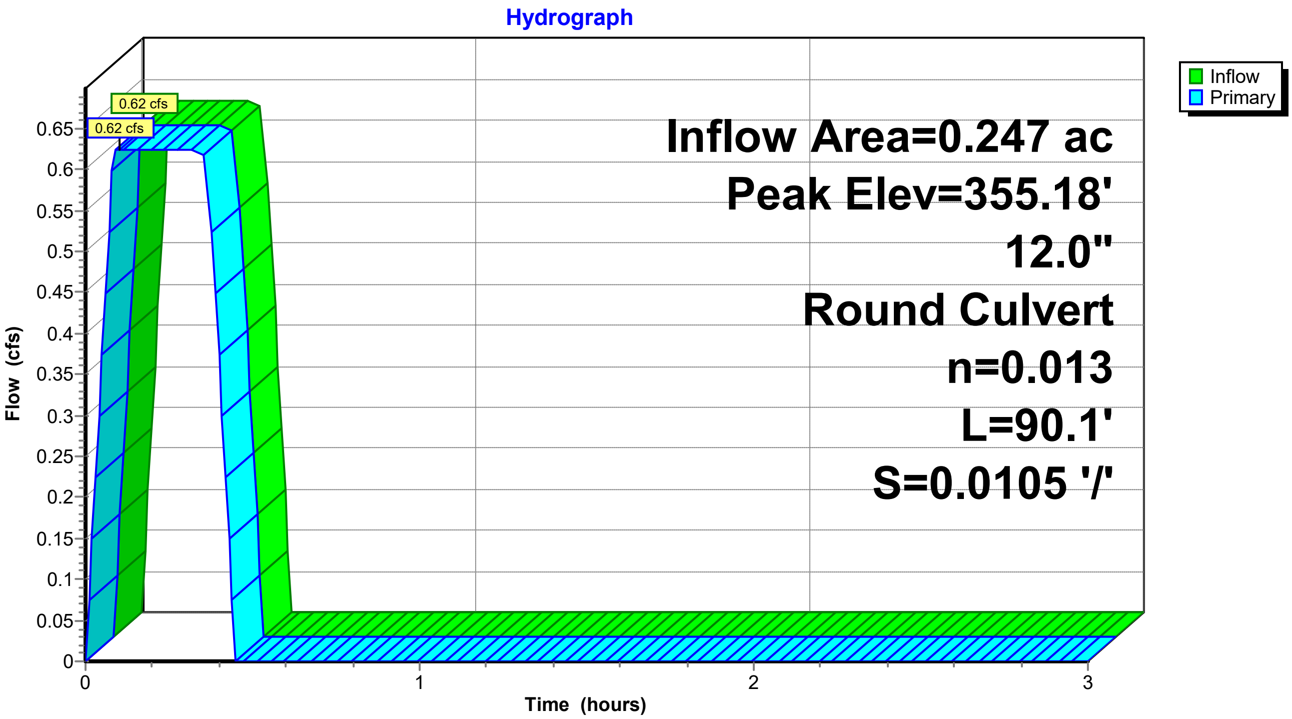
Inflow Area = 0.247 ac, 0.00% Impervious, Inflow Depth = 0.92" for 10-yr event
Inflow = 0.62 cfs @ 0.09 hrs, Volume= 0.019 af
Outflow = 0.62 cfs @ 0.10 hrs, Volume= 0.019 af, Atten= 0%, Lag= 0.6 min
Primary = 0.62 cfs @ 0.10 hrs, Volume= 0.019 af
Routed to Pond CI-C4 : CURB INLET C4

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 355.18' @ 0.09 hrs

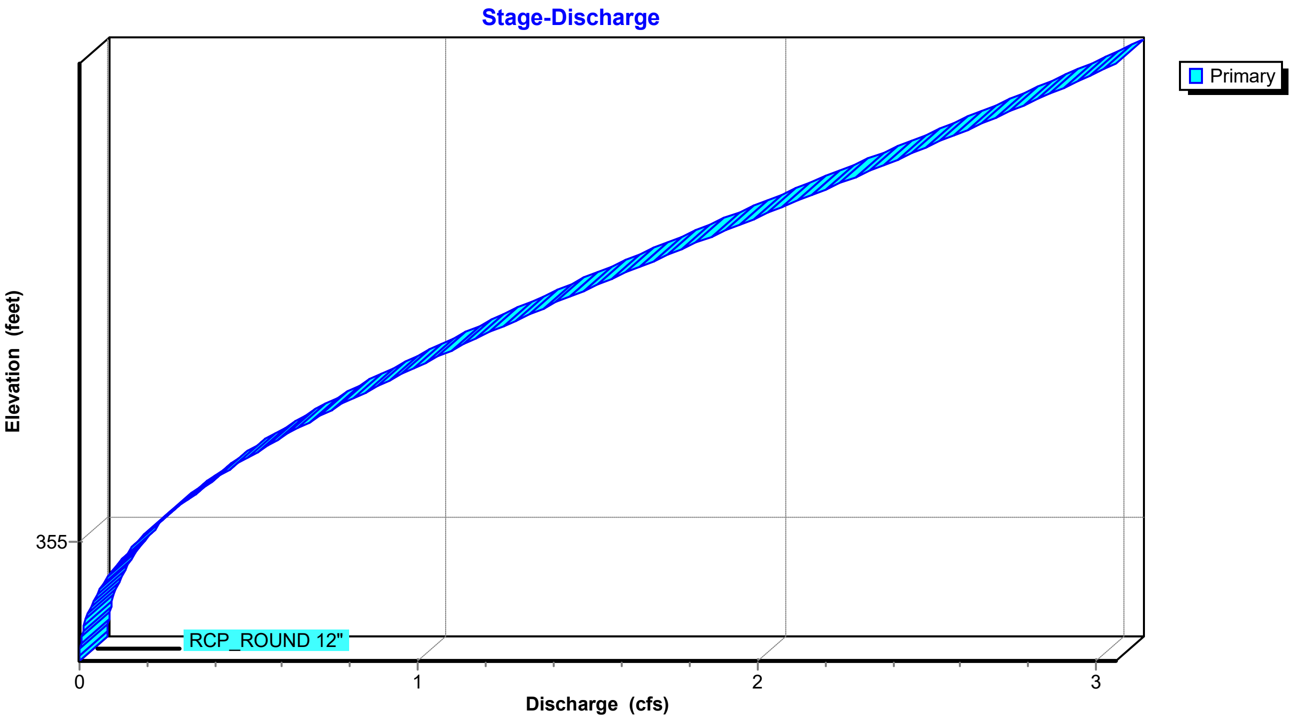
Device	Routing	Invert	Outlet Devices
#1	Primary	354.80'	**12.0" Round RCP_ROUND 12"** L= 90.1' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 354.80' / 353.85' S= 0.0105 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.62 cfs @ 0.10 hrs HW=355.18' (Free Discharge)
└─**1=RCP_ROUND 12"** (Barrel Controls 0.62 cfs @ 3.34 fps)

Pond JB-C3: JUNCTION BOX C3



Pond JB-C3: JUNCTION BOX C3

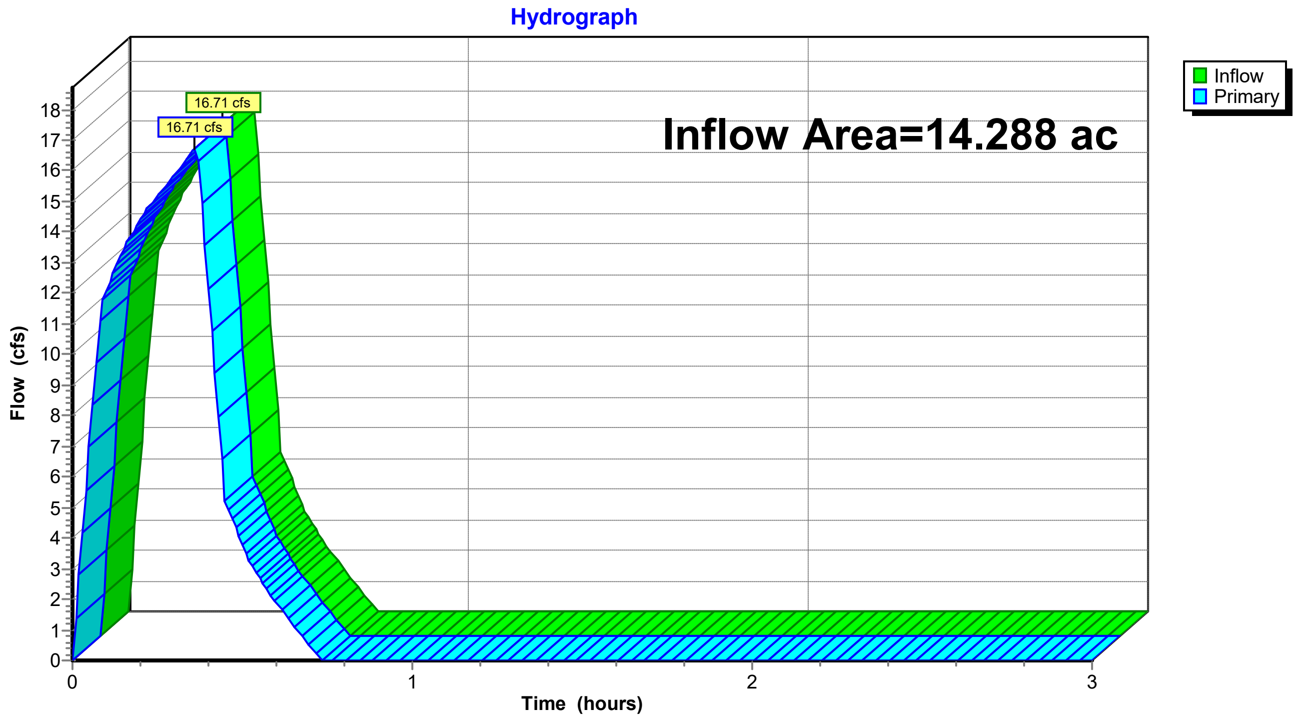


Summary for Link POST-DEV: Post-Development

Inflow Area =	14.288 ac,	0.00% Impervious,	Inflow Depth = 0.43"	for 10-yr event	
Inflow =	16.71 cfs @	0.36 hrs,	Volume=	0.509 af	
Primary =	16.71 cfs @	0.36 hrs,	Volume=	0.509 af,	Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Link POST-DEV: Post-Development



Summary for Subcatchment DB-B1: Drainage Basin B1

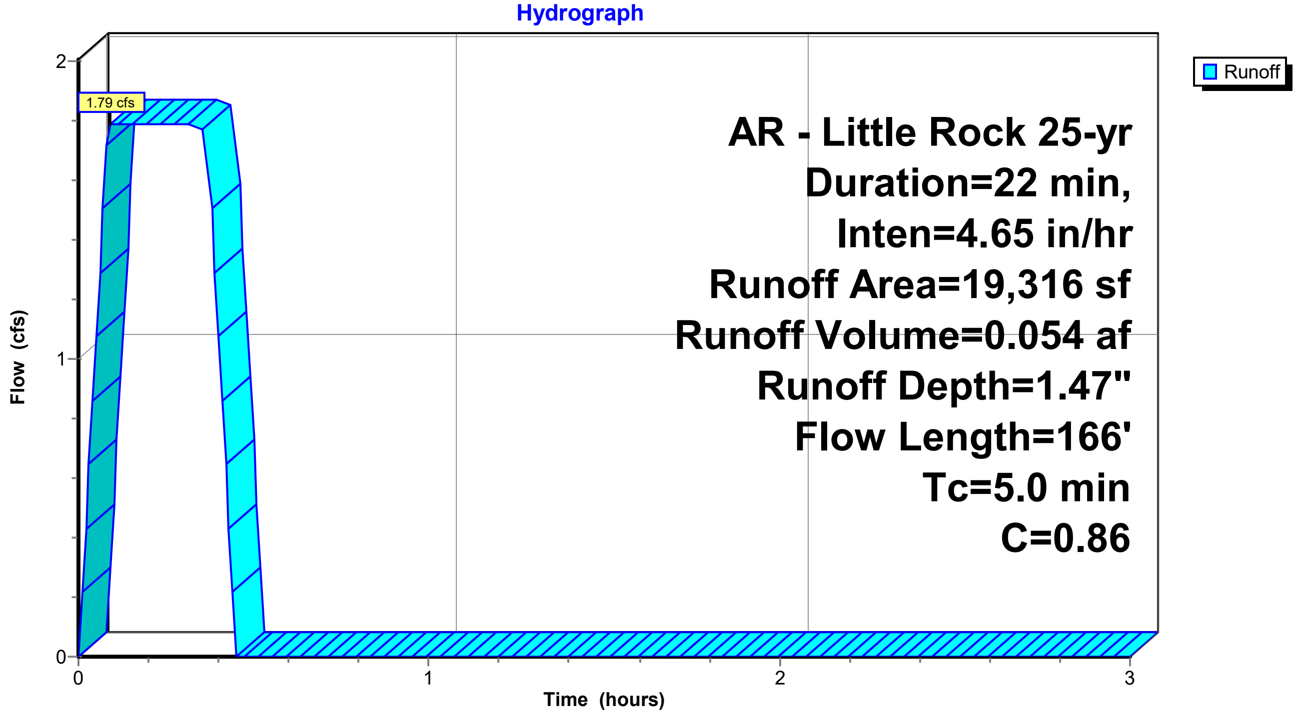
Runoff = 1.79 cfs @ 0.09 hrs, Volume= 0.054 af, Depth= 1.47"
Routed to Pond CI-A1 : CURB INLET A1

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 25-yr Duration=22 min, Inten=4.65 in/hr

Area (sf)	C	Description
1,941	0.30	Sandy Soil 2-7% per manual
17,375	0.92	Paved Areas
19,316	0.86	Weighted Average
19,316		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	33	0.0200	0.16		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
0.6	67	0.0350	1.82		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.5	66	0.0100	2.03		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
0.4					**Direct Entry, Minimum Adjustment**
5.0	166	Total			

Subcatchment DB-B1: Drainage Basin B1



Summary for Subcatchment DB-B10: Drainage Basin B10

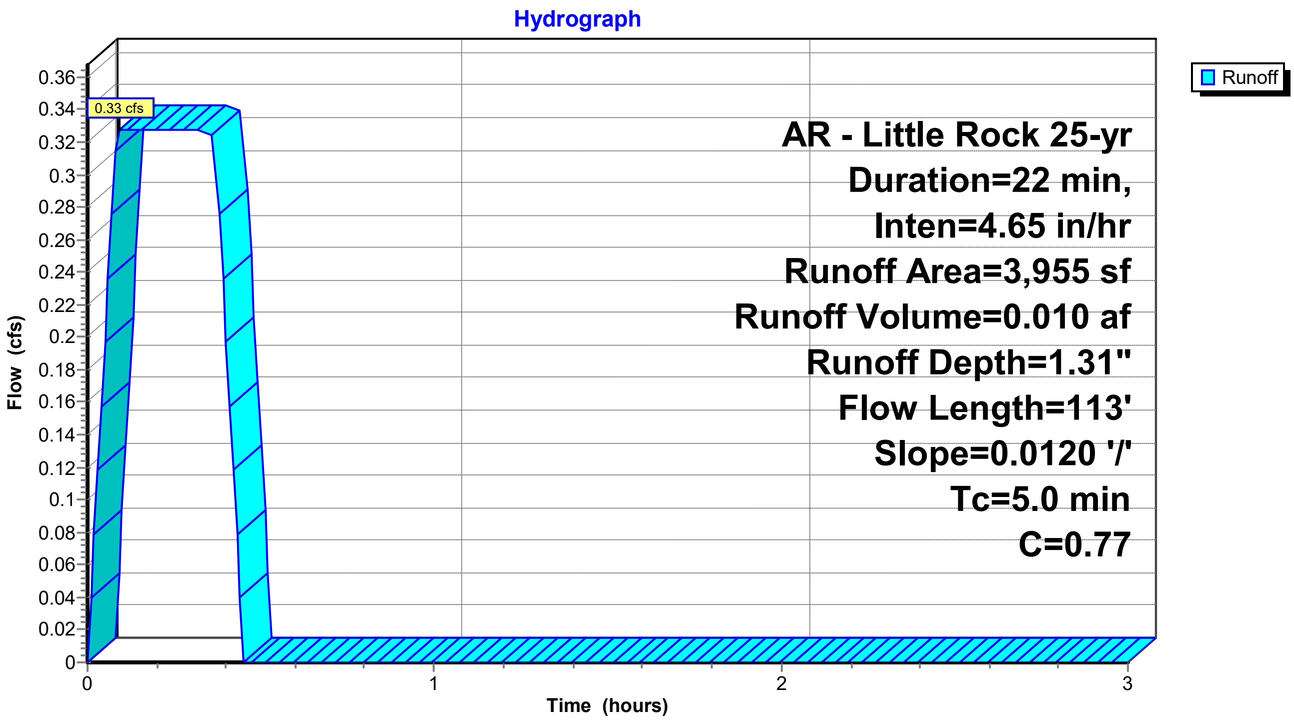
Runoff = 0.33 cfs @ 0.09 hrs, Volume= 0.010 af, Depth= 1.31"
Routed to Pond CI-C4 : CURB INLET C4

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 25-yr Duration=22 min, Inten=4.65 in/hr

Area (sf)	C	Description
959	0.30	Sandy Soil 2-7% per manual
2,996	0.92	Paved Areas
3,955	0.77	Weighted Average
3,955		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	113	0.0120	1.32		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
3.6					**Direct Entry, Minimum Adjustment**
5.0	113	Total			

Subcatchment DB-B10: Drainage Basin B10



Summary for Subcatchment DB-B11: Drainage Basin B11

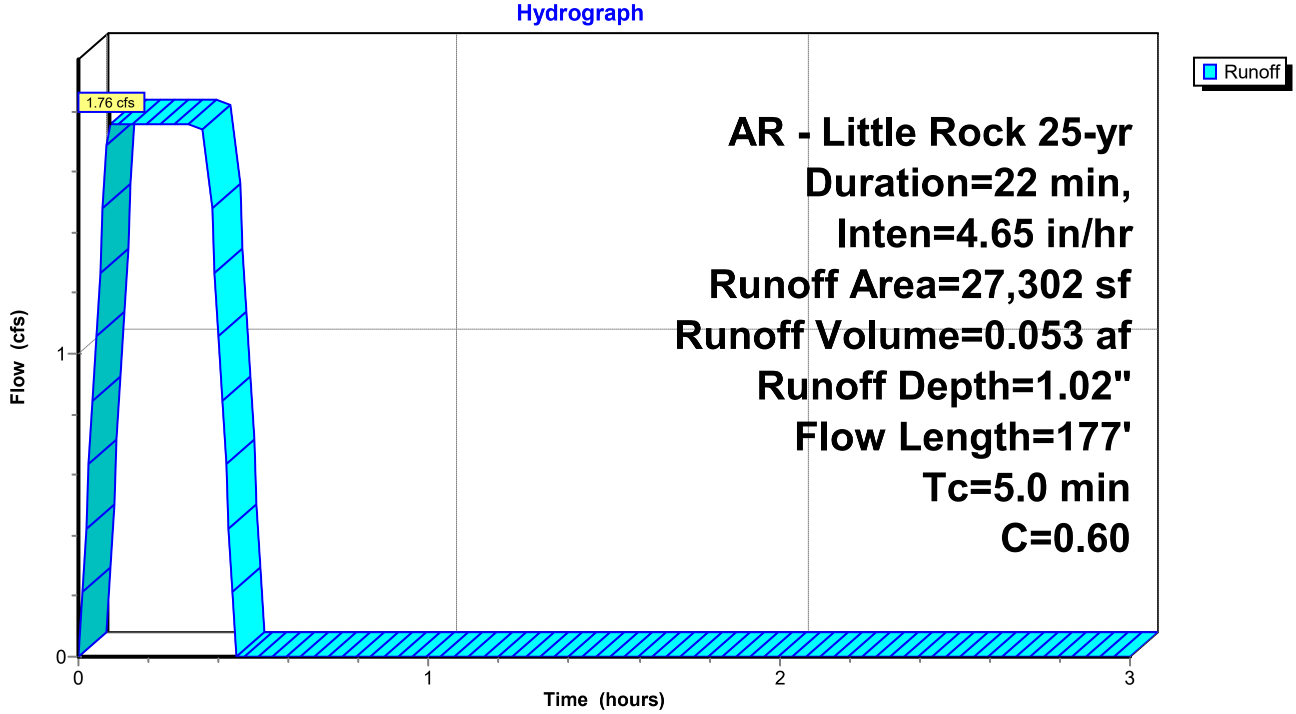
Runoff = 1.76 cfs @ 0.09 hrs, Volume= 0.053 af, Depth= 1.02"
Routed to Pond CI-D1 : CURB INLET D1

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 25-yr Duration=22 min, Inten=4.65 in/hr

Area (sf)	C	Description
15,547	0.35	Sandy Soil 2-7% per manual
11,755	0.92	Paved Areas
27,302	0.60	Weighted Average
27,302		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	65	0.3300	4.44		**Sheet Flow, Roof** Smooth surfaces n= 0.011 P2= 4.20"
0.2	69	0.1750	6.27		**Shallow Concentrated Flow, Greenspace** Grassed Waterway Kv= 15.0 fps
0.2	43	0.0500	4.54		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
4.4					**Direct Entry, Minimum Adjustment**
5.0	177	Total			

Subcatchment DB-B11: Drainage Basin B11



Summary for Subcatchment DB-B12: Drainage Basin B12

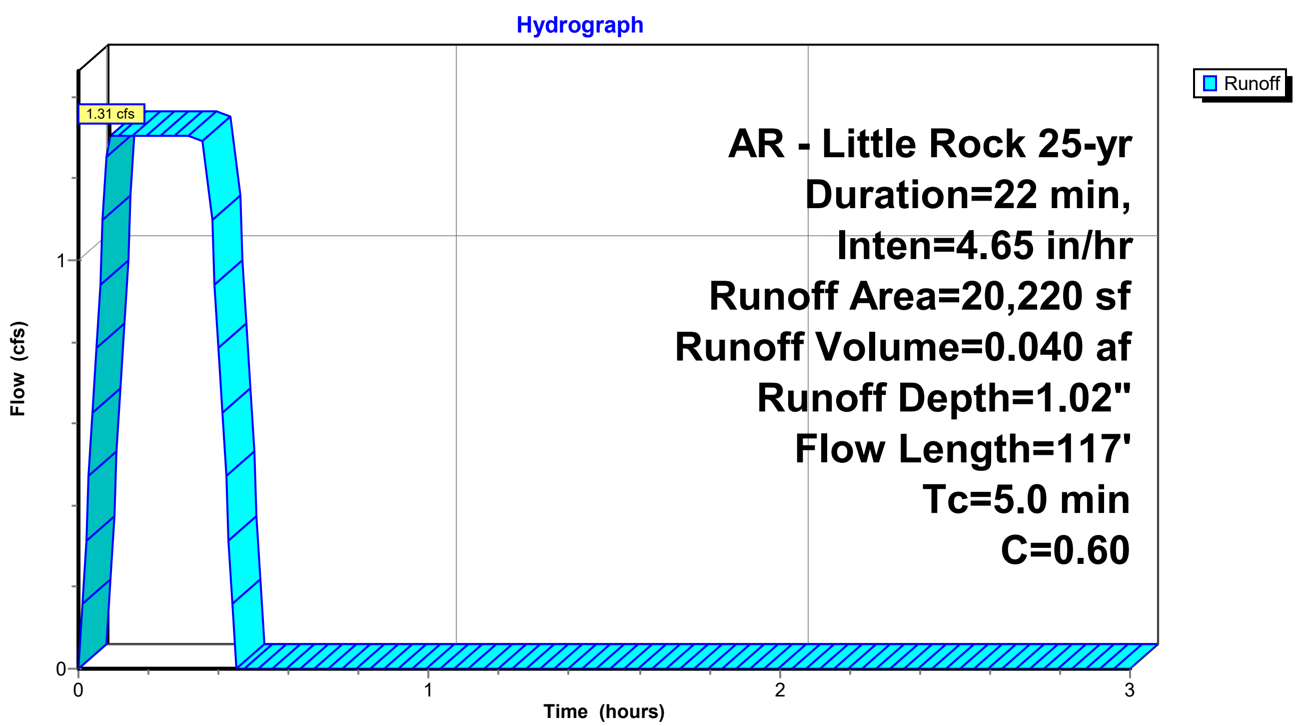
Runoff = 1.31 cfs @ 0.09 hrs, Volume= 0.040 af, Depth= 1.02"
Routed to Pond CI-C5 : CURB INLET C5

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 25-yr Duration=22 min, Inten=4.65 in/hr

Area (sf)	C	Description
11,502	0.35	Sandy Soil 2-7% per manual
8,718	0.92	Paved Areas
20,220	0.60	Weighted Average
20,220		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	26	0.0500	0.21		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
1.5	38	0.2360	0.43		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
1.1	28	0.2390	0.41		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
0.4	25	0.0180	1.15		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
5.0	117	Total			

Subcatchment DB-B12: Drainage Basin B12



Summary for Subcatchment DB-B13: DRAINAGE BASIN B13

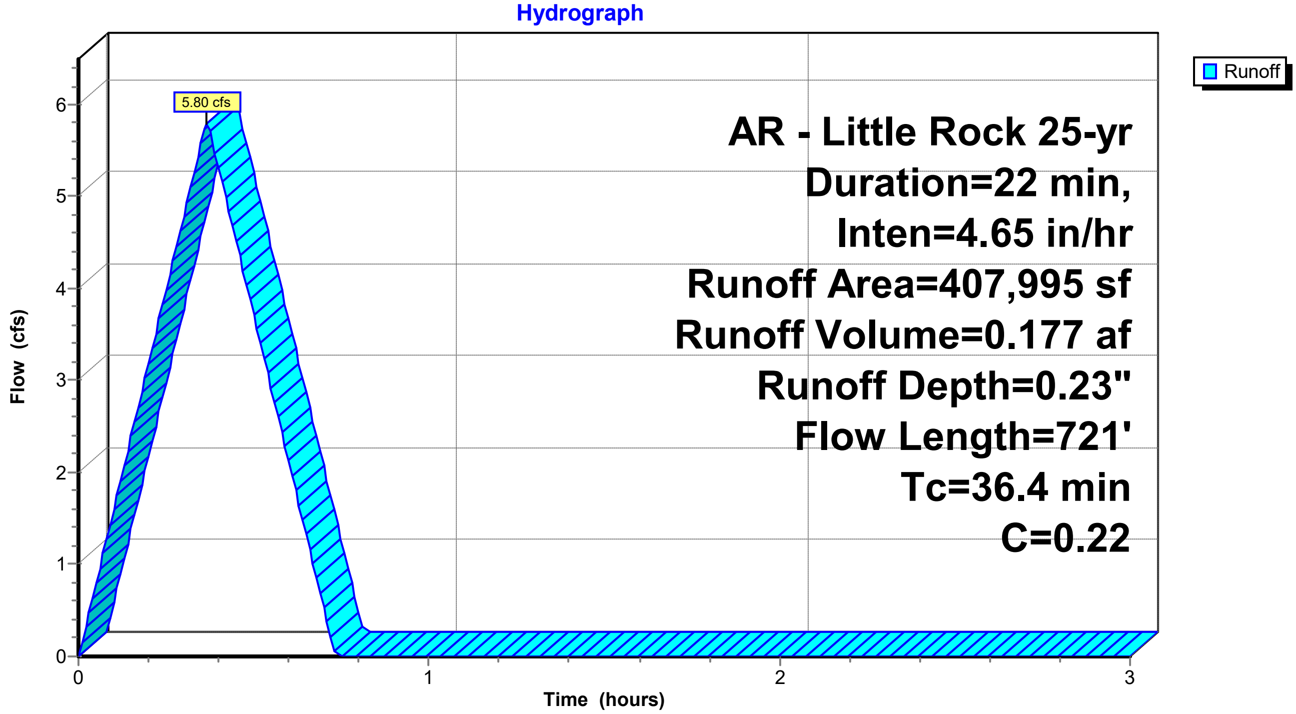
Runoff = 5.80 cfs @ 0.37 hrs, Volume= 0.177 af, Depth= 0.23"
Routed to Link POST-DEV : Post-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 25-yr Duration=22 min, Inten=4.65 in/hr

Area (sf)	C	Description
407,995	0.22	Sandy Soil 2-7% Per Manual
407,995		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	67	0.6600	0.73		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
1.2	46	0.5900	0.65		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
3.2	147	0.5100	0.77		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
1.8	63	0.3800	0.58		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
8.5	70	0.0100	0.14		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
4.8	163	0.2200	0.56		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
2.4	65	0.2000	0.45		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
6.3	48	0.0100	0.13		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
6.7	52	0.0100	0.13		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
36.4	721	Total			

Subcatchment DB-B13: DRAINAGE BASIN B13



Summary for Subcatchment DB-B14: DRAINAGE BASIN B14

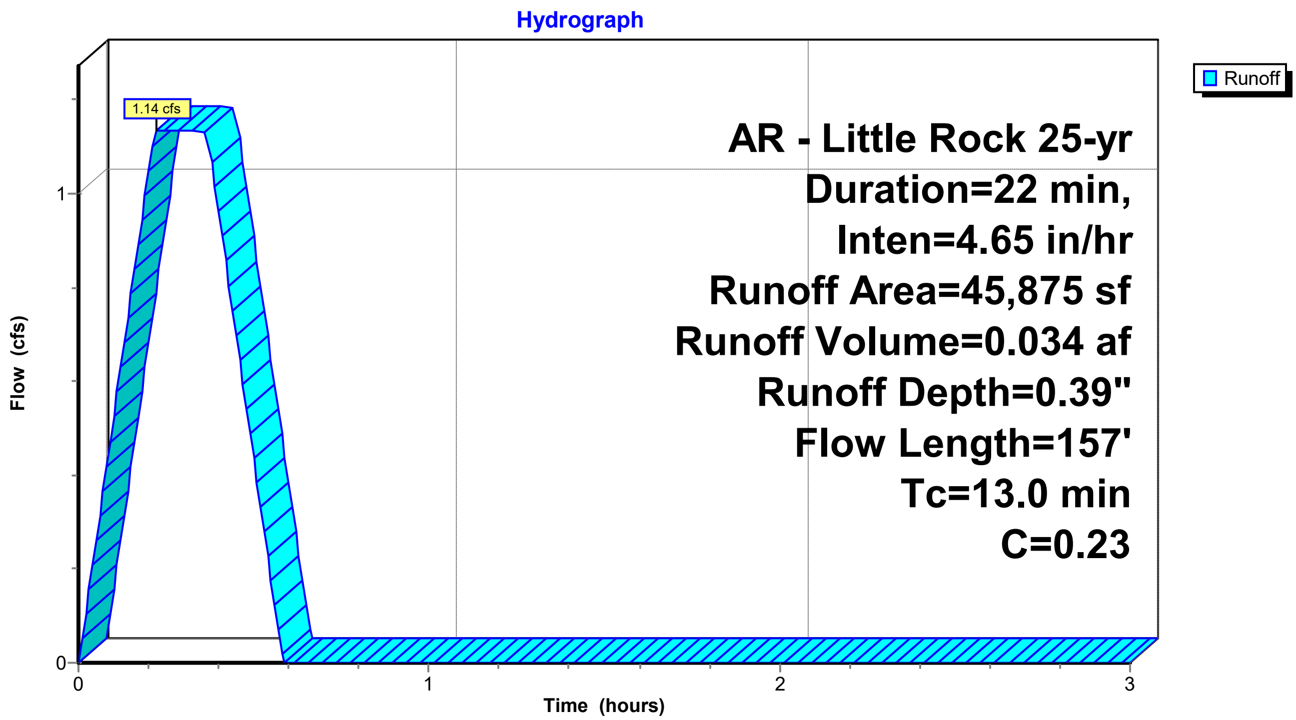
Runoff = 1.14 cfs @ 0.22 hrs, Volume= 0.034 af, Depth= 0.39"
Routed to Link POST-DEV : Post-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 25-yr Duration=22 min, Inten=4.65 in/hr

Area (sf)	C	Description
45,016	0.22	Sandy Soil 2-7% Per Manual
859	0.92	Paved Areas
45,875	0.23	Weighted Average
45,875		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	15	0.0100	0.10		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
5.2	78	0.0420	0.25		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
2.8	38	0.0480	0.23		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
2.5	26	0.0280	0.17		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
13.0	157	Total			

Subcatchment DB-B14: DRAINAGE BASIN B14



Summary for Subcatchment DB-B2: Drainage Basin B2

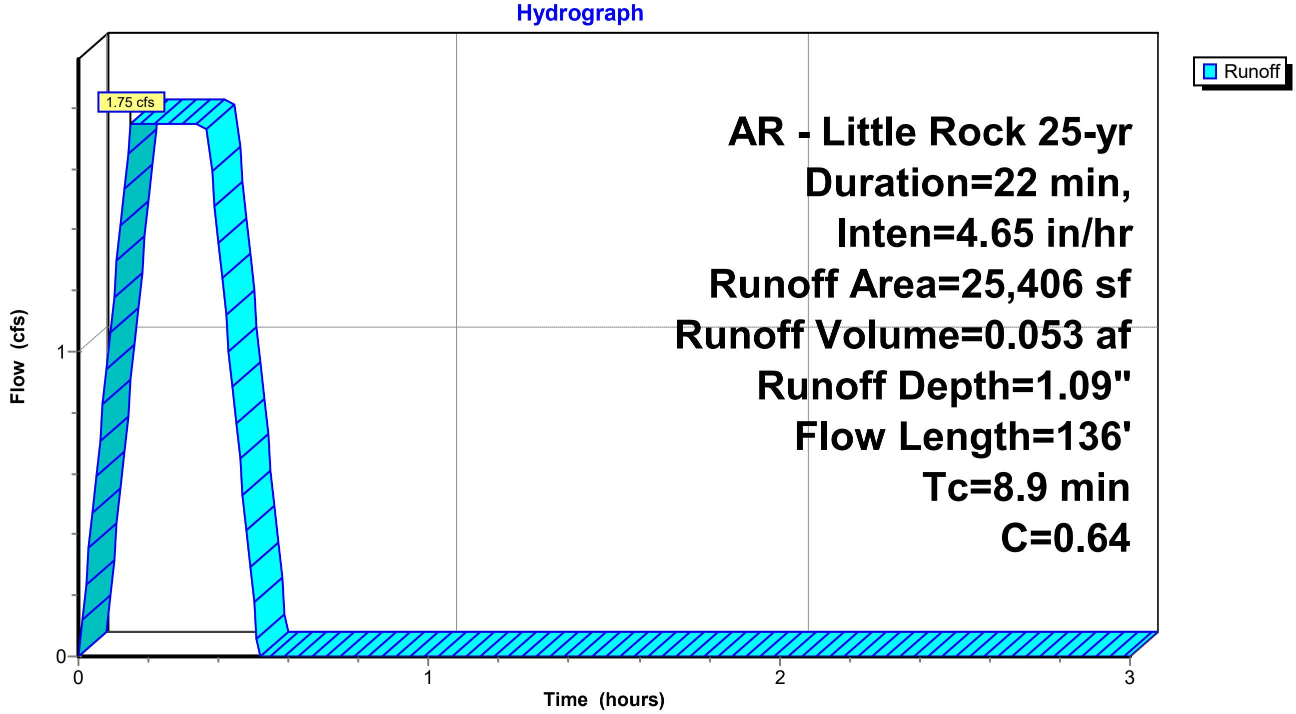
Runoff = 1.75 cfs @ 0.15 hrs, Volume= 0.053 af, Depth= 1.09"
Routed to Pond CI-A2 : CURB INLET A2

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 25-yr Duration=22 min, Inten=4.65 in/hr

Area (sf)	C	Description
11,388	0.30	Sandy Soil 2-7% per manual
14,018	0.92	Paved Areas
25,406	0.64	Weighted Average
25,406		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	57	0.0100	0.13		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
0.8	19	0.2480	0.38		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
0.2	14	0.0150	0.95		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.3	34	0.0600	1.97		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.2	12	0.0350	1.29		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.2					**Direct Entry, Minimum Adjustment**
8.9	136	Total			

Subcatchment DB-B2: Drainage Basin B2



Summary for Subcatchment DB-B3: Drainage Basin B3

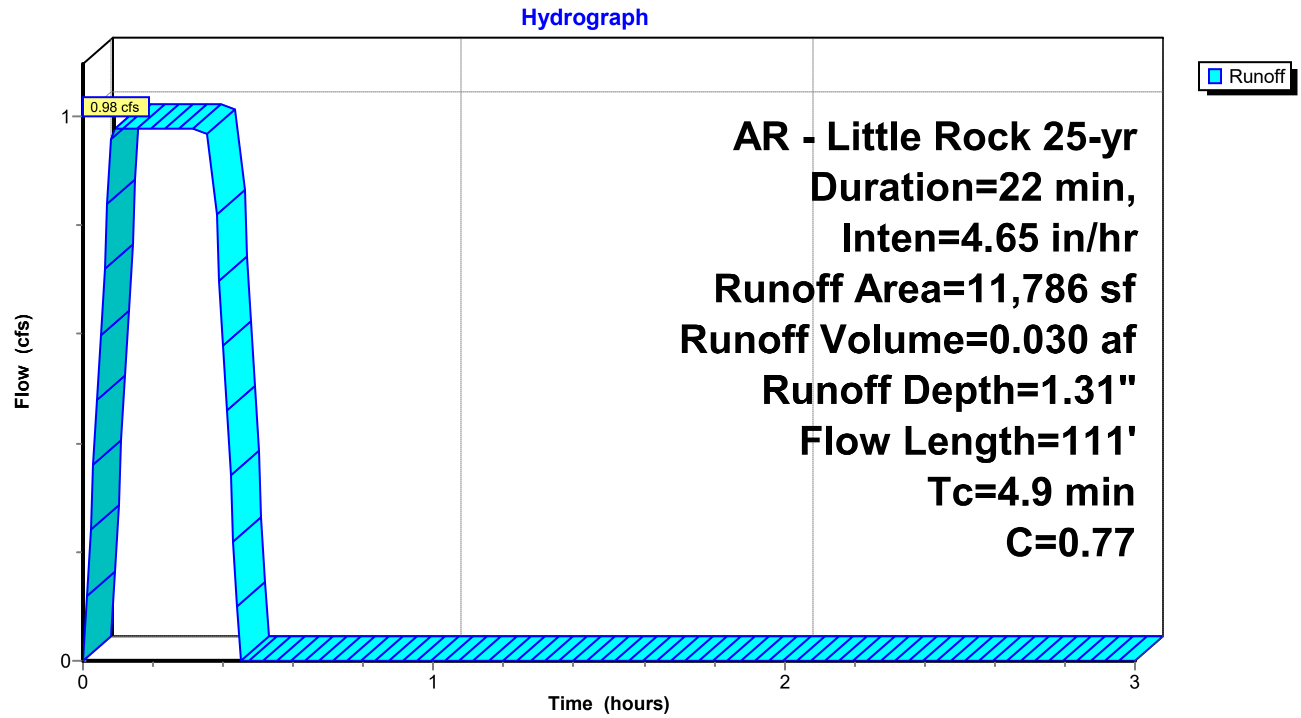
Runoff = 0.98 cfs @ 0.09 hrs, Volume= 0.030 af, Depth= 1.31"
Routed to Pond CI-A3 : CURB INLET A3

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 25-yr Duration=22 min, Inten=4.65 in/hr

Area (sf)	C	Description
2,920	0.30	Sandy Soil 2-7% per manual
8,866	0.92	Paved Areas
11,786	0.77	Weighted Average
11,786		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	19	0.2500	0.38		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
0.2	16	0.0290	1.27		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.6	38	0.0100	0.98		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.3	38	0.0100	2.03		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
3.0					**Direct Entry, Minimum Adjustment**
4.9	111	Total			

Subcatchment DB-B3: Drainage Basin B3



Summary for Subcatchment DB-B4: Drainage Basin B4

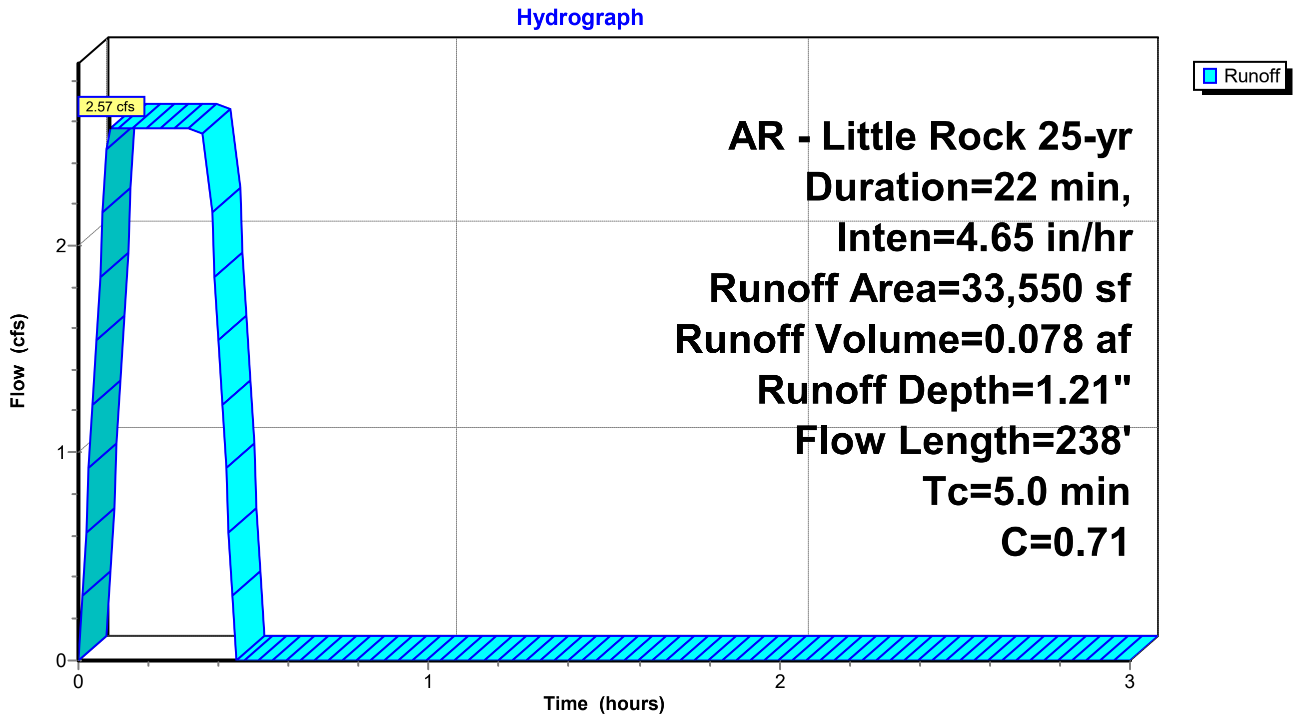
Runoff = 2.57 cfs @ 0.09 hrs, Volume= 0.078 af, Depth= 1.21"
Routed to Pond CI-A4 : CURB INLET A4

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 25-yr Duration=22 min, Inten=4.65 in/hr

Area (sf)	C	Description
11,568	0.30	Sandy Soil 2-7% per manual
21,982	0.92	Paved Areas
33,550	0.71	Weighted Average
33,550		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	48	0.0530	2.01		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.3	25	0.0310	1.42		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.6	14	0.0020	0.42		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.9	66	0.0130	1.22		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.4	59	0.0120	2.22		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
0.5	19	0.0010	0.64		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
0.0	7	0.0700	5.37		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
1.9					**Direct Entry, Minimum Adjustment**
5.0	238	Total			

Subcatchment DB-B4: Drainage Basin B4



Summary for Subcatchment DB-B5: Drainage Basin B5

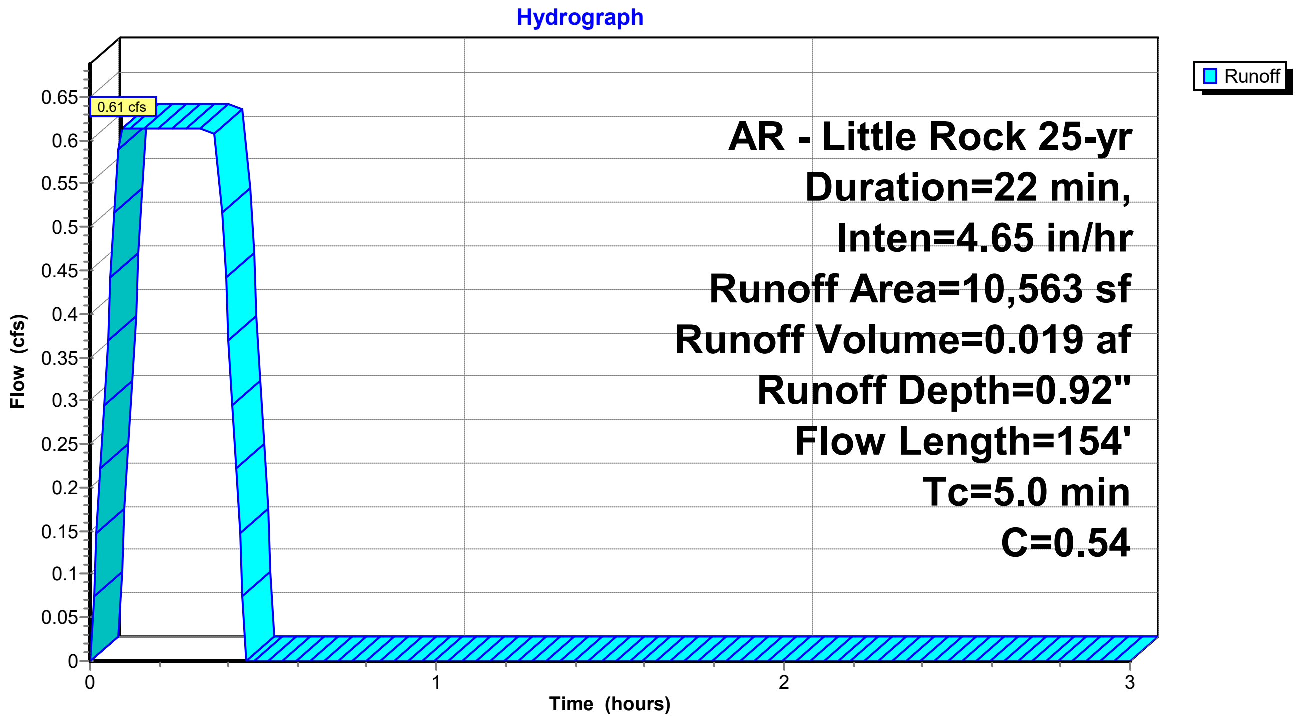
Runoff = 0.61 cfs @ 0.09 hrs, Volume= 0.019 af, Depth= 0.92"
Routed to Pond CI-A5 : CURB INLET A5

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 25-yr Duration=22 min, Inten=4.65 in/hr

Area (sf)	C	Description
6,980	0.35	Sandy Soil 2-7% per manual
3,583	0.92	Paved Areas
10,563	0.54	Weighted Average
10,563		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	19	0.0920	0.26		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
1.9	39	0.1260	0.34		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
0.5	66	0.0540	2.16		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.1	30	0.0500	4.54		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
1.3					**Direct Entry, Minimum Adjustment**
5.0	154	Total			

Subcatchment DB-B5: Drainage Basin B5



Summary for Subcatchment DB-B6: Drainage Basin B6

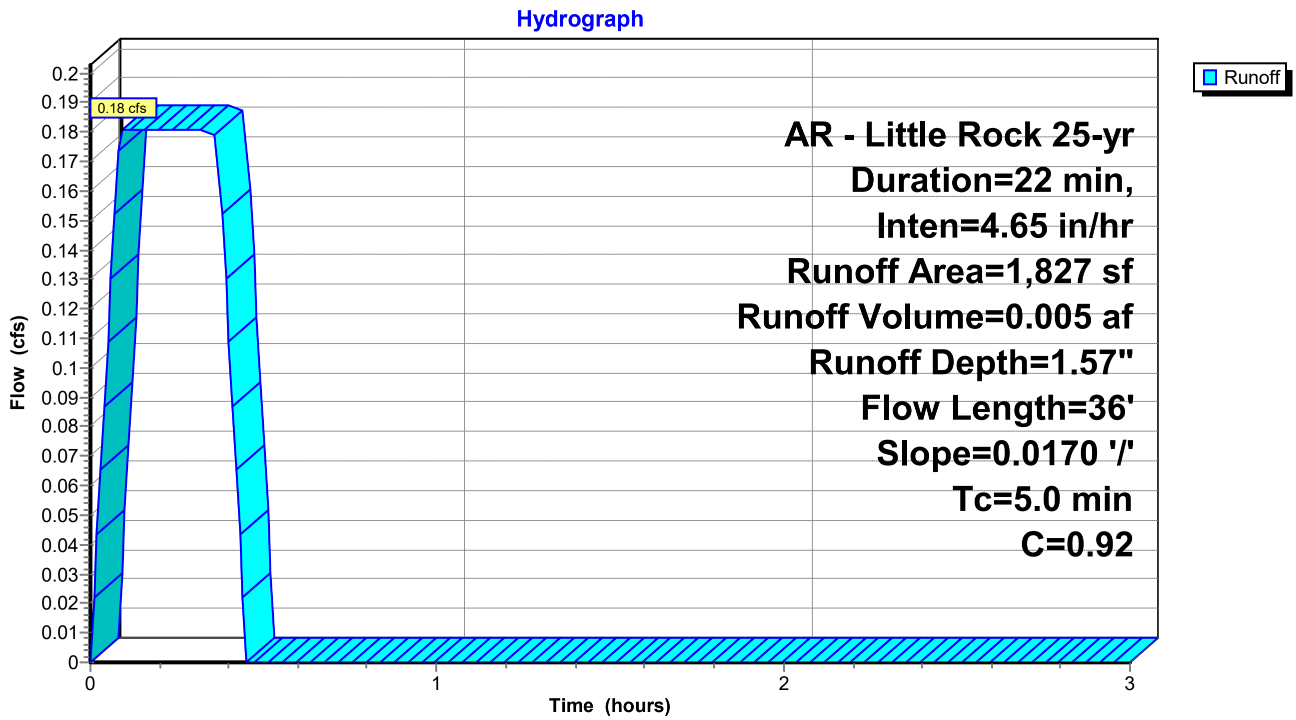
Runoff = 0.18 cfs @ 0.09 hrs, Volume= 0.005 af, Depth= 1.57"
Routed to Pond AI-B1 : AREA INLET B1

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 25-yr Duration=22 min, Inten=4.65 in/hr

Area (sf)	C	Description
0	0.30	Sandy Soil 2-7% per manual
1,827	0.92	Paved Areas
1,827	0.92	Weighted Average
1,827		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	36	0.0170	1.20		**Sheet Flow, Concrete** Smooth surfaces n= 0.011 P2= 4.20"
4.5					**Direct Entry, Minimum Adjustment**
5.0	36	Total			

Subcatchment DB-B6: Drainage Basin B6



Summary for Subcatchment DB-B7: Drainage Basin B7

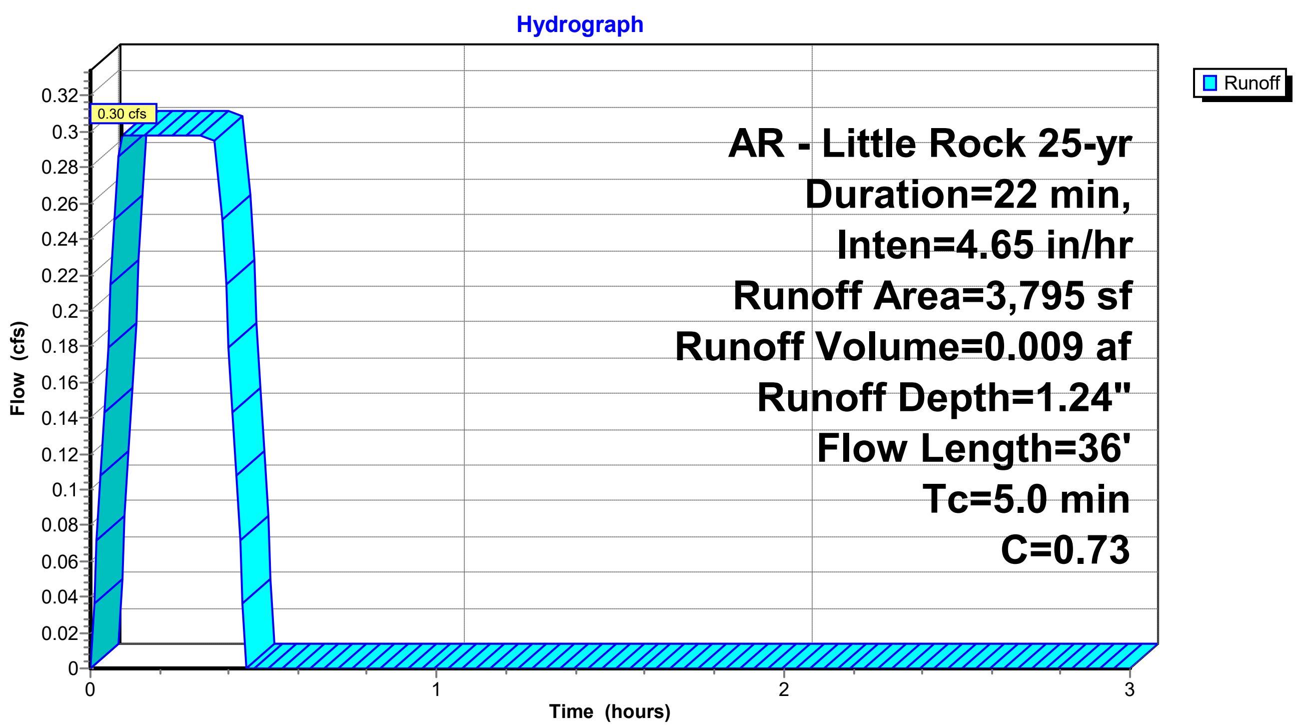
Runoff = 0.30 cfs @ 0.09 hrs, Volume= 0.009 af, Depth= 1.24"
Routed to Pond AI-B2 : AREA INLET B2

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 25-yr Duration=22 min, Inten=4.65 in/hr

Area (sf)	C	Description
1,158	0.30	Sandy Soil 2-7% per manual
2,637	0.92	Paved Areas
3,795	0.73	Weighted Average
3,795		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	24	0.0020	0.47		**Sheet Flow, Concrete** Smooth surfaces n= 0.011 P2= 4.20"
0.2	12	0.0160	0.94		**Sheet Flow, Concrete** Smooth surfaces n= 0.011 P2= 4.20"
4.0					**Direct Entry, Minimum Adjustment**
5.0	36	Total			

Subcatchment DB-B7: Drainage Basin B7



Summary for Subcatchment DB-B8: Drainage Basin B8

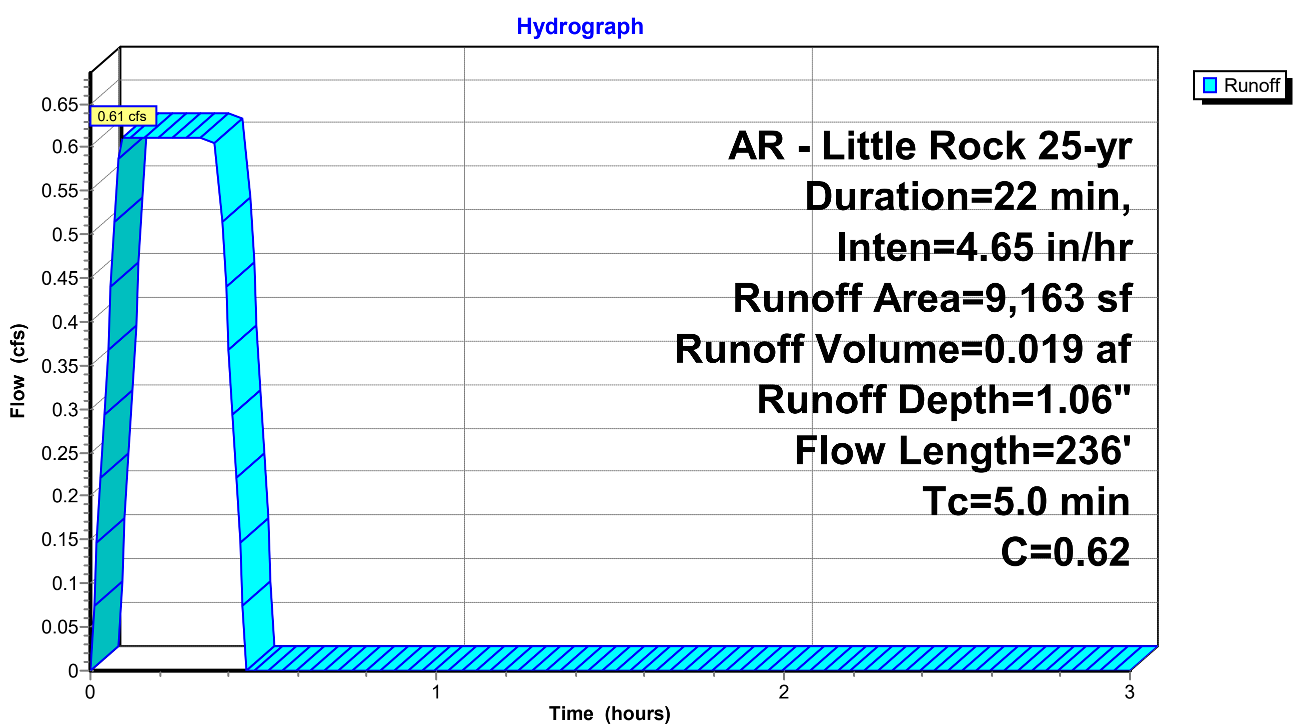
Runoff = 0.61 cfs @ 0.09 hrs, Volume= 0.019 af, Depth= 1.06"
Routed to Pond CI-C1 : CURB INLET C1

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 25-yr Duration=22 min, Inten=4.65 in/hr

Area (sf)	C	Description
4,431	0.30	Sadny Soil 2-7% per manual
4,732	0.92	Paved Areas
9,163	0.62	Weighted Average
9,163		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	33	0.0210	1.29		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.6	91	0.0620	2.43		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.8	112	0.0490	2.31		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
3.2					**Direct Entry, Minimum Adjustment**
5.0	236	Total			

Subcatchment DB-B8: Drainage Basin B8



Summary for Subcatchment DB-B9: Drainage Basin B9

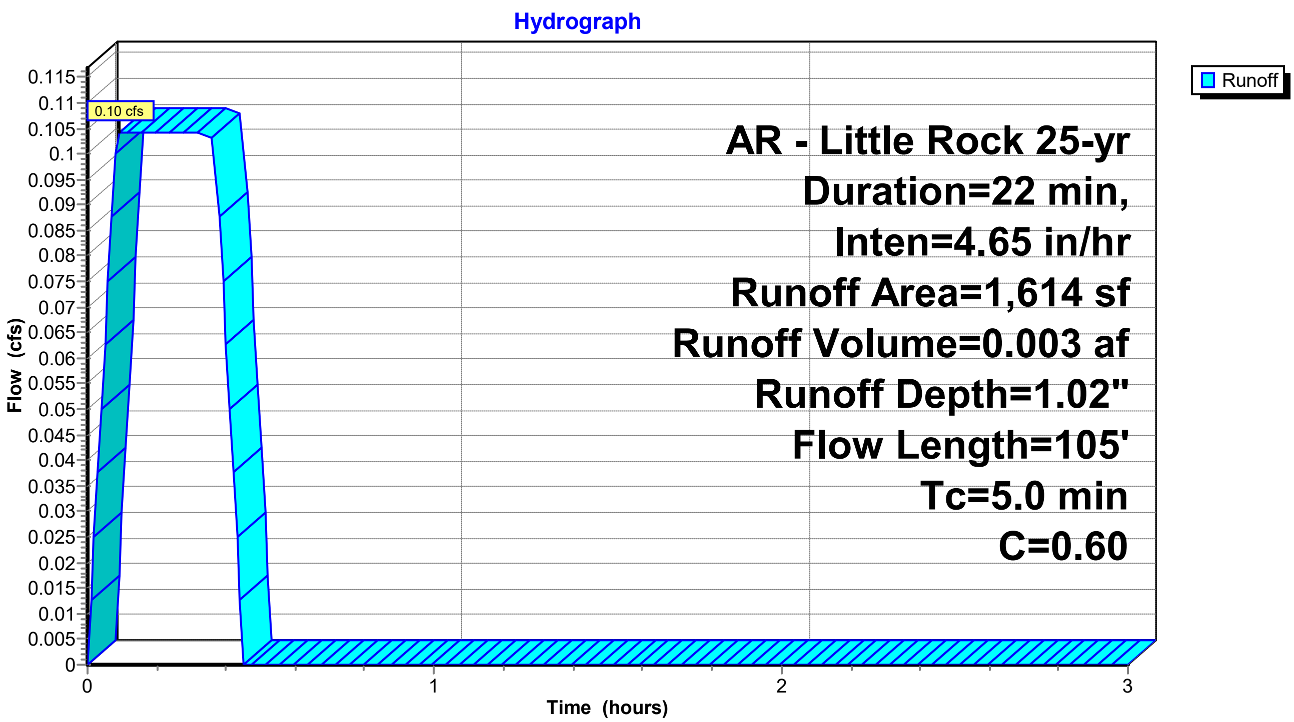
Runoff = 0.10 cfs @ 0.09 hrs, Volume= 0.003 af, Depth= 1.02"
Routed to Pond CI-C2 : CURB INLET C2

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 25-yr Duration=22 min, Inten=4.65 in/hr

Area (sf)	C	Description
826	0.30	Sandy Soil 2-7% per manual
788	0.92	Paved Areas
1,614	0.60	Weighted Average
1,614		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	62	0.0100	1.09		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.0	8	0.0230	3.08		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
0.2	35	0.0140	2.40		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
3.8					**Direct Entry, Minimum Adjustment**
5.0	105	Total			

Subcatchment DB-B9: Drainage Basin B9



Summary for Pond AI-B1: AREA INLET B1

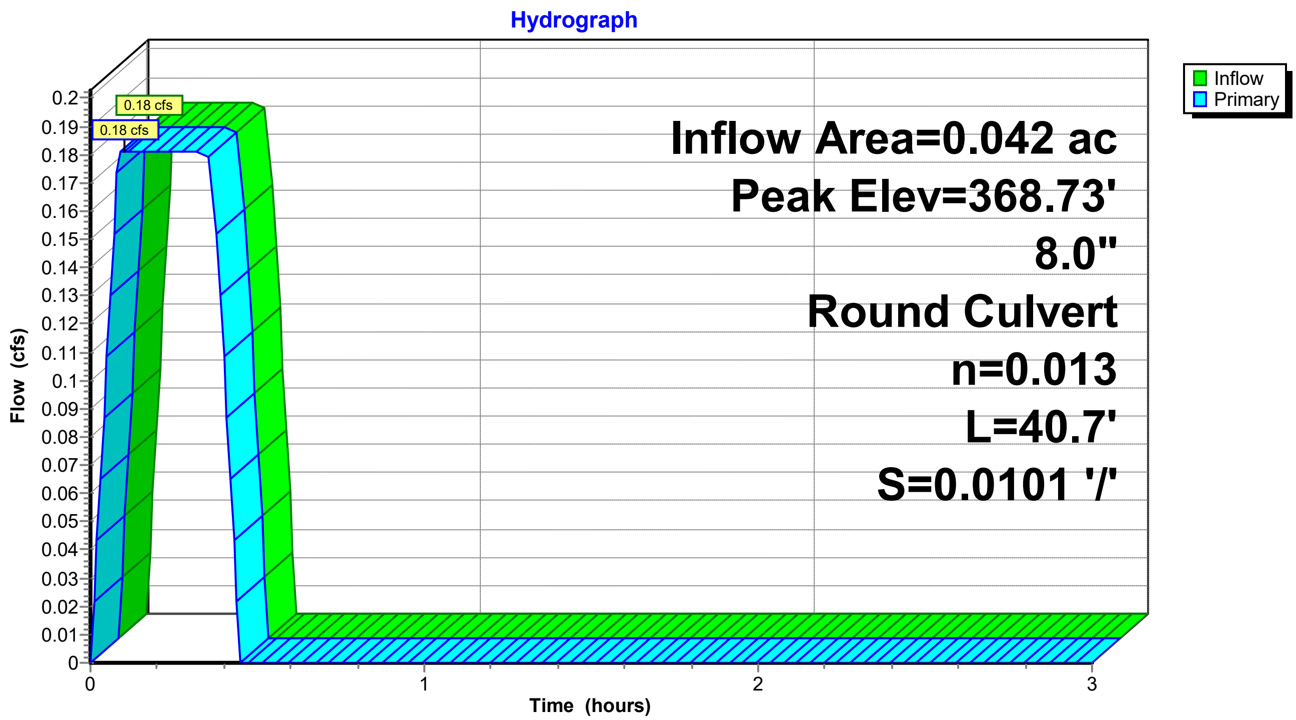
Inflow Area = 0.042 ac, 0.00% Impervious, Inflow Depth = 1.57" for 25-yr event
Inflow = 0.18 cfs @ 0.09 hrs, Volume= 0.005 af
Outflow = 0.18 cfs @ 0.10 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.6 min
Primary = 0.18 cfs @ 0.10 hrs, Volume= 0.005 af
Routed to Pond AI-B2 : AREA INLET B2

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 368.73' @ 0.09 hrs

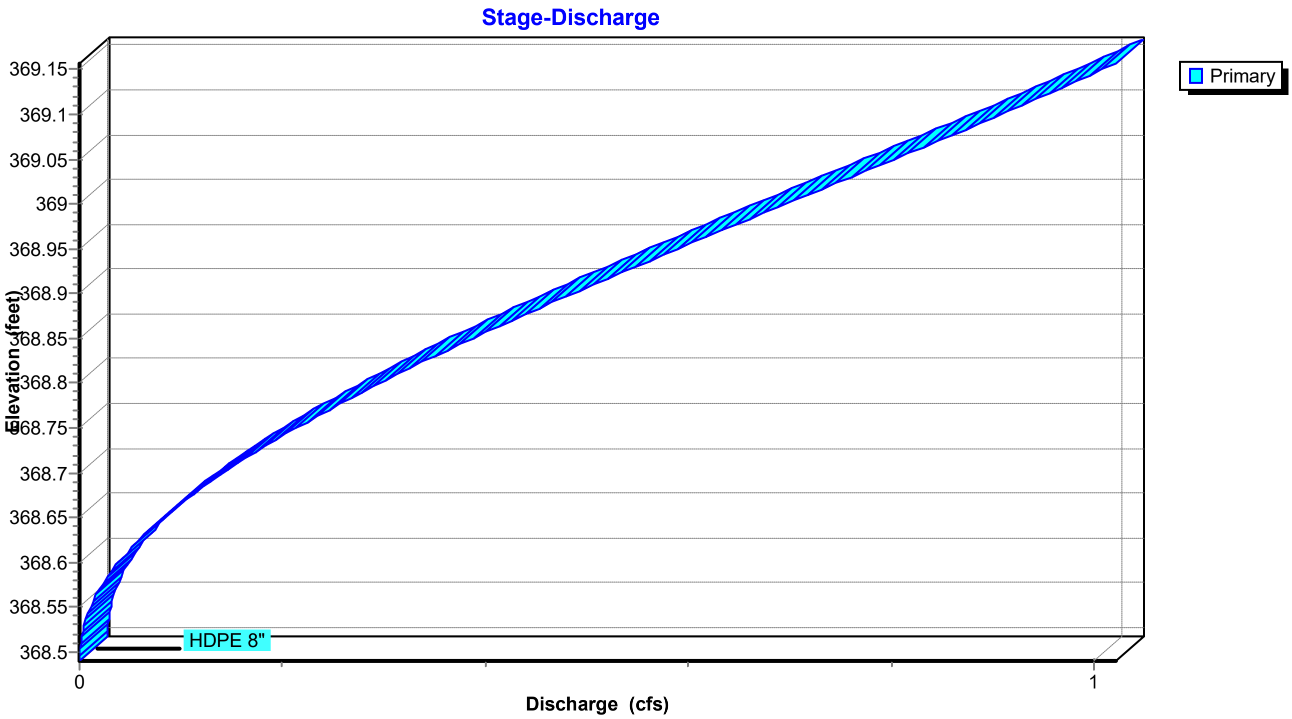
Device	Routing	Invert	Outlet Devices
#1	Primary	368.49'	**8.0" Round HDPE 8"** L= 40.7' Ke= 0.100 Inlet / Outlet Invert= 368.49' / 368.08' S= 0.0101 '/' Cc= 0.900 n= 0.013, Flow Area= 0.35 sf

Primary OutFlow Max=0.18 cfs @ 0.10 hrs HW=368.73' (Free Discharge)
↑**1=HDPE 8"** (Barrel Controls 0.18 cfs @ 2.41 fps)

Pond AI-B1: AREA INLET B1



Pond AI-B1: AREA INLET B1



Summary for Pond AI-B2: AREA INLET B2

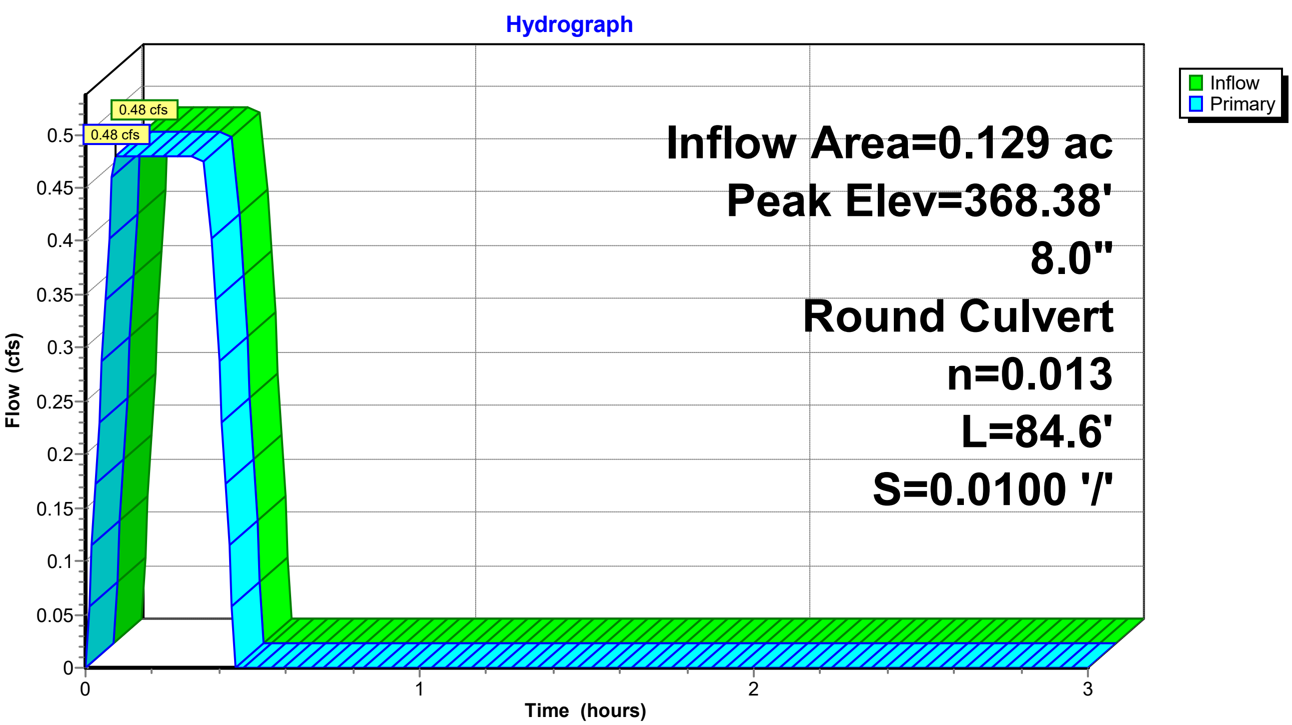
Inflow Area = 0.129 ac, 0.00% Impervious, Inflow Depth = 1.35" for 25-yr event
Inflow = 0.48 cfs @ 0.09 hrs, Volume= 0.015 af
Outflow = 0.48 cfs @ 0.09 hrs, Volume= 0.015 af, Atten= 0%, Lag= 0.0 min
Primary = 0.48 cfs @ 0.09 hrs, Volume= 0.015 af
Routed to Pond CI-A2 : CURB INLET A2

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 368.38' @ 0.09 hrs

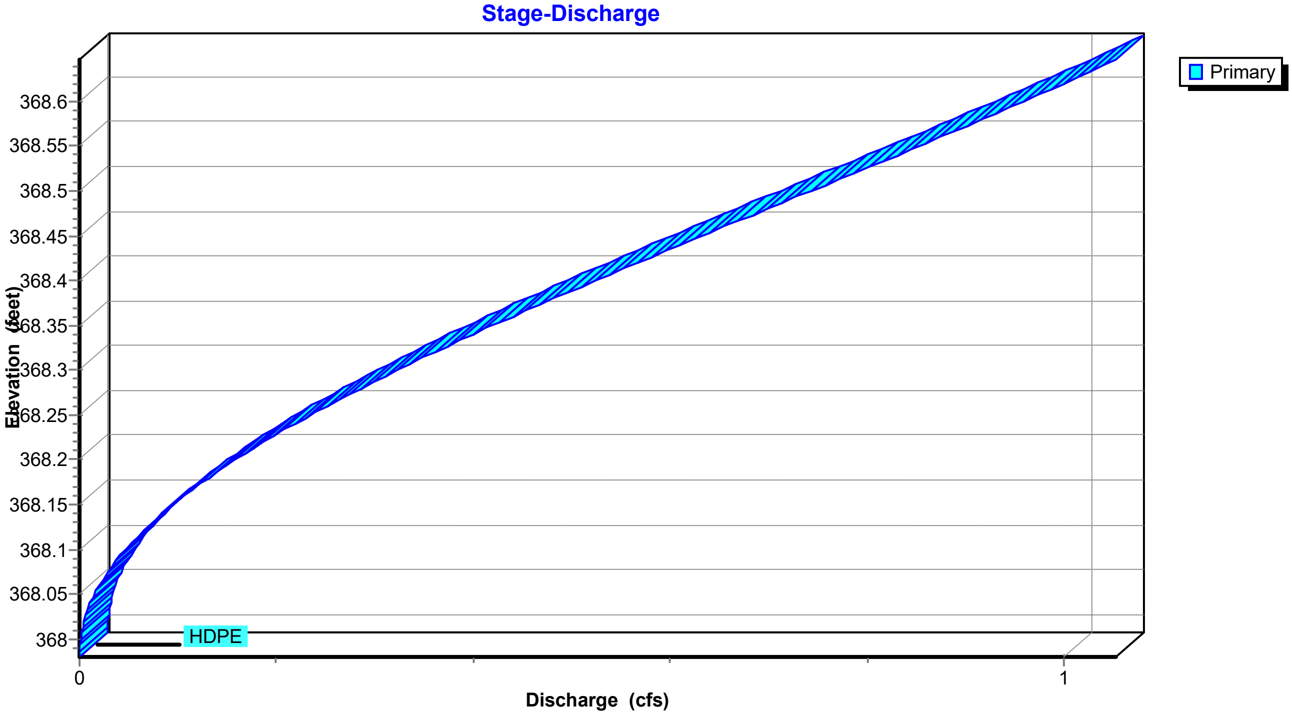
Device	Routing	Invert	Outlet Devices
#1	Primary	367.98'	**8.0" Round HDPE** L= 84.6' Ke= 0.100 Inlet / Outlet Invert= 367.98' / 367.13' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.35 sf

Primary OutFlow Max=0.48 cfs @ 0.09 hrs HW=368.38' (Free Discharge)
1=HDPE (Barrel Controls 0.48 cfs @ 3.16 fps)

Pond AI-B2: AREA INLET B2



Pond AI-B2: AREA INLET B2



Summary for Pond CI-A1: CURB INLET A1

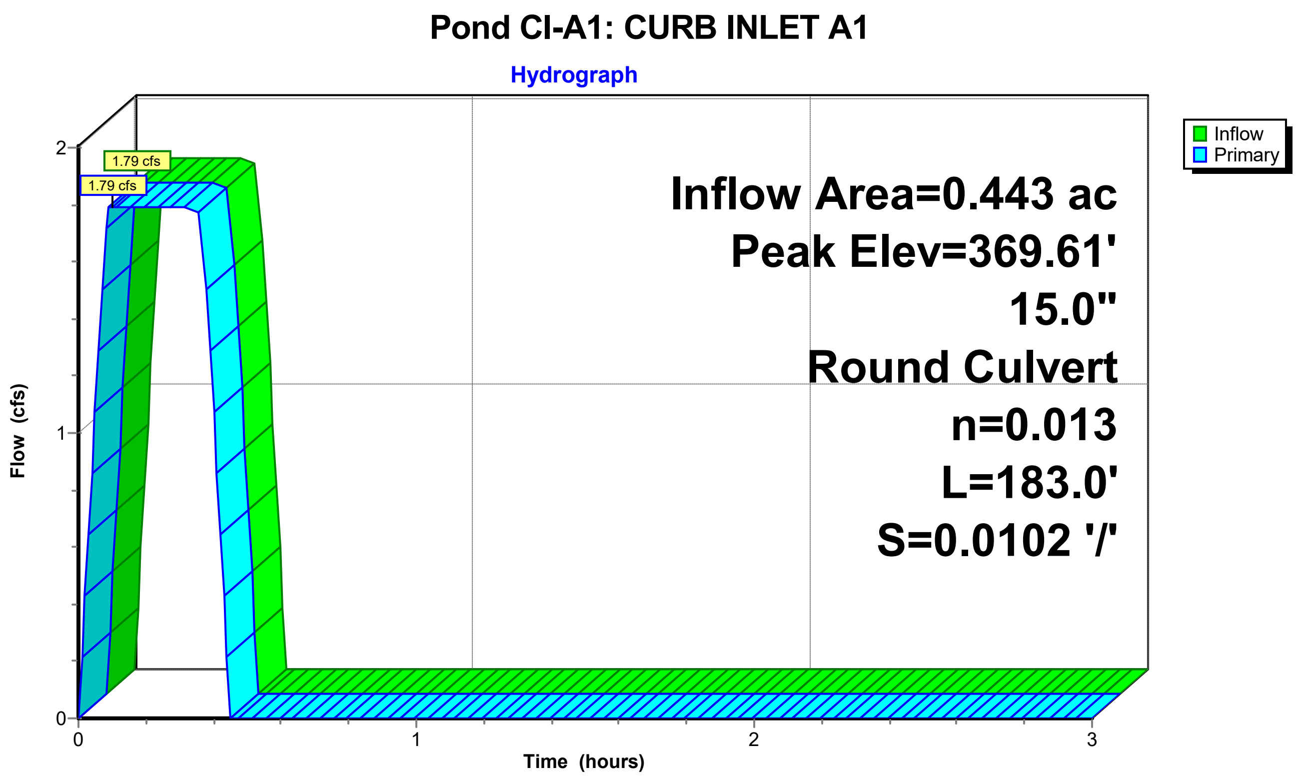
Inflow Area =	0.443 ac,	0.00% Impervious, Inflow Depth =	1.47"	for 25-yr event
Inflow =	1.79 cfs @	0.09 hrs, Volume=	0.054 af	
Outflow =	1.79 cfs @	0.10 hrs, Volume=	0.054 af, Atten= 0%, Lag= 0.6 min	
Primary =	1.79 cfs @	0.10 hrs, Volume=	0.054 af	

Routed to Pond CI-A2 : CURB INLET A2

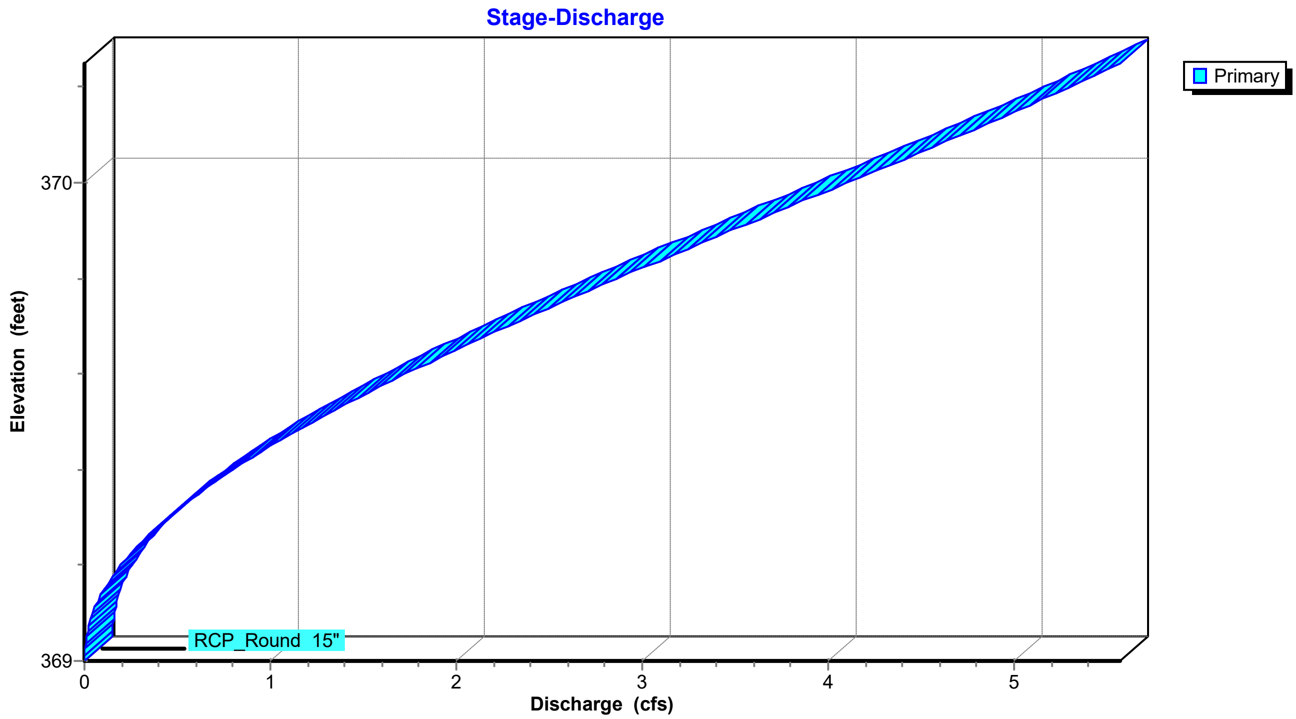
Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 369.61' @ 0.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	369.00'	**15.0" Round RCP_Round 15"** L= 183.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 369.00' / 367.13' S= 0.0102 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.23 sf

Primary OutFlow Max=1.79 cfs @ 0.10 hrs HW=369.61' (Free Discharge)
└─**1=RCP_Round 15"** (Barrel Controls 1.79 cfs @ 4.37 fps)



Pond CI-A1: CURB INLET A1



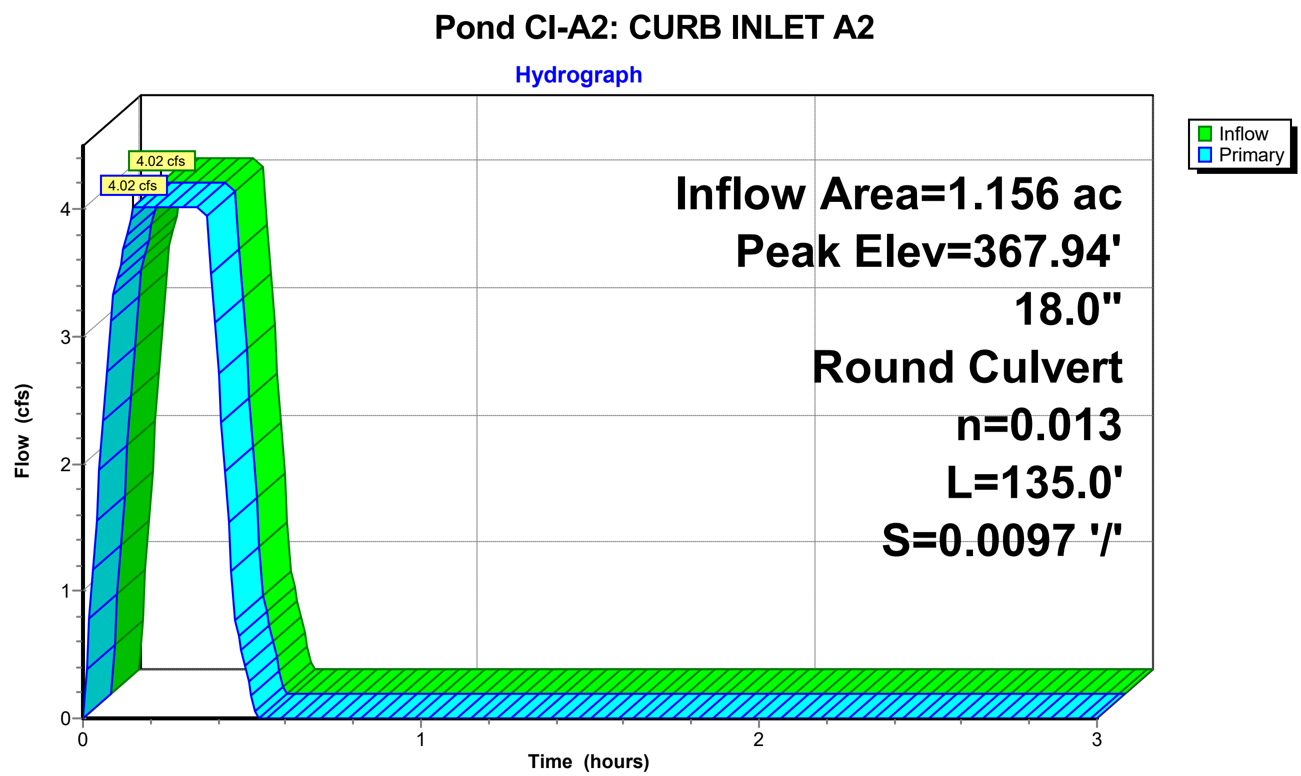
Summary for Pond CI-A2: CURB INLET A2

Inflow Area = 1.156 ac, 0.00% Impervious, Inflow Depth = 1.26" for 25-yr event
Inflow = 4.02 cfs @ 0.15 hrs, Volume= 0.122 af
Outflow = 4.02 cfs @ 0.15 hrs, Volume= 0.122 af, Atten= 0%, Lag= 0.0 min
Primary = 4.02 cfs @ 0.15 hrs, Volume= 0.122 af
Routed to Pond CI-A3 : CURB INLET A3

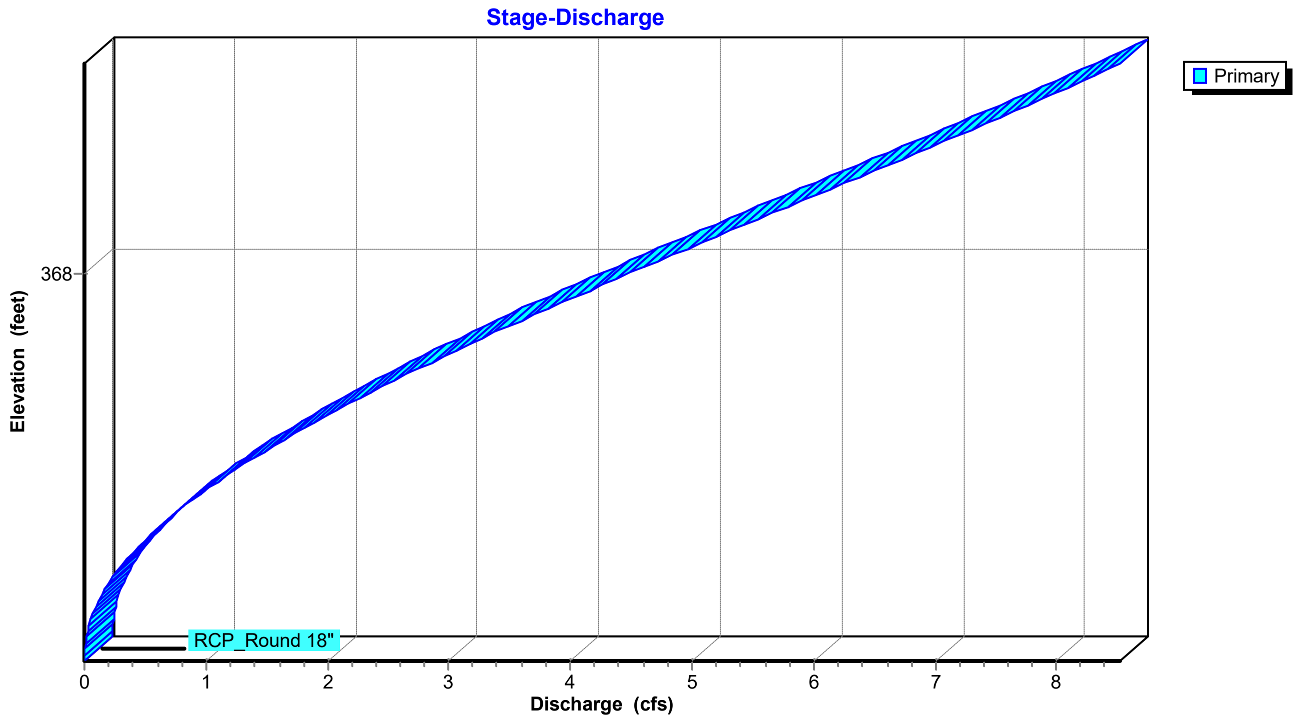
Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 367.94' @ 0.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	367.03'	**18.0" Round RCP_Round 18"** L= 135.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 367.03' / 365.72' S= 0.0097 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=4.02 cfs @ 0.15 hrs HW=367.94' (Free Discharge)
1=RCP_Round 18" (Barrel Controls 4.02 cfs @ 5.12 fps)



Pond CI-A2: CURB INLET A2



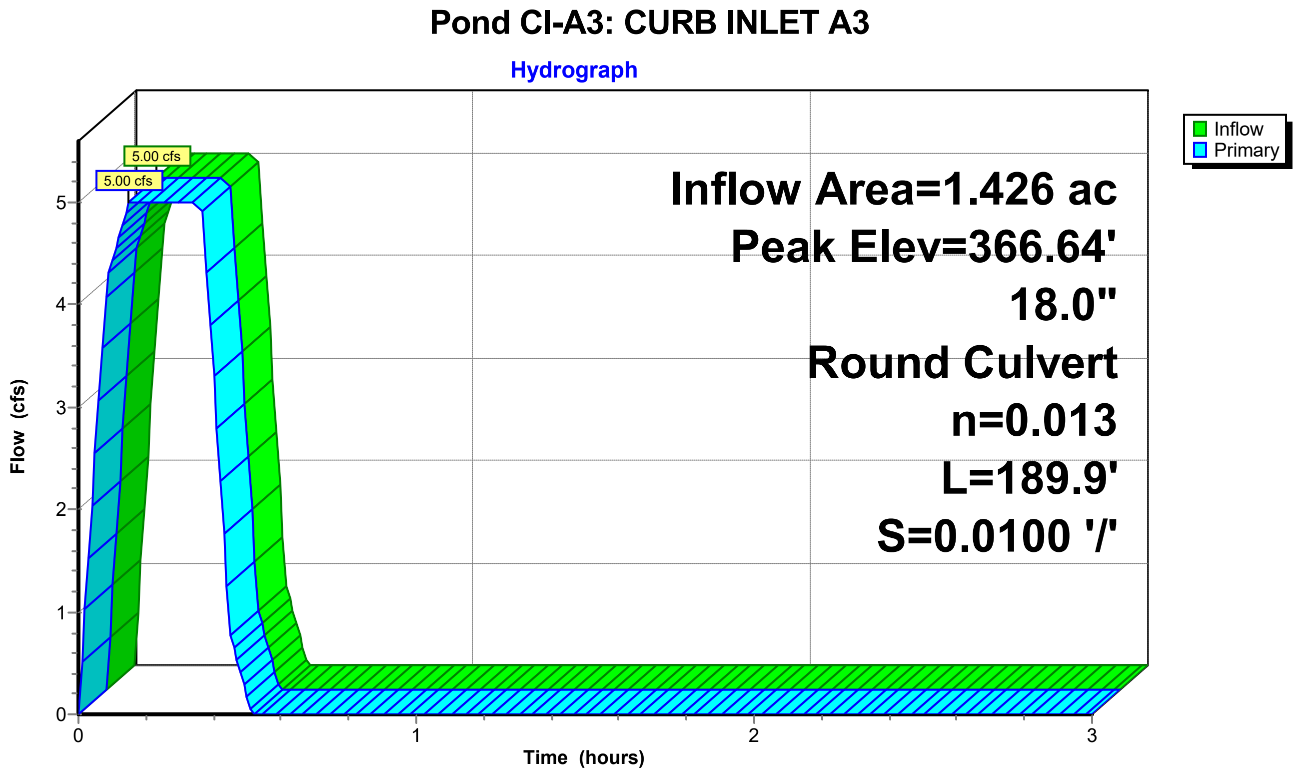
Summary for Pond CI-A3: CURB INLET A3

Inflow Area = 1.426 ac, 0.00% Impervious, Inflow Depth = 1.27" for 25-yr event
Inflow = 5.00 cfs @ 0.15 hrs, Volume= 0.151 af
Outflow = 5.00 cfs @ 0.15 hrs, Volume= 0.151 af, Atten= 0%, Lag= 0.0 min
Primary = 5.00 cfs @ 0.15 hrs, Volume= 0.151 af
Routed to Pond CI-A4 : CURB INLET A4

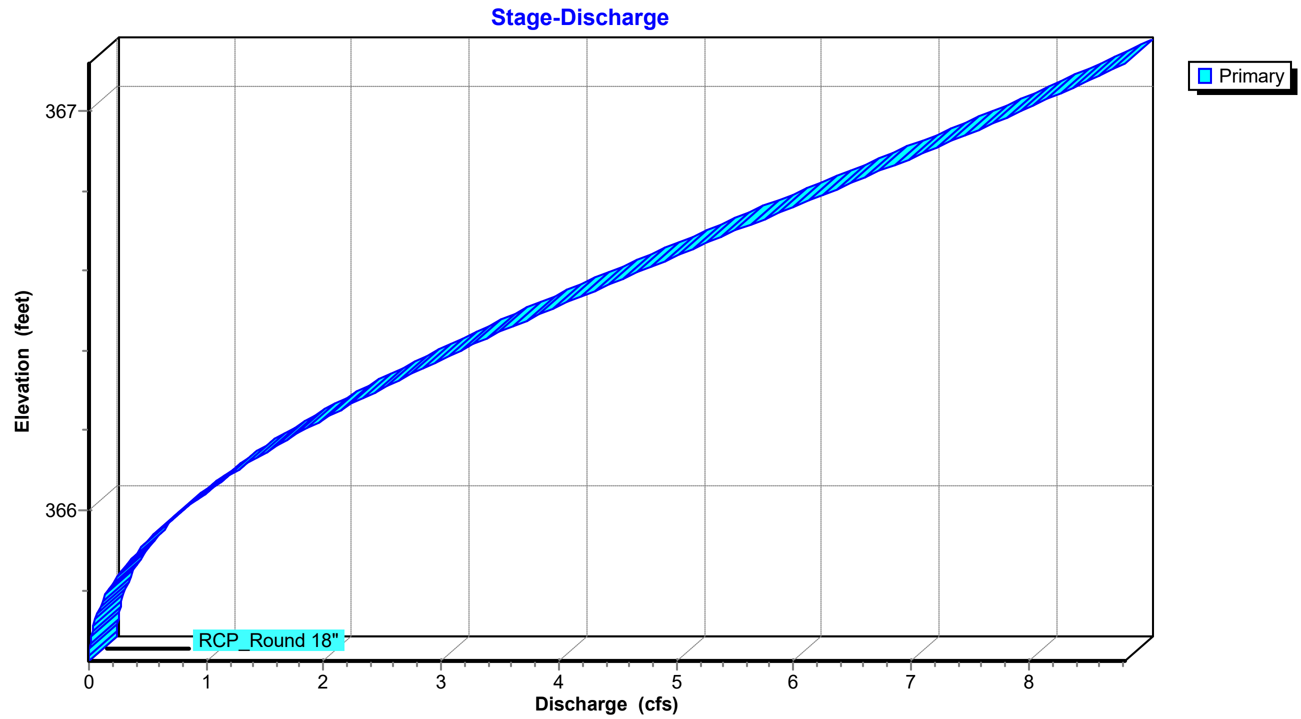
Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 366.64' @ 0.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	365.62'	**18.0" Round RCP_Round 18"** L= 189.9' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 365.62' / 363.72' S= 0.0100 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=5.00 cfs @ 0.15 hrs HW=366.64' (Free Discharge)
└─**1=RCP_Round 18"** (Barrel Controls 5.00 cfs @ 5.54 fps)



Pond CI-A3: CURB INLET A3



Summary for Pond CI-A4: CURB INLET A4

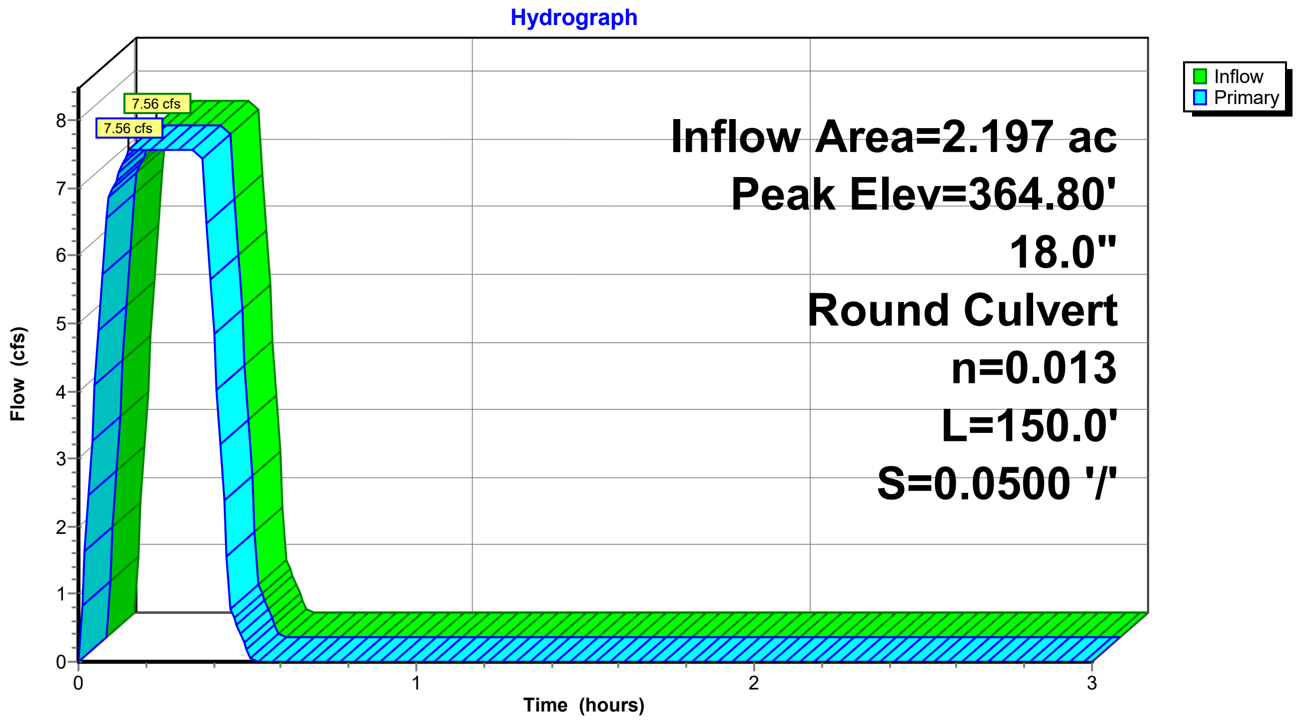
Inflow Area = 2.197 ac, 0.00% Impervious, Inflow Depth = 1.25" for 25-yr event
Inflow = 7.56 cfs @ 0.15 hrs, Volume= 0.229 af
Outflow = 7.56 cfs @ 0.15 hrs, Volume= 0.229 af, Atten= 0%, Lag= 0.0 min
Primary = 7.56 cfs @ 0.15 hrs, Volume= 0.229 af
Routed to Pond CI-A5 : CURB INLET A5

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 364.80' @ 0.15 hrs

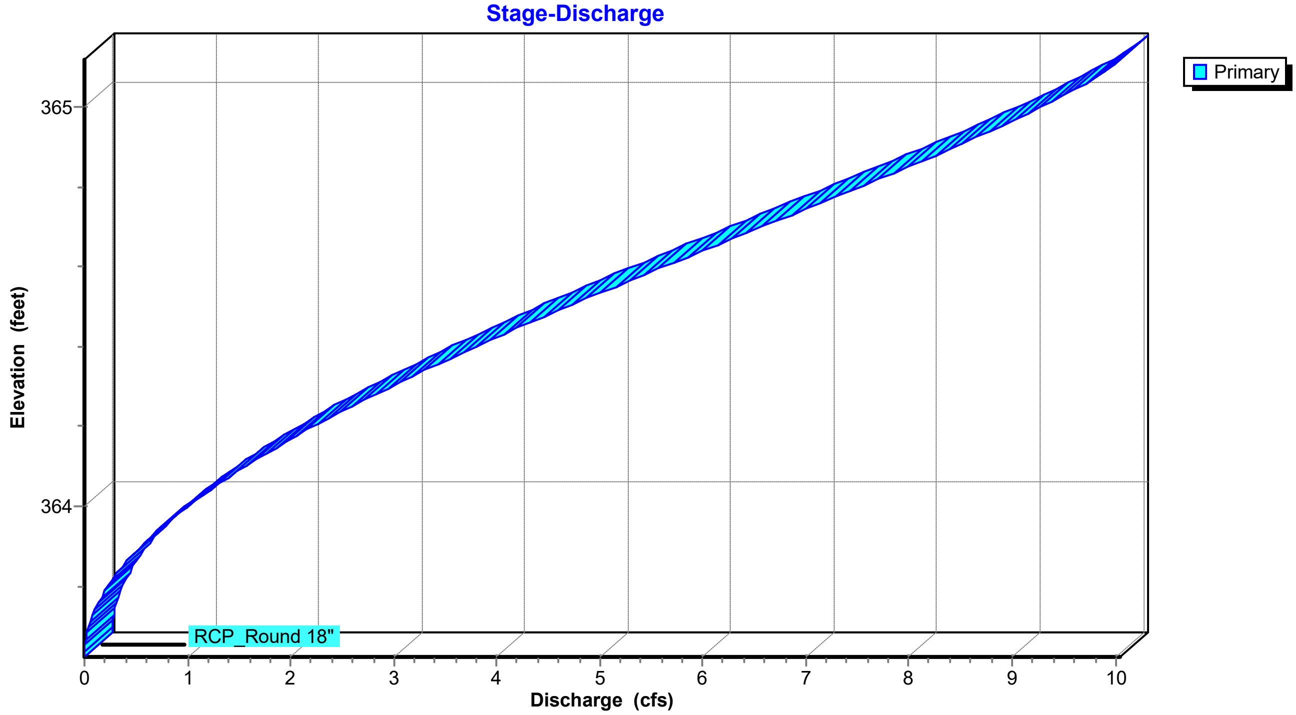
Device	Routing	Invert	Outlet Devices
#1	Primary	363.62'	**18.0" Round RCP_Round 18"** L= 150.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 363.62' / 356.12' S= 0.0500 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=7.56 cfs @ 0.15 hrs HW=364.80' (Free Discharge)
└─**1=RCP_Round 18"** (Inlet Controls 7.56 cfs @ 5.05 fps)

Pond CI-A4: CURB INLET A4



Pond CI-A4: CURB INLET A4



Summary for Pond CI-A5: CURB INLET A5

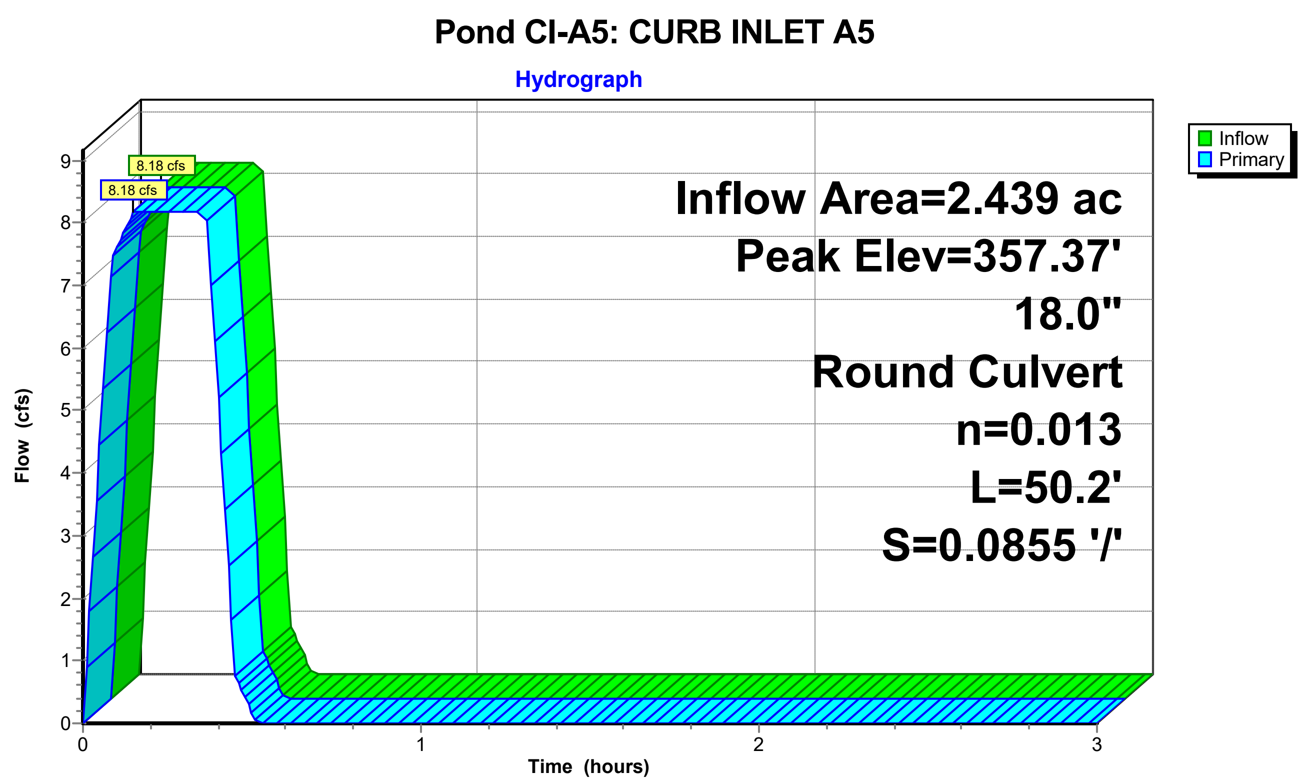
Inflow Area =	2.439 ac,	0.00% Impervious,	Inflow Depth = 1.22"	for 25-yr event	
Inflow =	8.18 cfs @	0.15 hrs,	Volume=	0.248 af	
Outflow =	8.18 cfs @	0.15 hrs,	Volume=	0.248 af,	Atten= 0%, Lag= 0.0 min
Primary =	8.18 cfs @	0.15 hrs,	Volume=	0.248 af	

Routed to Link POST-DEV : Post-Development

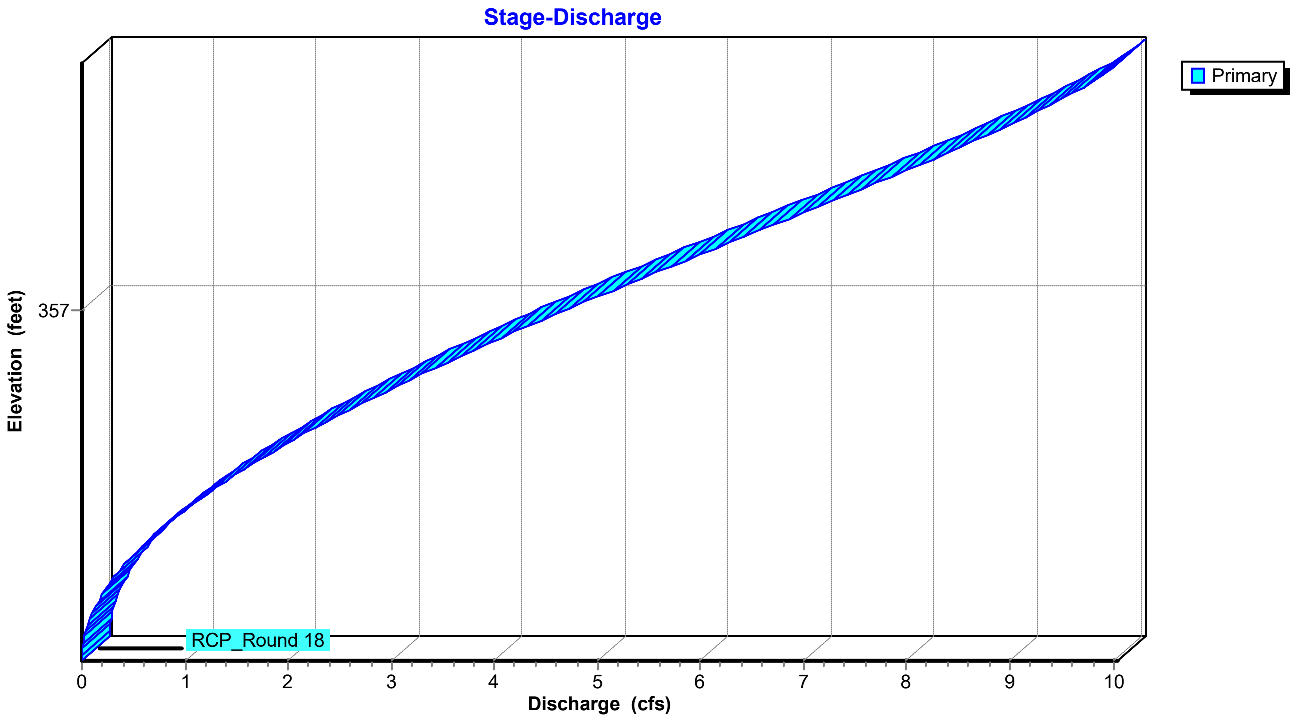
Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 357.37' @ 0.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	356.12'	**18.0" Round RCP_Round 18** L= 50.2' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 356.12' / 351.83' S= 0.0855 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=8.18 cfs @ 0.15 hrs HW=357.37' (Free Discharge)
└─**1=RCP_Round 18** (Inlet Controls 8.18 cfs @ 5.19 fps)



Pond CI-A5: CURB INLET A5



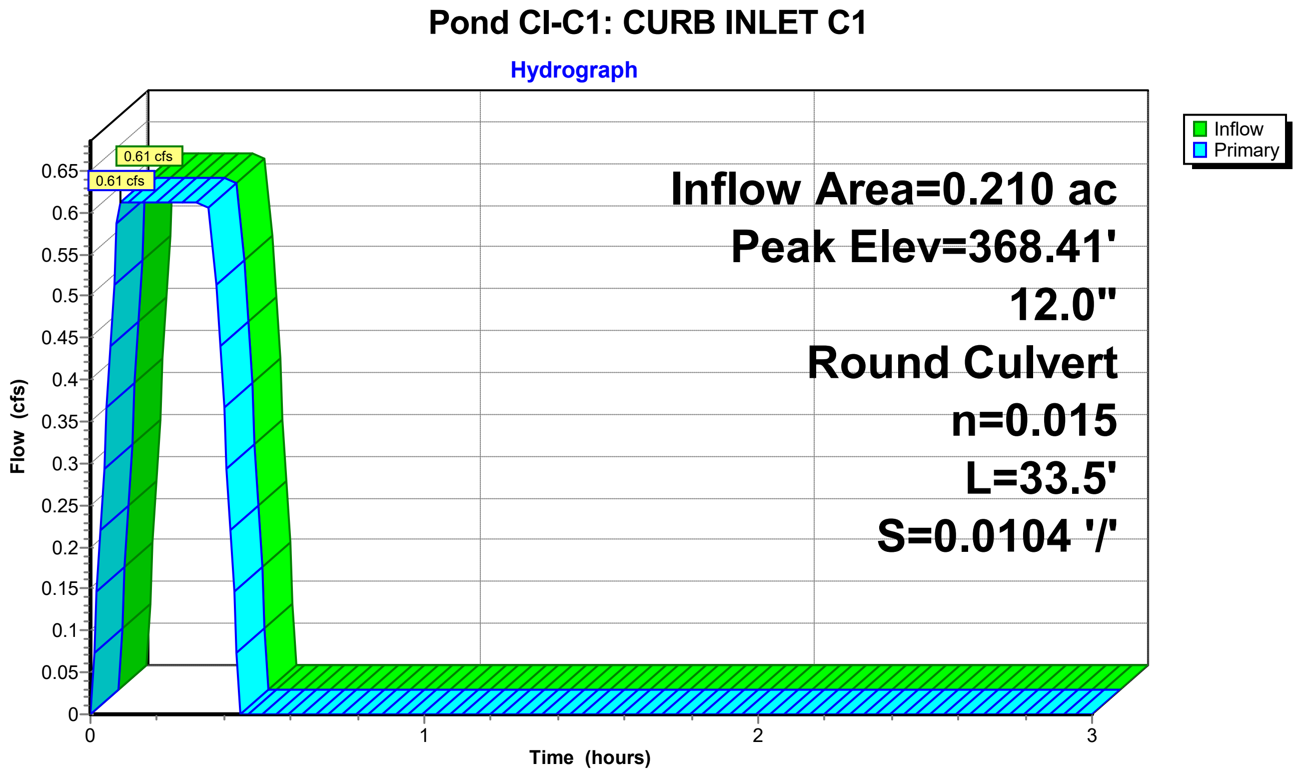
Summary for Pond CI-C1: CURB INLET C1

Inflow Area = 0.210 ac, 0.00% Impervious, Inflow Depth = 1.06" for 25-yr event
Inflow = 0.61 cfs @ 0.09 hrs, Volume= 0.019 af
Outflow = 0.61 cfs @ 0.09 hrs, Volume= 0.019 af, Atten= 0%, Lag= 0.0 min
Primary = 0.61 cfs @ 0.09 hrs, Volume= 0.019 af
Routed to Pond CI-C2 : CURB INLET C2

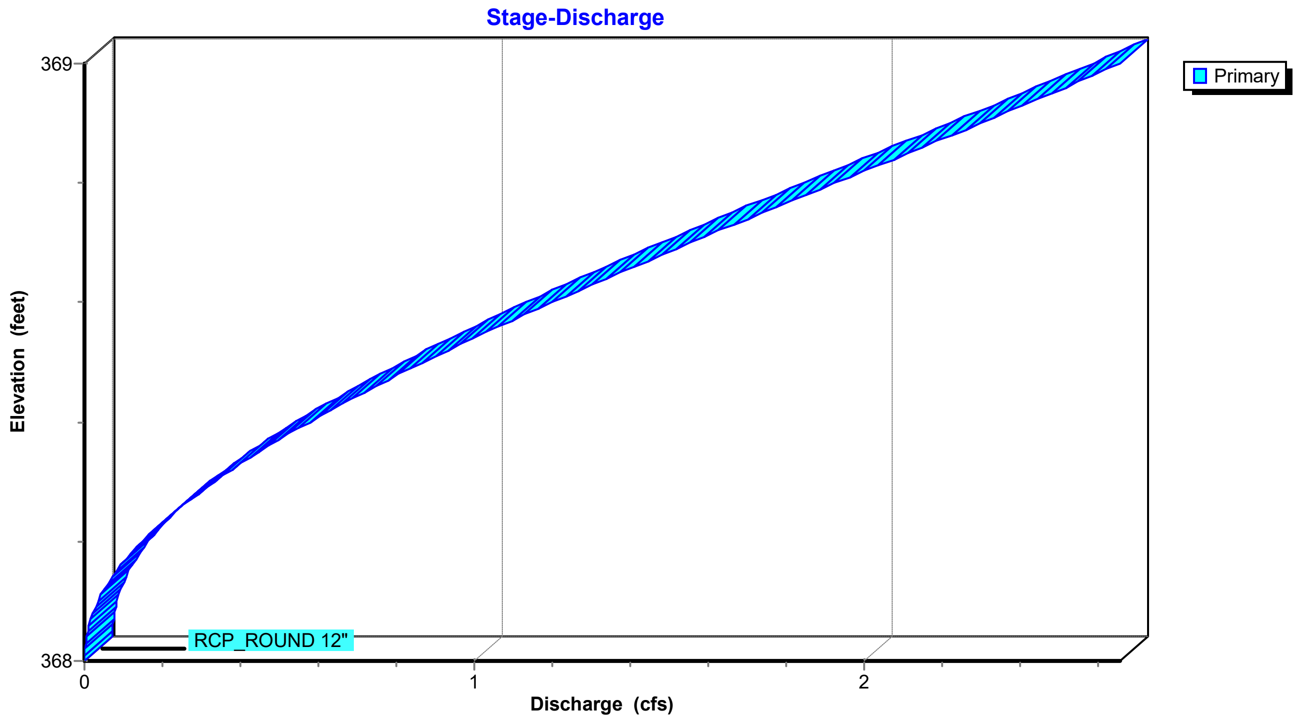
Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 368.41' @ 0.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	368.00'	**12.0" Round RCP_ROUND 12"** L= 33.5' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 368.00' / 367.65' S= 0.0104 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 0.79 sf

Primary OutFlow Max=0.61 cfs @ 0.09 hrs HW=368.41' (Free Discharge)
└—**1=RCP_ROUND 12"** (Barrel Controls 0.61 cfs @ 2.95 fps)



Pond CI-C1: CURB INLET C1



Summary for Pond CI-C2: CURB INLET C2

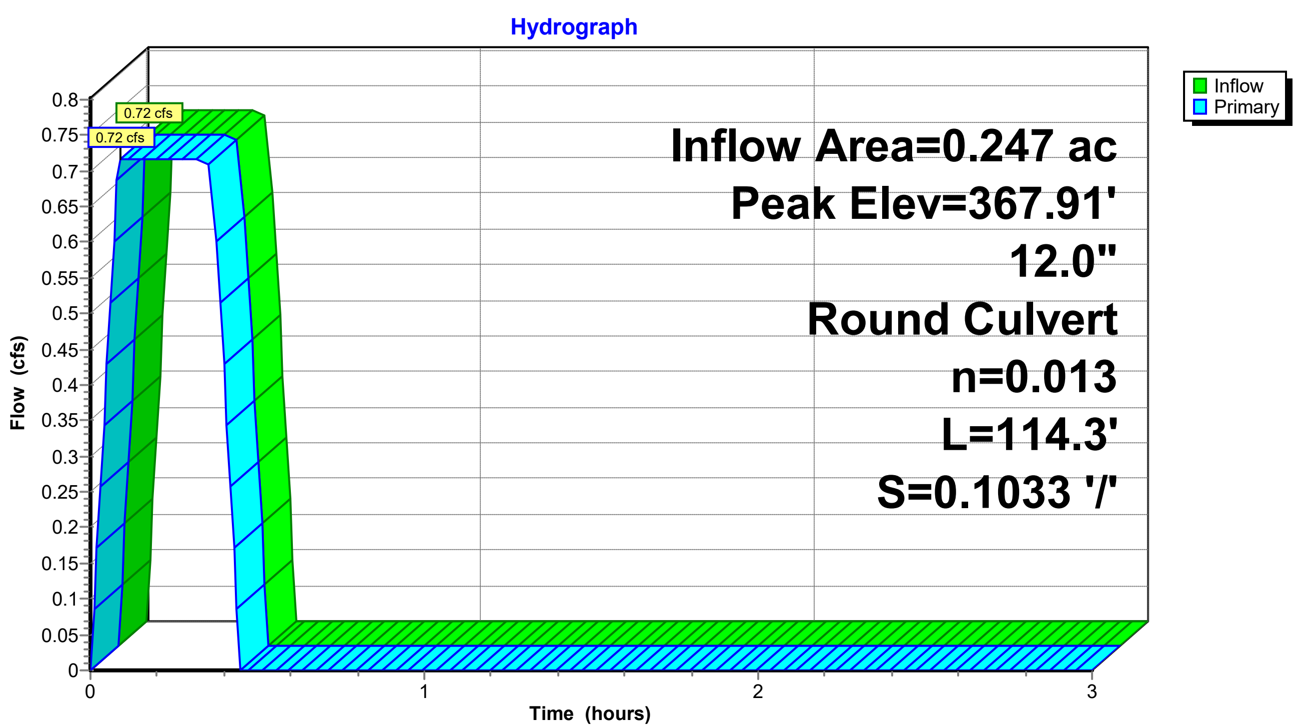
Inflow Area = 0.247 ac, 0.00% Impervious, Inflow Depth = 1.05" for 25-yr event
Inflow = 0.72 cfs @ 0.09 hrs, Volume= 0.022 af
Outflow = 0.72 cfs @ 0.09 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min
Primary = 0.72 cfs @ 0.09 hrs, Volume= 0.022 af
Routed to Pond JB-C3 : JUNCTION BOX C3

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 367.91' @ 0.09 hrs

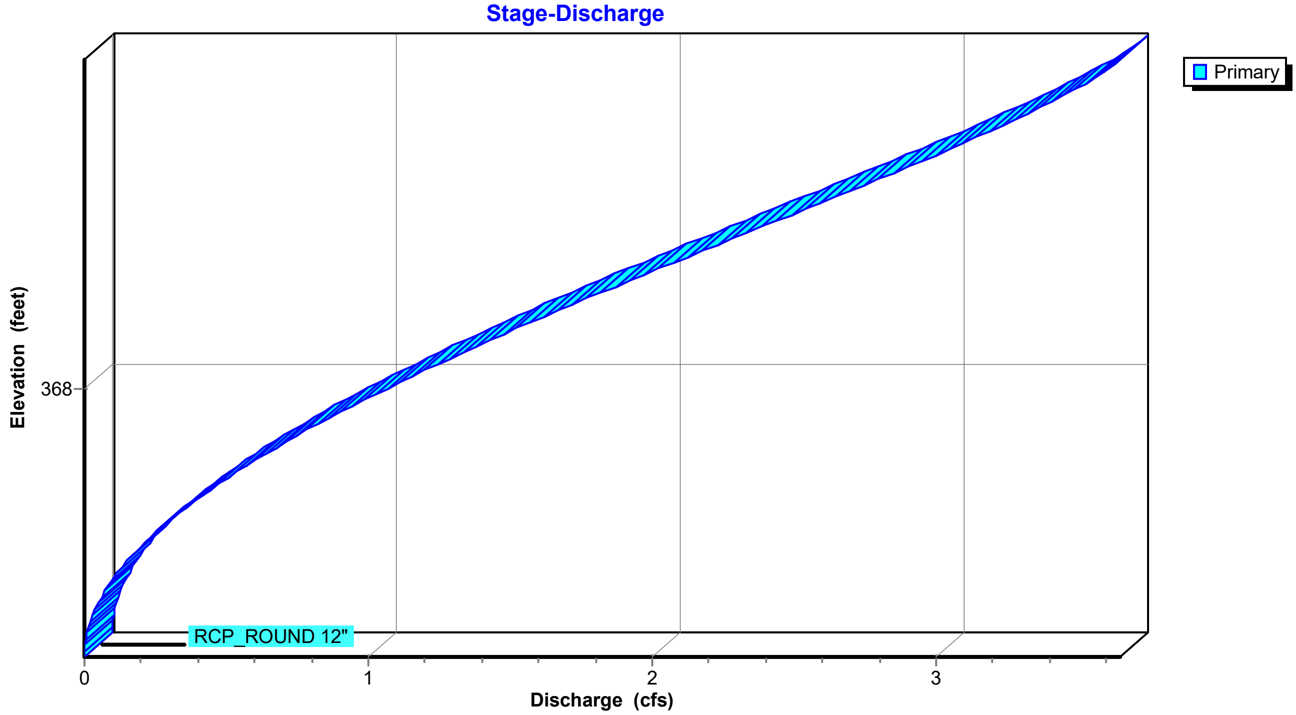
Device	Routing	Invert	Outlet Devices
#1	Primary	367.55'	**12.0" Round RCP_ROUND 12"** L= 114.3' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 367.55' / 355.74' S= 0.1033 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.72 cfs @ 0.09 hrs HW=367.91' (Free Discharge)
↑—**1=RCP_ROUND 12"** (Inlet Controls 0.72 cfs @ 2.79 fps)

Pond CI-C2: CURB INLET C2



Pond CI-C2: CURB INLET C2



Summary for Pond CI-C4: CURB INLET C4

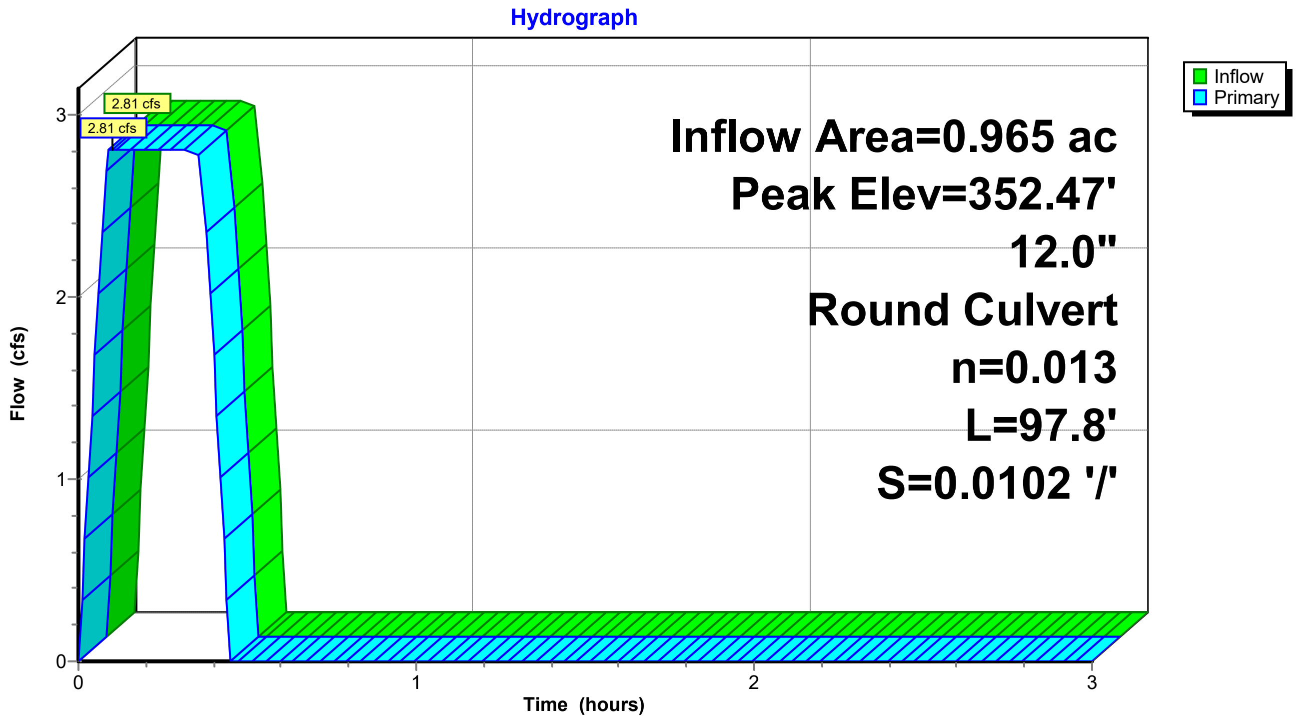
Inflow Area = 0.965 ac, 0.00% Impervious, Inflow Depth = 1.06" for 25-yr event
Inflow = 2.81 cfs @ 0.09 hrs, Volume= 0.085 af
Outflow = 2.81 cfs @ 0.10 hrs, Volume= 0.085 af, Atten= 0%, Lag= 0.6 min
Primary = 2.81 cfs @ 0.10 hrs, Volume= 0.085 af
Routed to Pond CI-C5 : CURB INLET C5

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 352.47' @ 0.09 hrs

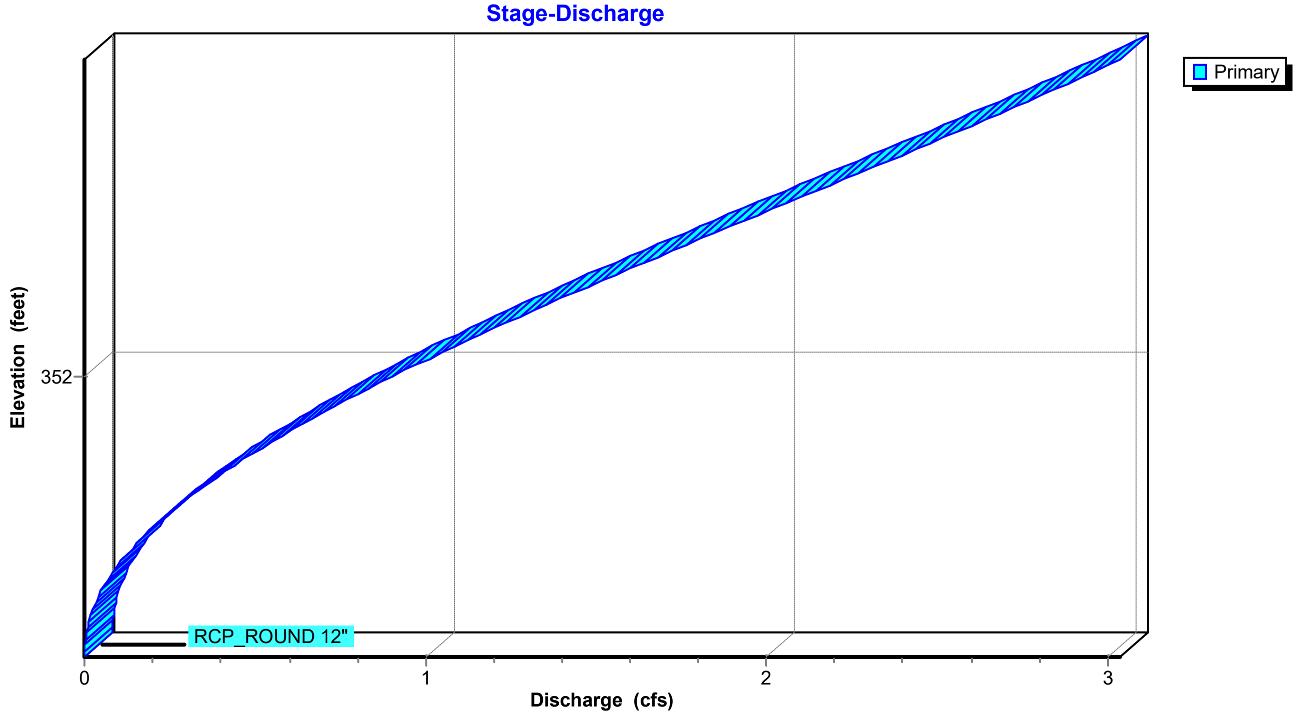
Device	Routing	Invert	Outlet Devices
#1	Primary	351.53'	**12.0" Round RCP_ROUND 12"** L= 97.8' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 351.53' / 350.53' S= 0.0102 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=2.81 cfs @ 0.10 hrs HW=352.47' (Free Discharge)
└─**1=RCP_ROUND 12"** (Barrel Controls 2.81 cfs @ 4.74 fps)

Pond CI-C4: CURB INLET C4



Pond CI-C4: CURB INLET C4



Summary for Pond CI-C5: CURB INLET C5

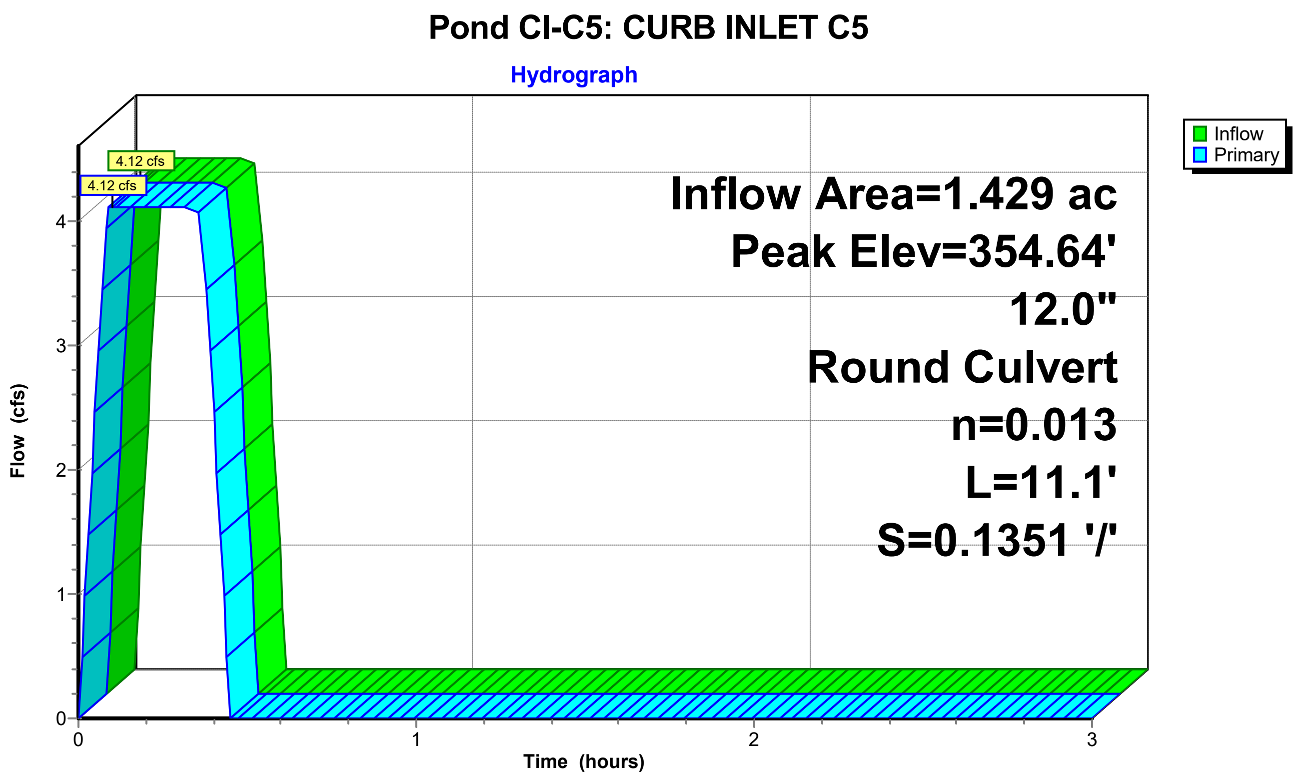
Inflow Area =	1.429 ac,	0.00% Impervious,	Inflow Depth = 1.05"	for 25-yr event
Inflow =	4.12 cfs @	0.10 hrs, Volume=	0.125 af	
Outflow =	4.12 cfs @	0.10 hrs, Volume=	0.125 af, Atten= 0%, Lag= 0.0 min	
Primary =	4.12 cfs @	0.10 hrs, Volume=	0.125 af	

Routed to Link POST-DEV : Post-Development

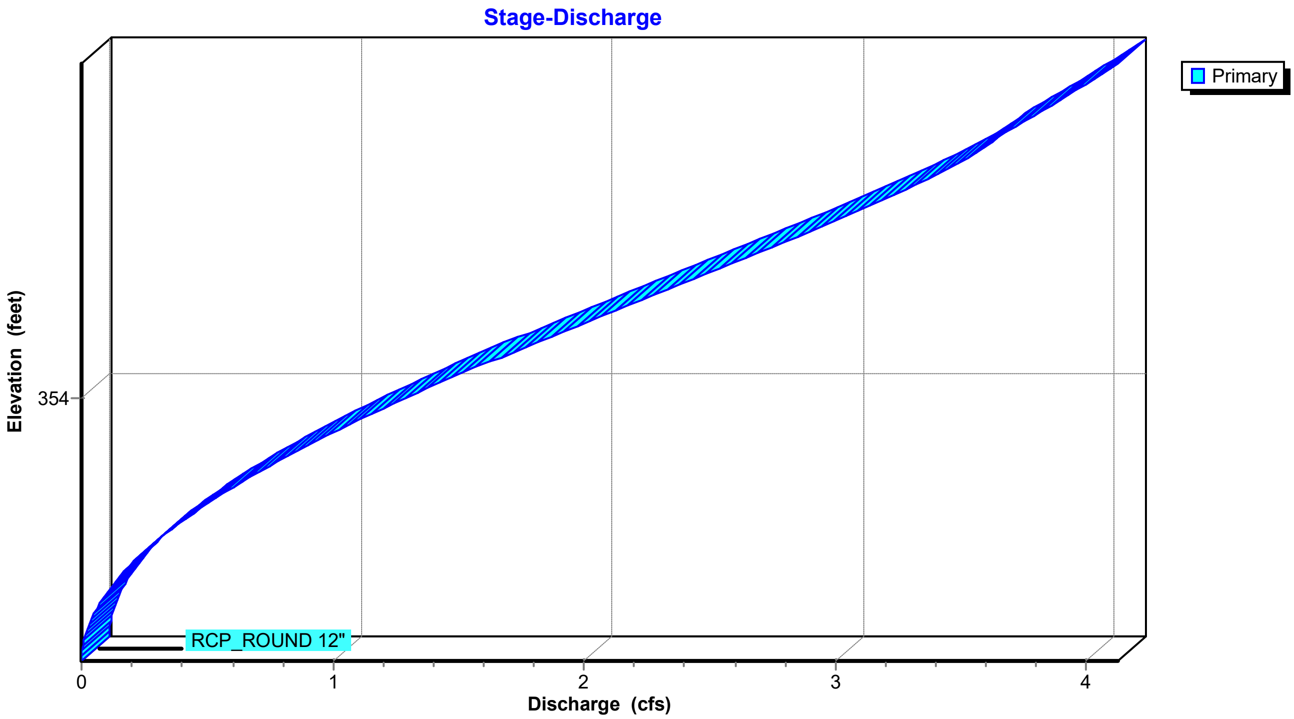
Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 354.64' @ 0.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	353.50'	**12.0" Round RCP_ROUND 12"** L= 11.1' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 353.50' / 352.00' S= 0.1351 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=4.12 cfs @ 0.10 hrs HW=354.64' (Free Discharge)
└─**1=RCP_ROUND 12"** (Inlet Controls 4.12 cfs @ 5.24 fps)



Pond CI-C5: CURB INLET C5



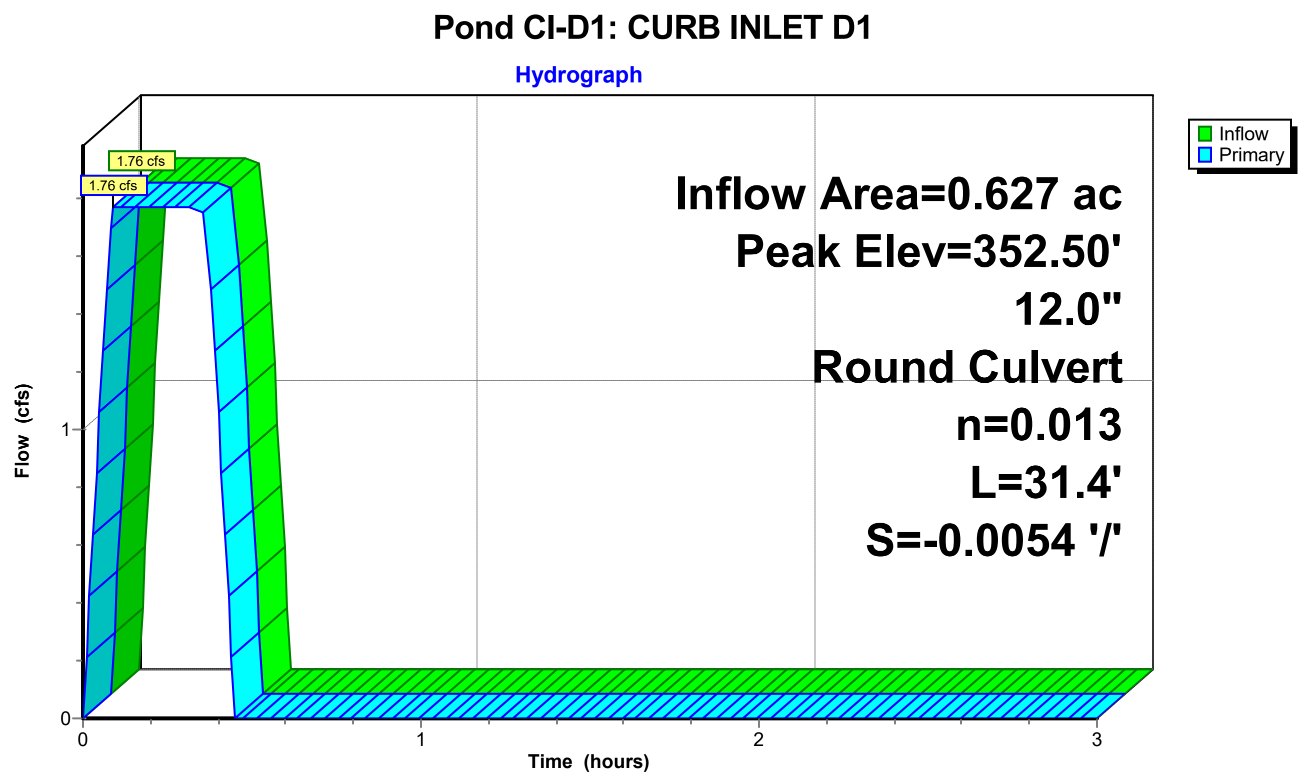
Summary for Pond CI-D1: CURB INLET D1

Inflow Area = 0.627 ac, 0.00% Impervious, Inflow Depth = 1.02" for 25-yr event
Inflow = 1.76 cfs @ 0.09 hrs, Volume= 0.053 af
Outflow = 1.76 cfs @ 0.09 hrs, Volume= 0.053 af, Atten= 0%, Lag= 0.0 min
Primary = 1.76 cfs @ 0.09 hrs, Volume= 0.053 af
Routed to Pond CI-C4 : CURB INLET C4

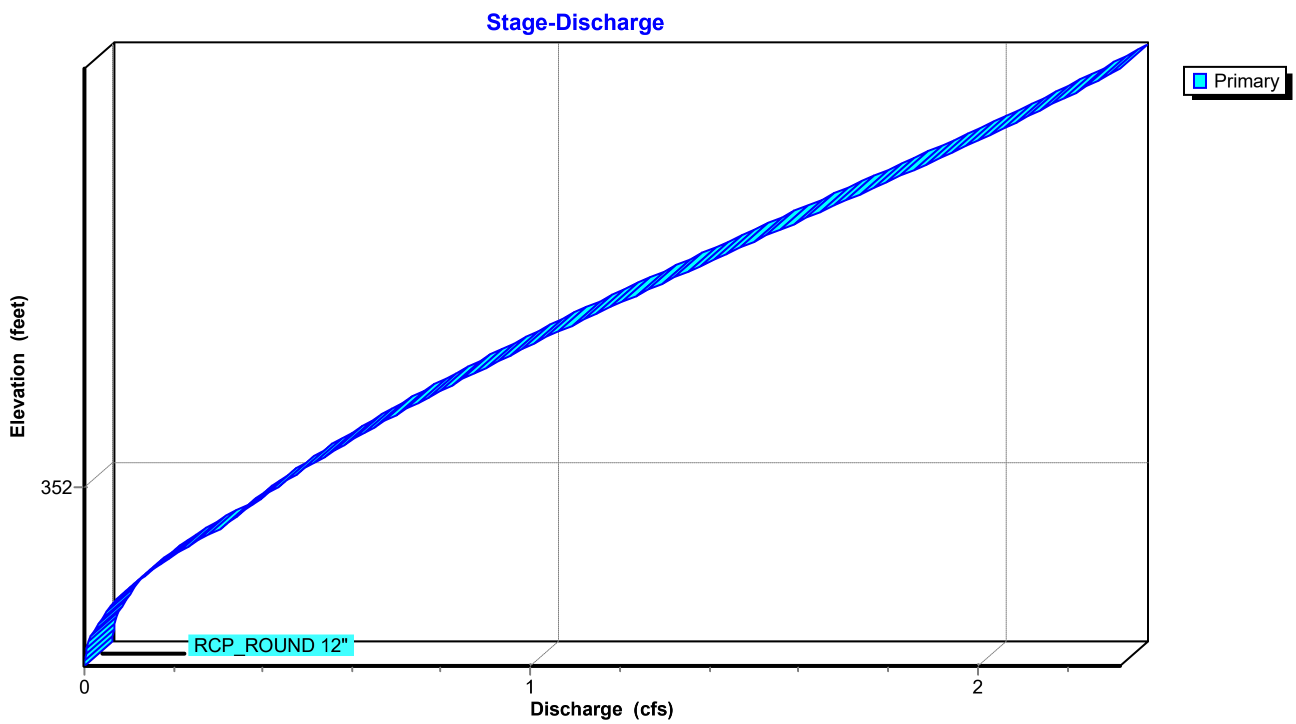
Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 352.50' @ 0.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	351.70'	**12.0" Round RCP_ROUND 12"** L= 31.4' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 351.53' / 351.70' S= -0.0054 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.76 cfs @ 0.09 hrs HW=352.50' (Free Discharge)
↑**1=RCP_ROUND 12"** (Barrel Controls 1.76 cfs @ 2.89 fps)



Pond CI-D1: CURB INLET D1



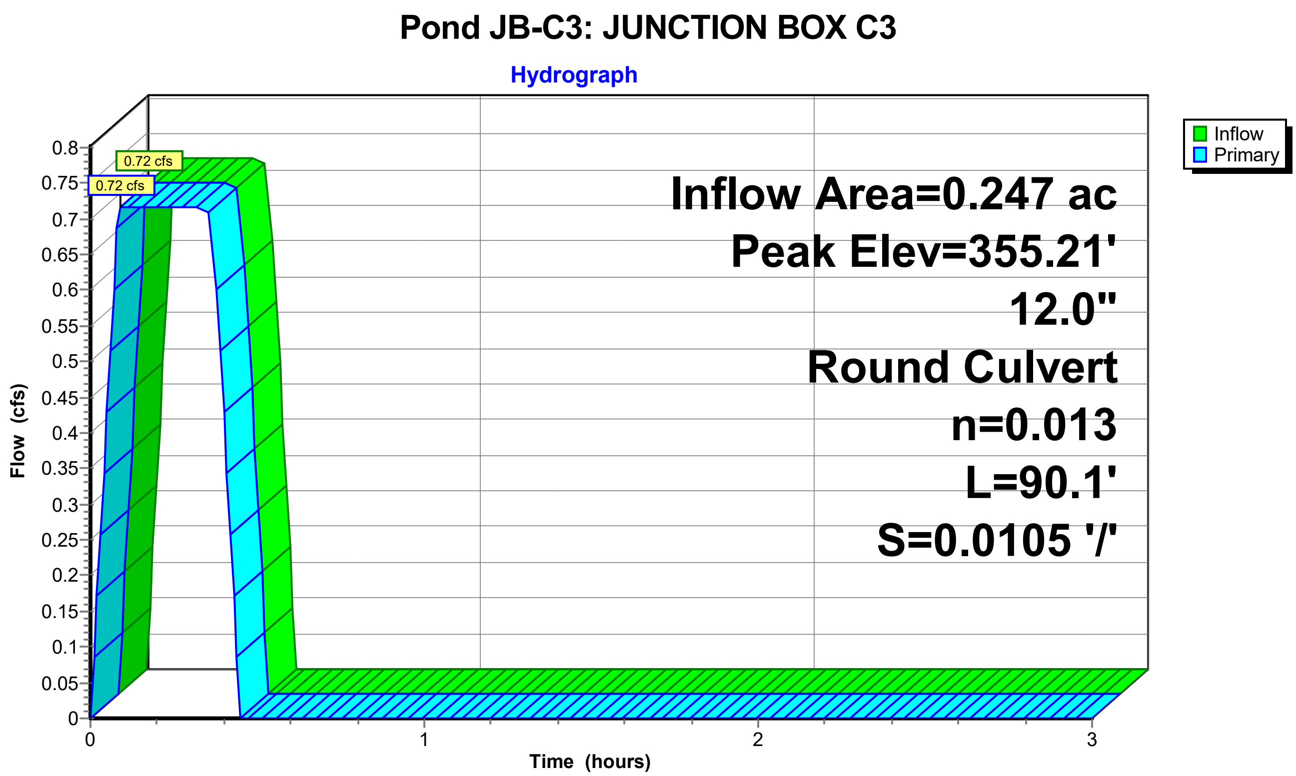
Summary for Pond JB-C3: JUNCTION BOX C3

Inflow Area = 0.247 ac, 0.00% Impervious, Inflow Depth = 1.05" for 25-yr event
Inflow = 0.72 cfs @ 0.09 hrs, Volume= 0.022 af
Outflow = 0.72 cfs @ 0.09 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min
Primary = 0.72 cfs @ 0.09 hrs, Volume= 0.022 af
Routed to Pond CI-C4 : CURB INLET C4

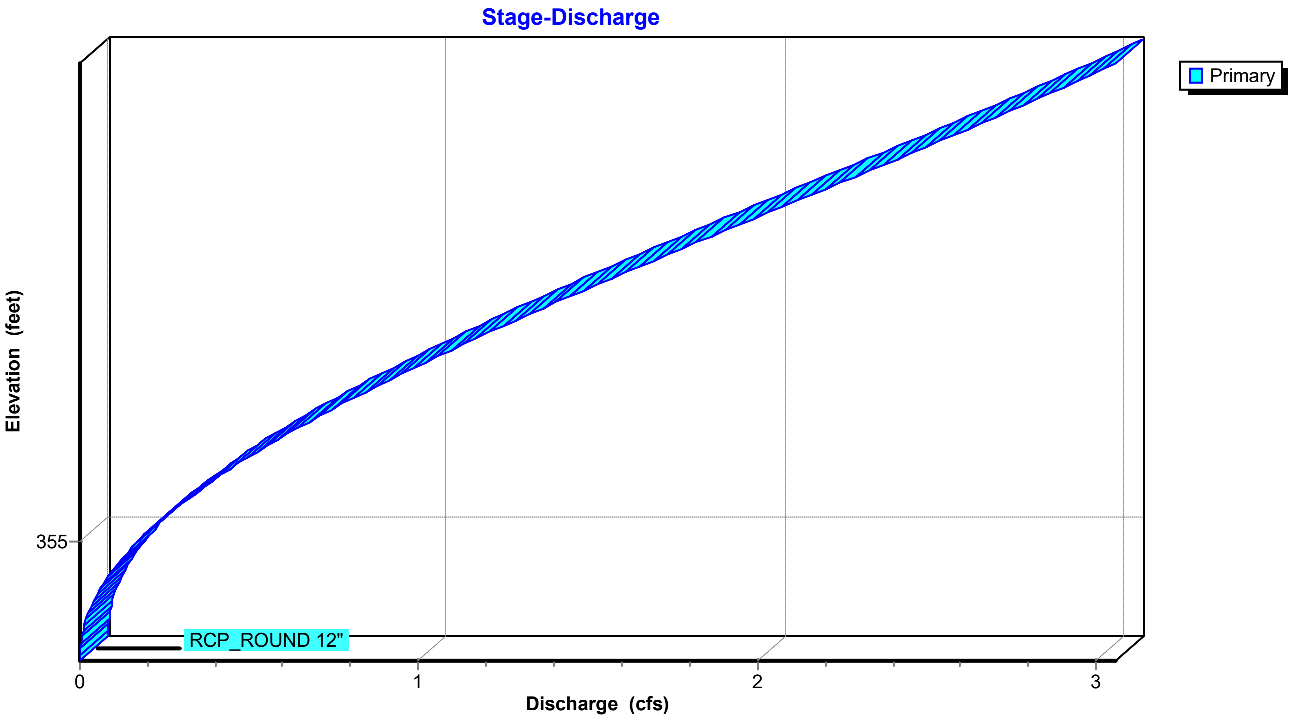
Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 355.21' @ 0.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	354.80'	**12.0" Round RCP_ROUND 12"** L= 90.1' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 354.80' / 353.85' S= 0.0105 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.72 cfs @ 0.09 hrs HW=355.21' (Free Discharge)
└─**1=RCP_ROUND 12"** (Barrel Controls 0.72 cfs @ 3.47 fps)



Pond JB-C3: JUNCTION BOX C3

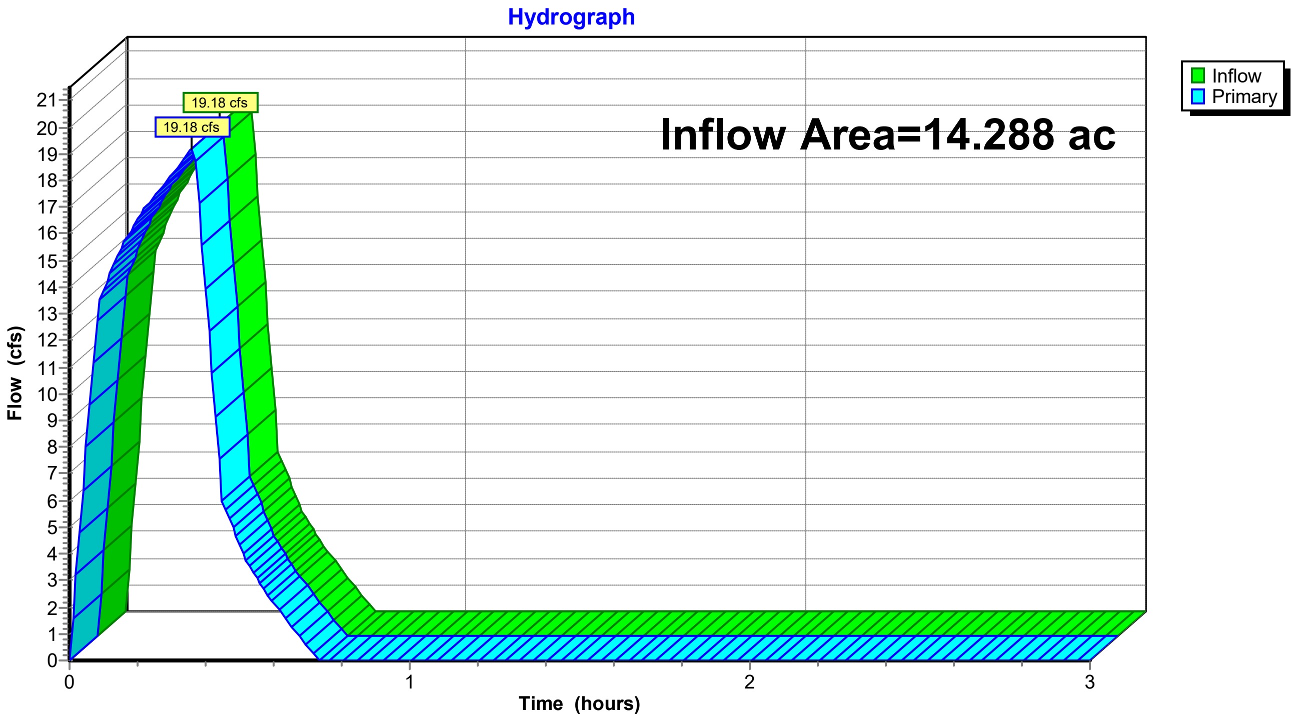


Summary for Link POST-DEV: Post-Development

Inflow Area = 14.288 ac, 0.00% Impervious, Inflow Depth = 0.49" for 25-yr event
Inflow = 19.18 cfs @ 0.36 hrs, Volume= 0.584 af
Primary = 19.18 cfs @ 0.36 hrs, Volume= 0.584 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Link POST-DEV: Post-Development



Summary for Subcatchment DB-B1: Drainage Basin B1

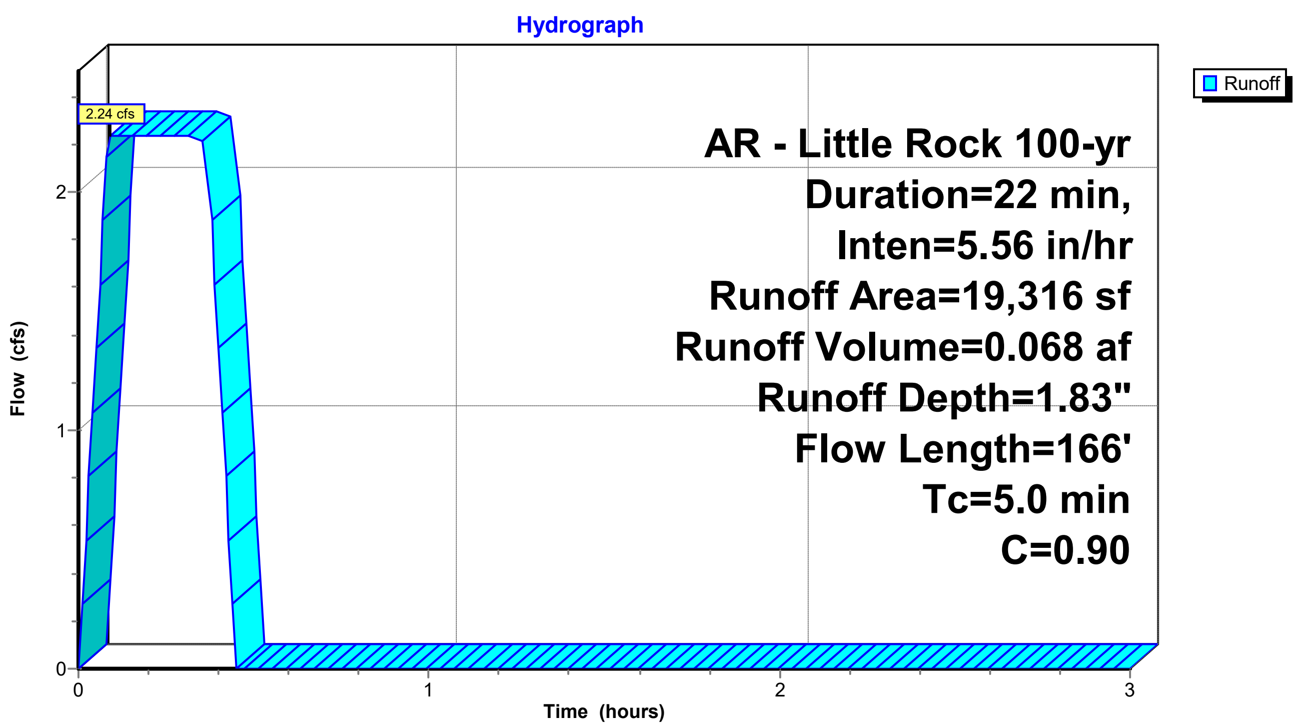
Runoff = 2.24 cfs @ 0.09 hrs, Volume= 0.068 af, Depth= 1.83"
Routed to Pond CI-A1 : CURB INLET A1

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 100-yr Duration=22 min, Inten=5.56 in/hr

Area (sf)	C	Description
1,941	0.45	Sandy Soil 2-7% per manual
17,375	0.95	Paved Areas
19,316	0.90	Weighted Average
1,941		10.05% Pervious Area
17,375		89.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	33	0.0200	0.16		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
0.6	67	0.0350	1.82		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.5	66	0.0100	2.03		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
0.4					**Direct Entry, Minimum Adjustment**
5.0	166	Total			

Subcatchment DB-B1: Drainage Basin B1



Summary for Subcatchment DB-B10: Drainage Basin B10

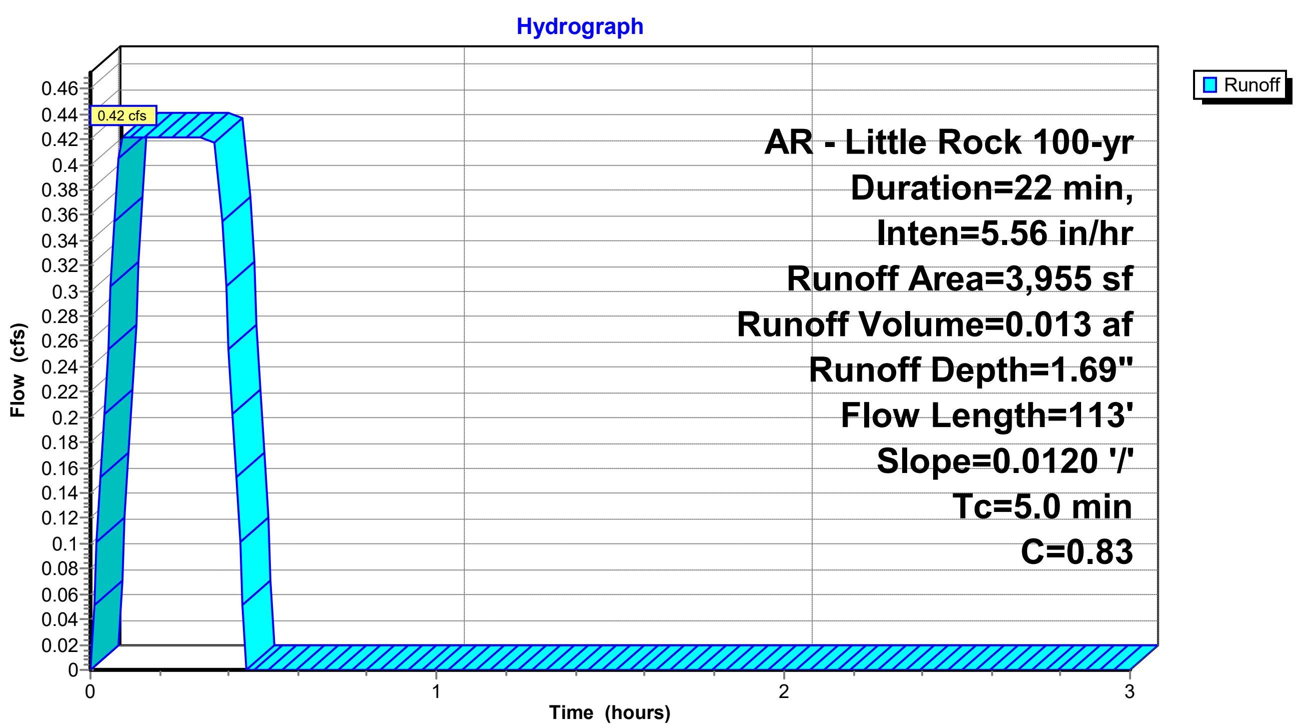
Runoff = 0.42 cfs @ 0.09 hrs, Volume= 0.013 af, Depth= 1.69"
Routed to Pond CI-C4 : CURB INLET C4

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 100-yr Duration=22 min, Inten=5.56 in/hr

Area (sf)	C	Description
959	0.45	Sandy Soil 2-7% per manual
2,996	0.95	Paved Areas
3,955	0.83	Weighted Average
959		24.25% Pervious Area
2,996		75.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	113	0.0120	1.32		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
3.6					**Direct Entry, Minimum Adjustment**
5.0	113	Total			

Subcatchment DB-B10: Drainage Basin B10



Summary for Subcatchment DB-B11: Drainage Basin B11

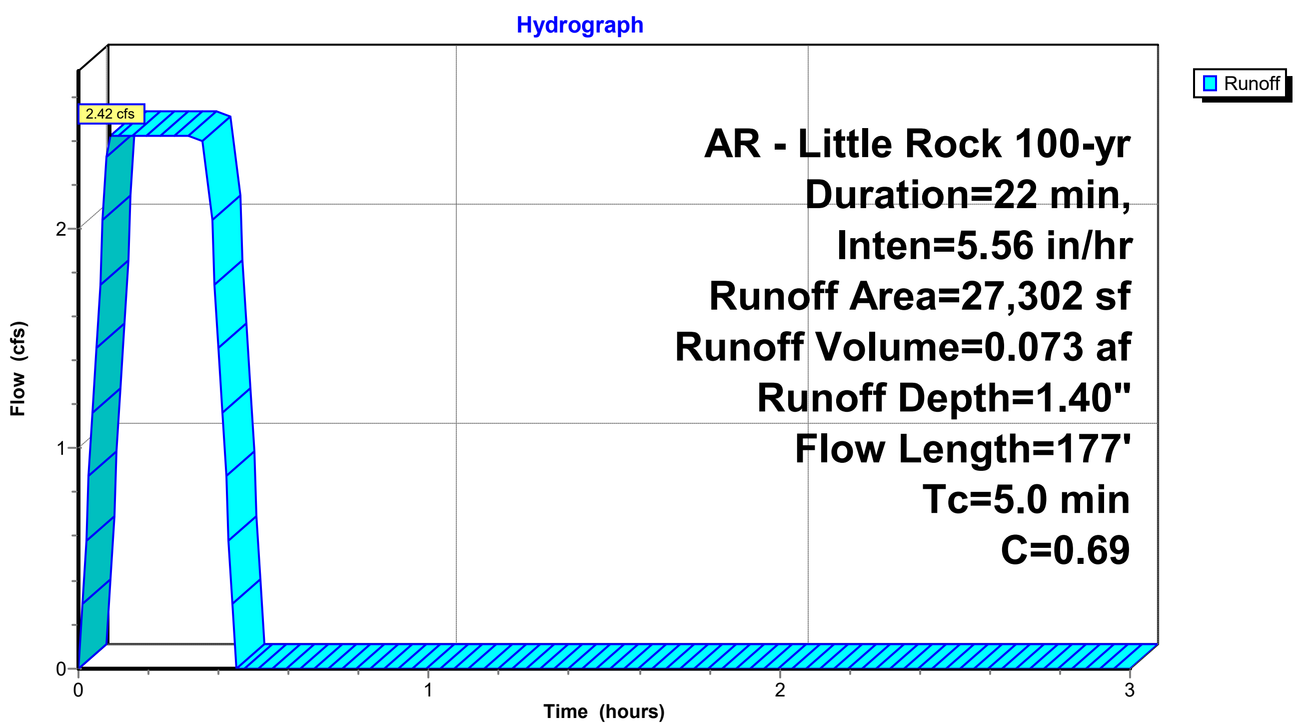
Runoff = 2.42 cfs @ 0.09 hrs, Volume= 0.073 af, Depth= 1.40"
Routed to Pond CI-D1 : CURB INLET D1

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 100-yr Duration=22 min, Inten=5.56 in/hr

Area (sf)	C	Description
15,547	0.50	Sandy Soil 2-7% per manual
11,755	0.95	Paved Areas
27,302	0.69	Weighted Average
15,547		56.94% Pervious Area
11,755		43.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	65	0.3300	4.44		**Sheet Flow, Roof** Smooth surfaces n= 0.011 P2= 4.20"
0.2	69	0.1750	6.27		**Shallow Concentrated Flow, Greenspace** Grassed Waterway Kv= 15.0 fps
0.2	43	0.0500	4.54		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
4.4					**Direct Entry, Minimum Adjustment**
5.0	177	Total			

Subcatchment DB-B11: Drainage Basin B11



Summary for Subcatchment DB-B12: Drainage Basin B12

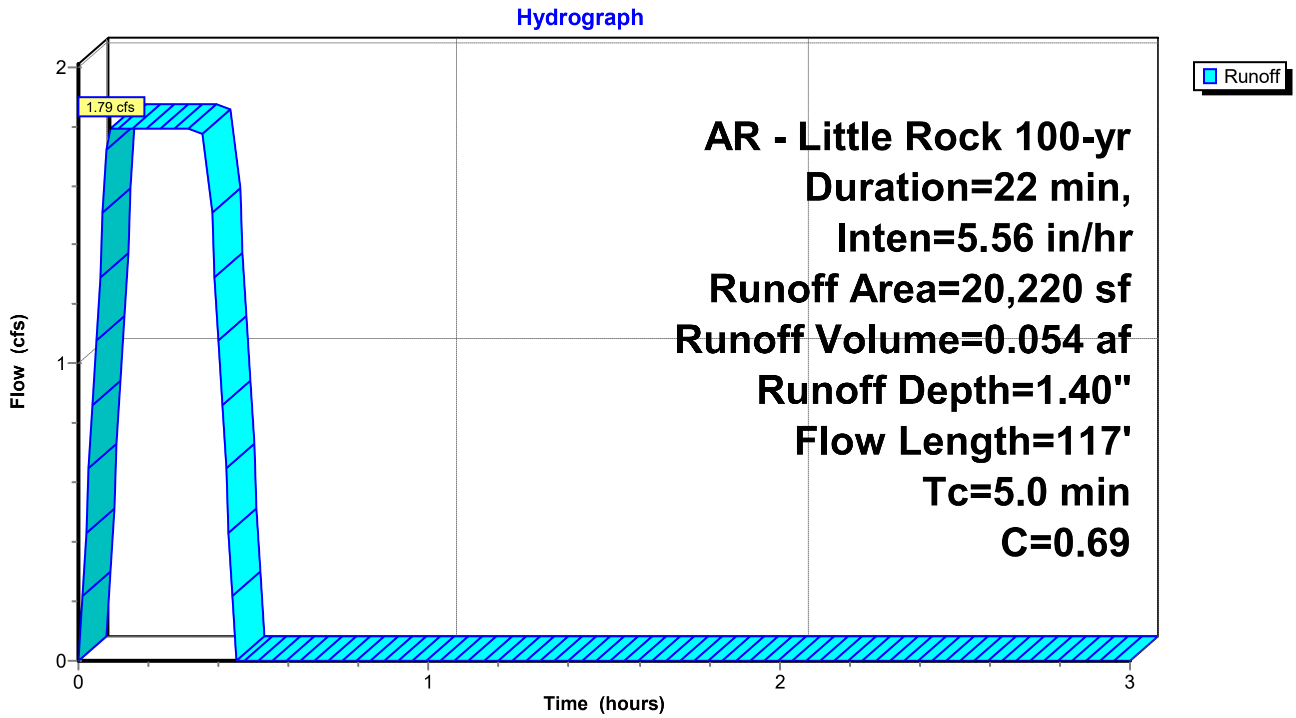
Runoff = 1.79 cfs @ 0.09 hrs, Volume= 0.054 af, Depth= 1.40"
Routed to Pond CI-C5 : CURB INLET C5

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 100-yr Duration=22 min, Inten=5.56 in/hr

Area (sf)	C	Description
11,502	0.50	Sandy Soil 2-7% per manual
8,718	0.95	Paved Areas
20,220	0.69	Weighted Average
11,502		56.88% Pervious Area
8,718		43.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	26	0.0500	0.21		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
1.5	38	0.2360	0.43		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
1.1	28	0.2390	0.41		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
0.4	25	0.0180	1.15		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
5.0	117	Total			

Subcatchment DB-B12: Drainage Basin B12



Summary for Subcatchment DB-B13: DRAINAGE BASIN B13

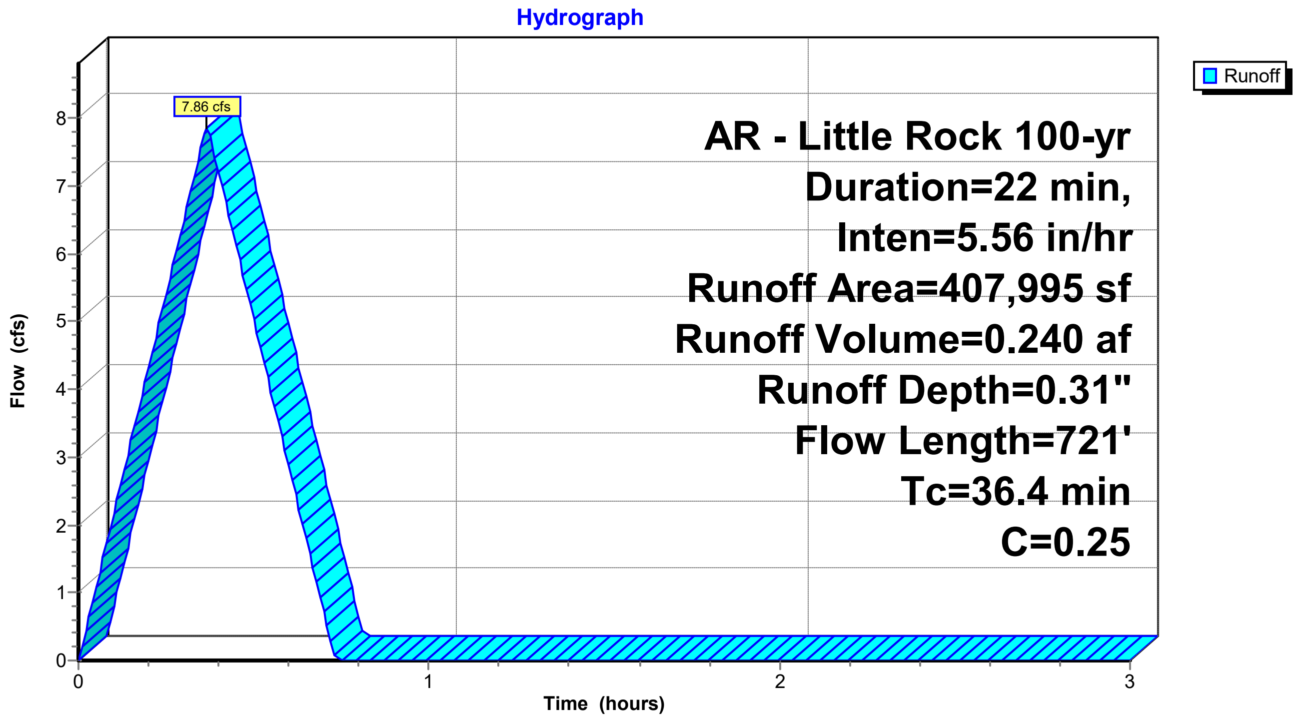
Runoff = 7.86 cfs @ 0.37 hrs, Volume= 0.240 af, Depth= 0.31"
Routed to Link POST-DEV : Post-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 100-yr Duration=22 min, Inten=5.56 in/hr

Area (sf)	C	Description
407,995	0.25	Sandy Soil 2-7% Per Manual
407,995		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	67	0.6600	0.73		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
1.2	46	0.5900	0.65		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
3.2	147	0.5100	0.77		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
1.8	63	0.3800	0.58		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
8.5	70	0.0100	0.14		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
4.8	163	0.2200	0.56		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
2.4	65	0.2000	0.45		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
6.3	48	0.0100	0.13		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
6.7	52	0.0100	0.13		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
36.4	721	Total			

Subcatchment DB-B13: DRAINAGE BASIN B13



Summary for Subcatchment DB-B14: DRAINAGE BASIN B14

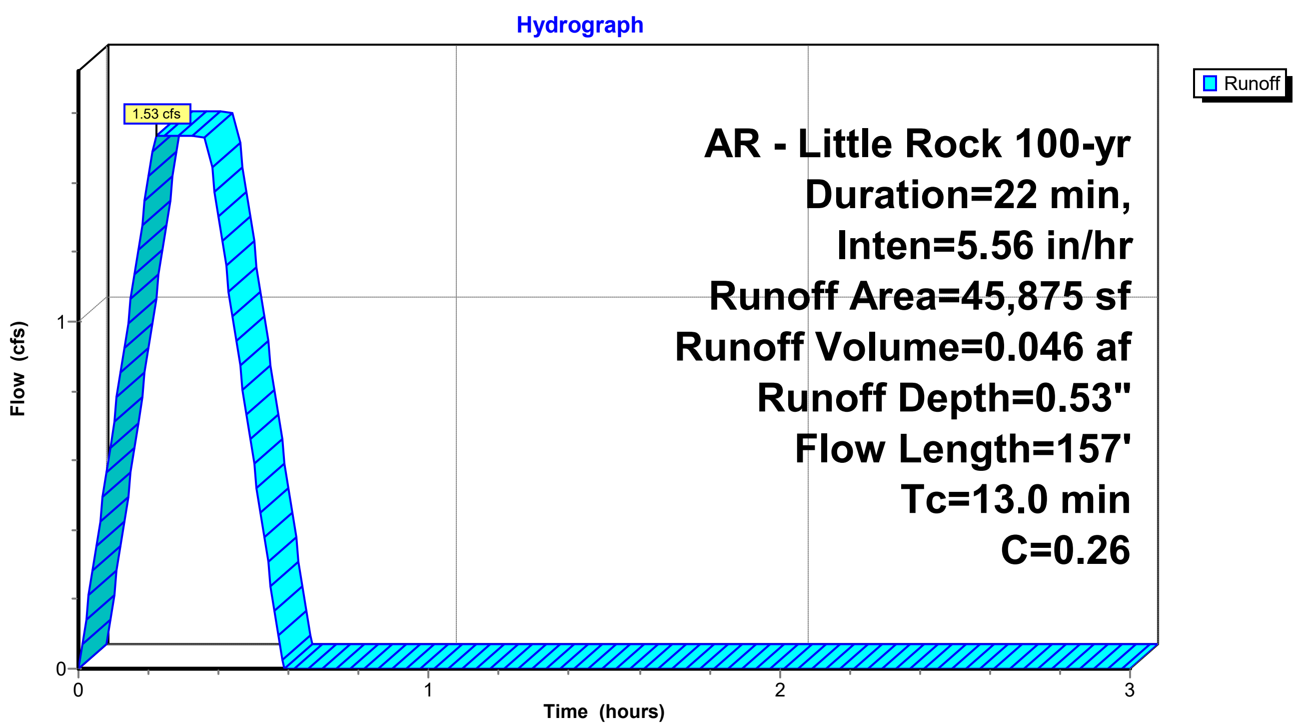
Runoff = 1.53 cfs @ 0.22 hrs, Volume= 0.046 af, Depth= 0.53"
Routed to Link POST-DEV : Post-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 100-yr Duration=22 min, Inten=5.56 in/hr

Area (sf)	C	Description
45,016	0.25	Sandy Soil 2-7% Per Manual
859	0.92	Paved Areas
45,875	0.26	Weighted Average
45,875		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	15	0.0100	0.10		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
5.2	78	0.0420	0.25		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
2.8	38	0.0480	0.23		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
2.5	26	0.0280	0.17		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
13.0	157	Total			

Subcatchment DB-B14: DRAINAGE BASIN B14



Summary for Subcatchment DB-B2: Drainage Basin B2

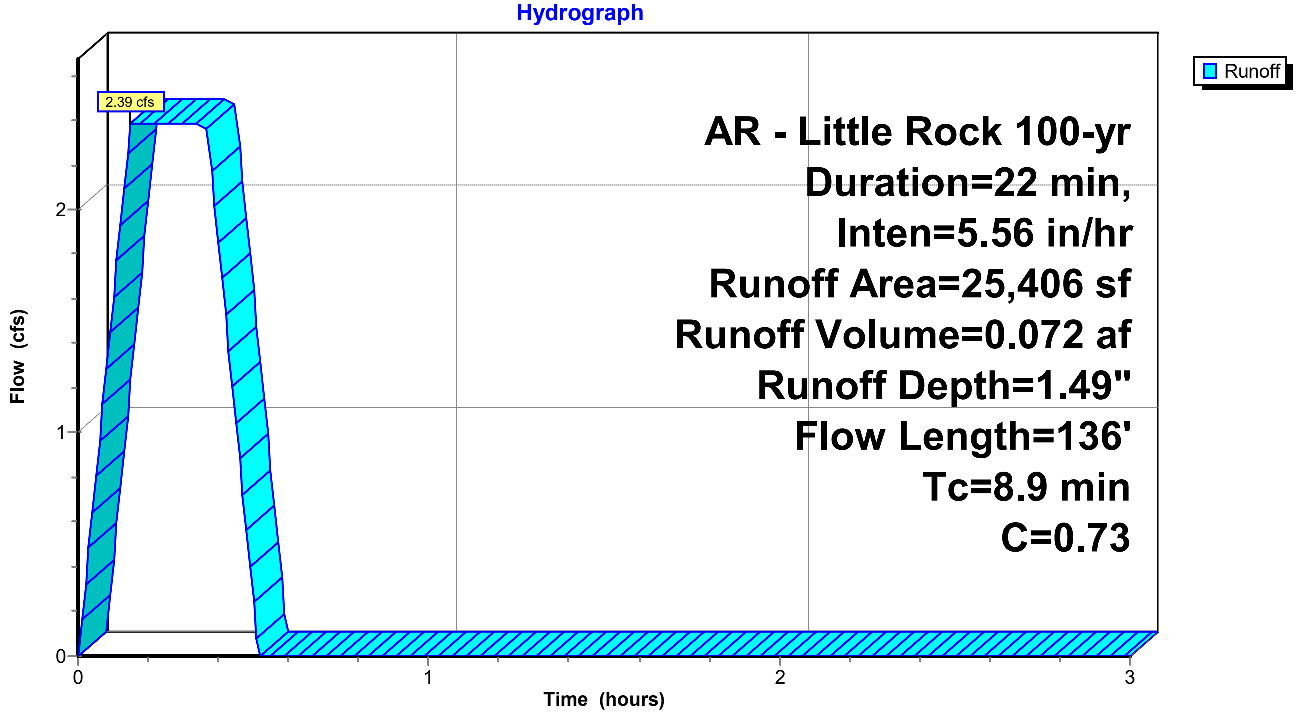
Runoff = 2.39 cfs @ 0.15 hrs, Volume= 0.072 af, Depth= 1.49"
Routed to Pond CI-A2 : CURB INLET A2

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 100-yr Duration=22 min, Inten=5.56 in/hr

Area (sf)	C	Description
11,388	0.45	Sandy Soil 2-7% per manual
14,018	0.95	Paved Areas
25,406	0.73	Weighted Average
11,388		44.82% Pervious Area
14,018		55.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	57	0.0100	0.13		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
0.8	19	0.2480	0.38		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
0.2	14	0.0150	0.95		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.3	34	0.0600	1.97		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.2	12	0.0350	1.29		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.2					**Direct Entry, Minimum Adjustment**
8.9	136	Total			

Subcatchment DB-B2: Drainage Basin B2



Summary for Subcatchment DB-B3: Drainage Basin B3

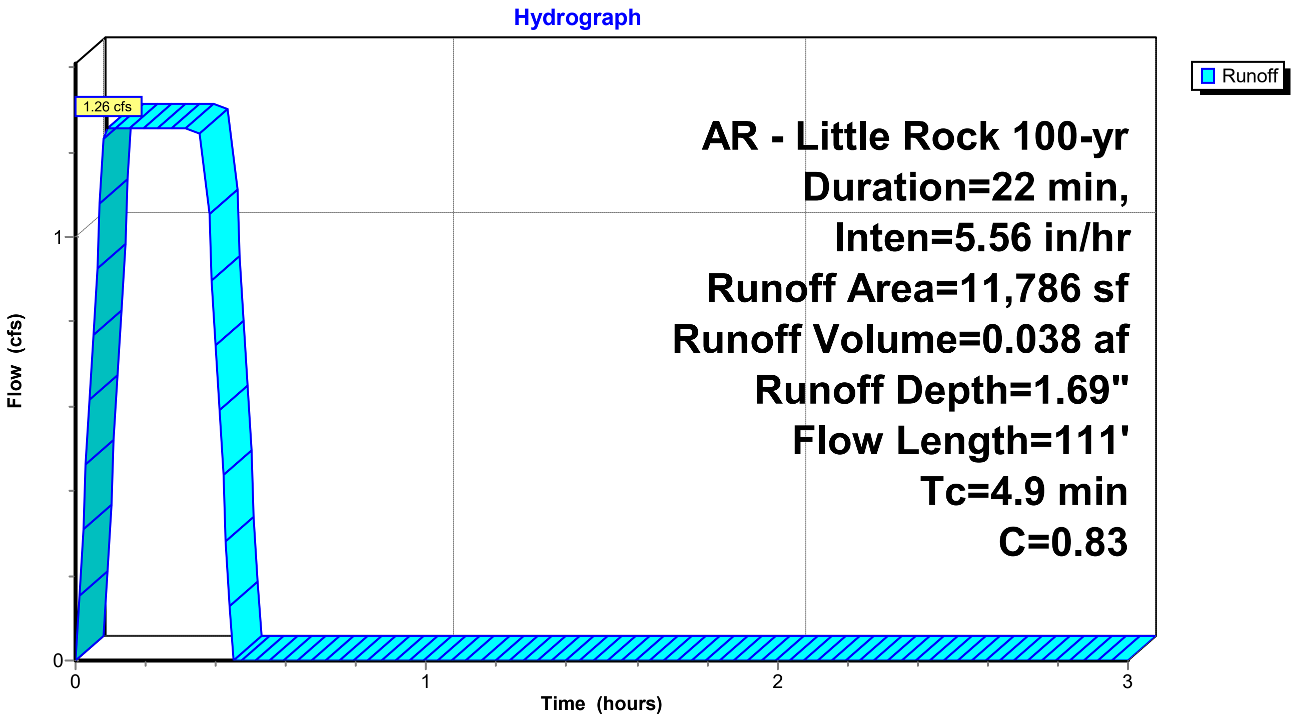
Runoff = 1.26 cfs @ 0.09 hrs, Volume= 0.038 af, Depth= 1.69"
Routed to Pond CI-A3 : CURB INLET A3

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 100-yr Duration=22 min, Inten=5.56 in/hr

Area (sf)	C	Description
2,920	0.45	Sandy Soil 2-7% per manual
8,866	0.95	Paved Areas
11,786	0.83	Weighted Average
2,920		24.78% Pervious Area
8,866		75.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	19	0.2500	0.38		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
0.2	16	0.0290	1.27		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.6	38	0.0100	0.98		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.3	38	0.0100	2.03		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
3.0					**Direct Entry, Minimum Adjustment**
4.9	111	Total			

Subcatchment DB-B3: Drainage Basin B3



Summary for Subcatchment DB-B4: Drainage Basin B4

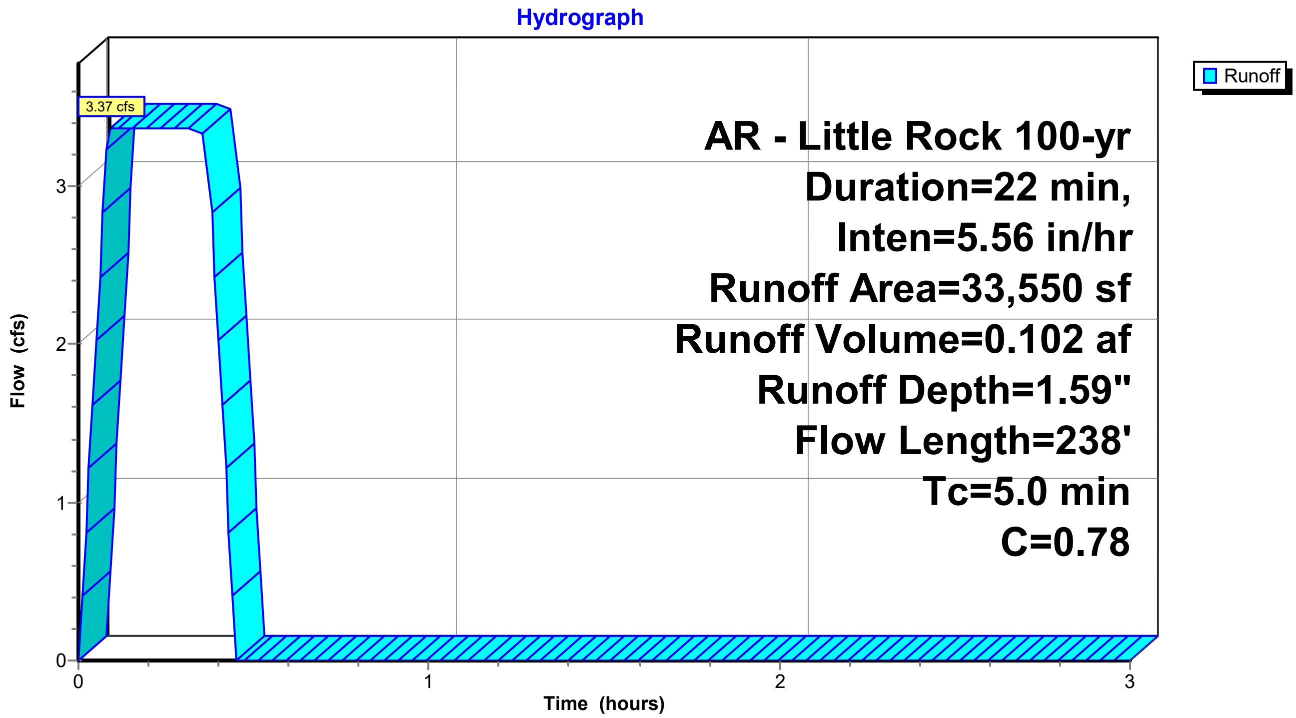
Runoff = 3.37 cfs @ 0.09 hrs, Volume= 0.102 af, Depth= 1.59"
Routed to Pond CI-A4 : CURB INLET A4

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 100-yr Duration=22 min, Inten=5.56 in/hr

Area (sf)	C	Description
11,568	0.45	Sandy Soil 2-7% per manual
21,982	0.95	Paved Areas
33,550	0.78	Weighted Average
11,568		34.48% Pervious Area
21,982		65.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	48	0.0530	2.01		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.3	25	0.0310	1.42		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.6	14	0.0020	0.42		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.9	66	0.0130	1.22		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.4	59	0.0120	2.22		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
0.5	19	0.0010	0.64		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
0.0	7	0.0700	5.37		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
1.9					**Direct Entry, Minimum Adjustment**
5.0	238	Total			

Subcatchment DB-B4: Drainage Basin B4



Summary for Subcatchment DB-B5: Drainage Basin B5

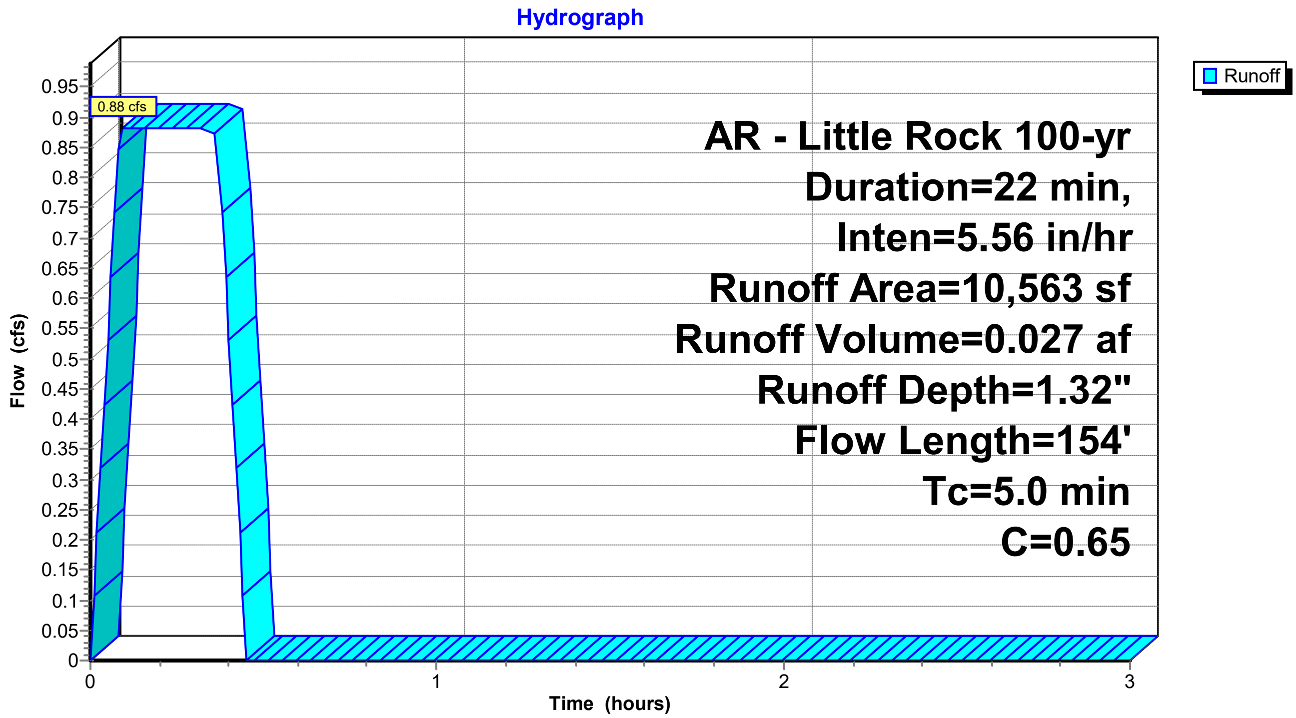
Runoff = 0.88 cfs @ 0.09 hrs, Volume= 0.027 af, Depth= 1.32"
Routed to Pond CI-A5 : CURB INLET A5

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 100-yr Duration=22 min, Inten=5.56 in/hr

Area (sf)	C	Description
6,980	0.50	Sandy Soil 2-7% per manual
3,583	0.95	Paved Areas
10,563	0.65	Weighted Average
6,980		66.08% Pervious Area
3,583		33.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	19	0.0920	0.26		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
1.9	39	0.1260	0.34		**Sheet Flow, Greenspace** Grass: Short n= 0.150 P2= 4.20"
0.5	66	0.0540	2.16		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.1	30	0.0500	4.54		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
1.3					**Direct Entry, Minimum Adjustment**
5.0	154	Total			

Subcatchment DB-B5: Drainage Basin B5



Summary for Subcatchment DB-B6: Drainage Basin B6

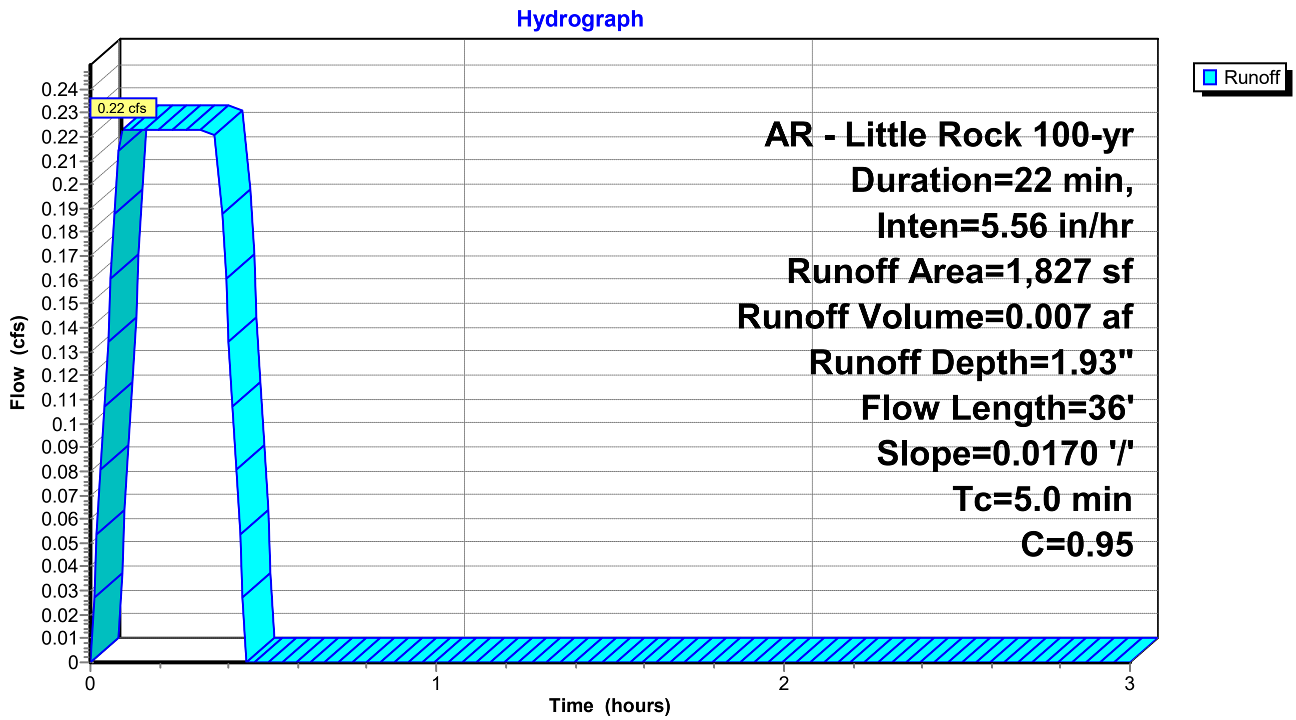
Runoff = 0.22 cfs @ 0.09 hrs, Volume= 0.007 af, Depth= 1.93"
Routed to Pond AI-B1 : AREA INLET B1

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 100-yr Duration=22 min, Inten=5.56 in/hr

Area (sf)	C	Description
0	0.45	Sandy Soil 2-7% per manual
1,827	0.95	Paved Areas
1,827	0.95	Weighted Average
1,827		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	36	0.0170	1.20		**Sheet Flow, Concrete** Smooth surfaces n= 0.011 P2= 4.20"
4.5					**Direct Entry, Minimum Adjustment**
5.0	36	Total			

Subcatchment DB-B6: Drainage Basin B6



Summary for Subcatchment DB-B7: Drainage Basin B7

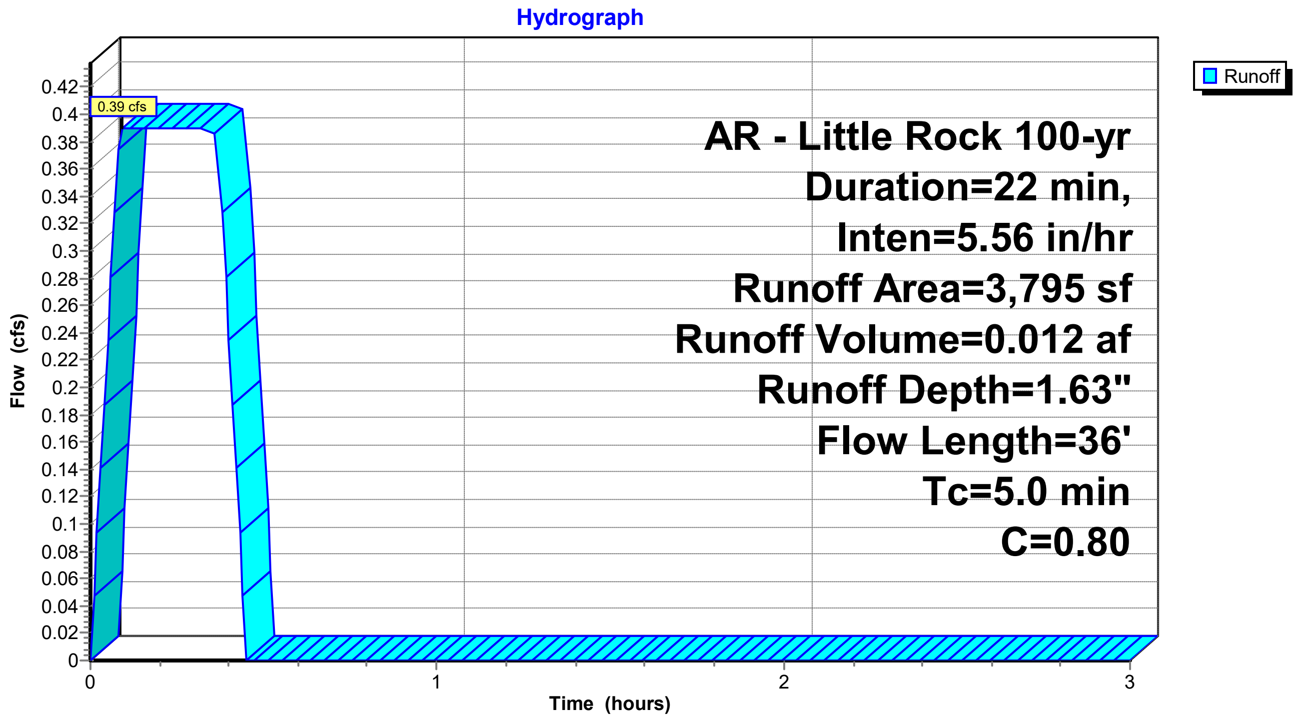
Runoff = 0.39 cfs @ 0.09 hrs, Volume= 0.012 af, Depth= 1.63"
Routed to Pond AI-B2 : AREA INLET B2

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 100-yr Duration=22 min, Inten=5.56 in/hr

Area (sf)	C	Description
1,158	0.45	Sandy Soil 2-7% per manual
2,637	0.95	Paved Areas
3,795	0.80	Weighted Average
1,158		30.51% Pervious Area
2,637		69.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	24	0.0020	0.47		**Sheet Flow, Concrete** Smooth surfaces n= 0.011 P2= 4.20"
0.2	12	0.0160	0.94		**Sheet Flow, Concrete** Smooth surfaces n= 0.011 P2= 4.20"
4.0					**Direct Entry, Minimum Adjustment**
5.0	36	Total			

Subcatchment DB-B7: Drainage Basin B7



Summary for Subcatchment DB-B8: Drainage Basin B8

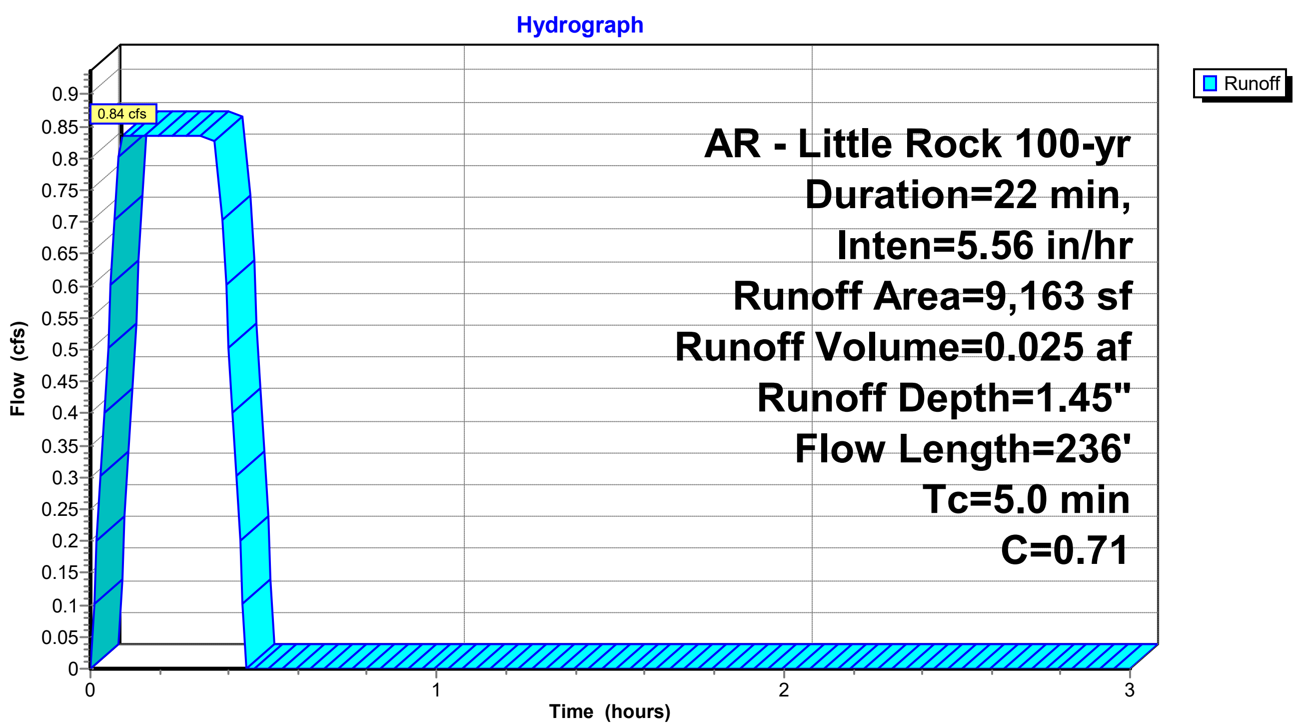
Runoff = 0.84 cfs @ 0.09 hrs, Volume= 0.025 af, Depth= 1.45"
Routed to Pond CI-C1 : CURB INLET C1

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 100-yr Duration=22 min, Inten=5.56 in/hr

Area (sf)	C	Description
4,431	0.45	Sadny Soil 2-7% per manual
4,732	0.95	Paved Areas
9,163	0.71	Weighted Average
4,431		48.36% Pervious Area
4,732		51.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	33	0.0210	1.29		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.6	91	0.0620	2.43		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.8	112	0.0490	2.31		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
3.2					**Direct Entry, Minimum Adjustment**
5.0	236	Total			

Subcatchment DB-B8: Drainage Basin B8



Summary for Subcatchment DB-B9: Drainage Basin B9

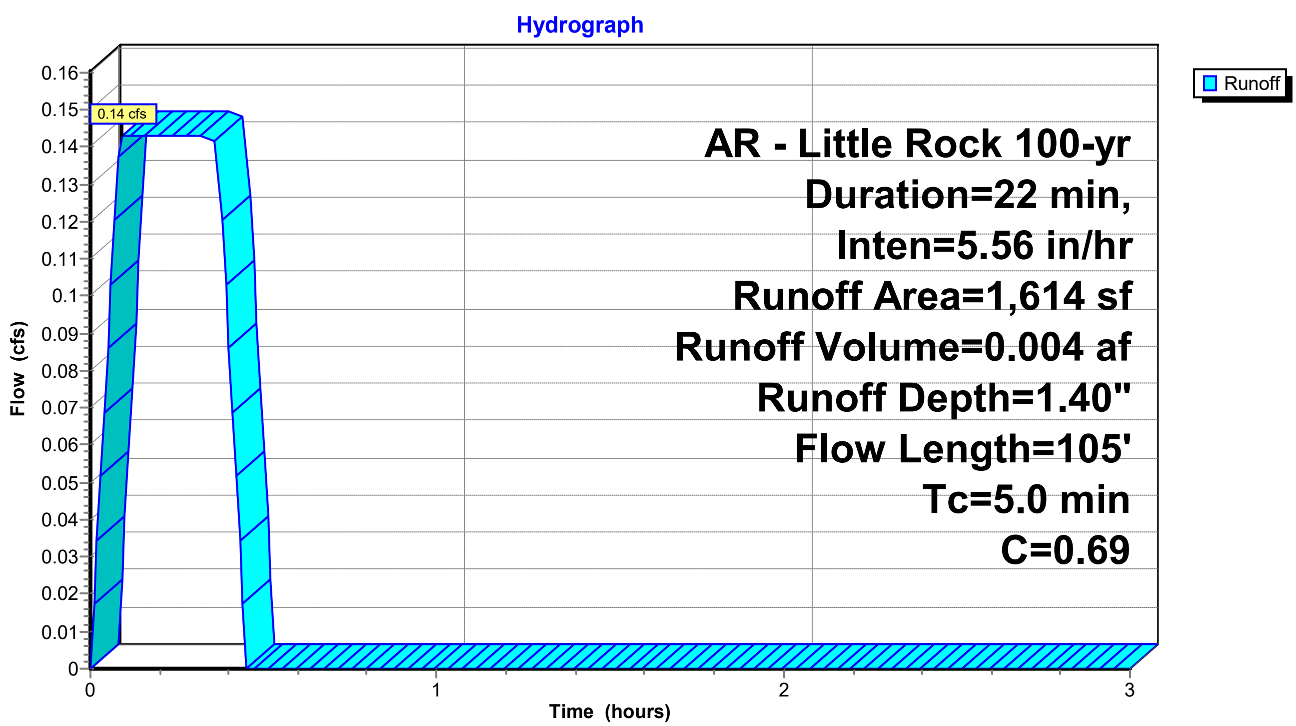
Runoff = 0.14 cfs @ 0.09 hrs, Volume= 0.004 af, Depth= 1.40"
Routed to Pond CI-C2 : CURB INLET C2

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 100-yr Duration=22 min, Inten=5.56 in/hr

Area (sf)	C	Description
826	0.45	Sandy Soil 2-7% per manual
788	0.95	Paved Areas
1,614	0.69	Weighted Average
826		51.18% Pervious Area
788		48.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	62	0.0100	1.09		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.20"
0.0	8	0.0230	3.08		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
0.2	35	0.0140	2.40		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
3.8					**Direct Entry, Minimum Adjustment**
5.0	105	Total			

Subcatchment DB-B9: Drainage Basin B9



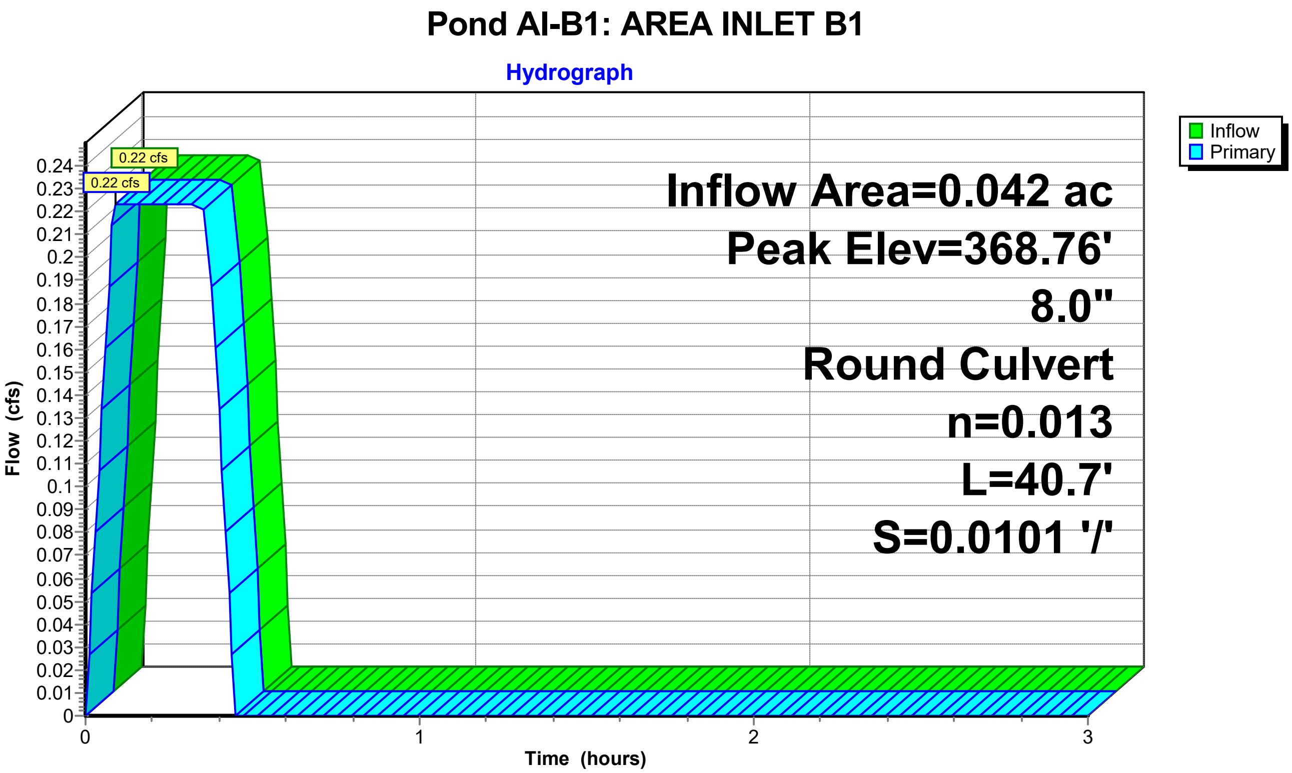
Summary for Pond AI-B1: AREA INLET B1

Inflow Area = 0.042 ac,100.00% Impervious, Inflow Depth = 1.93" for 100-yr event
Inflow = 0.22 cfs @ 0.09 hrs, Volume= 0.007 af
Outflow = 0.22 cfs @ 0.09 hrs, Volume= 0.007 af, Atten= 0%, Lag= 0.0 min
Primary = 0.22 cfs @ 0.09 hrs, Volume= 0.007 af
Routed to Pond AI-B2 : AREA INLET B2

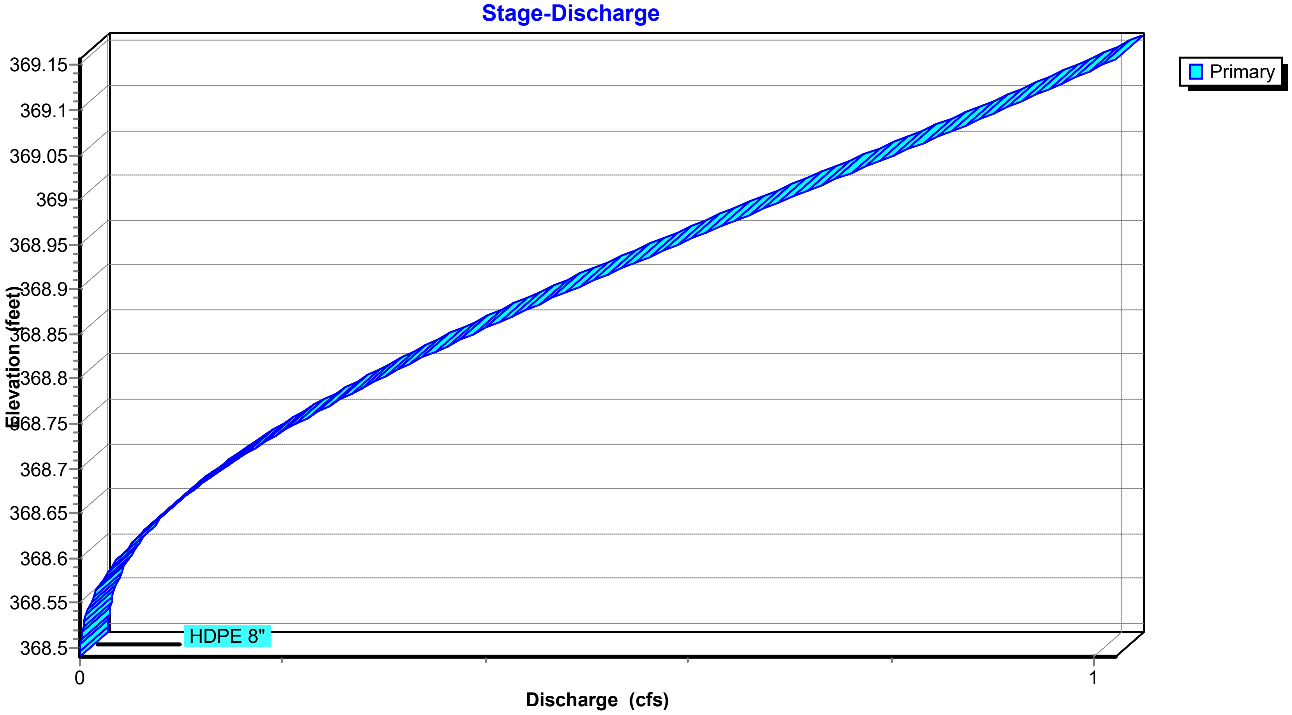
Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 368.76' @ 0.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	368.49'	**8.0" Round HDPE 8"** L= 40.7' Ke= 0.100 Inlet / Outlet Invert= 368.49' / 368.08' S= 0.0101 '/' Cc= 0.900 n= 0.013, Flow Area= 0.35 sf

Primary OutFlow Max=0.22 cfs @ 0.09 hrs HW=368.76' (Free Discharge)
↑**1=HDPE 8"** (Barrel Controls 0.22 cfs @ 2.54 fps)



Pond AI-B1: AREA INLET B1



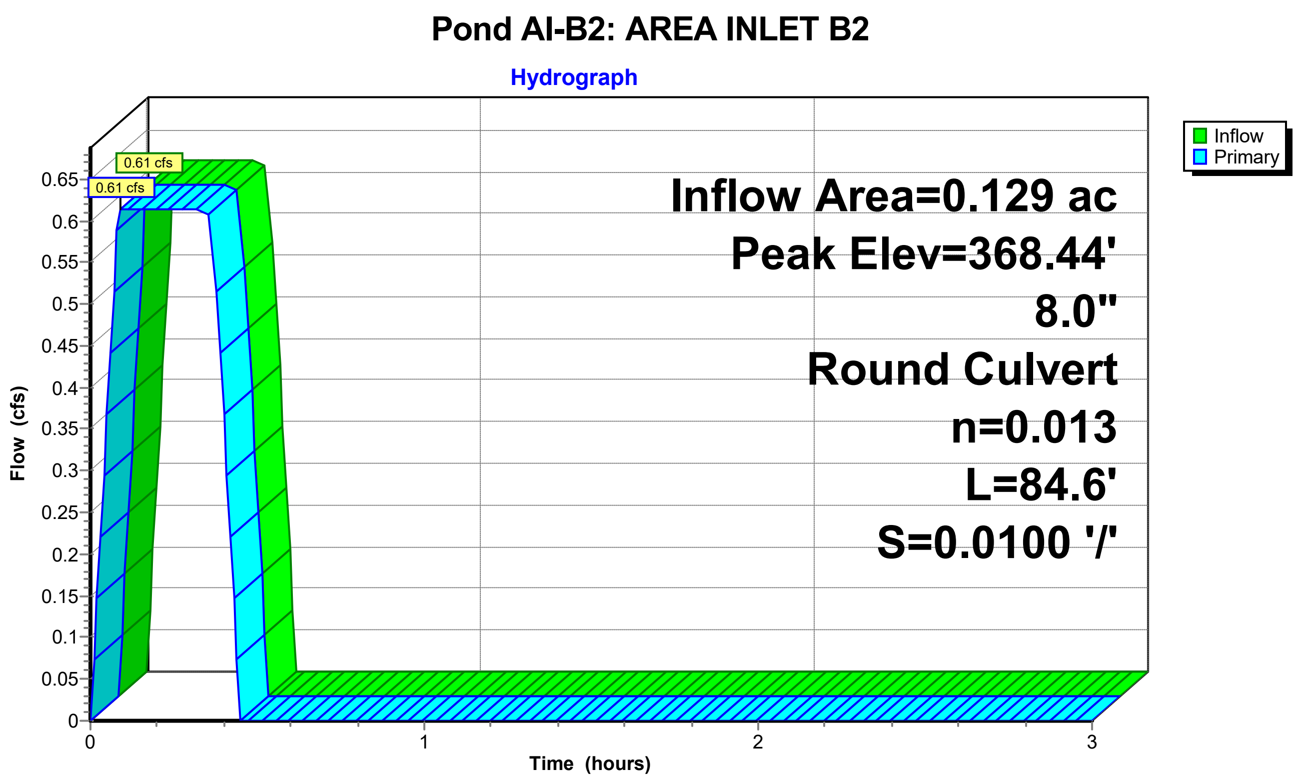
Summary for Pond AI-B2: AREA INLET B2

Inflow Area = 0.129 ac, 79.40% Impervious, Inflow Depth = 1.73" for 100-yr event
Inflow = 0.61 cfs @ 0.09 hrs, Volume= 0.019 af
Outflow = 0.61 cfs @ 0.09 hrs, Volume= 0.019 af, Atten= 0%, Lag= 0.0 min
Primary = 0.61 cfs @ 0.09 hrs, Volume= 0.019 af
Routed to Pond CI-A2 : CURB INLET A2

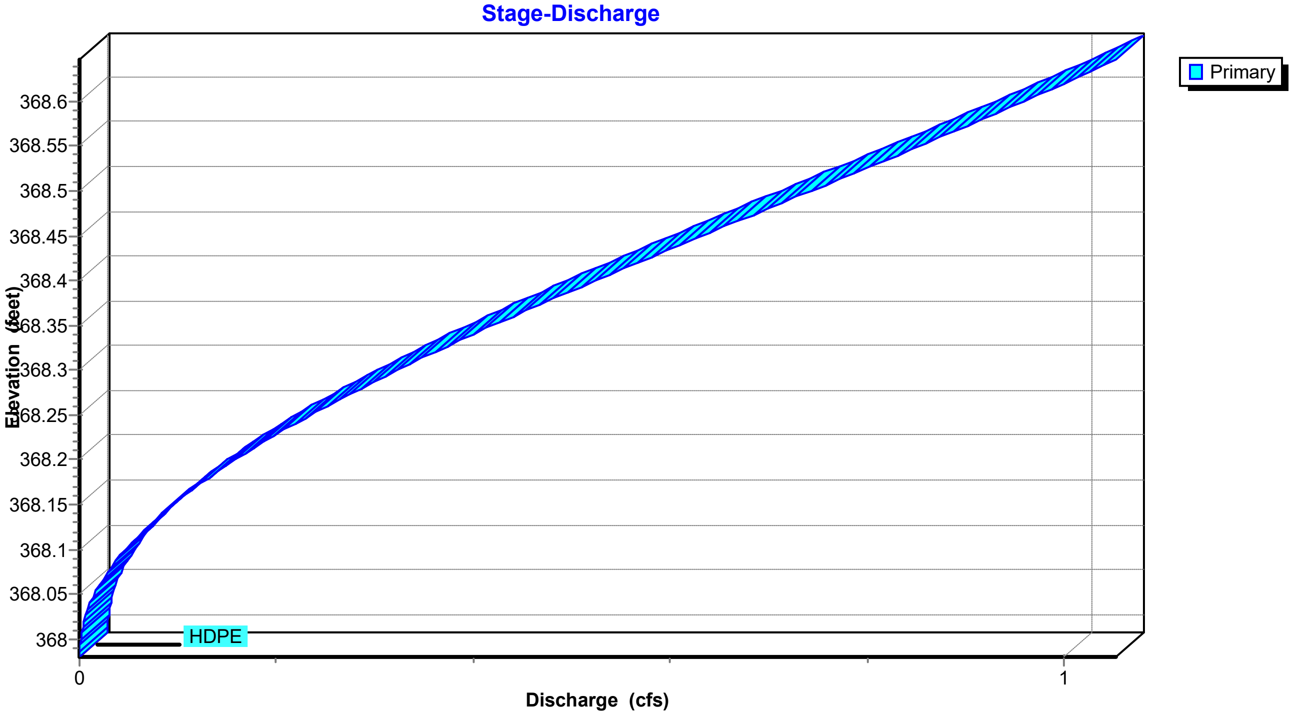
Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 368.44' @ 0.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	367.98'	**8.0" Round HDPE** L= 84.6' Ke= 0.100 Inlet / Outlet Invert= 367.98' / 367.13' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.35 sf

Primary OutFlow Max=0.61 cfs @ 0.09 hrs HW=368.44' (Free Discharge)
↑—**1=HDPE** (Barrel Controls 0.61 cfs @ 3.36 fps)



Pond AI-B2: AREA INLET B2



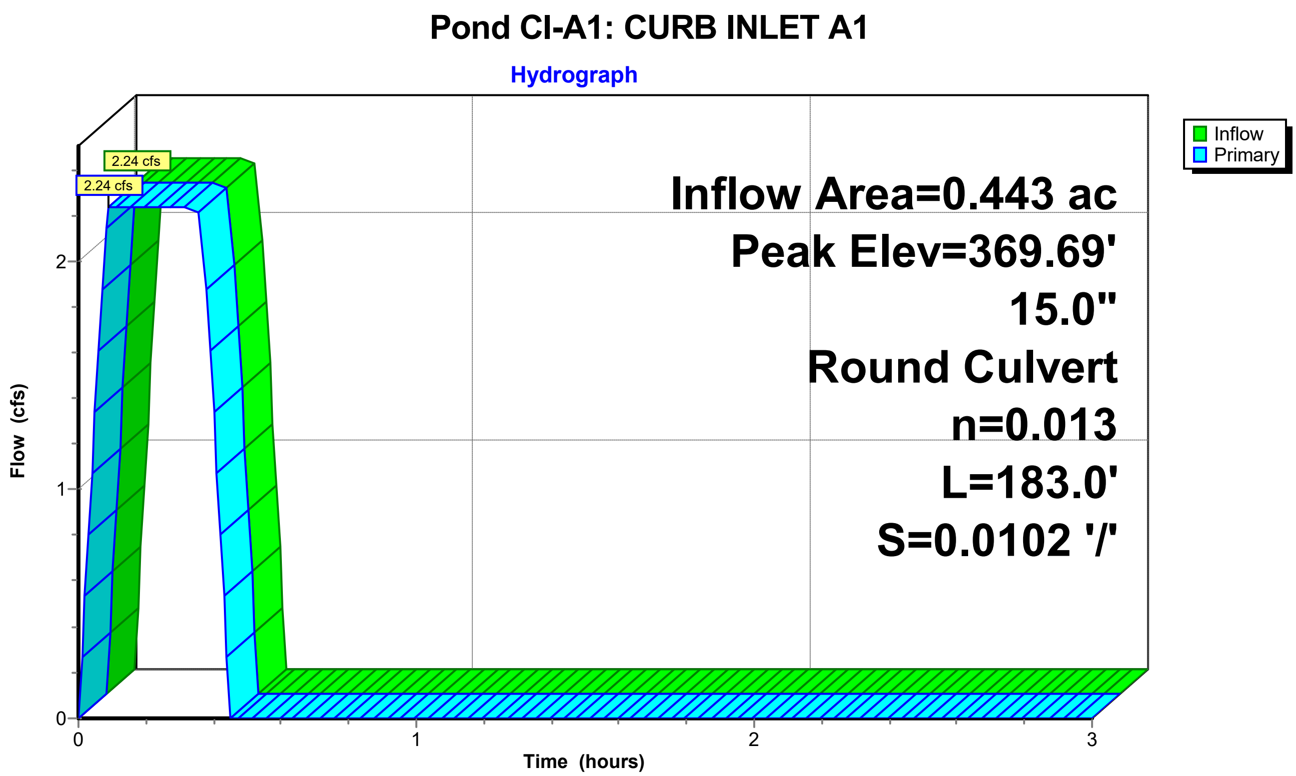
Summary for Pond CI-A1: CURB INLET A1

Inflow Area = 0.443 ac, 89.95% Impervious, Inflow Depth = 1.83" for 100-yr event
Inflow = 2.24 cfs @ 0.09 hrs, Volume= 0.068 af
Outflow = 2.24 cfs @ 0.09 hrs, Volume= 0.068 af, Atten= 0%, Lag= 0.0 min
Primary = 2.24 cfs @ 0.09 hrs, Volume= 0.068 af
Routed to Pond CI-A2 : CURB INLET A2

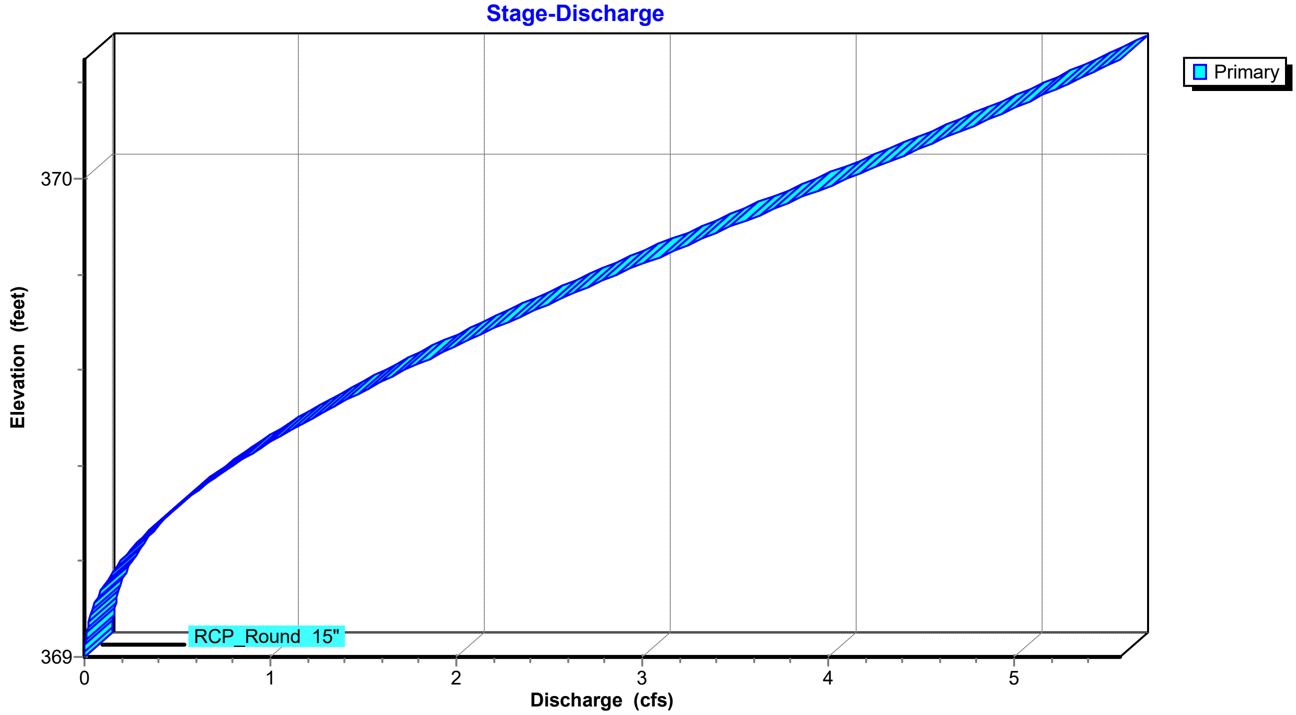
Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 369.69' @ 0.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	369.00'	**15.0" Round RCP_Round 15"** L= 183.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 369.00' / 367.13' S= 0.0102 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.23 sf

Primary OutFlow Max=2.24 cfs @ 0.09 hrs HW=369.69' (Free Discharge)
└─**1=RCP_Round 15"** (Barrel Controls 2.24 cfs @ 4.63 fps)



Pond CI-A1: CURB INLET A1



Summary for Pond CI-A2: CURB INLET A2

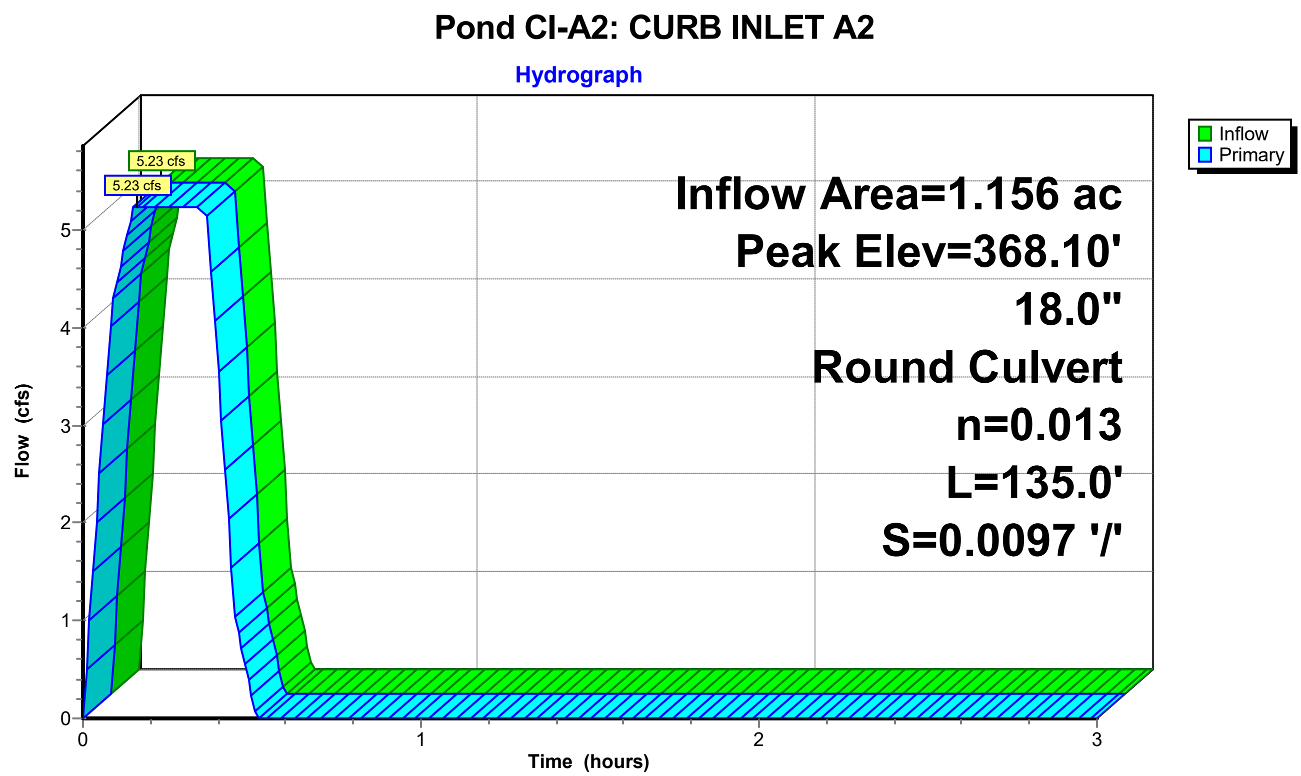
Inflow Area =	1.156 ac, 71.22% Impervious, Inflow Depth = 1.65" for 100-yr event		
Inflow =	5.23 cfs @ 0.15 hrs, Volume=	0.159 af	
Outflow =	5.23 cfs @ 0.16 hrs, Volume=	0.159 af,	Atten= 0%, Lag= 0.6 min
Primary =	5.23 cfs @ 0.16 hrs, Volume=	0.159 af	

Routed to Pond CI-A3 : CURB INLET A3

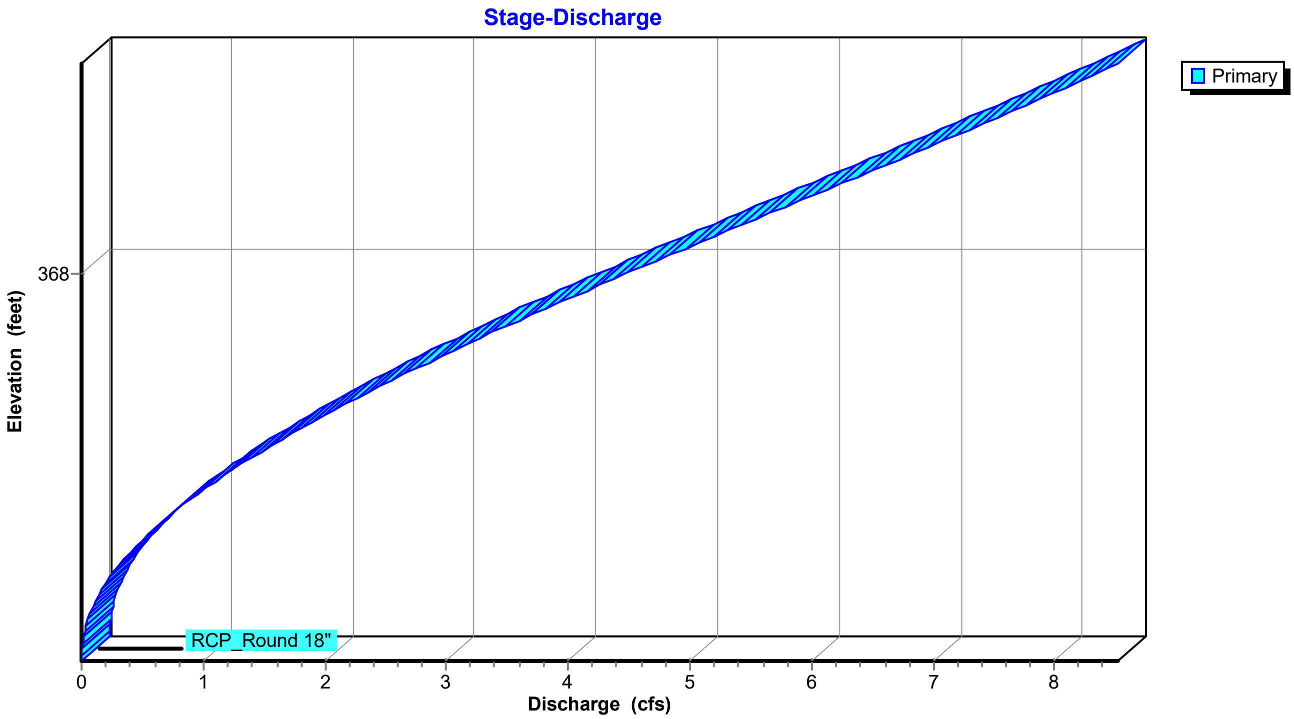
Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 368.10' @ 0.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	367.03'	**18.0" Round RCP_Round 18"** L= 135.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 367.03' / 365.72' S= 0.0097 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=5.23 cfs @ 0.16 hrs HW=368.10' (Free Discharge)
└─**1=RCP_Round 18"** (Barrel Controls 5.23 cfs @ 5.44 fps)



Pond CI-A2: CURB INLET A2



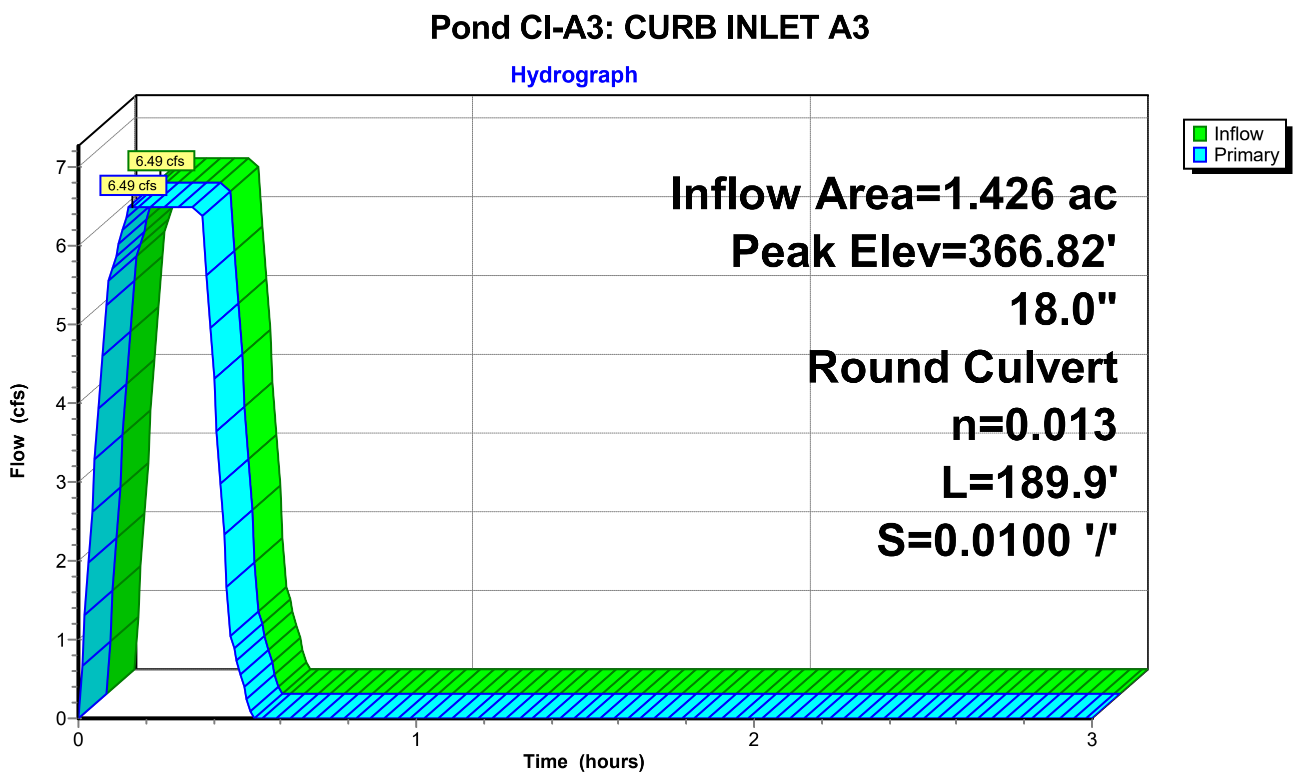
Summary for Pond CI-A3: CURB INLET A3

Inflow Area = 1.426 ac, 71.98% Impervious, Inflow Depth = 1.65" for 100-yr event
Inflow = 6.49 cfs @ 0.16 hrs, Volume= 0.197 af
Outflow = 6.49 cfs @ 0.16 hrs, Volume= 0.197 af, Atten= 0%, Lag= 0.0 min
Primary = 6.49 cfs @ 0.16 hrs, Volume= 0.197 af
Routed to Pond CI-A4 : CURB INLET A4

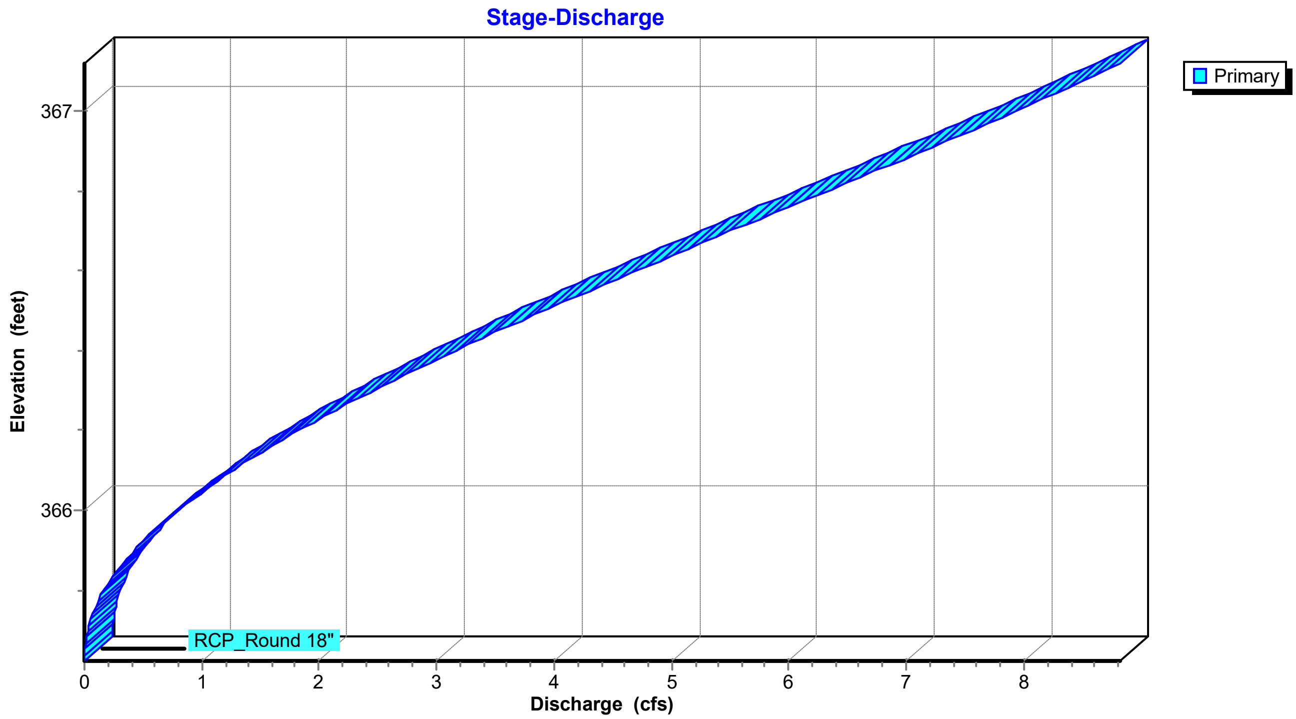
Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 366.82' @ 0.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	365.62'	**18.0" Round RCP_Round 18"** L= 189.9' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 365.62' / 363.72' S= 0.0100 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=6.49 cfs @ 0.16 hrs HW=366.82' (Free Discharge)
└─**1=RCP_Round 18"** (Barrel Controls 6.49 cfs @ 5.86 fps)



Pond CI-A3: CURB INLET A3



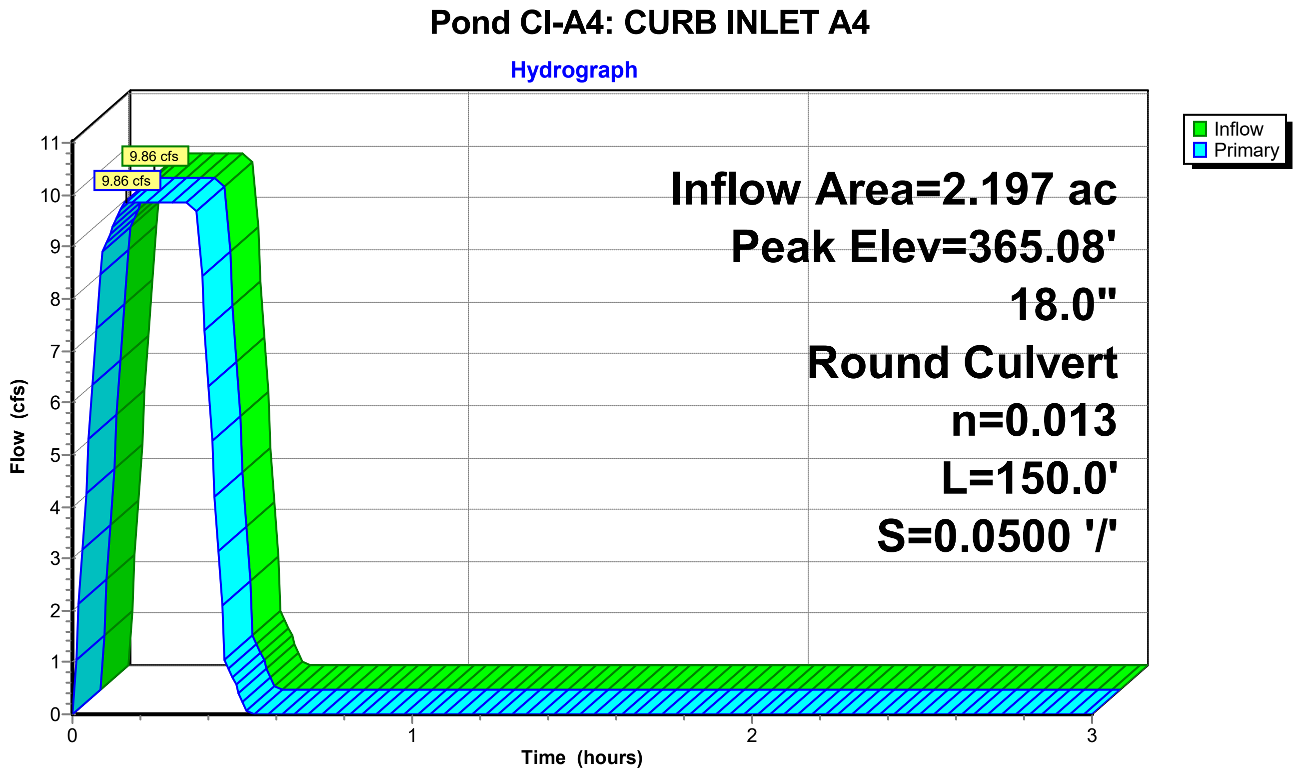
Summary for Pond CI-A4: CURB INLET A4

Inflow Area = 2.197 ac, 69.72% Impervious, Inflow Depth = 1.63" for 100-yr event
Inflow = 9.86 cfs @ 0.16 hrs, Volume= 0.299 af
Outflow = 9.86 cfs @ 0.16 hrs, Volume= 0.299 af, Atten= 0%, Lag= 0.0 min
Primary = 9.86 cfs @ 0.16 hrs, Volume= 0.299 af
Routed to Pond CI-A5 : CURB INLET A5

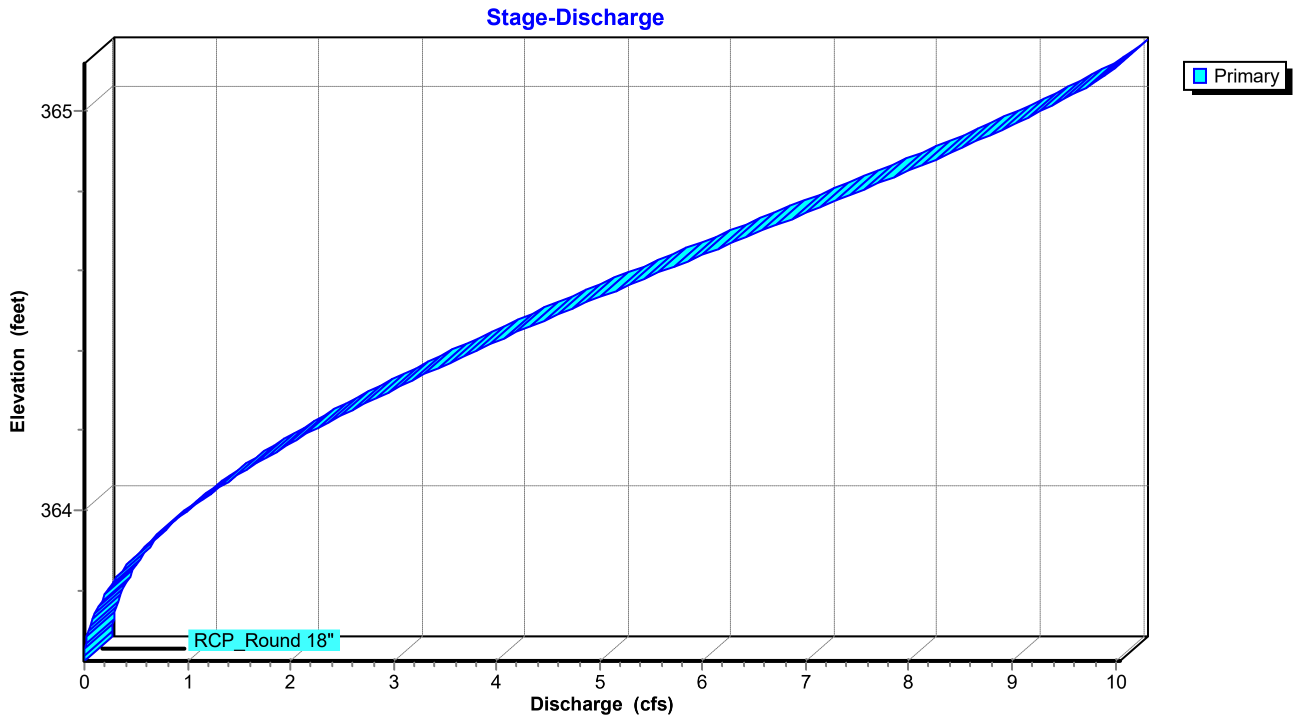
Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 365.08' @ 0.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	363.62'	**18.0" Round RCP_Round 18"** L= 150.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 363.62' / 356.12' S= 0.0500 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=9.86 cfs @ 0.16 hrs HW=365.08' (Free Discharge)
└─1=RCP_Round 18" (Inlet Controls 9.86 cfs @ 5.62 fps)



Pond CI-A4: CURB INLET A4



Summary for Pond CI-A5: CURB INLET A5

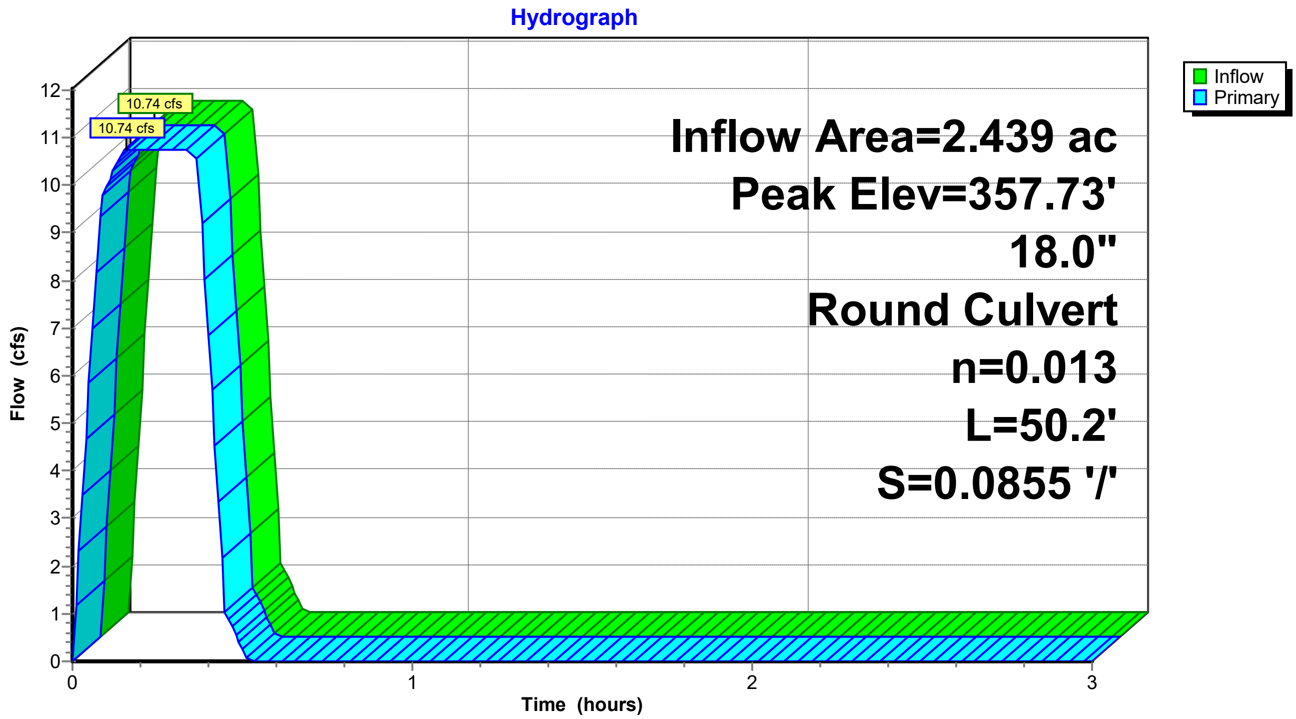
Inflow Area = 2.439 ac, 66.16% Impervious, Inflow Depth = 1.60" for 100-yr event
Inflow = 10.74 cfs @ 0.16 hrs, Volume= 0.325 af
Outflow = 10.74 cfs @ 0.16 hrs, Volume= 0.325 af, Atten= 0%, Lag= 0.0 min
Primary = 10.74 cfs @ 0.16 hrs, Volume= 0.325 af
Routed to Link POST-DEV : Post-Development

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 357.73' @ 0.15 hrs

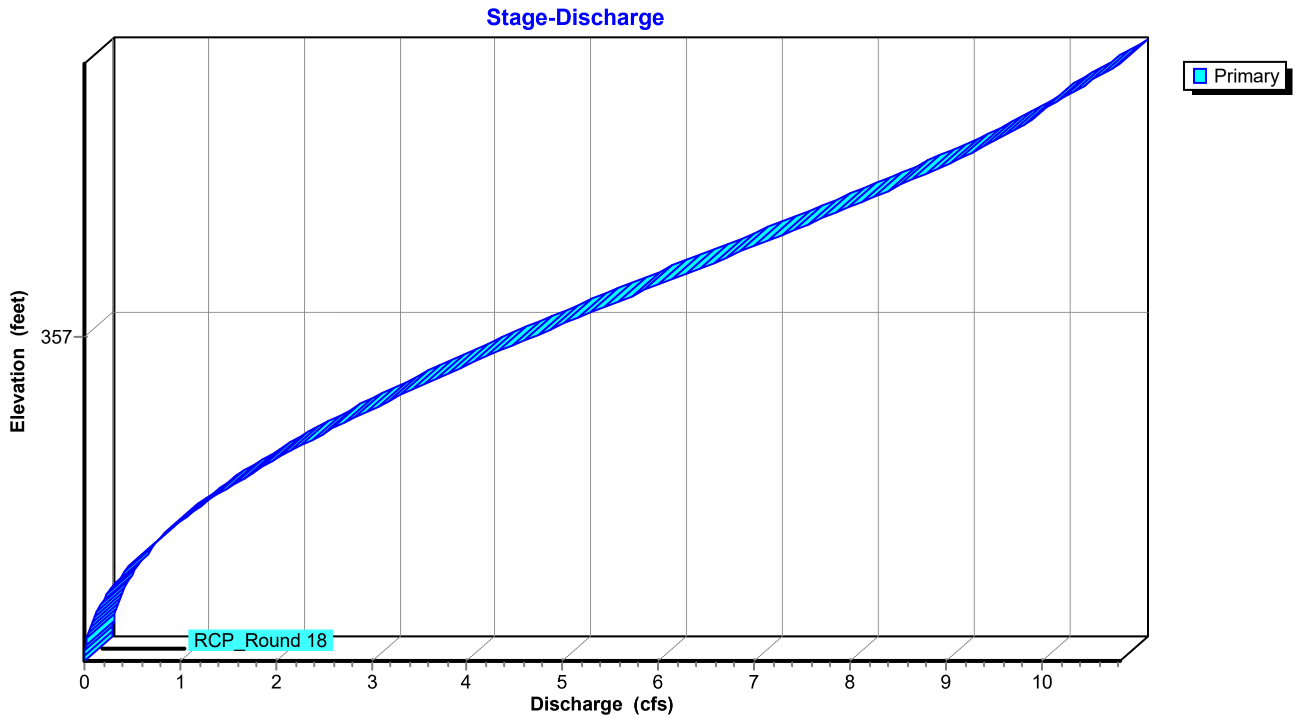
Device	Routing	Invert	Outlet Devices
#1	Primary	356.12'	**18.0" Round RCP_Round 18** L= 50.2' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 356.12' / 351.83' S= 0.0855 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=10.74 cfs @ 0.16 hrs HW=357.73' (Free Discharge)
└─**1=RCP_Round 18** (Inlet Controls 10.74 cfs @ 6.08 fps)

Pond CI-A5: CURB INLET A5



Pond CI-A5: CURB INLET A5



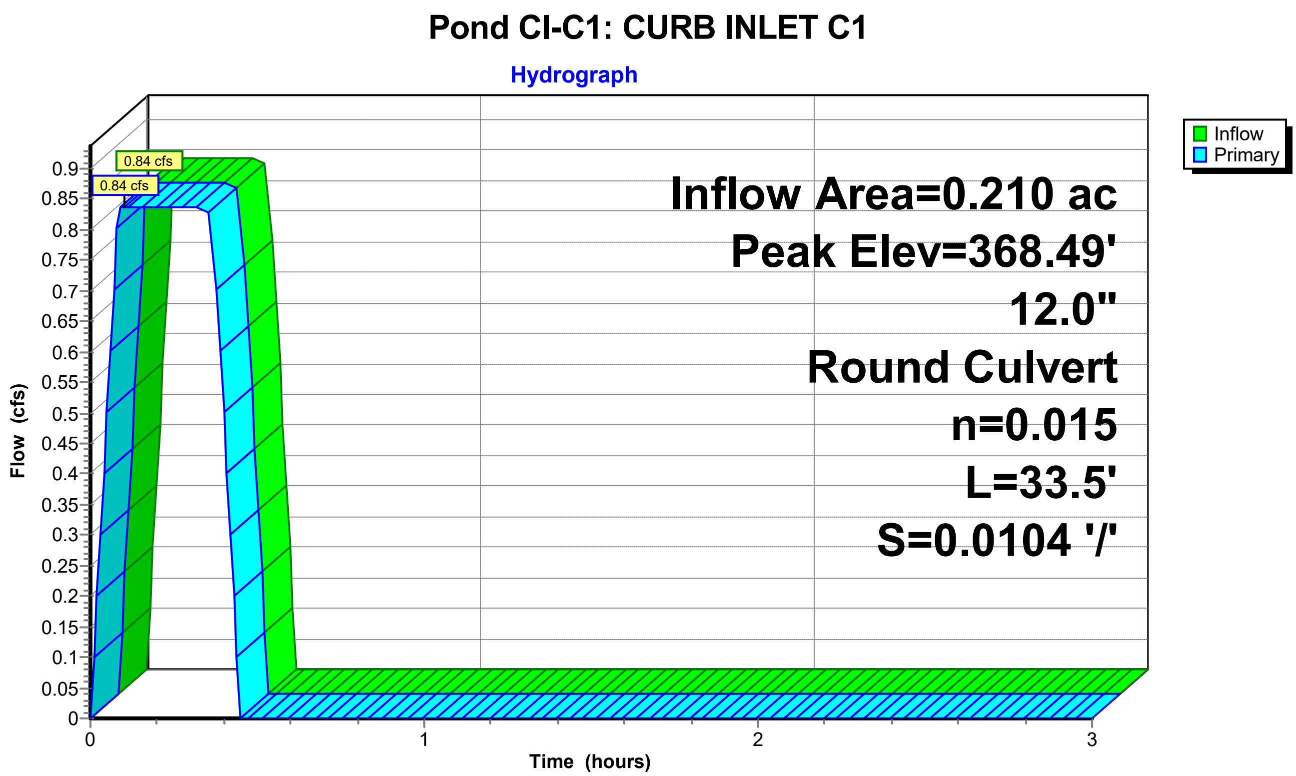
Summary for Pond CI-C1: CURB INLET C1

Inflow Area = 0.210 ac, 51.64% Impervious, Inflow Depth = 1.45" for 100-yr event
Inflow = 0.84 cfs @ 0.09 hrs, Volume= 0.025 af
Outflow = 0.84 cfs @ 0.10 hrs, Volume= 0.025 af, Atten= 0%, Lag= 0.6 min
Primary = 0.84 cfs @ 0.10 hrs, Volume= 0.025 af
Routed to Pond CI-C2 : CURB INLET C2

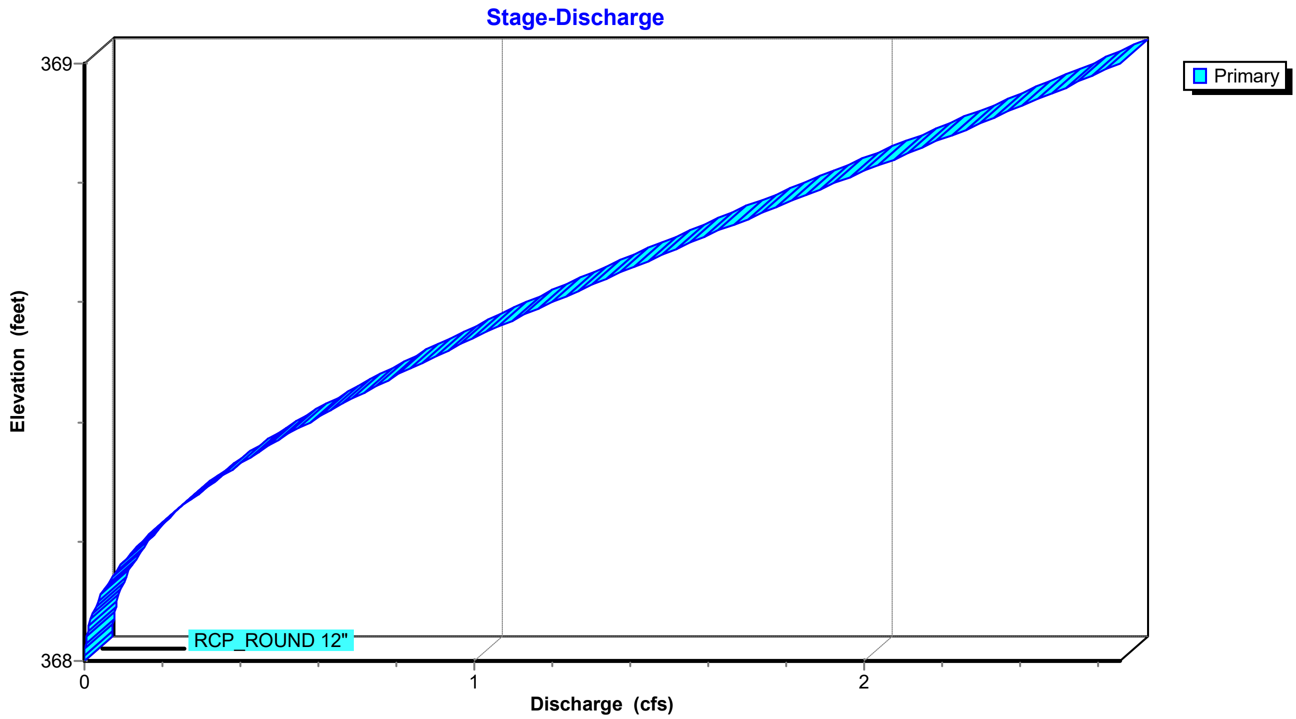
Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 368.49' @ 0.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	368.00'	**12.0" Round RCP_ROUND 12"** L= 33.5' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 368.00' / 367.65' S= 0.0104 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 0.79 sf

Primary OutFlow Max=0.84 cfs @ 0.10 hrs HW=368.49' (Free Discharge)
└─**1=RCP_ROUND 12"** (Barrel Controls 0.84 cfs @ 3.20 fps)



Pond CI-C1: CURB INLET C1



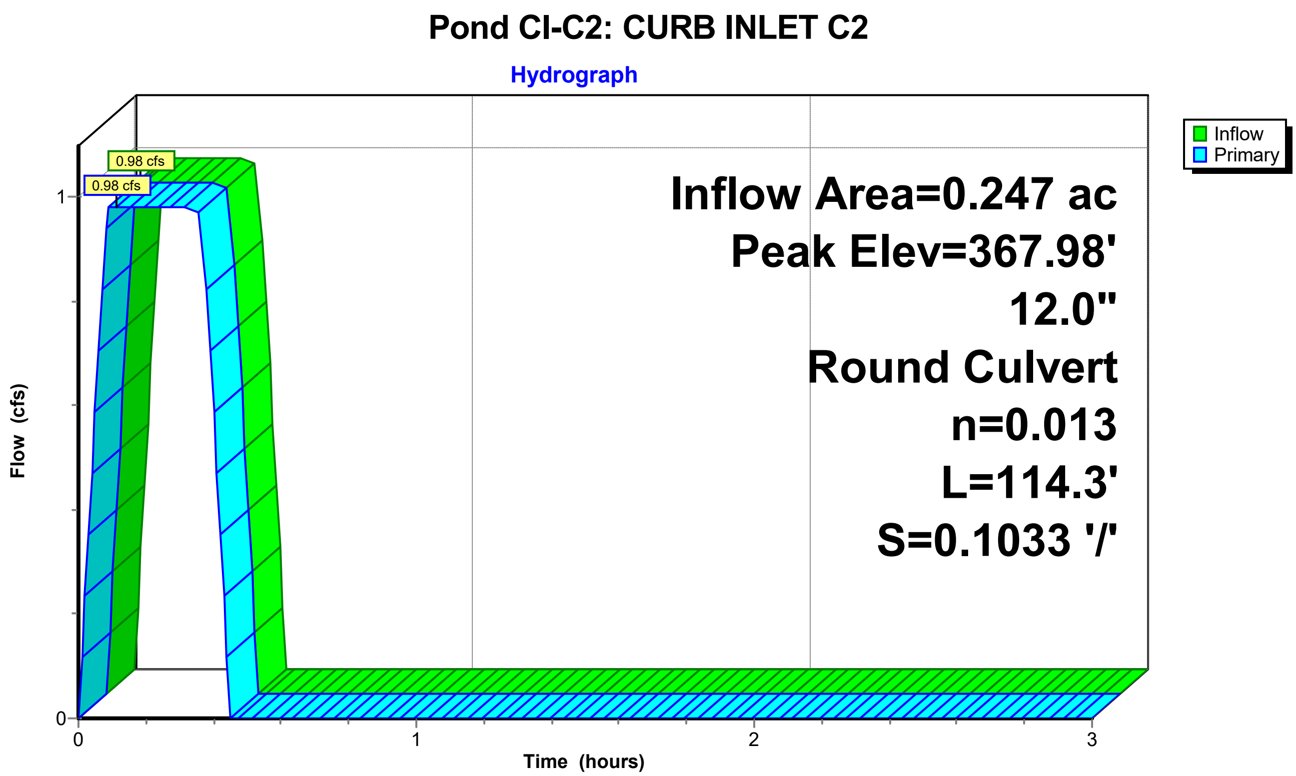
Summary for Pond CI-C2: CURB INLET C2

Inflow Area = 0.247 ac, 51.22% Impervious, Inflow Depth = 1.44" for 100-yr event
Inflow = 0.98 cfs @ 0.10 hrs, Volume= 0.030 af
Outflow = 0.98 cfs @ 0.11 hrs, Volume= 0.030 af, Atten= 0%, Lag= 0.6 min
Primary = 0.98 cfs @ 0.11 hrs, Volume= 0.030 af
Routed to Pond JB-C3 : JUNCTION BOX C3

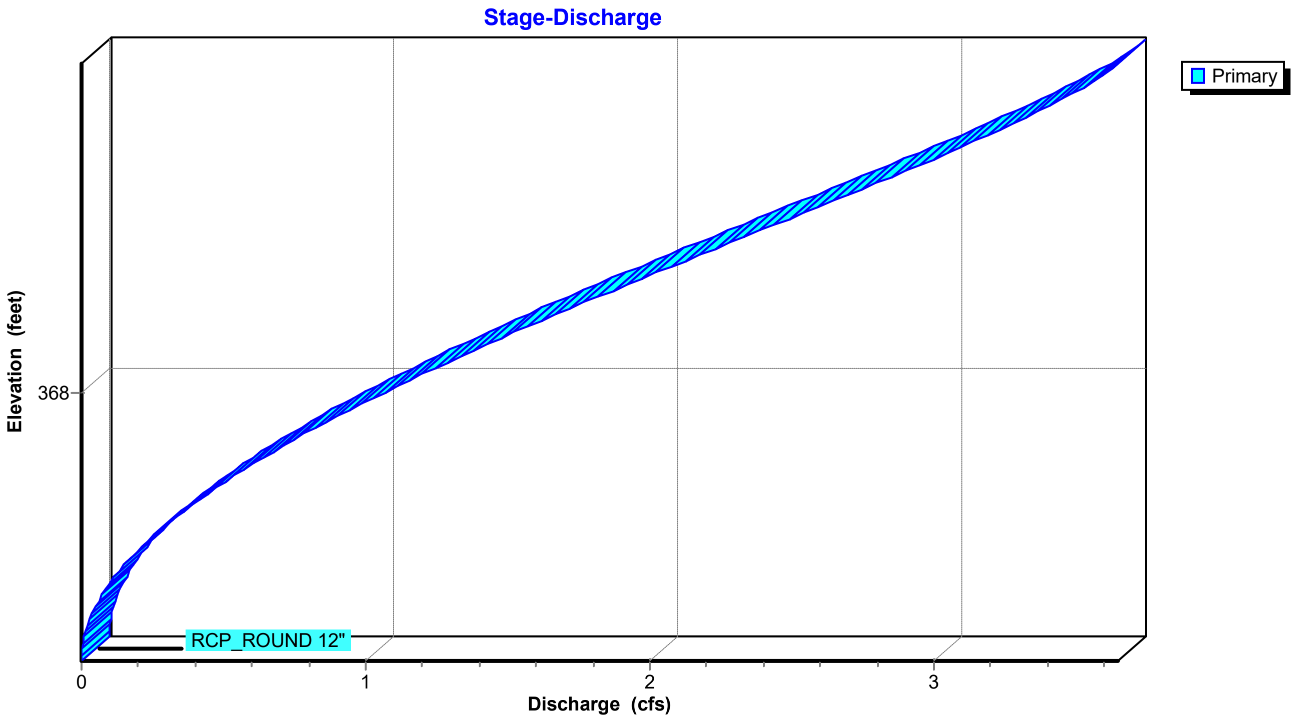
Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 367.98' @ 0.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	367.55'	**12.0" Round RCP_ROUND 12"** L= 114.3' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 367.55' / 355.74' S= 0.1033 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.98 cfs @ 0.11 hrs HW=367.98' (Free Discharge)
└─**1=RCP_ROUND 12"** (Inlet Controls 0.98 cfs @ 3.04 fps)



Pond CI-C2: CURB INLET C2



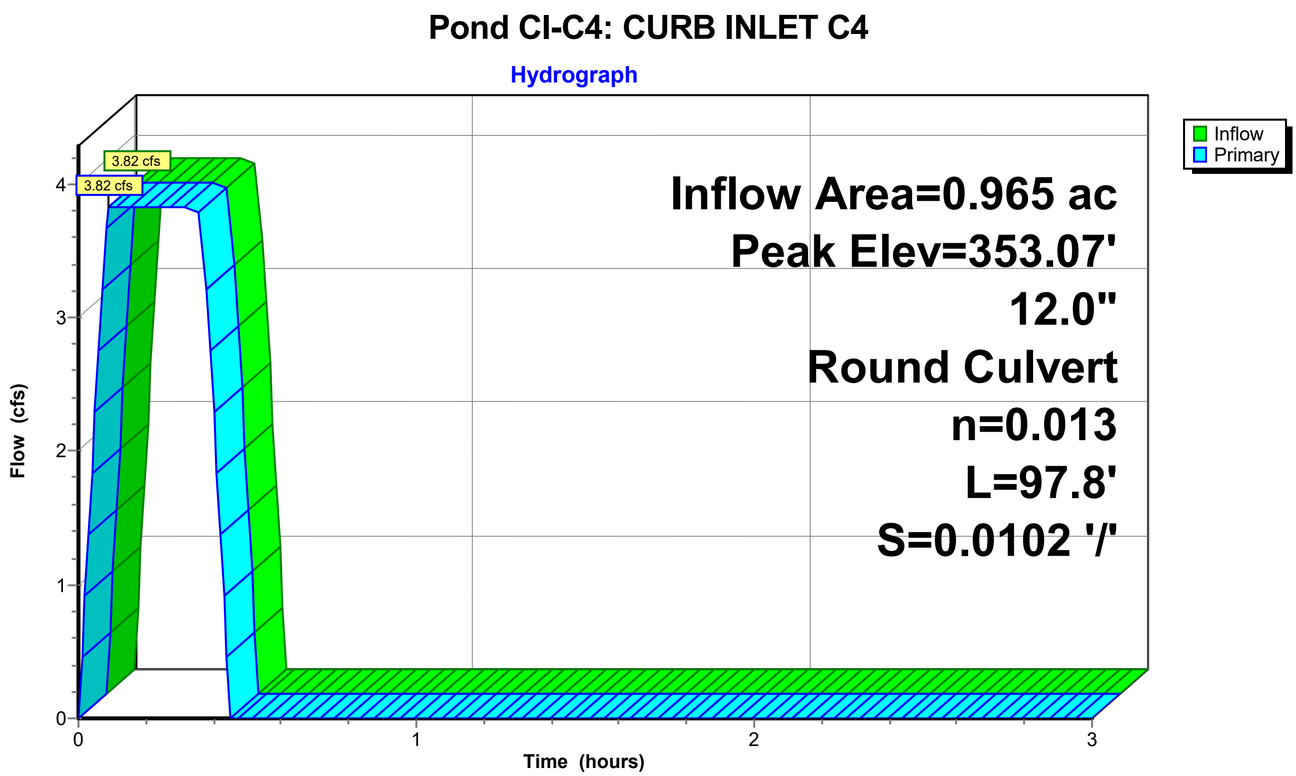
Summary for Pond CI-C4: CURB INLET C4

Inflow Area = 0.965 ac, 48.23% Impervious, Inflow Depth = 1.44" for 100-yr event
Inflow = 3.82 cfs @ 0.09 hrs, Volume= 0.116 af
Outflow = 3.82 cfs @ 0.09 hrs, Volume= 0.116 af, Atten= 0%, Lag= 0.0 min
Primary = 3.82 cfs @ 0.09 hrs, Volume= 0.116 af
Routed to Pond CI-C5 : CURB INLET C5

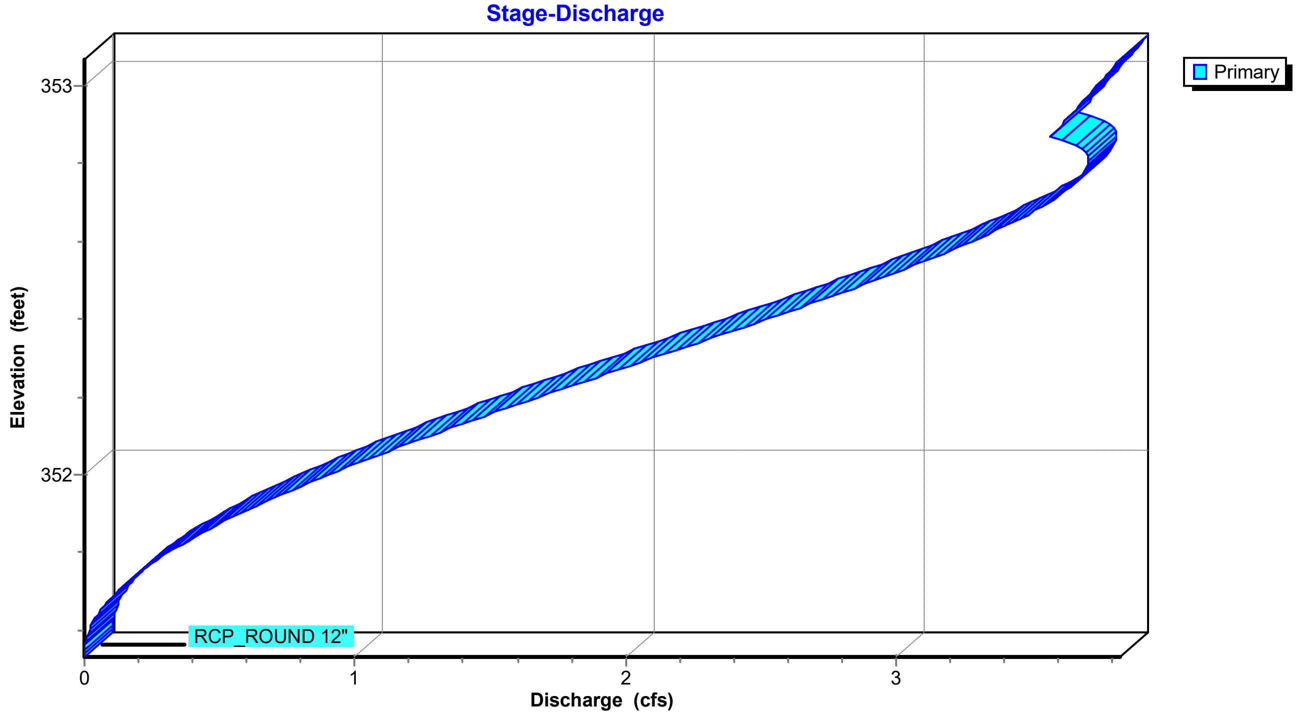
Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 353.07' @ 0.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	351.53'	**12.0" Round RCP_ROUND 12"** L= 97.8' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 351.53' / 350.53' S= 0.0102 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=3.82 cfs @ 0.09 hrs HW=353.07' (Free Discharge)
└─**1=RCP_ROUND 12"** (Barrel Controls 3.82 cfs @ 4.87 fps)



Pond CI-C4: CURB INLET C4



Summary for Pond CI-C5: CURB INLET C5

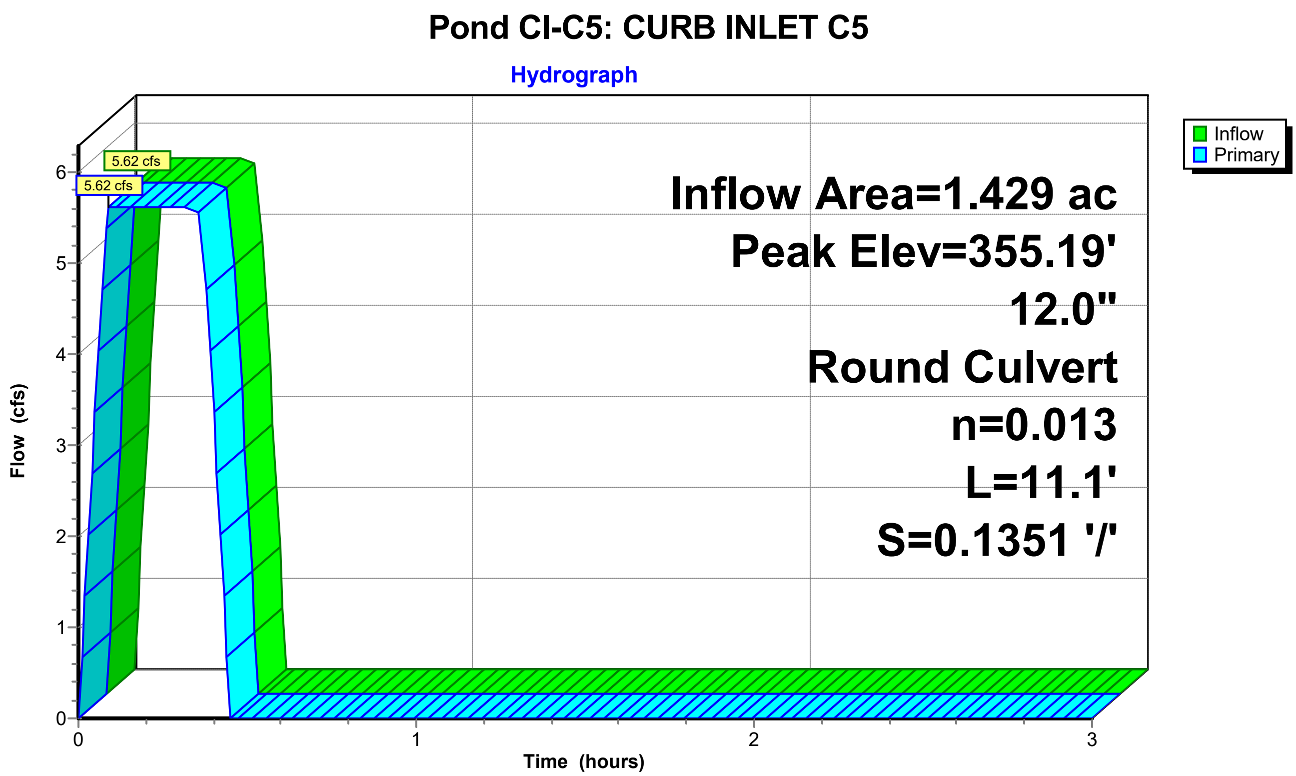
Inflow Area =	1.429 ac,	46.57% Impervious,	Inflow Depth = 1.43"	for 100-yr event
Inflow =	5.62 cfs @	0.09 hrs, Volume=	0.170 af	
Outflow =	5.62 cfs @	0.09 hrs, Volume=	0.170 af,	Atten= 0%, Lag= 0.0 min
Primary =	5.62 cfs @	0.09 hrs, Volume=	0.170 af	

Routed to Link POST-DEV : Post-Development

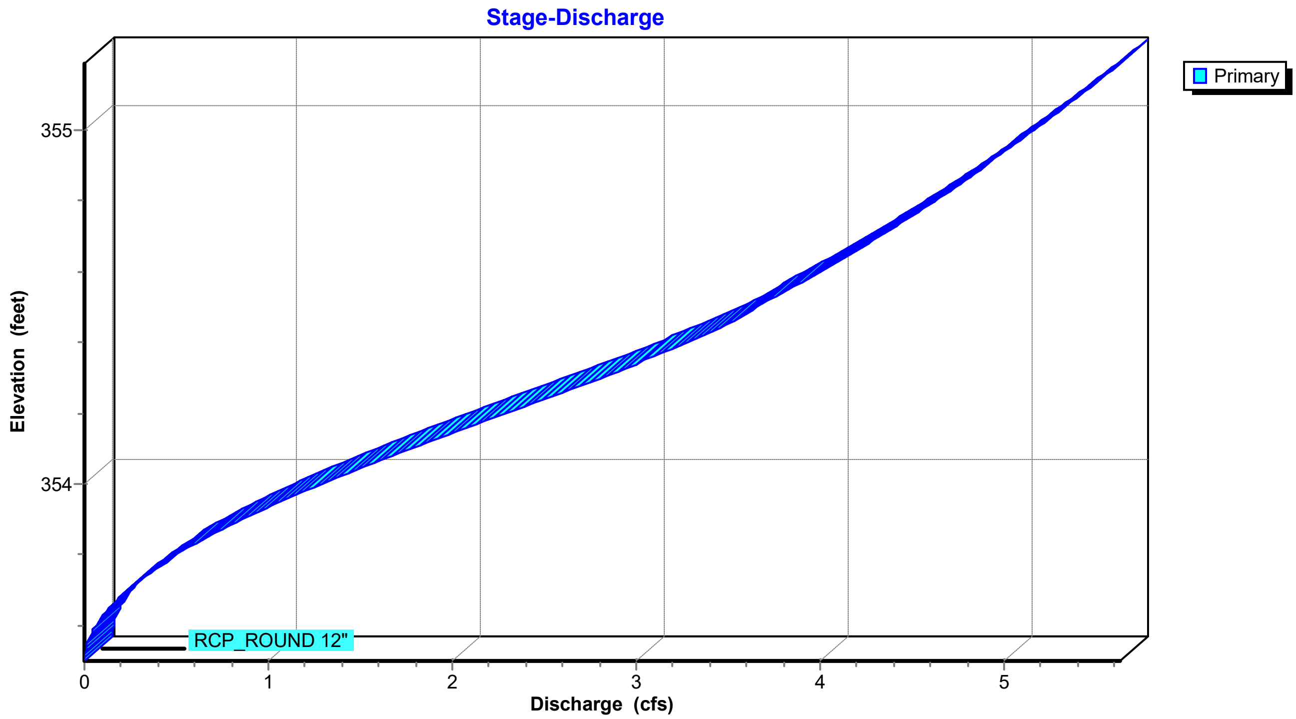
Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 355.19' @ 0.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	353.50'	**12.0" Round RCP_ROUND 12"** L= 11.1' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 353.50' / 352.00' S= 0.1351 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=5.62 cfs @ 0.09 hrs HW=355.19' (Free Discharge)
└─**1=RCP_ROUND 12"** (Inlet Controls 5.62 cfs @ 7.15 fps)



Pond CI-C5: CURB INLET C5



Summary for Pond CI-D1: CURB INLET D1

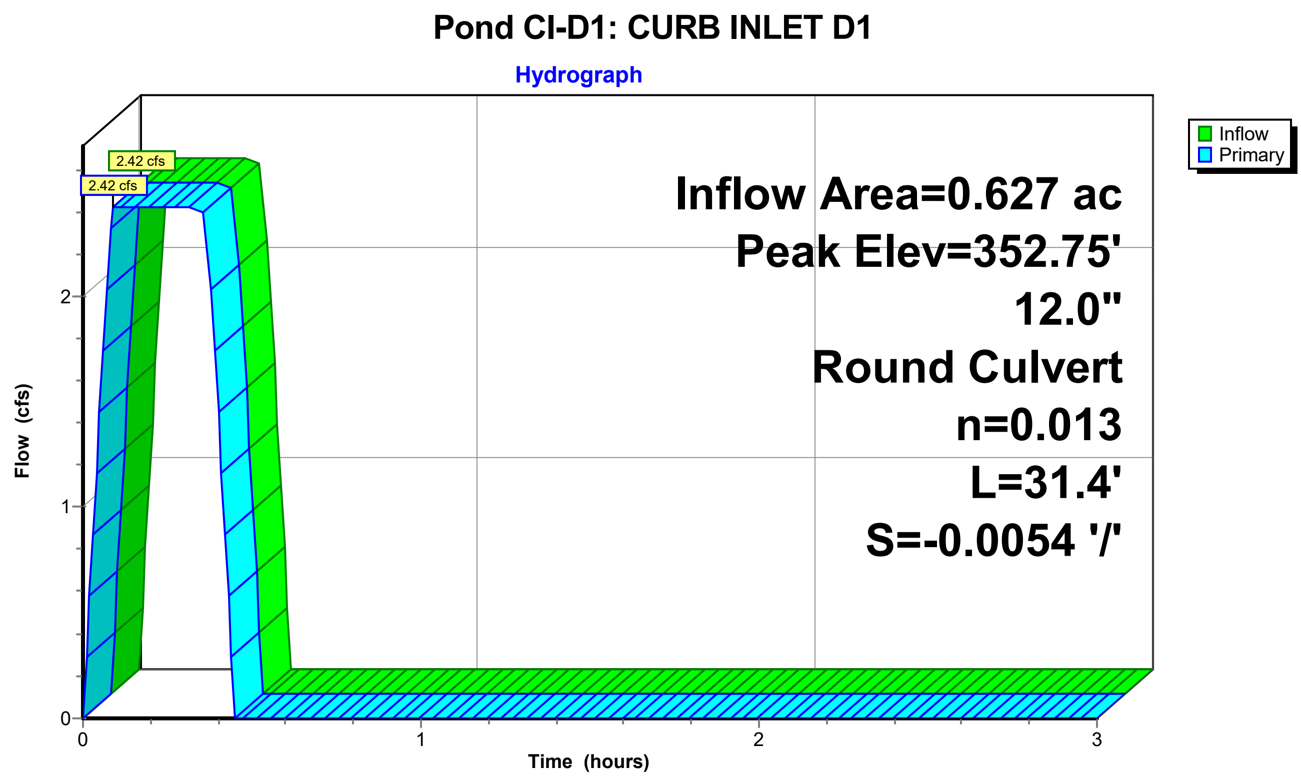
Inflow Area =	0.627 ac,	43.06% Impervious,	Inflow Depth = 1.40"	for 100-yr event	
Inflow =	2.42 cfs @	0.09 hrs,	Volume=	0.073 af	
Outflow =	2.42 cfs @	0.09 hrs,	Volume=	0.073 af,	Atten= 0%, Lag= 0.0 min
Primary =	2.42 cfs @	0.09 hrs,	Volume=	0.073 af	

Routed to Pond CI-C4 : CURB INLET C4

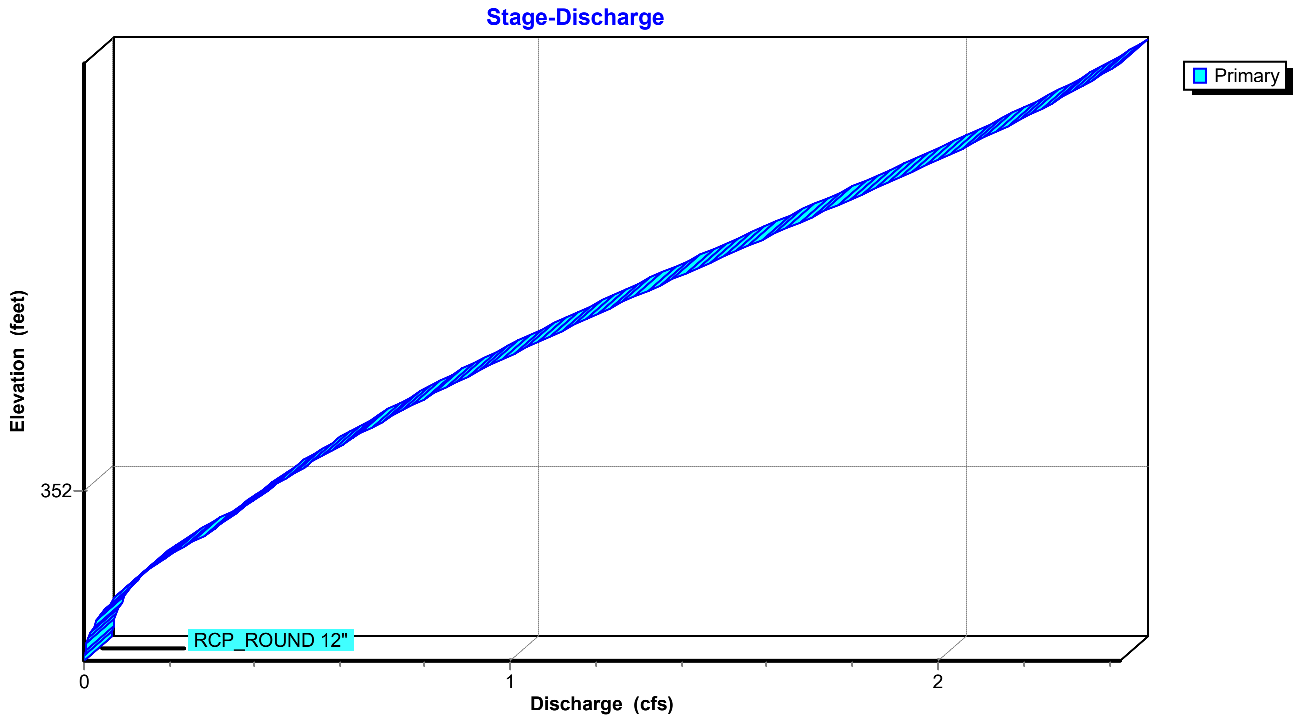
Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 352.75' @ 0.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	351.70'	**12.0" Round RCP_ROUND 12"** L= 31.4' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 351.53' / 351.70' S= -0.0054 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=2.42 cfs @ 0.09 hrs HW=352.75' (Free Discharge)
└─**1=RCP_ROUND 12"** (Barrel Controls 2.42 cfs @ 3.22 fps)



Pond CI-D1: CURB INLET D1



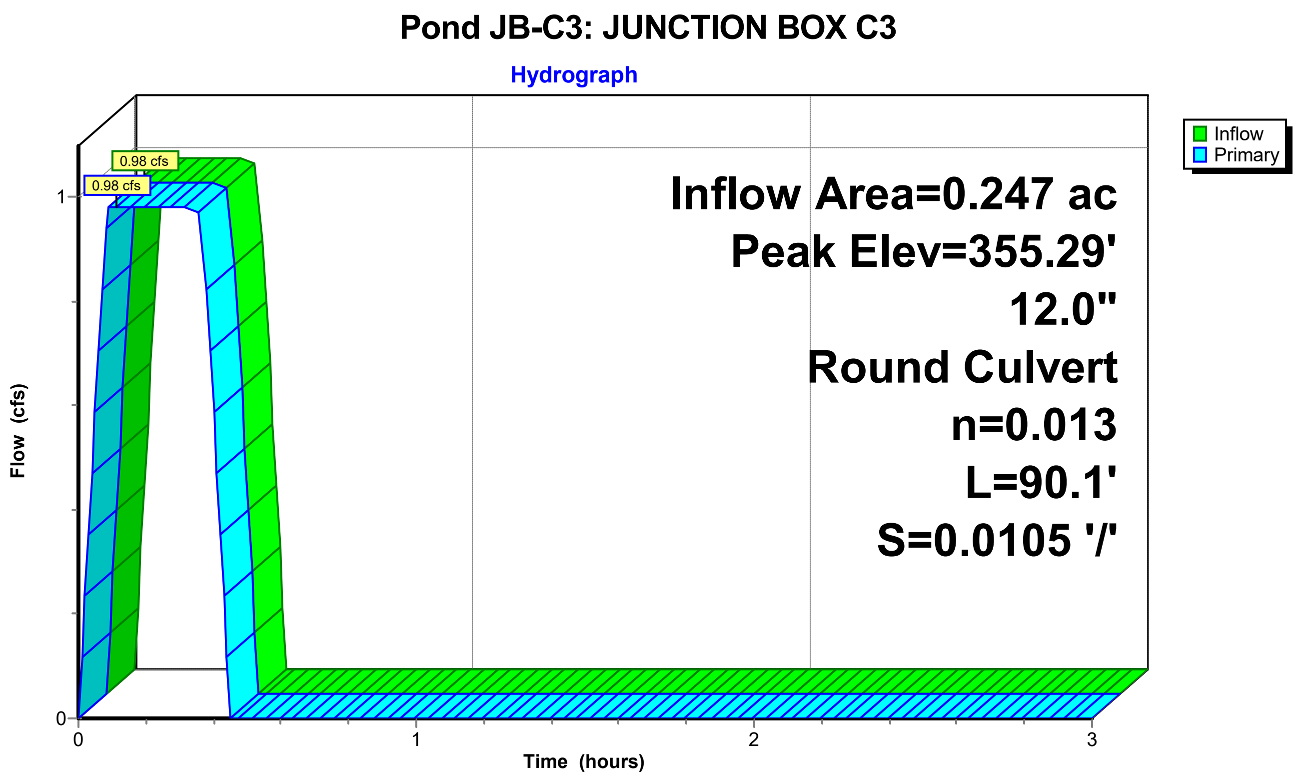
Summary for Pond JB-C3: JUNCTION BOX C3

Inflow Area = 0.247 ac, 51.22% Impervious, Inflow Depth = 1.44" for 100-yr event
Inflow = 0.98 cfs @ 0.11 hrs, Volume= 0.030 af
Outflow = 0.98 cfs @ 0.11 hrs, Volume= 0.030 af, Atten= 0%, Lag= 0.0 min
Primary = 0.98 cfs @ 0.11 hrs, Volume= 0.030 af
Routed to Pond CI-C4 : CURB INLET C4

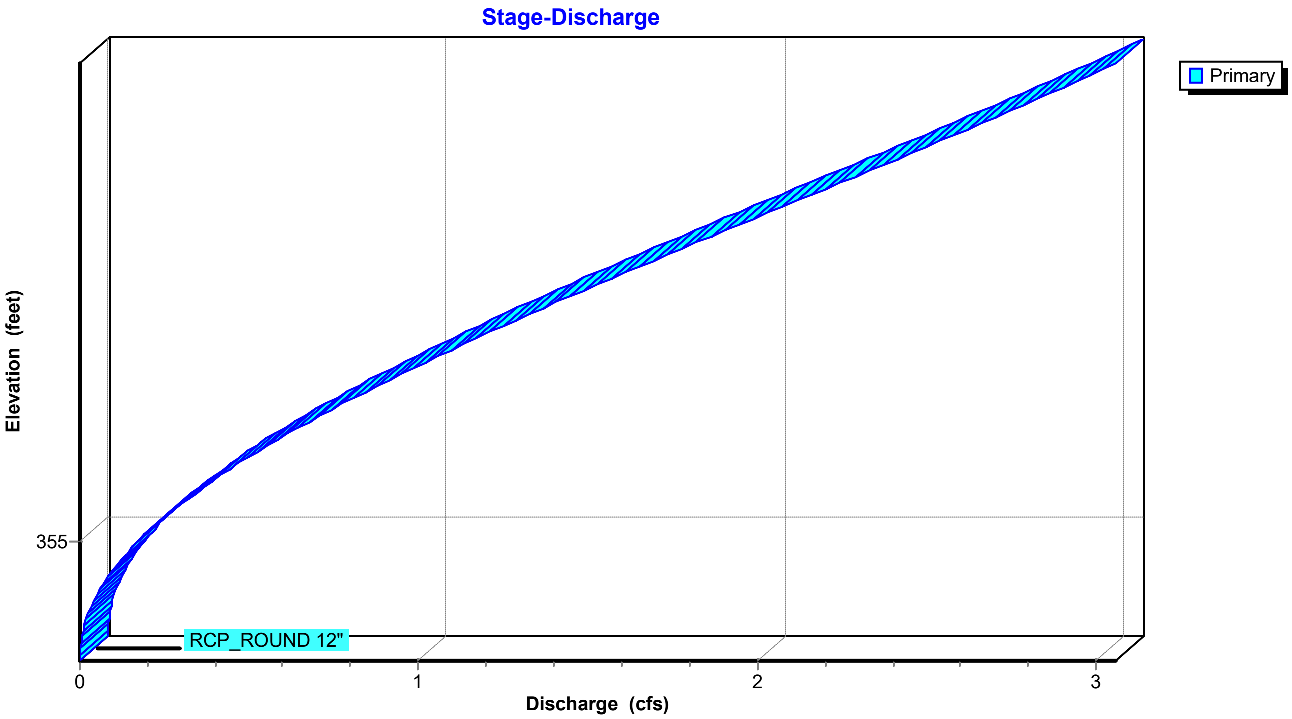
Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 355.29' @ 0.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	354.80'	**12.0" Round RCP_ROUND 12"** L= 90.1' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 354.80' / 353.85' S= 0.0105 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.98 cfs @ 0.11 hrs HW=355.29' (Free Discharge)
└─**1=RCP_ROUND 12"** (Barrel Controls 0.98 cfs @ 3.76 fps)



Pond JB-C3: JUNCTION BOX C3

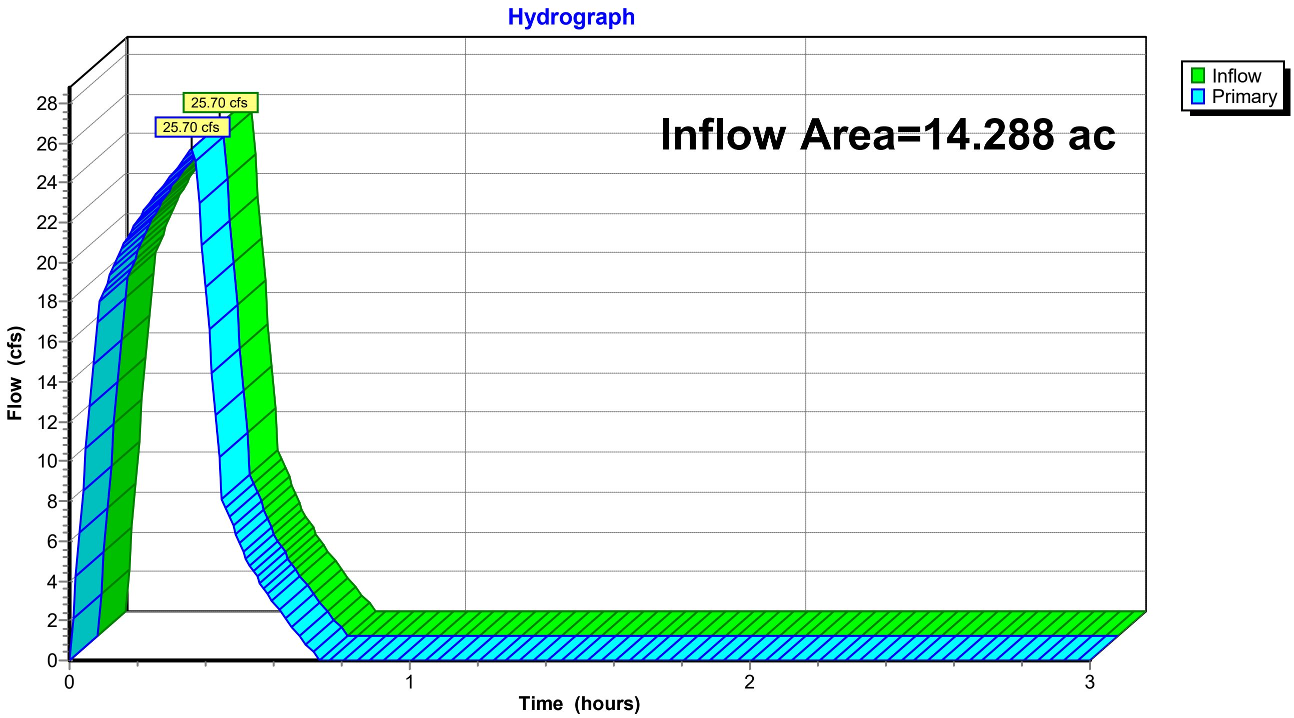


Summary for Link POST-DEV: Post-Development

Inflow Area = 14.288 ac, 15.95% Impervious, Inflow Depth = 0.66" for 100-yr event
Inflow = 25.70 cfs @ 0.36 hrs, Volume= 0.782 af
Primary = 25.70 cfs @ 0.36 hrs, Volume= 0.782 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Link POST-DEV: Post-Development

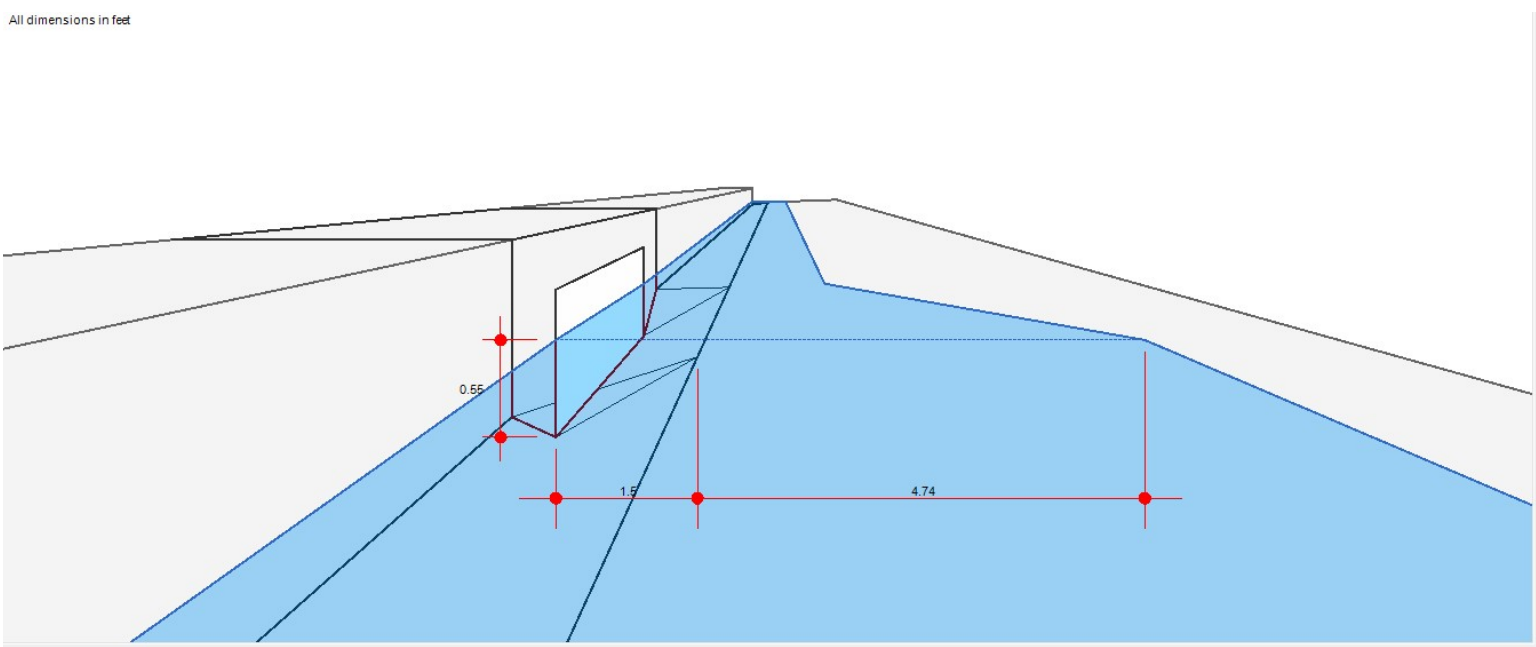


STROM SEWER SIZING

Inlet Report

CI-A1 (25 YEAR)

Curb Inlet		**Calculations**	
Location	= On grade	Compute by:	Known Q
Curb Length (ft)	= 4.00	Q (cfs)	= 1.79
Throat Height (in)	= 2.00		
Grate Area (sqft)	= -0-	**Highlighted**	
Grate Width (ft)	= -0-	Q Total (cfs)	= 1.79
Grate Length (ft)	= -0-	Q Capt (cfs)	= 1.21
		Q Bypass (cfs)	= 0.58
Gutter		Depth at Inlet (in)	= 6.58
Slope, Sw (ft/ft)	= 0.080	Efficiency (%)	= 68
Slope, Sx (ft/ft)	= 0.020	Gutter Spread (ft)	= 6.24
Local Depr (in)	= 4.00	Gutter Vel (ft/s)	= 3.92
Gutter Width (ft)	= 1.50	Bypass Spread (ft)	= 3.19
Gutter Slope (%)	= 3.00	Bypass Depth (in)	= 1.84
Gutter n-value	= 0.015		



Inlet Report

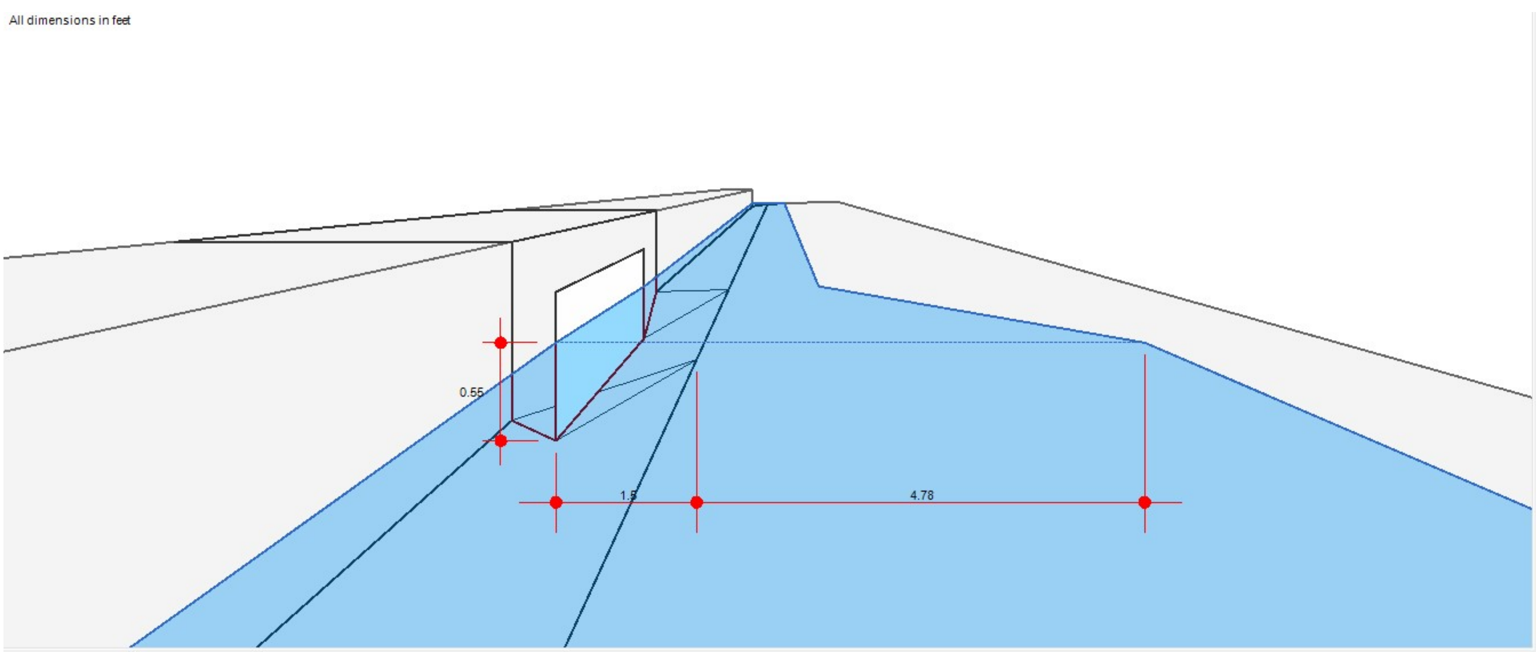
CI-A2 (25 YEAR)

Curb Inlet	
Location	= On grade
Curb Length (ft)	= 4.00
Throat Height (in)	= 2.00
Grate Area (sqft)	= -0-
Grate Width (ft)	= -0-
Grate Length (ft)	= -0-

Gutter	
Slope, Sw (ft/ft)	= 0.080
Slope, Sx (ft/ft)	= 0.020
Local Depr (in)	= 4.00
Gutter Width (ft)	= 1.50
Gutter Slope (%)	= 2.80
Gutter n-value	= 0.015

Calculations	
Compute by:	Known Q
Q (cfs)	= 1.75

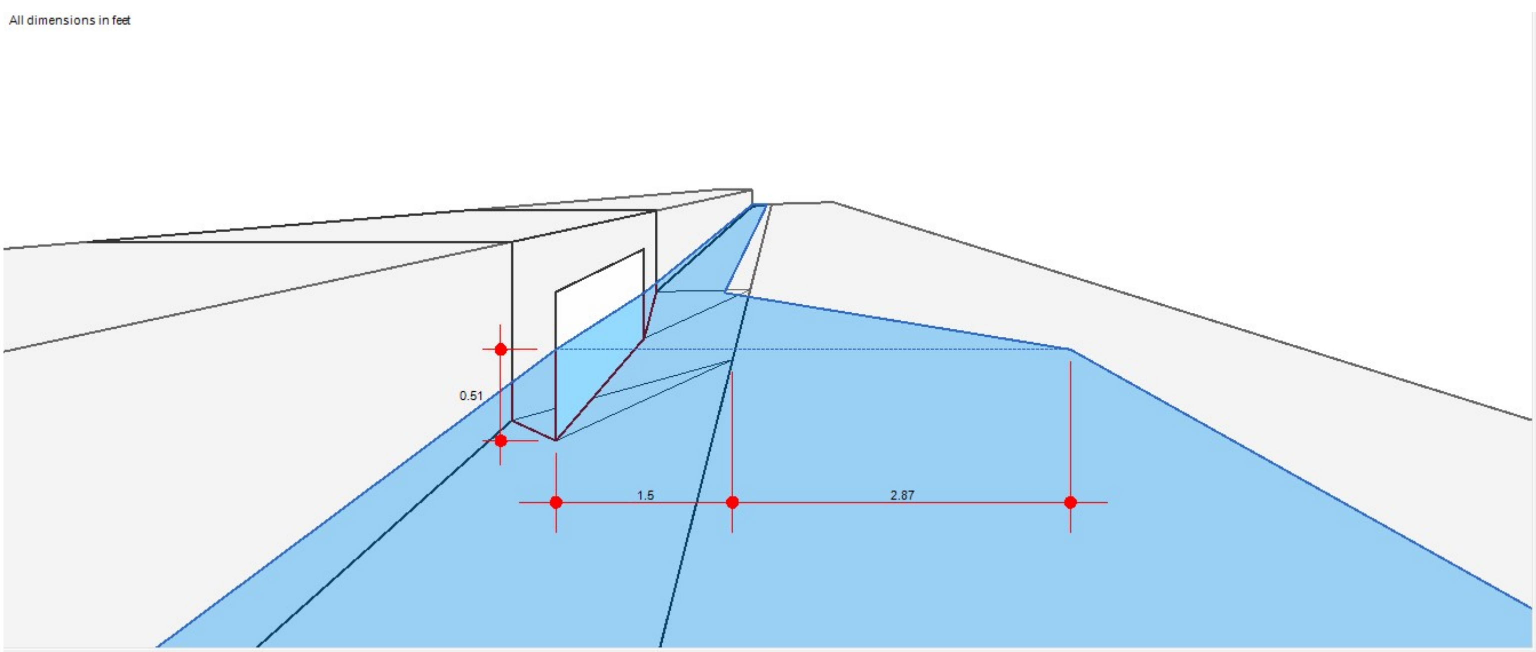
Highlighted	
Q Total (cfs)	= 1.75
Q Capt (cfs)	= 1.21
Q Bypass (cfs)	= 0.54
Depth at Inlet (in)	= 6.59
Efficiency (%)	= 69
Gutter Spread (ft)	= 6.28
Gutter Vel (ft/s)	= 3.79
Bypass Spread (ft)	= 3.10
Bypass Depth (in)	= 1.82



Inlet Report

CI-A3 (25 YEAR)

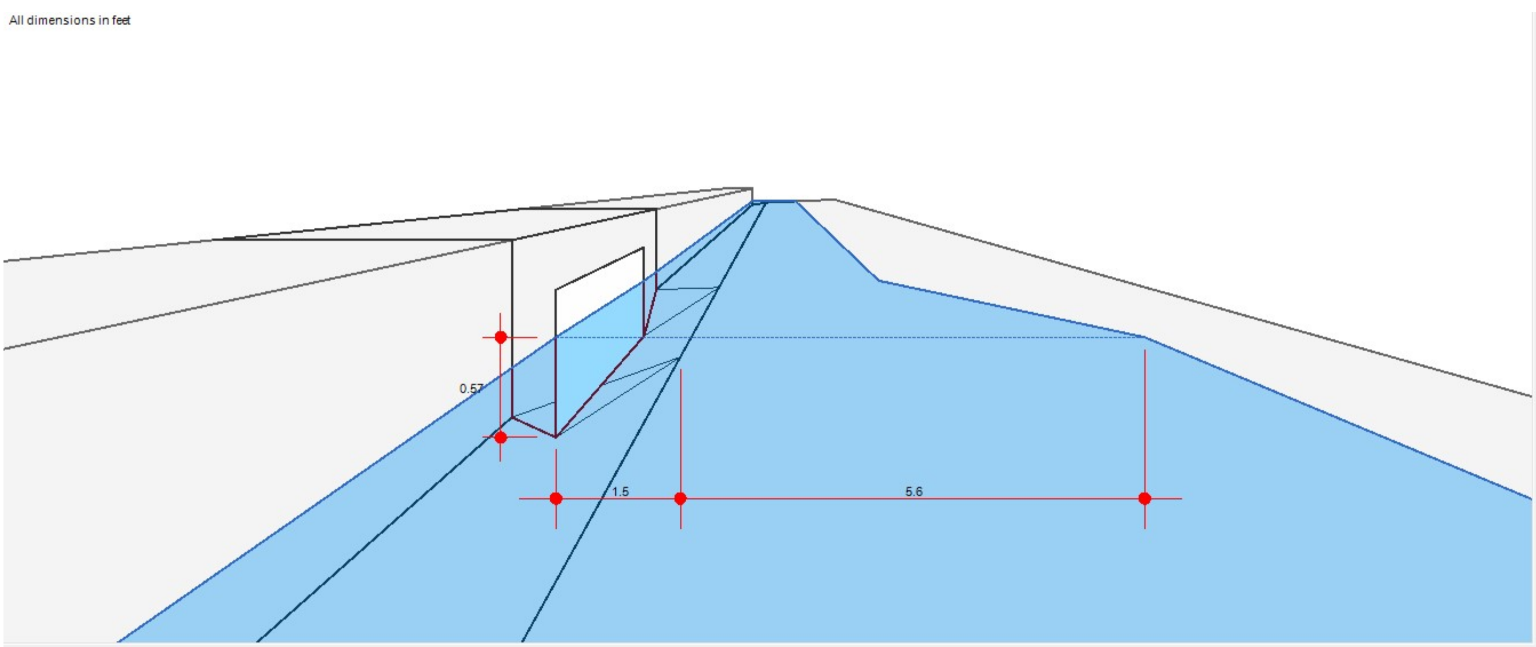
Curb Inlet		**Calculations**	
Location	= On grade	Compute by:	Known Q
Curb Length (ft)	= 4.00	Q (cfs)	= 0.98
Throat Height (in)	= 2.00		
Grate Area (sqft)	= -0-	**Highlighted**	
Grate Width (ft)	= -0-	Q Total (cfs)	= 0.98
Grate Length (ft)	= -0-	Q Capt (cfs)	= 0.84
		Q Bypass (cfs)	= 0.14
Gutter		Depth at Inlet (in)	= 6.13
Slope, Sw (ft/ft)	= 0.080	Efficiency (%)	= 85
Slope, Sx (ft/ft)	= 0.020	Gutter Spread (ft)	= 4.37
Local Depr (in)	= 4.00	Gutter Vel (ft/s)	= 3.79
Gutter Width (ft)	= 1.50	Bypass Spread (ft)	= 1.14
Gutter Slope (%)	= 3.40	Bypass Depth (in)	= 1.09
Gutter n-value	= 0.015		



Inlet Report

CI-A4

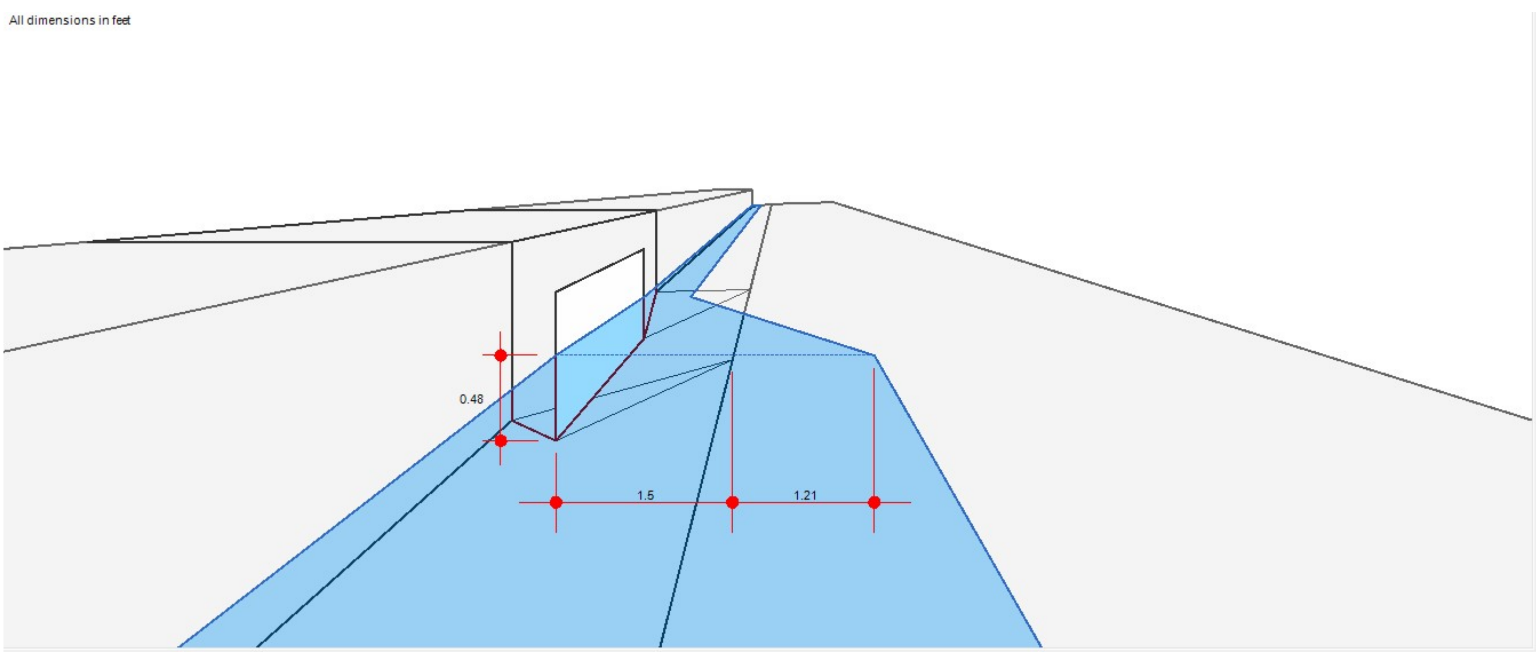
Curb Inlet			**Calculations**	
Location	= On grade		Compute by:	Known Q
Curb Length (ft)	= 4.00		Q (cfs)	= 2.57
Throat Height (in)	= 2.00			
Grate Area (sqft)	= -0-		**Highlighted**	
Grate Width (ft)	= -0-		Q Total (cfs)	= 2.57
Grate Length (ft)	= -0-		Q Capt (cfs)	= 1.42
			Q Bypass (cfs)	= 1.15
Gutter			Depth at Inlet (in)	= 6.78
Slope, Sw (ft/ft)	= 0.080		Efficiency (%)	= 55
Slope, Sx (ft/ft)	= 0.020		Gutter Spread (ft)	= 7.10
Local Depr (in)	= 4.00		Gutter Vel (ft/s)	= 4.50
Gutter Width (ft)	= 1.50		Bypass Spread (ft)	= 4.72
Gutter Slope (%)	= 3.60		Bypass Depth (in)	= 2.21
Gutter n-value	= 0.015			



Inlet Report

CI-A5

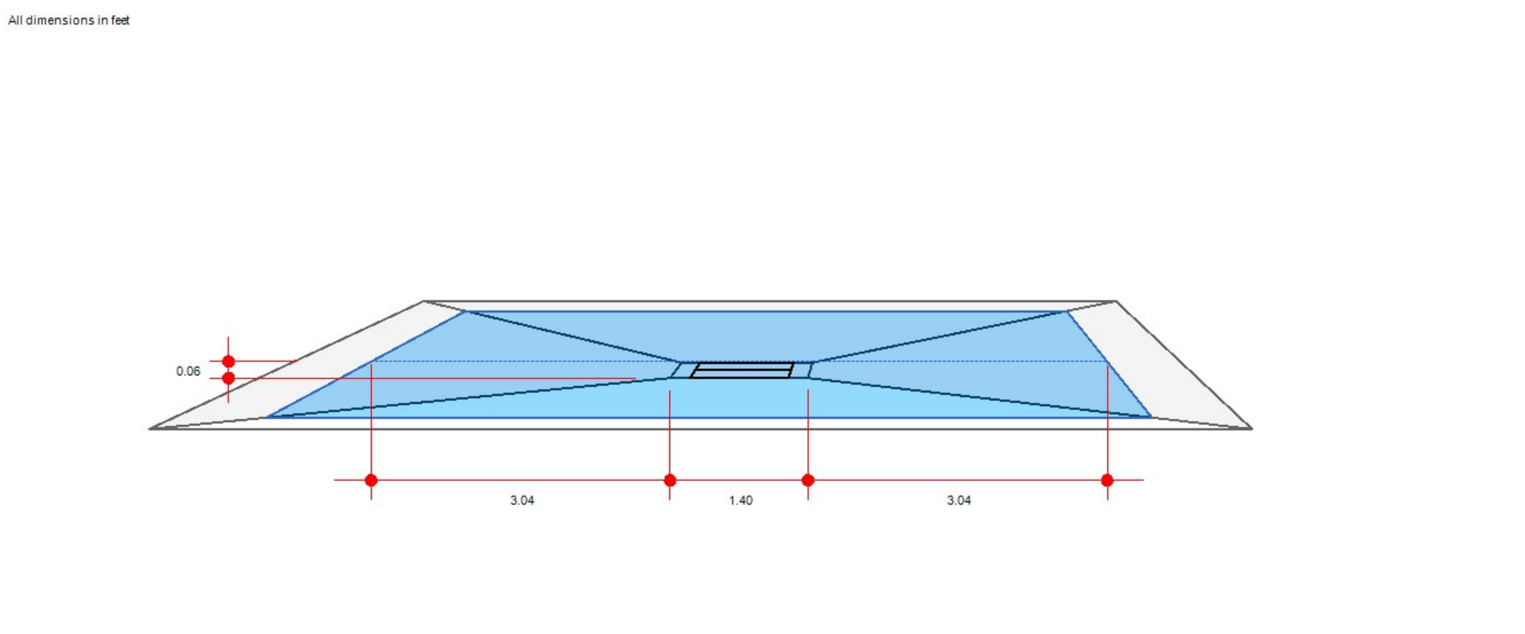
Curb Inlet		**Calculations**	
Location	= On grade	Compute by:	Known Q
Curb Length (ft)	= 4.00	Q (cfs)	= 0.61
Throat Height (in)	= 2.00		
Grate Area (sqft)	= -0-	**Highlighted**	
Grate Width (ft)	= -0-	Q Total (cfs)	= 0.61
Grate Length (ft)	= -0-	Q Capt (cfs)	= 0.57
		Q Bypass (cfs)	= 0.04
Gutter		Depth at Inlet (in)	= 5.73
Slope, Sw (ft/ft)	= 0.080	Efficiency (%)	= 93
Slope, Sx (ft/ft)	= 0.020	Gutter Spread (ft)	= 2.71
Local Depr (in)	= 4.00	Gutter Vel (ft/s)	= 4.34
Gutter Width (ft)	= 1.50	Bypass Spread (ft)	= 0.66
Gutter Slope (%)	= 5.00	Bypass Depth (in)	= 0.63
Gutter n-value	= 0.015		



Inlet Report

AI-B1 (25 YEAR)

Drop Grate Inlet		Calculations	
Location	= Sag	Compute by:	Known Q
Curb Length (ft)	= -0-	Q (cfs)	= 0.18
Throat Height (in)	= -0-		
Grate Area (sqft)	= 1.00	**Highlighted**	
Grate Width (ft)	= 1.00	Q Total (cfs)	= 0.18
Grate Length (ft)	= 1.00	Q Capt (cfs)	= 0.18
		Q Bypass (cfs)	= -0-
Gutter		Depth at Inlet (in)	= 0.73
Slope, Sw (ft/ft)	= 0.020	Efficiency (%)	= 100
Slope, Sx (ft/ft)	= 0.020	Gutter Spread (ft)	= 7.47
Local Depr (in)	= -0-	Gutter Vel (ft/s)	= -0-
Gutter Width (ft)	= 1.40	Bypass Spread (ft)	= -0-
Gutter Slope (%)	= -0-	Bypass Depth (in)	= -0-
Gutter n-value	= -0-		

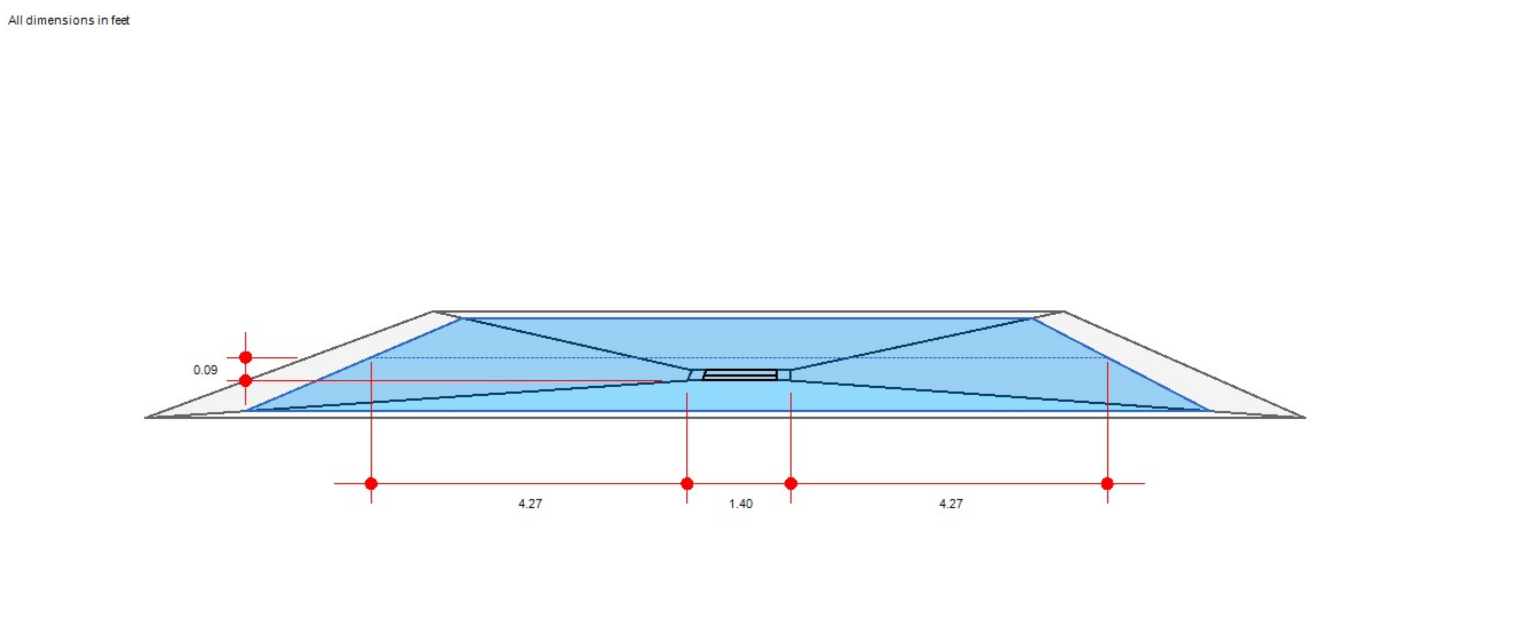


Inlet Report

AI-B2 (25 YEAR)

Drop Grate Inlet	
Location	= Sag
Curb Length (ft)	= -0-
Throat Height (in)	= -0-
Grate Area (sqft)	= 1.00
Grate Width (ft)	= 1.00
Grate Length (ft)	= 1.00
Gutter	
Slope, Sw (ft/ft)	= 0.020
Slope, Sx (ft/ft)	= 0.020
Local Depr (in)	= -0-
Gutter Width (ft)	= 1.40
Gutter Slope (%)	= -0-
Gutter n-value	= -0-

Calculations	
Compute by:	Known Q
Q (cfs)	= 0.30
Highlighted	
Q Total (cfs)	= 0.30
Q Capt (cfs)	= 0.30
Q Bypass (cfs)	= -0-
Depth at Inlet (in)	= 1.02
Efficiency (%)	= 100
Gutter Spread (ft)	= 9.94
Gutter Vel (ft/s)	= 3.79
Bypass Spread (ft)	= -0-
Bypass Depth (in)	= -0-



Inlet Report

CI-C1 (25 YEAR)

Curb Inlet

Location	=	On grade
Curb Length (ft)	=	4.00
Throat Height (in)	=	2.00
Grate Area (sqft)	=	-0-
Grate Width (ft)	=	-0-
Grate Length (ft)	=	-0-

Gutter

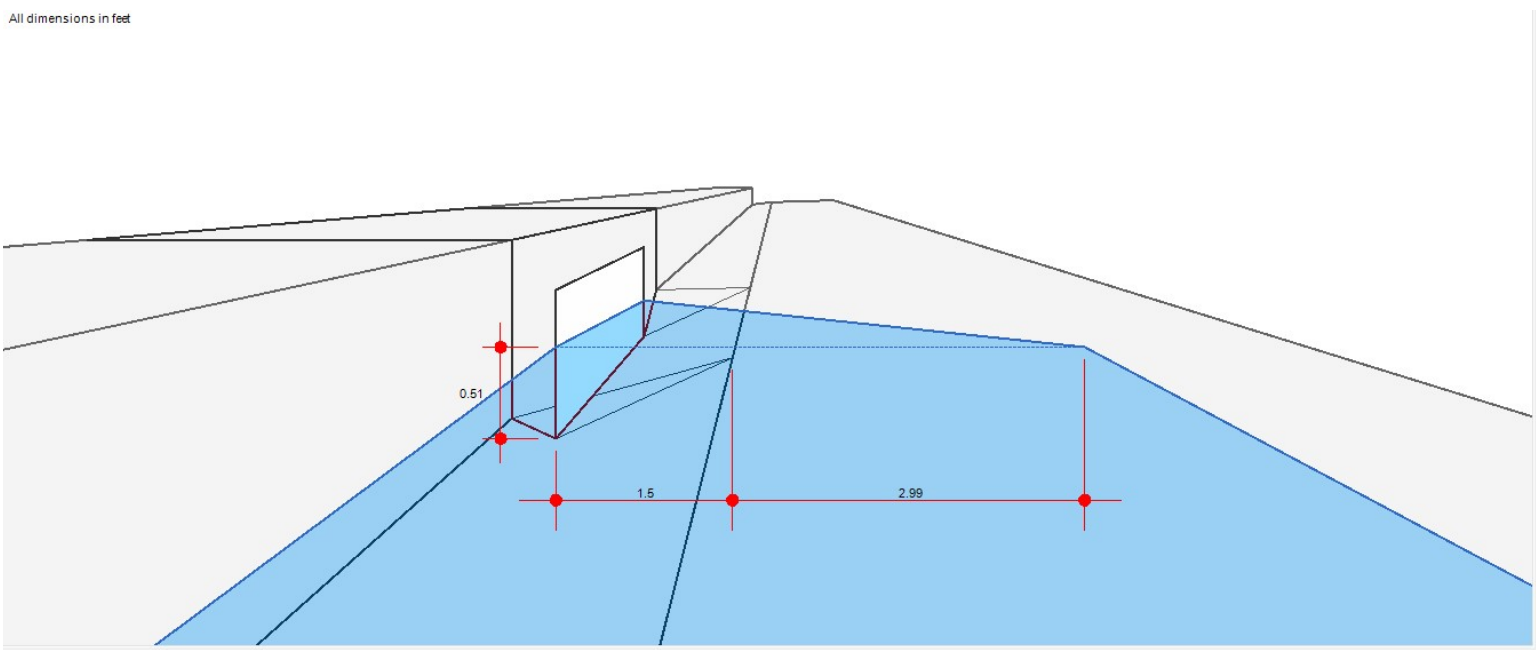
Slope, Sw (ft/ft)	=	0.080
Slope, Sx (ft/ft)	=	0.020
Local Depr (in)	=	4.00
Gutter Width (ft)	=	1.50
Gutter Slope (%)	=	1.20
Gutter n-value	=	0.015

Calculations

Compute by:		Known Q
Q (cfs)	=	0.61

Highlighted

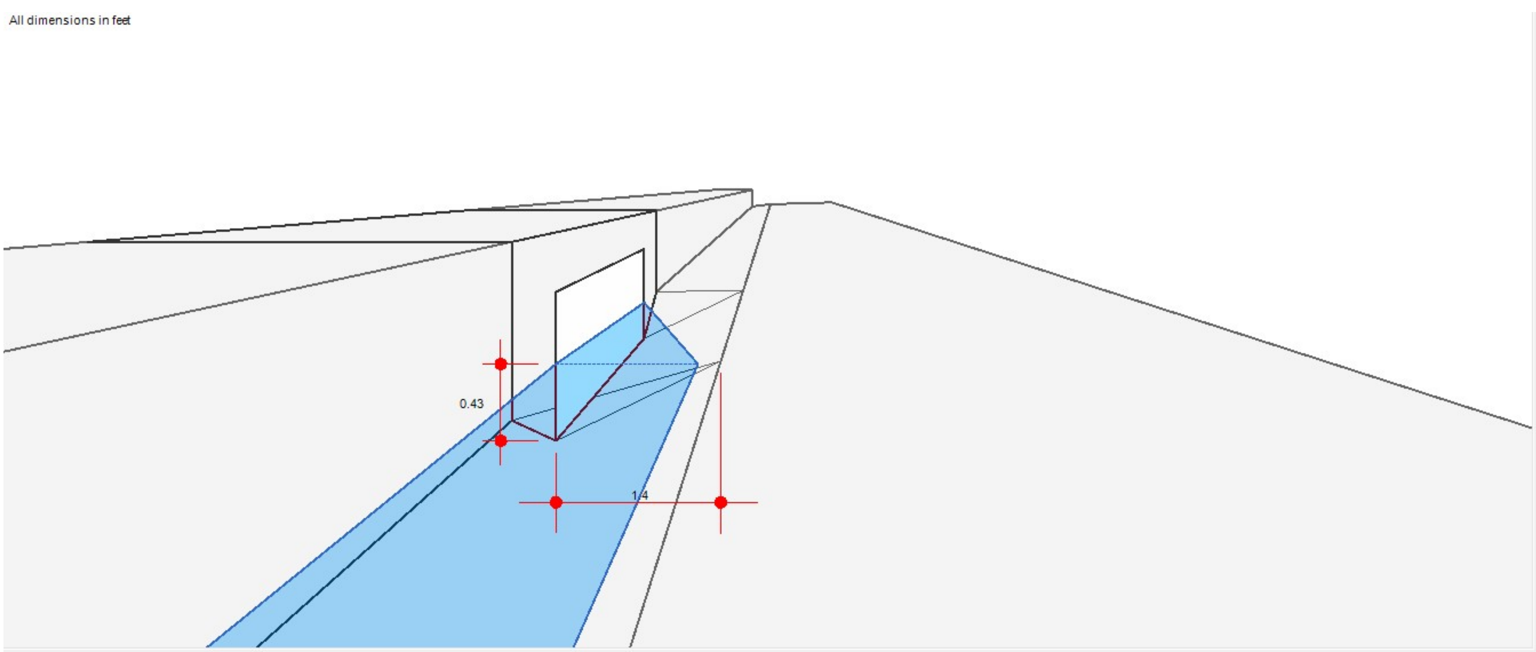
Q Total (cfs)	=	0.61
Q Capt (cfs)	=	0.61
Q Bypass (cfs)	=	-0-
Depth at Inlet (in)	=	6.16
Efficiency (%)	=	100
Gutter Spread (ft)	=	4.49
Gutter Vel (ft/s)	=	2.27
Bypass Spread (ft)	=	-0-
Bypass Depth (in)	=	-0-



Inlet Report

CI-C2 (25 YEAR)

Curb Inlet			**Calculations**	
Location	= On grade		Compute by:	Known Q
Curb Length (ft)	= 4.00		Q (cfs)	= 0.10
Throat Height (in)	= 2.00			
Grate Area (sqft)	= -0-		**Highlighted**	
Grate Width (ft)	= -0-		Q Total (cfs)	= 0.10
Grate Length (ft)	= -0-		Q Capt (cfs)	= 0.10
			Q Bypass (cfs)	= -0-
Gutter			Depth at Inlet (in)	= 5.16
Slope, Sw (ft/ft)	= 0.080		Efficiency (%)	= 100
Slope, Sx (ft/ft)	= 0.020		Gutter Spread (ft)	= 1.21
Local Depr (in)	= 4.00		Gutter Vel (ft/s)	= 1.72
Gutter Width (ft)	= 1.40		Bypass Spread (ft)	= -0-
Gutter Slope (%)	= 1.20		Bypass Depth (in)	= -0-
Gutter n-value	= 0.015			



Inlet Report

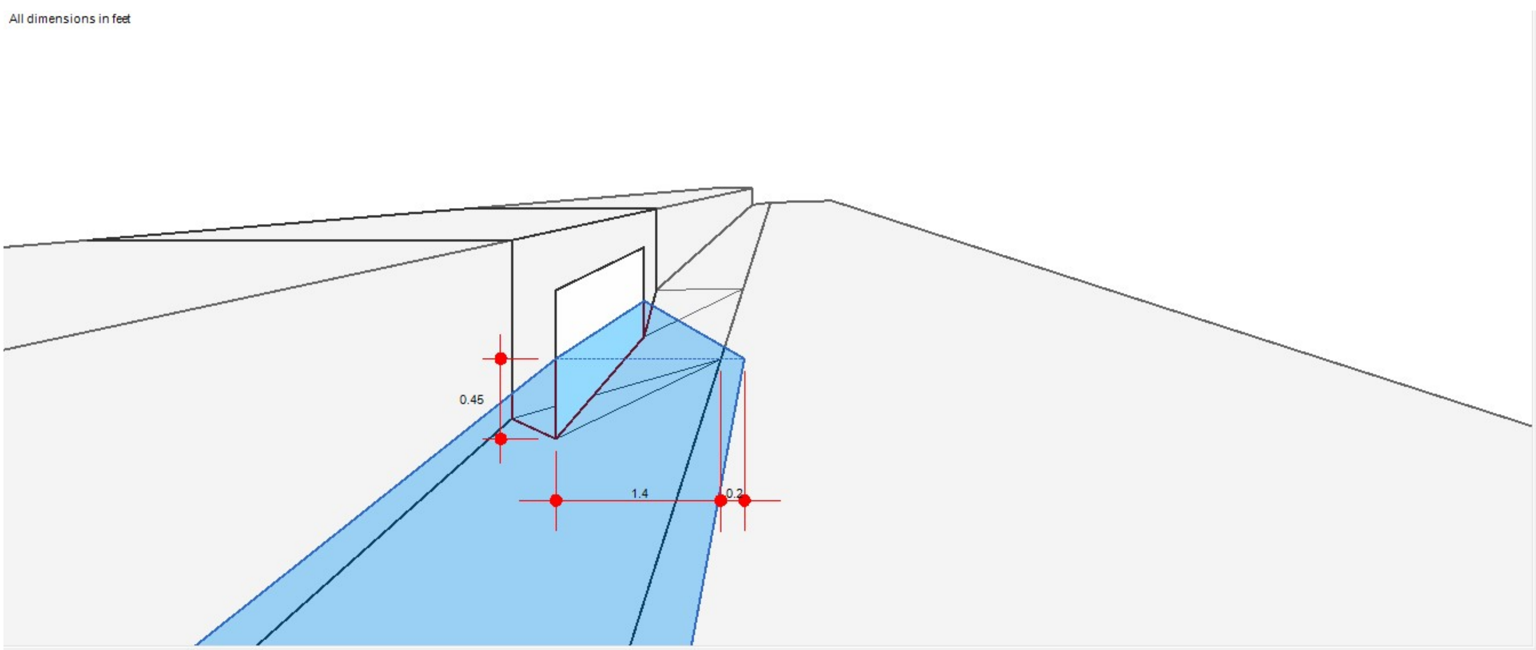
CI-C4 (25 YEAR)

Curb Inlet	
Location	= On grade
Curb Length (ft)	= 4.00
Throat Height (in)	= 2.00
Grate Area (sqft)	= -0-
Grate Width (ft)	= -0-
Grate Length (ft)	= -0-

Gutter	
Slope, Sw (ft/ft)	= 0.080
Slope, Sx (ft/ft)	= 0.020
Local Depr (in)	= 4.00
Gutter Width (ft)	= 1.40
Gutter Slope (%)	= 4.90
Gutter n-value	= 0.015

Calculations	
Compute by:	Known Q
Q (cfs)	= 0.33

Highlighted	
Q Total (cfs)	= 0.33
Q Capt (cfs)	= 0.33
Q Bypass (cfs)	= -0-
Depth at Inlet (in)	= 5.39
Efficiency (%)	= 100
Gutter Spread (ft)	= 1.60
Gutter Vel (ft/s)	= 3.91
Bypass Spread (ft)	= -0-
Bypass Depth (in)	= -0-



Inlet Report

CI-C5 (25 YEAR)

Curb Inlet

Location	=	On grade
Curb Length (ft)	=	4.00
Throat Height (in)	=	2.00
Grate Area (sqft)	=	-0-
Grate Width (ft)	=	-0-
Grate Length (ft)	=	-0-

Gutter

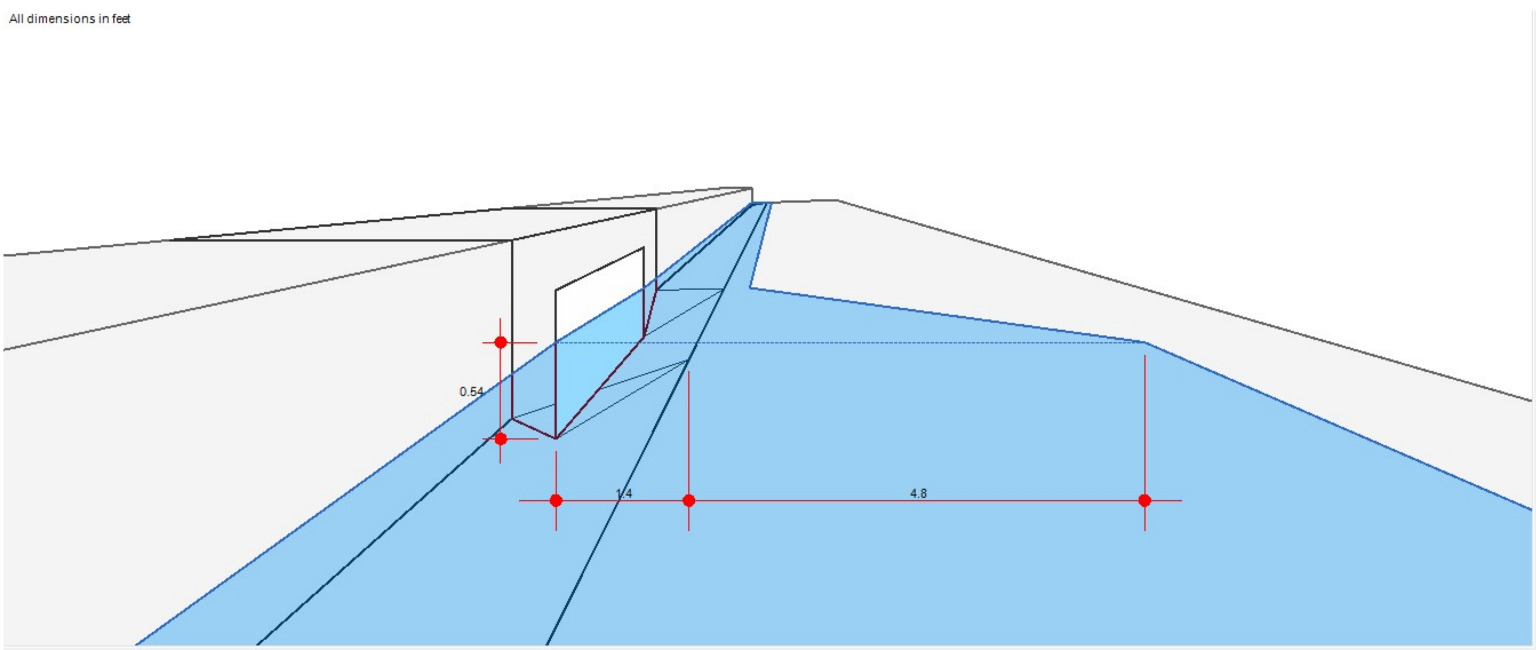
Slope, Sw (ft/ft)	=	0.080
Slope, Sx (ft/ft)	=	0.020
Local Depr (in)	=	4.00
Gutter Width (ft)	=	1.40
Gutter Slope (%)	=	1.80
Gutter n-value	=	0.015

Calculations

Compute by:		Known Q
Q (cfs)	=	1.31

Highlighted

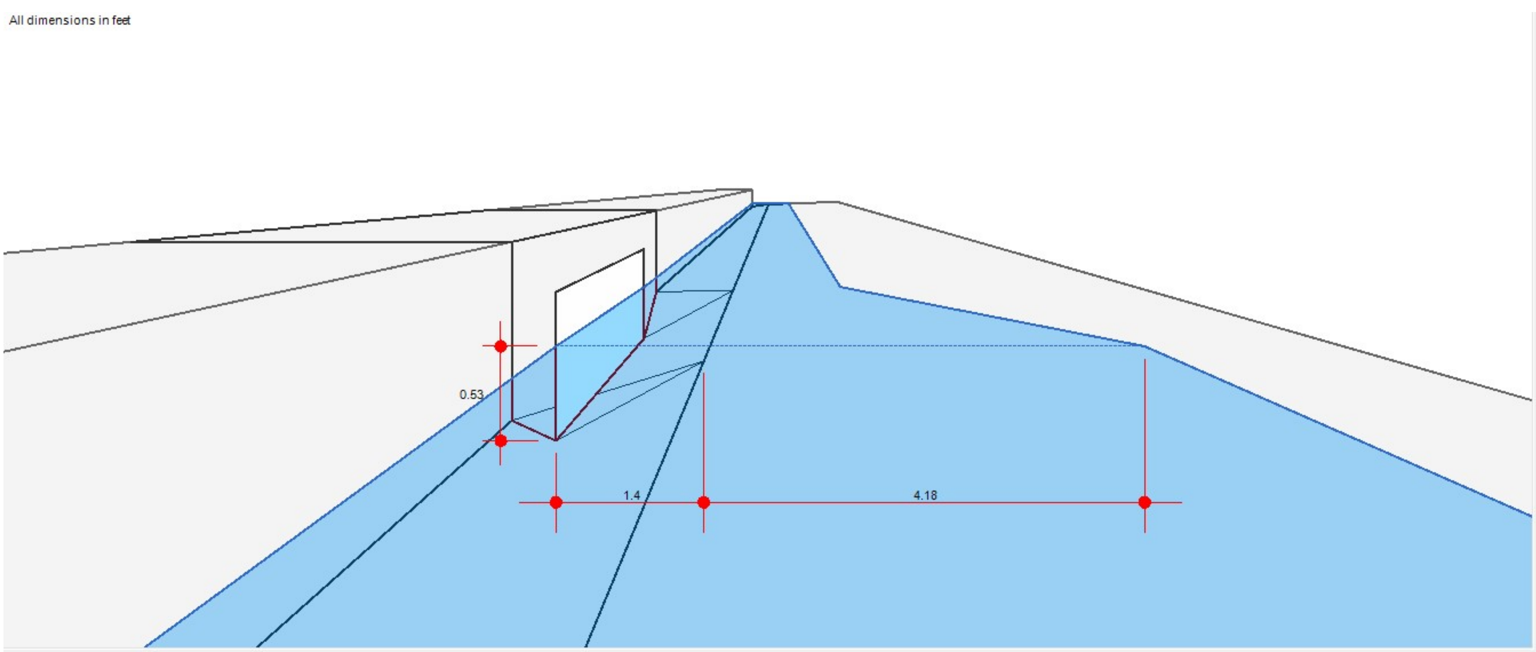
Q Total (cfs)	=	1.31
Q Capt (cfs)	=	1.09
Q Bypass (cfs)	=	0.22
Depth at Inlet (in)	=	6.49
Efficiency (%)	=	83
Gutter Spread (ft)	=	6.20
Gutter Vel (ft/s)	=	2.96
Bypass Spread (ft)	=	1.85
Bypass Depth (in)	=	1.45



Inlet Report

CI-D1 (25 YEAR)

Curb Inlet			**Calculations**		
Location	=	On grade	Compute by:		Known Q
Curb Length (ft)	=	4.00	Q (cfs)	=	1.76
Throat Height (in)	=	2.00			
Grate Area (sqft)	=	-0-	**Highlighted**		
Grate Width (ft)	=	-0-	Q Total (cfs)	=	1.76
Grate Length (ft)	=	-0-	Q Capt (cfs)	=	1.11
			Q Bypass (cfs)	=	0.65
Gutter			Depth at Inlet (in)	=	6.35
Slope, Sw (ft/ft)	=	0.080	Efficiency (%)	=	63
Slope, Sx (ft/ft)	=	0.020	Gutter Spread (ft)	=	5.58
Local Depr (in)	=	4.00	Gutter Vel (ft/s)	=	4.76
Gutter Width (ft)	=	1.40	Bypass Spread (ft)	=	3.10
Gutter Slope (%)	=	5.00	Bypass Depth (in)	=	1.75
Gutter n-value	=	0.015			

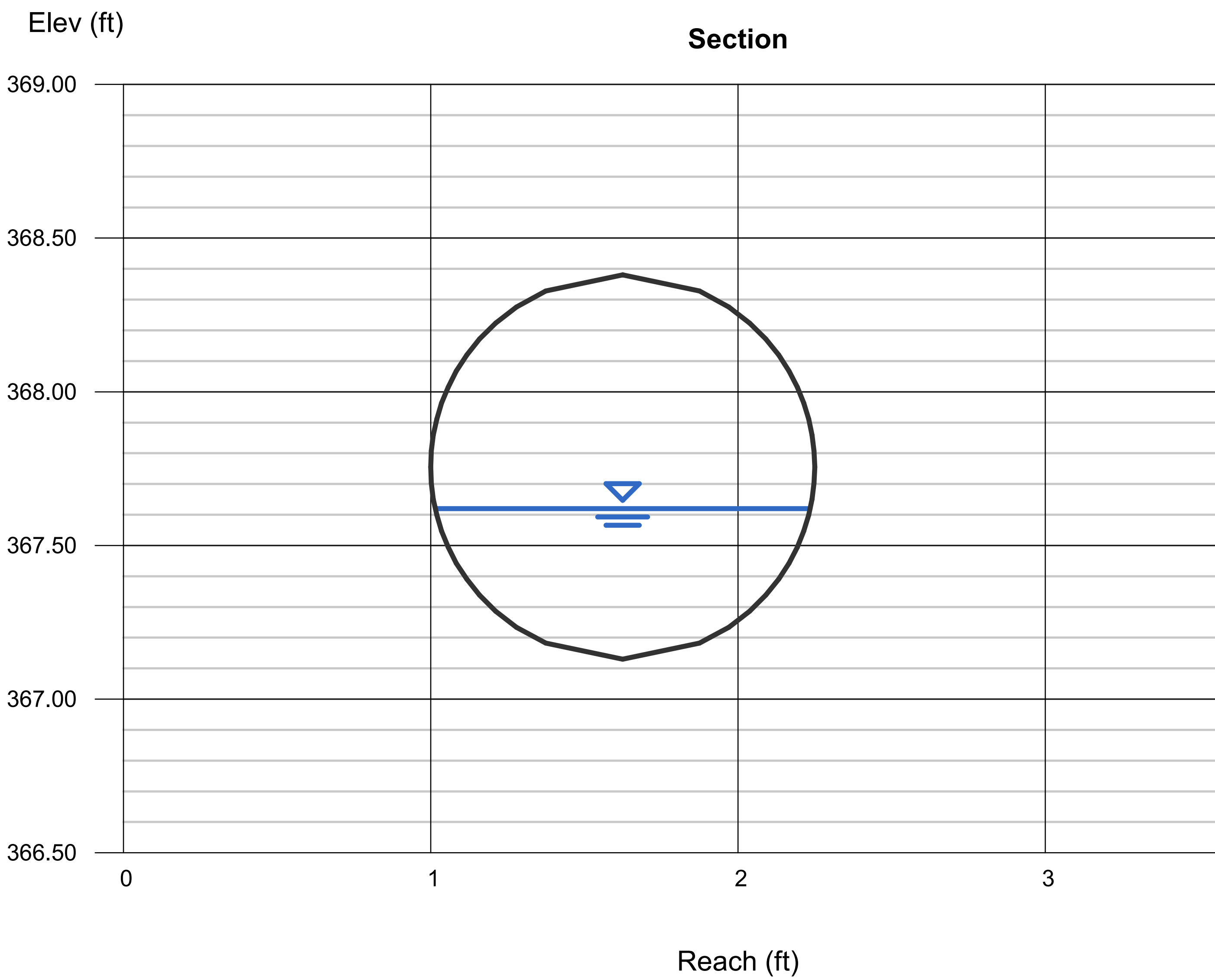


Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Oct 2 2024

PIPE A1 (25 YEAR)

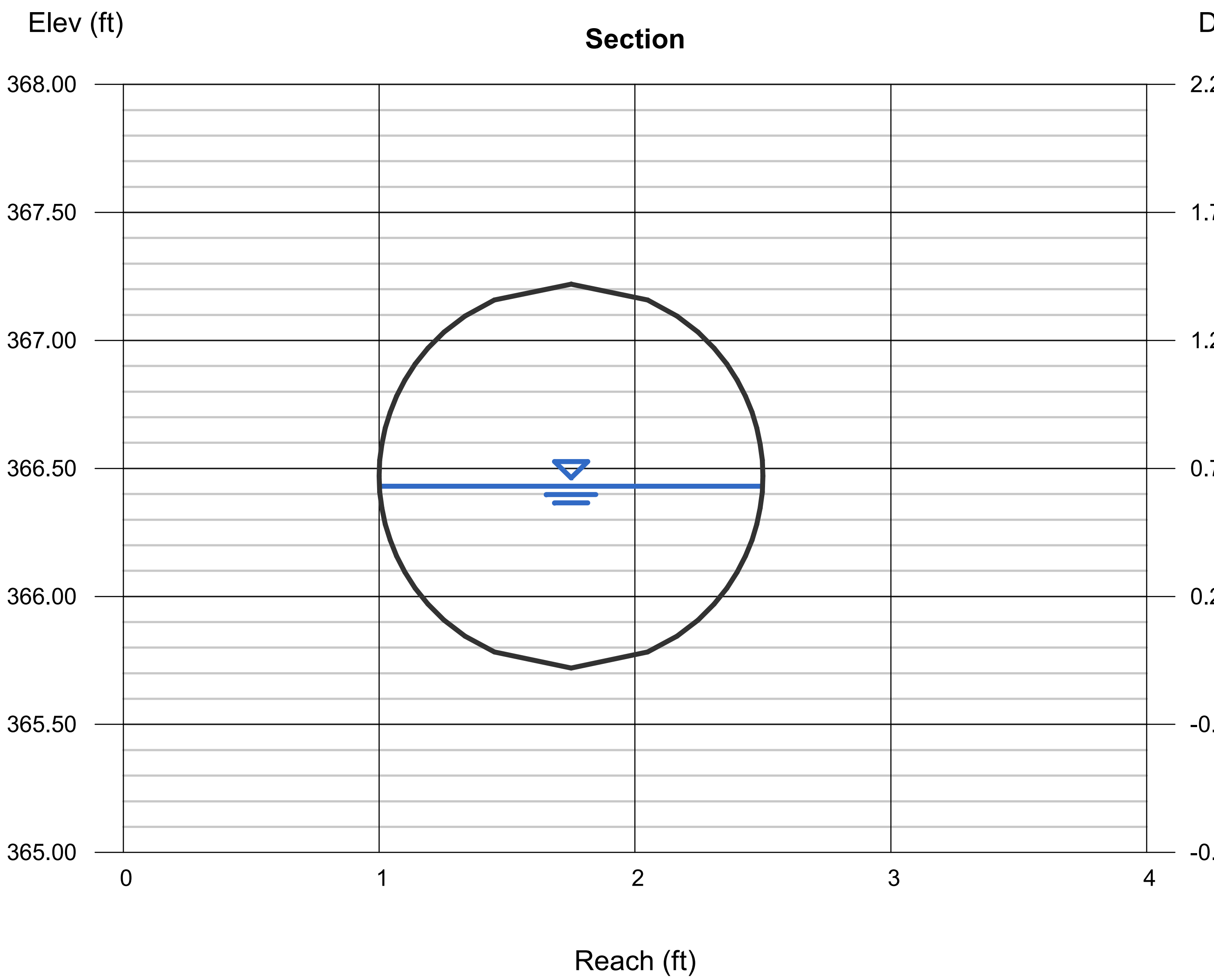
Circular		**Highlighted**	
Diameter (ft)	= 1.25	Depth (ft)	= 0.49
		Q (cfs)	= 1.790
		Area (sqft)	= 0.45
Invert Elev (ft)	= 367.13	Velocity (ft/s)	= 4.00
Slope (%)	= 1.03	Wetted Perim (ft)	= 1.69
N-Value	= 0.015	Crit Depth, Yc (ft)	= 0.54
		Top Width (ft)	= 1.22
Calculations		EGL (ft)	= 0.74
Compute by:	Known Q		
Known Q (cfs)	= 1.79		



Channel Report

PIPE A2 (25 YEAR)

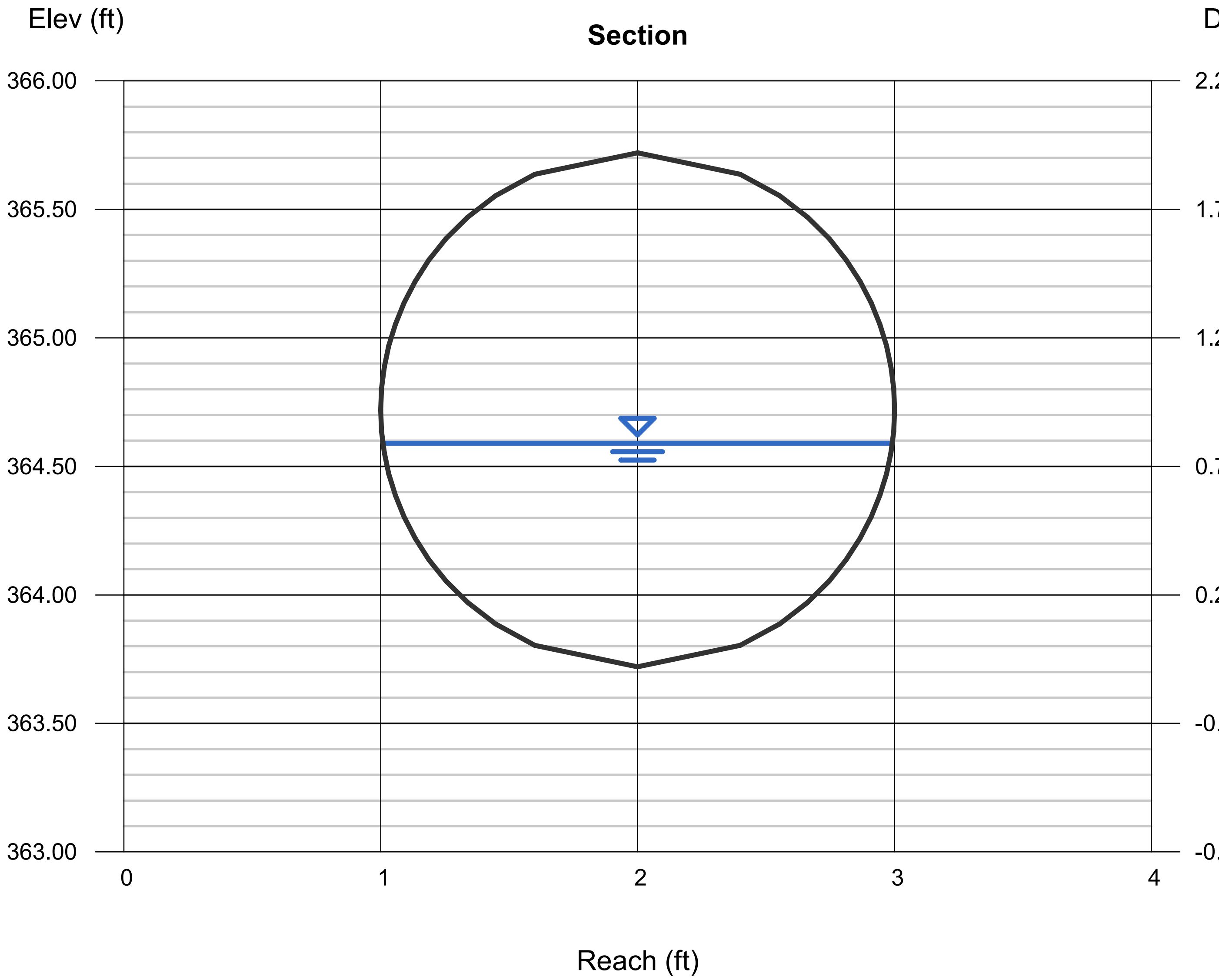
Circular		**Highlighted**	
Diameter (ft)	= 1.50	Depth (ft)	= 0.71
		Q (cfs)	= 4.020
		Area (sqft)	= 0.83
Invert Elev (ft)	= 365.72	Velocity (ft/s)	= 4.86
Slope (%)	= 0.95	Wetted Perim (ft)	= 2.28
N-Value	= 0.015	Crit Depth, Yc (ft)	= 0.77
		Top Width (ft)	= 1.50
Calculations		EGL (ft)	= 1.08
Compute by:	Known Q		
Known Q (cfs)	= 4.02		



Channel Report

PIPE A3 (25 YEAR)

Circular		**Highlighted**	
Diameter (ft)	= 2.00	Depth (ft)	= 0.87
		Q (cfs)	= 7.560
		Area (sqft)	= 1.32
Invert Elev (ft)	= 363.72	Velocity (ft/s)	= 5.72
Slope (%)	= 0.98	Wetted Perim (ft)	= 2.89
N-Value	= 0.015	Crit Depth, Yc (ft)	= 0.98
		Top Width (ft)	= 1.98
Calculations		EGL (ft)	= 1.38
Compute by:	Known Q		
Known Q (cfs)	= 7.56		

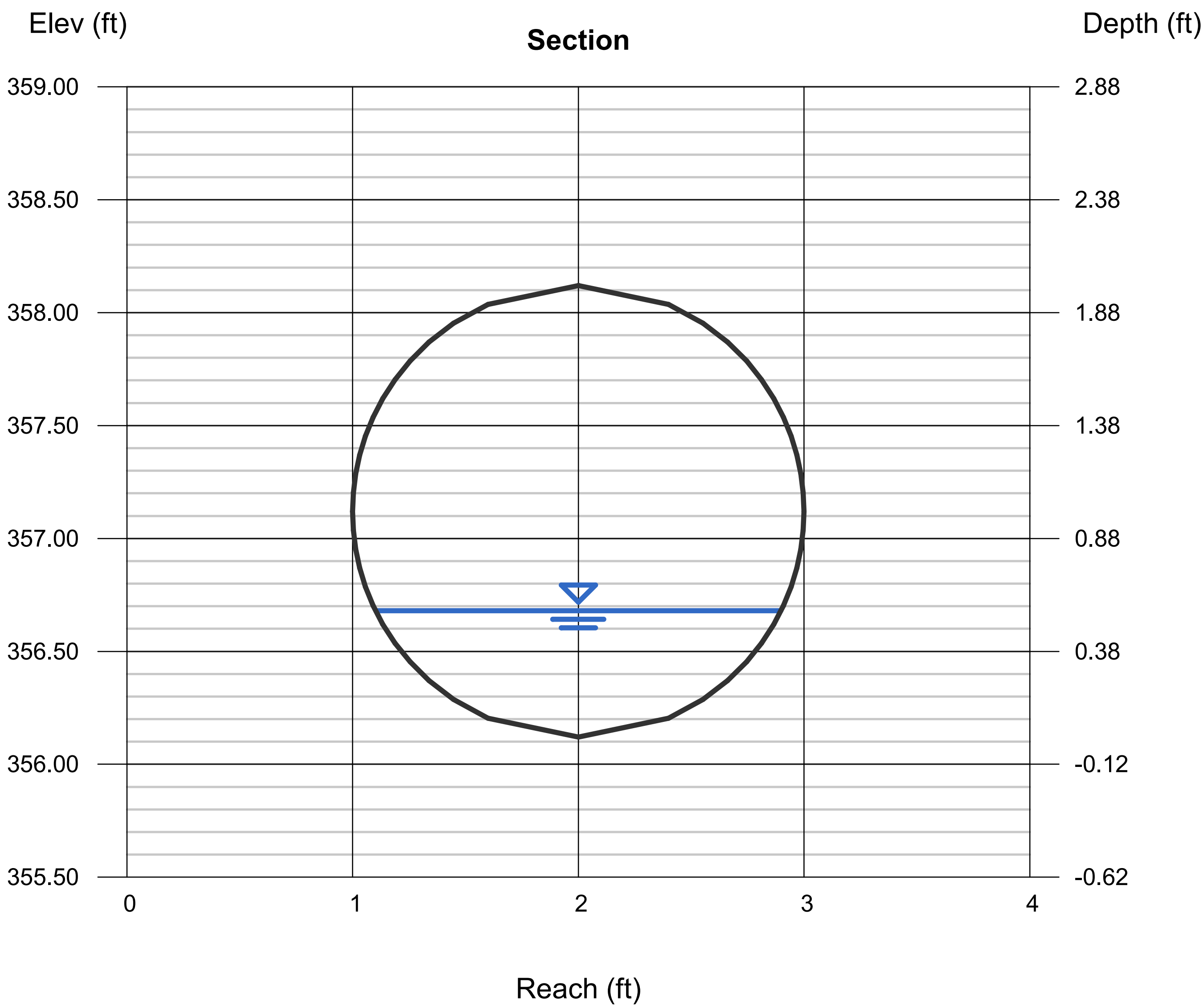


Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. — Wednesday, Oct 2 2024

PIPE A4 (25 YEAR)

Circular			**Highlighted**	
Diameter (ft)	= 2.00		Depth (ft)	= 0.56
			Q (cfs)	= 7.560
			Area (sqft)	= 0.73
Invert Elev (ft)	= 356.12		Velocity (ft/s)	= 10.39
Slope (%)	= 5.01		Wetted Perim (ft)	= 2.24
N-Value	= 0.015		Crit Depth, Yc (ft)	= 0.98
			Top Width (ft)	= 1.80
Calculations			EGL (ft)	= 2.24
Compute by:	Known Q			
Known Q (cfs)	= 7.56			

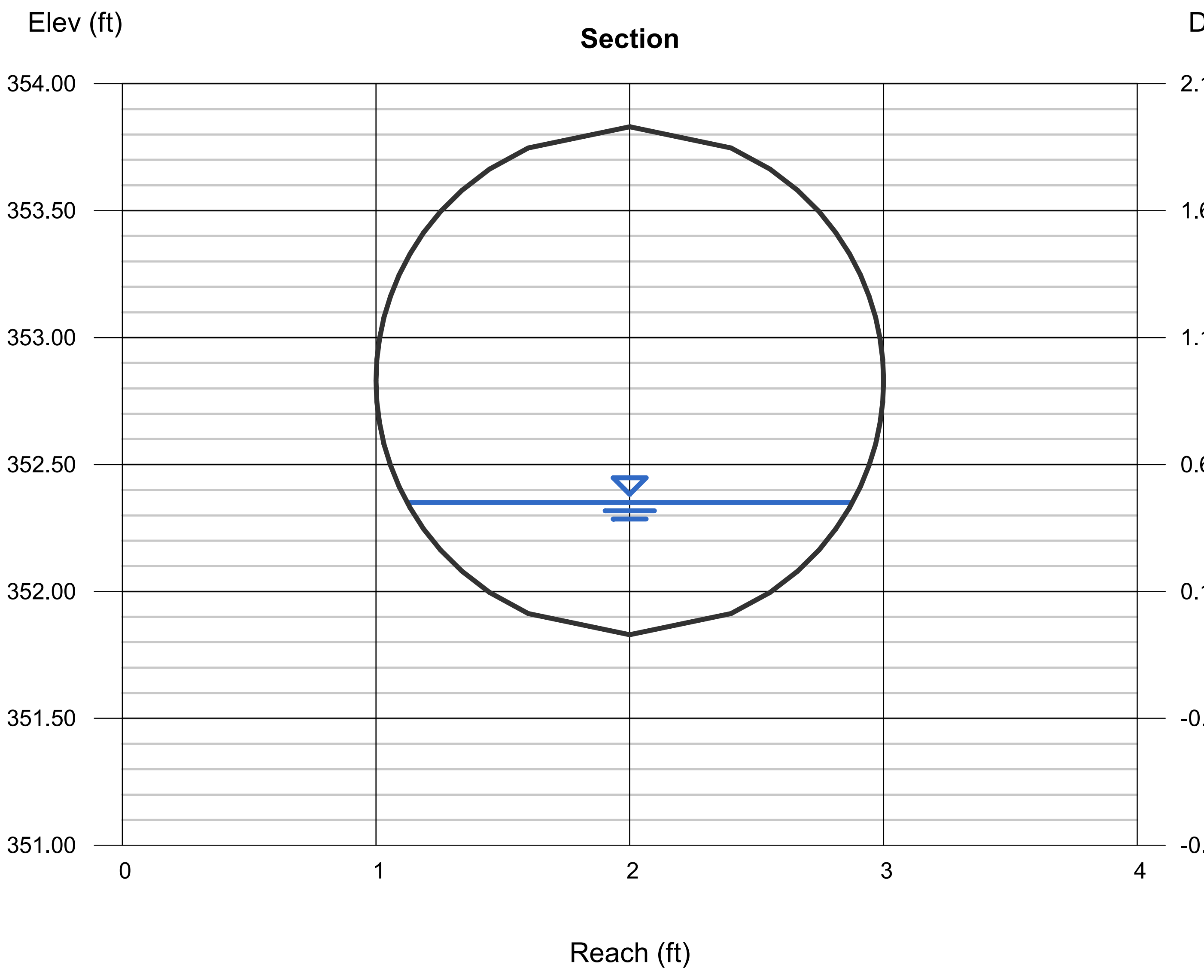


Channel Report

PIPE A5 (25 YEAR)

Circular	
Diameter (ft)	= 2.00
Invert Elev (ft)	= 351.83
Slope (%)	= 8.14
N-Value	= 0.015
Calculations	
Compute by:	Known Q
Known Q (cfs)	= 8.18

Highlighted	
Depth (ft)	= 0.52
Q (cfs)	= 8.180
Area (sqft)	= 0.66
Velocity (ft/s)	= 12.46
Wetted Perim (ft)	= 2.15
Crit Depth, Yc (ft)	= 1.02
Top Width (ft)	= 1.76
EGL (ft)	= 2.93

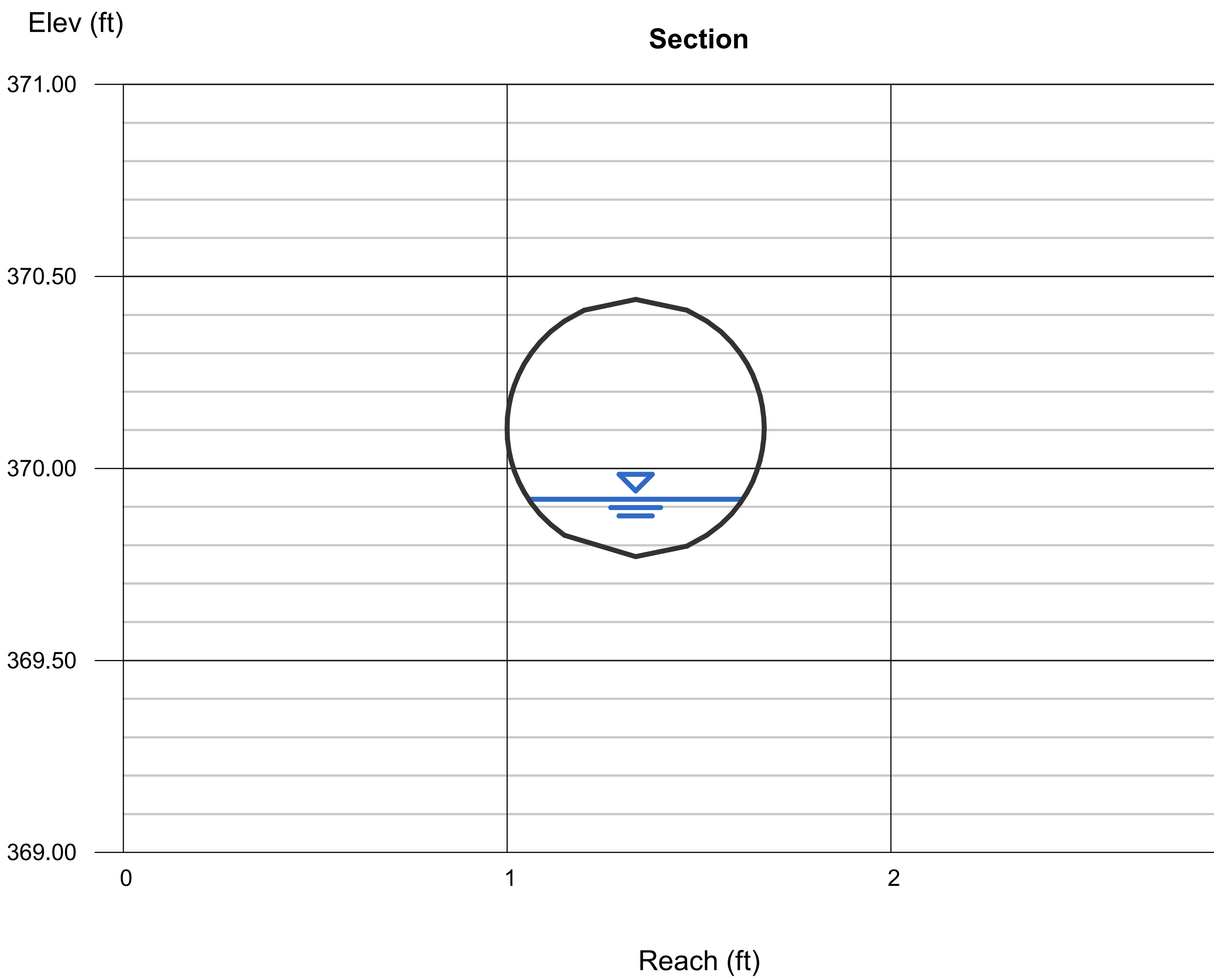


Channel Report

PIPE B1 (25 YEAR)

Circular	
Diameter (ft)	= 0.67
Invert Elev (ft)	= 369.77
Slope (%)	= 3.00
N-Value	= 0.015
Calculations	
Compute by:	Known Q
Known Q (cfs)	= 0.18

Highlighted	
Depth (ft)	= 0.15
Q (cfs)	= 0.180
Area (sqft)	= 0.06
Velocity (ft/s)	= 3.02
Wetted Perim (ft)	= 0.66
Crit Depth, Yc (ft)	= 0.20
Top Width (ft)	= 0.56
EGL (ft)	= 0.29

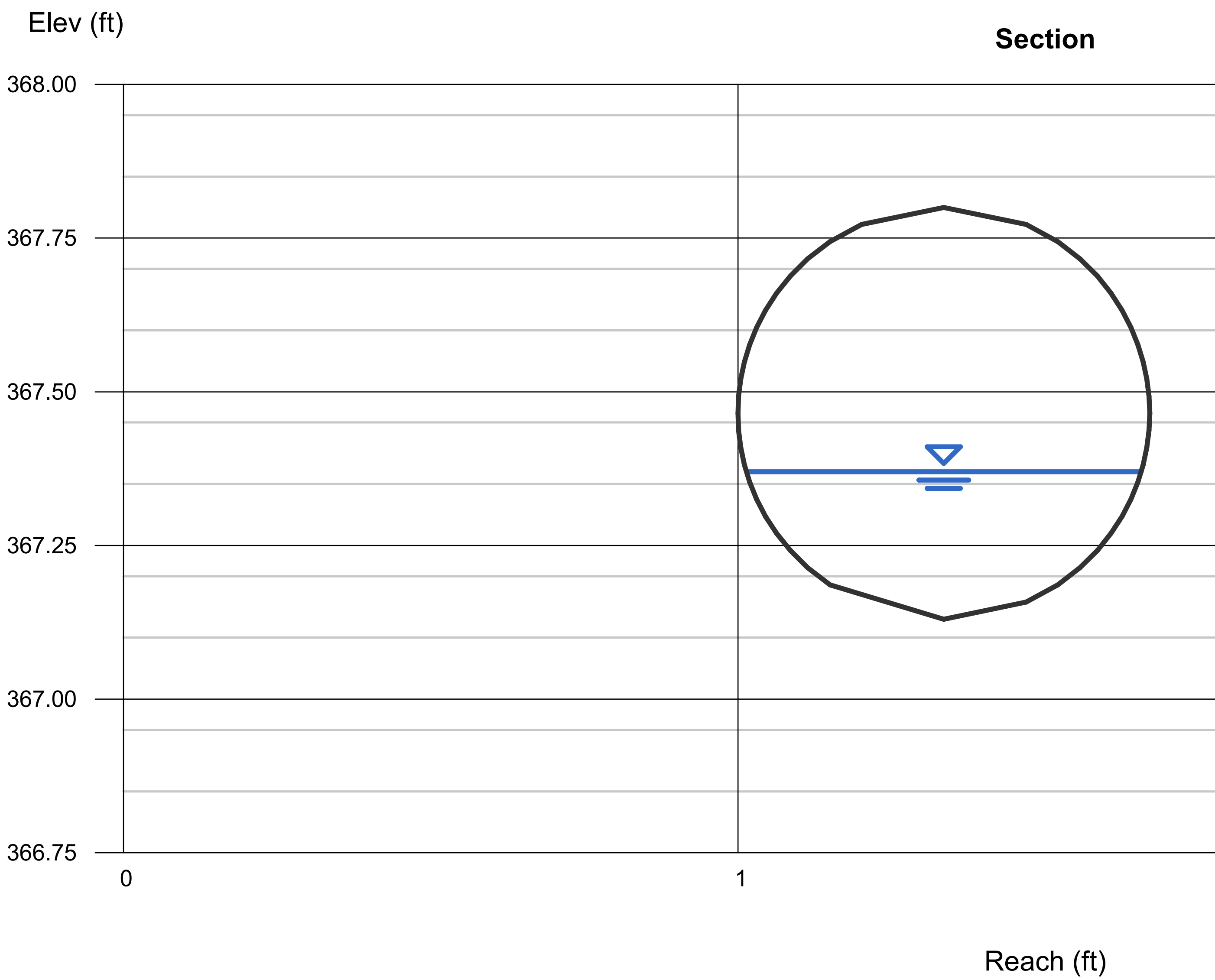


Channel Report

PIPE B2 (25 YEAR)

Circular	
Diameter (ft)	= 0.67
Invert Elev (ft)	= 367.13
Slope (%)	= 3.00
N-Value	= 0.015
Calculations	
Compute by:	Known Q
Known Q (cfs)	= 0.48

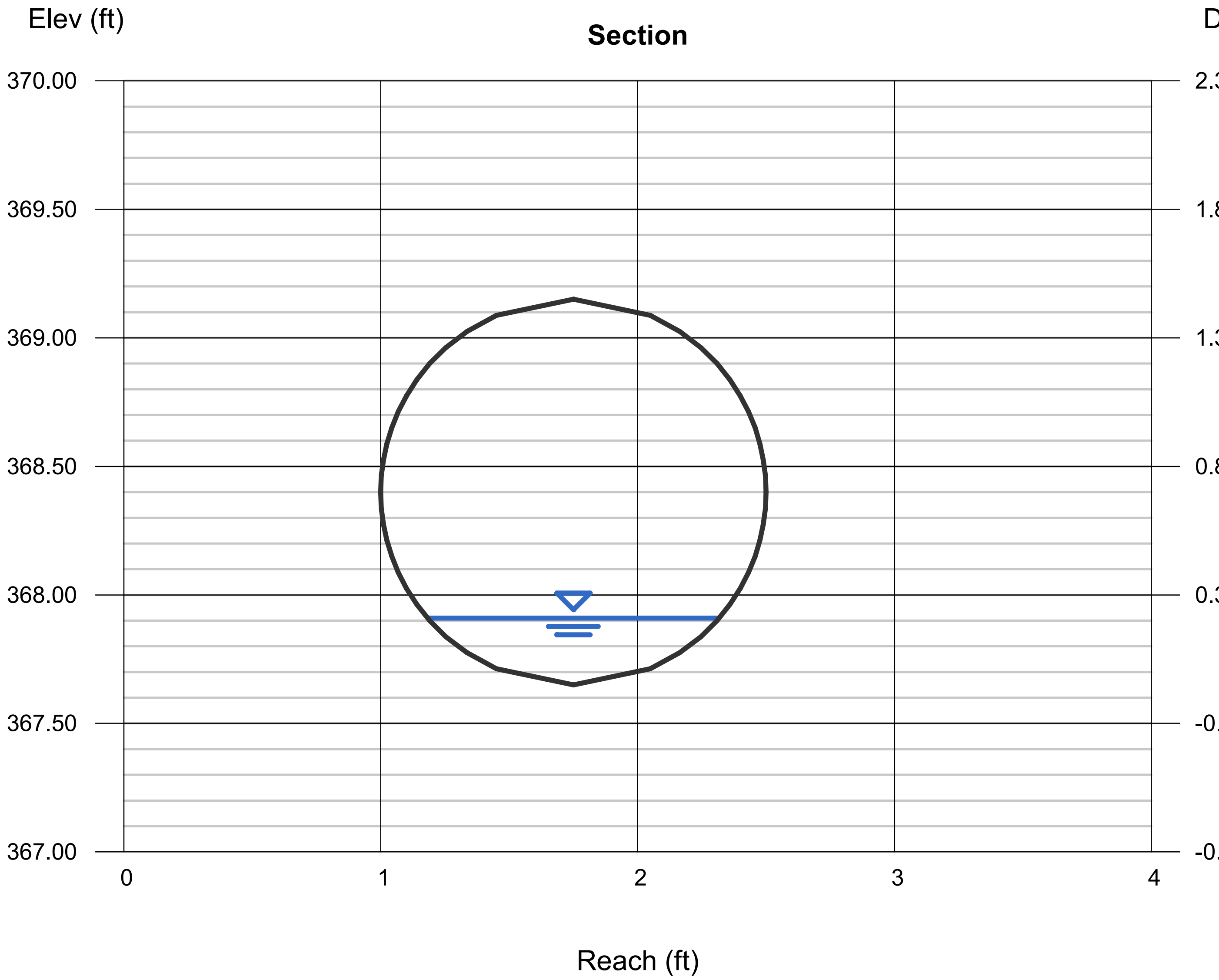
Highlighted	
Depth (ft)	= 0.24
Q (cfs)	= 0.480
Area (sqft)	= 0.11
Velocity (ft/s)	= 4.22
Wetted Perim (ft)	= 0.86
Crit Depth, Yc (ft)	= 0.33
Top Width (ft)	= 0.64
EGL (ft)	= 0.52



Channel Report

PIPE C1 (25 YEAR)

Circular		**Highlighted**	
Diameter (ft)	= 1.50	Depth (ft)	= 0.26
		Q (cfs)	= 0.610
		Area (sqft)	= 0.21
Invert Elev (ft)	= 367.65	Velocity (ft/s)	= 2.97
Slope (%)	= 1.14	Wetted Perim (ft)	= 1.29
N-Value	= 0.015	Crit Depth, Yc (ft)	= 0.29
		Top Width (ft)	= 1.14
Calculations		EGL (ft)	= 0.40
Compute by:	Known Q		
Known Q (cfs)	= 0.61		



Channel Report

PIPE C2 (25 YEAR)

Circular

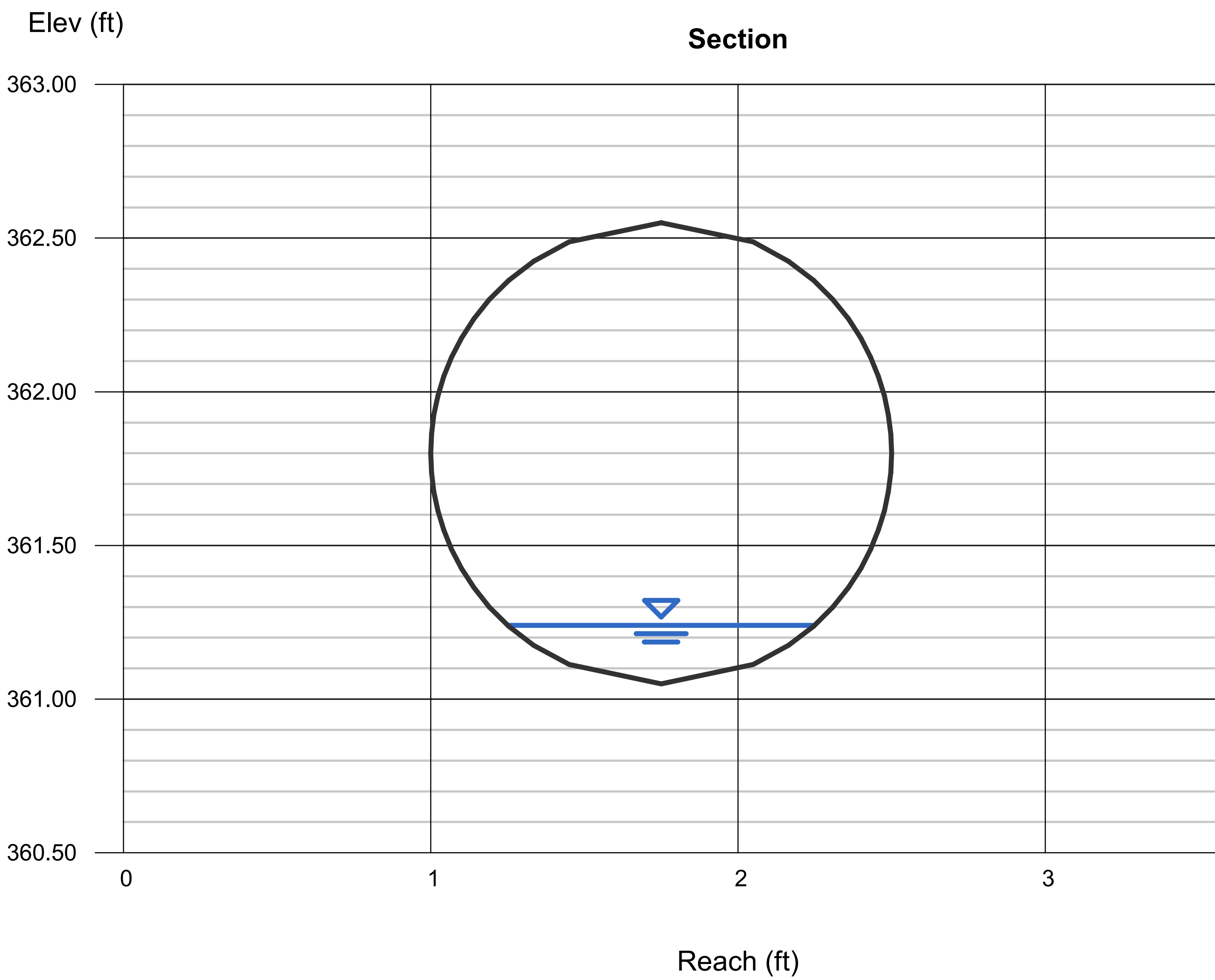
Diameter (ft)	= 1.50
Invert Elev (ft)	= 361.05
Slope (%)	= 6.06
N-Value	= 0.015

Calculations

Compute by:	Known Q
Known Q (cfs)	= 0.72

Highlighted

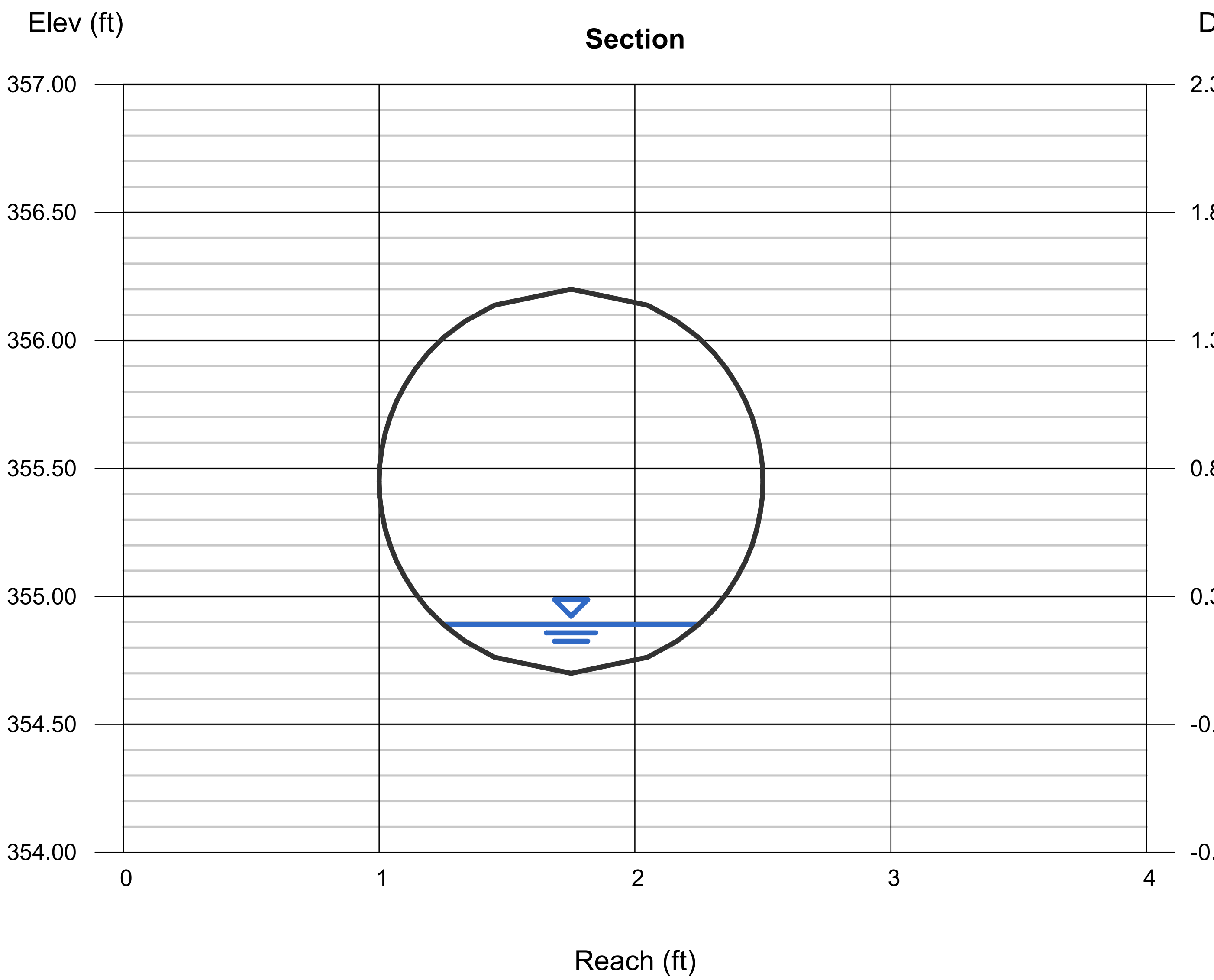
Depth (ft)	= 0.19
Q (cfs)	= 0.720
Area (sqft)	= 0.13
Velocity (ft/s)	= 5.49
Wetted Perim (ft)	= 1.09
Crit Depth, Yc (ft)	= 0.32
Top Width (ft)	= 1.00
EGL (ft)	= 0.66



Channel Report

PIPE C3 (25 YEAR)

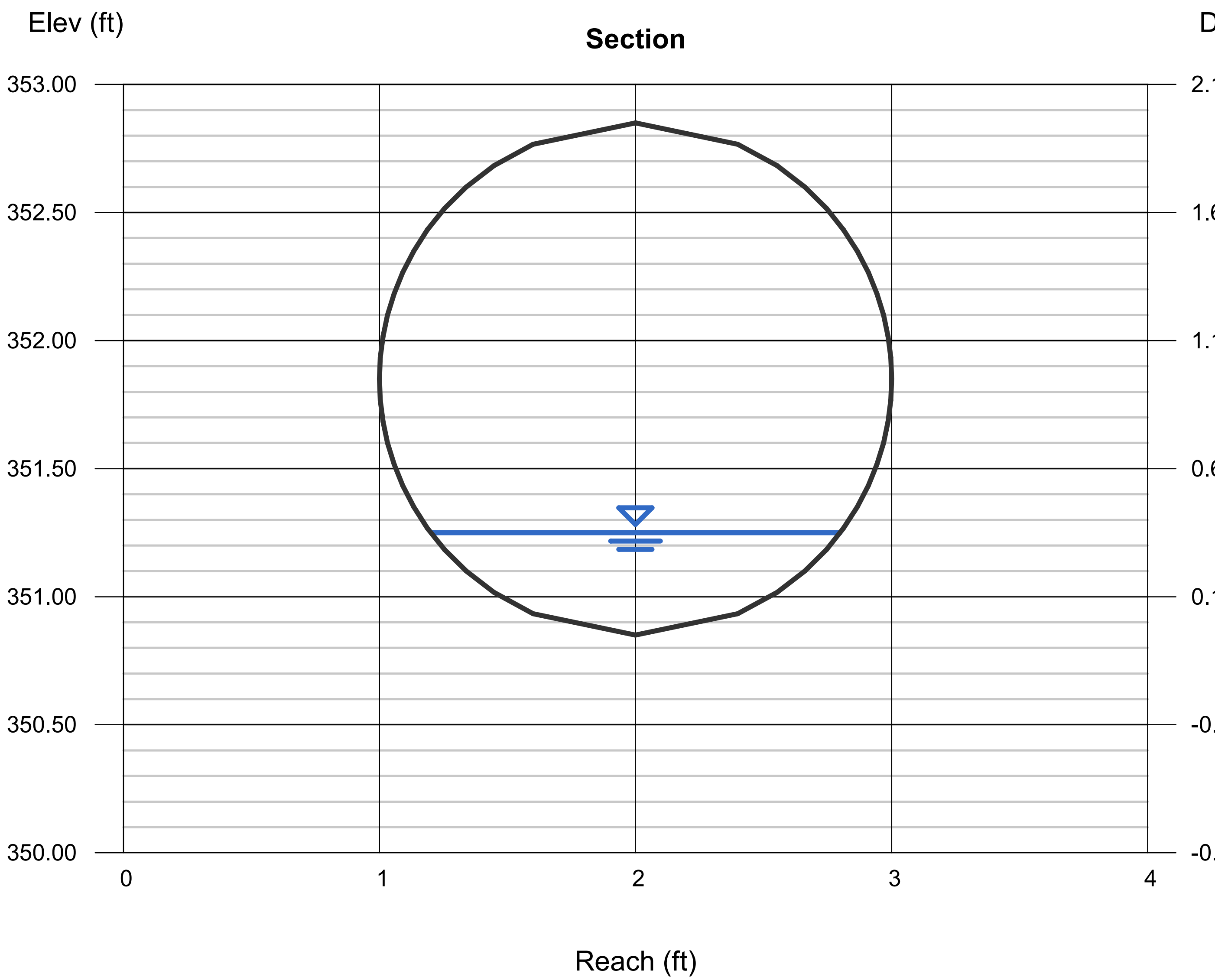
Circular		**Highlighted**	
Diameter (ft)	= 1.50	Depth (ft)	= 0.19
		Q (cfs)	= 0.720
		Area (sqft)	= 0.13
Invert Elev (ft)	= 354.70	Velocity (ft/s)	= 5.49
Slope (%)	= 5.91	Wetted Perim (ft)	= 1.09
N-Value	= 0.015	Crit Depth, Yc (ft)	= 0.32
		Top Width (ft)	= 1.00
Calculations		EGL (ft)	= 0.66
Compute by:	Known Q		
Known Q (cfs)	= 0.72		



Channel Report

PIPE C4 (25 YEAR)

Circular		**Highlighted**	
Diameter (ft)	= 2.00	Depth (ft)	= 0.40
		Q (cfs)	= 2.810
		Area (sqft)	= 0.45
Invert Elev (ft)	= 350.85	Velocity (ft/s)	= 6.23
Slope (%)	= 2.91	Wetted Perim (ft)	= 1.86
N-Value	= 0.015	Crit Depth, Yc (ft)	= 0.59
		Top Width (ft)	= 1.60
Calculations		EGL (ft)	= 1.00
Compute by:	Known Q		
Known Q (cfs)	= 2.81		

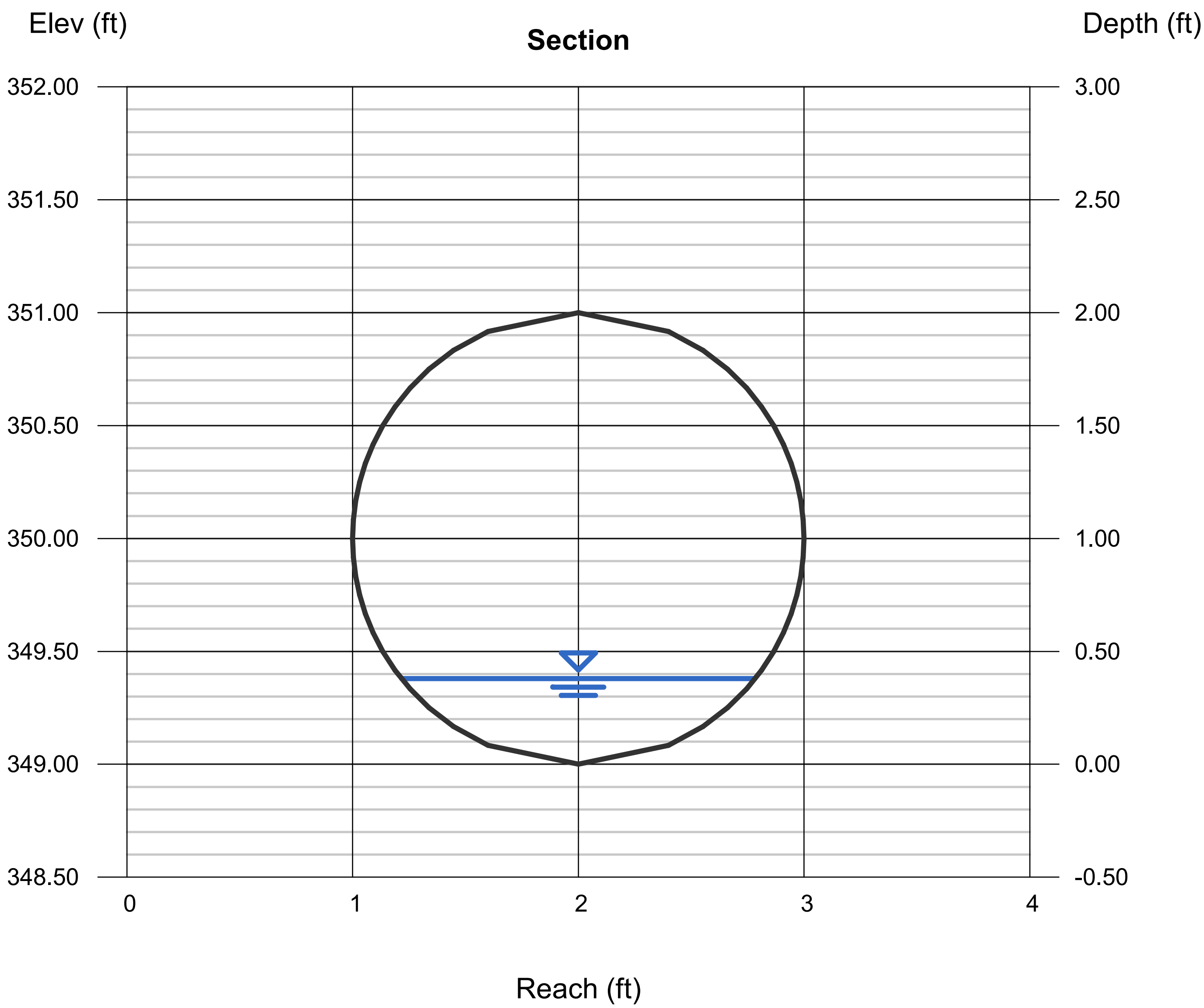


Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Thursday, Oct 31 2024

PIPE C5 (25 YEAR)

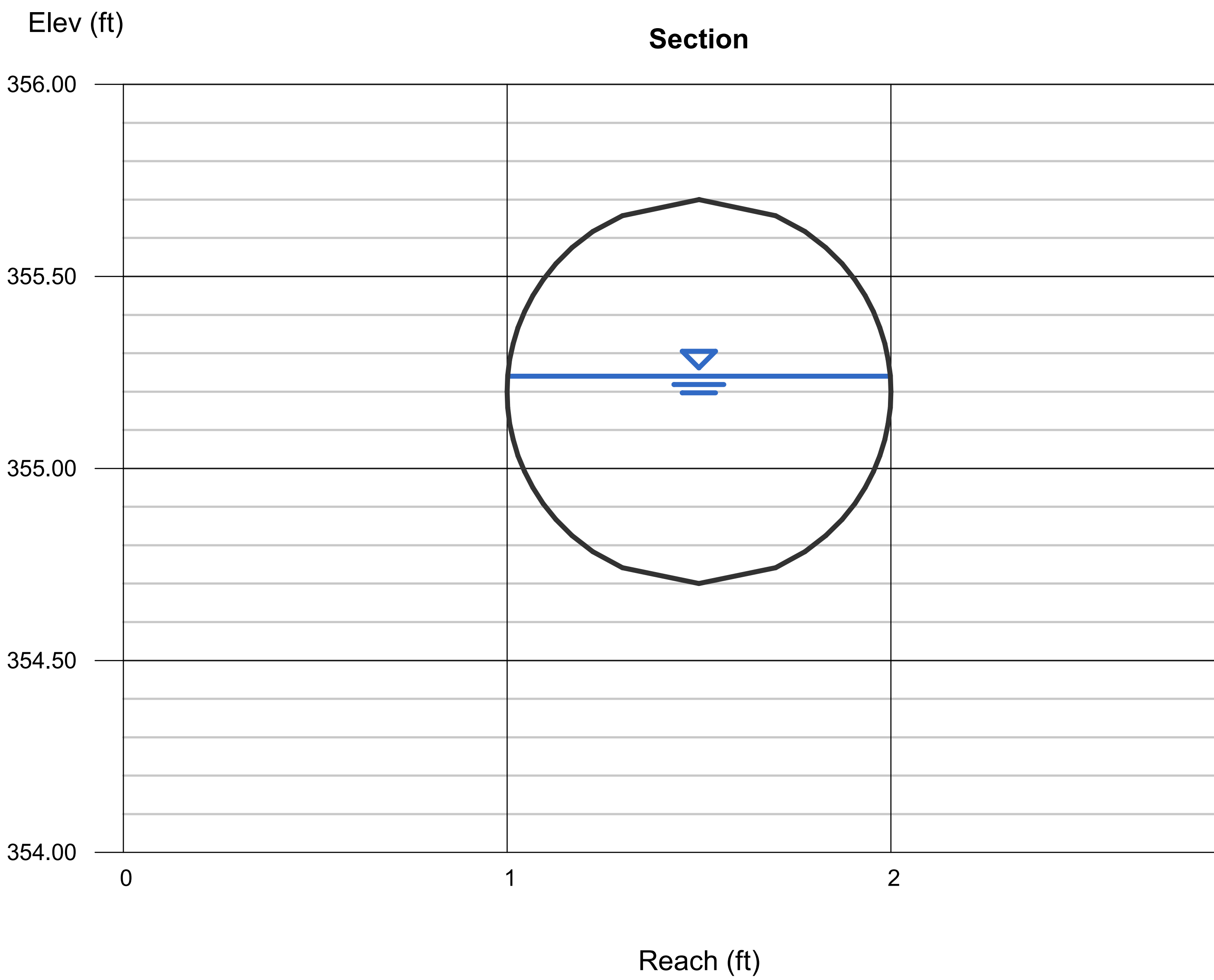
Circular		**Highlighted**	
Diameter (ft)	= 2.00	Depth (ft)	= 0.38
		Q (cfs)	= 4.120
		Area (sqft)	= 0.42
Invert Elev (ft)	= 349.00	Velocity (ft/s)	= 9.83
Slope (%)	= 7.25	Wetted Perim (ft)	= 1.81
N-Value	= 0.015	Crit Depth, Yc (ft)	= 0.71
		Top Width (ft)	= 1.57
Calculations		EGL (ft)	= 1.88
Compute by:	Known Q		
Known Q (cfs)	= 4.12		



Channel Report

PIPE D1 (25 YEAR)

Circular		**Highlighted**	
Diameter (ft)	= 1.00	Depth (ft)	= 0.54
		Q (cfs)	= 1.760
		Area (sqft)	= 0.43
Invert Elev (ft)	= 354.70	Velocity (ft/s)	= 4.05
Slope (%)	= 1.00	Wetted Perim (ft)	= 1.65
N-Value	= 0.015	Crit Depth, Yc (ft)	= 0.57
		Top Width (ft)	= 1.00
Calculations		EGL (ft)	= 0.79
Compute by:	Known Q		
Known Q (cfs)	= 1.76		



DRAINAGE BASIN MAPS

PRE DRAINAGE MAP

SCALE 1" = 50'

1" = 50'-0"

PHILLIP LEWIS ENGINEERING, INC.
Structural + Civil Consultants
23620 Interstate 30 | Bryant, Arkansas
PH: 501-350-9840

PLE

REVISION:

BRYANT SEMINARY
HIGHWAY 5
BRYANT, ARKANSAS

CERTIFICATE OF AUTHORIZATION
PHILLIP LEWIS ENGINEERING, INC.
No. 566
ARKANSAS ENGINEER

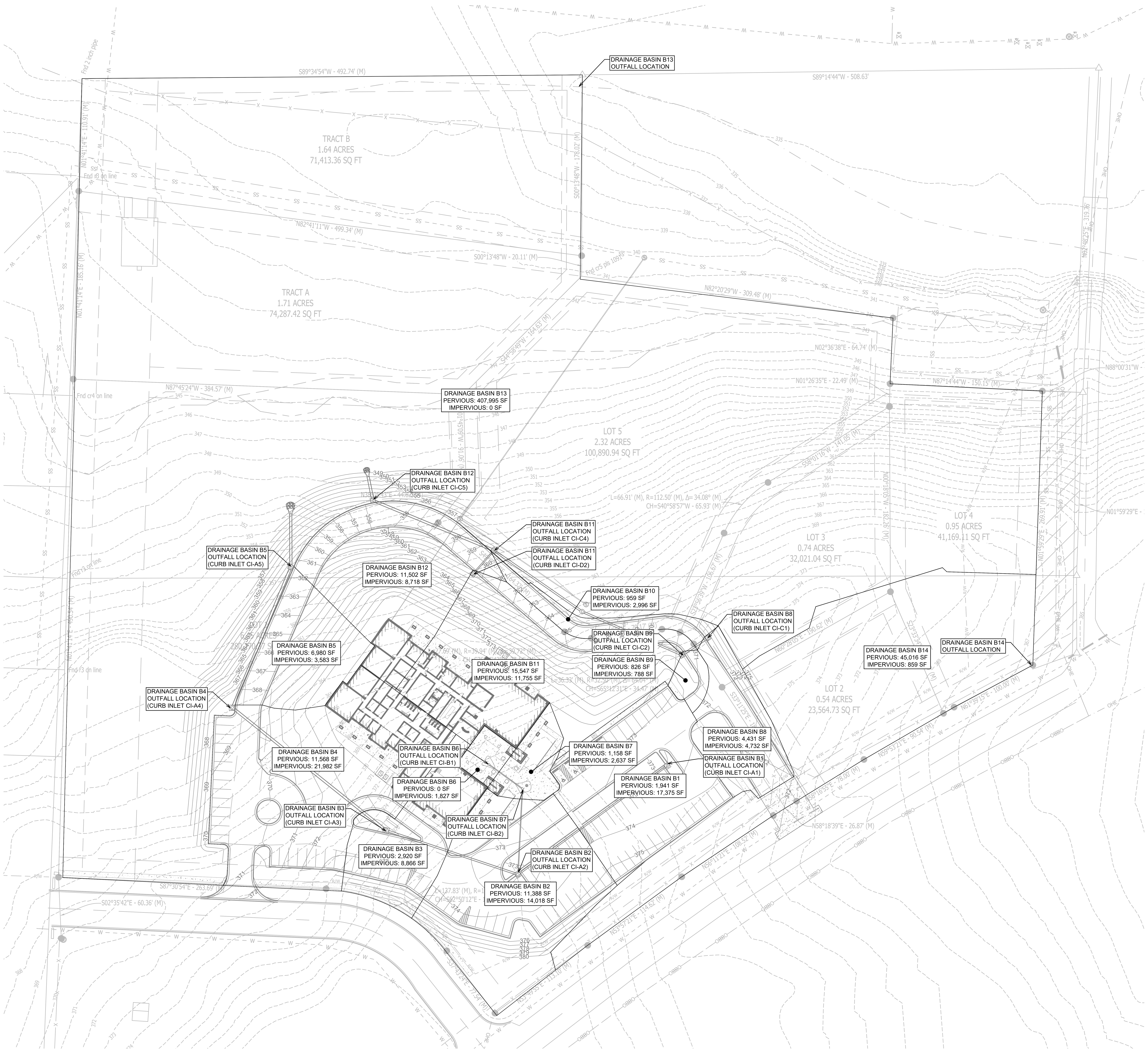
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9540
PHILLIP A. LEWIS

PROJECT NUMBER:

SHEET ISSUE DATE:
10-31-2024

PAGE TITLE:
PRE DRAINAGE MAP

SHEET NUMBER:
C1.11



POST DRAINAGE MAP

SCALE 1" = 50'

GENERAL SITE NOTES

1. TOTAL NEW DEVELOPMENT AREA = (+/-) 1.12 ACRES
2. PROPERTY IS ZONED C-2
3. 43 PARKING SPACES PROVIDED INCLUDING 2 ADA ACCESSIBLE PARKING SPACES
4. ALL DIMENSIONS ARE TO THE BACK OF CURB AND/OR EDGE OF PAVEMENT
5. DAMAGE TO PUBLIC AND PRIVATE PROPERTY DUE TO HAULING OPERATIONS OR OPERATIONS OF CONSTRUCTION RELATED EQUIPMENT FROM A CONSTRUCTION SITE SHALL BE REPAIRED BY THE THE RESPONSIBLE PARTY PRIOR TO THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY.
6. REPAIR, REPLACE, OR EXTEND EXISTING DAMAGED OR MISSING CURB AND GUTTER, SIDEWALK OR RAMPS WITHIN THE PUBLIC RIGHT OF WAY.
7. ALL SIGNAGE, PAVEMENT MARKING AND PARKING LOT STRIPING SHALL CONFORM TO REQUIREMENTS GIVEN IN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). MUTCD REQUIRES THAT PARKING SPACES BE MARKED IN WHITE.

N

0 50'

1" = 50'-0"

PHILLIP LEWIS ENGINEERING, INC.
Structural + Civil Consultants
23620 Interstate 30 | Bryant, Arkansas
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REVISION:

BRYANT SEMINARY
HIGHWAY 5
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No. 9540
PHILLIP A. LEWIS

PROJECT NUMBER:

SHEET ISSUE DATE:
10-31-2024

PAGE TITLE:
POST DRAINAGE MAP

SHEET NUMBER:
C1.12

SOIL CLASSIFICATION MAPS

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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

Custom Soil Resource Report for

Saline County, Arkansas

August 30, 2024

Preface

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

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

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

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

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

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

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

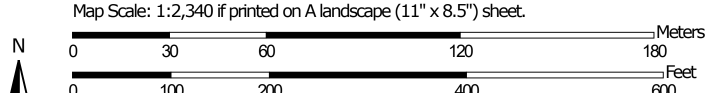
Contents

Soil Map

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

Soil Map

Map Scale: 1:2,340 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

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

Special Point Features

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

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

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

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

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

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

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

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

Soil Survey Area: Saline County, Arkansas
Survey Area Data: Version 20, Sep 12, 2023

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

Date(s) aerial images were photographed: May 1, 2022—May 29, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
16	Ouachita silt loam, 0 to 1 percent slopes, frequently flooded	3.6	25.0%
22	Savannah fine sandy loam, 3 to 8 percent slopes	2.5	17.8%
27	Smithdale loamy sand, 8 to 12 percent slopes	4.9	34.4%
29	Tiak silt loam, 3 to 8 percent slopes	3.3	22.9%
Totals for Area of Interest		**14.2**	**100.0%**

Map Unit Descriptions

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

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

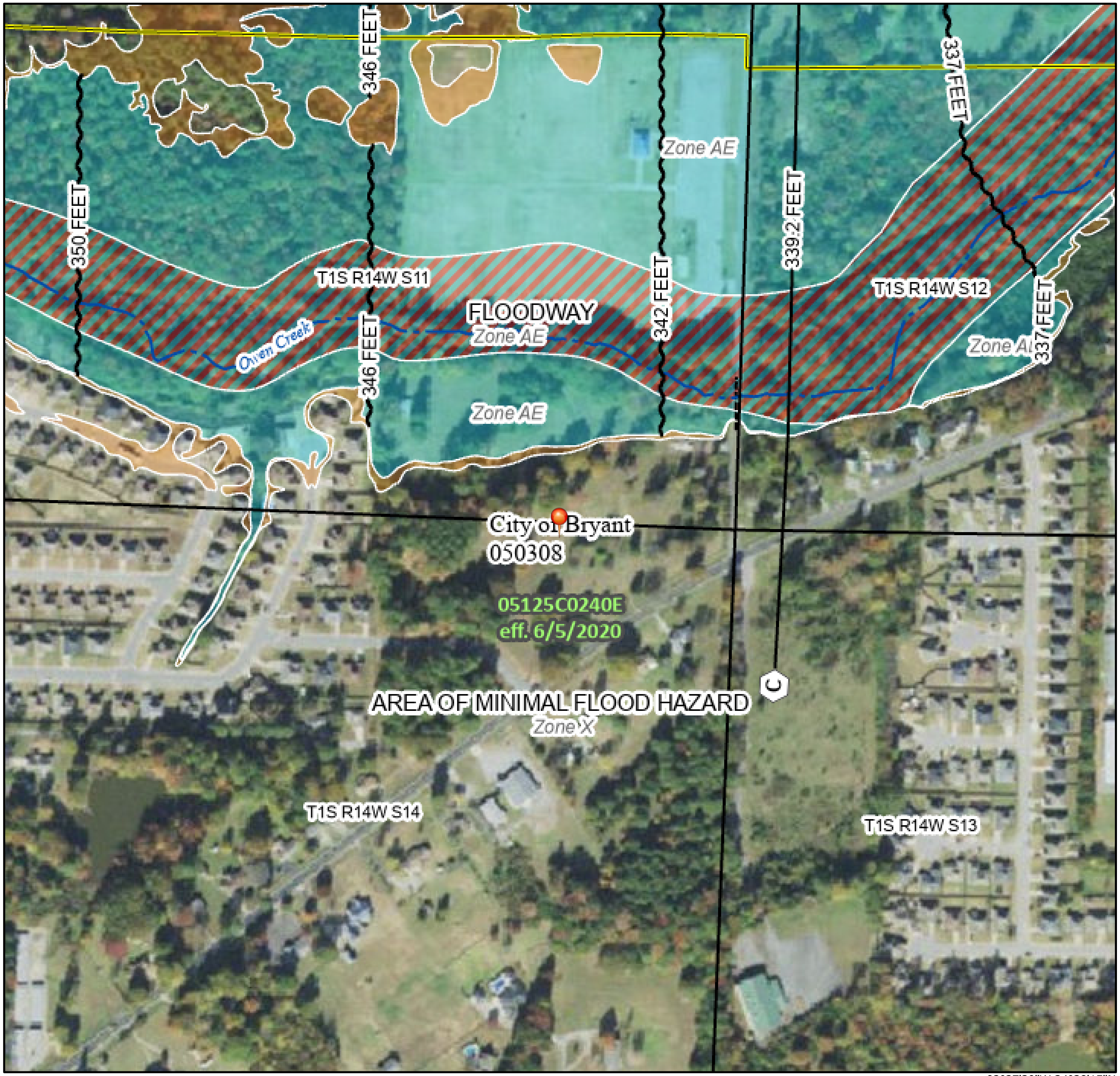
Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however,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

FEMA FLOOD INSURANCE RATE MAP

National Flood Hazard Layer FIRMette

FEMA

92°28'7"W 34°38'45"N



92°27'30"W 34°38'15"N

Feet

0 250 500 1,000 1,500 2,000

1:6,000

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) *Zone A, V, A99*
	With BFE or Depth *Zone AE, AO, AH, VE, AR*
	Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD	0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
	Future Conditions 1% Annual Chance Flood Hazard *Zone X*
	Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
	Area with Flood Risk due to Levee *Zone D*
OTHER AREAS	NO SCREEN Area of Minimal Flood Hazard *Zone X*
	Effective LOMRs
	Area of Undetermined Flood Hazard *Zone D*
GENERAL STRUCTURES	Channel, Culvert, or Storm Sewer
	Levee, Dike, or Floodwall
OTHER FEATURES	20.2 / 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
	8 Coastal Transect
	513 Base Flood Elevation Line (BFE)
	Limit of Study
	Jurisdiction Boundary
	Coastal Transect Baseline
	Profile Baseline
	Hydrographic Feature
MAP PANELS	Digital Data Available
	No Digital Data Available
	Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 10/9/2024 at 5:29 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

PHILLIP LEWIS ENGINEERING
Structural + Civil Consultants
23620 Interstate 30 | Bryant, AR
PH: 501-350-9840

October 31, 2024

Colton Leonard
City of Bryant
Assistant Director of Planning and Development
cleonard@cityofbryant.com

RE: Bryant Seminary – Site Plan – DRC Comments

To whom it may concern, please find below our responses to each Planning/Engineering comment. Design plans are revised and re-submitted along with this letter.

Public Works

1. Provide 20’ easement on east side of property for existing sewer force main outside proposed new ARDOT R/W. show 20’ gravity sewer easement on proposed gravity sewer line form SSMH-1 to SSMH Existing-3
   - ➢ Added easements to the plans.
2. Provide a 15’ water main easement to run parallel with HWY 5 across the entire property outside new ARDTO R/W.
   - ➢ Added easement to the plans.
3. Fire lines shall be 8” ductile iron per Bryant Specifications Section 100-1-1.03-B. Only one 6x8 tap will be required as fire hydrant can be installed on the fire line within 100’ of FDC.
   - ➢ Revised to have one tap. Revised to have fire hydrant branch off the fire line.
4. Domestic water meter shown is 8x2. Please show 6x2 as the existing water main is 6” cast iron
   - ➢ Revised the domestic water to tap into the fire line.

Engineering

1. Drawings
   a. For flared end section FE-a6 and FE-C6 what structures will be put in place to protect those areas from sour and erosion.
      - ➢ Added rip rap to the ends of the flared end sections.

   b. Show check points for drainage basins.
      - ➢ Added check points to the drainage basins.

   c. Show check points for all drainage basins. If a check point is an inlet show the name/number of that inlet on this drawing, or a table that correlates which basin is contributing flow to each inlet.
      - ➢ Added check points to drainage basins and called out what inlet they discharge to.

   d. Show the discharge points on this map.
      - ➢ Added discharge points to the map.
2. Drainage Calculations
   a. How were the runoff coefficients determined? Provide a basis for how these were

determined, or the resource used to obtain them.

   - The runoff coefficients were determined by the online soils report for the project location and City of Bryant Storm Drainage Manual.

b. Note that the runoff coefficient should be different for each return storm. The drainage report shows the same runoff coefficients for each return storm.

   - Have revised the coefficients to reflect for the 100-year and 25-year storm events with differing runoff coefficients. We run the 2-25 yr storm frequencies using the 25 yr runoff coefficient to consolidate our hydraulic model. This usually produces higher discharge numbers for those 2-10 yr storms.

c. There are several references to the Little Rock Stormwater Manual. This project is to meet the requirements in the Bryant Stormwater Manual.

   - Have revised the report to reference Bryant Stormwater Manual.

<u>Community Development</u>

1. Stormwater Detention Drainage Review Fee will Need to be Paid ($250).
   - Will get that paid.
2. Consider a sidewalk connection from the building to the edge of ROW where ARDOT can tie it into the Trail they will be building for the widening.
   - Added sidewalk connection from the building to ARDOT ROW.
3. Is the ROW along Henry Ave up to King's Crossing considered ARDOT ROW or City ROW?
   - The ROW along Henry to King's Crossing is City ROW for approximately one half of this project's Henry frontage.
4. If it is within City ROW a sidewalk along Henry up to the edge of the proposed ARDOT ROW for HWY 5 will need to be shown.
   - Added sidewalk along Henry to the edge of estimated ARDOT ROW.
5. A note stating that all mechanical equipment will be screened according to the City's commercial design standards will need to be added to the site plan.
   - Added to the general notes.

<u>Fire</u>

1. Installation of Knox Box on the building to provide FD access.
   - Added annotation for Knox Box location.

If you have any questions, please give me a call.

Tyler France
Project Engineer
Phillip Lewis Engineering
(501)-551-8823

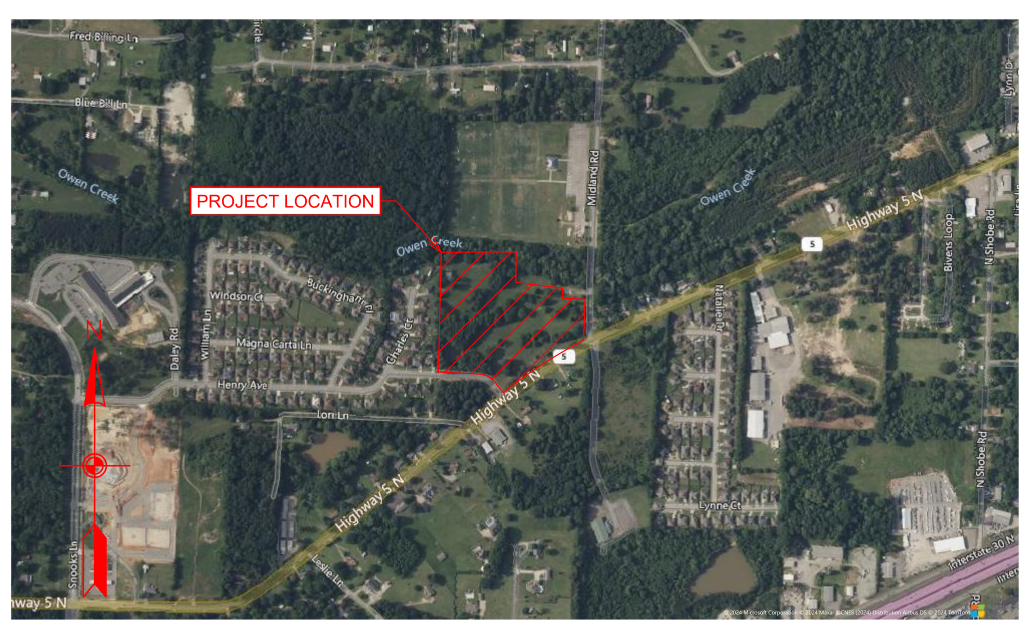
GAS METER
WATER METER
GUY WIRE
POWER/UTILITY POLE
TELEPHONE PEDESTAL
SEWER MANHOLE
WATER VALVE
FIRE HYDRANT
SIGNS
LIGHT POLE
TELEPHONE MANHOLE
SS — SANITARY SEWER LINE
W — WATER LINE
STORM SEWER PIPE
ROADWAY CENTERLINE
UTILITY EASEMENT
BUILDING SETBACK LINE
R/W — ROADWAY RIGHT-OF-WAY
OHE — OVERHEAD ELECTRIC LINES
UGT — UNDERGROUND TELEPHONE
G — UNDERGROUND GAS
F.O. — UNDERGROUND FIBER OPTIC

D	STORM DRAIN MANHOLE
C/O	SEWER CLEANOUT
N	NORTH
S	SOUTH
E	EAST
W	WEST
(M)	AS MEASURED
(D)	PER DEED
(R)	RECORDED
R/W	RIGHT-OF-WAY
L.A.	LANDSCAPED AREA
CR4	CAPPED 1/2" REBAR
CONC.	CONCRETE
P.O.C.	POINT OF COMMENCEMENT
P.O.B.	POINT OF BEGINNING
CMP	CORRUGATED METAL PIPE
RCP	REINFORCED CONCRETE PIPE
ESMT	EASEMENT
HDPE	HIGH DENSITY POLYETHYLENE
SUBD	SUBDIVISION
FDC	FIRE DEPARTMENT CONNECTION
CPS	COTTON PICKER SPINDLE
P5	5/8" PIPE

ASPHALT
CONCRETE

SET 1/2" REBAR w/ CAP #1853
SET COTTON-PICKER SPINDLE
FOUND MONUMENT (DESC. NOTED)
COMPUTED CORNER (NOT SET)
A# CORRESPONDS TO DRAWING NOTE

SHEET INDEX



Vicinity Map

SCALE 1" = 1000'

BRYANT SEMINARY

HIGHWAY 5
BRYANT, AR

GENERAL CONSTRUCTION NOTES

A. THE CONTRACTOR WILL BE HELD SOLELY RESPONSIBLE FOR DAMAGES OCCURRING TO ANY PROPERTY DURING THE CONSTRUCTION OF THIS PROJECT. SAID CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT PROPERTY DAMAGE.

B. IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL SOLELY AND COMPLETELY BE RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND WILL NOT BE LIMITED TO NORMAL WORKING HOURS.

C. THE DUTY OF THE LOCAL UTILITY PROVIDER TO CONDUCT CONSTRUCTION INSPECTION REVIEWS OF THE CONTRACTOR'S PERFORMANCE IS NOT AN INSPECTION OR REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES IN, ON, OR NEAR THE CONSTRUCTION SITE.

D. ALL WATER AND SEWER IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST REVISION TO THE LOCAL PROVIDER'S WATER AND WASTEWATER (SANITARY SEWER) STANDARD SPECIFICATIONS.

E. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF ALL UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH PROPOSED IMPROVEMENTS SHOWN ON THE PLAN.

F. CONTRACTOR IS TO REMOVE AND DISPOSE OF ALL DEBRIS, RUBBISH, AND OTHER MATERIALS RESULTING FROM PREVIOUS AND CURRENT DEMOLITION OPERATIONS. DISPOSAL WILL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND/OR FEDERAL REGULATIONS GOVERNING SUCH OPERATIONS.

G. PRIOR TO INSTALLATION OF ANY UTILITIES, THE CONTRACTOR IS TO EXCAVATE, VERIFY AND CALCULATE ALL CROSSINGS AND INFORM ANY AND ALL UTILITIES OF ANY CONFLICTS PRIOR TO CONSTRUCTION.

H. CONSTRUCTION SHALL NOT START ON ANY WATER UTILITY TIE-INS UNTIL APPROVAL IS GIVEN BY THE LOCAL UTILITY PROVIDER. SAID CONTRACTOR SHALL NOT OPERATE ANY VALVE, HYDRANT, OR WATER UTILITY APPURTENANCE NOR SHALL HE ATTACH TO OR TAP ANY WATER UTILITY MAIN WITHOUT APPROVAL. THE CONTRACTOR SHALL BEAR THE COST AND CONSEQUENCE OF ANY DISRUPTION OF UTILITY OPERATION CAUSED BY CONSTRUCTION.

I. FIBER OPTIC CABLE ON AND/OR ADJACENT TO THIS SITE WERE NOT LOCATED BY THE SURVEY AND ARE NOT SHOWN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ANY FIBER OPTIC CABLES ASSOCIATED WITH THIS SITE AND TAKE ALL NECESSARY AND REQUIRED PRECAUTIONS TO PROTECT ANY EXISTING FIBER OPTIC CABLES. CONTRACTORS SHALL COORDINATE ALL EFFORTS WITH OWNER OF FIBER OPTIC CABLES OR THEIR DESIGNATED REPRESENTATIVE.

J. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING "ONECALL" SERVICE TO MARK ALL UTILITIES PRIOR TO ANY DEMOLITION, EARTHWORK, OR UTILITY WORK ON THIS SITE.

811 Know what's below. Call before you dig.

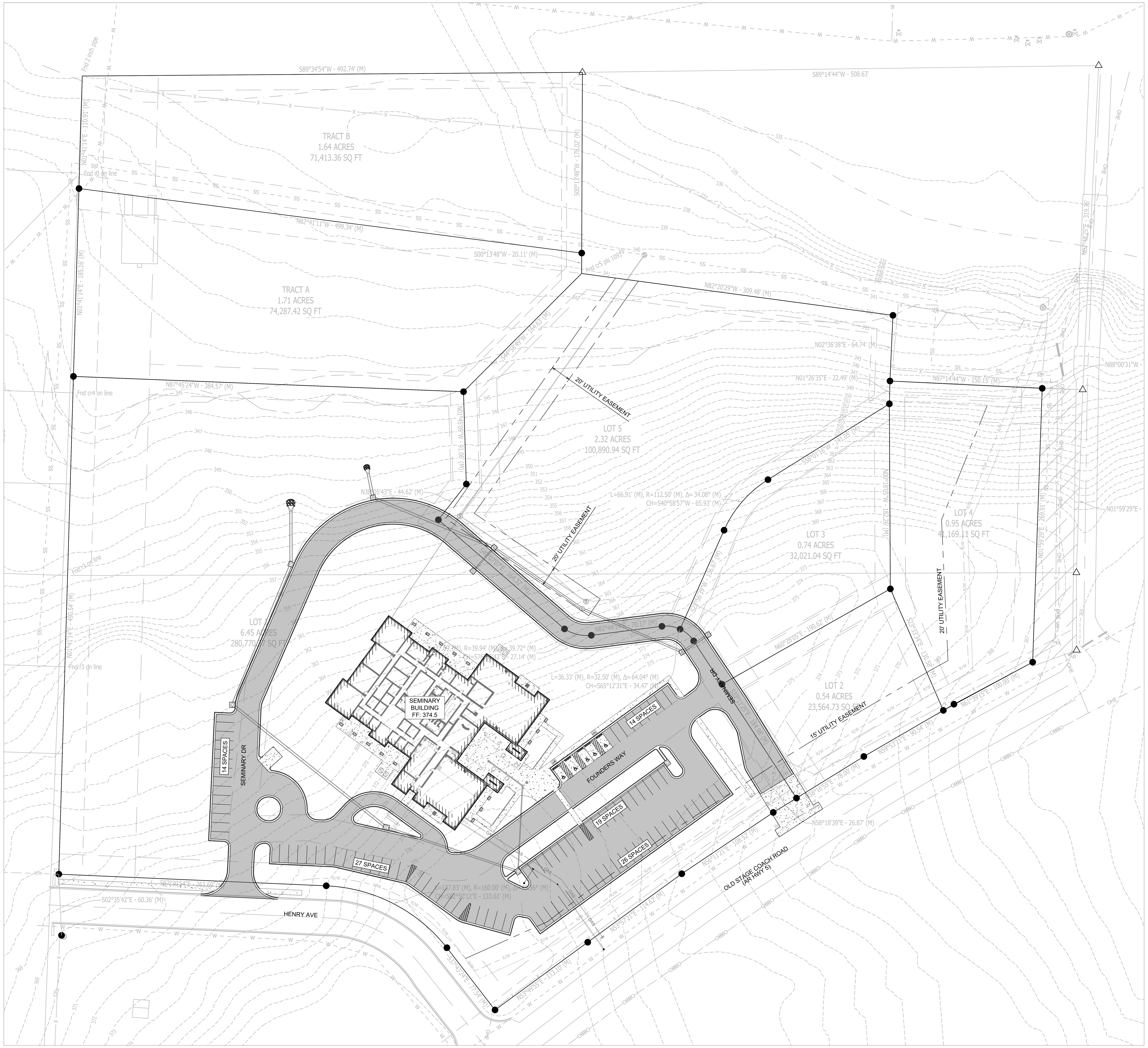
DEVIATIONS/VARIANCES

PLE

PHILLIP LEWIS ENGINEERING, INC.

Structural + Civil Consultants

23620 Interstate 30 | Bryant, Arkansas
PH: 501-350-9840



SITE LAYOUT PLAN

SCALE 1" = 50'

ADDITIONAL UTILITY EASEMENTS SHOWN ON THIS PLAN WILL BE GRANTED INDEPENTLY OR INCLUDED IN A FUTURE REPLAT PRIOR TO ANY CERTIFICATE OF OCCUPANCY

GENERAL CONSTRUCTION NOTES

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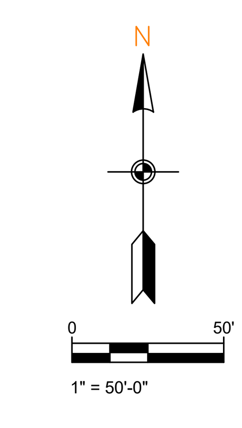


PHILLIP LEWIS ENGINEERING, INC.
Structural + Civil Consultants
23620 Interstate 30 | Bryant, Arkansas
PH: 501-350-9840

REVISION:

BRYANT SEMINARY
HIGHWAY 5
BRYANT, ARKANSAS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9540
PHILLIP A. LEWIS

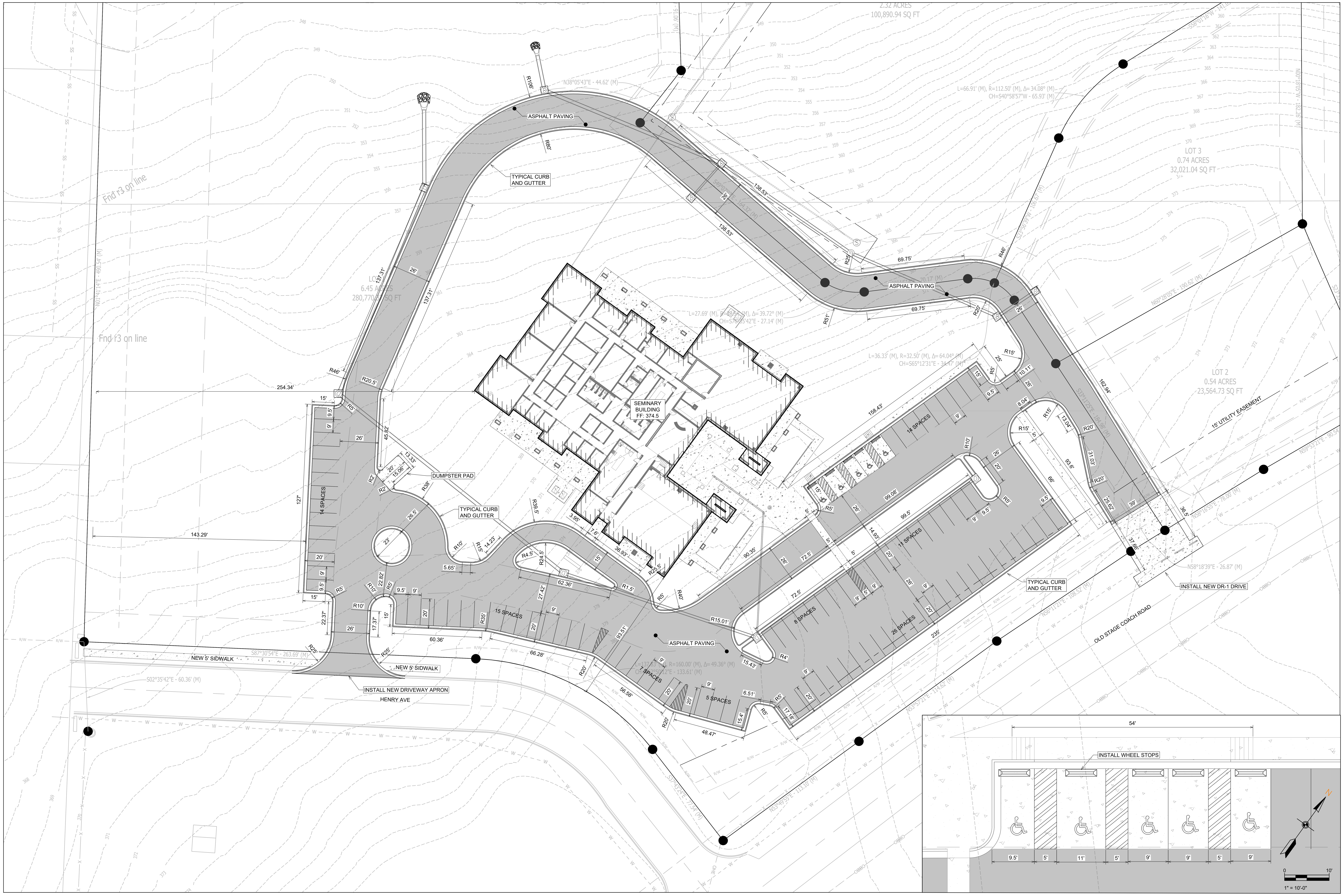
CERTIFICATE OF AUTHORIZATION
PHILLIP LEWIS ENGINEERING, INC.
No. 566
ARKANSAS ENGINEER

PROJECT NUMBER:

SHEET ISSUE DATE:
10-31-2024

PAGE TITLE:
OVERALL SITE PLAN

SHEET NUMBER:
C1.1



SITE PLAN

SCALE 1" = 30'

ADA PARKING STALLS

SCALE 1" = 10'

GENERAL SITE NOTES

1. TOTAL NEW DEVELOPMENT AREA = (+/-) 4.96 ACRES
2. PROPERTY IS ZONED C-2
3. 100 PARKING SPACES PROVIDED INCLUDING 5 ADA ACCESSIBLE PARKING SPACES
4. ALL DIMENSIONS ARE TO THE BACK OF CURB AND/OR EDGE OF PAVEMENT
5. DAMAGE TO PUBLIC AND PRIVATE PROPERTY DUE TO HAULING OPERATIONS OR OPERATIONS OF CONSTRUCTION RELATED EQUIPMENT FROM A CONSTRUCTION SITE SHALL BE REPAIRED BY THE THE RESPONSIBLE PARTY PRIOR TO THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY.
6. REPAIR, REPLACE, OR EXTEND EXISTING DAMAGED OR MISSING CURB AND GUTTER, SIDEWALK OR RAMPS WITHIN THE PUBLIC RIGHT OF WAY.
7. ALL SIGNAGE, PAVEMENT MARKING AND PARKING LOT STRIPING SHALL CONFORM TO REQUIREMENTS GIVEN IN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). MUTCD REQUIRES THAT PARKING SPACES BE MARKED IN WHITE.
8. ALL MECHANICAL EQUIPMENT WILL NEED TO BE SCREENED TO MEET THE CITY OF BRYANT COMMERCIAL DESIGN STANDARDS.

N

1" = 30'-0"

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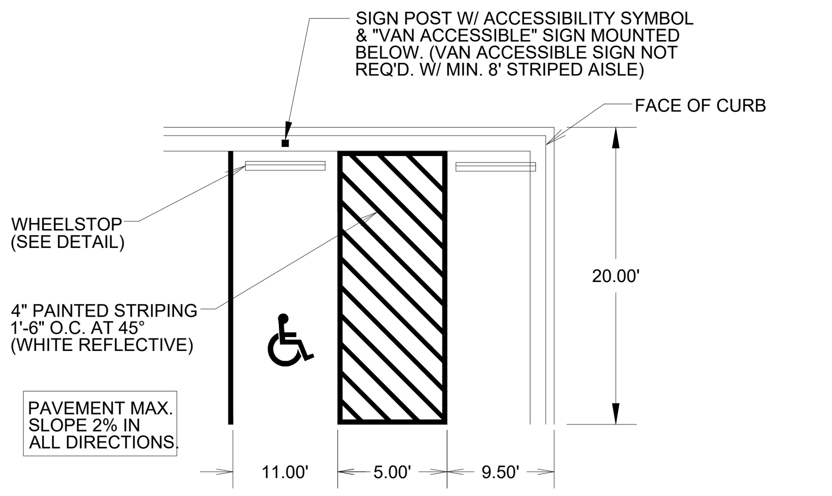
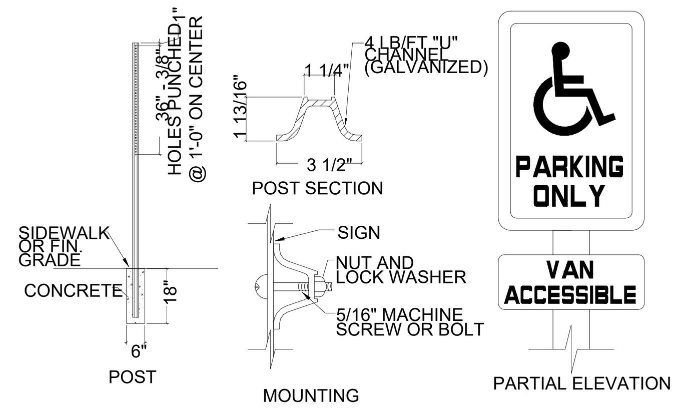
PAGE TITLE:
SITE PLAN

SHEET NUMBER:
C1.2

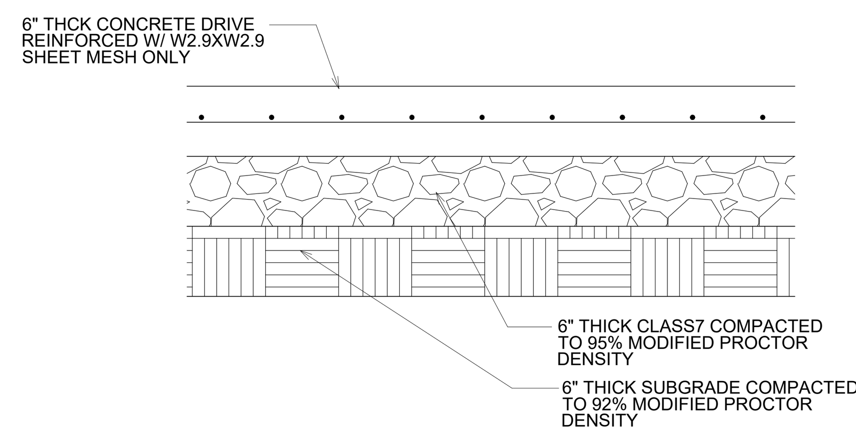


TYPICAL ACCESSIBLE PARKING STALLS

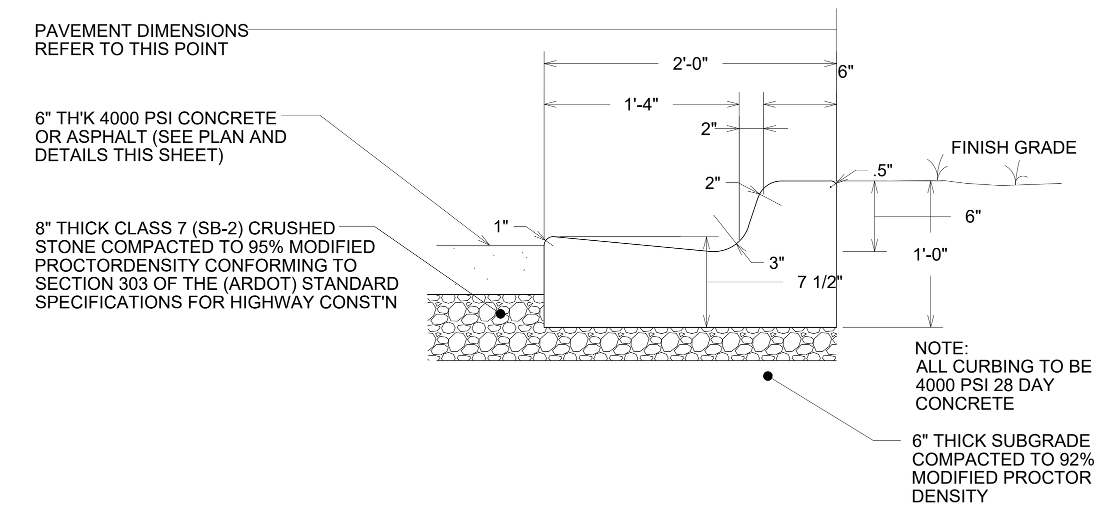


HANDICAP SIGN DETAIL NOT TO SCALE

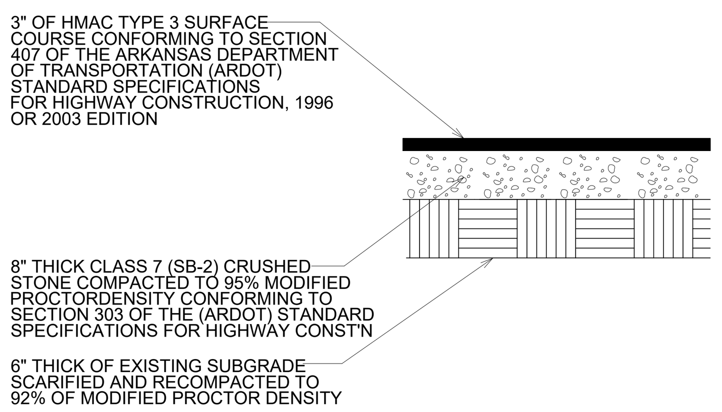
NOTE:
HANDICAP SIGNAGE SHALL BE IN STRICT COMPLIANCE WITH CURRENT FEDERAL AND LOCAL LAW REQUIREMENTS



CONCRETE DRIVE SECTION NOT TO SCALE

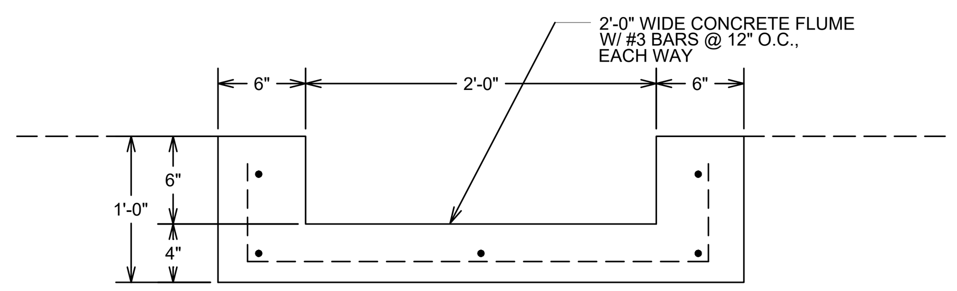


2'-0" CONCRETE CURB & GUTTER NOT TO SCALE

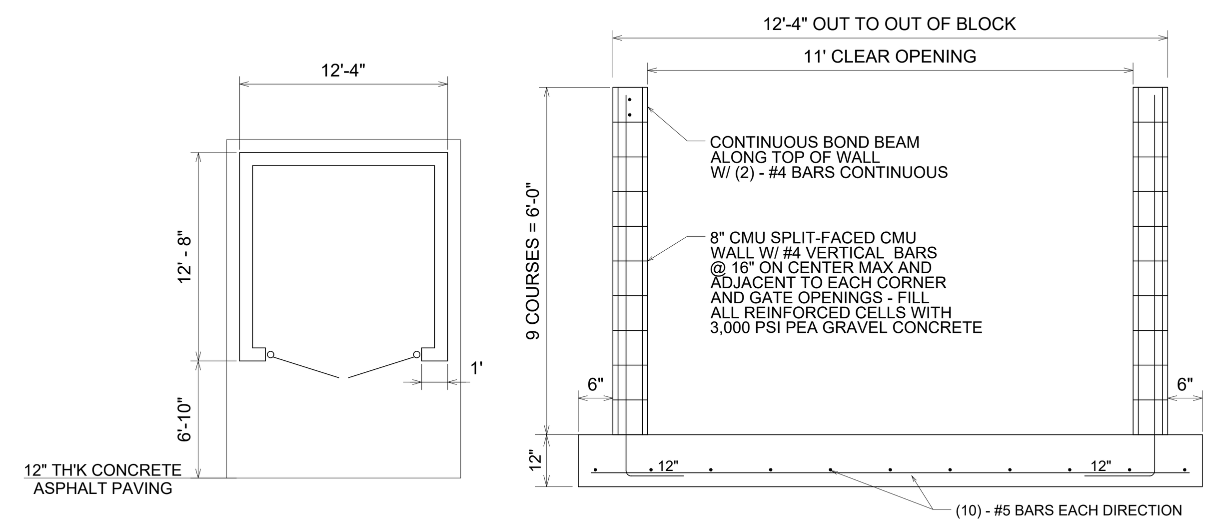


HMAC ASPHALT SURFACE COURSE

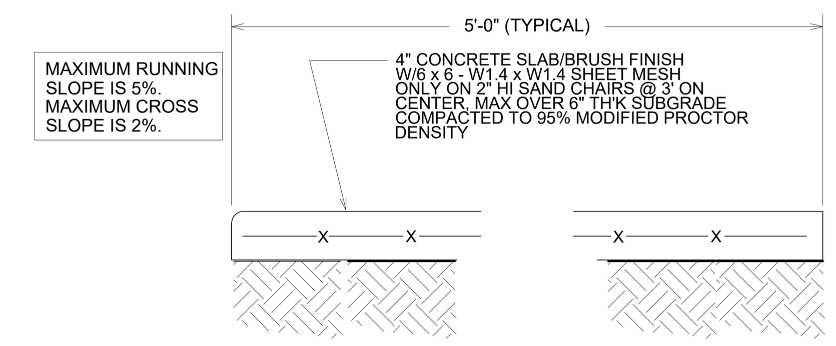
NOT TO SCALE



CONCRETE FLUME DETAIL NOT TO SCALE

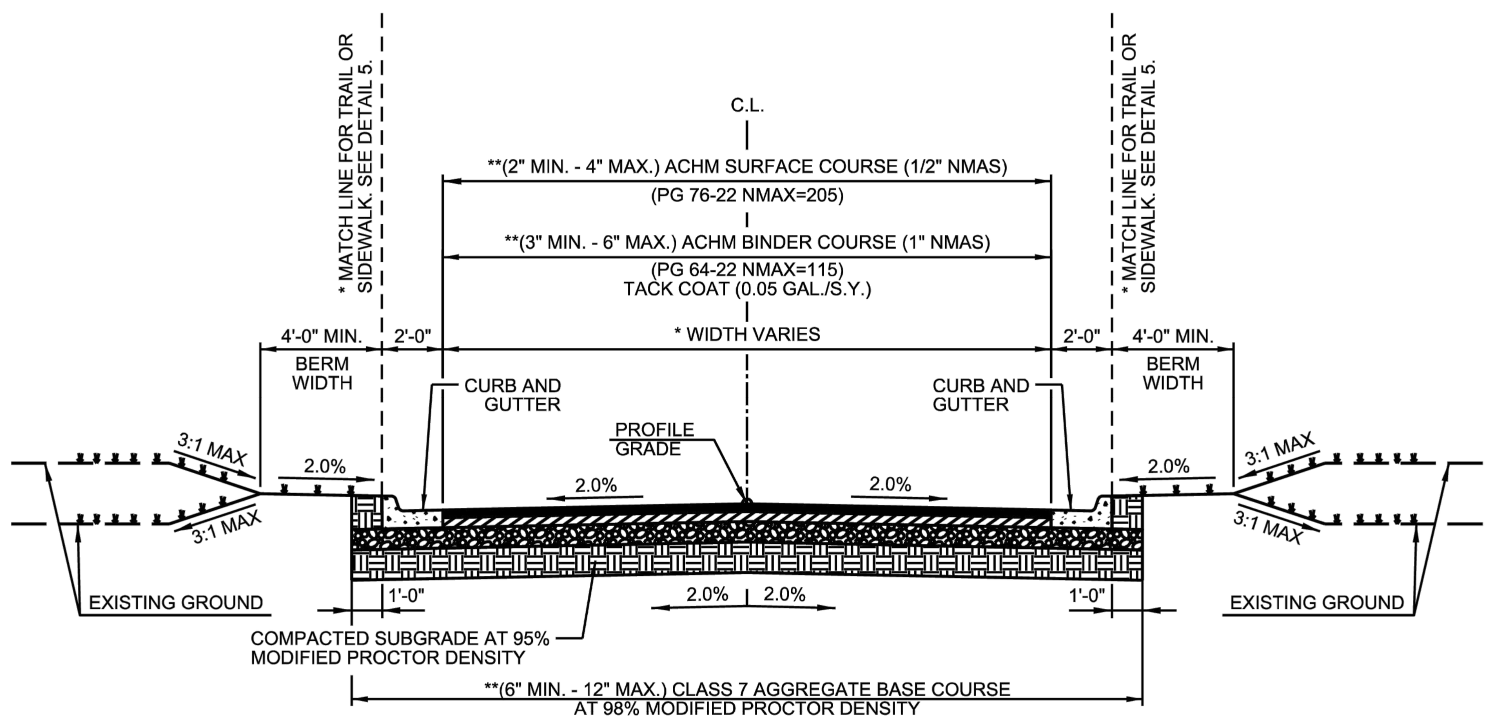


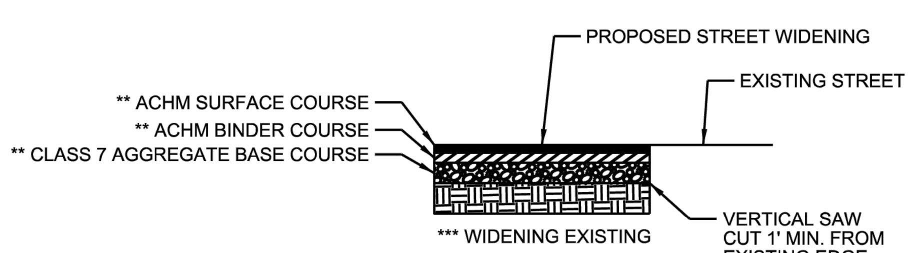
DUMPSTER PAD/ENCLOSURE DETAIL NOT TO SCALE



CONCRETE WALK SECTION NOT TO SCALE

NOTE:
ALL SIDEWALK JOINTS TO BE STEEL TROWELED. ALL JOINT EDGES AND SHALL BE SPACED AT 5 FEET ON CENTER MAXIMUM IN ALL DIRECTIONS AND SHALLBE STEEL TROWELED ON A RADIUS NOT TO EXCEED ONE-HALF INCH.





GENERAL NOTES

1. IN AREAS TO RECEIVE BITUMINOUS PAVING, CONCRETE DRIVEWAYS OR CURB AND GUTTER, SUBGRADE SHALL BE COMPACTED TO A DENSITY NOT LESS THAN 95% OF MAXIMUM MODIFIED DENSITY OBTAINED AT OPTIMUM MOISTURE CONTENT.
2. FOR AREAS OF SUBGRADE PREPARATION TO RECEIVE CONCRETE SIDEWALKS, SUBGRADE SHALL BE COMPACTED TO DENSITY OF 90% MAXIMUM MODIFIED DENSITY.
3. CRUSHED STONE - MATERIAL IN EACH COURSE SHALL BE COMPACTED TO A DENSITY OF 98% MAXIMUM MODIFIED DENSITY.
4. ACHM BASE COURSE (4" MIN. - 12" MAX) (1 1/2" NMAS) MAY BE USED IF INCLUDED IN AN APPROVED PAVEMENT DESIGN.

* CROSS SECTIONS AND RIGHT-OF-WAY SHALL ADHERE TO THE MINIMUM WIDTH REQUIREMENTS SHOWN IN THE CITY OF BRYANT MASTER TRANSPORTATION PLAN. THE DEVELOPMENT REVIEW COMMITTEE SHALL DETERMINE WHICH VERSION OF STREET CLASSIFICATION AND WHAT WIDTHS WILL BE REQUIRED.

** THICKNESS TO BE DETERMINED BY PAVEMENT DESIGN IN ACCORDANCE WITH SECTION 5.0 OF THE MINIMUM STANDARD SPECIFICATIONS FOR STREETS.

*** PAVEMENT RECONSTRUCTION TO CENTERLINE IS REQUIRED WHEN EXISTING STREET DOES NOT MEET THESE STANDARDS.

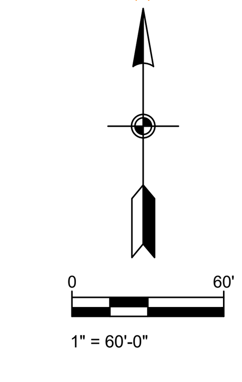
CITY OF BRYANT

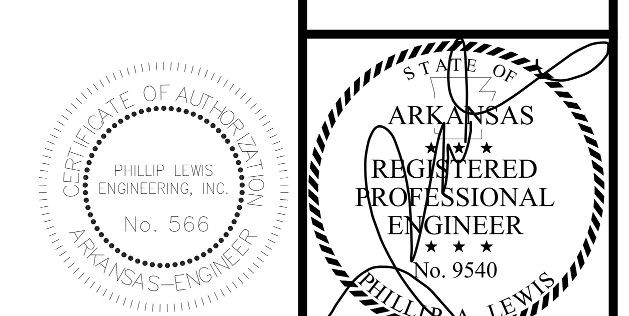
TYPICAL SECTION
MINOR ARTERIAL

ISSUE DATE
AUGUST 2021

DETAIL 1

REVISION DATE





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BRYANT SEMINARY
HIGHWAY 5
BRYANT, ARKANSAS

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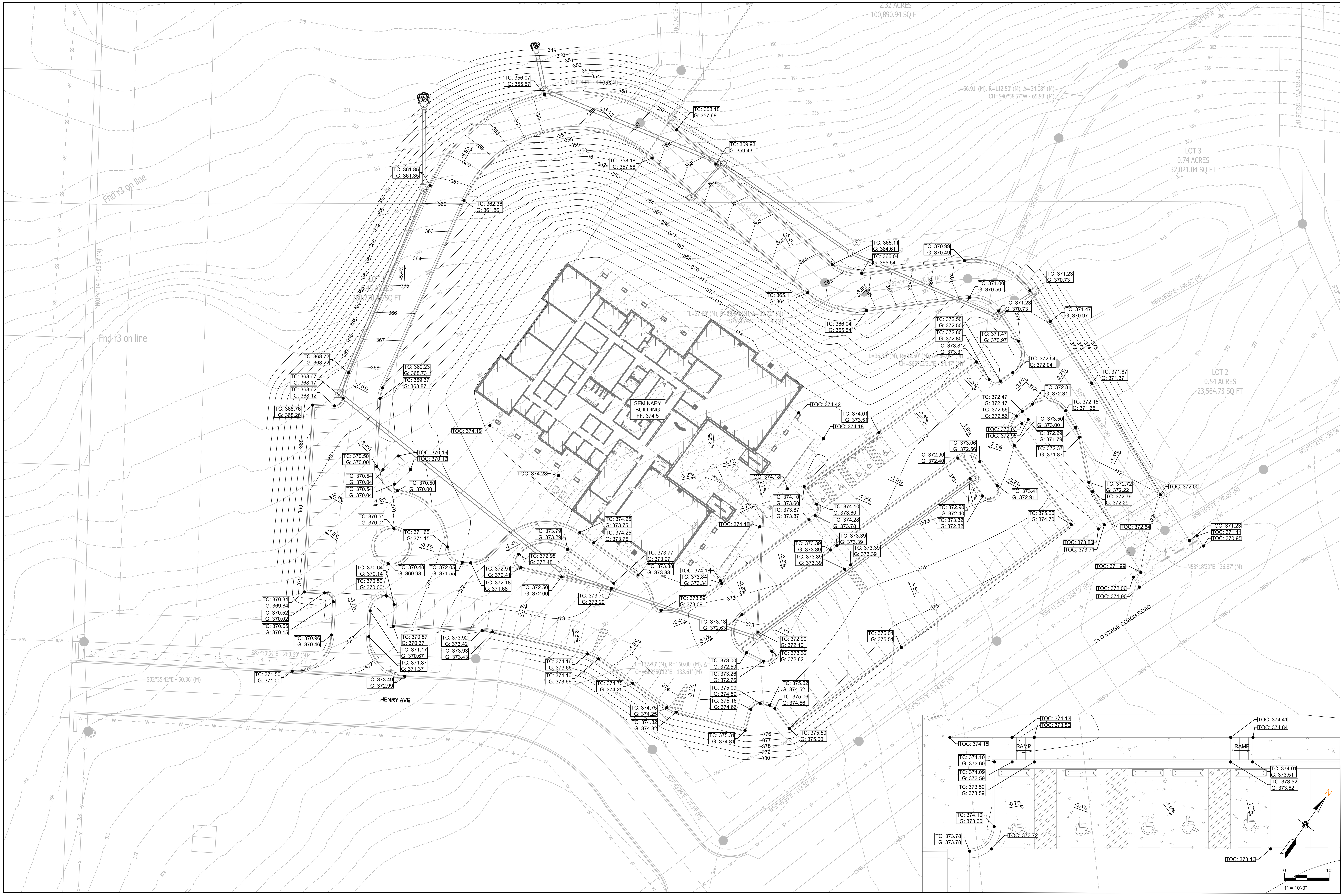
PAGE TITLE:
SITE DETAILS

SHEET NUMBER:
C1.3



GRADING PLAN

SCALE 1" = 30'

TC = TOP OF CURB ELEVATION
G = GUTTER ELEVATION
TOC = TOP OF CONCRETE ELEVATION
FG = FINAL GRADE ELEVATION
TP = TOP OF PAVEMENT ELEVATION
EG = EXISTING GRADE ELEVATION

ADA PARKING STALLS

SCALE 1" = 10'

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No. 566
ARKANSAS ENGINEERS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9540
PHILLIP A. LEWIS

PROJECT NUMBER:

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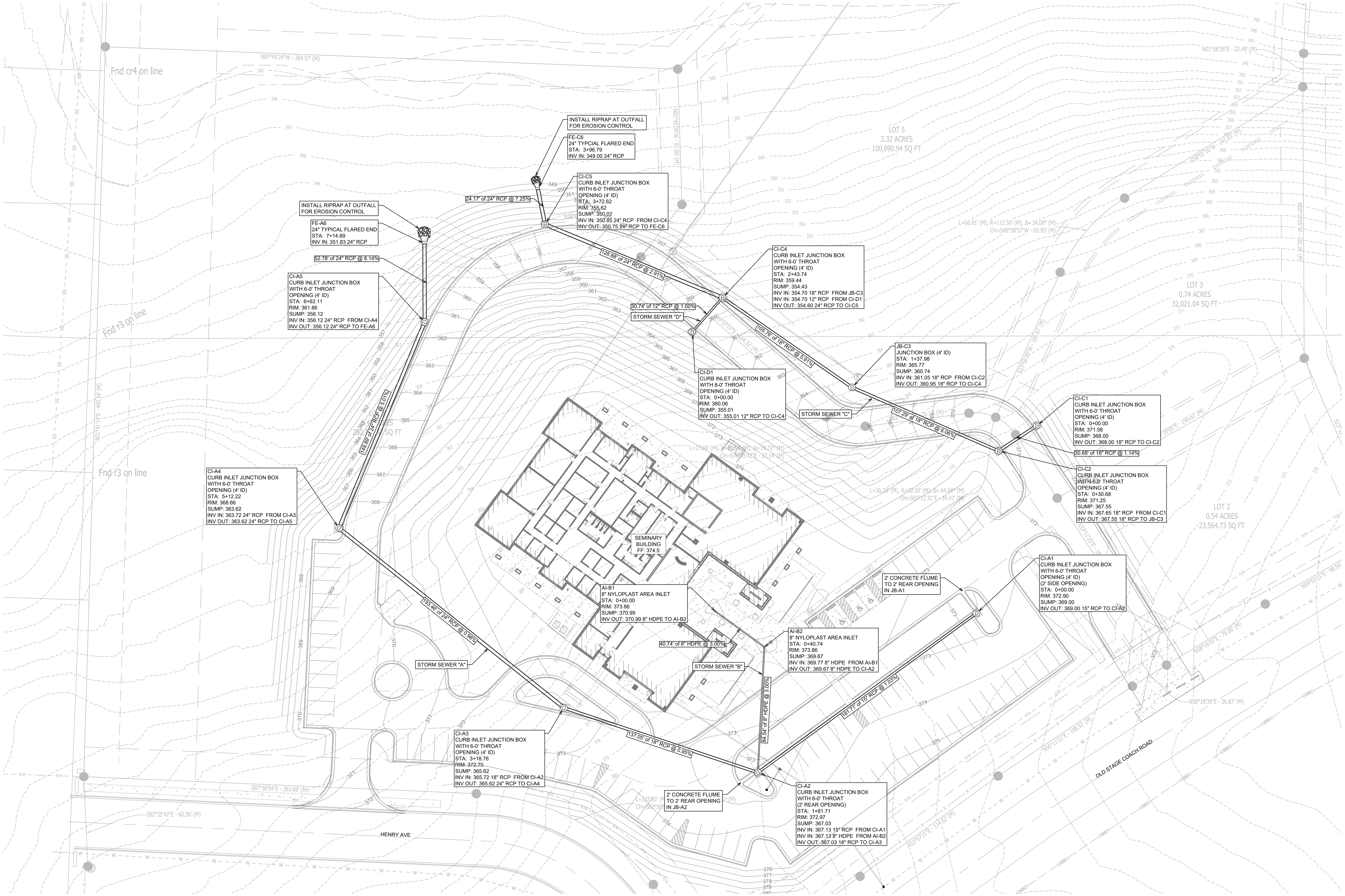
PAGE TITLE:
GRADING PLAN

SHEET NUMBER:
C1.4



STORM SEWER PLAN

SCALE 1" = 30'

N

0 30'

1" = 30'-0"

811 Know what's **below.** **Call** before you dig.

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PHILLIP A. LEWIS

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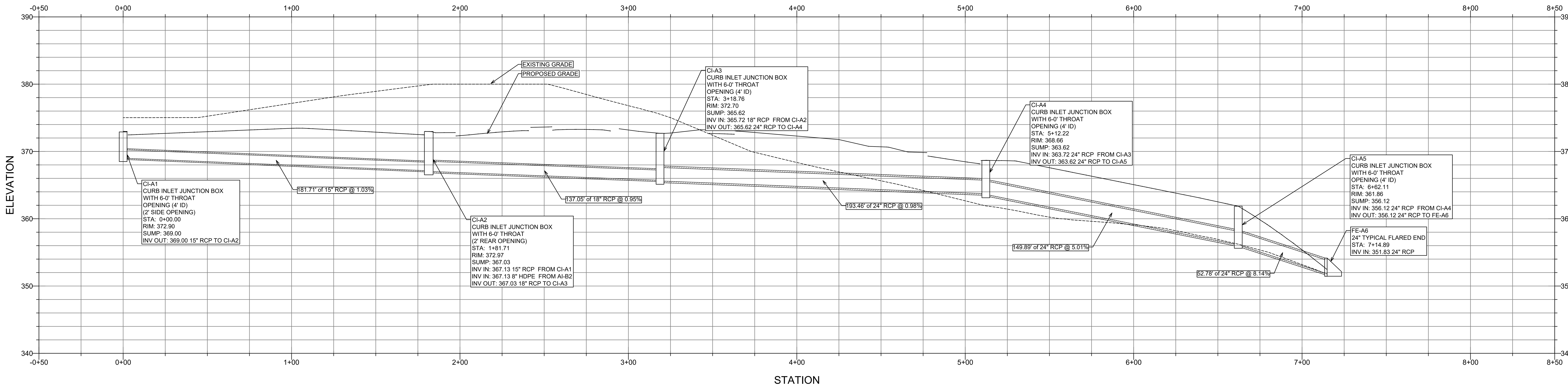
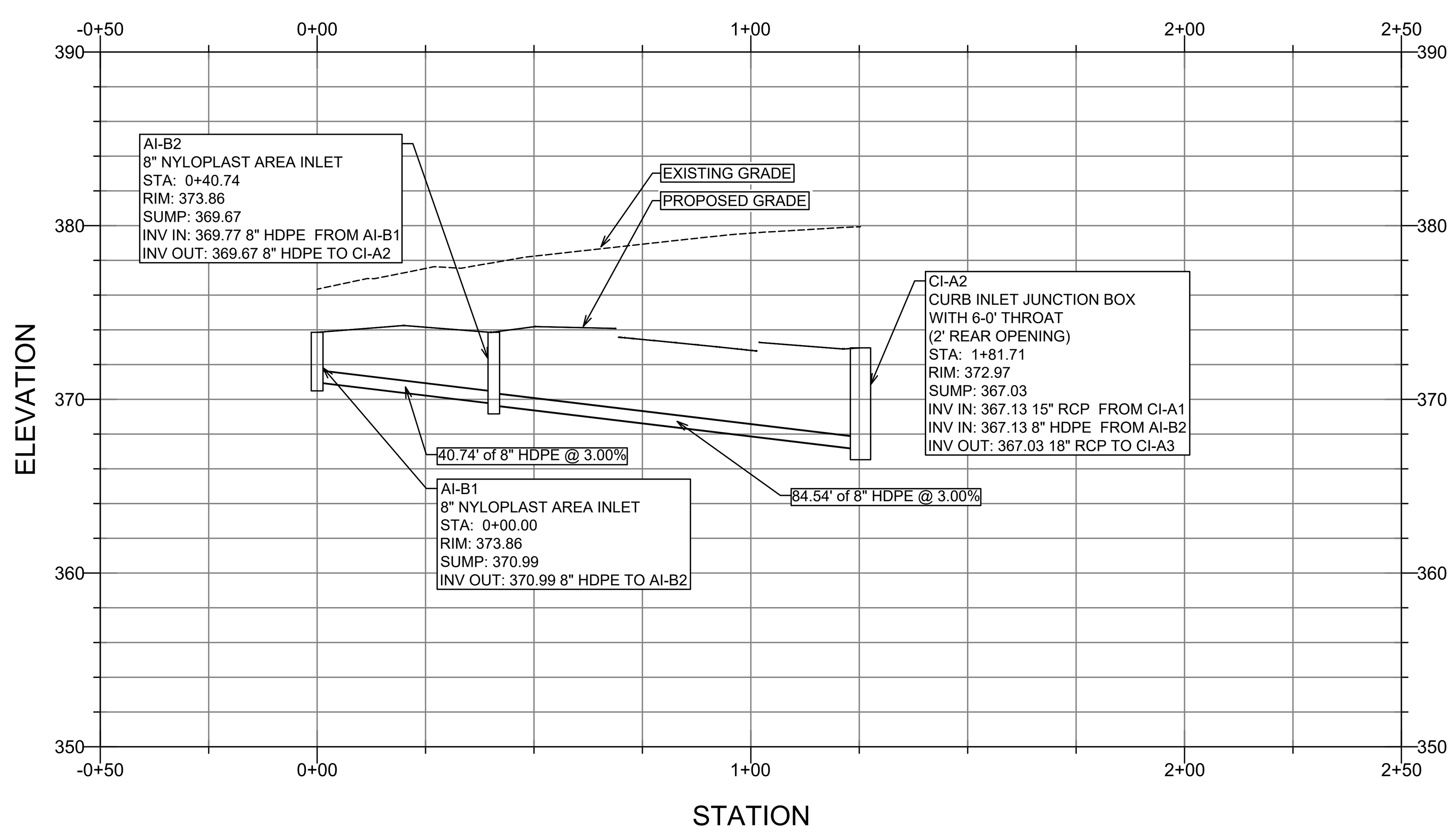
STORM SEWER PLAN

SHEET NUMBER:
C1.5

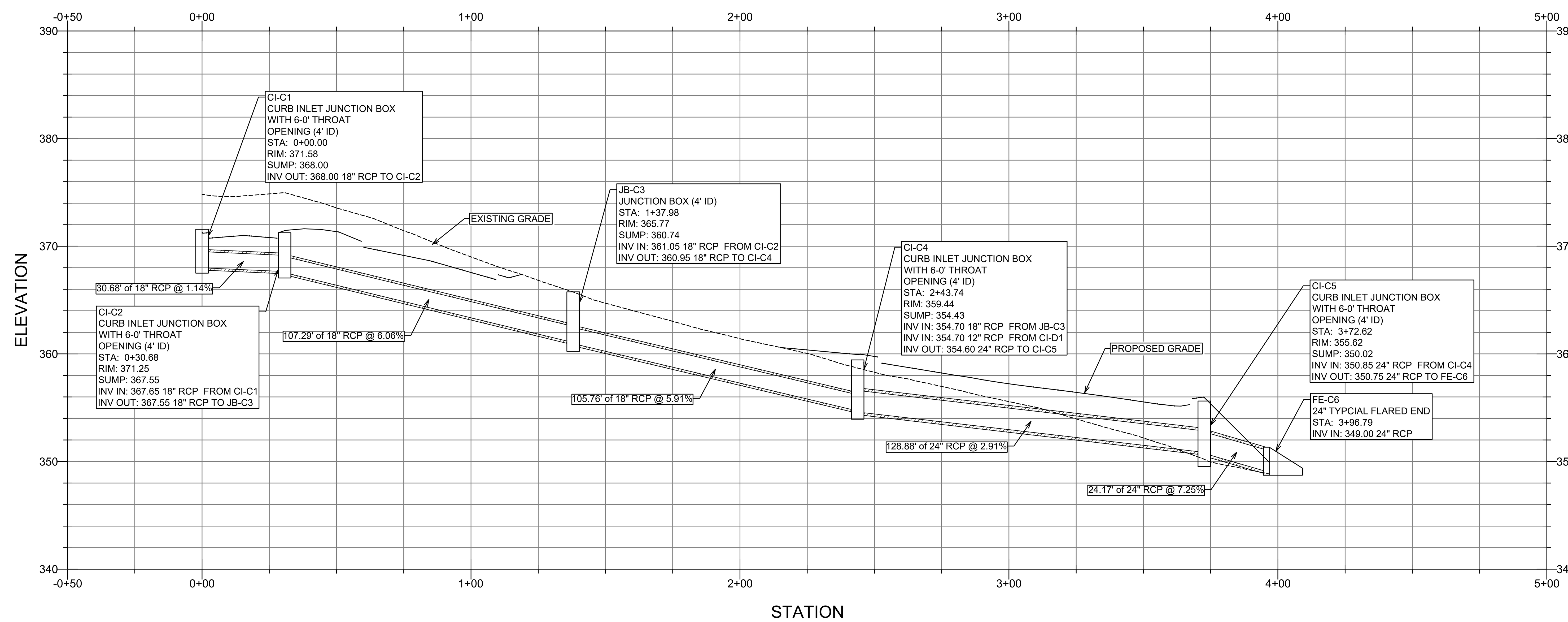
STORM SEWER A



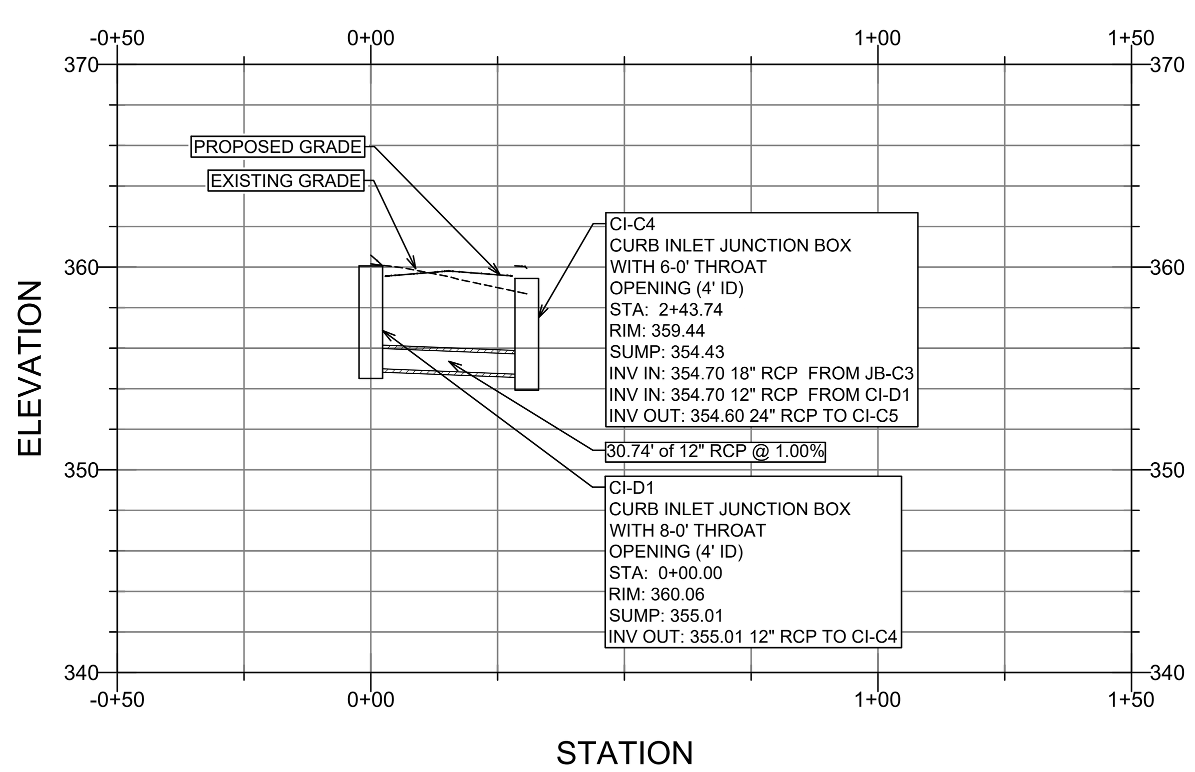
STORM SEWER B



STORM SEWER C



STORM SEWER D



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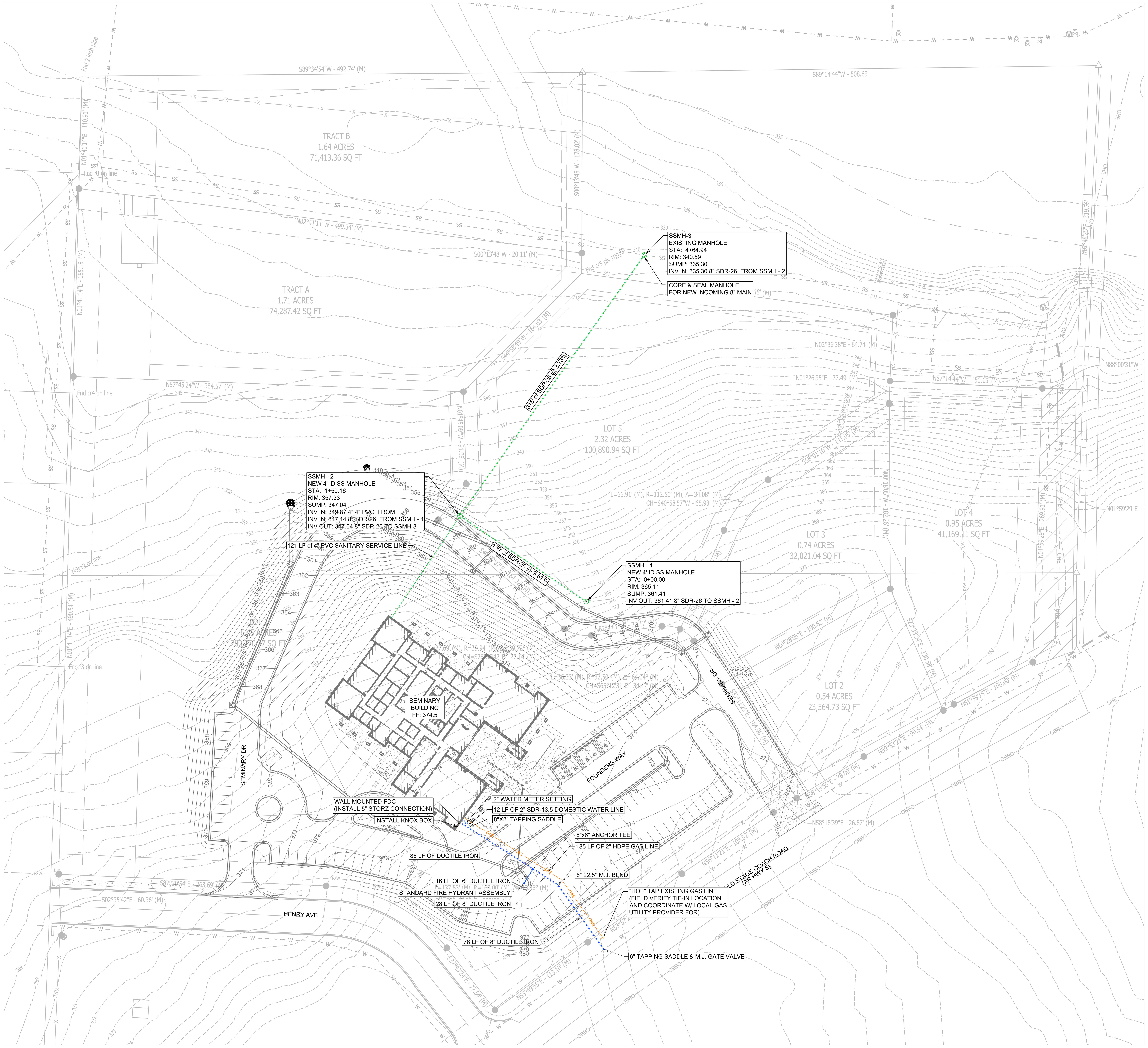
PROJECT NUMBER:

SHEET ISSUE DATE:
10-09-2024

PAGE TITLE:
STORM SEWER PROFILES

SHEET NUMBER:
C1.6



UTILITY PLAN

SCALE 1" = 50'

GENERAL CONSTRUCTION NOTES

A. THE CONTRACTOR WILL BE HELD SOLELY RESPONSIBLE FOR DAMAGES OCCURRING TO ANY PROPERTY DURING THE CONSTRUCTION OF THIS PROJECT. SAID CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT PROPERTY DAMAGE.

B. IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL SOLELY AND COMPLETELY BE RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND WILL NOT BE LIMITED TO NORMAL WORKING HOURS.

C. THE DUTY OF THE LOCAL UTILITY PROVIDER TO CONDUCT CONSTRUCTION INSPECTION REVIEWS OF THE CONTRACTOR'S PERFORMANCE IS NOT AN INSPECTION OR REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES IN, ON, OR NEAR THE CONSTRUCTION SITE.

D. ALL WATER AND SEWER IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST REVISION TO THE LOCAL PROVIDER'S WATER AND WASTEWATER (SANITARY SEWER) STANDARD SPECIFICATIONS.

E. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF ALL UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH PROPOSED IMPROVEMENTS SHOWN ON THE PLAN.

F. CONTRACTOR IS TO REMOVE AND DISPOSE OF ALL DEBRIS, RUBBISH, AND OTHER MATERIALS RESULTING FROM PREVIOUS AND CURRENT DEMOLITION OPERATIONS. DISPOSAL WILL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND/OR FEDERAL REGULATIONS GOVERNING SUCH OPERATIONS.

G. PRIOR TO INSTALLATION OF ANY UTILITIES, THE CONTRACTOR IS TO EXCAVATE, VERIFY AND CALCULATE ALL CROSSINGS AND INFORM ANY AND ALL UTILITIES OF ANY CONFLICTS PRIOR TO CONSTRUCTION.

H. CONSTRUCTION SHALL NOT START ON ANY WATER UTILITY TIE-INS UNTIL APPROVAL IS GIVEN BY THE LOCAL UTILITY PROVIDER. SAID CONTRACTOR SHALL NOT OPERATE ANY VALVE, HYDRANT, OR WATER UTILITY APPURTENANCE NOR SHALL HE ATTACH TO OR TAP ANY WATER UTILITY MAIN WITHOUT APPROVAL. THE CONTRACTOR SHALL BEAR THE COST AND CONSEQUENCE OF ANY DISRUPTION OF UTILITY OPERATION CAUSED BY CONSTRUCTION.

I. FIBER OPTIC CABLE ON AND/OR ADJACENT TO THIS SITE WERE NOT LOCATED BY THE SURVEY AND ARE NOT SHOWN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ANY FIBER OPTIC CABLES ASSOCIATED WITH THIS SITE AND TAKE ALL NECESSARY AND REQUIRED PRECAUTIONS TO PROTECT ANY EXISTING FIBER OPTIC CABLES. CONTRACTORS SHALL COORDINATE ALL EFFORTS WITH OWNER OF FIBER OPTIC CABLES OR THEIR DESIGNATED REPRESENTATIVE.

J. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING "ONECALL" SERVICE TO MARK ALL UTILITIES PRIOR TO ANY DEMOLITION, EARTHWORK, OR UTILITY WORK ON THIS SITE.

Know what's **below.** **Call** before you dig.

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1" = 50'-0"

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UTILITY PLAN

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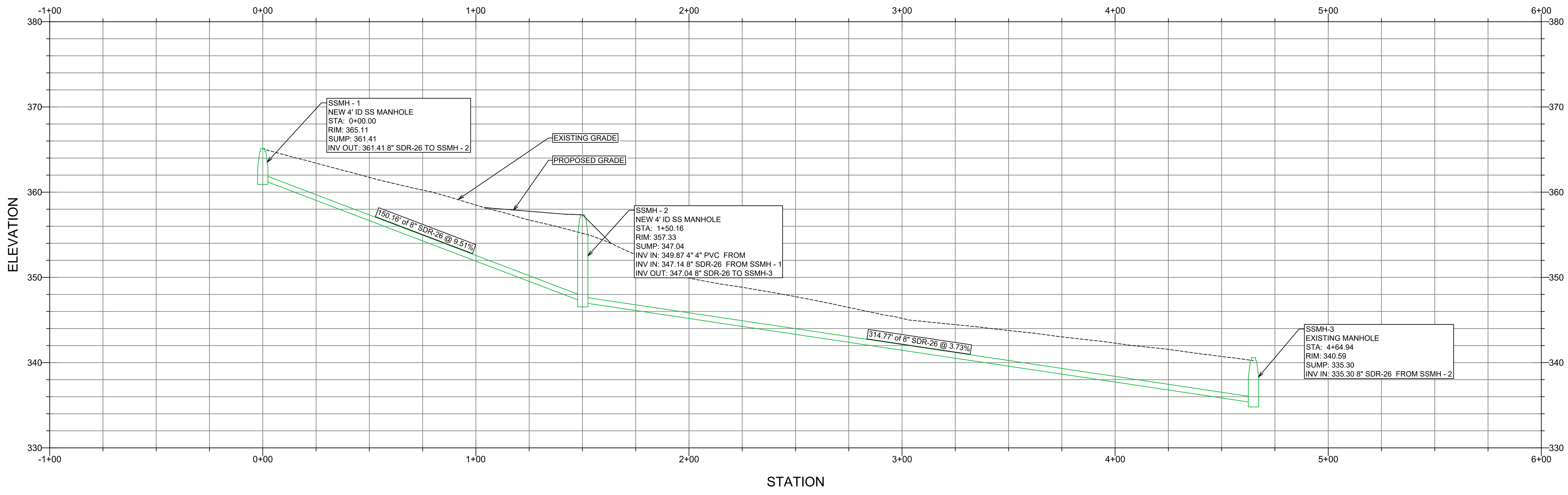
SANITARY SEWER



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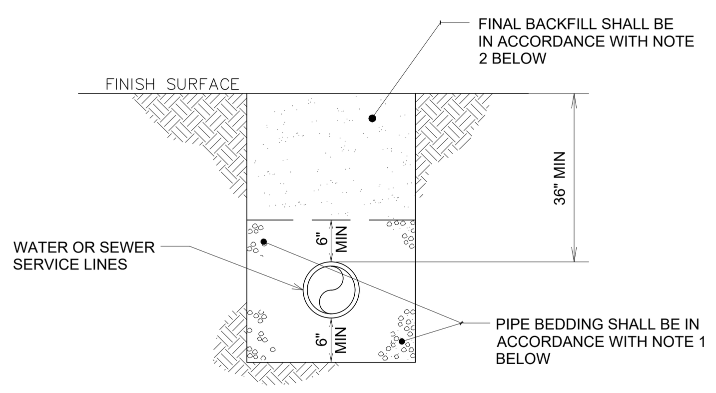
PAGE TITLE:
SANITARY SEWER PROFILE

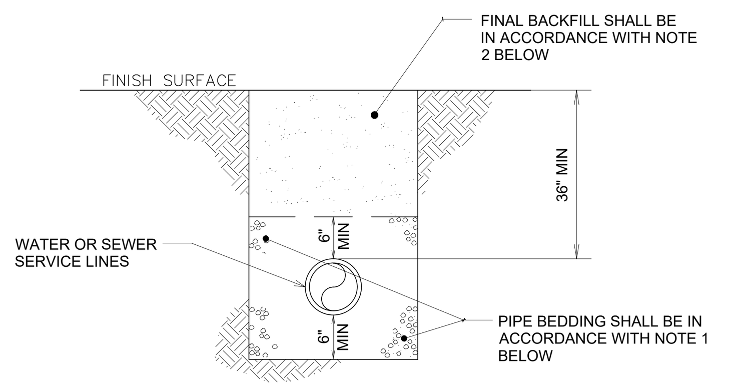
SHEET NUMBER:
C1.8



GAS LINE BEDDING DETAIL

NOT TO SCALE

NOTES:
1. BEDDING SHALL BE "GRIT" PER ASTM 2774 OR ASTM D448 SIZE 67 A MINIMUM OF 6" ALL AROUND PIPE.
1. BEDDING SHALL BE CLEAN SAND A MINIMUM OF 6" ALL AROUND PIPE.
2. INITIAL BACKFILL NOT UNDER PAVED AREAS CAN BE CLASS III COMPACTED TO 90% STANDARD PROCTOR. ALL BACKFILL UNDER PAVED AREAS SHALL BE CLASS 7 CRUSHED STONE (SB-2) COMPACTED TO 95% STANDARD PROCTOR DENSITY.
3. ALL MATERIALS CLASSIFIED IN ACCORDANCE WITH ASTM D2321-89.
4. ALL MATERIALS SHALL BE INSTALLED IN MAXIMUM 8" LIFTS IN ACCORDANCE WITH ASTM D698. CLASS III AND IV-A MATERIALS SHALL BE COMPACTED TO NEAR OPTIMUM MOISTURE CONTENT.
5. FILL SALVAGED FROM EXCAVATION SHALL BE FREE OF DEBRIS, ORGANICS, AND ROCK LARGER THAN 3".
6. ALL TRENCH EXCAVATION SHALL BE SLOPED, SHORED, SHEETED, BRACED, OR OTHERWISE SUPPORTED IN COMPLIANCE WITH OSHA REGULATIONS AND LOCAL ORDINANCES.



WATER AND SEWER LINES BEDDING DETAIL

NOT TO SCALE

NOTES:
1. BEDDING SHALL BE "GRIT" PER ASTM 2774 OR ASTM D448 SIZE 67 A MINIMUM OF 6" ALL AROUND PIPE.
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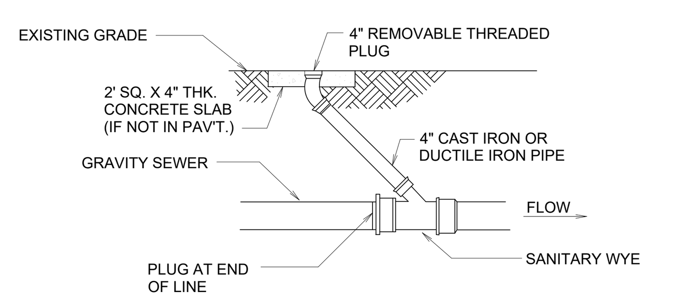
7. ALL TRENCH EXCAVATIONS SHALL BE SLOPED, SHORED, SHEETED, BRACED, OR OTHERWISE SUPPORTED IN COMPLIANCE WITH OSHA REGULATIONS AND LOCAL ORDINANCES.

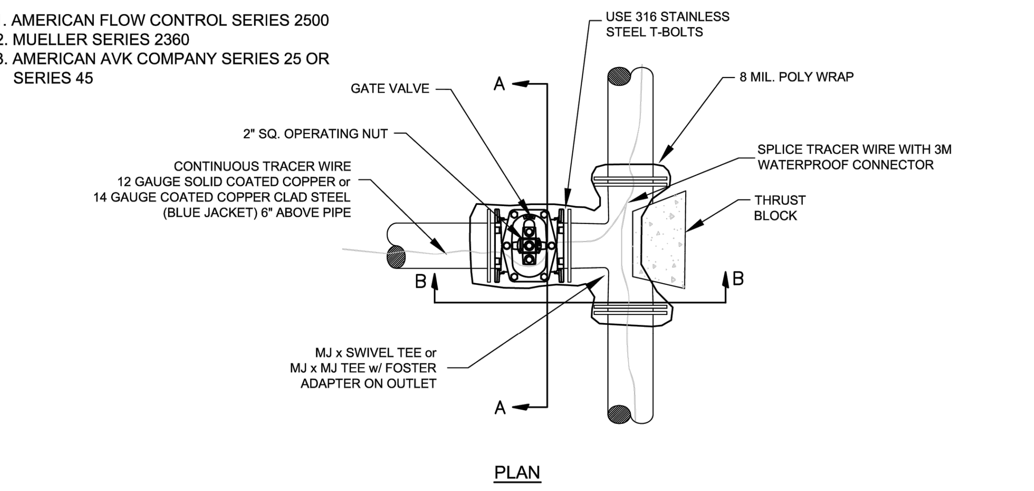


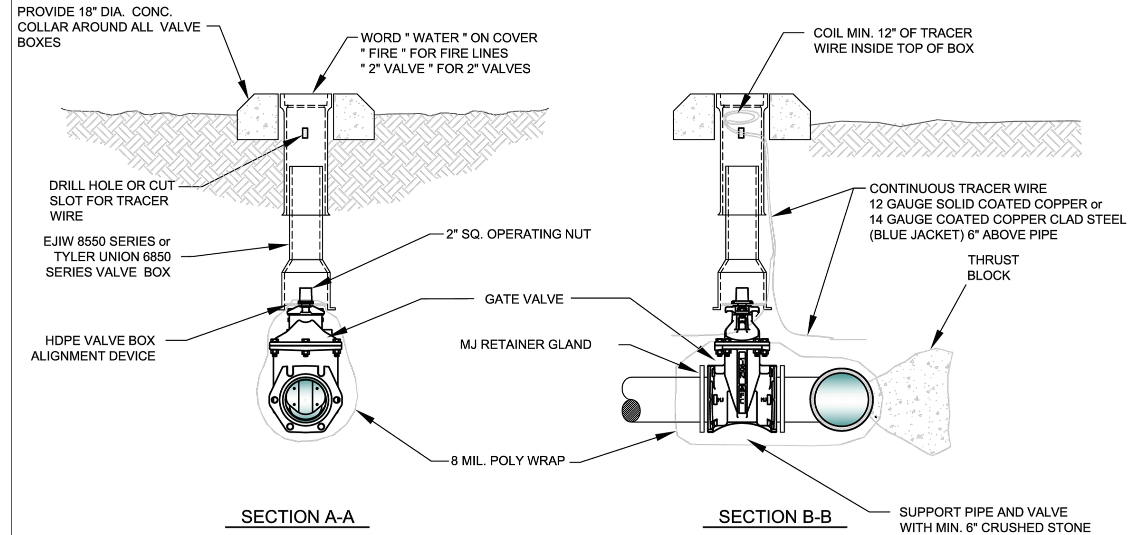
THROUGH FLOW CLEANOUT

NOT TO SCALE

PERMITTED VALVES

1. AMERICAN FLOW CONTROL SERIES 2500
2. MUELLER SERIES 2360
3. AMERICAN AVK COMPANY SERIES 25 OR SERIES 45





NOTES:

1. ALL VALVES SHALL BE SECURELY ANCHORED TO THE TEE.
2. ALL HARDWARE SHALL BE 316 STAINLESS STEEL.
3. IF DEPTH OF BURY EXCEEDS 4 FT., A VALVE STEM EXTENSION SHALL BE REQUIRED. THE VALVE STEM EXTENSION NUT SHALL BE WITHIN 24-INCHES TO 12-INCHES OF THE FINISHED SURFACE.

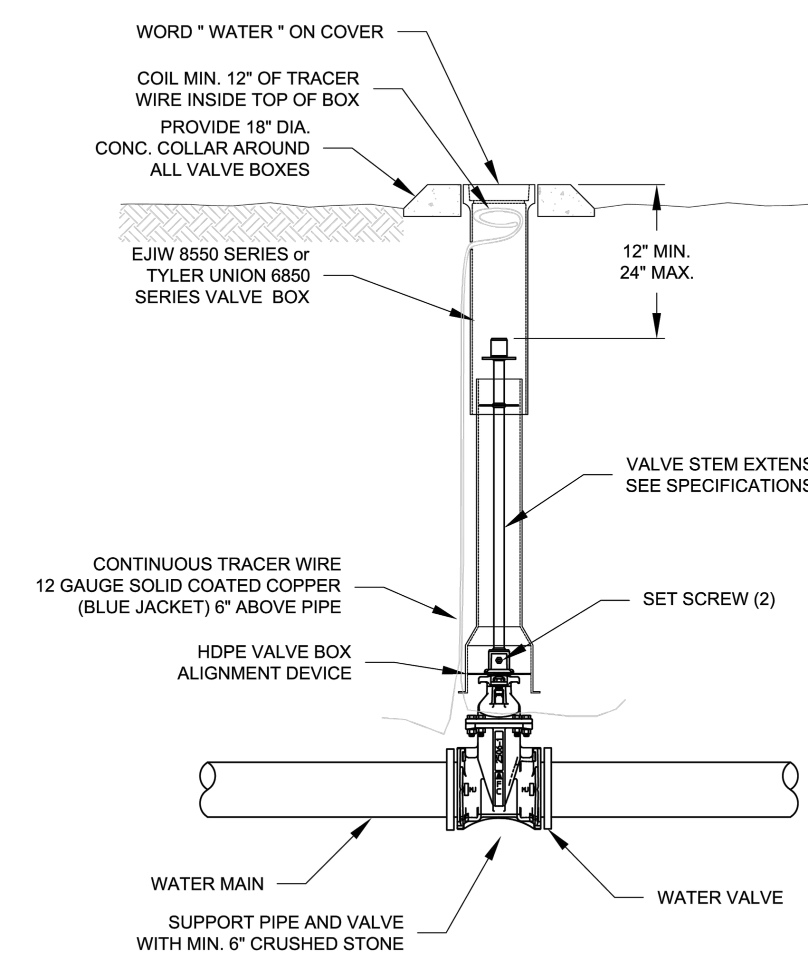
GATE VALVE DETAIL

2" - 12"

CITY OF BRYANT, AR — WATER UTILITIES, 210 S.W. 3rd. STREET, BRYANT, AR, PHONE: (501) 943-0488 | TITLE: WATER DETAILS | DESCRIPTION: GATE VALVE | DATE: APRIL 2015 | DRAWN BY: | CHECKED BY: | FILE: W4-Gate Valve.dwg | SHEET: W4

NOTES:

1. OPERATING NUT EXTENSIONS SHALL BE USED WHEN THE TOP OF THE OPERATING NUT IS GREATER THAN 4 FEET FROM THE TOP OF FINISHED SURFACE.
2. THE STEM EXTENSION SHALL BE OF ADEQUATE LENGTH TO REACH FROM THE VALVE OPERATING NUT TO A POINT WITHIN 24-INCHES TO 12-INCHES OF THE FINISHED SURFACE.

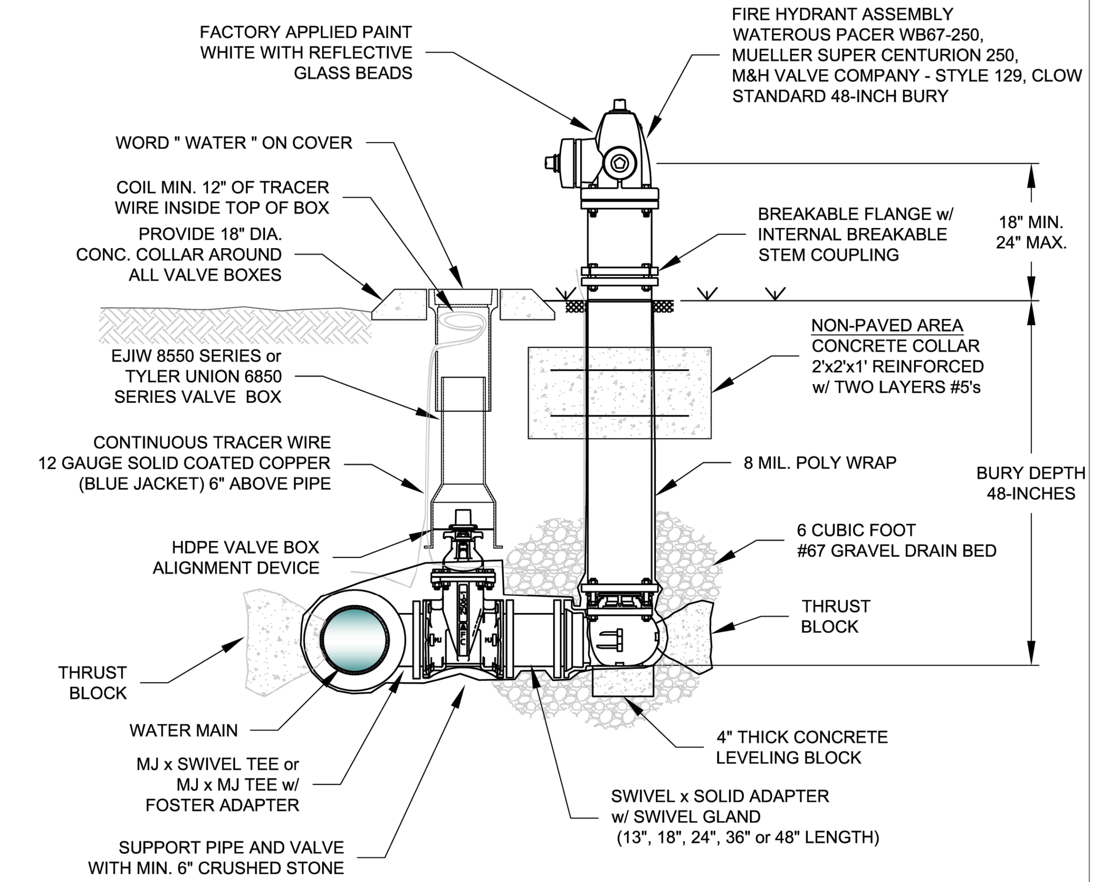


VALVE WITH STEM EXTENSION

CITY OF BRYANT, AR — WATER UTILITIES, 210 S.W. 3rd. STREET, BRYANT, AR, PHONE: (501) 943-0488 | TITLE: WATER DETAILS | DESCRIPTION: VALVE STEM EXTENSION | DATE: APRIL 2015 | DRAWN BY: | CHECKED BY: | FILE: W7-Valve Stem Extension.dwg | SHEET: W7

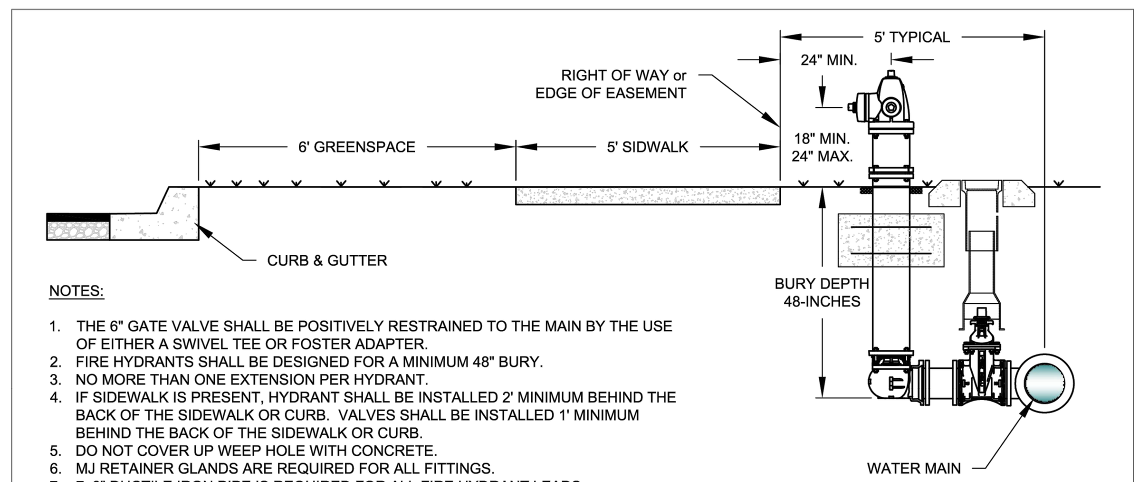
NOTES:

1. THE 6" GATE VALVE SHALL BE POSITIVELY RESTRAINED TO THE MAIN BY THE USE OF EITHER A SWIVEL TEE OR FOSTER ADAPTER.
2. FIRE HYDRANTS SHALL BE DESIGNED FOR A MINIMUM 48" BURY.
3. BURY LINE OF HYDRANT SHALL BE NO LESS THAN THE PROPOSED FINISHED ELEVATION OF BACK OF CURB, OR SIDEWALK, WHICHEVER IS GREATER.
4. NO MORE THAN ONE EXTENSION PER HYDRANT.
5. IF SIDEWALK IS PRESENT, HYDRANT SHALL BE INSTALLED 2' MINIMUM BEHIND THE BACK OF THE SIDEWALK OR CURB. VALVES SHALL BE INSTALLED 1' MINIMUM BEHIND THE BACK OF THE SIDEWALK OR CURB.
6. DO NOT COVER UP WEEP HOLE WITH CONCRETE.
7. MJ RETAINER GLANDS ARE REQUIRED FOR ALL FITTINGS.
8. 7. 6" DUCTILE IRON PIPE IS REQUIRED FOR ALL FIRE HYDRANT LEADS GREATER THAN 48-INCHES FROM THE MAIN VALVE.
9. AN ADDITIONAL GUARDIAN VALVE IS REQUIRED FOR ALL FIRE HYDRANT LEADS GREATER THAN 30 FEET IN LENGTH.



FIRE HYDRANT & VALVE CONNECTION

CITY OF BRYANT, AR — WATER UTILITIES, 210 S.W. 3rd. STREET, BRYANT, AR, PHONE: (501) 943-0488 | TITLE: WATER DETAILS | DESCRIPTION: FIRE HYDRANT AND VALVE CONNECTION | DATE: APRIL 2015 | DRAWN BY: | CHECKED BY: | FILE: W8-Fire Hydrant and Valve.dwg | SHEET: W8



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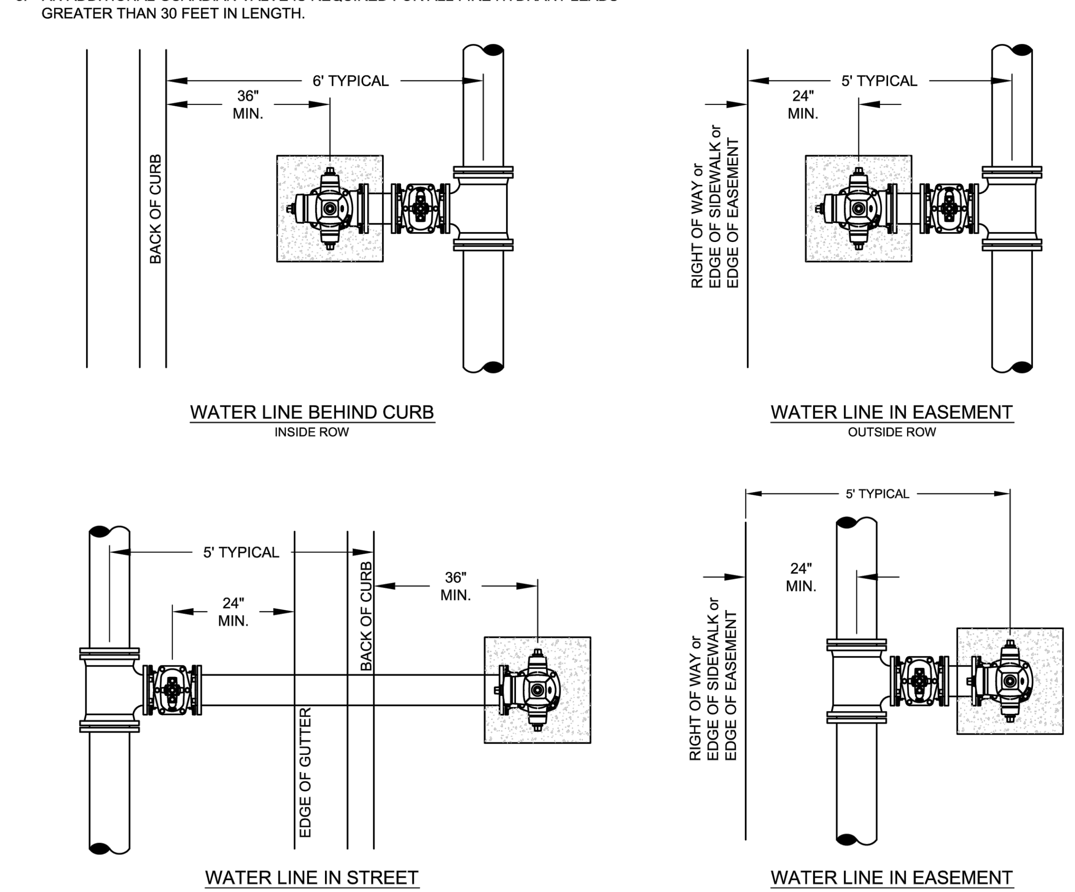
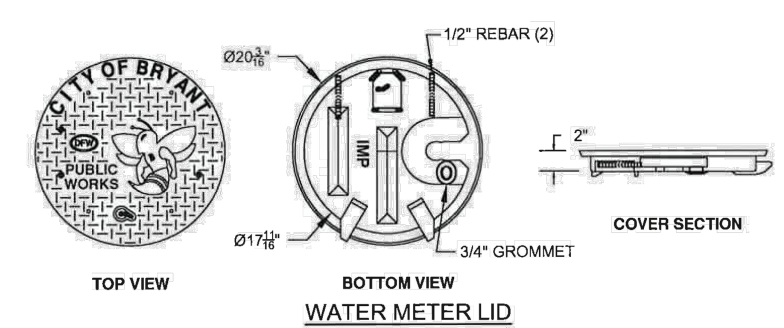
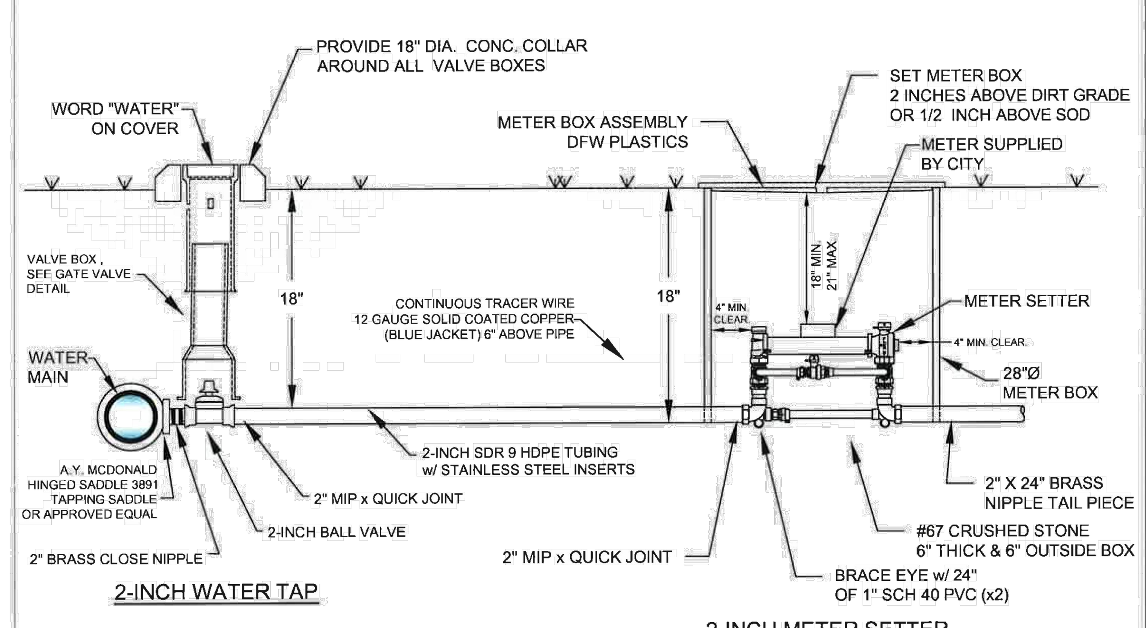


CITY OF BRYANT, AR — WATER UTILITIES, 210 S.W. 3rd. STREET, BRYANT, AR, PHONE: (501) 943-0488 | TITLE: WATER DETAILS | DESCRIPTION: FIRE HYDRANT PLACEMENT | DATE: APRIL 2015 | DRAWN BY: | CHECKED BY: | FILE: W9-Fire Hydrant Placement.dwg | SHEET: W9





NOTES:

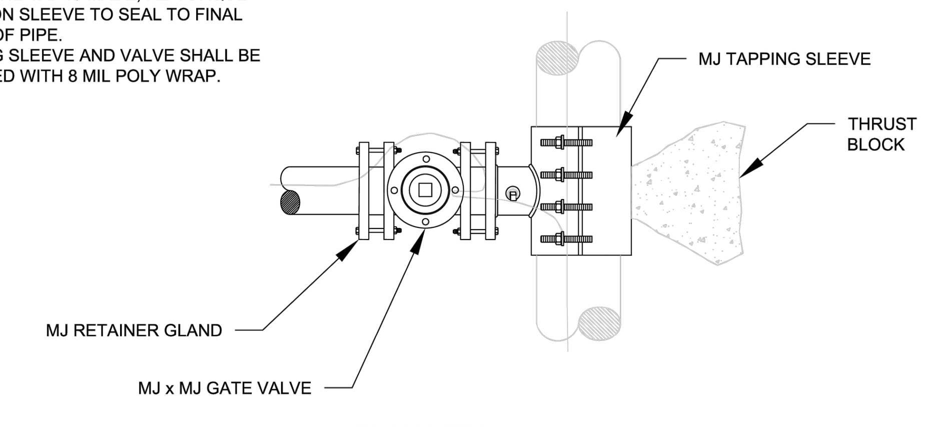
1. COORDINATE INSTALLATION AND CONFIGURATIONOF ALL 1-1/2" AND LARGER METER SETTINGS WITH THE CITY.
2. ALL METER BOXES SHALL BE INSTALLED IN NON-PAVED AREAS. ANY METER BOX THAT GETS PLACED IN A PAVED AREA SHALL BE RELOCATED AT THE OWNER'S EXPENSE BEFORE A WATER METER WILL BE INSTALLED.
3. SUPPORT METER INSTALLATION WITH 1"x24" SCH40 PVC THROUGH EACH BRACE EYE.

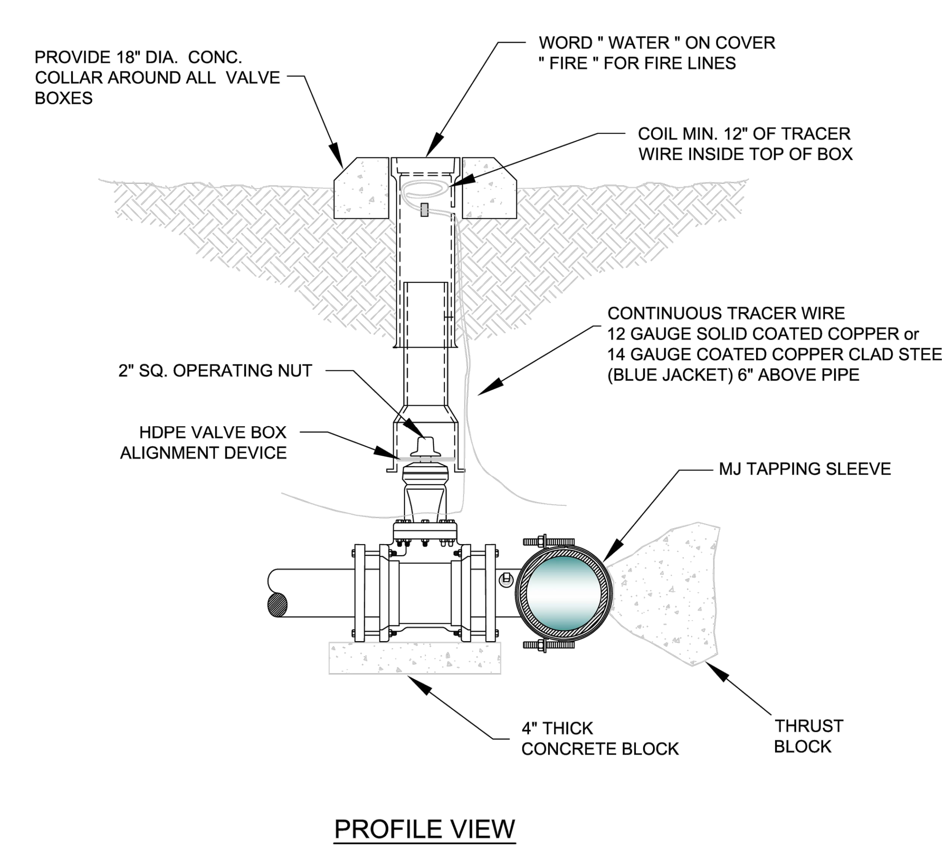
2" WATER SERVICE AND WATER METER

CITY OF BRYANT, AR — WATER UTILITIES, 210 S.W. 3rd. STREET, BRYANT, AR, PHONE: (501) 943-0488 | TITLE: WATER DETAILS | DESCRIPTION: 2" WATER METER | DATE: APRIL 2015 | DRAWN BY: | CHECKED BY: | FILE: W12-2 Inch Water Meter.dwg | SHEET: W12

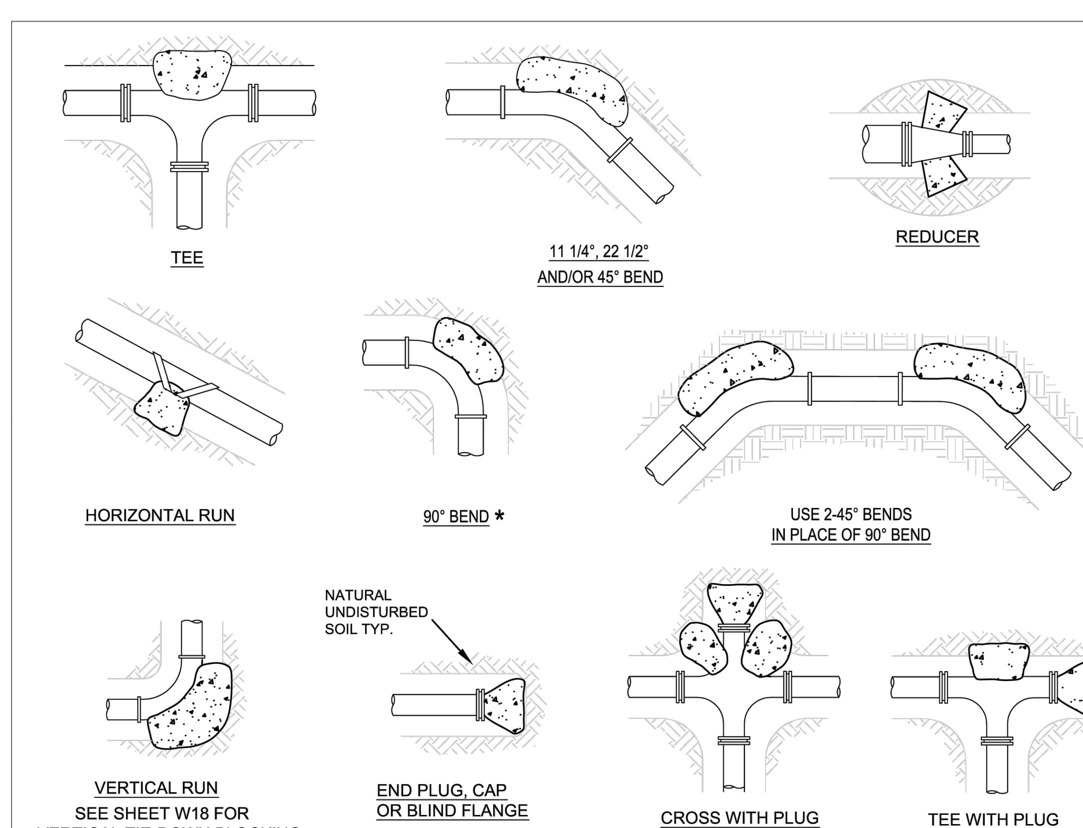
NOTES:

1. TAPPING SLEEVE SHALL BE SMITH-BLAIR 662 OR FORD FAST.
2. AFTER THE TAP IS MADE, RE-TORQUE BOLTS ON SLEEVE TO SEAL TO FINAL SHAPE OF PIPE.
3. TAPPING SLEEVE AND VALVE SHALL BE WRAPPED WITH 8 MIL POLY WRAP.





CITY OF BRYANT, AR — WATER UTILITIES, 210 S.W. 3rd. STREET, BRYANT, AR, PHONE: (501) 943-0488 | TITLE: WATER DETAILS | DESCRIPTION: TAPPING SLEEVE AND VALVE | DATE: APRIL 2015 | DRAWN BY: | CHECKED BY: | FILE: W13-Tapping Sleeve and Valve.dwg | SHEET: W13



THRUST BLOCK SCHEDULE

(2000 PSF SOIL, 200 PSI WATER PRESSURE, 100 PSI WATER HAMMER)

BEARING AREA OF THRUST BLOCKS IN SQ. FT. (HORIZONTAL BENDS)						VOLUME OF THRUST BLOCK IN CU. FEET (VERTICAL BENDS)						
FITTING SIZE	PLUG TEE OR CAP	BEND ANGLE 90° *	45°	22 1/2°	11 1/4°	FITTING SIZE	BEND ANGLE 90° *	45°	22 1/2°	11 1/4°	ROD DIAM.	EMBED-MENT
2, 3, & 4	1.9	2.7	1.4	0.7	0.4	2, 3, & 4	35.5	19.2	9.8	4.9	.50"	30"
6	5.6	7.9	4.3	2.2	1.1	6	105.8	57.2	29.2	14.7	.75"	30"
8	9.6	13.6	7.4	3.8	1.9	8	181.9	98.5	50.2	25.2	.75"	30"
12	20.5	29.0	15.7	8.0	4.0	12	387.1	209.5	106.8	53.7	1.0"	30"
16	35.7	50.4	27.3	13.9	7.0	16	672.6	364.0	185.6	93.2	1.0"	36"
18	44.8	63.4	34.3	17.5	18.8	18	844.7	457.2	233.1	117.1	1.0"	36"
24	78.4	110.9	60.0	30.6	15.4	24	1478.7	800.3	408.0	205.0	1.5"	36"

* 90 DEGREE BENDS SHALL ONLY BE USED ON A BY-EXCEPTION BASIS, AND MUST EACH BE SPECIFICALLY APPROVED BY CITY.

THRUST BLOCK NOTES:

1. CONCRETE FOR THRUST BLOCKS - CLASS A CONCRETE SHALL DEVELOP NOT LESS THAN 3000 P.S.I. COMPRESSIVE STRENGTH AT 28 DAYS AND BE PLACED AGAINST UNDISTURBED SOIL.
2. ALL BENDS, BOTH HORIZONTAL AND VERTICAL, SHALL BE BACKED WITH CONCRETE. VERTICAL BENDS SHALL BE PLACED ON CONCRETE PADS WHERE BENDS TURN UP, OR LOADED WHERE BENDS TURN DOWN.
3. WRAP PIPE JOINTS IN 8 MIL "POLYETHLENE" BEFORE PLACING CONCRETE.
4. BEARING AREA SHOWN IN TABLE, IS BASED UPON A 2000 LB/SF. SOIL BEARING, AND UPON A PIPELINE PRESSURE OF 200 psi. PLUS 100 psi. WATER HAMMER. AREAS SHOWN SHALL BE ADJUSTED, SHOULD FIELD CONDITIONS VARY.
5. MJ RESTRAINTS ARE REQUIRED FOR ALL FITTINGS.
6. USE LONG-RADIUS FITTINGS WHEREVER POSSIBLE.
7. ALL BOLTS FOR FITTINGS SHALL BE 316 STAINLESS STEEL.
8. ALL DUCTILE IRON FITTINGS SHALL BE FUSION-BONDED EPOXY COATED INSIDE AND OUTSIDE IN ACCORDANCE WITH ANSI/AWWA C116/A21.16.
9. UNIT WEIGHT OF CONCRETE FOR VERTICAL THRUST BLOCKS IS 150 LBS/CU. FT.

THRUST BLOCKING

CITY OF BRYANT, AR — WATER UTILITIES, 210 S.W. 3rd. STREET, BRYANT, AR, PHONE: (501) 943-0488 | TITLE: WATER DETAILS | DESCRIPTION: THRUST BLOCKING | DATE: APRIL 2015 | DRAWN BY: | CHECKED BY: | FILE: W16-Thrust Blocking.dwg | SHEET: W16

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PH: 501-350-9840

REVISION:

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SHEET ISSUE DATE: 10-31-2024

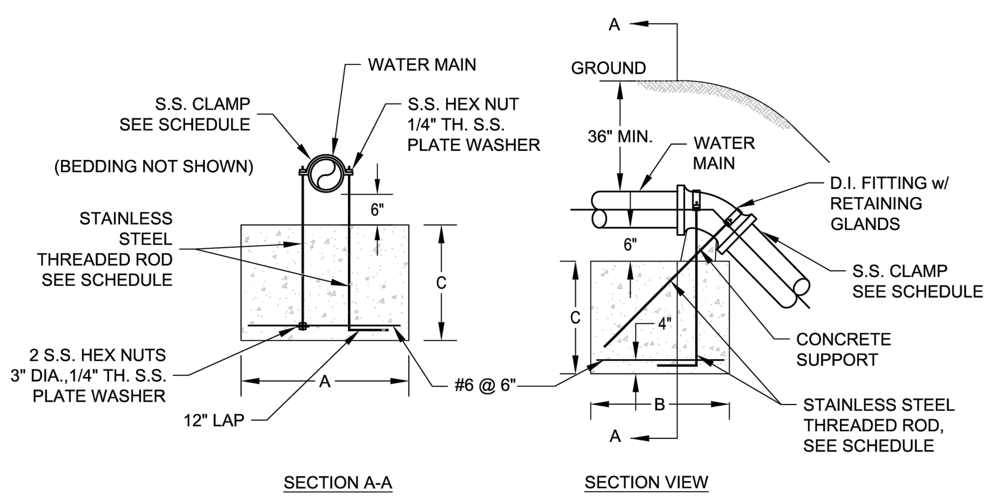
PAGE TITLE: UTILITY DETAILS

SHEET NUMBER: C1.9

BLOCKING SCHEDULE					
PIPE SIZE	BENDS	45°	22 1/2°	11 1/4°	ROD DIA.
	VOLUME REQ'D (CU. FT.)	98.5	50.2	25.2	3/4 IN.
8"	A (FT.)	5.00'	4.00'	3.00'	
	B (FT.)	4.00'	3.20'	2.80'	
	C (FT.)	5.00'	4.00'	3.00'	
	MIN. CLAMP (2 EA.)	3/8 IN. x 2 IN.			
	VOLUME REQ'D (CU. FT.)	209.5	106.8	53.7	3/4 IN.
12"	A (FT.)	6.00'	5.00'	4.00'	
	B (FT.)	6.00'	4.25'	3.50'	
	C (FT.)	6.00'	5.00'	4.00'	
	MIN. CLAMP (2 EA.)	1/2 IN. x 2 IN.			
	VOLUME REQ'D (CU. FT.)	457.2	233.1	117.1	1 IN.
18"	A (FT.)	8.00'	6.50'	5.00'	
	B (FT.)	7.25'	5.50'	4.75'	
	C (FT.)	8.00'	6.50'	5.00'	
	MIN. CLAMP (2 EA.)	5/8 IN. x 3 IN.			
	VOLUME REQ'D (CU. FT.)	800.3	408.0	205.0	1 1/4 IN.
24"	A (FT.)	9.50'	7.50'	6.00'	
	B (FT.)	9.00'	7.25'	5.75'	
	C (FT.)	9.50'	7.50'	6.00'	
	MIN. CLAMP (2 EA.)	5/8 IN. x 3 IN.			

VOLUME CALCULATED ON THE BASIS OF CONCRETE REACTING THRUST ON THE RESPECTIVE BENDS UNDER AN INTERNAL PRESSURE OF 250 PSI, 50 PSI SURGE AND THE WEIGHT OF CONCRETE IS 150 POUNDS PER CU. FT.

ALL FITTINGS SHALL BE MECHANICAL JOINTS WITH RETAINING GLANDS. BEDDING NOT SHOWN



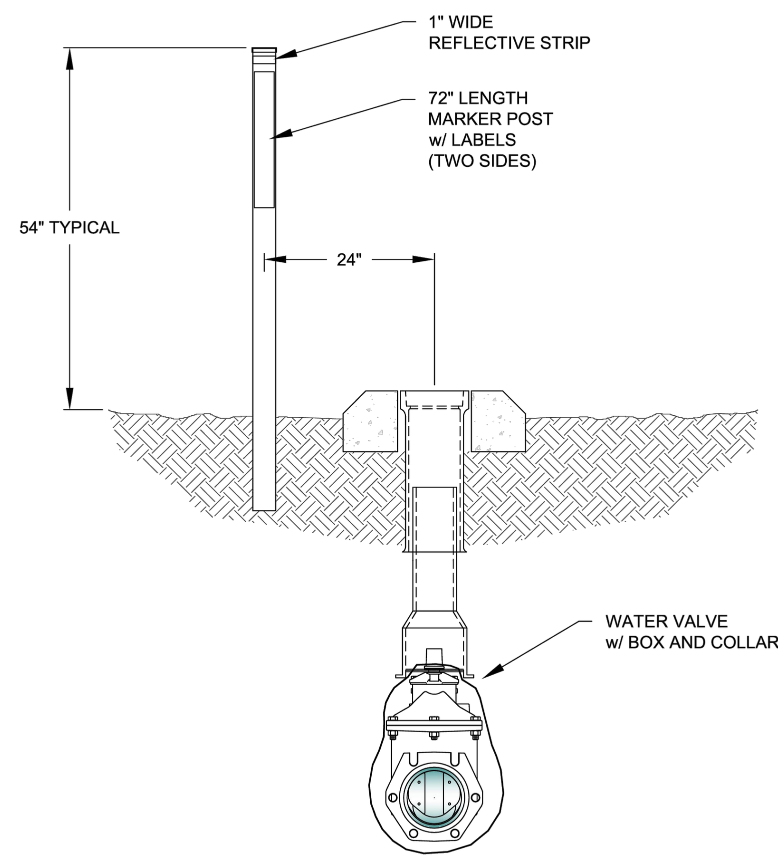
VERTICAL TIE-DOWN BLOCKING

CITY OF BRYANT, AR
WATER UTILITIES
210 S.W. 3rd. STREET
BRYANT, AR
PHONE: (501) 943-0488

TITLE: **WATER DETAILS**
DESCRIPTION: VERTICAL TIE-DOWN BLOCKING
DATE: APRIL 2015 REVISED
SHEET: **W17**
DRAWN BY: CHECKED BY: FILE: W17-Vertical Tie-Down Blocking.dwg

NOTES:

1. WATER LINE MARKERS SHALL BE TRI-VIEW MARKING SYSTEM BY RHINO MARKING AND PROTECTION SYSTEMS OR CARSONITE INTERNATIONAL DUAL-SIDED UTILITY MARKER (CIB-380).
2. THE UPPERMOST PORTION OF THE CARSONITE MARKER SHALL BE MADE OF VISIBILITY ENHANCER (CVE-360).
3. TRI-VIEW MARKERS DO NOT REQUIRE VISIBILITY ENHANCERS.
4. AN ADDITIONAL WHITE 1" WIDE REFLECTIVE TAPE (3M OR EQUAL) SHALL BE PLACED AROUND THE FULL CIRCUMFERENCE OF THE TOP OF THE MARKER.



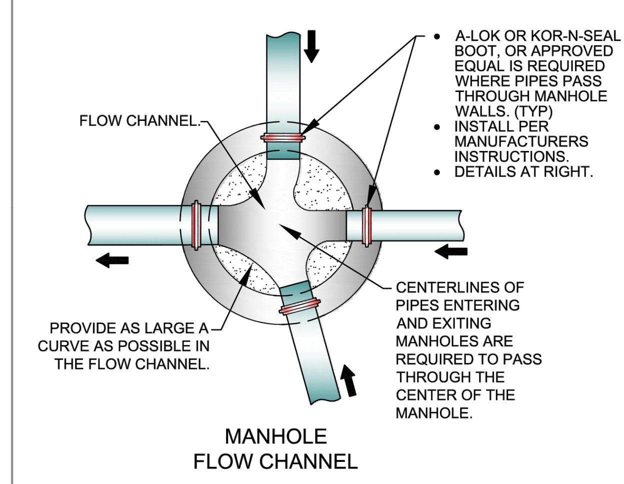
VALVE MARKER

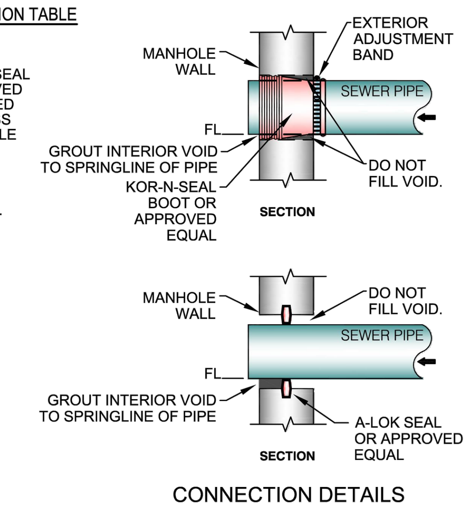
CITY OF BRYANT, AR
WATER UTILITIES
210 S.W. 3rd. STREET
BRYANT, AR
PHONE: (501) 943-0488

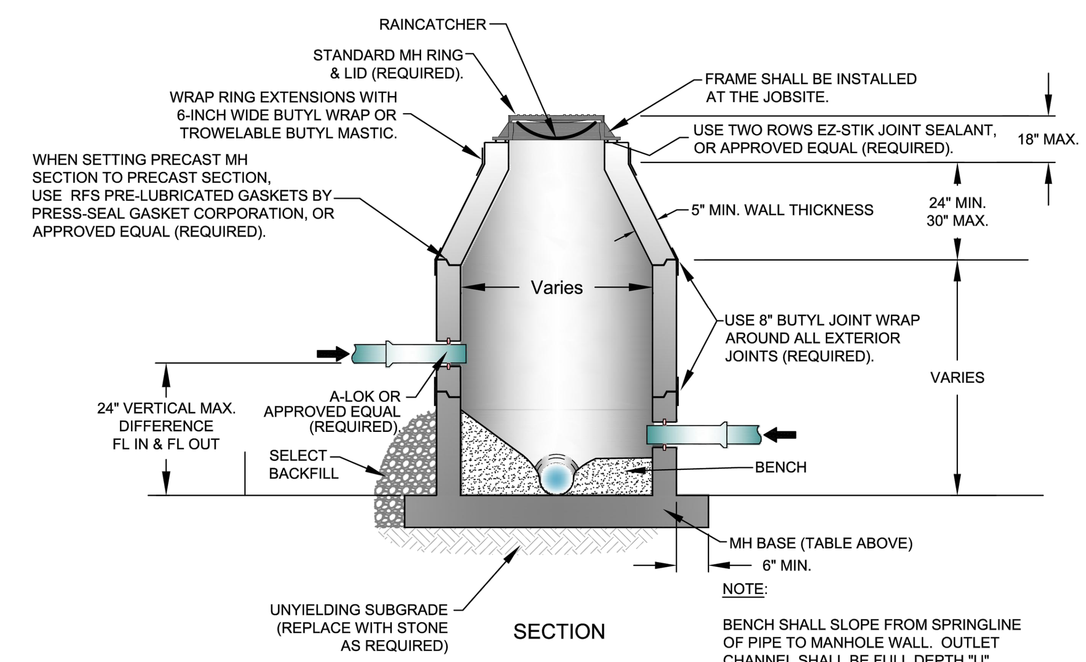
TITLE: **WATER DETAILS**
DESCRIPTION: VALVE MARKER
DATE: APRIL 2015 REVISED
SHEET: **W22**
DRAWN BY: CHECKED BY: FILE: W22-Valve Marker.dwg

Inside Diameter of Manhole	Minimum Wall Thickness	Base Thickness	Minimum Ring & Cover Size
4' DIA	5"	6"	24" (< or Equal to 24" Pipes)
5' DIA	7"	8"	
6' DIA	7"	8"	36" (> 24" Pipes)

MANHOLE INFORMATION TABLE







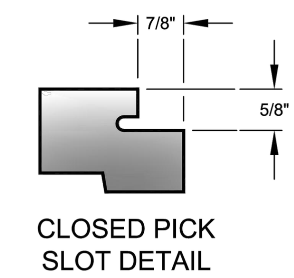
NOTE:
BENCH SHALL SLOPE FROM SPRINGLINE OF PIPE TO MANHOLE WALL. OUTLET CHANNEL SHALL BE FULL DEPTH "U" FROM CENTER OF MANHOLE TO WALL.

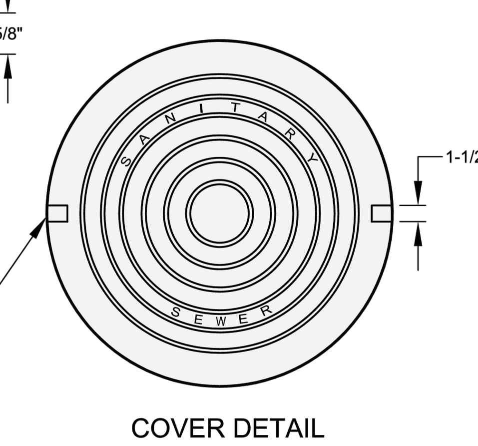
PRECAST MANHOLE

CITY OF BRYANT, AR
WATER UTILITIES
210 S.W. 3rd. STREET
BRYANT, AR
PHONE: (501) 943-0488

TITLE: **SEWER DETAILS**
DESCRIPTION: PRECAST MANHOLE
DATE: APRIL 2015 REVISED
SHEET: **S5**
DRAWN BY: CHECKED BY: FILE: S5-Precast Manhole.dwg

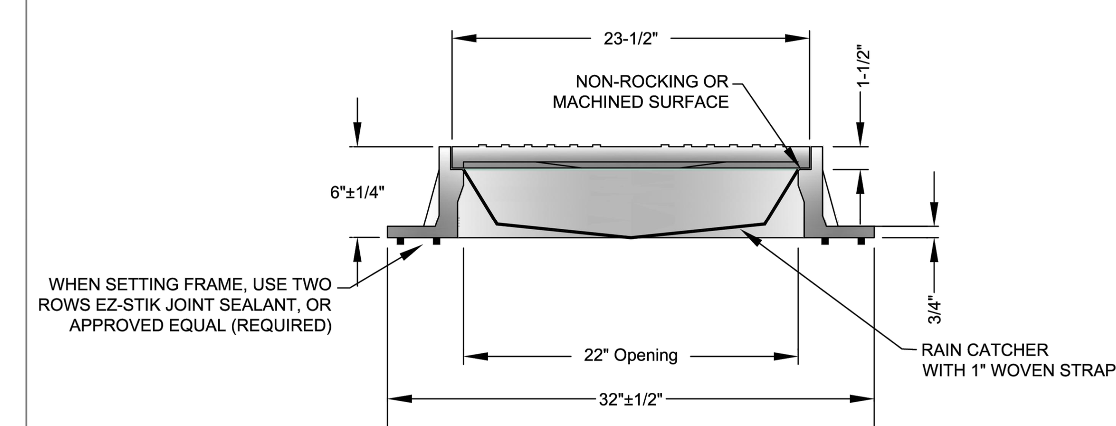
ALL CASTINGS SHALL BE "MADE IN USA"





1. MINIMUM WEIGHT OF RING: 100 POUNDS
2. MINIMUM WEIGHT OF COVER: 110 POUNDS
3. COVERS ARE FURNISHED WITH TWO CLOSED PICK SLOTS.
4. CASTINGS SHALL BE "MADE IN USA"

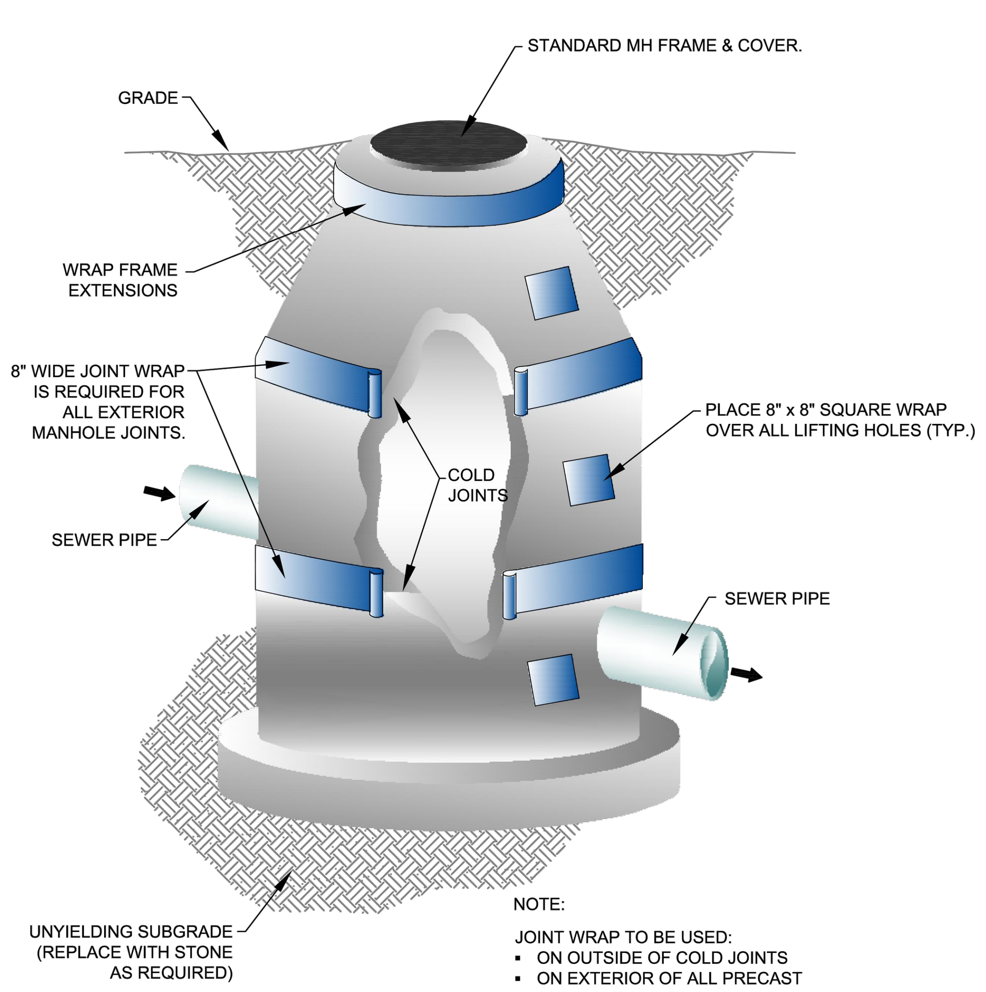
* DIMENSIONAL TOLERANCES SHALL NOT EXCEED 1/16 INCH PER FOOT



FRAME AND COVER DETAIL

CITY OF BRYANT, AR
WATER UTILITIES
210 S.W. 3rd. STREET
BRYANT, AR
PHONE: (501) 943-0488

TITLE: **SEWER DETAILS**
DESCRIPTION: MANHOLE FRAME AND COVER
DATE: APRIL 2015 REVISED
SHEET: **S6**
DRAWN BY: CHECKED BY: FILE: S6-Manhole Frame and Cover.dwg



NOTE:
JOINT WRAP TO BE USED:
- ON OUTSIDE OF COLD JOINTS
- ON EXTERIOR OF ALL PRECAST MANHOLE JOINTS
- ON LIFT HOLES / SOCKETS

MANHOLE JOINT WRAP

CITY OF BRYANT, AR
WATER UTILITIES
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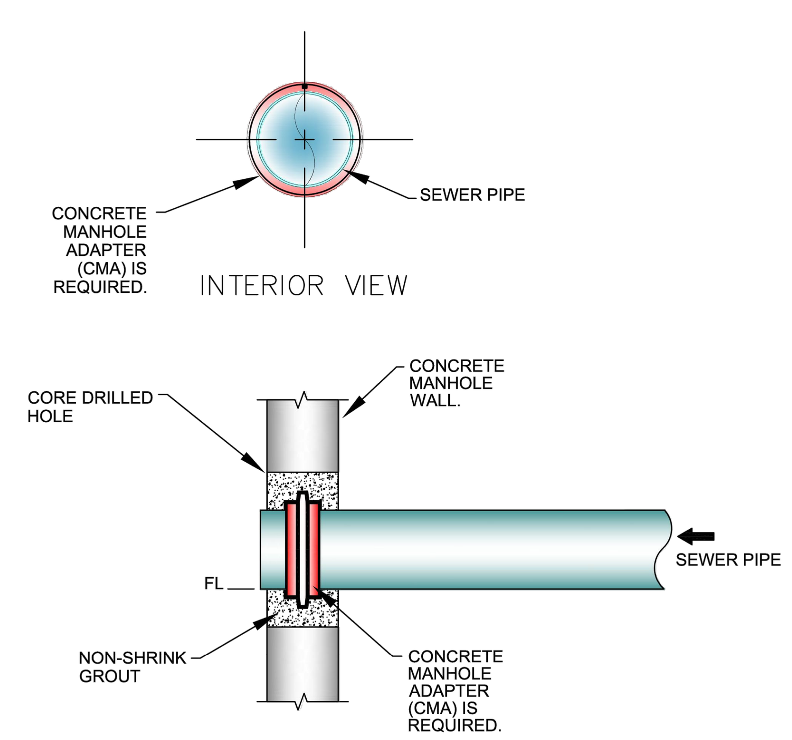
BRYANT, AR
PHONE: (501) 943-0488

TITLE: **SEWER DETAILS**
DESCRIPTION: MANHOLE JOINT WRAP
DATE: APRIL 2015 REVISED
SHEET: **S9**
DRAWN BY: CHECKED BY: FILE: S9-Manhole Joint Wrap.dwg

THE INSTALLATION SHALL BE DYE TESTED FOR ACCEPTANCE.



MANHOLE CORING DETAILS

CITY OF BRYANT, AR
WATER UTILITIES
210 S.W. 3rd. STREET
BRYANT, AR
PHONE: (501) 943-0488

TITLE: **SEWER DETAILS**
DESCRIPTION: MANHOLE CORING
DATE: APRIL 2015 REVISED
SHEET: **S11**
DRAWN BY: CHECKED BY: FILE: S11-Manhole Coring.dwg

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ARKANSAS-ENGINEER

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9540
PHILLIP A. LEWIS

PROJECT NUMBER:

SHEET ISSUE DATE:
10-31-2024

PAGE TITLE:
UTILITY DETAILS

SHEET NUMBER:
C1.10

PRE DRAINAGE MAP

SCALE 1" = 50'

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ARKANSAS ENGINEER

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9540
PHILLIP A. LEWIS

N

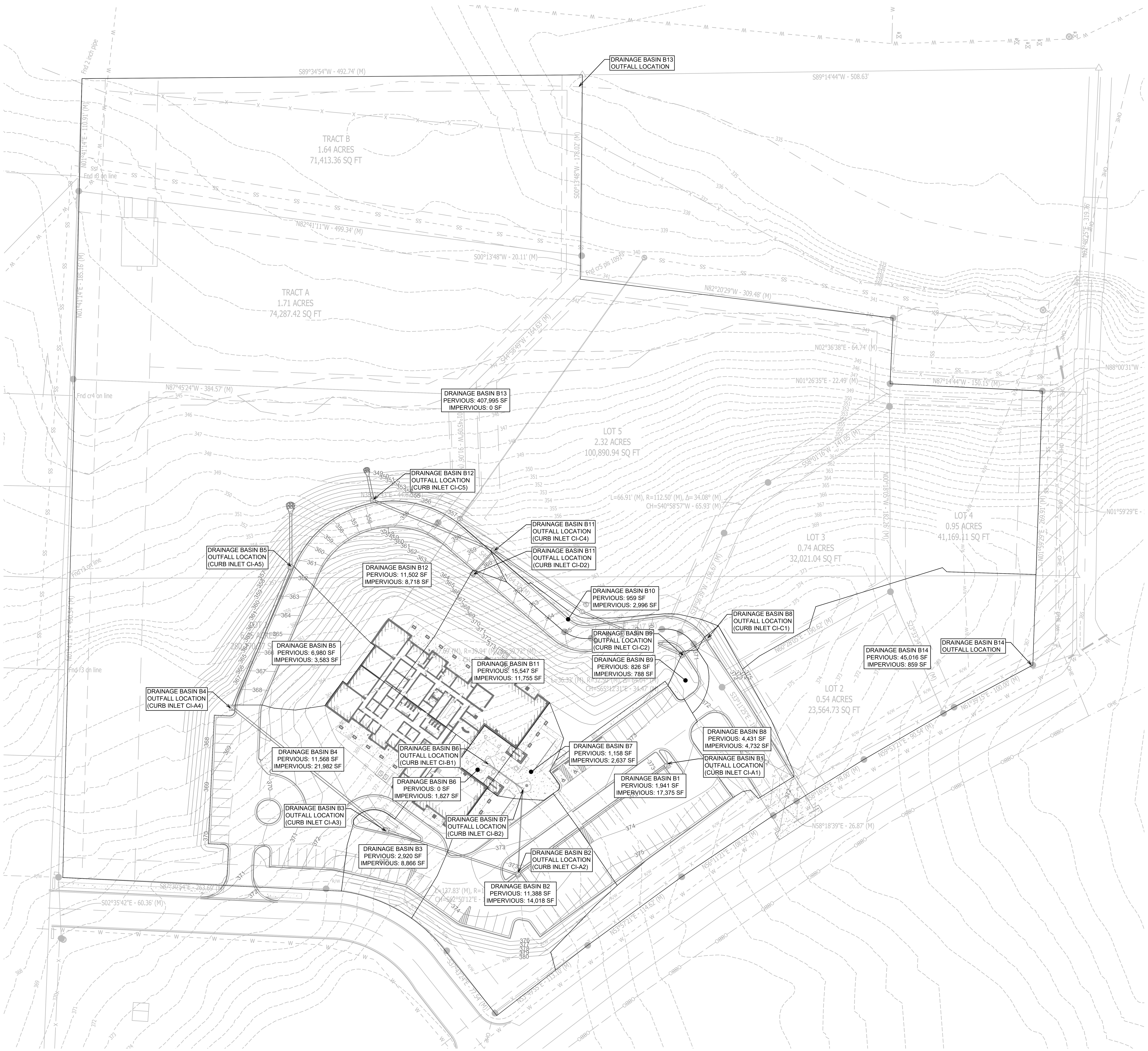
0 50'
1" = 50'-0"

PROJECT NUMBER:

SHEET ISSUE DATE:
10-31-2024

PAGE TITLE:
PRE DRAINAGE MAP

SHEET NUMBER:
C1.11



POST DRAINAGE MAP

SCALE 1" = 50'

GENERAL SITE NOTES

1. TOTAL NEW DEVELOPMENT AREA = (+/-) 1.12 ACRES
2. PROPERTY IS ZONED C-2
3. 43 PARKING SPACES PROVIDED INCLUDING 2 ADA ACCESSIBLE PARKING SPACES
4. ALL DIMENSIONS ARE TO THE BACK OF CURB AND/OR EDGE OF PAVEMENT
5. DAMAGE TO PUBLIC AND PRIVATE PROPERTY DUE TO HAULING OPERATIONS OR OPERATIONS OF CONSTRUCTION RELATED EQUIPMENT FROM A CONSTRUCTION SITE SHALL BE REPAIRED BY THE THE RESPONSIBLE PARTY PRIOR TO THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY.
6. REPAIR, REPLACE, OR EXTEND EXISTING DAMAGED OR MISSING CURB AND GUTTER, SIDEWALK OR RAMPS WITHIN THE PUBLIC RIGHT OF WAY.
7. ALL SIGNAGE, PAVEMENT MARKING AND PARKING LOT STRIPING SHALL CONFORM TO REQUIREMENTS GIVEN IN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). MUTCD REQUIRES THAT PARKING SPACES BE MARKED IN WHITE.

N

0 50'

1" = 50'-0"

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SHEET ISSUE DATE:
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PAGE TITLE:
POST DRAINAGE MAP

SHEET NUMBER:
C1.12

LANDSCAPE PLAN

SCALE 1" = 30'

NOTES:

1. LANDSCAPED AREAS TO BE AMENDED WITH 4" OF TOPSOIL, SCARIFY SOIL 3" PRIOR TO APPLICATION. ALL TOP SOIL SHALL BE PLACED IN COORDINATION WITH GRADING AND DRAINAGE PLANS TO ENSURE THAT THE GRADING AND DRAINAGE DESIGN FOR THE SITE IS MAINTAINED AFTER BEING SODDED OR SEEDED. EXISTING SOIL FROM THE SITE CAN BE STOCK PILED AND REUSED AS LONG AS IT IS OF QUALITY THAT ENCOURAGES ADEQUATE GROWTH OF PLANTING MATERIAL. THE CONTRACTOR IS RESPONSIBLE FOR ANY SOIL TESTING THAT MAY BE REQUIRED.
2. LANDSCAPE PLAN REPRESENTS RECOMMENDED SPECIES, SIZES, & LOCATIONS. OWNER SHALL CHANGE THE ITEMS TO EQUAL OR GREATER VALUE.

PLANT SCHEDULE

PLANT TYPE	SYMBOL	CODE	QTY	COMMON SPECIES	SCIENTIFIC NAME	CAL / SIZE
TREES		WO	15	WILLOW OAK	QUERCUS PHELLOS	MIN. 3" DIAMETER @ BASE AND 12' TALL
SHRUBS		BW	85	DWARF NANDINA	N. DOMESTICA "HARBOUR DWARF"	3 GAL
GROUND COVER		SO	61,425 SF	BERMUDA SOD		
		GS	36,022 SF	GRASS SEED		
			5,114 SF	LANDSCAPE BEDDING (TBD BY OWNER)		

N

0 30'

1" = 30'-0"

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10-31-2024

PAGE TITLE:
LANDSCAPE PLAN

SHEET NUMBER:
C1.13

STORM WATER POLLUTION PREVENTION PLAN

SCALE 1" = 50'

INSTALL FILTER SOCKS AT ALL INLETS; MAINTAIN THROUGHOUT CONSTRUCTION.

N

0 50'

1" = 50'-0"

LEGEND

- DISTURBED AREA
- UNDISTURBED AREA
- SEDIMENT FENCE WITH WIRE BACKING
- DRAINAGE DIRECTION

GENERAL CONSTRUCTION NOTES

A. THE CONTRACTOR WILL BE HELD SOLELY RESPONSIBLE FOR DAMAGES OCCURRING TO ANY PROPERTY DURING THE CONSTRUCTION OF THIS PROJECT. SAID CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT PROPERTY DAMAGE.

B. IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL SOLELY AND COMPLETELY BE RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND WILL NOT BE LIMITED TO NORMAL WORKING HOURS.

C. THE DUTY OF THE LOCAL UTILITY PROVIDER TO CONDUCT CONSTRUCTION INSPECTION REVIEWS OF THE CONTRACTOR'S PERFORMANCE IS NOT AN INSPECTION OR REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES IN, ON, OR NEAR THE CONSTRUCTION SITE.

D. ALL WATER AND SEWER IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST REVISION TO THE LOCAL PROVIDER'S WATER AND WASTEWATER (SANITARY SEWER) STANDARD SPECIFICATIONS.

E. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF ALL UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH PROPOSED IMPROVEMENTS SHOWN ON THE PLAN.

F. CONTRACTOR IS TO REMOVE AND DISPOSE OF ALL DEBRIS, RUBBISH, AND OTHER MATERIALS RESULTING FROM PREVIOUS AND CURRENT DEMOLITION OPERATIONS. DISPOSAL WILL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND/OR FEDERAL REGULATIONS GOVERNING SUCH OPERATIONS.

G. PRIOR TO INSTALLATION OF ANY UTILITIES, THE CONTRACTOR IS TO EXCAVATE, VERIFY AND CALCULATE ALL CROSSINGS AND INFORM ANY AND ALL UTILITIES OF ANY CONFLICTS PRIOR TO CONSTRUCTION.

H. CONSTRUCTION SHALL NOT START ON ANY WATER UTILITY TIE-INS UNTIL APPROVAL IS GIVEN BY THE LOCAL UTILITY PROVIDER. SAID CONTRACTOR SHALL NOT OPERATE ANY VALVE, HYDRANT, OR WATER UTILITY APPURTENANCE NOR SHALL HE ATTACH TO OR TAP ANY WATER UTILITY MAIN WITHOUT APPROVAL. THE CONTRACTOR SHALL BEAR THE COST AND CONSEQUENCE OF ANY DISRUPTION OF UTILITY OPERATION CAUSED BY CONSTRUCTION.

I. FIBER OPTIC CABLE ON AND/OR ADJACENT TO THIS SITE WERE NOT LOCATED BY THE SURVEY AND ARE NOT SHOWN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ANY FIBER OPTIC CABLES ASSOCIATED WITH THIS SITE AND TAKE ALL NECESSARY AND REQUIRED PRECAUTIONS TO PROTECT ANY EXISTING FIBER OPTIC CABLES. CONTRACTORS SHALL COORDINATE ALL EFFORTS WITH OWNER OF FIBER OPTIC CABLES OR THEIR DESIGNATED REPRESENTATIVE.

J. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING "ONECALL" SERVICE TO MARK ALL UTILITIES PRIOR TO ANY DEMOLITION, EARTHWORK, OR UTILITY WORK ON THIS SITE.

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No. 9540
PHILLIP A. LEWIS

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ARKANSAS ENGINEERS

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SHEET ISSUE DATE:
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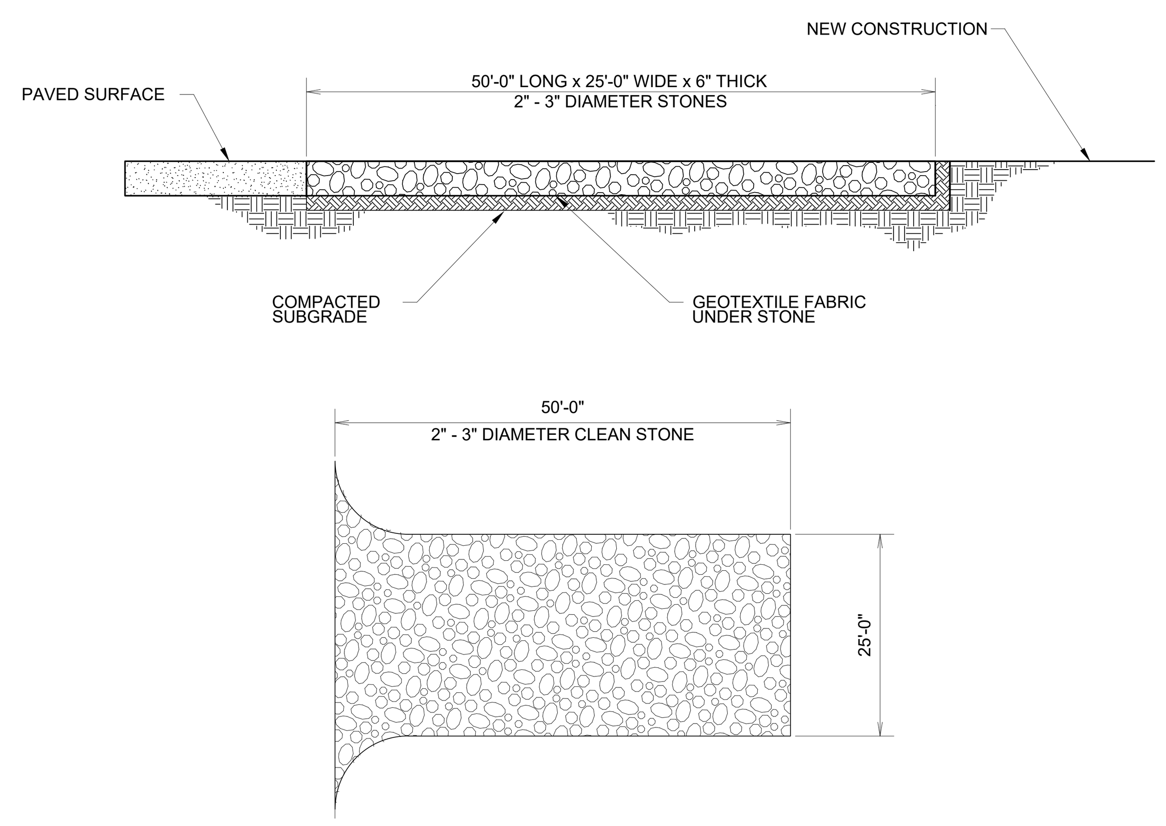
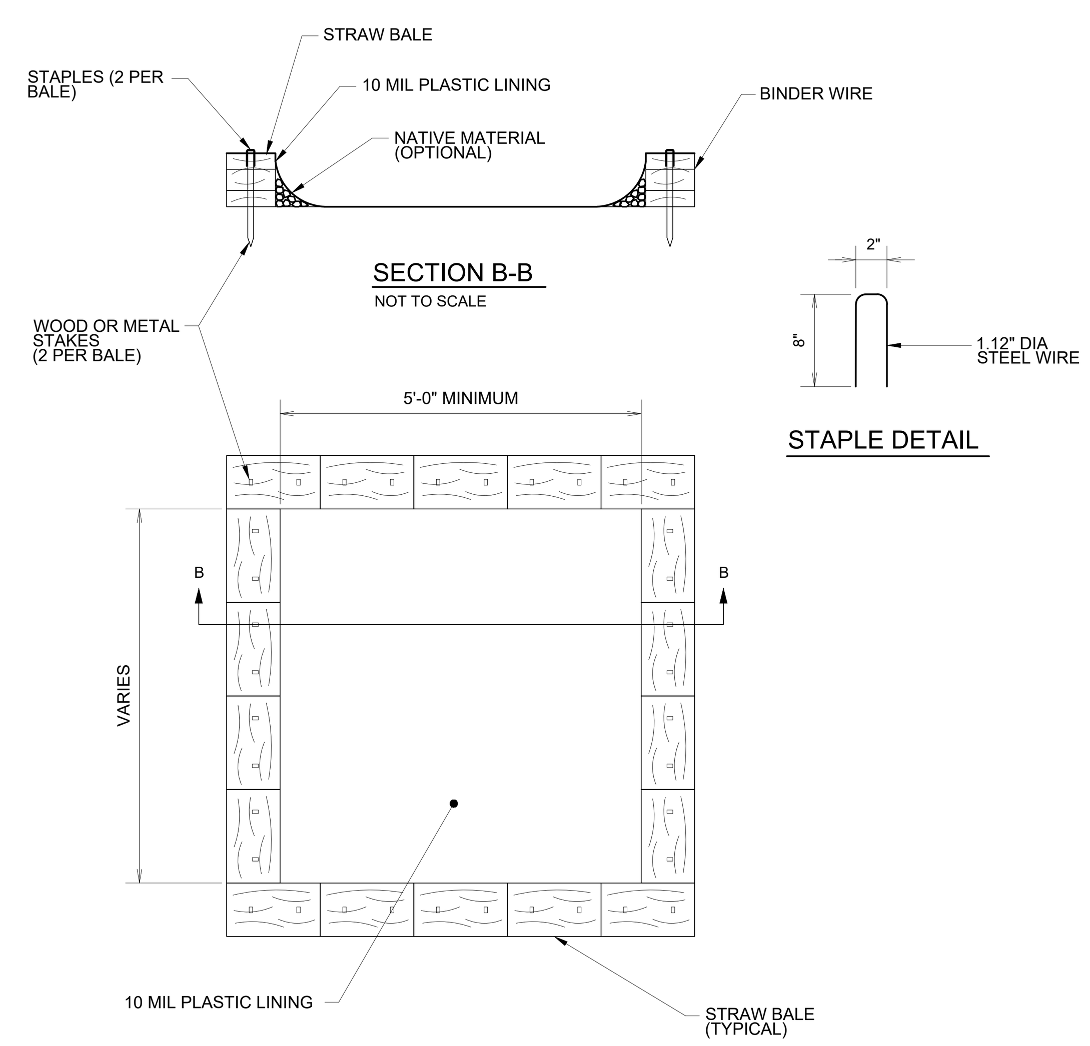
PAGE TITLE:
STORM WATER POLLUTION PREVENTION PLAN

SHEET NUMBER:
C1.14



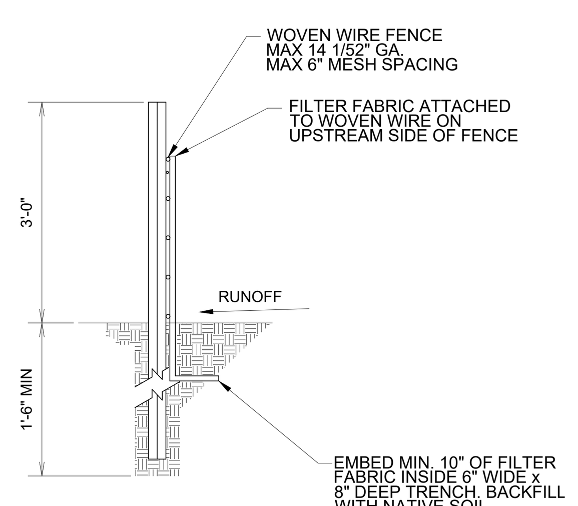
CONSTRUCTION ENTRANCE

NOT TO SCALE



CONCRETE WASHOUT

NOT TO SCALE



SILT FENCE

NOT TO SCALE

NOTES AND SPECIFICATIONS:

1. POSTS SHALL BE A MINIMUM OF 36 INCHES CONSTRUCTED OF EITHER OF THE FOLLOWING MATERIALS: STEEL "T" OR "U" TYPE, OR 2" x 2" HARDWOOD.
2. WOVEN WIRE USED AS ADDITIONAL FENCE SUPPORT SHALL BE MINIMUM 14.5 GA. WITH 6" MAXIMUM SPACING.
3. WOVEN WIRE SHALL BE PLACED ALONG THE UPHILL SIDE OF THE FENCE AND FASTENED WITH WIRE TIES OR 1" STAPLES ALONG THE UPHILL SIDE OF THE POSTS.
4. FILTER FABRIC SHALL BE FASTENED TO WOVEN WIRE ACCORDING TO MANUFACTURER'S RECOMMENDATION, OR WITH TIES EVERY 24" AT THE TOP AND MID-SECTIONS.
5. WHERE TWO PIECES OF FILTER FABRIC ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY 6 INCHES AND FOLDED TOGETHER.
6. WHERE TWO POSTS MEET TO JOIN FENCE SECTIONS, THE TOPS OF THE POSTS SHALL BE SECURED TOGETHER WITH WIRE.
7. THE FENCE SHALL BE CONSTRUCTED ALONG THE CONTOUR AS MUCH AS POSSIBLE.
8. ENDS OF FENCES SHALL BE EXTENDED UP THE SLOPE TO PRVENT RUNOFF FROM MIGRATING AROUND THE END OF THE FENCE.
9. INSPECTION OF THE FENCE SHALL BE PERFORMED WEEKLY, OR IMMEDIATELY AFTER A RAIN EVENT, OR WHEN BULGES APPEAR IN THE FENCE. ACCUMALTED SILT SHALL NOT BE ALLOWED TO EXCEED HALF THE HEIGHT OF THE FABRIC. REPAIR AND OR REPLACMENT OF DAMAGED FENCE SHALL BE COMPLETED PROMPTLY.
10. ACCUMULATED SILT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED SITE IN SUCH A MANNER THAT IT WILL NOT CONTRIBUTE TO OFF-SITE SILTATION.
11. ALL FENCING SHALL BE REMOVED WITH THE CONSTRUCTION SITE IS FULLY STABLIZED SO AS TO NOT IMPEDE STORM FLOW OR DRAINAGE.
12. PRE-FRABRICATED UNITS DO NOT REQUIRE THE USE OF WOVEN WIRE FENCE.

GENERAL CONSTRUCTION NOTES

A. THE CONTRACTOR WILL BE HELD SOLELY RESPONSIBLE FOR DAMAGES OCCURRING TO ANY PROPERTY DURING THE CONSTRUCTION OF THIS PROJECT. SAID CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT PROPERTY DAMAGE.

B. IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL SOLELY AND COMPLETELY BE RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND WILL NOT BE LIMITED TO NORMAL WORKING HOURS.

C. THE DUTY OF THE LOCAL UTILITY PROVIDER TO CONDUCT CONSTRUCTION INSPECTION REVIEWS OF THE CONTRACTOR'S PERFORMANCE IS NOT AN INSPECTION OR REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES IN, ON, OR NEAR THE CONSTRUCTION SITE.

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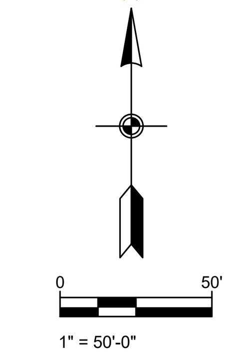

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PHILLIP A. LEWIS

PROJECT NUMBER:

SHEET ISSUE DATE:
10-31-2024

PAGE TITLE:
SWPPP DETAILS

SHEET NUMBER:
C1.15

Arkansas Department of Health
Environmental Health Protection

MAY 0 8 2024

Receipt Number 24732214

Individual Onsite Wastewater System Permit Application

Permit Type ☑ New Installation ☐ Alteration / Repair

DR Environmental ID #

A	D	H	1	4	1	1	4	5	6	8

Fee Schedule for Structures		√
Structures 1500 sq ft or less	$ 30.00	☐
Structures more than 1500 sq ft and up to 2000 sq ft	$ 45.00	☑
Structures more than 2000 sq ft and up to 3000 sq ft	$ 90.00	☐
Structures more than 3000 sq ft and up to 4000 sq ft	$120.00	☐
Structures more than 4000 sq ft	$150.00	☐
Alteration and Repair	$ 30.00	☐

Part 1 Application Treatment Type (check one) Disposal Method (check one)

Treatment Type		Disposal Method	
☑ STD = Standard Septic Tank	☐ ATU = Aerobic Treatment Plant	☑ STD = Standard Absorption Field	☐ LPD = Low Pressure Distribution
☐ ISF = Intermittent Sand Filter	☐ RSF = Re-circulating Sand Filter	☐ SUR = Surface Discharge	☐ HLD = Holding Tank
☐ PMF = Proprietary Media Filter	☐ RGF = Re-circulating Gravel Filter	☐ CPF = Capping Fill	☐ SRL = Serial Distribution
☐ OTH = Other (Describe)	☐ HLD = Holding Tank	☐ OTH = Other	☐ DRP = Drip Irrigation

1. Owner's/Applicant's Name: Daniel Garver
2. Phone Number: (501) 672-6098
3. Mailing Address: 37 Summerwood Cove, Benton, AR 72019
4. County: Saline
5. Address of Proposed System (If a 911 address is not available, attach detailed directions or map): Next to 500 Glenn Hill Drive, Alexander, AR 72002
6. Subdivision Name: Glennwood Estates
7. Approval Date: 1989
8. Date Recorded: 1989
9. Lot Number: 6
10. Lot Dimensions: 643' x 425' x 711' x 711'
11. Total Area (Acres): 9.30
12. # Bedrooms # People: 3
13. Daily Flow (GPD): 370
14. Brief Legal Description of Property (Attach a separate sheet of paper, if necessary): Sectio 10, Township 1 South, Range 14 West, Saline County
15. Water Supply (Specify supplier, if Public Water): Water Users LLC.
16. GPS Coordinates: 34.65219,-92.49003 34.65227,-92.49000

17. Loading Rates	(gpd/ft²)	18. System Specifications						
Primary Area	0.75	a. Size of Septic Tank	1000	gal	f. Trench Depth	18	inches	
Secondary Area	0.75	b. Size of Dose Tank	n/a	gal	g. Trench Spacing	10	feet	
Percolation Test	(min/in)	c. Absorption Area	494	ft²	h. Trench Media (List Below)		i.Trench Width	
Primary Area Avg	n/a	d. Number of Field Lines	3		EZ Flow 1201, EQ-24 Cham.		18	in
Secondary Area	n/a	e. Length of Field Lines	90	ft	Rock & Pipe		24	in

TO THE OWNER
The permit for construction may be deemed invalid by the local Environmental Health Specialist before the start of construction, if the site and/or soil conditions have changed after approval of this permit, or if the information within this permit is inaccurate or has been found to be misrepresented. Approval for operation does not constitute a guarantee that the system will function properly. The approval states that the system was designed and installed according to the Arkansas Department of Health, Rules and Regulations Pertaining to Onsite Wastewater Systems, unless there are exceptions or deviations noted in the comments. A Permit for Construction is valid for one (1) year from the date of approval. The authorized agent must revalidate a permit more than one (1) year old prior to the start of any construction.

19. Utilization Verification
I hereby attest that item 12, the number of bedrooms (number of persons for commercial) and square footage of the structure that will utilize the designed individual onsite wastewater system in this permit application, is accurate. I have reviewed the permit application and understand the layout, installation, maintenance, operation and expense(s) that may be associated with this system.

Owner/Applicant Signature See Opt. A Date 04/09/2024

20. I certify that I have conducted the above tests and that the above listed information is in accordance with the latest requirements of the Arkansas Department of Health Rules and Regulations Pertaining to Onsite Wastewater Systems.

[signature] Designated Representative Soil Certified ☑ Yes ☐ No

Designated Representative Signature Title

Kyle A. Gaston 04/19/2024 501-821-3837

Print Name Date Phone Number

21. Approval of Health Authority
The information and specifications in the application has been reviewed and found to meet the requirements of the Arkansas Department of Health Rules and Regulations Pertaining To Onsite Wastewater Systems. A PERMIT FOR CONSTRUCTION is hereby issued.

[signature] 138 5/28/24

Environmental Specialist Signature EHS Number Date

NOTE TO INSTALLER:
CONTACT EHS AT 501-303-5650
24 HOURS PRIOR TO
BEGINNING INSTALLATION

Individual Onsite Wastewater System Permit Application

Receipt Number

Continue Part 1

22. Soil Criteria (Primary Area)			Indicate the depth to items a-f, if observed in the soil (designate in inches)				
a. Bedrock	b. BSWT	c. MSWT	d. LSWT	e. Adj. MSWT	f. Adj. LSWT	g. H.C./Depth	h. Loading Rate (gpd/ft²)
44"	21"	32"	Not Obsv	29"	n/a	Mod/44"	0.75 (10' Centers)
23. Soil Criteria (Secondary Area)			Indicate the depth to items a-f, if observed in the soil (designate inches)				
a. Bedrock	b. BSWT	c. MSWT	d. LSWT	e. Adj. MSWT	f. Adj. LSWT	g. H.C./Depth	h. Loading Rate (gpd/ft²)
46"	22"	32"	Not Obsv	29"	n/a	Mod/46"	0.75 (10' Centers)

24. Seasonal Water Table (SWT) Classes Detail		
Primary Area		List Redoximorphic Features and/or Clay Content Restrictions
Brief	in	Depletions noted on 20% or less of ped surface or interior. Depletion chroma >= chroma 3.
Moderate	in	Depletions noted on less than 50% of ped surface or interior. Depletion <= chroma 2.
Long	in	Not Observed
Secondary Area		List Redoximorphic Features and/or Clay Content Restrictions
Brief	in	Depletions noted on 20% or less of ped surface or interior. Depletion chroma >= chroma 3.
Moderate	in	Depletions noted on less than 50% of ped surface or interior. Depletion <= chroma 2.
Long	in	Not Observed
Comments		One Call before installation. Install in dry conditions. If system is not installed within a year of the date approved, a revalidation fee may be required. Permit may become void, if a disposal site has been altered.

Part 2 Installation Inspection

Septic tank manufacturer	Pump information
Septic tank material	Trench media and width
Dose tank manufacturer	Depth of interceptor drain
Dose tank material	Depth of settled fill
Name of Installer	License Number

Installation Inspected by ☐ Environmental Health Specialist ☐ Designated Representative
(check one or installer signs System Installation Verification below)

Signature _______________ EHS / License Number _______________ Date _______________

System Installation Verification
I have installed this system as designed and in compliance with all Rules and Regulations Pertaining to Onsite Wastewater Systems.

Installer Signature _______________ License Number _______________ Date _______________

Part 3 Permit for Operation

The information contained in Part 1 and 2 of this form has been reviewed and found to meet the requirements of the Arkansas Department of Health. THE PERMIT FOR OPERATION of this system is hereby issued.

Environmental Health Specialist _______________ Signature _______________ EHS Number _______________ Date

Comments

Site Revalidation conducted by ☐ Environmental Health Specialist ☐ Designated Representative
(check one)

Signature _______________ EHS / License Number _______________ Date _______________

* Optional System Utilization Verification Form

Arkansas Department of Health
Environmental Health Protection

Receipt Number

Individual Onsite Wastewater System Permit Application

Permit Type ☑ New Installation
☐ Alteration / Repair

DR Environmental ID #

ADH1411 4568

☑ Homeowner

☐ Builder/Developer

Fee Schedule for Structures	√
Structures 1500 sq ft or less $ 30.00	☐
Structures more than 1500 sq ft and up to 2000 sq ft $ 45.00	☑
Structures more than 2000 sq ft and up to 3000 sq ft $ 90.00	☐
Structures more than 3000 sq ft and up to 4000 sq ft $120.00	☐
Structures more than 4000 sq ft $150.00	☐
Alteration and Repair $ 30.00	☐

TO THE PROPERTY OWNER

Onsite Wastewater System Utilization Verification

Property location: Next to 500 Glenn Hill Drive, Alexander, AR 72002
(*Address of Proposed System, City, State, Zip*)

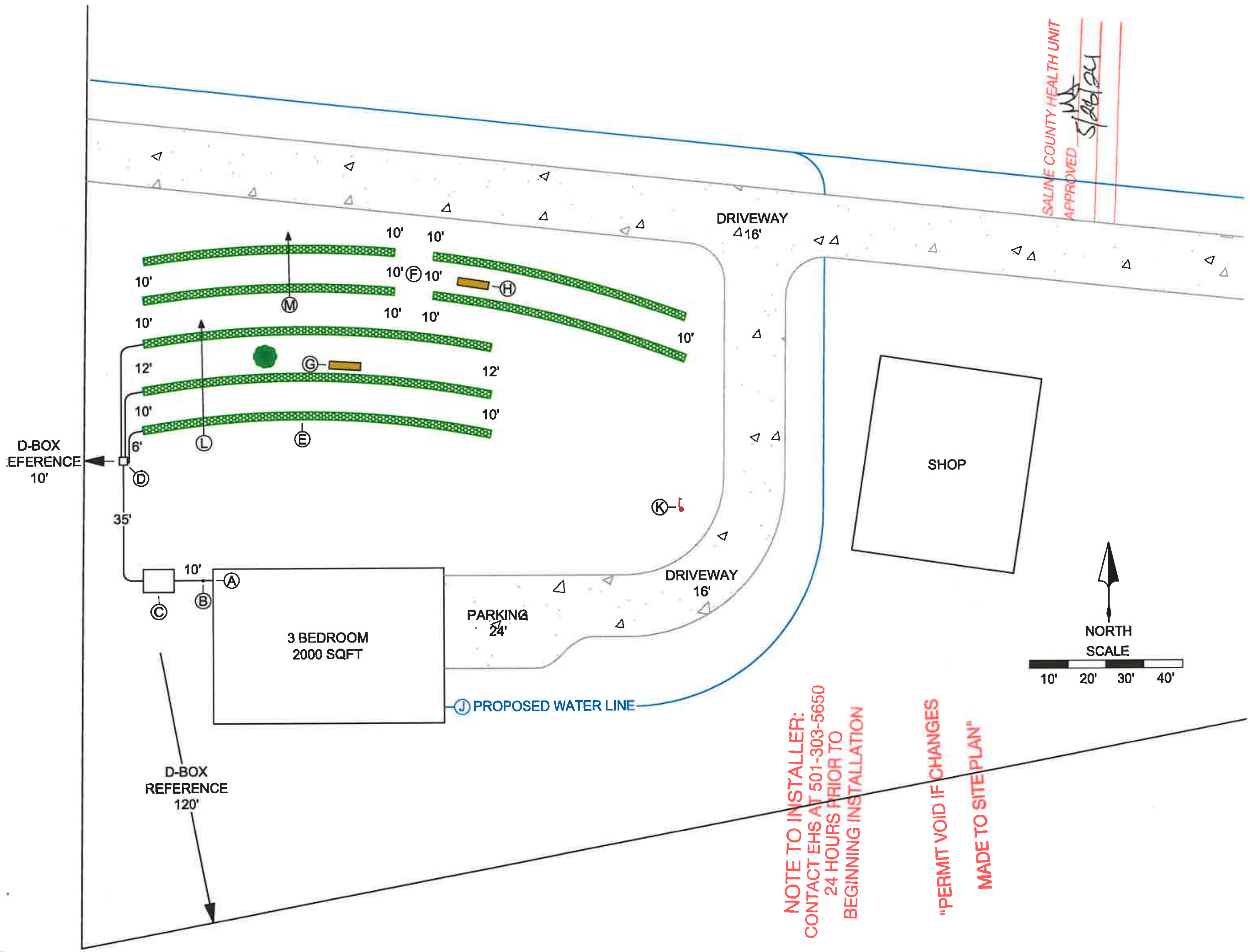
I hereby attest there are 3 bedrooms (____ number of persons for commercial) and the square footage of the structure that will utilize the designed onsite wastewater system in this permit application is accurate. I have reviewed the permit application and understand the layout, installation, maintenance, operation and expense(s) that may be associated with this system.

As Developer/Builder, I hereby attest that the above information is correct and prior to the sale of the property, I will convey, to the buyer, all information associated with this system.

Owner/Applicant Signature ____________________

Date 09 APR 24 04/09/2024

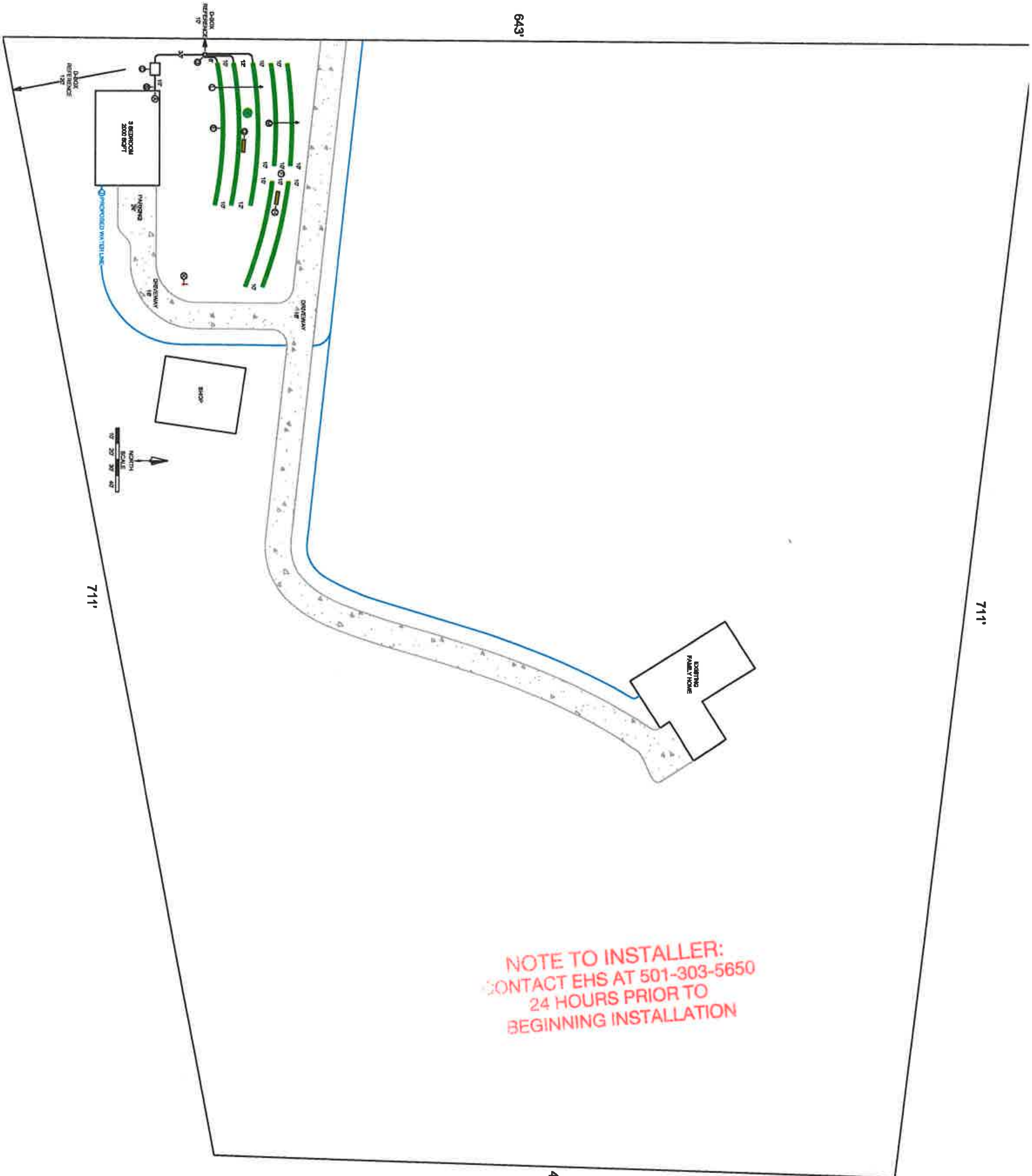
This document must be submitted with the permit application, if the Owner/Applicant Signature Section (number 19 on the EHP-19) is not signed.



NOTE TO INSTALLER:
CONTACT EHS AT 501-303-5650
24 HOURS PRIOR TO
BEGINNING INSTALLATION

"PERMIT VOID IF CHANGES
MADE TO SITE PLAN"

SALINE COUNTY HEALTH UNIT
APPROVED MA
5/28/24


643'
711'
711'
425'
D-BOX REFERENCE
3 BEDROOM 2000 SQFT
PARKING
PROPOSED WATER LINE
DRIVEWAY
SHOP
NORTH
SCALE
EXISTING FAMILY HOME
NOTE TO INSTALLER:
CONTACT EHS AT 501-303-5650
24 HOURS PRIOR TO
BEGINNING INSTALLATION

MEINCO WASTEWATER SYSTEMS

References are found in the Arkansas State Board of Health Rules and Regulations Pertaining to Onsite Wastewater Systems Effective 12/1/2014.

LEGEND TO AutoCAD DRAWING

A Sewer stub out location. Maximum depth of flow line from existing grade is 24" *(Reference Appendix F).* Show this drawing to your plumber.
B 2-way clean out location. Sewer popper required. Install clean out and sewer popper at or above grade. *(Reference 8.13)* Fall to inlet of septic tank can be no less than 1/8" per foot, and no more than ¼" per foot *(Reference 4.1).*
C Septic tank location. Risers to grade over inlet and outlet, minimum 18" diameter *(Reference 10.7.8).* Effluent filter required – Orenco Filter FTS0436-28 *(Reference 10.7.6).* Bed and backfill septic tank with ¾" or smaller gravel *(Reference 10.4).* Septic tank must meet or exceed manufacturer requirements, 5000 psi, aged 28 days minimum *(Reference 10.7.3 – 10.7.5.1).*
D Distribution box location. Tuff Tite 7-hole. Pipe seals and dial-a-flow levelers required. Bed and backfill distribution box with ¾" or smaller gravel *(Reference 8.10.4).*
E Primary disposal site location. Install field lines on contour *(Reference 8.10 – 8.14).*
F Secondary disposal site location.
G Primary pit location.
H Secondary pit location.
I Soil pit location, if applicable. Not used due to shallow seasonal water tables or contour issues.
J Proposed water line. Water line must be installed 10' from any part of wastewater system *(Reference 6.2.8).*
K Benchmark location.
L Primary disposal site slope. 16%
M Secondary disposal site slope. 16%

PIPE SPECIFICAITONS

House stub out to septic tank inlet: 4" Schedule 40 pipe.
Septic tank outlet to distribution box: 4" Schedule 40 pipe.
Distribution box outlets to field lines: 4" SDR-35 solid pipe.
Trench Media: EZ Flow 1201, EQ-24 Chambers or Rock & Pipe (¼" - 1 ½" washed gravel & 4" SDR-35 perforated pipe)

TANK SPECIFICATION

Whitten 1000 Gallon Septic Tank

EFFLUENT STRENGTH

Biochemical oxygen demand < 300 mg/L
Total suspended solids < 300 mg/L
Fats, oil, and grease < 25 mg/L
(Reference 9.41 and Appendix B, Footnotes)

Any changes or substitutions to the notes and specifications in this permit must be approved by the Designated Representative.

MEINCO
WASTEWATER SYSTEMS

GROUND AND INSTALLED ELEVATIONS (feet & inches)

Component	Ground	Flow Line	Fall	Line Length
Stub Out	03-02"	05-02"	24"	
Inlet	03-02"	05-06"	4"	
Outlet	03-02"	05-09"	3"	
D-box	07-00"	07-08"	23"	
Line 1	07-10"	09-04"	18"	90'
Line 2	09-10"	11-04"	18"	90'
Line 3	10-06"	12-00"	18"	90'
Benchmark	08-00"	Base of Power Pole near Shop (See Drawing)		

NOTES

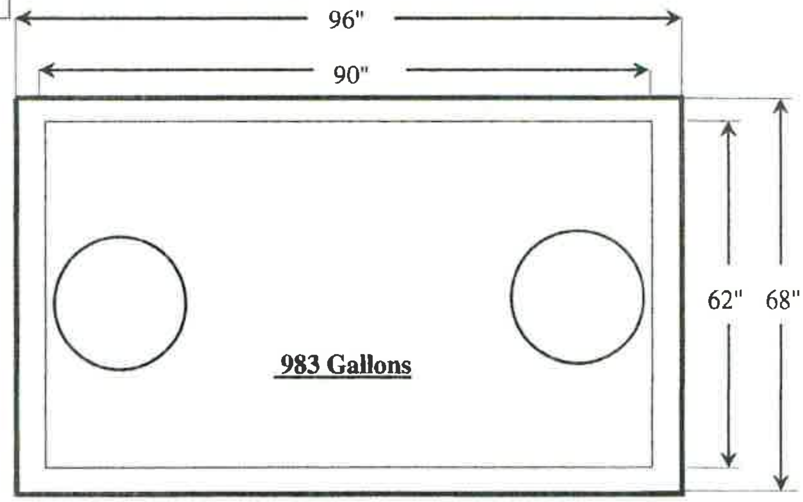
One Call before installation. Install during dry conditions. Permit may become void, if a disposal site has been altered.
Maximum Storage on Sloping Ground.
Outlet flow line of D-box is at or above the ground elevation of the highest line of the absorption area.

Any changes or substitutions to the notes and specifications in this permit must be approved by the Designated Representative.

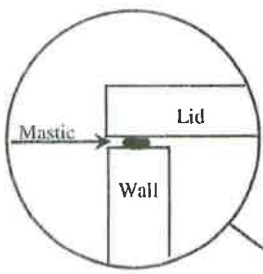
1000 – Gallon Single Compartment Septic Tank

TOP VIEW

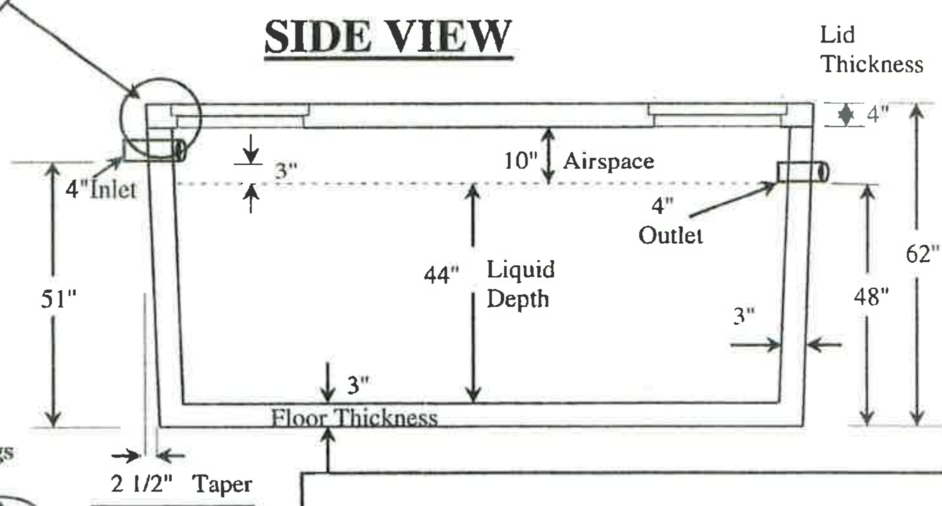
Drawings Not To Scale

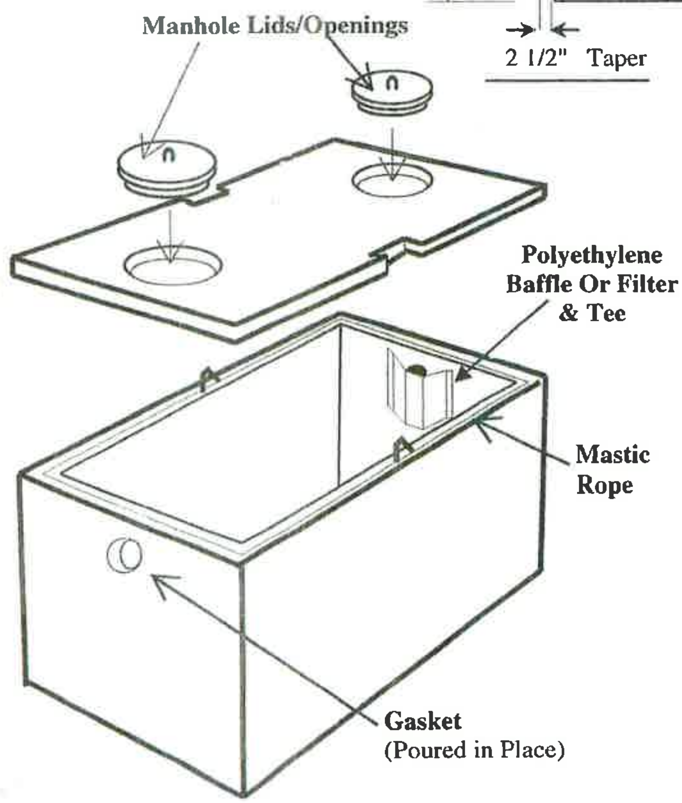


Enlarged Detail



SIDE VIEW



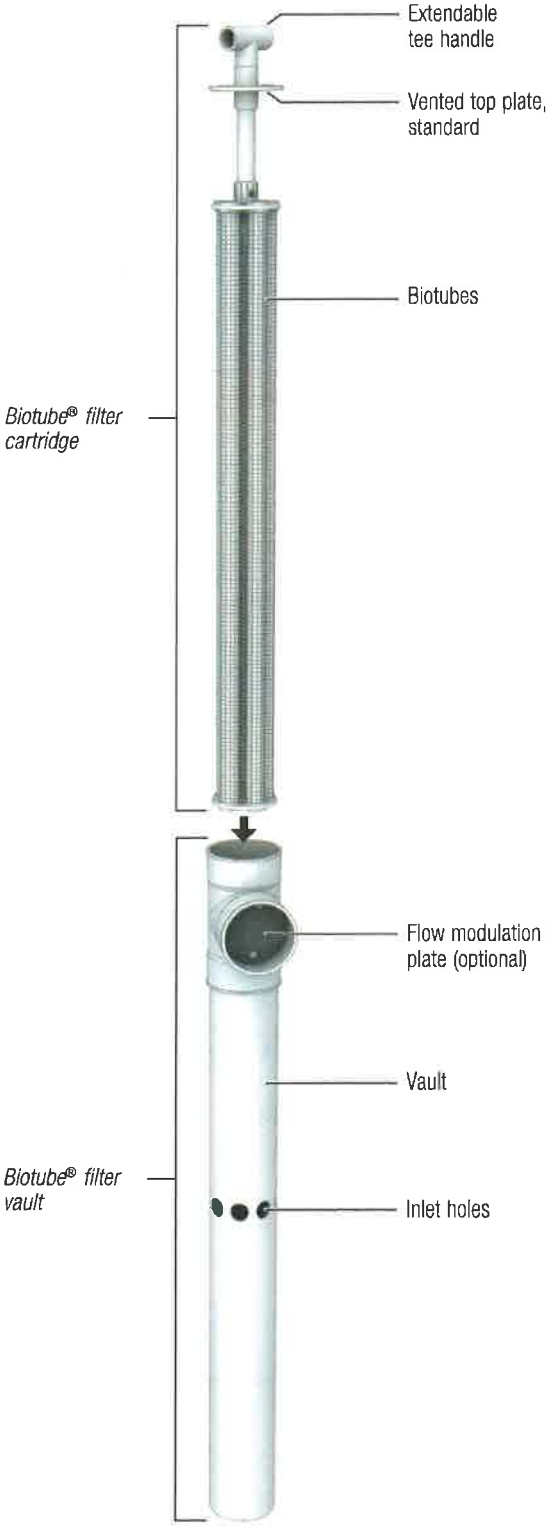


WHITTEN CONCRETE CO.
2703 W. 2nd AVE.
PINE BLUFF, AR. 71601
PHONE: 870-534-6901
FAX: 870-534-6902

1000 – Gallon Single Compartment Septic Tank
Drawing #: DZ-2
Drawing by: SMR **Date: 1/19/2011**

Orenco SYSTEMS Technical Data Sheet

4-in. (100-mm) Biotube® Effluent Filters



Applications

Orenco® 4-inch Biotube® Effluent Filters are designed to remove solids from effluent leaving residential septic tanks. They can be used in new and existing tanks at flows of up to 1200 gpd.

General

Orenco 4-inch Biotube Effluent Filters (U.S. Patents No. 4,439,323 and 5,492,635) are used to improve the quality of effluent exiting a septic tank in a residential septic system. Increased effluent quality improves system performance and extends drainfield life.

The Biotube cartridge fits tightly in the vault and is removable for maintenance. The tee handle can be extended for easy removal of the cartridge.

Standard Models

FTS0444-36, FTS0444-36M, FTW0436-28, FTW0436-28M
FTW0444-36, FTW0444-36M

Product Code Diagram

FT 04 36 28

FT ☐ ☐ **04** ☐ - ☐ - ☐

Flow modulator and float switch bracket options:
Blank = no options selected
M = flow modulation plate installed
A = float switch bracket installed

Cartridge height, in. (mm):
28 = 28 (711), standard
36 = 36 (914), standard

Filter housing height, in. (mm):
36 = 36 (914), standard
44 = 44 (1118), standard

4-in. (100-mm) filter diameter

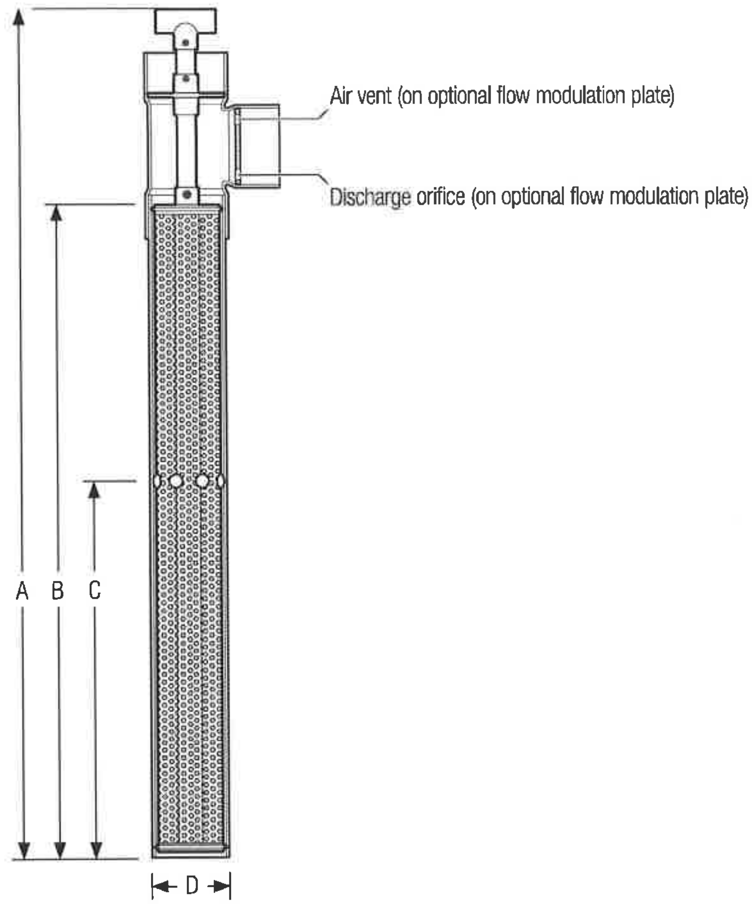
Outlet tee:
W = fits Type 3034 outlet tee
S = fits Schedule 40 outlet tee

Filter mesh option:
Blank = 1/8-in. (3-mm) filter mesh
P = 1/16-in. (1.6-mm) filter mesh

Biotube® effluent filter

Materials of Construction

Vault	PVC
Biotube® cartridge	Polypropylene and polyethylene
Handle components	PVC, polyethylene, stainless steel



Specifications

Model	FTS0444-36, FTW0444-36	FTS0436-28, FTW0436-28
A - Vault height, in. (mm)	44.00 (1118)	36.00 (914)
B - Cartridge height, in. (mm)	36.00 (915)	28.00 (710)
C - Inlet hole height,* in. (mm)	21.25 (540)	19.25 (489)
D - Nominal diameter, in. (mm)	4.00 (100)	4.00 (100)
Number of inlet holes	8	8
Inlet hole diameter, in. (mm)	1.13 (29)	1.13 (29)
Discharge orifice diameter, in. (mm)	4.00 (100)	4.00 (100)
Discharge coupling diameter, in. (mm)	4.00 (100)	4.00 (100)
Filter surface area,† ft^2 (m^2)	5.1 (0.50)	3.9 (0.40)
Flow area,** ft^2 (m^2)	1.5 (0.15)	1.2 (0.12)
Flow Modulation Plate (Optional)		
Number of discharge orifices	2	
Discharge orifice diameter, in. (mm)	0.50 (12.7)	
Number of air vents	1	
Air vent diameter, in. (mm)	0.50 (13)	

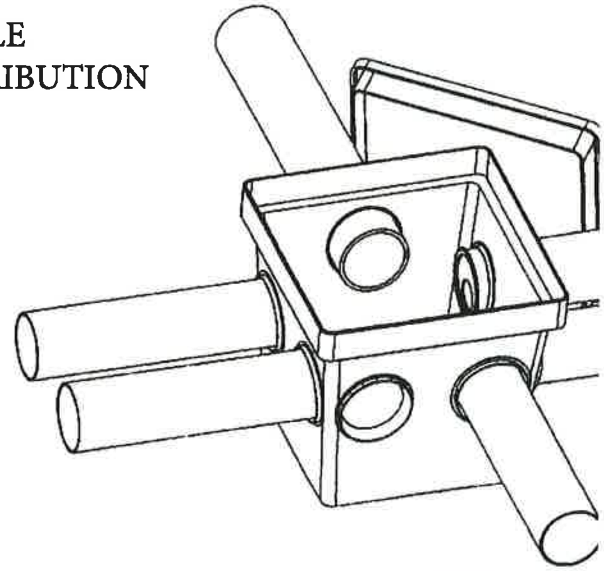
* *Inlet hole height can vary depending on the configuration of the tank. Optimum hole height is 70% of the minimum liquid level.*

† *Filter area is defined as the total surface area of all individual Biotubes® within the filter cartridge.*

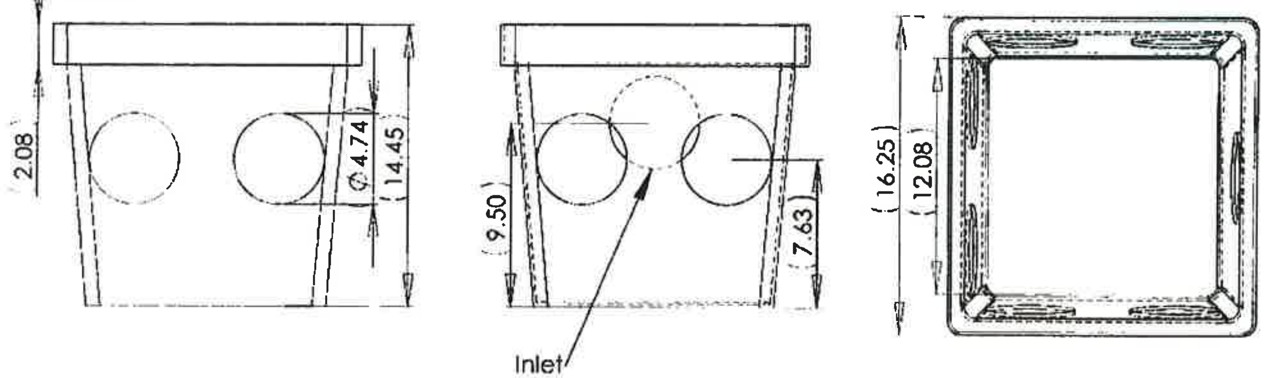
** *Flow area is defined as the total open area (or area of the mesh openings) of all the individual Biotubes within the filter cartridge.*

TUF-TITE

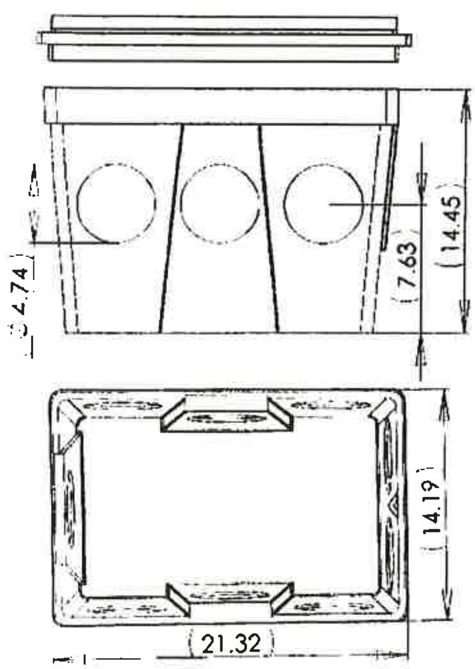
7-HOLE DISTRIBUTION BOX



7HD2

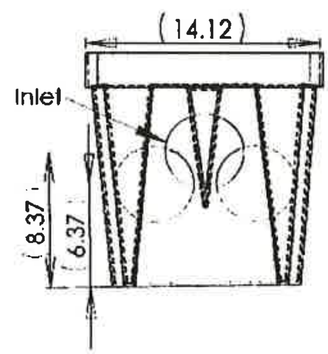


9HD2



Materials:

Injection molded high density polyethylene plastic



Quick4™ CHAMBER SYSTEMS

INFILTRATOR® water technologies

The Quick4® Equalizer 24 Chamber

Quick4® Series

The Quick4® Equalizer 24 Chamber fits in a 18□ wide trench and is ideal for curved or straight systems. It features the patent-pending Contour Swivel Connection□ which permits turns up to 15°, right or left. The MultiPort□ endcap allows multiple piping options and eliminates pipe fittings. The chamber□s four-foot length provides optimal installation flexibility.

Chamber Benefits:

- Advanced contouring connections swivel up to 15°, right or left
- Reinforced ribs provide increased structural capability and durability
- Compact nesting provides more trench length in an equivalent stack height
- Four-foot chambers are easy to handle and install
- The Quick4 Equalizer 24 Chamber supports wheel loads of 16,000 lbs/axle with only 12□ of cover
- Certified by the International Association of Plumbing and Mechanical Officials (IAPMO)

MultiPort Endcap Benefits:

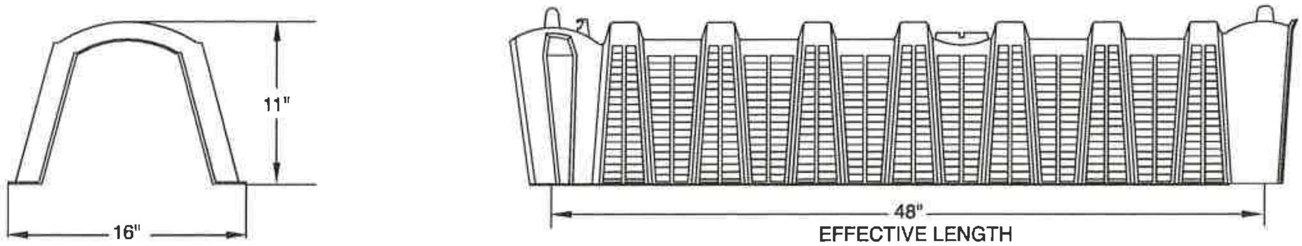
- Tear-out seals on inlet ports provide a tight fit to the pipe
- Six molded-in inlets/outlets allow for maximum piping flexibility
- Fits on either end of the Quick4 Equalizer 24 Chamber

APPROVED in ______________________________

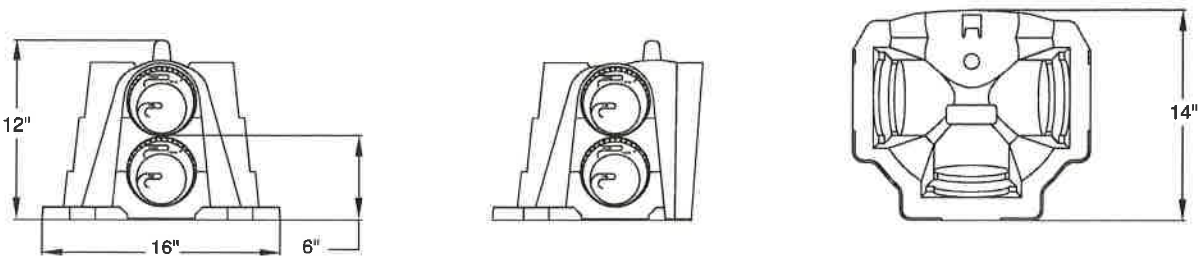
Quick4® Series

Because installations are faster with Quick4 chambers, you save on heavy equipment operation and labor.

Quick4 Equalizer 24 Chamber

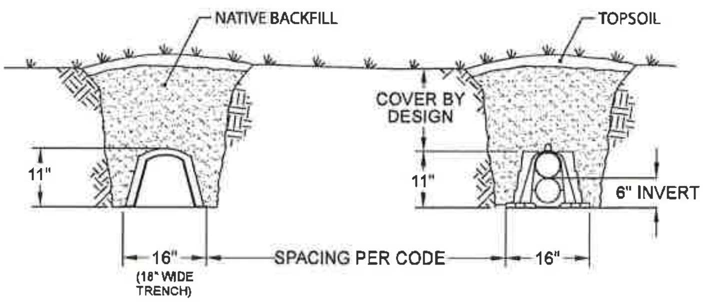


MultiPort EndCap



FRONT VIEW SIDE VIEW TOP VIEW

Typical Trench View



Quick4® Equalizer 24 Chamber Specifications	
Size	16"W x 53"L x 11"H (406 mm x 1346 mm x 279 mm)
Effective Length	48" (1219 mm)
Louver Height	9.10" (231 mm)
Storage Capacity	21 gal (79 L)
Invert Height	6" (152 mm)

INFILTRATOR WATER TECHNOLOGIES STANDARD LIMITED WARRANTY

(a) The structural integrity of each chamber, endcap and other accessory manufactured by Infiltrator ("Units"), when installed and operated in a leachfield of an onsite septic system in accordance with Infiltrator's instructions, is warranted to the original purchaser ("Holder") against defective materials and workmanship for one year from the date that the septic permit is issued for the septic system containing the Units; provided, however, that if a septic permit is not required by applicable law, the warranty period will begin upon the date that installation of the septic system commences. To exercise its warranty rights, Holder must notify Infiltrator in writing at its Corporate Headquarters in Old Saybrook, Connecticut within fifteen (15) days of the alleged defect. Infiltrator will supply replacement Units for Units determined by Infiltrator to be covered by this Limited Warranty. Infiltrator's liability specifically excludes the cost of removal and/or installation of the Units.

(b) THE LIMITED WARRANTY AND REMEDIES IN SUBPARAGRAPH (a) ARE EXCLUSIVE. THERE ARE NO OTHER WARRANTIES WITH RESPECT TO THE UNITS, INCLUDING NO IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE

(c) This Limited Warranty shall be void if any part of the chamber system is manufactured by anyone other than Infiltrator. The Limited Warranty does not extend to incidental, consequential, special or indirect damages. Infiltrator shall not be liable for penalties or liquidated damages, including loss of production and profits, labor and materials, overhead costs, or other losses or expenses incurred by the Holder or any third party. Specifically excluded from Limited Warranty coverage are damage to the Units due to ordinary wear and tear, alteration, accident, misuse, abuse or neglect of the Units; the Units being subjected to vehicle traffic or other conditions which are not permitted by the installation instructions; failure to maintain the minimum ground covers set forth in the installation instructions; the placement of improper materials into the system containing the Units; failure of the Units or the septic system due to improper siting or improper sizing, excessive water usage, improper grease disposal, or improper operation; or any other event not caused by Infiltrator. This Limited Warranty shall be void if the Holder fails to comply with all of the terms set forth in this Limited Warranty. Further, in no event shall Infiltrator be responsible for any loss or damage to the Holder, the Units, or any third party resulting from installation or shipment, or from any product liability claims of Holder or any third party. For this Limited Warranty to apply, the Units must be installed in accordance with all site conditions required by state and local codes; all other applicable laws; and Infiltrator's installation instructions.

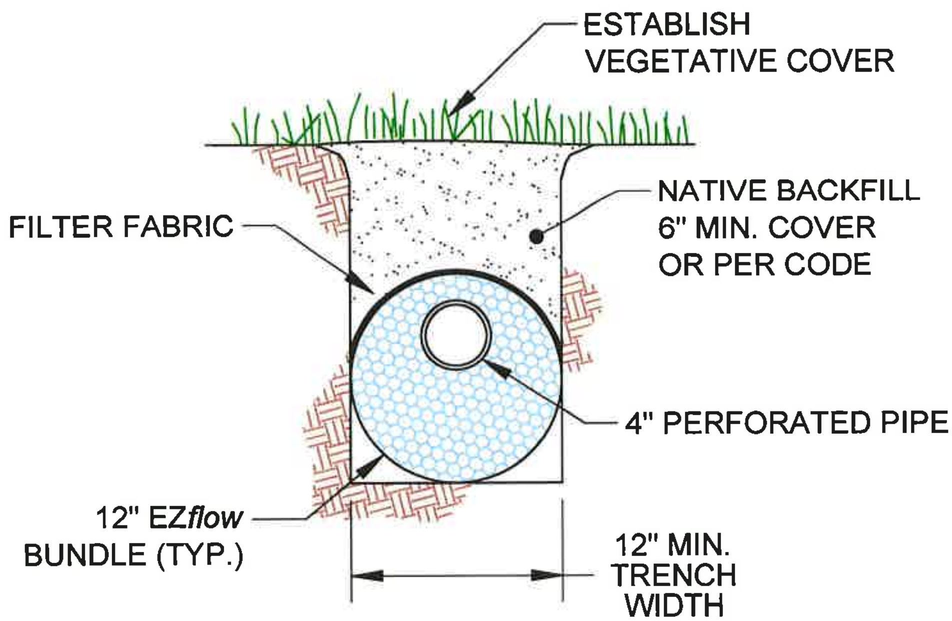
(d) No representative of Infiltrator has the authority to change or extend this Limited Warranty. No warranty applies to any party other than the original Holder.

The above represents the Standard Limited Warranty offered by Infiltrator. A limited number of states and counties have different warranty requirements. Any purchaser of Units should contact Infiltrator's Corporate Headquarters in Old Saybrook, Connecticut, prior to such purchase, to obtain a copy of the applicable warranty, and should carefully read that warranty prior to the purchase of Units.

INFILTRATOR water technologies

4 Business Park Road
P.O. Box 768
Old Saybrook, CT 06475
860-577-7000 · Fax 860-577-7001
1-800-221-4436
www.infiltratorwater.com

EZflow 1201P - GEO



NOTE:
PRODUCT CONFIGURATION AND INSTALLATION DEPTH MUST COMPLY WITH APPLICABLE REGULATORY REQUIREMENTS.

EZflow by INFILTRATOR

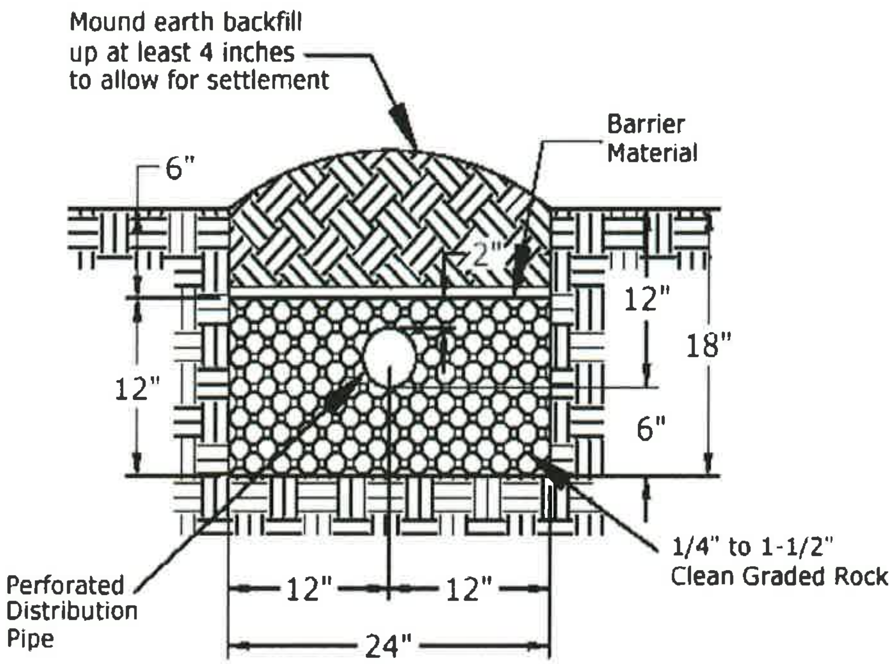
INFILTRATOR SYSTEMS INC.
4 Business Park Rd. Old Saybrook, CT 06475
(800) 221-4436

EZflow 1201P - GEO

Drawn by: EMB		Date: 08/07/2013	
Scale: NOT TO SCALE	Checked by: DFH	Sheet: 1 of 1	

Q:TECHNICAL RESOURCES NEW/PRODUCTS/EZ Flow/1201P - GEO fig. 9

Lateral Line Trench Detail



18" Trench Depth

bing maps

A Saline County Health Department
B 500 Glenn Hill Dr, Alexander, AR 72002-8583, United States

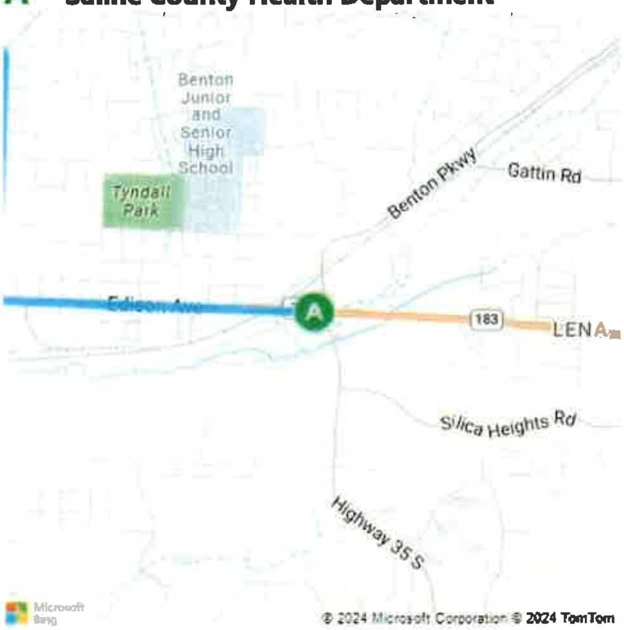
21 min , 11.8 miles
Light traffic
Via I-30 E, Springhill Rd
· Unpaved roads

A Saline County Health Department

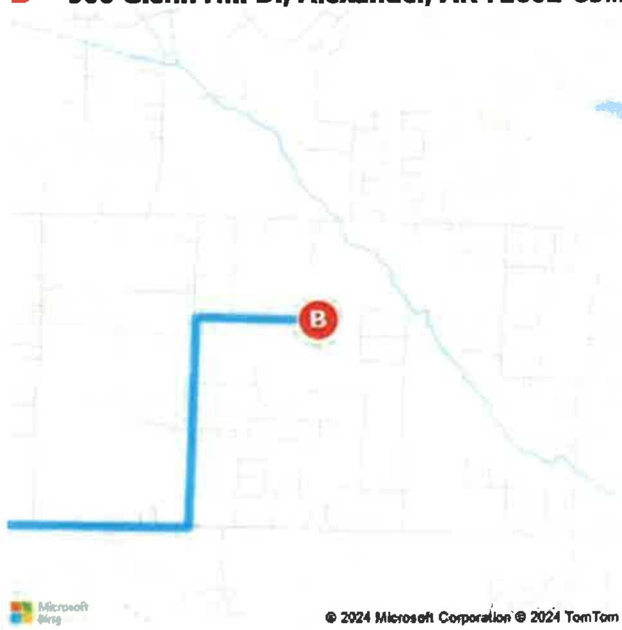
	1.	Head **west** on **AR-35 / Edison Ave** toward S Cox St	2.2 mi
5	2.	Take the ramp for **AR-5 / Interstate 30 S** and head toward **Little Rock**	0.4 mi
30	3.	Take the ramp on the **left** and follow signs for **US-67 North / I-30 East / US-70 East**	3.2 mi
	4.	At Exit **121**, head **right** on the ramp for **Interstate 30 S** toward **Alcoa Rd**	1.3 mi
	5.	Turn **right** onto **Springhill Road Crossover**	0.6 mi
	6.	Turn **left** onto **Springhill Rd**	2.1 mi
	7.	Turn **right** onto **Hilltop Rd**	1.0 mi
	8.	Turn **left** onto **Lombard Rd**	0.7 mi
	9.	Turn **right** onto **Glenn Hill Dr** • *Unpaved Road*	0.4 mi
	10.	Arrive at **Glenn Hill Dr** The last intersection before your destination is Hooks Cove	

B 500 Glenn Hill Dr, Alexander, AR 72002-8583, United States

A Saline County Health Department



B 500 Glenn Hill Dr, Alexander, AR 72002-85...



HOPE
CONSULTING
ENGINEERS - SURVEYORS

July 12, 2024

Colton Leonard
City of Bryant
210 Southwest Third St.,
Bryant, AR 72022

RE: Glenn Hills Estates (Hope Job# 24-0604)

Dear Colton:

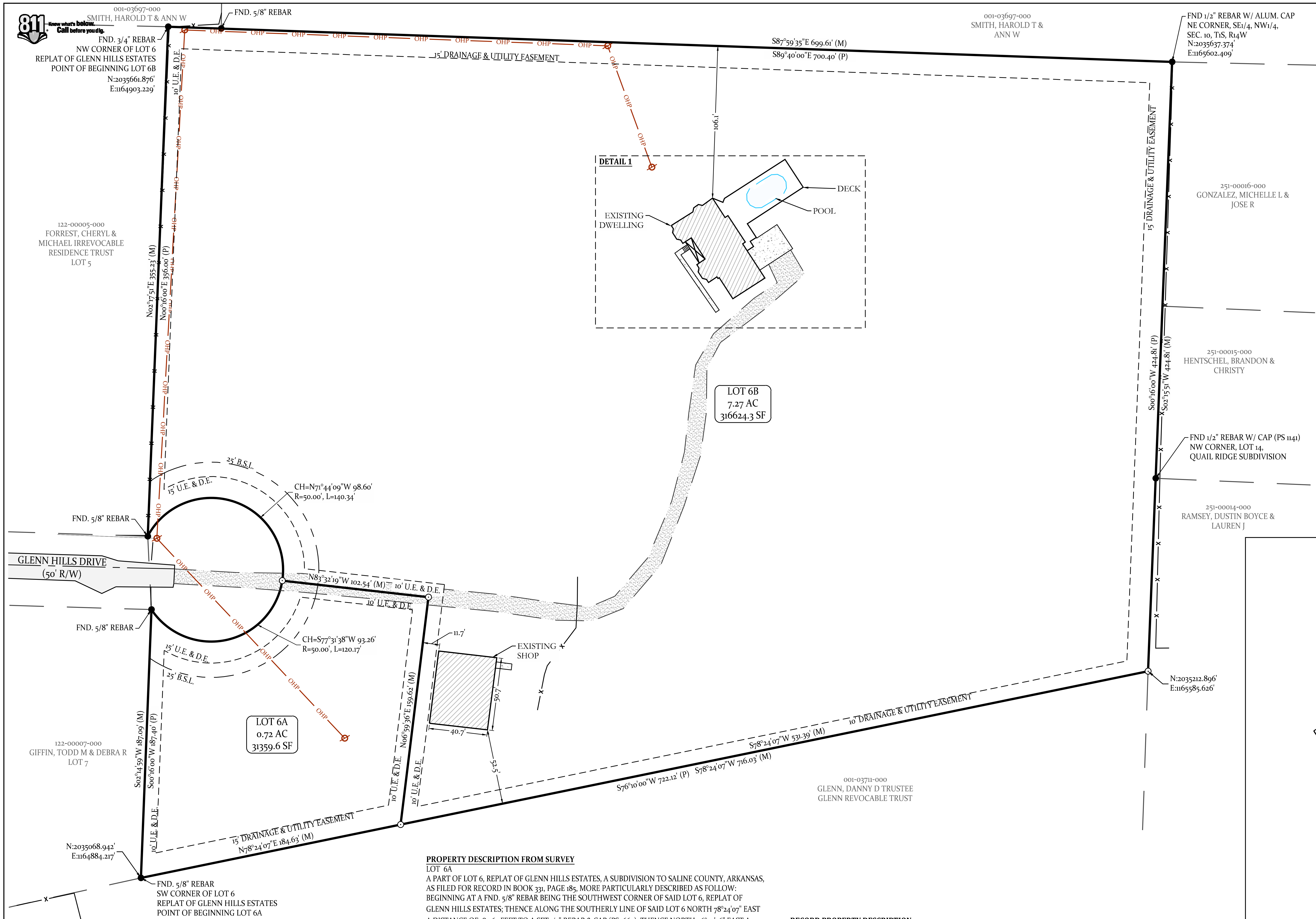
On behalf of the property owner, Daniel Garver, we are formally requesting that the City of Bryant start the review process for the Replat of Lot 6A and Lot 6B of Glenn Hills Estates.

This property is currently zoned R-2. The utilities servicing this property will be Bryant for Sewer/Water, and First Electric will service the power.

Please feel free to contact me with any questions or concerns or if I can be of any further assistance.

Sincerely,

Jonathan Hope



CERTIFICATE OF OWNER:

We, the undersigned, owners of the real estate shown and described herein do hereby certify that we have caused to be laid off, platted and subdivided, and to hereby lay off, plat and subdivide said real estate in accordance with the plat.

Date of Execution ______ Name: ______

Source of Title: DEED BOOK 381, PAGE 511

CERTIFICATE OF FINAL SURVEYING ACCURACY:

I, William Corbitt R. Shoffner, hereby certify that this plat correctly represents a survey and a plan made by me or under my supervision; that all monuments shown hereon actually exist and their location, size, type and material are correctly shown; and that all interior lot lines have been adjusted to "as built conditions" and are accurately defined on the plat and identified on the ground in terms of length and direction of the property sides as required in accord with the Saline County Subdivision Regulations Ordinance.

Date of Execution

William Corbitt R. Shoffner
Registered Professional
Land Surveyor No. 1664 Arkansas

CERTIFICATE OF AUTHORIZATION
HOPE CONSULTING, INC.
No. 1931
ARKANSAS

REGISTERED
STATE OF ARKANSAS
No. 1664
SIGNATURE
WILLIAM CORBITT R. SHOFFNER
PROFESSIONAL LAND SURVEYOR

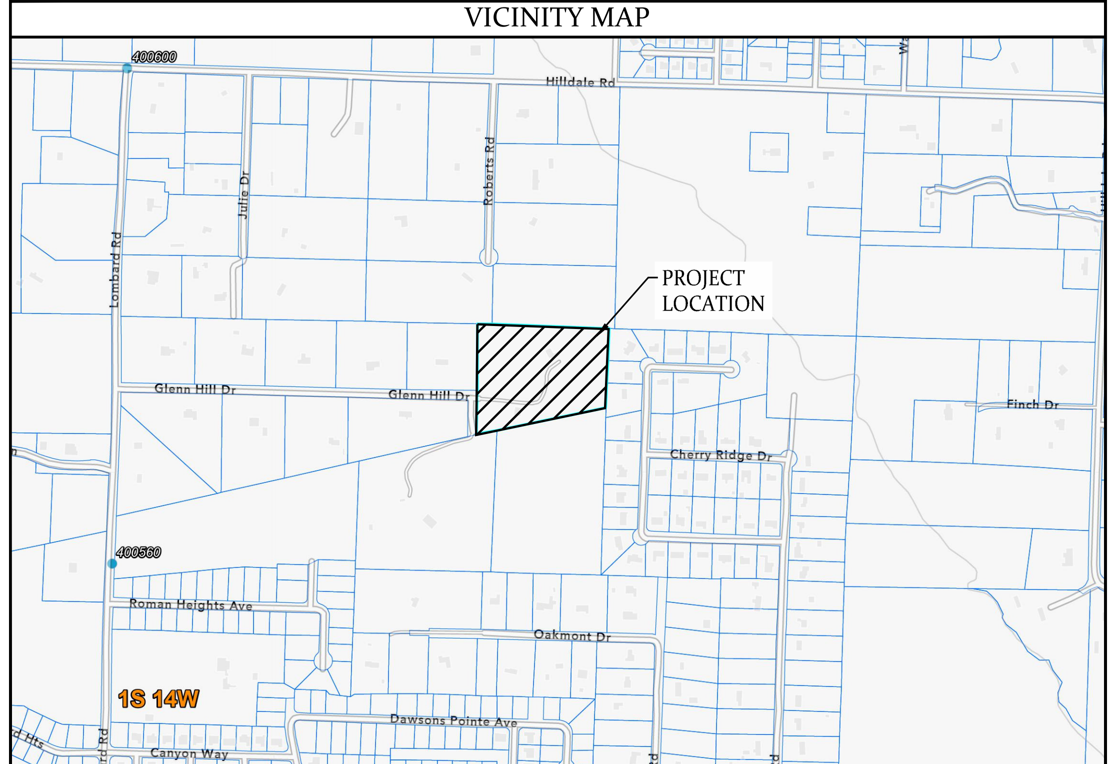
CERTIFICATE OF FINAL PLAT APPROVAL:

Pursuant to the Saline County Subdivision Rules and Regulations, and all of the conditions of approval having been completed, this document is hereby accepted. This certificate is hereby executed under the authority of said rules and regulations.

Date of Execution

Kevin Barham
Chairman, Saline County Planning Board

VICINITY MAP



PROPERTY DESCRIPTION FROM SURVEY

LOT 6A

A PART OF LOT 6, REPLAT OF GLENN HILLS ESTATES, A SUBDIVISION TO SALINE COUNTY, ARKANSAS, AS FILED FOR RECORD IN BOOK 331, PAGE 185, MORE PARTICULARLY DESCRIBED AS FOLLOW: BEGINNING AT A FND. 5/8" REBAR BEING THE SOUTHWEST CORNER OF SAID LOT 6, REPLAT OF GLENN HILLS ESTATES; THENCE ALONG THE SOUTHERLY LINE OF SAID LOT 6 NORTH 78°24'07" EAST A DISTANCE OF 184.63 FEET TO A SET 1/2" REBAR & CAP (PS 1664); THENCE NORTH 06°59'36" EAST A DISTANCE OF 159.62 FEET TO A SET 1/2" REBAR & CAP (PS 1664); THENCE NORTH 83°32'19" WEST A DISTANCE OF 102.54 FEET TO A SET 1/2" REBAR & CAP (PS 1664) AND THE POINT OF CURVATURE OF A CURVE TO THE RIGHT, HAVING A RADIUS OF 50.00 FEET, A CHORD BEARING OF SOUTH 77°31'38" WEST, AND A CHORD DISTANCE OF 93.26 FEET; THENCE ALONG THE ARC OF SAID CURVE A DISTANCE OF 120.17 FEET TO A FND. 5/8" REBAR ON THE WESTERLY LINE OF SAID LOT 6; THENCE SOUTH 02°14'59" WEST A DISTANCE OF 187.09 FEET TO THE POINT OF BEGINNING; CONTAINING 31,359.6 SQUARE FEET, OR 0.72 ACRES, MORE OR LESS.

LOT 6B

A PART OF LOT 6, REPLAT OF GLENN HILLS ESTATES, A SUBDIVISION TO SALINE COUNTY, ARKANSAS, AS FILED FOR RECORD IN BOOK 331, PAGE 185, MORE PARTICULARLY DESCRIBED AS FOLLOW: BEGINNING AT A FOUND 3/4" REBAR BEING THE NORTHWEST CORNER OF SAID LOT 6, REPLAT OF GLENN HILLS ESTATES; THENCE SOUTH 87°59'35" EAST A DISTANCE OF 699.61 FEET TO A FOUND 1/2" REBAR WITH AN ALUMINUM CAP, BEING THE NORTHEAST CORNER OF THE SOUTHEAST ¼ OF THE NORTHWEST ¼ OF SECTION 10, TOWNSHIP 1 SOUTH, RANGE 14 WEST AND ALSO THE NORTHEAST CORNER OF SAID LOT 6; THENCE SOUTH 02°15'51" WEST A DISTANCE OF 424.81 FEET TO A SET 1/2" REBAR & CAP (PS 1664) AND THE SOUTHEAST CORNER OF SAID LOT 6; THENCE ALONG THE SOUTHERLY LINE OF SAID LOT 6 SOUTH 78°24'07" WEST A DISTANCE OF 531.39 FEET TO A SET 1/2" REBAR & CAP (PS 1664); THENCE LEAVING SAID SOUTHERLY LINE NORTH 06°59'36" EAST A DISTANCE OF 159.62 FEET TO A SET 1/2" REBAR & CAP (PS 1664); THENCE NORTH 83°32'19" WEST A DISTANCE OF 102.54 FEET TO A SET 1/2" REBAR & CAP (PS 1664) AND THE POINT OF CURVATURE OF A CURVE TO THE LEFT, HAVING A RADIUS OF 50.00 FEET, A CHORD BEARING OF NORTH 71°44'09" WEST, AND A CHORD DISTANCE OF 98.60 FEET; THENCE ALONG THE ARC OF SAID CURVE A DISTANCE OF 140.34 FEET TO A FND. 5/8" REBAR ON THE WESTERLY LINE OF SAID LOT 6; THENCE NORTH 02°17'51" EAST A DISTANCE OF 355.23 FEET TO THE POINT OF BEGINNING; CONTAINING 316,624.3 SQUARE FEET, OR 7.3 ACRES, MORE OR LESS.

RECORD PROPERTY DESCRIPTION

SALINE COUNTY INSTRUMENT DEED BOOK 381, PAGE 511

LOT 6, GLENN HILLS ESTATES, A SUBDIVISION TO SALINE COUNTY, ARKANSAS.

SURVEY DETAILS AND NOTES

OWNER OF RECORD:	AUTH, KEVIN A & TERESA J
PHYSICAL ADDRESS:	500 GLENN HILL DR
COUNTY PARCEL TAX ID:	122-00006-000

ALL DIMENSIONS LISTED ARE AS MEASURED BY THIS SURVEYOR UNLESS OTHERWISE NOTED. FOR RECORD DIMENSIONS SEE DOCUMENTS OF RECORD.

OWNERSHIP INFORMATION, IF SHOWN, IS LISTED AS PUBLISHED BY THE LOCAL COUNTY TAX ASSESSOR AND IS LISTED FOR REFERENCE ONLY. NO STATEMENTS OF OWNERSHIP, RIGHTS, OR INTERESTS ARE MADE.

THIS SURVEY IS BASED ON PUBLIC RECORDS AND/OR TITLE INVESTIGATIONS FURNISHED BY THIRD PARTIES. NO INDEPENDENT SEARCH OR INVESTIGATION HAS BEEN MADE BY THIS FIRM FOR ANY RECORDS, PUBLIC OR PRIVATE. LISTED REFERENCE DOCUMENTS HEREON WERE USED AND CONSIDERED AS A PART OF THIS SURVEY; HOWEVER OTHER RECORDS, IF ANY, COULD FURTHER AFFECT THIS SURVEY. NO STATEMENT OR GUARANTEES OF OWNERSHIP, RIGHTS, OR OTHER INTERESTS ARE MADE BY THIS SURVEY PLAT.

FLOOD ZONE INFORMATION

NO PORTION OF THE PROPERTY DESCRIBED HEREON LIES WITHIN A SPECIAL FLOOD HAZARD AREA, ACCORDING TO THE FEMA FLOOD INSURANCE RATE MAP LISTED BELOW:
PANEL # 05125C0240E, DATED: 06/05/2020.

N

BASIS OF BEARINGS:
GRID NORTH, ARK SPCS
(NAD83), SOUTH ZONE (0302)

0 25' 50' 100'
SCALE: 1" = 50'

LEGEND

●	Found Monument
⊙	Set 1/2" Rebar #1664
△	Computed Point Location
(M)	Measured by Surveyor
(R/D/P)	Record/Deed/Plat Measurements
B.S.L.	Building Setback Line Restriction
U.E./D.E.	Utility/Drainage Easement
	Property Boundary Line
—x—	Fence Lines
	Centerlines
	Parcel Lines/Misc Lines

HOPE
CONSULTING
ENGINEERS - SURVEYORS
129 North Main Street
Benton, Arkansas 72015
Office: (501) 315-2626 | Fax: (501) 315-0024
www.HopeConsulting.com

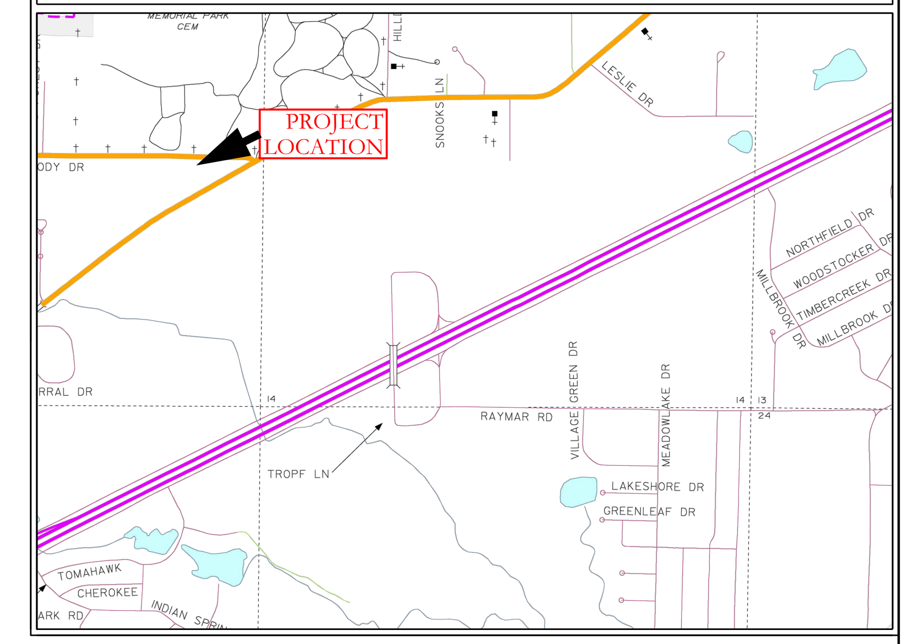
LOTS 6A AND 6B, A REPLAT OF LOT 6 OF THE REPLAT OF GLENN HILLS ESTATES, A SUBDIVISION TO SALINE COUNTY, ARKANSAS

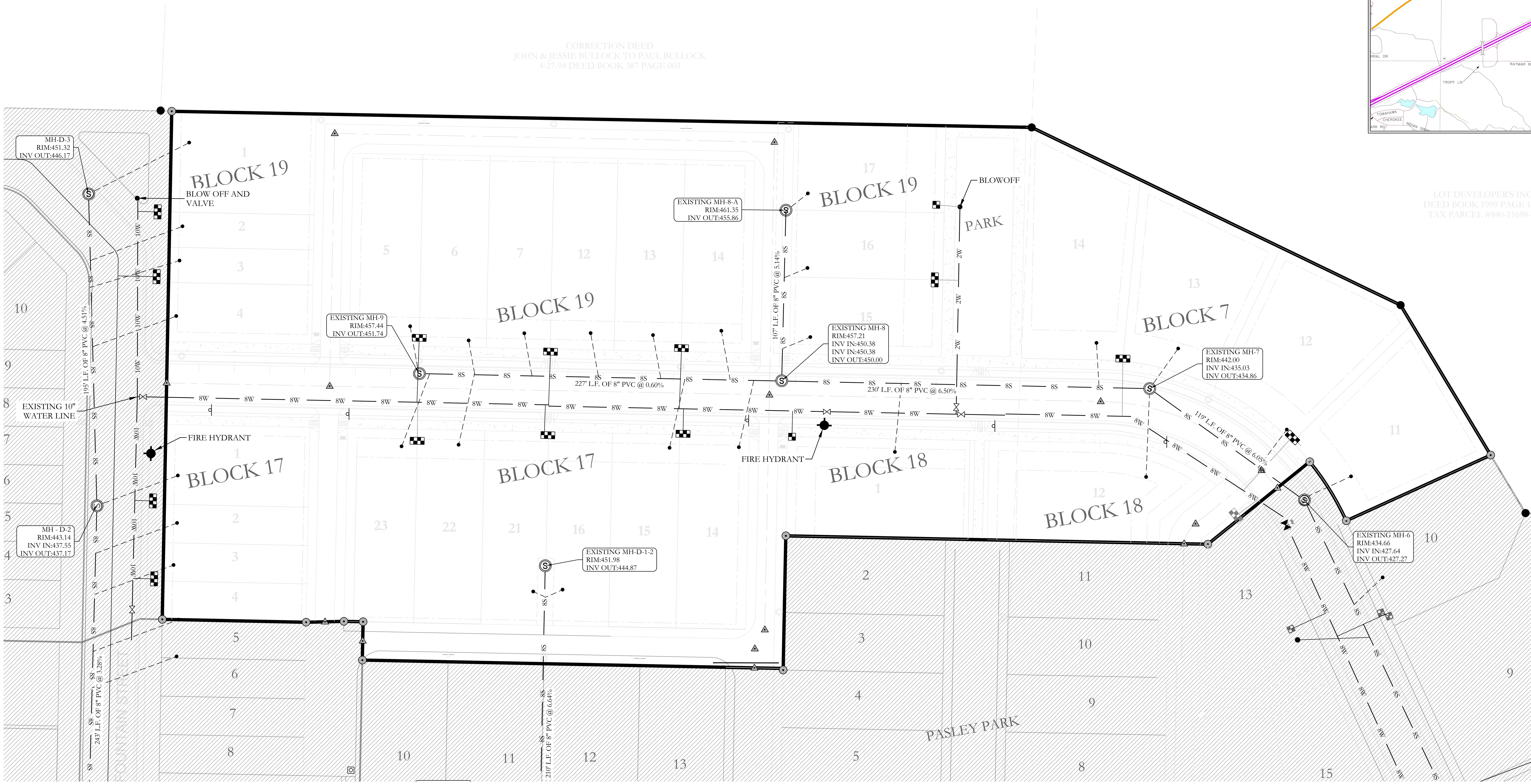
FOR USE AND BENEFIT OF:
DANIEL GARVER
500 GLENN HILL DR., ALEXANDER, ARKANSAS, 72002

DATE: 06/24/2024	CAD BY: OV	PROJECT NUMBER: 24-0604
REVISED:	CHECKED BY:	
SHEET: 1 OF 1	SCALE: 1" = 50'	

AR STATE LAND SURVEY FILING CODE: 500 - 01S - 14W - 0 - 10 - 420 - 62 - 1664

VICINITY MAP:





811 Know what's below. Call before you dig.

BASIS OF BEARING:
GRID NORTH, ARKANSAS
COORDINATE SYSTEM, SOUTH ZONE BY
GPS OBSERVATION

N

40 20 0 40

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 20876
TAMZIDUL ISLAM

CERTIFICATE OF AUTHORIZATION
HOPE CONSULTING, INC.
No. 1951
ARKANSAS

SEWER LEGEND:

SEWER SERVICE
SEWER MAIN
SEWER MANHOLE
SERVICE DETAIL

NOTE:
USE SDR-26 PVC SEWER PIPE EXCEPT WHERE DUCTILE IRON PIPE REQUIRED FOR COVER. USE DUCTILE IRON PIPE WHERE 3' MINIMUM COVE CANNOT BE MAINTAINED.
CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL BURIED UTILITIES PRIOR TO CONSTRUCTION.

WATER LEGEND:

- DUAL WATER METERS
- SINGLE WATER METER
- GATE VALVE
- 45º FITTING
- 90º FITTING
- TEE FITTING
- CROSS FITTING
- FH FIRE HYDRANT

HOPE CONSULTING
ENGINEERS - SURVEYORS

117 S. Market Street,
Benton, Arkansas 72015
PH. (501)315-2626
FAX (501) 315-0024
www.hopeconsulting.com

FOR USE AND BENEFIT OF:
GRAHAM SMITH CONSTRUCTION, LLC

MIDTOWN BRYANT, PHASE-3
SANITARY SEWER & WATER AS-BUILTS
BRYANT, SALINE COUNTY, ARKANSAS

DATE:	10-02-2024	C.A.D. BY:		DRAWING NUMBER:
REVISED:	11-06-2024	CHECKED BY:		07-0032
SHEET:		SCALE:		

K:\LAND PROJECTS 2004\SUBDIVISIONS\2007\07-0032 MIDTOWN BRYANT (AARON JONES)\DWG\AS BUILT\07-0032-MIDTOWN-PHASE-3-AS-BUILTS-09-30-24.DWG

NOTES:

1. ACCORDING TO TABLE 5 PUBLIC LIGHTING (PAGE 46) POST OR COLUMN LIGHT TYPES ARE ALLOWED.
2. LOT 11, 12, 13 & 14 WILL HAVE FRONT ACCESS FROM COURT STREET
3. ALL PRIVATE ALLEYWAYS WILL BE UTILIZED AS UTILITY & DRAINAGE EASEMENTS.
4. PRIVATE ALLEYS ARE COMMON AREAS THAT WILL BE MAINTAINED BY THE OWNER'S ASSOCIATION.
5. STREET TREES WILL REQUIRE A 40' 0.C. AVERAGE

TND OVERLAY - TRANS-SEC SETBACKS

BUILDING DISPOSITION	T3	T4	T5
FRONT SETBACKS (PRIMARY)	18 FT. MIN.	6 FT. MIN. 18 FT. MAX.	0 FT. MIN. 6 FT. MAX.
FRONT SETBACKS (SECONDARY)	12 FT. MIN.	6 FT. MIN. 18 FT. MAX.	0 FT. MIN. 6 FT. MAX.
SIDE SETBACKS	6 FT. MIN.	0 FT. TOTAL MIN.	0 FT. MIN. 24 FT. MAX.
REAR SETBACKS	6 FT. MIN.	3 FT. MIN.	3 FT. MIN.

Curve Table

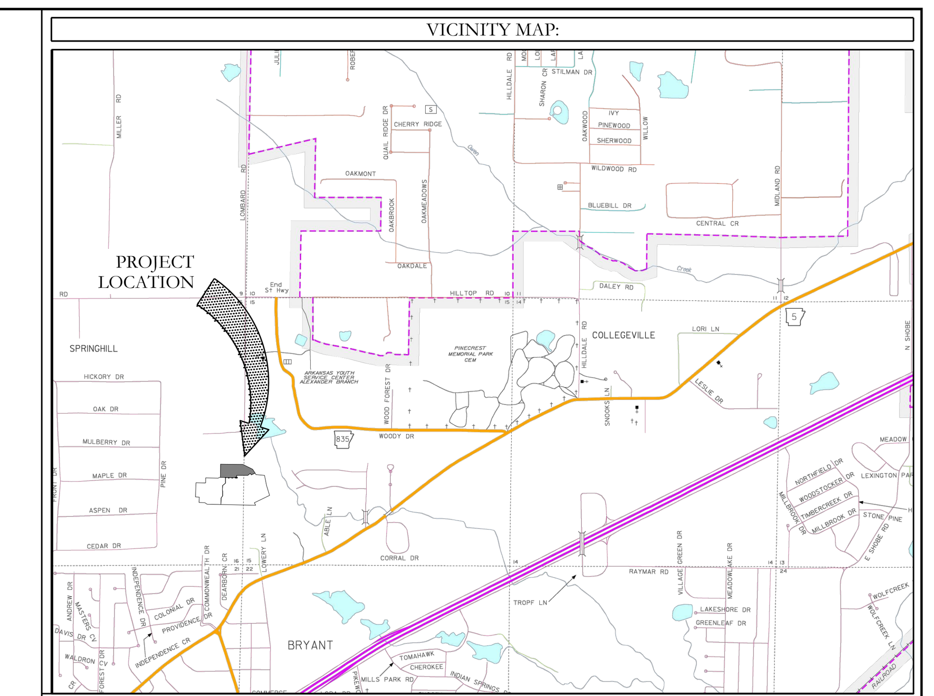
Curve #	Delta	Chord B & D	Arc Length	Arc Radius
C1	14°31'10"	N31°44'21"W 43.47'	43.59'	172.00'
C3	4°25'20"	N86°39'04"W 13.27'	13.28'	172.00'
C4	19°59'13"	N74°26'48"W 59.70'	60.00'	172.00'
C5	19°59'13"	N54°27'35"W 59.70'	60.00'	172.00'
C6	5°28'02"	N41°43'57"W 16.41'	16.41'	172.00'
C7	49°51'48"	N63°55'50"W 123.09'	127.06'	146.00'

PROPERTY DESCRIPTION:

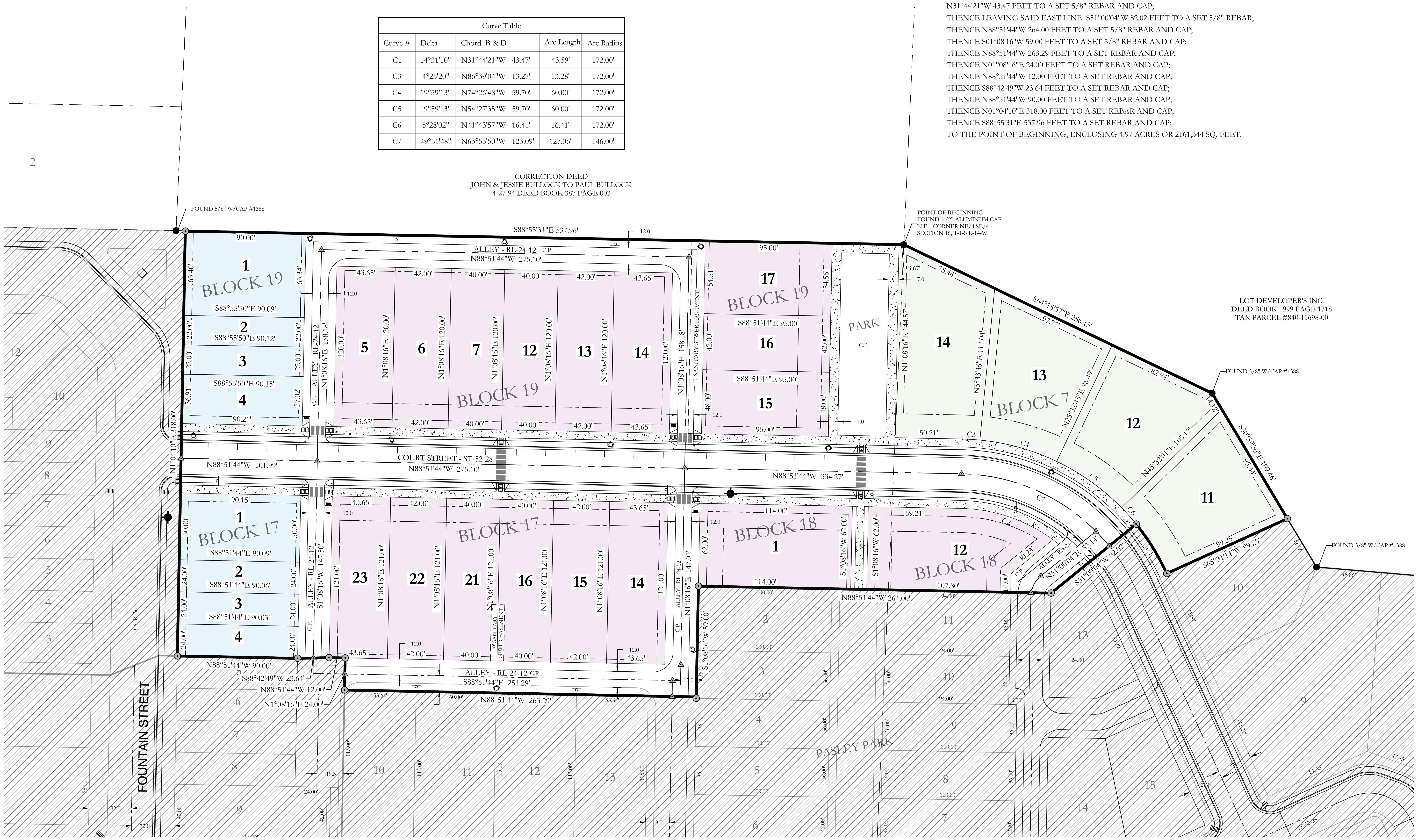
PART OF THE NORTHWEST QUARTER OF THE SOUTHWEST QUARTER (NW/4 SW/4) OF SECTION 15, AND PART OF THE NORTHEAST QUARTER OF THE SOUTHEAST QUARTER (NE/4 SE/4), OF SECTION 16; ALL BEING IN TOWNSHIP 1 SOUTH, RANGE 14 WEST, IN SALINE COUNTY, ARKANSAS, AND ALL BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHEAST CORNER OF THE NORTHEAST QUARTER OF THE SOUTHEAST QUARTER OF THE SAID SECTION 16, A FOUND 2 1/2" ALUMINUM CAP;
THENCE S64°15'57"E 256.15 FEET TO A FOUND 5/8" REBAR AND CAP;
THENCE S30°59'30"E 109.46 FEET TO A SET 5/8" REBAR AND CAP ON
THE NORTH LINE OF MIDTOWN BRYANT SUBDIVISION, PHASE 1;
THENCE S65°31'14"W 99.25 FEET TO A POINT ON THE EAST RIGHT OF WAY LINE OF COURT STREET;
THENCE ALONG A CURVE TO THE LEFT WITH A RADIUS OF 172.00 FEET AND LENGTH OF 43.59 FEET AND A CHORD OF N31°44'21"W 43.47 FEET TO A SET 5/8" REBAR AND CAP;
THENCE LEAVING SAID EAST LINE S51°00'04"W 82.02 FEET TO A SET 5/8" REBAR;
THENCE N88°51'44"W 264.00 FEET TO A SET 5/8" REBAR AND CAP;
THENCE S01°08'16"W 59.00 FEET TO A SET 5/8" REBAR AND CAP;
THENCE N88°51'44"W 263.29 FEET TO A SET REBAR AND CAP;
THENCE N01°08'16"E 24.00 FEET TO A SET REBAR AND CAP;
THENCE N88°51'44"W 12.00 FEET TO A SET REBAR AND CAP;
THENCE S88°42'49"W 23.64 FEET TO A SET REBAR AND CAP;
THENCE N88°51'44"W 90.00 FEET TO A SET REBAR AND CAP;
THENCE N01°04'10"E 318.00 FEET TO A SET REBAR AND CAP;
THENCE S88°55'31"E 537.96 FEET TO A SET REBAR AND CAP;
TO THE POINT OF BEGINNING, ENCLOSING 4.97 ACRES OR 2161,344 SQ. FEET.

VICINITY MAP:



CORRECTION DEED
JOHN & JESSIE BULLOCK TO PAUL BULLOCK
4-27-94 DEED BOOK 387 PAGE 003



CERTIFICATIONS:

OWNER:
Name: GRAHAM SMITH CONSTRUCTION
Address: 12 PINE MANOR
LITTLE ROCK, AR 72207

DEVELOPER:
Name: GRAHAM SMITH CONSTRUCTION
Address: 12 PINE MANOR
LITTLE ROCK, AR 72207

CERTIFICATE OF OWNER:

We, the undersigned, owners of the real estate shown and described herein do hereby certify that we have caused to be laid off, platted and subdivided, and to hereby lay off, plat and subdivide said real estate in accordance with the plat.

Date of Execution ____________ Name: ____________

Address: ____________

Source of Tile: BOOK ____ PAGE ____

CERTIFICATE OF FINAL SURVEYING ACCURACY:

I, Jonathan L. Hope, hereby certify that this plat correctly represents a survey and a plan made by me or under my supervision; that all monuments shown hereon actually exist and their location, size, type and material are correctly shown; and that all interior lot lines have been adjusted to "as built conditions" and are accurately described on the plat and identified on the ground in terms of length and direction of the property side as required in accord with the City of Bryant Subdivision Regulation Ordinance.

Date of Execution

Jonathan L. Hope
Registered Professional
Land Surveyor No. 1762 Arkansas

CERTIFICATE OF FINAL ENGINEERING ACCURACY:

I, Kazi Tamzidul Islam, hereby certify that this plat correctly represents a plat made by me, and that the engineering requirements of the City of Bryant Subdivision Rules and Regulations have been complied with.

Date of Execution

Kazi Tamzidul Islam
Registered Professional
Engineer, No. 20876 Arkansas

CERTIFICATE OF FINAL PLAT APPROVAL:

Pursuant to the City of Bryant Subdivision Rules and Regulations, and all of the conditions of approval having been completed, this document is hereby accepted. This certificate is hereby executed under the authority of said rules and regulations.

Date of Execution

Chairman
Bryant Planning Commission

PROPERTY SPECIFICATIONS:

OWNER: GRAHAM SMITH CONSTRUCTION
12 PINE MANOR
LITTLE ROCK, AR 72207

DEVELOPER/: SUBDIVIDER GRAHAM SMITH CONSTRUCTION
12 PINE MANOR
LITTLE ROCK, AR 72207

ENGINEERS: HOPE CONSULTING INC.
117 S MARKET STREET
BENTON, AR 72015

NAME OF SUBDIVISION: MIDTOWN BRYANT PHASE 3

ZONING CLASSIFICATION: TND OVERLAY DISTRICT

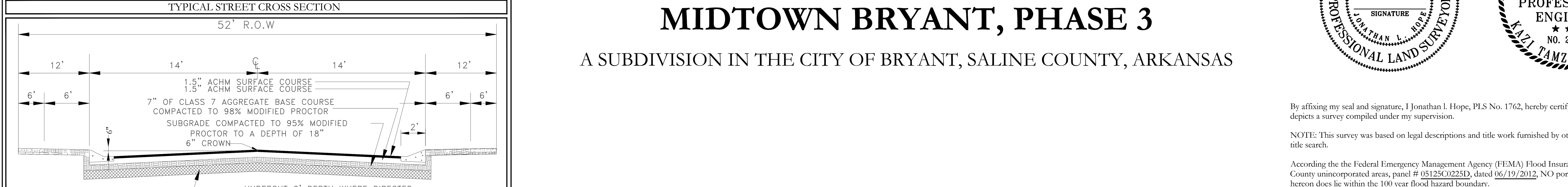
SOURCE OF TITLE: BOOK 2020 PAGE 8135

NUMBER OF LOTS: 29
SOURCE OF WATER: CITY OF BRYANT
SOURCE OF SEWER: CITY OF BRYANT

EASEMENTS: (UTILITY & DRAINAGE)

1. ALL ALLEYWAYS & COMMERCIAL PARKING LOTS ARE CONSIDERED UTILITY & DRAINAGE EASEMENTS.
2. ANY UTILITY OR DRAINAGE STRUCTURES OUTSIDE OF EXISTING R/W; ALLEYWAY OR PARKING LOT WILL BE WITHIN A 10' EASEMENT.

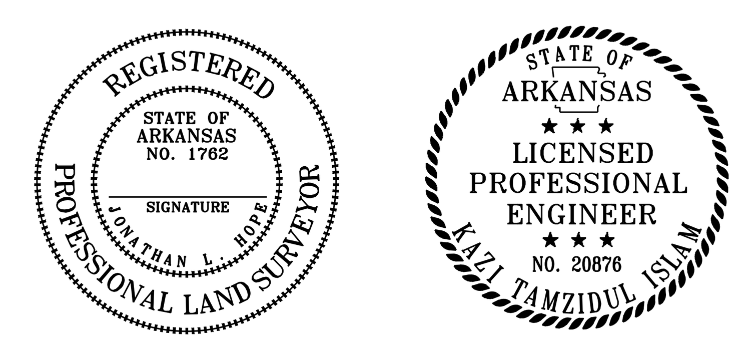
TYPICAL STREET CROSS SECTION



FINAL PLAT OF

MIDTOWN BRYANT, PHASE 3

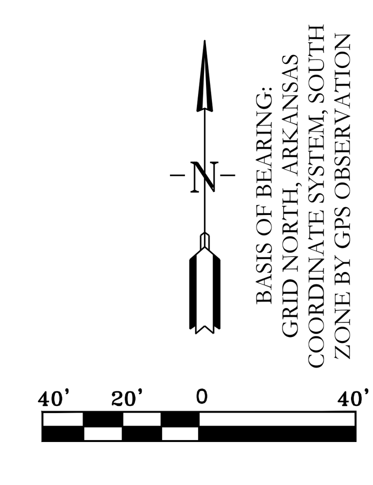
A SUBDIVISION IN THE CITY OF BRYANT, SALINE COUNTY, ARKANSAS



By affixing my seal and signature, I Jonathan l. Hope, PLS No. 1762, hereby certify that this drawing correctly depicts a survey compiled under my supervision.

NOTE: This survey was based on legal descriptions and title work furnished by others and does not represent a title search.

According the the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for Saline County unincorporated areas, panel # 05125C0225D, dated 06/19/2012, NO portion of the property described hereon does lie within the 100 year flood hazard boundary.



LEGEND
- Computed point
- Found monument
- Set #4 RB/Plas. Cap(SIP)
(M) - Measured
(R) - Record
(P) - Platted
- Street Light
- Fire Hydrant
- No Parking Sign
- Stop Sign
C.P. - Common Place

HOPE CONSULTING
ENGINEERS - SURVEYORS
129 N. Main Street,
Benton, Arkansas 72015
PH. (501)315-2626
FAX (501) 315-0024
www.hopeconsulting.com

FOR USE AND BENEFIT OF:
GRAHAM SMITH CONSTRUCTION

FINAL PLAT
MIDTOWN BRYANT, PHASE 3
A SUBDIVISION IN THE CITY OF BRYANT, SALINE COUNTY. ARKANSAS.

DATE:	09-20-2024	C.A.D. BY: B.JOHNSON	DRAWING NUMBER:
REVISED:	11-06-2024	CHECKED BY:	07-0032
		SCALE: 1"=40'	

500	1S	14W	0	15/16	210/340	62	1762

First Electric
Cooperative Corporation

P.O. Box 5018
Jacksonville, Arkansas 72078-5018
(501) 982-4545 • (800) 489-7405

October 16, 2024

Mr. Troy Ellis
Bryant Public Works
210 SW Third Street
Bryant, Arkansas 72022

Re: Installation of electrical facilities for Midtown Bryant Phase Three

Dear Mr. Ellis

Installation of electrical facilities for the above referenced development should be complete within four weeks. The developer has paid all fees including installation of streetlights. This project is released to construction and will be scheduled as contractors become available.

Thank you for your patience while we work through our scheduling difficulties.

Sincerely

Randy Jones
Field Engineer

HOPE
CONSULTING

129 North Main Street, Benton, Arkansas 72015
(t) 501-315-2626 (e) www.HopeConsulting.com

September 25, 2024

Tim Fournier
Director of Public Works
210 SW 3rd St
Bryant, AR 72022

Re: Midtown Phase 3 Detailed Cost Estimate for Water/Sewer, Streets, and Storm water Bonds

Dear Tim,
Hope Consulting has reviewed the project with the owner and the cost associated costs with the Utility Construction, Street Construction, and Storm water Construction.

1. Streets (1 Year Bond: 25% of the Total Cost)
   - Total Street Costs on this project was $398,994.4
   - **Bond Cost $99,748.60**
2. Sewer (2 Year Bond: 50% of the Total Cost)
   - Total Utility Costs on this project was $27,620
   - **Bond Cost $$13,810.00**
3. Storm water (1 Year Bond: 100% of the Total Cost)
   - Total Storm water Costs on this project was $170,997.60
   - **Bond Cost $$170,997.60**

Please do not hesitate to contact us if you have any questions or require additional information.

Sincerely,

Jonathan Hope

HOPE CONSULTING
129 NORTH MAIN STREET, BENTON, ARKANSAS 72015
T: (501) 315-2626 E: WWW.HOPECONSULTING.COM

September 25, 2024

Colton Leonard
Colton Leonard
City of Bryant
210 Southwest Third St.,
Bryant, AR 72022

RE: Midtown Phase 3 Final Plat Hope Job #22-0497

Dear Mr. Leonard:
Please find the attached Final Plat of Midtown Phase 3 for review. We are currently working through the construction numbers with the contractor finalizing the bond amounts for the roads and utilities. We should have those letters prepared for Ted Taylor to review soon.

Please feel free to contact me with any questions or concerns or if I can be of any further assistance.

Respectfully Submitted,

HOPE CONSULTING

Jonathan Hope

Jonathan Hope, PS
President

HOPE
CONSULTING

129 North Main Street, Benton, Arkansas 72015
(t) 501-315-2626 (e) www.HopeConsulting.com

October 18, 2024

Colton Leonard
City of Bryant
210 Southwest Third St., Bryant, AR 72022

RE: Cornerstone Montessori School (Parcel # 840-06480-002)

Dear Mr. Leonard,

On behalf of our client, please accept this request letter for a waiver for a delay in the ½ street improvements and trail. At this time a temporary structure has been built in an effort to quickly continue operations of this school. In the future the school has plans to build a permanent school on this property. Our request would be to delay the ½ street improvements and trail construction until the permanent school is built.

Sincerely,

Jonathan Hope

Jonathan Hope
Hope Consulting, Inc
jonathan@hopeconsulting.com

Lemons Engineering Consultants, Inc.
204 West Cherry Street
Cabot, Arkansas 72023
(501) 605-7565
arstrep43@gmail.com

November 7, 2024

Mr. Colton Leonard, City Planner
City of Bryant, Arkansas
Community Development
210 SW 3rd Street
Bryant, Arkansas 72022

Re: Preliminary Plat – Letter to allow for cul de sac length and partial sidewalk waiver
3927 Springhill Road, Bryant, AR (Parcel # 840-11855-000)

Dear Mr. Leonard:

Please accept this letter as a follow up to our conversation of earlier today, as well as the email sent from your office with regards to the subject development. I will address the comments in the order expressed in said email:

- The typical street section (local street) as shown on the Preliminary Plat was obtained from the City code as found on the City's website. No additional revisions needed.
- Please accept this letter as a formal request allowing this development to have a cul de sac that exceeds the maximum 550 foot length. <u>We feel our hardship lies in the fact that this property is very narrow in size, only one street is obtainable. Also, the properties to the North, West and South are developed making a connection to an existing street impossible</u>. We are providing not only a cul-de-sac at the end of the street, but also a hammerhead approximately at the half way point of the proposed street.
- Please accept this letter as a formal request to waive sidewalks on the North side of the proposed street<u>. The hardship behind this request is again the narrowness of the subject property. Due to the strange size of this parent tract, residential lots will be placed on only one side of the proposed street.</u> We ask that the sidewalks be waived on the North side since no homes will be developed on that side. We will still provide sidewalks on the side of the street that will contain residences (South side).

We look forward to presenting this at the November Planning Commission meeting.

Sincerely,

Tim Lemons, PE

DETAILED PLANS:

HILLCREST ADDITION

PART OF SECTION 12, T-4-N, R-10-W
CITY OF BRYANT, SALINE COUNTY, ARKANSAS

JULY 9, 2024
REVISED: OCTOBER 24, 2024

PREPARED FOR:

SPRINGHILL HWY 5 DEVELOPMENT, LLC
816 E. OAK STREET
CONWAY, ARKANSAS 72032

Arkansas 811
Know what's below.
Call before you dig.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7373
TIMOTHY B. LEMONS

Prepared By:

LEMONS ENGINEERING CONSULTANTS, INC.
204 CHERRY STREET
CABOT, ARKANSAS 72023

ENGINEERING • SURVEYING • PLANNING

INDEX OF SHEETS

CERTIFICATE OF ENGINEERING ACCURACY:

I, TIMOTHY B. LEMONS, HEREBY CERTIFY THAT THIS PLAT CORRECTLY REPRESENTS A PLAT MADE BY ME, OR UNDER MY SUPERVISION, AND THAT ENGINEERING REQUIREMENTS OF THE BRYANT SUBDIVISION RULES AND REGULATIONS HAVE BEEN COMPLIED WITH.

DATE

TIMOTHY B. LEMONS, REGISTERED PROFESSIONAL ENGINEER
NO. 7373, ARKANSAS

CERTIFICATE OF SURVEYING ACCURACY:

I, BILLY A. LAWRENCE, HEREBY CERTIFY THAT THIS PLAT CORRECTLY REPRESENTS A BOUNDARY SURVEY MADE BY ME AND ALL MONUMENTS SHOWN HEREON ACTUALLY EXIST AND THEIR LOCATION, SIZE, TYPE AND MATERIAL ARE CORRECTLY SHOWN.

DATE

BILLY A. LAWRENCE, ARKANSAS PROFESSIONAL SURVEYOR,
NO. 1552

CERTIFICATE OF PRELIMINARY PLAT APPROVAL:

ALL REQUIREMENTS OF THE BRYANT SUBDIVISION RULES AND REGULATIONS RELATIVE TO THE PREPARATION AND SUBMITTAL OF A PRELIMINARY PLAT HAVING BEEN FULFILLED, APPROVAL OF THIS DOCUMENT IS HEREBY GRANTED, SUBJECT TO FURTHER PROVISIONS OF SAID RULES AND REGULATIONS, THIS CERTIFICATE SHALL EXPIRE ____________
DATE

DATE OF EXECUTION

SIGNED: CHAIRMAN,
BRYANT PLANNING COMMISSION

CERTIFICATE OF OWNERS:

WE, THE UNDERSIGNED, OWNERS OF THE REAL ESTATE SHOWN AND DESCRIBED HEREIN, DO HEREBY CERTIFY THAT WE HAVE LAID OFF, PLATTED, AND SUBDIVIDED, AND DO HEREBY LAY OFF, PLAT AND SUBDIVIDE SAID REAL ESTATE IN ACCORDANCE WITH THIS PLAT.

DATE

SPRINGHILL HWY 5 DEVELOPMENT, LLC
816 E. OAK STREET
CONWAY, ARKANSAS 72032

LEGAL DESCRIPTION:

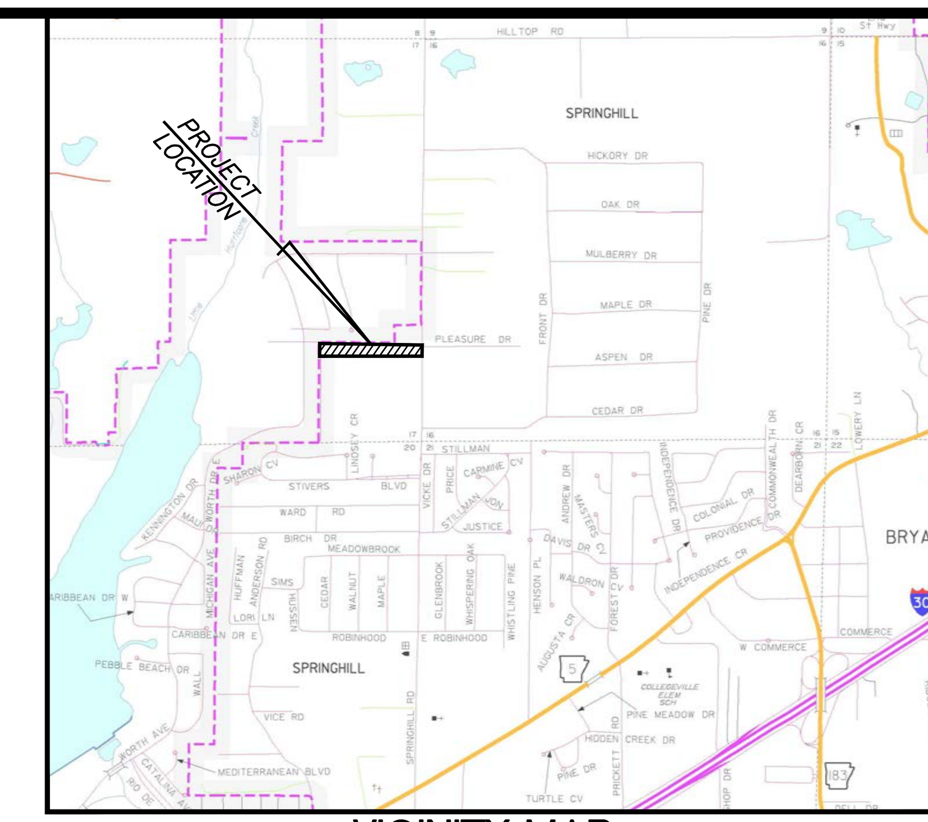
PART OF THE SE ¼, OF THE SE ¼, SECTION 17, T–1–S, R–14–W, SALINE COUNTY, ARKANSAS, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHEAST CORNER OF THE SE ¼, OF THE SE ¼, SECTION 17, T–1–S, R–14–W, SALINE COUNTY, ARKANSAS; THENCE N 02°17'33" E, 1167.19 FEET TO THE POINT OF BEGINNING; THENCE N 88°34'40" W, 1344.97 FEET; THENCE N 01°36'19" E, 167.98 FEET; THENCE S 87°44'58" E, 1346.85 FEET; THENCE S 02°18'02" W, 148.52 FEET; TO THE POINT OF BEGINNING, CONTAINING 4.89 ACRES, MORE OR LESS.

SOURCE OF TITLE: 2021–030121

FLOOD CERTIFICATION:

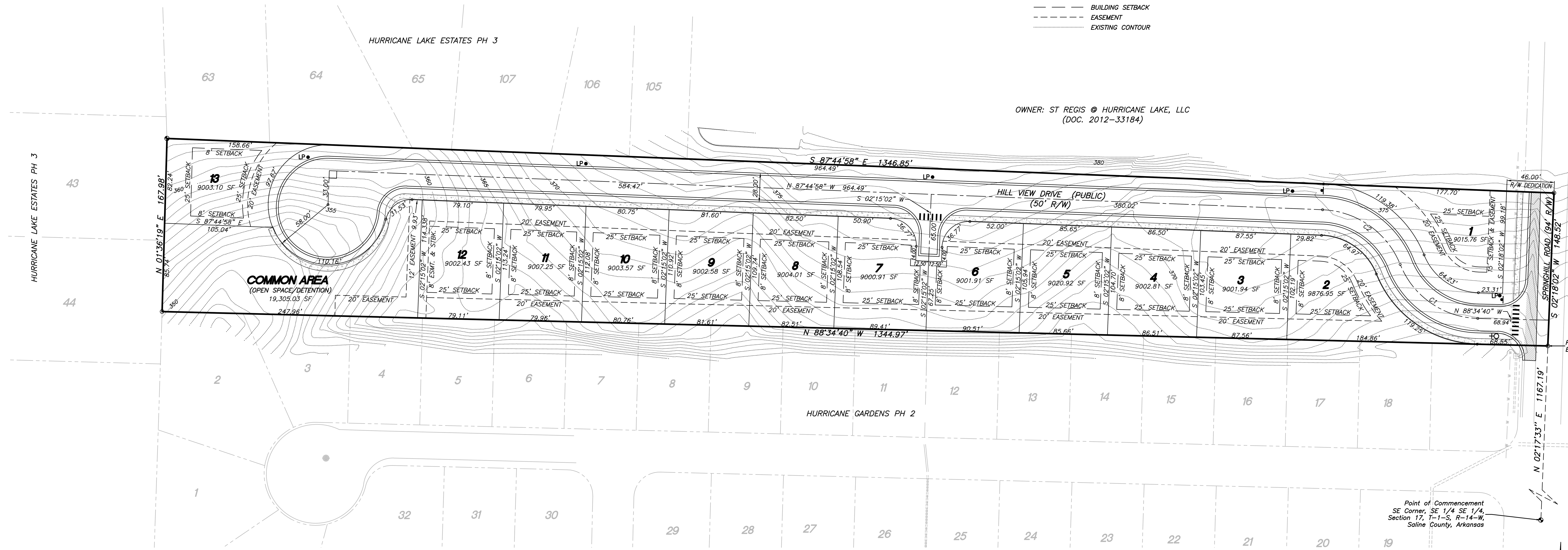
BASED UPON REVIEW OF THE FEDERAL EMERGENCY MANAGEMENT AGENCY, FIRM COMMUNITY PANEL NO. 05125C0225E, EFFECTIVE DATE: JUNE 5, 2020 THE PROPERTY DEPICTED ON THIS PLAT IS LOCATED WITHIN ZONE X, AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.



VICINITY MAP
SCALE: 1" = 2000'

LEGEND:

- FOUND CONC. MONUMENT
- FOUND IRON PIN (FIP)
- LIGHT POLE
- STOP/STREET NAME SIGN
- STREET SIGN
- PROPERTY BOUNDARY
- LOT LINE
- CENTERLINE OF ROAD
- BUILDING SETBACK
- EASEMENT
- EXISTING CONTOUR



CURVE	RADIUS	ARC LENGTH	TANGENT	DELTA ANGLE	CHORD BEARING	CHORD LENGTH
C1	83.37'	97.14'	54.93'	66°45'36"	N 55°11'52" W	91.74'
C2	84.70'	97.46'	54.93'	65°55'55"	N 54°47'01" W	92.17'

GENERAL NOTES:

1.) IRON PINS TO BE SET AT ALL LOT CORNERS.
2.) EASEMENTS TO BE USED FOR UTILITIES AND DRAINAGE.
3.) ALL EASEMENTS ARE AS NOTED.
4.) ALL BUILDING LINES ARE AS NOTED.
5.) CURRENT ZONING – R2.
6.) WATER – SALEM WATER.
7.) SEWER – CITY OF BRYANT.
8.) NO FENCES, POOLS, TEMPORARY OR PERMANENT OBSTRUCTIONS MAY BE PLACED IN ANY DRAINAGE, SEWER OR ACCESS EASEMENTS.

0 50' 100' 150'
SCALE: 1" = 50'

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PRELIMINARY PLAT
HILLCREST ADDITION

PART OF THE SE 1/4 OF SECTION 17, T–1–S, R–14–W
CITY OF BRYANT, SALINE COUNTY, ARKANSAS

Prepared For:
Springhill HWY 5 Development, LLC
816 E. Oak Street
Conway, Arkansas 72032

No.	Revisions	Date	By
1	Added sidewalks.	7–23–24	B. Judd
2	Revised as per city's comments.	9–20–24	B. Judd
3	Revised as per city's comments.	10–21–24	B. Judd
4	Revised as per city's comments.	10–24–24	B. Judd

Project No.: 24–018
Date: JULY 9, 2024
File: 01_Hillcrest Plat
Scale: 1" = 50'
Drawn By: B. Judd
Sheet: 1 of 10

Arkansas 811
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CURVE	RADIUS	ARC LENGTH	TANGENT	DELTA ANGLE	CHORD BEARING	CHORD LENGTH
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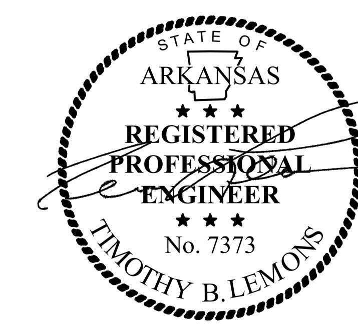
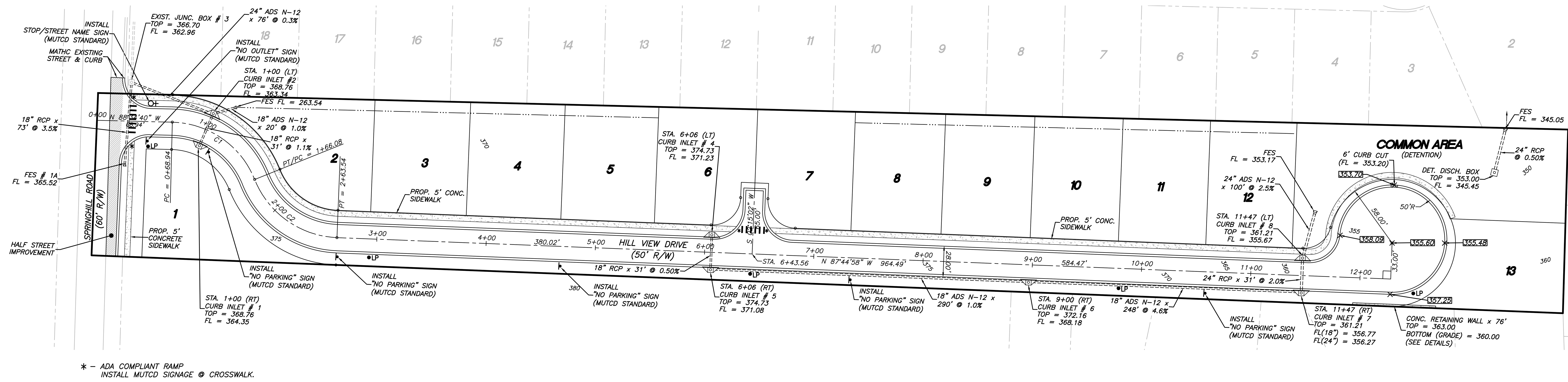
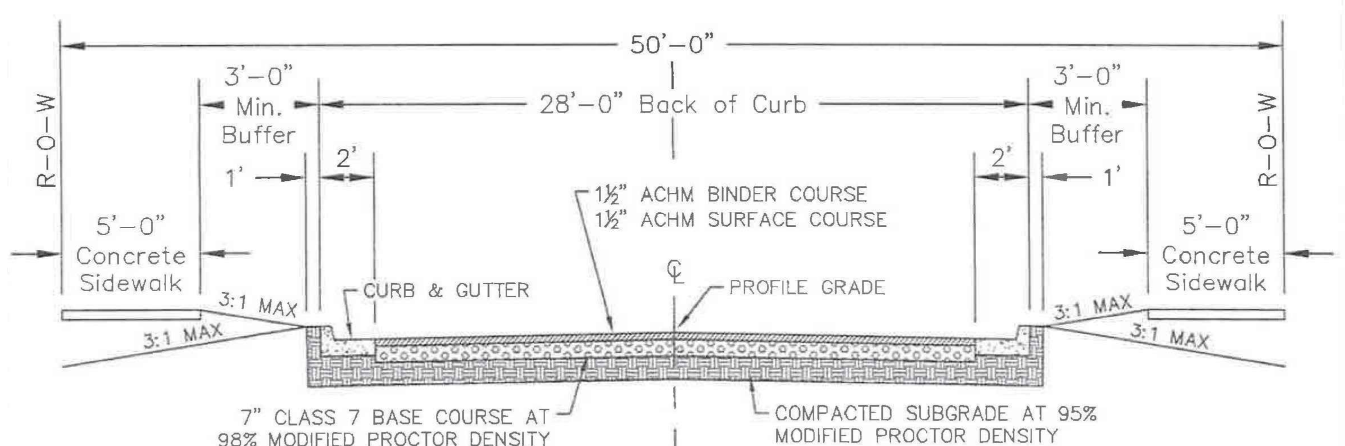




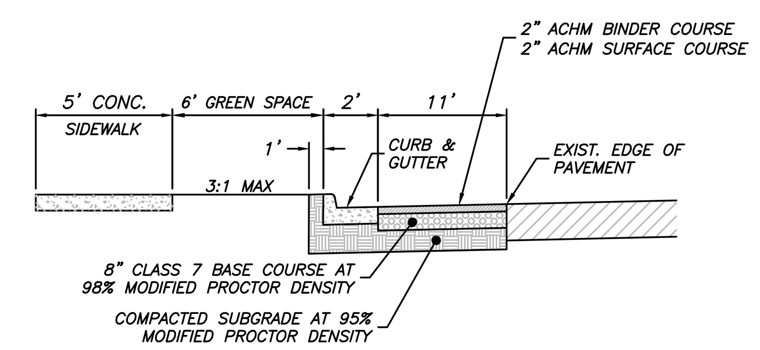
* – ADA COMPLIANT RAMP
INSTALL MUTCD SIGNAGE @ CROSSWALK.

LEGEND:

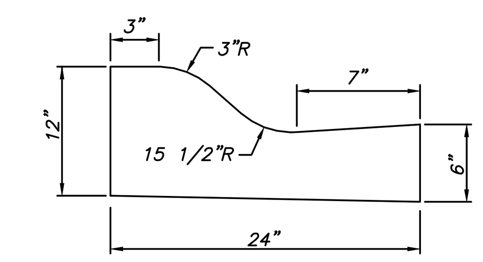
- STOP / STREET NAME COMBINATION SIGN
- STREET SIGN
- LIGHT POLE
- ADA RAMP
- INLET
- PROPERTY BOUNDARY
- LOT LINE
- CENTERLINE OF ROAD
- EXISTING CONTOUR
- DRAINAGE PIPE
- PROPOSED SIDEWALK



TYPICAL CROSS SECTION - LOCAL STREET
NTS

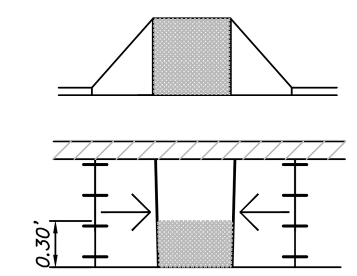


CROSS SECTION - SPRINGHILL RD
(MINOR ARTERIAL)
NTS

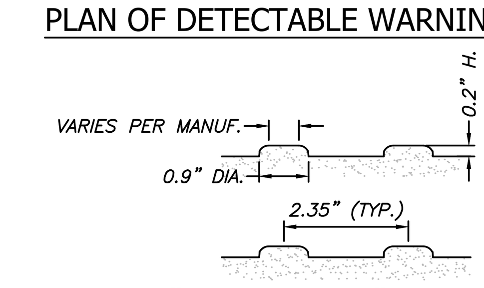


TYPICAL - CONC. CURB/GUTTER
NTS

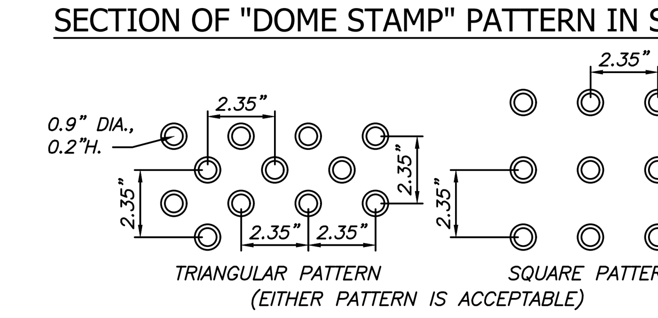
PAVEMENT STRUCTURE TO BE DETERMINED BY GEOTECHNICAL CONSULTANT



PLAN OF DETECTABLE WARNING SURFACE



SECTION OF "DOME STAMP" PATTERN IN SURFACE

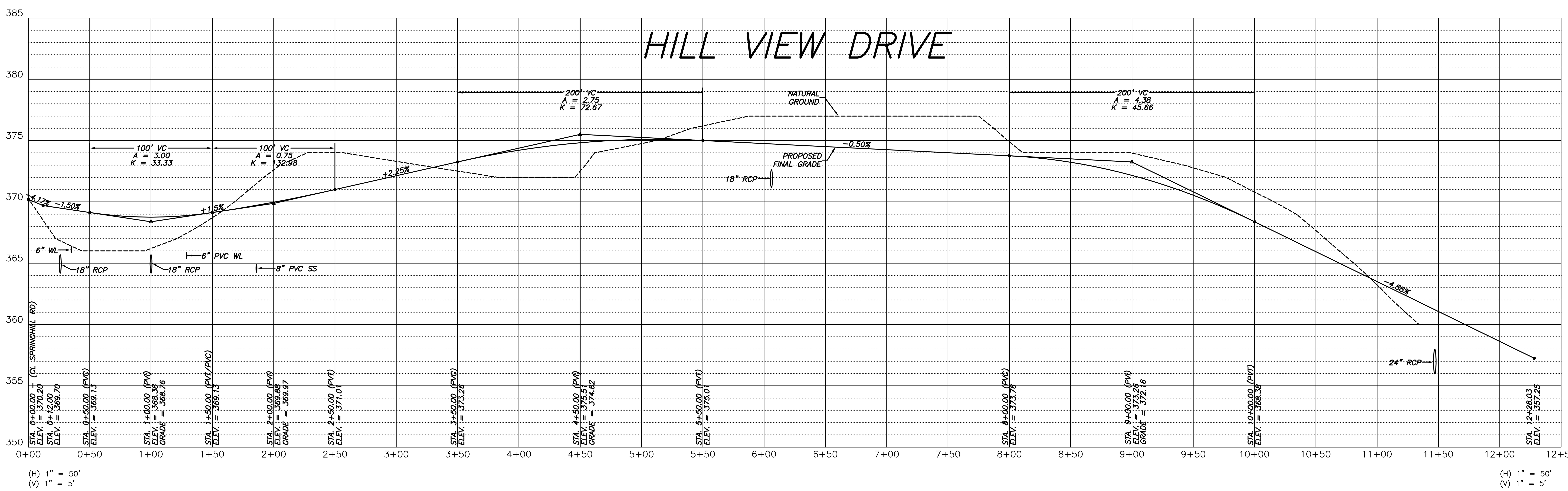


PLAN OF "DOME STAMP" PATTERN IN SURFACE

CURB RAMPS MUST HAVE A DETECTABLE WARNING FEATURE EXTENDING THE FULL WIDTH AND DEPTH OF THE RAMP (MID-WALK "IN-LINE" RAMPS ONLY NEED DETECTABLE WARNINGS AT WALK/PARKING TRANSITION). THE DETECTABLE SURFACE MUST CONSIST OF RAISED TRUNCATED DOMES WITH A DIAMETER OF NOMINAL 0.9 INCHES, A HEIGHT OF NOMINAL 0.2 INCHES AND A CENTER-TO CENTER SPACING OF NOMINAL 2.35 INCHES. THE TEXTURE OF THE DETECTABLE WARNING FEATURE MUST CONTRAST WITH THE SURROUNDING SURFACES (EITHER LIGHT-ON-DARK OR DARK-ON-LIGHT). SEE ABOVE.

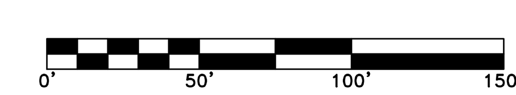
GENERAL NOTES

1. IN AREAS TO RECEIVE BITUMINOUS PAVING, CONCRETE DRIVEWAYS OR CURB AND GUTTER, SUBGRADE SHALL BE COMPACTED TO A DENSITY NOT LESS THAN 95% OF MAXIMUM MODIFIED DENSITY OBTAINED AT OPTIMUM MOISTURE CONTENT.
2. FOR AREAS OF SUBGRADE PREPARATION TO RECEIVE CONCRETE SIDEWALKS, SUBGRADE SHALL BE COMPACTED TO DENSITY OF 90% MAXIMUM MODIFIED DENSITY.
3. CRUSHED STONE – MATERIAL IN EACH COURSE SHALL BE COMPACTED TO A DENSITY OF 98% MAXIMUM MODIFIED DENSITY.
4. CONCRETE SIDEWALK SHALL BE A MINIMUM OF 4' WIDE IN RESIDENTIAL SUBDIVISIONS



GENERAL NOTES:

1.) ALL STOP SIGNS SHALL BE 30" X 30"
2.) ALL TRAFFIC CONTROL MARKERS MUST MEET MUTCD SPECS.
3.) CONTRACTOR SHALL INCLUDE IN BID THE COST FOR COMPACTION TESTS ON SUBGRADE & SUBBASE. TEST TO BE CONDUCTED ON 500' INTERVALS.
4.) CONTRACTOR TO PROOF ROLL BOTH SUBGRADE AND SUBBASE (CITY TO INSPECT).
5.) LIGHT POLES SHALL BE PLACED AT ALL INTERSECTIONS. ADDITIONAL LOCATIONS TO BE DETERMINED BY THE CITY.
6.) ALL BACK OF CURB RADII AT INTERSECTIONS SHALL BE 25' UNLESS OTHERWISE NOTED.
7.) CONTRACTOR TO INCLUDE IN BID THE COST OF MATERIAL AND INSTALLATION OF STREET SIGNS & TRAFFIC CONTROL SIGNS.
8.) WHERE STOP SIGNS & STREET NAME SIGNS ARE SHOWN ON THE PLAN, A COMBINATION SIGN IS ACCEPTABLE.
10.) SEE PLAN/PROFILE SHEETS FOR ADDITIONAL INFORMATION.
11.) ALL PAVEMENT TO BE TYPE 'A'.
12.) ALL INLETS TO HAVE DOUBLE EXTENDED THROATS UNLESS STATED OTHERWISE.



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STREET PLAN/PROFILE
HILLCREST ADDITION
PART OF THE SE 1/4 OF SECTION 17, T-1-S, R-14-W
CITY OF BRYANT, SALINE COUNTY, ARKANSAS

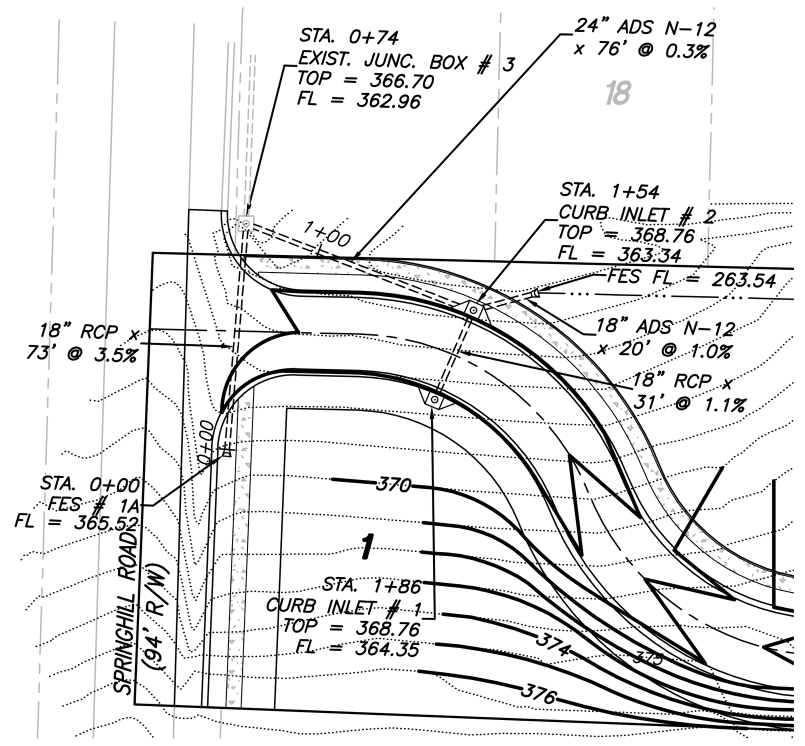
Prepared For:
Springhill HWY 5
Development, LLC
816 E. Oak Street
Conway, Arkansas 72032

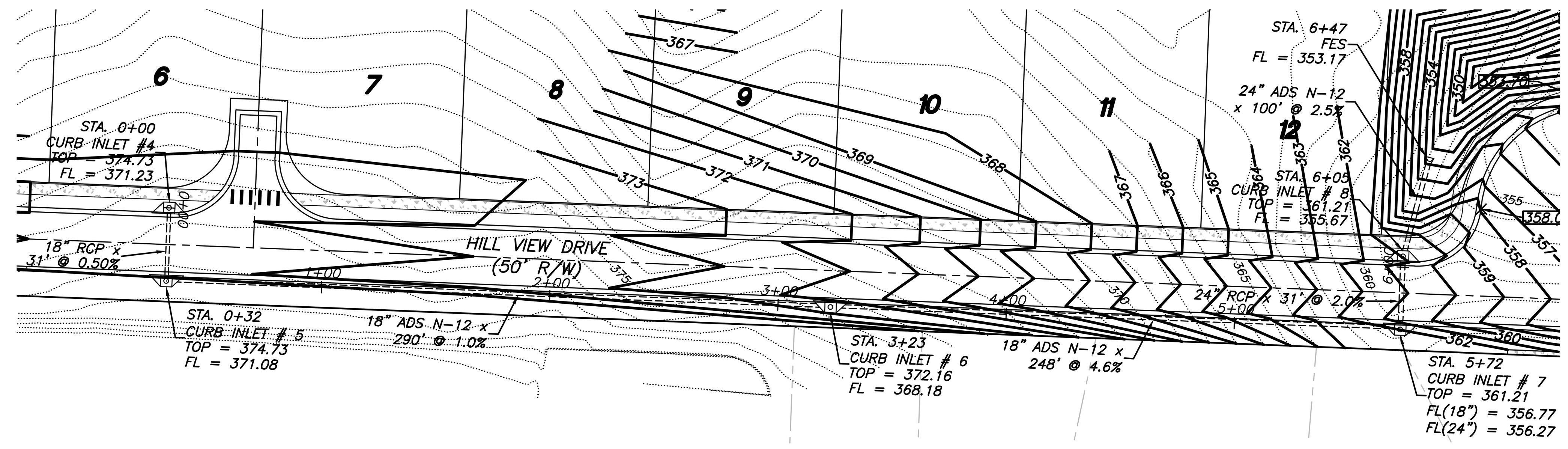
No.	Revisions	Date	By
1	Revised street section.	7-23-24	B. Judd
2	Revised as per city's comments.	9-20-24	B. Judd
3	Revised as per city's comments.	10-21-24	B. Judd
4	Revised as per city's comments.	10-24-24	B. Judd

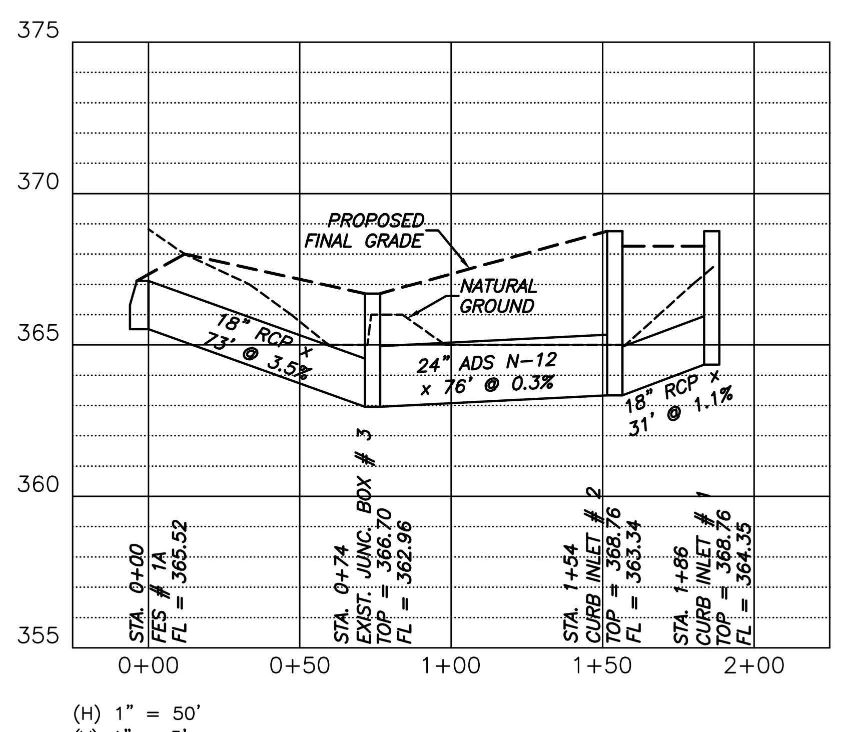
Project No.	Date:	Scale:	File:	Drawn By:	Sheet:
24-018	JULY 9, 2024	1" = 50'	02_Hillcrest Street	B. Judd	2 of 10

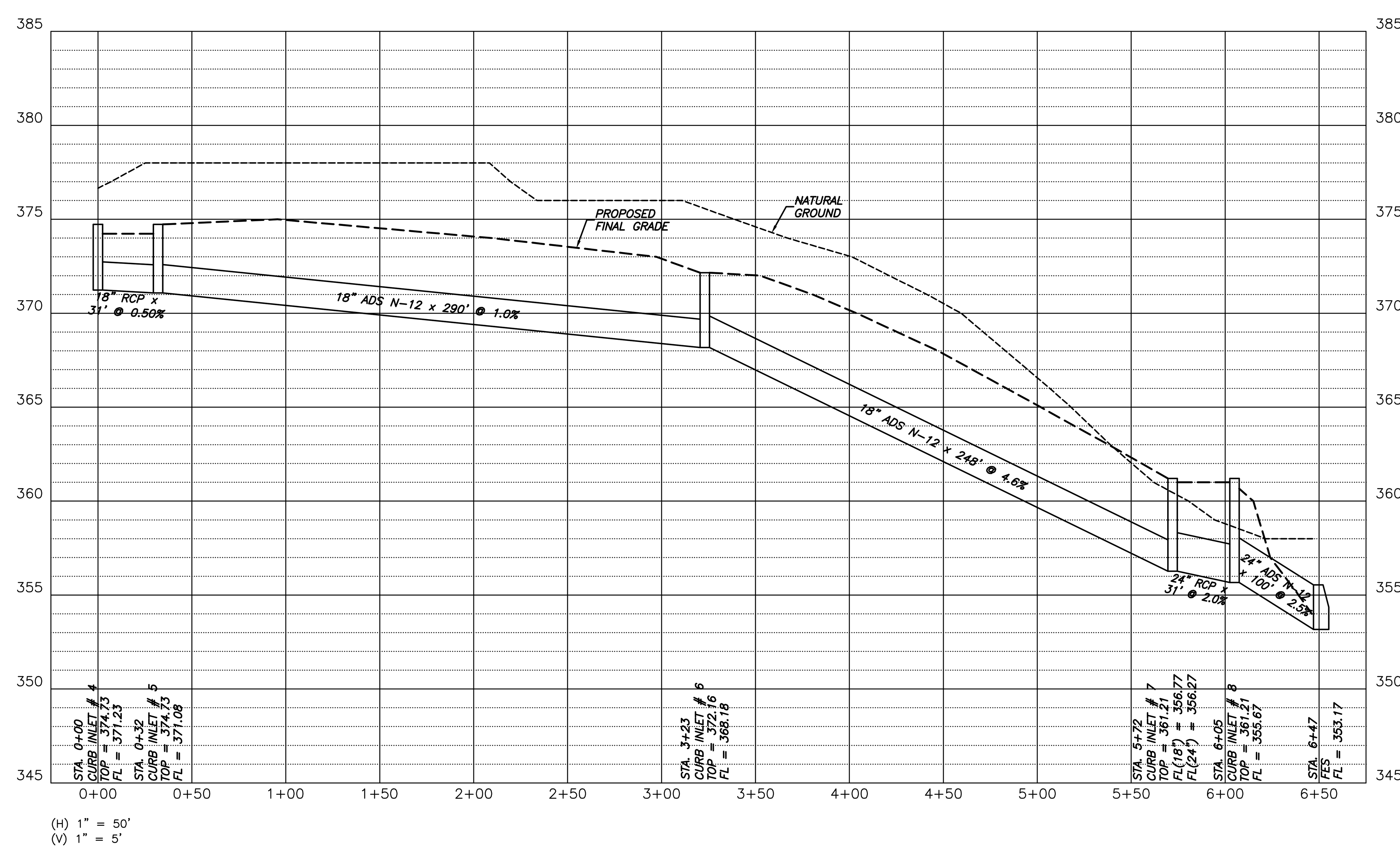
Arkansas 811
Know what's below. Call before you dig.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7373
TIMOTHY B. LEMONS









SCALE: 1" = 50'

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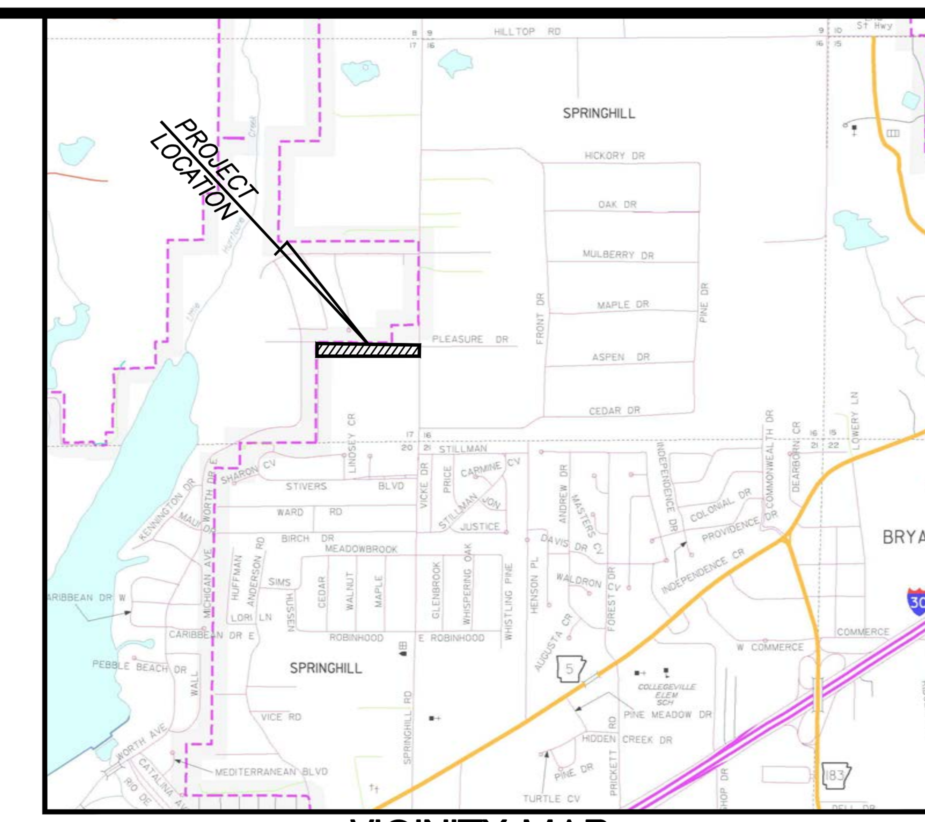
CULVERT PLAN/PROFILE
HILLCREST ADDITION

PART OF THE SE 1/4 OF SECTION 17, T-1-S, R-14-W
CITY OF BRYANT, SALINE COUNTY, ARKANSAS

Prepared For:
Springhill HWY 5
Development, LLC
816 E. Oak Street
Conway, Arkansas 72032

No.	Revisions	Date	By
1	Revised as per city's comments.	10-21-24	B. Judd
2	Revised as per city's comments.	10-21-24	B. Judd

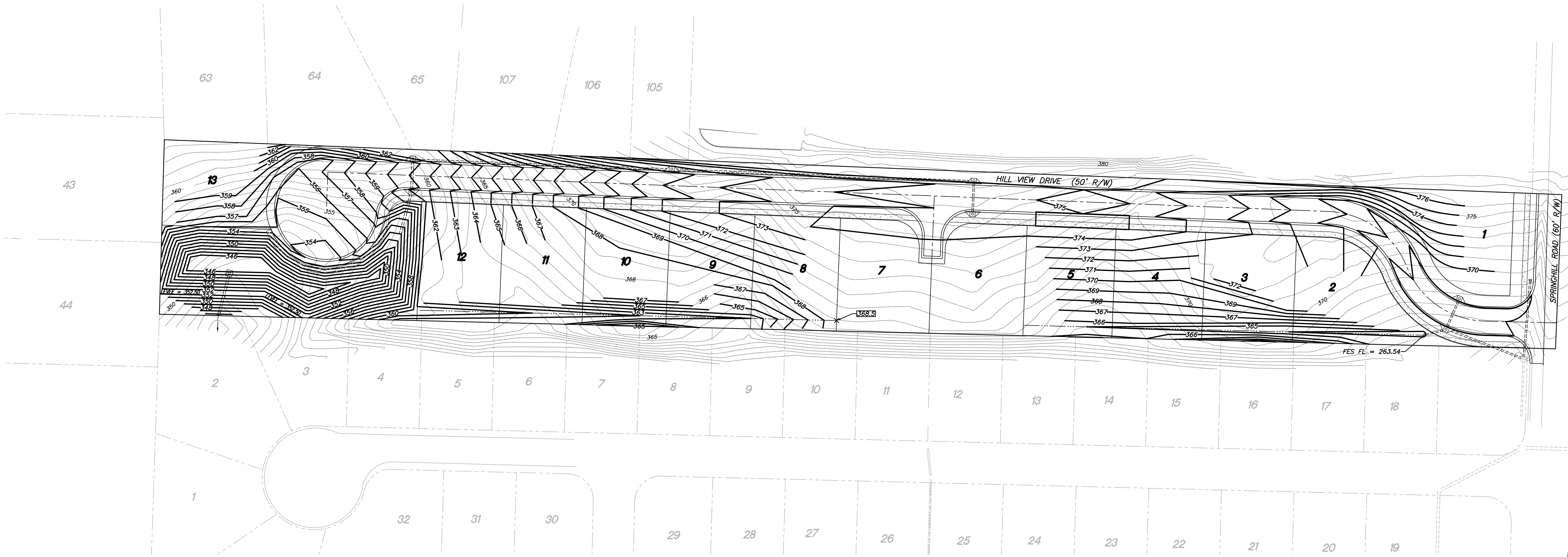
Project No.: 24-018
Date: SEPTEMBER 20, 2024
File: 03_Hillcrest Culvert
Scale: 1" = 50'
Drawn By: B. Judd
Sheet: 3 of 10



VICINITY MAP
SCALE: 1" = 2000'

GENERAL NOTES:

1.) ALL CONSTRUCTION AND MATERIALS TO BE VERIFIED BY A GEOTECHNICAL CONSULTANT PRIOR TO CONSTRUCTION.
2.) CONTRACTOR SHALL NOTIFY ENGINEER IF SIGNIFICANT CHANGES ARE MADE TO GRADING PLAN.
3.) ALL MATERIAL TO BE COMPACTED TO 95% STANDARD PROCTOR, INSTALLED IN 6" – 8" LIFTS, OR AS DIRECTED BY GEOTECHNICAL CONSULTANT.
4.) CONTRACTOR SHALL PROVIDE TEMPORARY EROSION CONTROL MEASURES UNTIL CONSTRUCTION IS COMPLETE.
5.) ALL UTILITIES TO BE LOCATED PRIOR TO CONSTRUCTION (ONE CALL, CITY, ETC.).
6.) CONTRACTOR SHALL NOT DISTURB ANY MORE GROUND THAN IS NECESSARY FOR THE INSTALLATION OF IMPROVEMENTS & GRADING WORK.
7.) CONTRACTOR SHALL GRADE YARDS TO ENSURE THAT GROUND SLOPES AWAY FROM ALL BUILDINGS IN ALL DIRECTIONS.



LEGEND:

350 – EXISTING CONTOUR
350 – PROPOSED CONTOUR

SCALE: 1" = 50'

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GRADING PLAN
HILLCREST ADDITION

PART OF THE SE 1/4 OF SECTION 17, T-1-S, R-14-W
CITY OF BRYANT, SALINE COUNTY, ARKANSAS

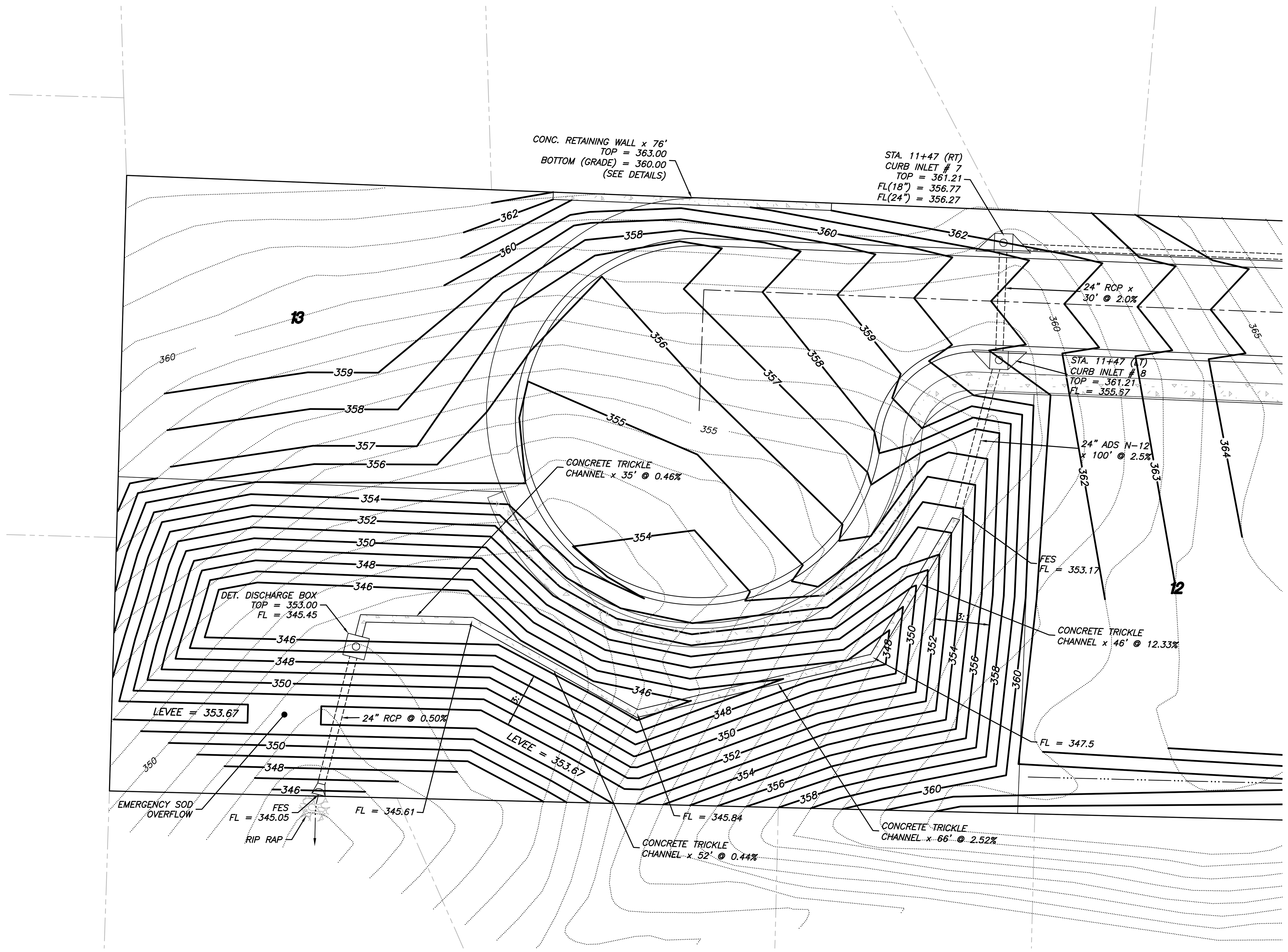
Prepared For:
Springhill HWY 5 Development, LLC
816 E. Oak Street
Conway, Arkansas 72032

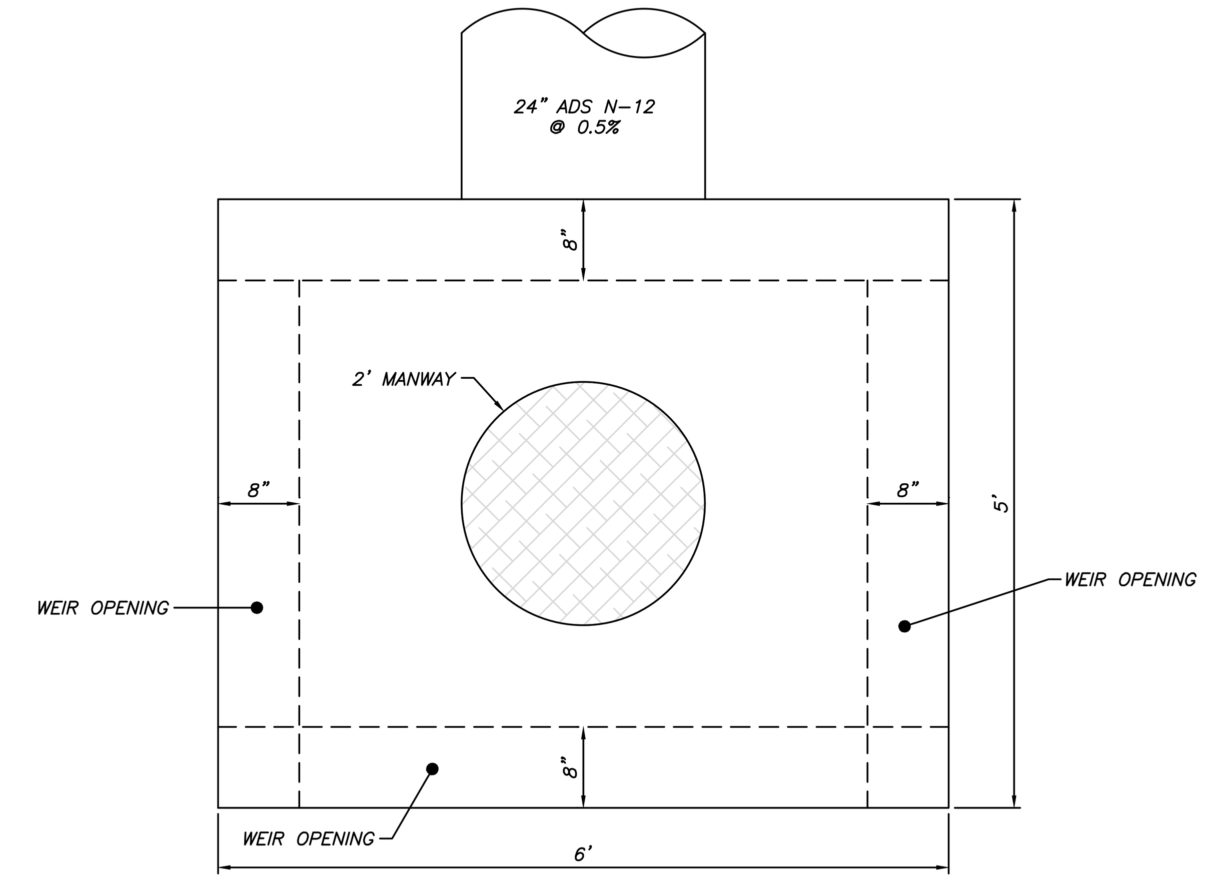
No.	Revisions	Date	By
1	Revised as per city's comments.	9-20-24	B. Judd
2	Revised as per city's comments.	10-21-24	B. Judd
3	Revised as per city's comments.	10-24-24	B. Judd

Project No.: 24-018
Date: JULY 9, 2024
File: 04_Hillcrest Grading
Scale: 1" = 50'
Sheet: 4 of 10
Drawn By: B. Judd

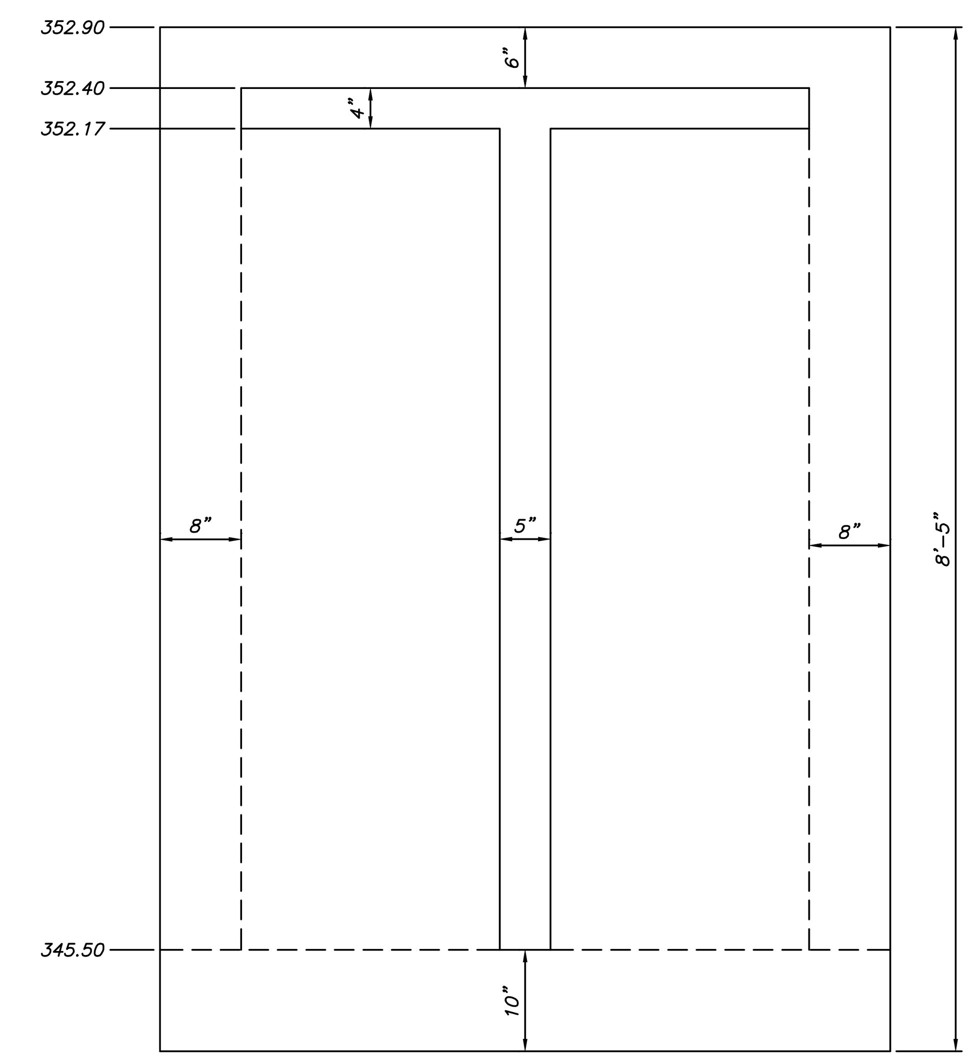
LEGEND:

350 – EXISTING CONTOUR
350 – PROPOSED CONTOUR





TOP VIEW

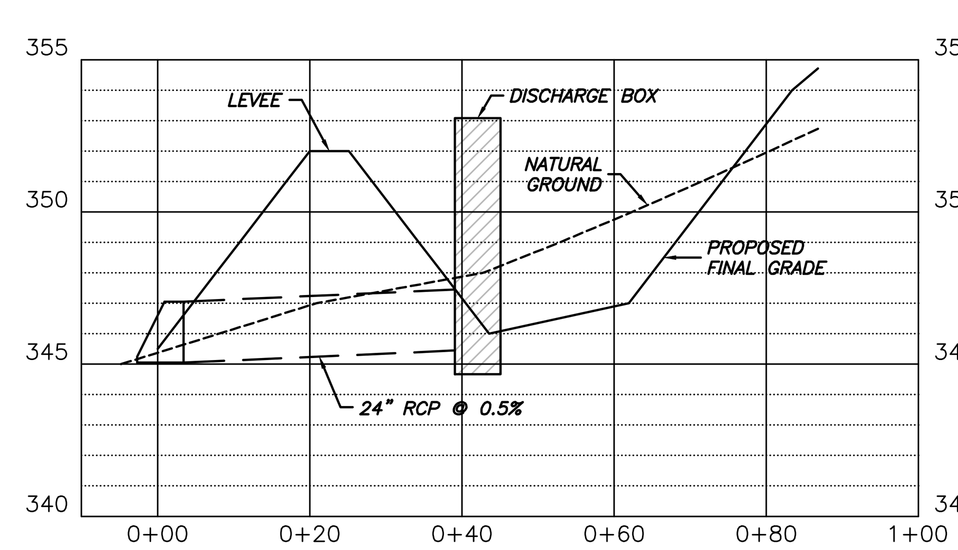


FRONT VIEW

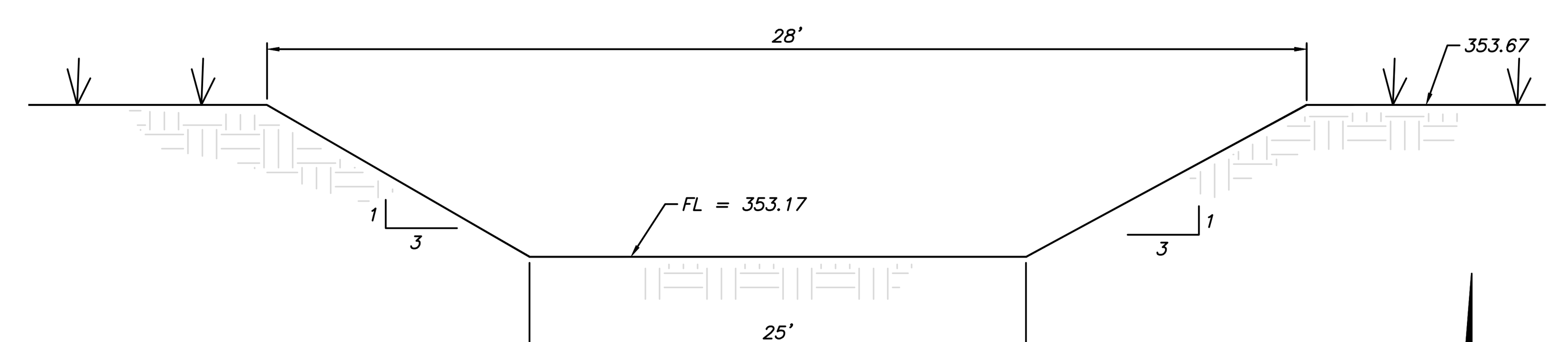
DISCHARGE STRUCTURE
NTS

GENERAL NOTES:

1.) ALL CONSTRUCTION AND MATERIALS TO BE VERIFIED BY A GEOTECHNICAL CONSULTANT PRIOR TO CONSTRUCTION.
2.) CONTRACTOR SHALL NOTIFY ENGINEER IF SIGNIFICANT CHANGES ARE MADE TO GRADING PLAN.
3.) ALL MATERIAL TO BE COMPACTED TO 95% STANDARD PROCTOR, INSTALLED IN 6" – 8" LIFTS, OR AS DIRECTED BY GEOTECHNICAL CONSULTANT.
4.) CONTRACTOR SHALL PROVIDE TEMPORARY EROSION CONTROL MEASURES UNTIL CONSTRUCTION IS COMPLETE.
5.) ALL UTILITIES TO BE LOCATED PRIOR TO CONSTRUCTION (ONE CALL, CITY, ETC.).
6.) CONTRACTOR SHALL NOT DISTURB ANY MORE GROUND THAN IS NECESSARY FOR THE INSTALLATION OF IMPROVEMENTS & GRADING WORK.
7.) ALL LEVEES ASSOCIATED WITH DETENTION FACILITY SHALL NOT HAVE A SLOPE GREATER THAN 3:1.
8.) ALL AREAS OF DETENTION FACILITY SHALL INCLUDE SOLID SOD STABILIZATION.



(H) 1" = 20'
(V) 1" = 5'



DETAIL - EMERGENCY OVERFLOW
NTS

0' 20' 40' 60'
SCALE: 1" = 20'

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DETENTION POND PLAN
HILLCREST ADDITION
PART OF THE SE 1/4 OF SECTION 17, T-1-S, R-14-W
CITY OF BRYANT, SALINE COUNTY, ARKANSAS

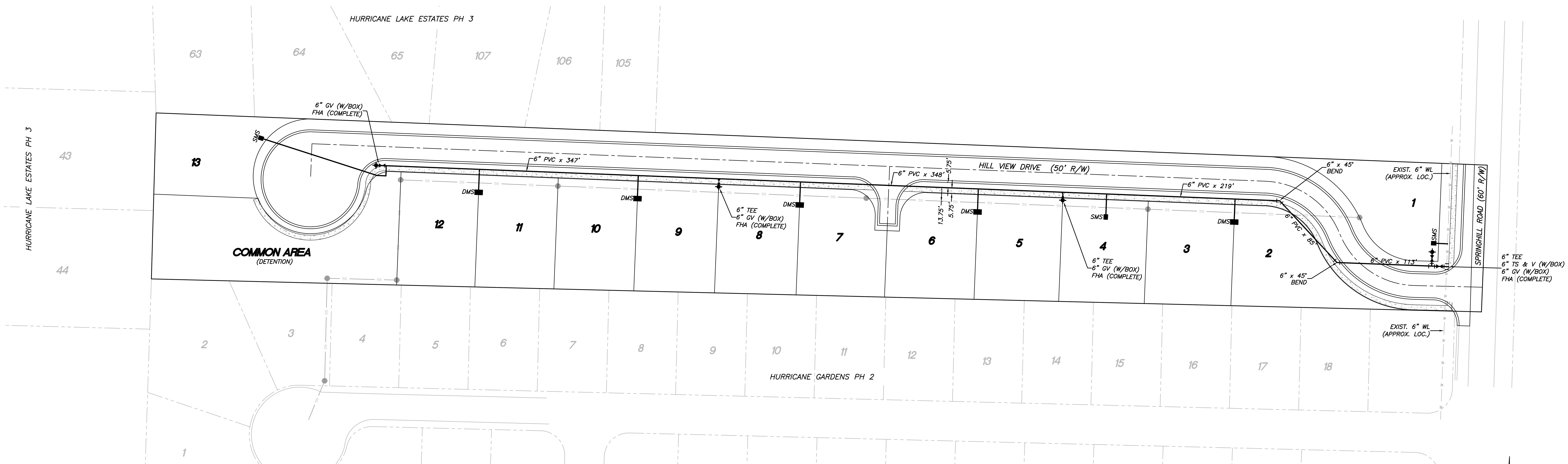
Prepared For:
Springhill HWY 5
Development, LLC
816 E. Oak Street
Conway, Arkansas 72032

No.	Revisions	Date	By
1	Added cross section.	7-23-24	B. Judd
2	Revised as per city's comments.	9-20-24	B. Judd
3	Revised as per city's comments.	10-24-24	B. Judd

Date: JULY 9, 2024
Scale: 1" = 20'
Drawn By: B. Judd
Project No. 24-018
File: 05_Hillcrest Pond
Sheet: 5 of 10

GENERAL NOTES:

1.) ALL CONSTRUCTION AND MATERIALS TO MEET OR EXCEED SALEM WATER SPECIFICATIONS.
2.) INSTALL 12ga BLUE POLYETHELENE COATED SOLID COPPER WIRE IN A CONTINUOUS CIRCUIT UNDER ALL WATER MAINS AND SERVICE LINES. DIRECT BURY, WATERPROOF WIRE SPLICE CONNECTORS SHALL BE USED. TRACER WIRE SHALL BE TURNED UP AT ALL VALVES, HYDRANTS, METERS, AND BLOW-OFFS.
3.) ALL FITTINGS SHALL BE DUCTILE IRON M.J. (WHERE AVAILABLE).
4.) ATTENTION IS CALLED TO DETAILS FOR ADDITIONAL INFORMATION.
5.) CONSTRUCTION SHALL COMPLY WITH SECTION XIV.A -ADH RULES PERTAINING TO PUBLIC WATER SYSTEMS THAT STATES: "THE OPERATING ROUTINE SHALL INCLUDE NECESSARY PROTECTIVE MEASURES TO DETECT AND REMOVE OR DESTROY ANY CONTAMINANT OF CONCERN OR REGULATION THAT MIGHT ENTER THE DISTRIBUTION SYSTEM. EVERY PRECAUTION MUST BE TAKEN AGAINST THE POSSIBILITY OF SEWAGE CONTAMINATION OF THE WATER IN THE DISTRIBUTION SYSTEM. WATER MAINS AND SANITARY SEWERS SHALL BE CONSTRUCTED AS FAR APART AS PRACTICABLE, AND SHALL BE SEPARATED BY UNDISTURBED AND COMPACTED EARTH. A MINIMUM HORIZONTAL DISTANCE OF TEN FEET SHOULD BE MAINTAINED BETWEEN WATER LINES AND SEWER LINES OR OTHER SOURCES OF CONTAMINATION. WATER LINES AND SEWERS SHALL NOT BE LAID IN THE SAME TRENCH EXCEPT ON THE WRITTEN APPROVAL OF THE ARKANSAS DEPARTMENT OF HEALTH. WATER MAINS NECESSARILY IN CLOSE PROXIMITY TO SEWERS MUST BE PLACED SO THAT THE BOTTOM OF THE WATER LINE WILL BE AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER LINE AT ITS HIGHEST POINT. IF THIS DISTANCE MUST UNAVOIDABLY BE REDUCED, THE WATER LINE OR THE SEWER LINE MUST BE ENCASED IN WATERTIGHT PIPE WITH SEALED WATERTIGHT ENDS EXTENDING AT LEAST TEN FEET EITHER SIDE OF THE CROSSING. ANY JOINT IN THE ENCASEMENT PIPE IS TO BE MECHANICALLY RESTRAINED. THE ENCASEMENT PIPE MAY BE VENTED TO THE SURFACE IF CARRYING WATER OR SEWER UNDER PRESSURE. WHERE A WATER LINE MUST UNAVOIDABLY PASS BENEATH THE SEWER LINE, AT LEAST 18 INCHES OF SEPARATION MUST BE MAINTAINED BETWEEN THE OUTSIDE OF THE TWO PIPES IN ADDITION TO THE PRECEDING ENCASEMENT REQUIREMENT. EXCEPTIONS TO THIS MUST BE APPROVED IN WRITING BY THE ARKANSAS DEPARTMENT OF HEALTH. A MINIMUM HORIZONTAL DISTANCE OF THREE FEET SHALL BE MAINTAINED BETWEEN WATER LINES AND OTHER UNDERGROUND UTILITIES OF A NONSANITARY NATURE (GAS, ELECTRIC, ETC.). EXCEPTIONS TO THIS MUST BE APPROVED IN WRITING BY THE ARKANSAS DEPARTMENT OF HEALTH.
6.) CONTRACTOR SHALL ADHERE TO CURRENT OSHA REGULATIONS FOR EXCAVATION & TRENCH SAFETY.
7.) CONTRACTOR TO ADHERE TO AWWA SPECS FOR BLOCKING.
8.) CONTRACTOR SHALL HAVE ALL UTILITIES LOCATED PRIOR TO CONSTRUCTION.
9.) CONTRACTOR SHALL CONTACT WATER & WASTEWATER UTILITIES FOR ALL APPLICABLE INSPECTION & TESTING.
10.) CONTRACTOR SHALL CONTACT WATER & WASTEWATER UTILITIES AT LEAST 24 HOURS PRIOR TO DISRUPTION OF ANY SERVICE.
11.) ALL MATERIALS AND COMPONENTS INSTALLED IN DRINKING WATER SYSTEMS ARE REQUIRED TO COMPLY WITH THE FEDERAL DEFINITION OF "LEAD FREE" CONTAINED IN PUBLIC LAW 111-380.



SCALE: 1" = 50'

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STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7373
TIMOTHY B. LEMONS

LEMONS ENGINEERING CONSULTANTS, INC.
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(501) 843-5081 • Fax (501) 941-0959
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WATER LAYOUT
HILLCREST ADDITION
PART OF THE SE 1/4 OF SECTION 17, T-1-S, R-14-W
CITY OF BRYANT, SALINE COUNTY, ARKANSAS

Prepared For:
Springhill HWY 5
Development, LLC
816 E. Oak Street
Conway, Arkansas 72032

No.	Revisions	Date	By
1	Revised as per city's comments.	9-20-24	B. Judd
2	Revised as per city's comments.	10-21-24	B. Judd
3	Revised as per city's comments.	10-24-24	B. Judd

Date: JULY 9, 2024
Scale: 1" = 50'
Drawn By: B. Judd
Project No. 24-018
File: 06_Hillcrest Water
Sheet: 6 of 10

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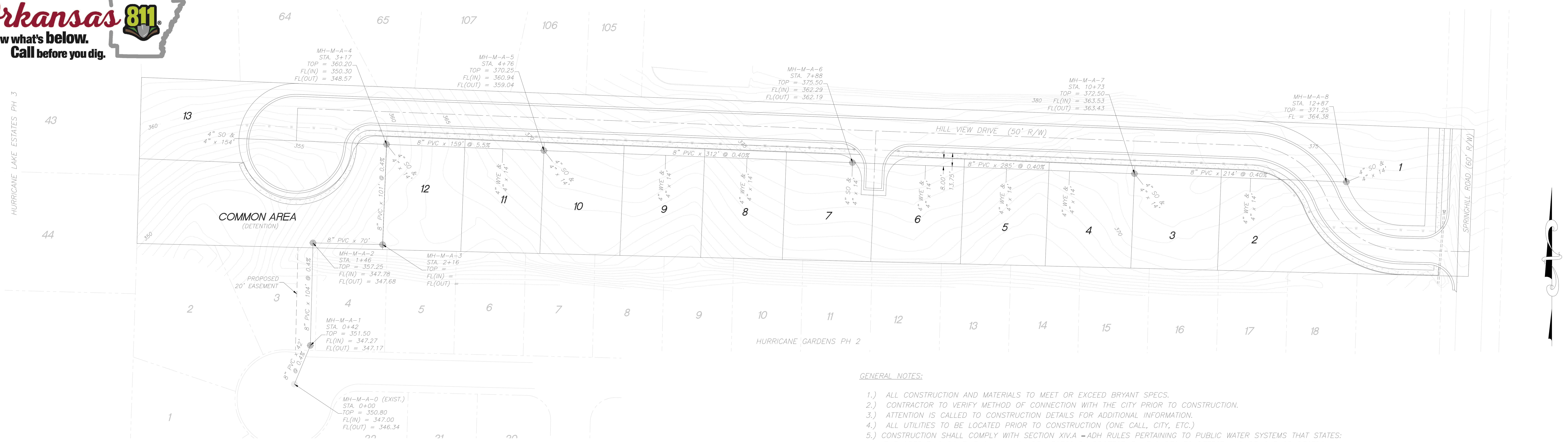

GENERAL NOTES:

1.) ALL CONSTRUCTION AND MATERIALS TO MEET OR EXCEED BRYANT SPECS.
2.) CONTRACTOR TO VERIFY METHOD OF CONNECTION WITH THE CITY PRIOR TO CONSTRUCTION.
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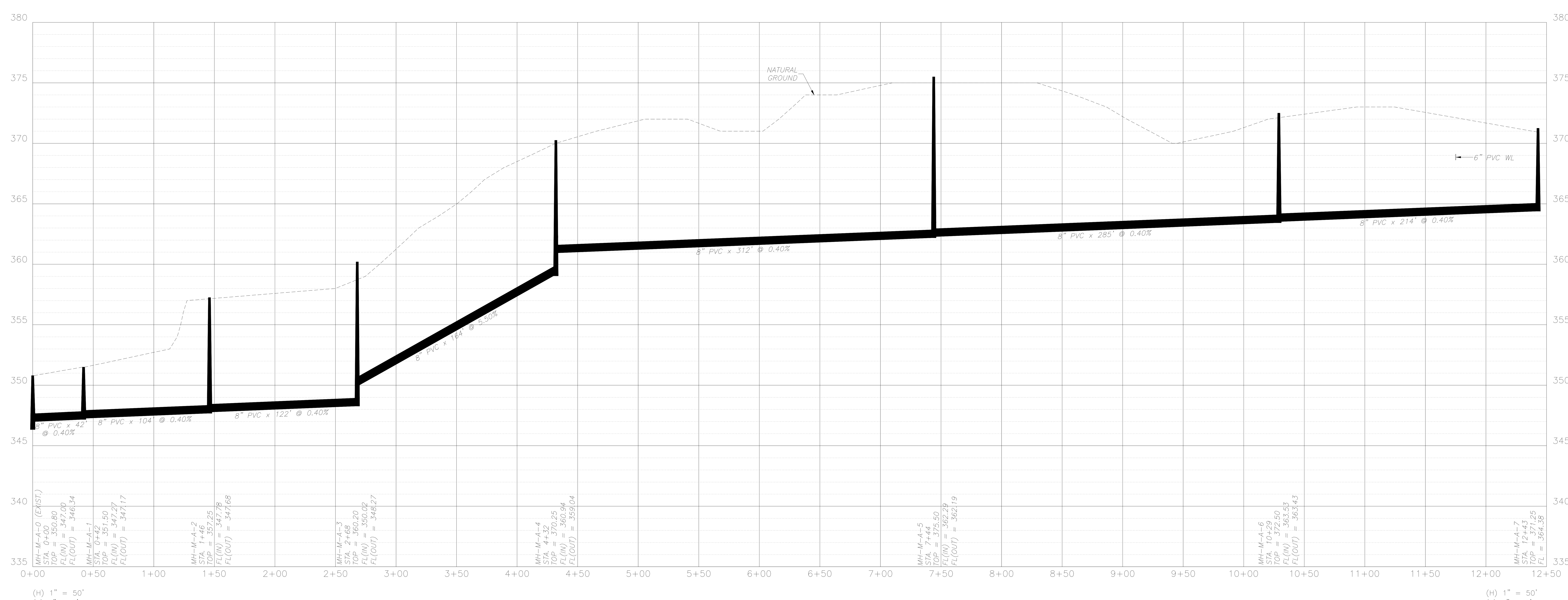
7.) BACKFILL FOR ALL DISTURBED (EXCAVATED) AREAS TO BE COMPACTED TO 95% SP.



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7373
TIMOTHY B. LEMONS

SCALE: 1" = 50'

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SEWER PLAN/PROFILE
HILLCREST ADDITION
PART OF THE SE 1/4 OF SECTION 17, T-1-S, R-14-W
CITY OF BRYANT, SALINE COUNTY, ARKANSAS

Prepared For:
Springhill HWY 5
Development, LLC
816 E. Oak Street
Conway, Arkansas 72032

No.	Revisions	Date	By
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Date: JULY 9, 2024
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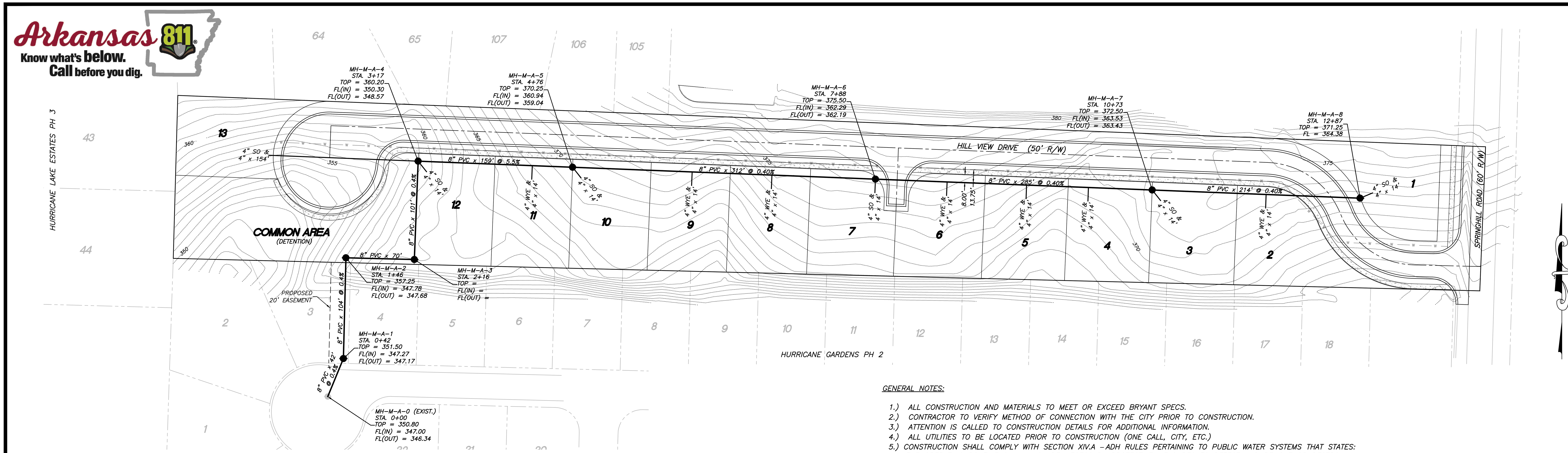
Drawn By: B. Judd
Project No. 24-018
File: 08_Hillcrest Sewer
Sheet: 8 of 10



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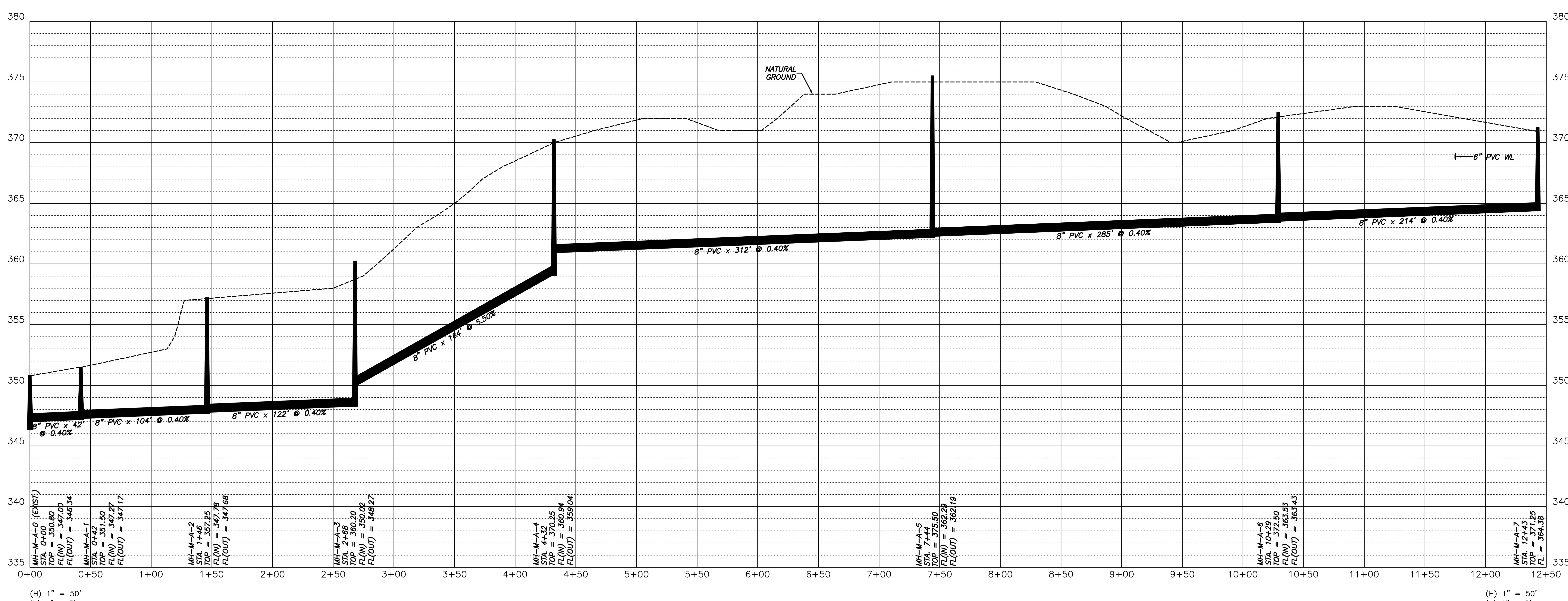

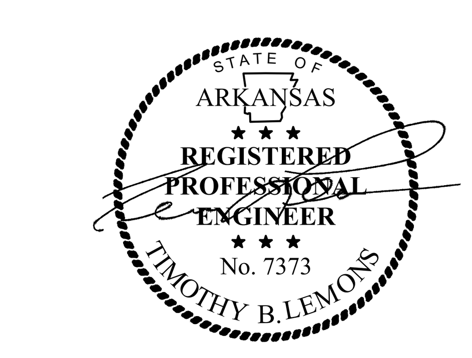

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SEWER PLAN/PROFILE
HILLCREST ADDITION
PART OF THE SE 1/4 OF SECTION 17, T-1-S, R-14-W
CITY OF BRYANT, SALINE COUNTY, ARKANSAS

Prepared For:
Springhill HWY 5 Development, LLC
816 E. Oak Street
Conway, Arkansas 72032

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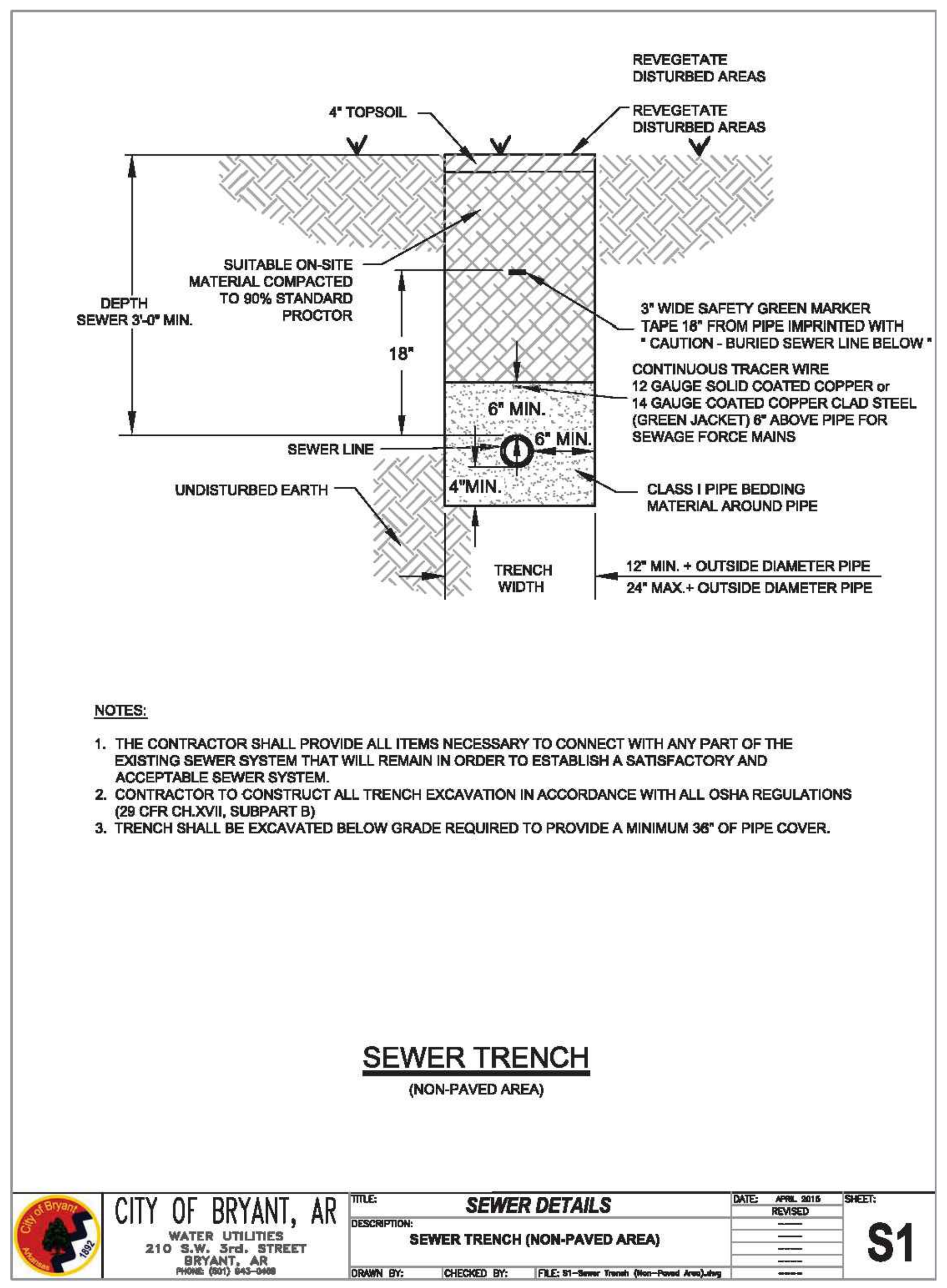
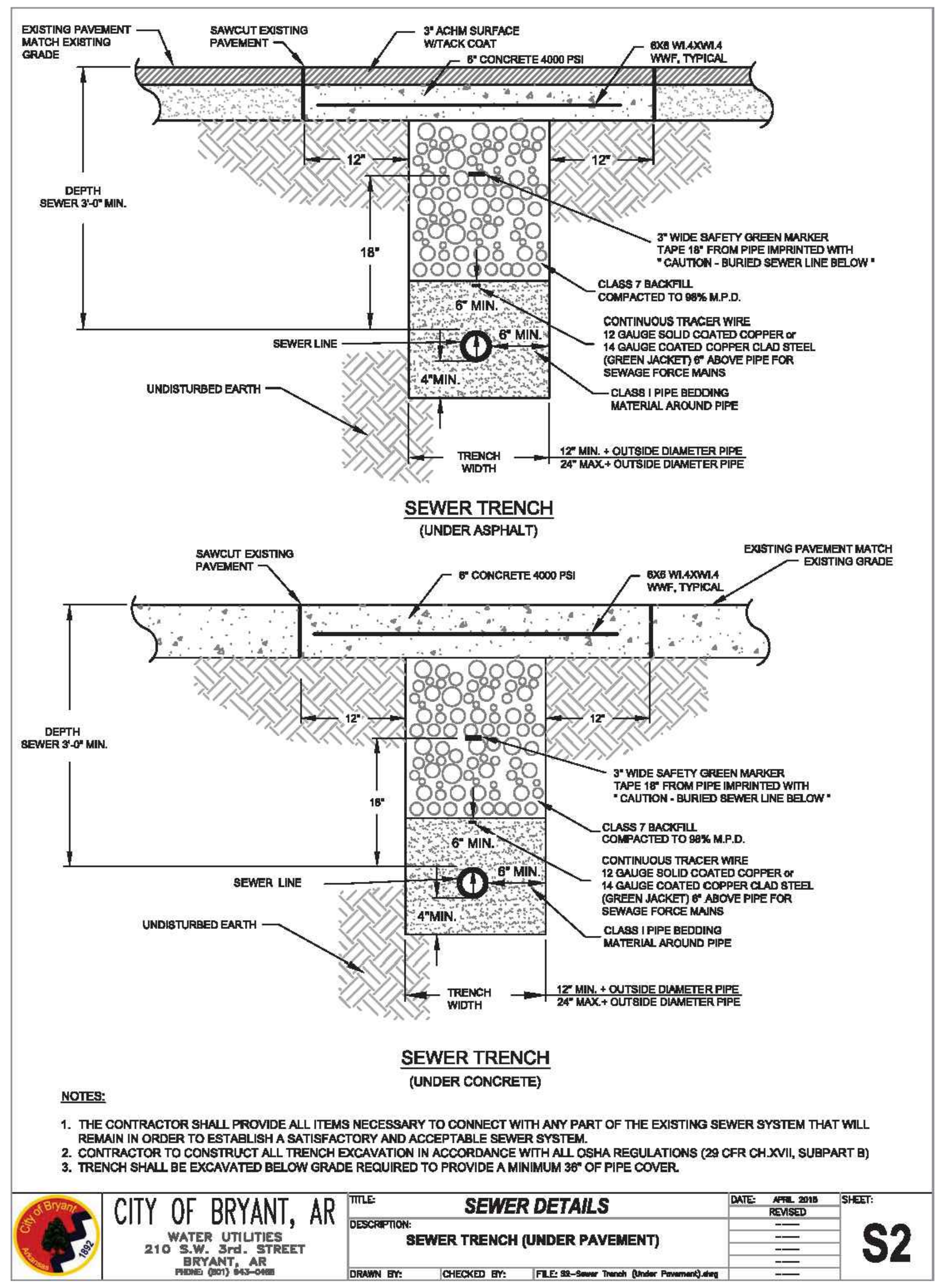
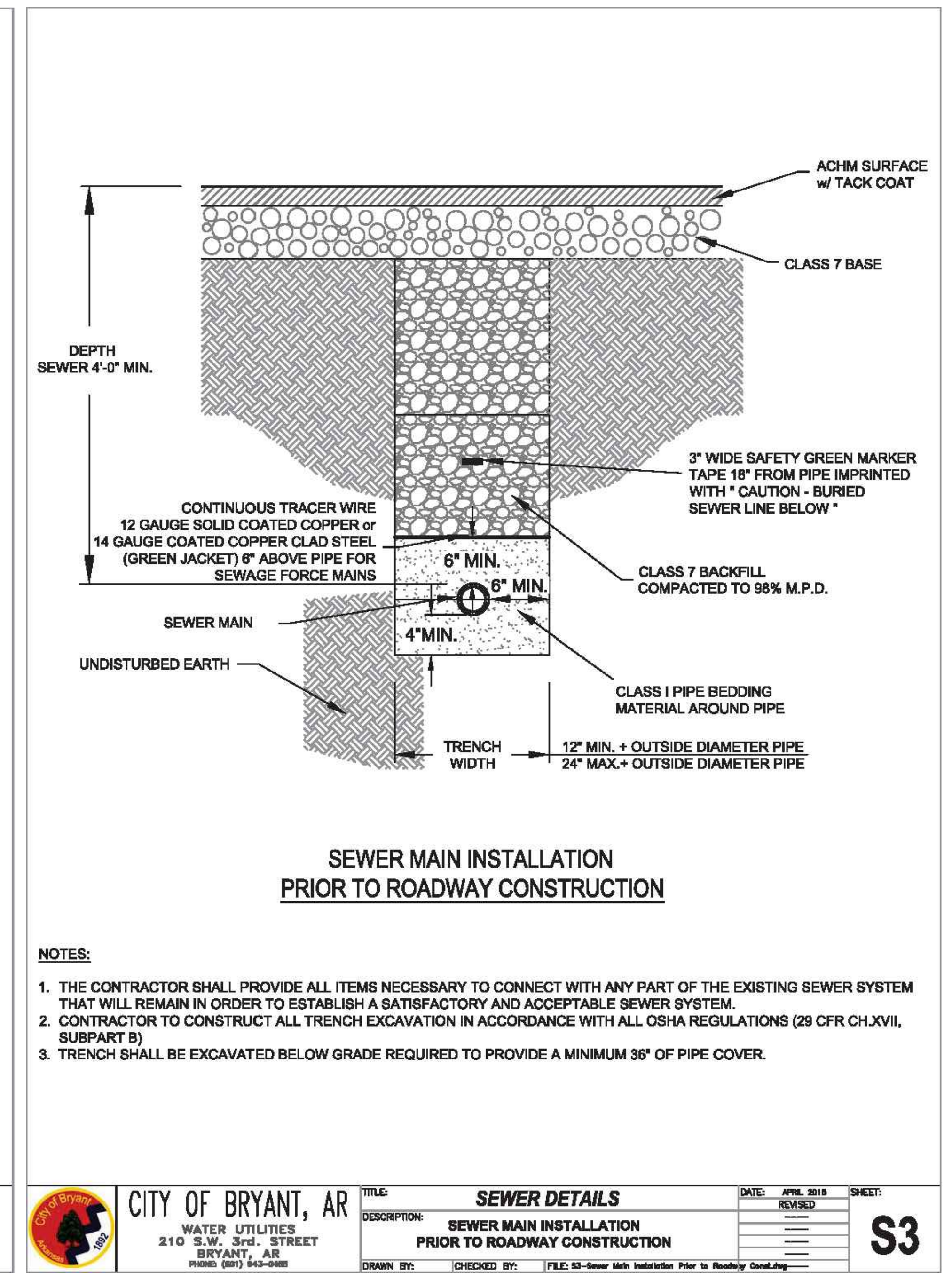
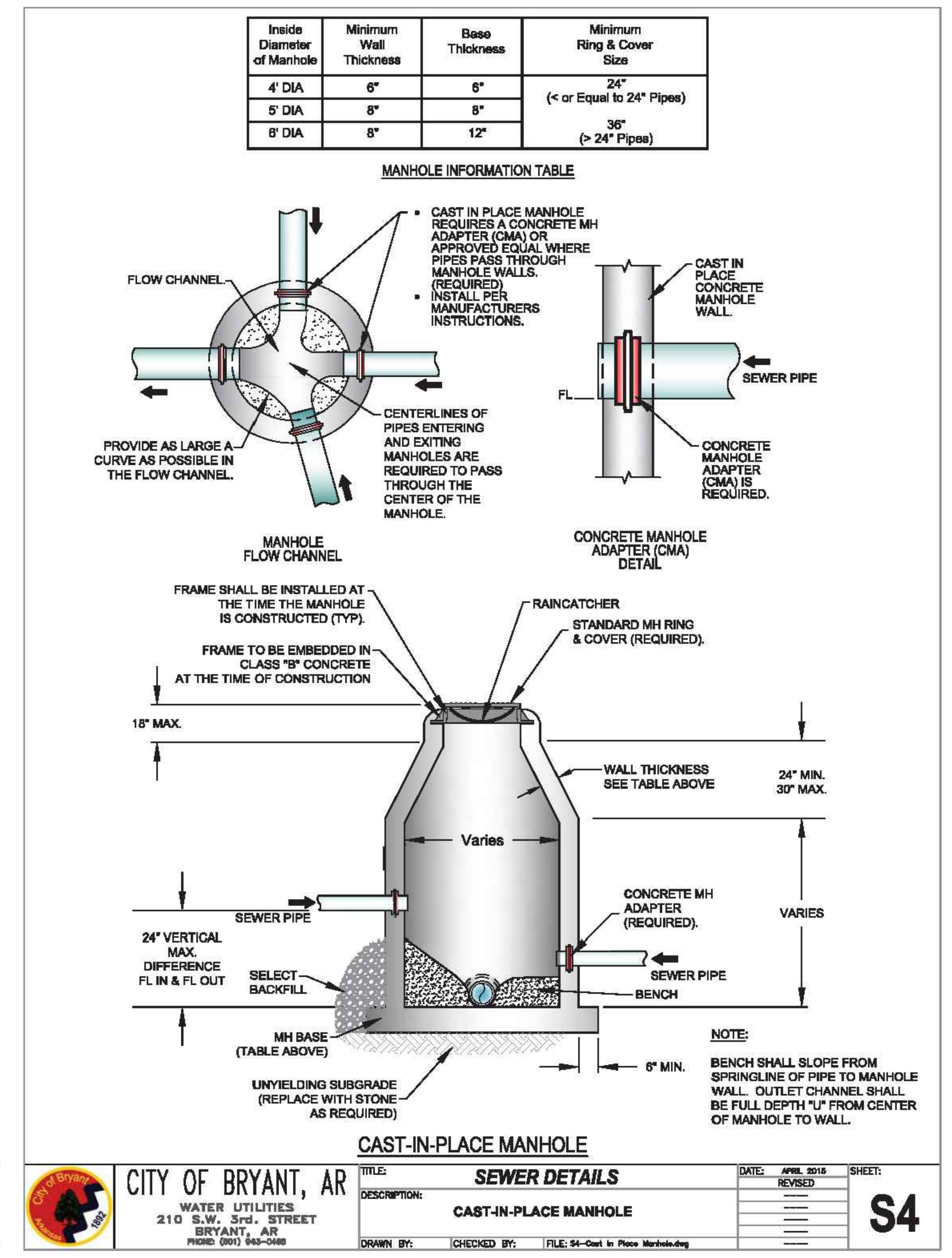
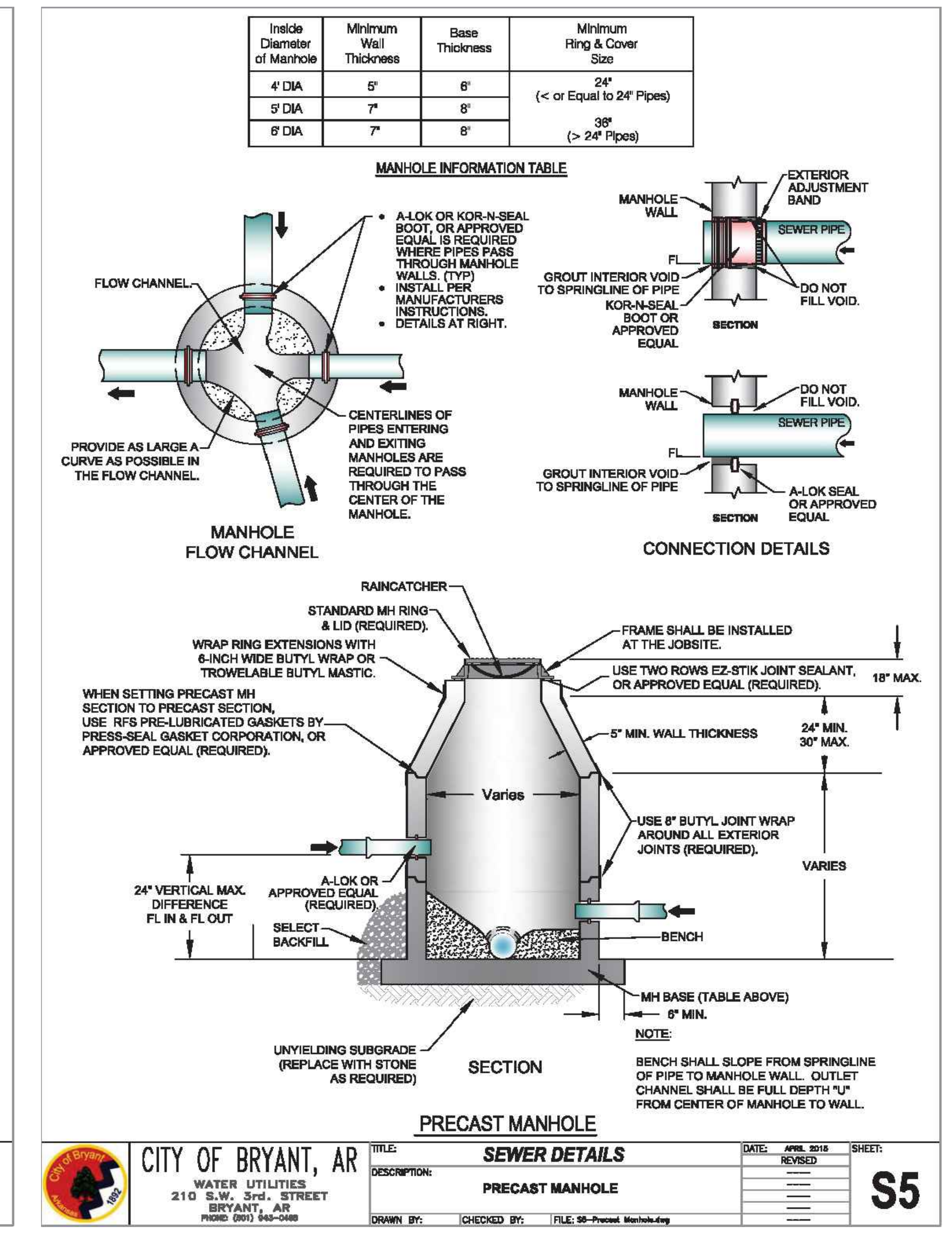
Date: JULY 9, 2024
Scale: 1" = 50'
Drawn By: B. Judd
Project No. 24-018
File: 08_Hillcrest Sewer
Sheet: 8 of 10

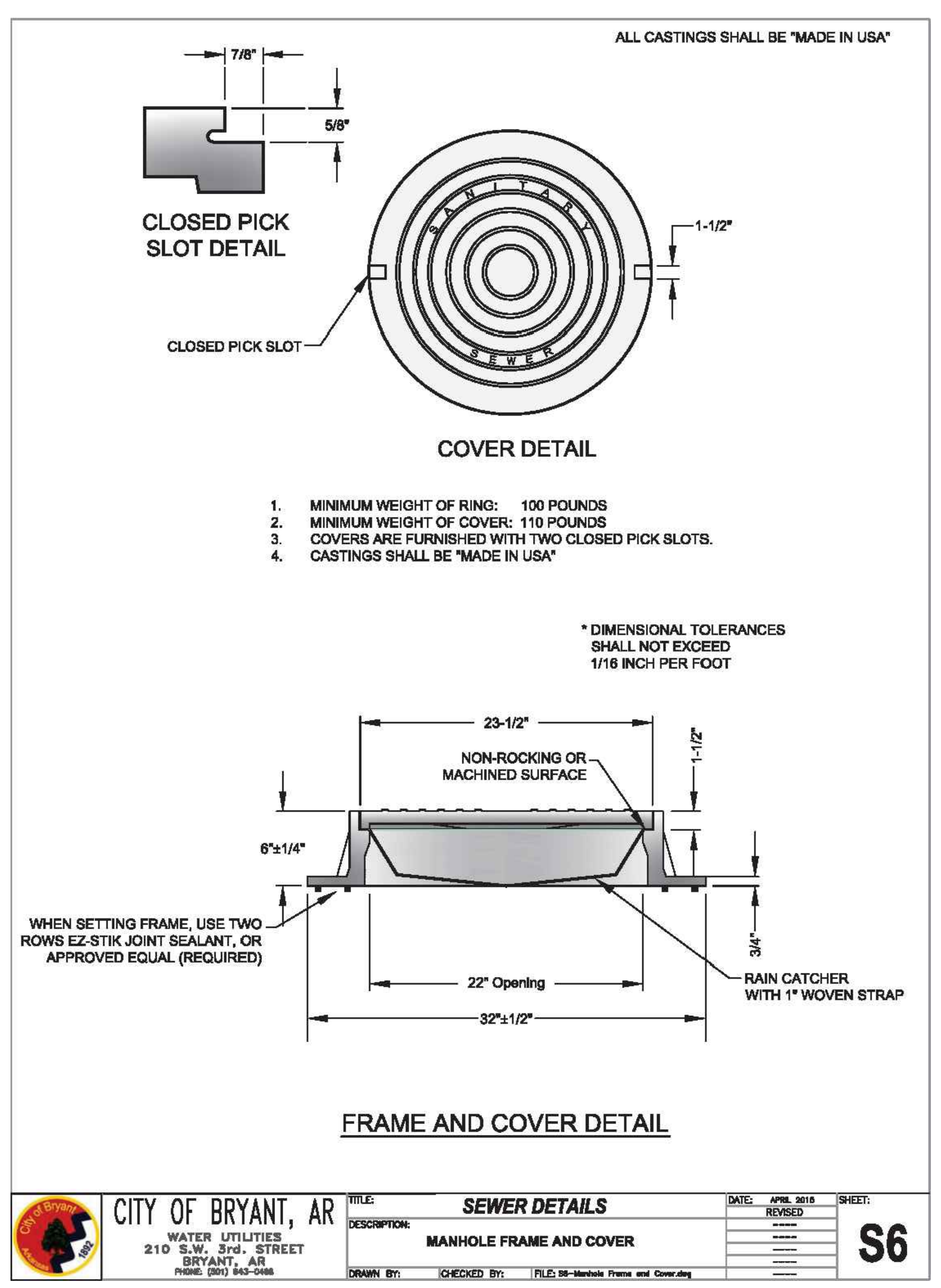


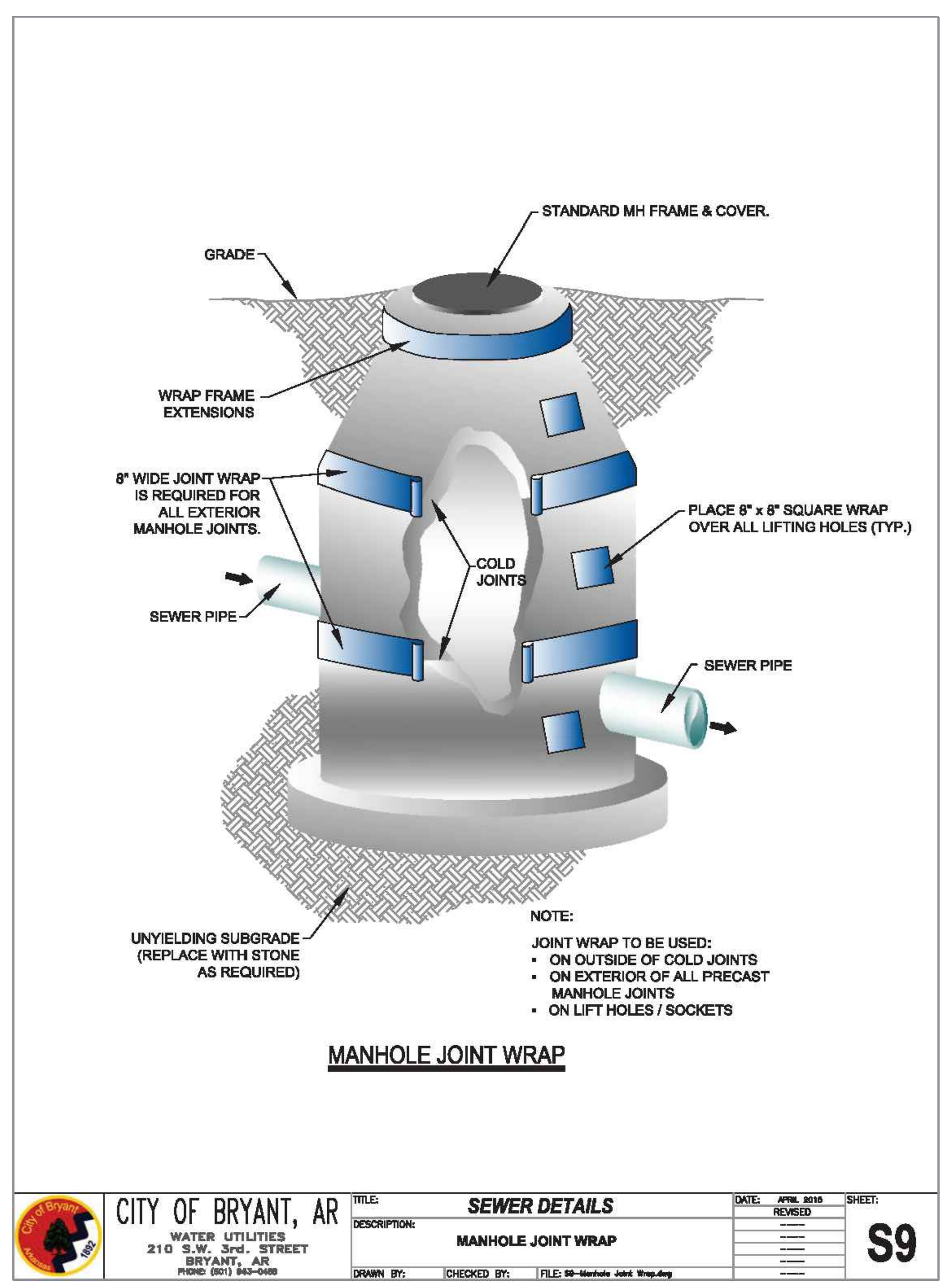


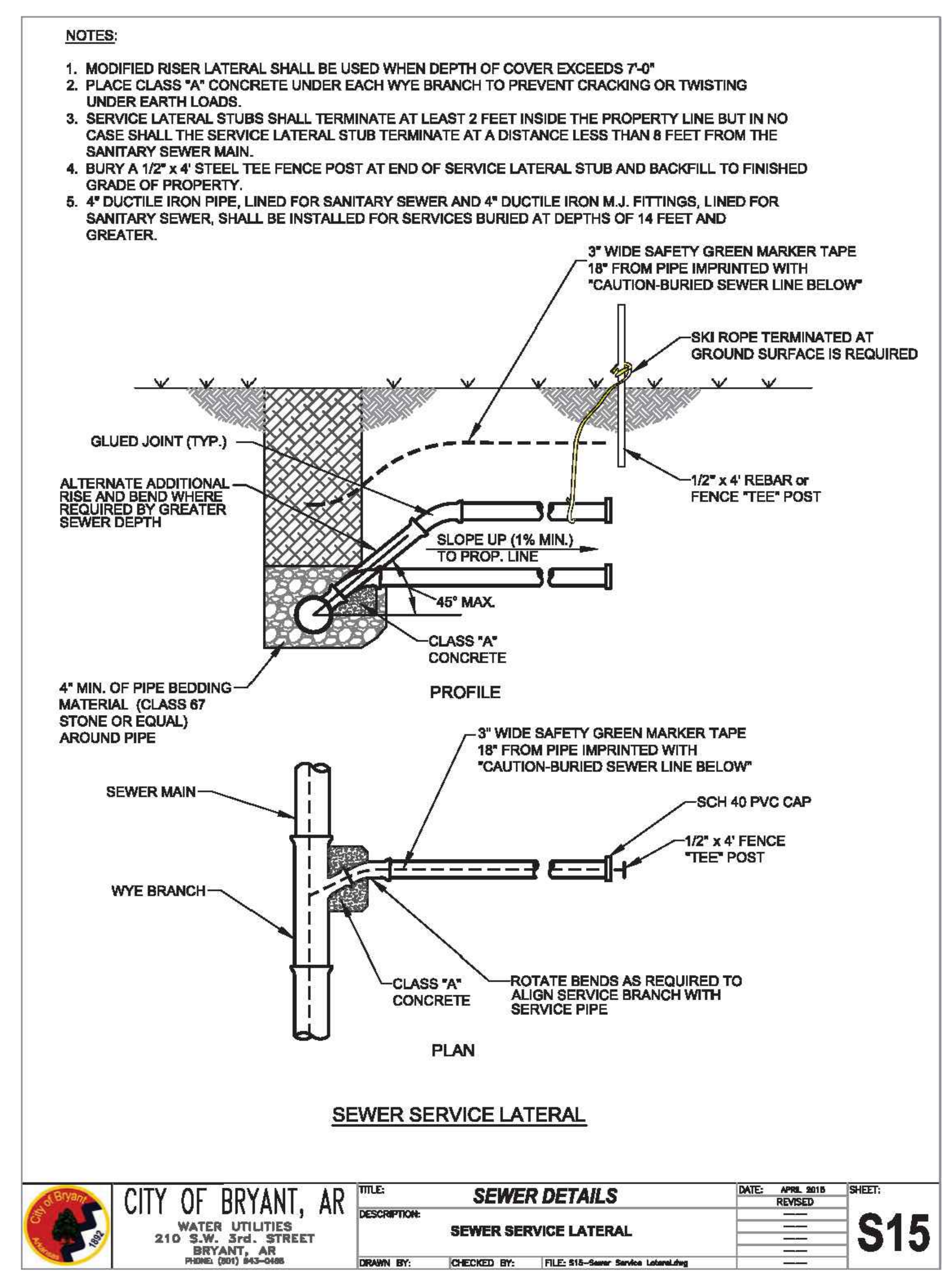


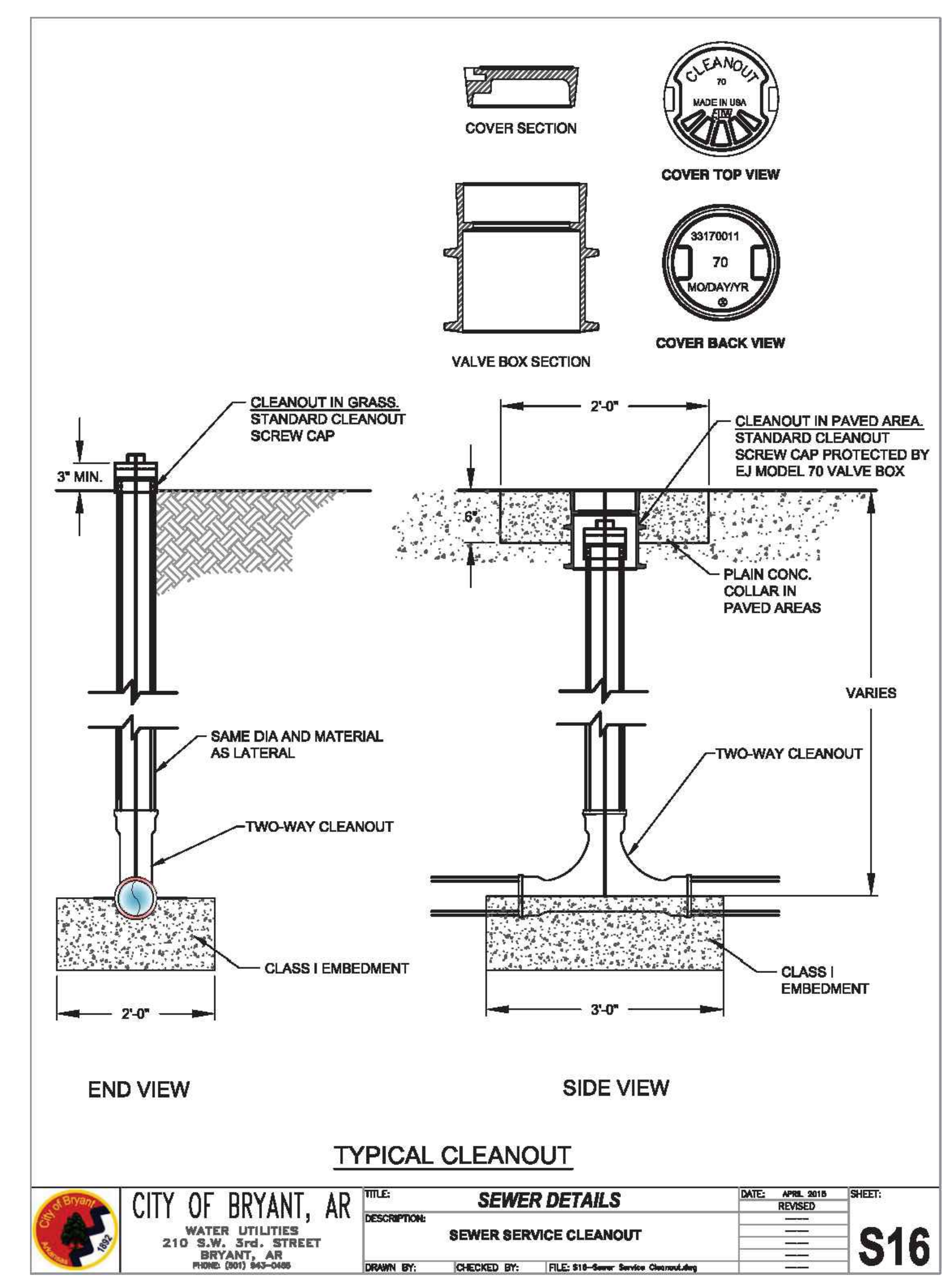












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CONSTRUCTION DETAILS – SEWER
HILLCREST ADDITION
PART OF THE SE 1/4 OF SECTION 17, T-1-S, R-14-W
CITY OF BRYANT, SALINE COUNTY, ARKANSAS

Prepared For:
Springhill HWY 5
Development, LLC
816 E. Oak Street
Conway, Arkansas 72032

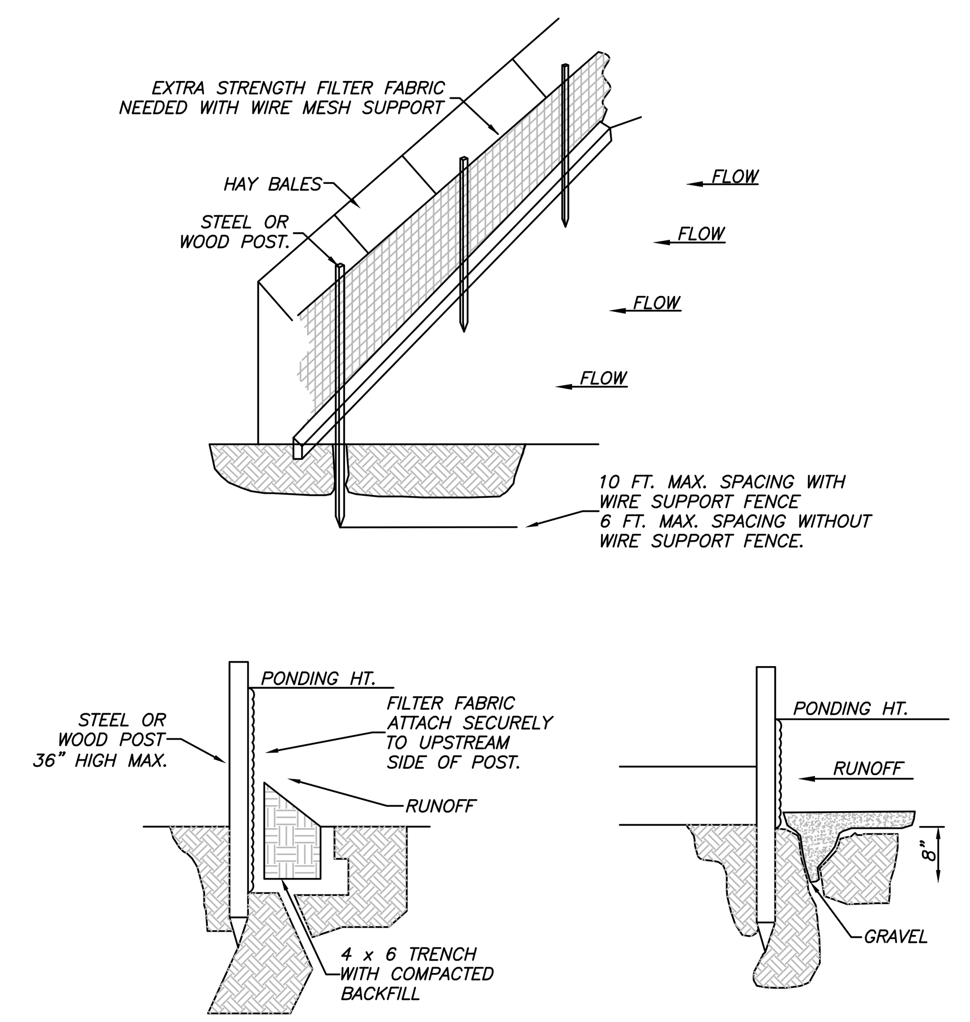
No.	Revisions	Date	By

Project No.: 24-018
Date: JULY 9, 2024
File: 09_Hillcrest CD Sewer
Scale: N.T.S.
Sheet: 9 of 10
Drawn By: B. Judd

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7373
TIMOTHY B. LEMONS

GENERAL NOTES:

1.) A SILT FENCE AND STRAW BALE DIKE SHALL BE PLACED AT POTENTIAL LOCATIONS OF HEAVY EROSION.
2.) TEMPORARY STRAW BALE DIKES ARE TO BE CONSTRUCTED NOT TO POND WATER ON ADJACENT PROPERTY.
3.) ALL TEMPORARY EROSION CONTROLS SHALL BE MAINTAINED UNTIL ALL CONSTRUCTION IS COMPLETE & PERMANENT GROUND COVER HAS BEEN ESTABLISHED.
4.) ONE OF THE FOLLOWING GROUND COVER METHODS SHALL BE USED AT AREAS OF CLEARING OTHER THAN FUTURE PAVEMENT SURFACES:
STRAW OR HAY-LOOSE 2.0 TONS/ACRE
STRAW OR HAY-TIED, ANCHORED, OR TACKED 1.5 TONS/ACRE
5.) SOIL EXPOSED FOR MORE THAN 14 DAYS WITH NO CONSTRUCTION ACTIVITY SHALL BE SEEDED OR REVEGITATED.
6.) CONSTRUCTION EXITS SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING ON FLOW OF MUD INTO PUBLIC RIGHT-OF-WAY.
7.) ADDITIONAL EROSION CONTROL MEASURES WILL BE EMPLOYED WHERE NECESSARY BY SITE CONDITIONS.
8.) CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING EROSION CONTROL MEASURES & PROVIDE RAIN FALL MONITORING & BI-WEEKLY INSPECTION REPORTS IN ACCORDANCE WITH THE NPDES PERMIT REQUIREMENTS.
9.) CONTRACTOR SHALL USE "BEST MANAGEMENT PRACTICES" (BMP'S) WHEN IMPLEMENTING & MAINTAINING SEDIMENT & RUN-OFF CONTROLS.
10.) THE USE OF "BIO-DEGRADABLE SOCK" IS ALLOWED AS OPPOSED TO SILT FENCE.

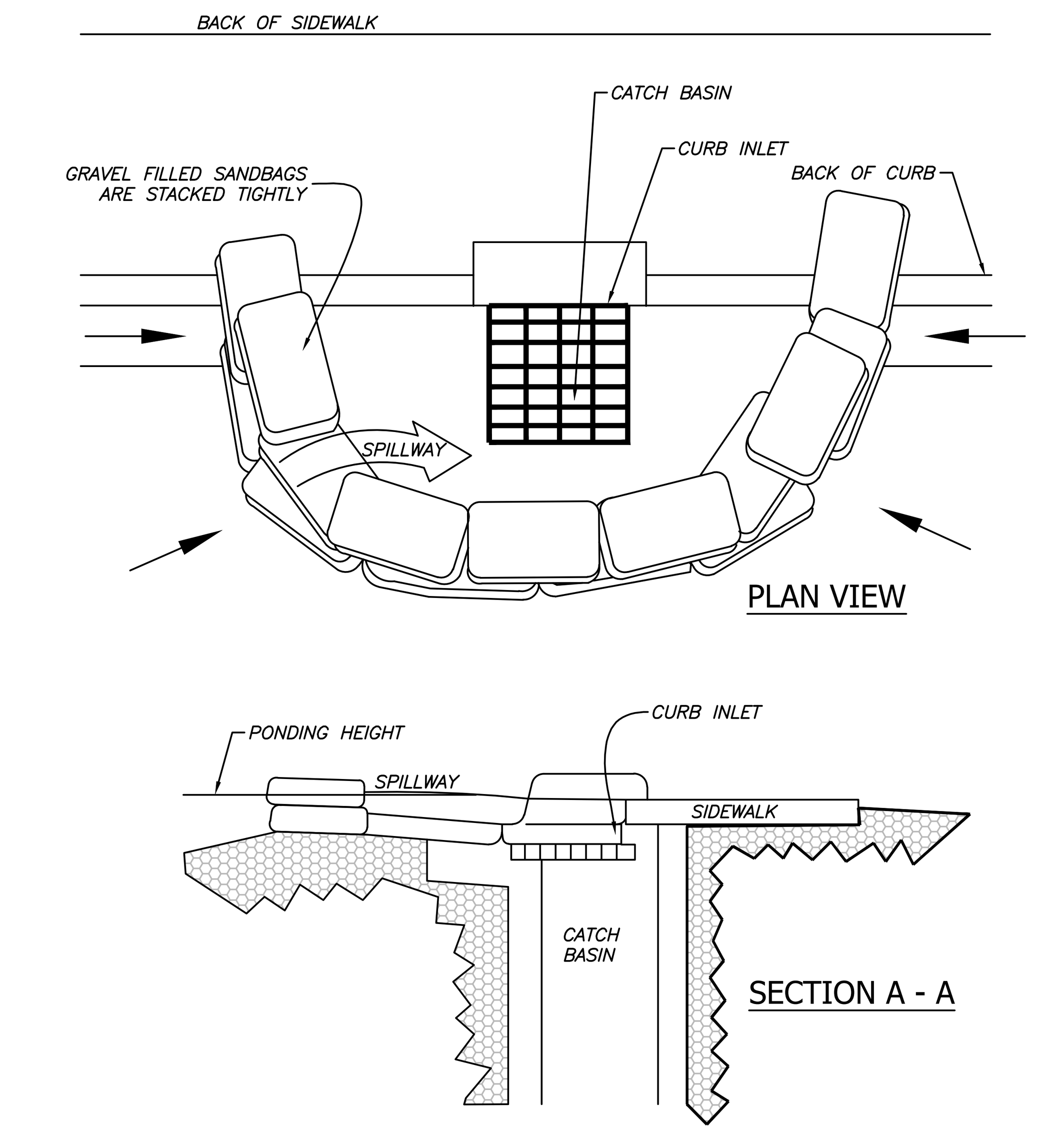


STANDARD DETAIL
TRENCH WITH NATIVE GRAVEL

ALTERNATE DETAIL
TRENCH WITH GRAVEL

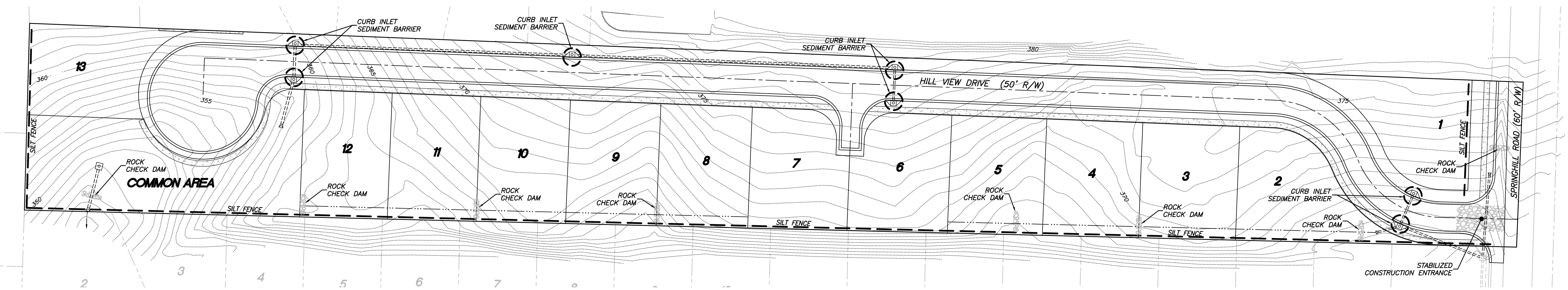
NOTE:
1.) INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY.
2.) REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.
3.) SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.

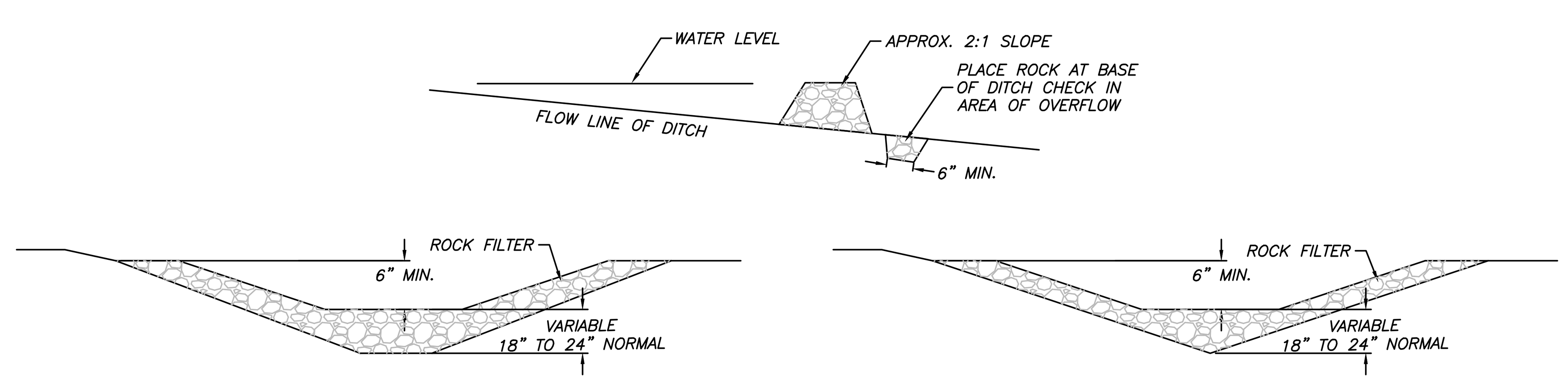
SILT FENCE
NTS



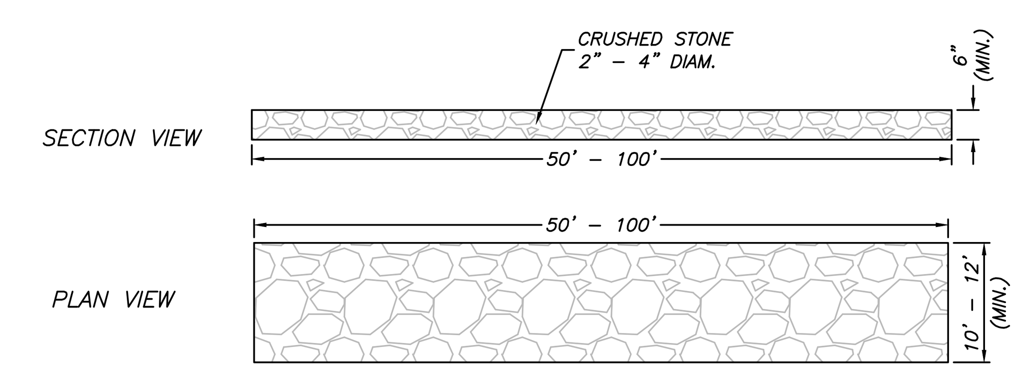
NOTES:
1.) PLACE CURB TYPE SEDIMENT BARRIERS ON GENTLY SLOPING STREET SEGMENTS WHERE WATER CAN POND AND ALLOW SEDIMENT TO SEPARATE FROM RUNOFF.
2.) SANDBAGS OF EITHER BURLAP OR WOVEN GEOTEXTILE FABRIC ARE FILLED WITH GRAVEL, LAYERED, AND PACKED TIGHTLY.
3.) LEAVE ONE SANDBAG GAP IN THE TOP ROW TO PROVIDE A SPILLWAY FOR OVERFLOW.
4.) INSPECT BARRIERS AND REMOVE SEDIMENT AFTER EACH STORM EVENT. SEDIMENT AND GRAVEL MUST BE REMOVED FROM THE TRAVELED WAY IMMEDIATELY.

CURB INLET
SEDIMENT BARRIER
NTS

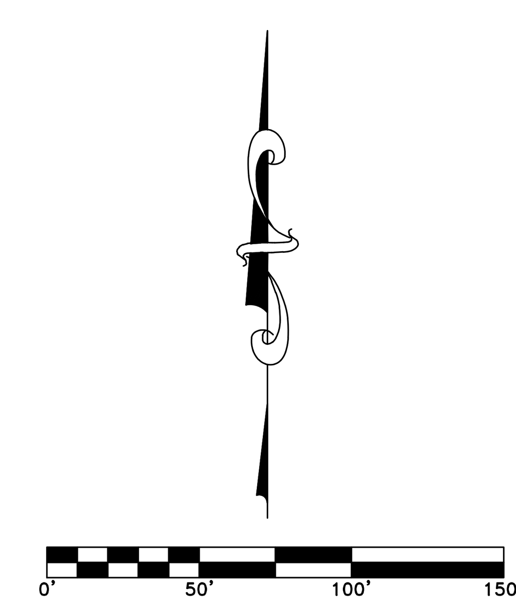




ROCK CHECK DAM
NTS



STABILIZED CONSTRUCTION ENTRANCE
NTS



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EROSION CONTROL PLAN
HILLCREST ADDITION
PART OF THE SE 1/4 OF SECTION 17, T-1-S, R-14-W
CITY OF BRYANT, SALINE COUNTY, ARKANSAS

Prepared For:
Springhill HWY 5 Development, LLC
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Project No.: 24-018
Date: JULY 9, 2024
File: 10_Hillcrest Erosion
Scale: 1" = 50'
Sheet: 10 of 10
Drawn By: B. Judd

Lemons Engineering Consultants, Inc.
204 West Cherry Street
Cabot, Arkansas 72023
(501) 605-7565
arstrep43@gmail.com

October 24, 2024

Mr. Colton Leonard, City Planner &
Mr. Kelly Vanlandingham, PE, City Engineer
City of Bryant, Arkansas
Community Development
210 SW 3rd Street
Bryant, Arkansas 72022

Re: Preliminary Plat
3927 Springhill Road, Bryant, AR
Parcel # 840-11855-000

Dear Mr. Leonard and Mr. Vanlandingham:

Please accept this letter in response to your latest comments as provided in an email on October 22. 2024. I will address the items in the order expressed (my response is shown in ***bold italicized***):

Drainage Calculations

1. The contours on the post construction drainage map (page 15) are so bold that I cannot read the inlet numbers or the flows. ***Not sure what the issue is on this matter. The separate pdf (large scale) that was a separate attachment shows up fine on our computers. I am resending it (full size).***
2. At the bottom of page 20 Q bypass says 0% but it should be 32.6%. ***Whereas the amount of by pass is correct, I did not adjust the percentage. This typo has been corrected. The amount of by pass was included in the down stream inlet.***
3. Page 33, show calculations for slotted weir. Is clogging included in the calculations? ***Yes. The vertical opening in the weir structure (below the 100 year storm elevation) is 2.78 sf. The horizontal opening on three sides of the box add 4.00 sf of opening, for a total of 6.78 sf. This is well more than what is needed for clogging.***
4. Page 34, detention pond calculations must show that post-construction flows from the pond are less than the pre-construction flows for 2, 5, 10, 25, 50, and 100 year storms (Section 1000.5.6, paragraph 2). ***This is actually presented in the Summary-Detention Chart shown on Sheet 33.***

Drainage maps

1. The post-construction map shows the discharge from Control Point A as being 12.88 cfs. Page 34 in the calculations shows it as being 16.81 cfs. ***This has been corrected. See attached revised map.***
2. The post-construction map shows discharge from Control Point B and C and there is no discharge shown in the calculations. ***This has been corrected. See attached revised map.***
3. The post-construction map shows discharge from Control Point D as being 17.74 cfs but the calculations on page 34 show 38.08 cfs with no detention and 16.45 cfs with detention. ***This has been corrected. See attached revised map.***

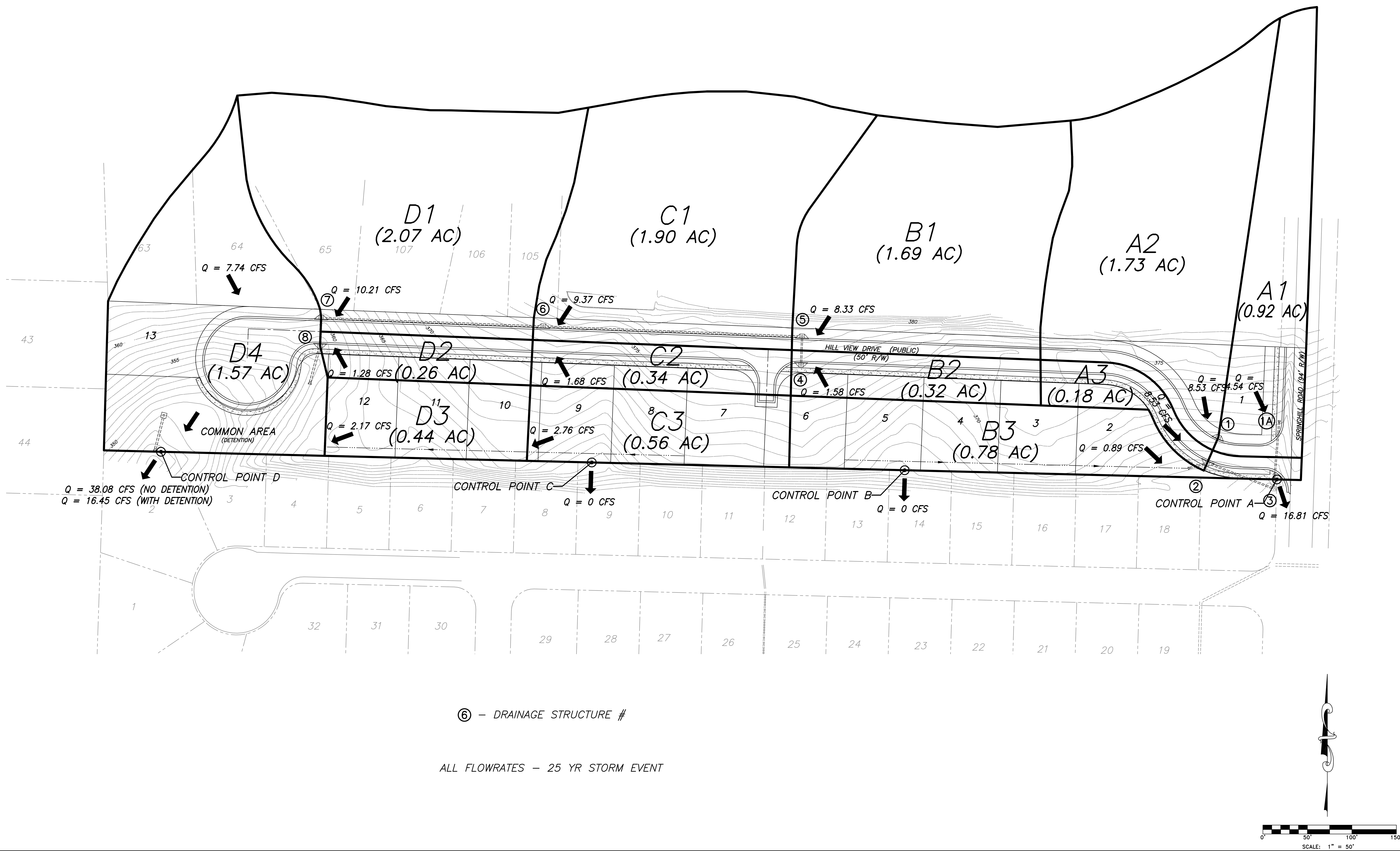
Construction Plans

1. Sheet 3 of 10 shows the existing18" culvert stopping just behind the curb of the half-street improvements. Since the existing ditch will be graded over, it appears that this pipe should be extended to the north and pick up flow from the north. ***We will need to consult the owners as to when the half street improvements will be constructed. If the City and the Owner agree to an in leu of cost clause, the pipe will need to end in the vicinity of where it is shown on the existing plans. We are willing to discuss this with staff.***
2. Sheet 3 of 10, show the existing ditch & culvert to the south of JB#3 along Springhill Road. Show details on how the outlet looks and how the flow will be handled to the south. ***We will be matching the existing half street road improvements from our planned intersection, to the South. This has been added to this sheet.***
3. Sheet 5 of 10, show inlet numbers. ***Added as requested.***
4. Sheet 5 of 10, Is the top 4" slot all the way around the box beneath the top? ***Yes. I have added additional information on this detail to better represent this item.***

Please let me know if you need anything additional.

Sincerely,

Tim Lemons, PE



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ENGINEERING + SURVEYING
WATER ◦ SEWER ◦ TRANSPORTATION ◦ SUBDIVISIONS

DRAINAGE MAP – POST CONSTRUCTION
HILLCREST ADDITION

PART OF THE SE 1/4 OF SECTION 17, T-1-S, R-14-W
CITY OF BRYANT, SALINE COUNTY, ARKANSAS

Prepared For:
Springhill HWY 5
Development, LLC
816 E. Oak Street
Conway, Arkansas 72032

No.	Revisions	Date	By

Project No.: 24-018
Date: OCTOBER 24, 2024
File: Drainage Post Con
Scale: 1" = 50'
Sheet: 1 of 1
Drawn By: B. Judd

Drainage Report

For

Hillcrest Addition

Springhill Road
Bryant, Arkansas

Revised: October 24, 2024

Prepared By:

Lemons Engineering Consultants, Inc.
204 West Cherry Street
Cabot, Arkansas 72023
(501) 605-7565
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Index

Project Information

Project Title:	Hillcrest Addition
Project Description:	13 lot single family development located on the West side of Springhill Road, North of and adjacent to Hurricane Gardens, Bryant, Arkansas (address: 3927 Springhill Road)
Owner/Developer:	Springhill – Hwy 5 Development, LLC 816 East Oak Street Conway, Arkansas 72032
Engineer of Record:	Lemons Engineering Consultants, Inc. Tim Lemons, PE 204 Cherry Street Cabot, Arkansas 72023 (501) 605-7565

General Information

This proposed development shall include 13 single family lots. This property is essentially the Northern Most tract of land within the city limits of Bryant as it presently exist. The property to the North of the subject site is developed with duplex style residential structures existing outside the City limits of Bryant. The property to the South is an established subdivision (Hurricane Gardens). The property drains North to South. There have been several reports of drainage issues by the residents of Hurricane Gardens. At present, the drainage from the subject property, and that to the north of the subject property, flows onto Hurricane Gardens. No detention exists on the property located north of the subject property.

The objectives of this report are as follows:

1) Determine the estimated increase in runoff due to the development of Hillcrest Addition.
2) Provide design computations for a detention facility to bring the runoff from said tract to pre-construction rate.
3) Based on comments expressed by the residents, divert as much flow as possible away from the rear of the Northern most lots within Hurricane Gardens. As previously stated, the majority of the property to the North of Hurricane Gardens flows into the rear of the Northern most lots, creating an issue for the property owners.
4) Size the infrastructure in the development using the City's Drainage Code.
5) Compare the estimated Pre and Post flowrates at specific control points to show that the overall runoff from Hillcrest is at or less than the pre-construction flowrate.

The control points (A-D) to be used in this analysis are shown on the following vicinity map, and throughout this report.

Project Vicinity Map

Source: ARCOUNTYDATA.com

Hydrological Computations

For this analysis, we will use the Rational Method in determining culvert sizes, culvert capacity computations, and other related issues on site. The total watershed size for this development is estimated at 12.40 acres. Attention is called to the Watershed Map included in this report. As per the Rational Method, the following equation is used:

Q = C x I x A, where:
Q = Flowrate (cfs)
C = Runoff Coefficient
I = Intensity (from tables)
A = area (acres)

The selection of the appropriate intensity is based on the estimated time of concentration (tc).

Determination of Runoff Coefficients "C"

In determining the Pre Construction C, we must consider the property to the North that is developed, and discharging onto the subject property. The C factor for Pre and Post Conditions are based on Table 400-1 "Runoff Coefficients for Surface Types" as provided in the Bryant Drainage Manual. A factored (weighted) value of C is determined in the following tables:

Pre Construction Conditions

Storm Event	Off Site C1	Off Site A1 (acres)	Off Site C2	Off Site A2 (acres)	On Site C3	On Site A3 (acres)	On Site C4	On Site A4 (acres)	Weighted C Factor
2	0.75	3.04	0.29	4.73	0.75	0.19	0.29	4.59	0.41
5	0.8	3.04	0.32	4.73	0.8	0.19	0.32	4.59	0.44
10	0.83	3.04	0.35	4.73	0.83	0.19	0.35	4.59	0.47
25	0.88	3.04	0.39	4.73	0.88	0.19	0.39	4.59	0.52
50	0.92	3.04	0.42	4.73	0.92	0.19	0.42	4.59	0.55
100	0.97	3.04	0.46	4.73	0.97	0.19	0.46	4.59	0.59

C1 (off site for homes, streets, etc.)
C2 (off site for grass, landscaping, etc.)
C3 (on site for homes, streets, etc.)
C4 (on site for grass. Landscaping, etc.)

A1 (off site area for C1)
A2 (off site area for C2)
A3 (on site area for C3)
A4 (on site area for C4)

Post Construction Conditions

Storm Event	Off Site C1	Off Site A1 (acres)	Off Site C2	Off Site A2 (acres)	On Site C3	On Site A3 (acres)	On Site C4	On Site A4 (acres)	Weighted C Factor
2	0.75	3.04	0.29	4.73	0.75	1.81	0.29	3.07	0.47
5	0.8	3.04	0.32	4.73	0.8	1.81	0.32	3.07	0.50
10	0.83	3.04	0.35	4.73	0.83	1.81	0.35	3.07	0.53
25	0.88	3.04	0.39	4.73	0.88	1.81	0.39	3.07	0.58
50	0.92	3.04	0.42	4.73	0.92	1.81	0.42	3.07	0.61
100	0.97	3.04	0.46	4.73	0.97	1.81	0.46	3.07	0.66

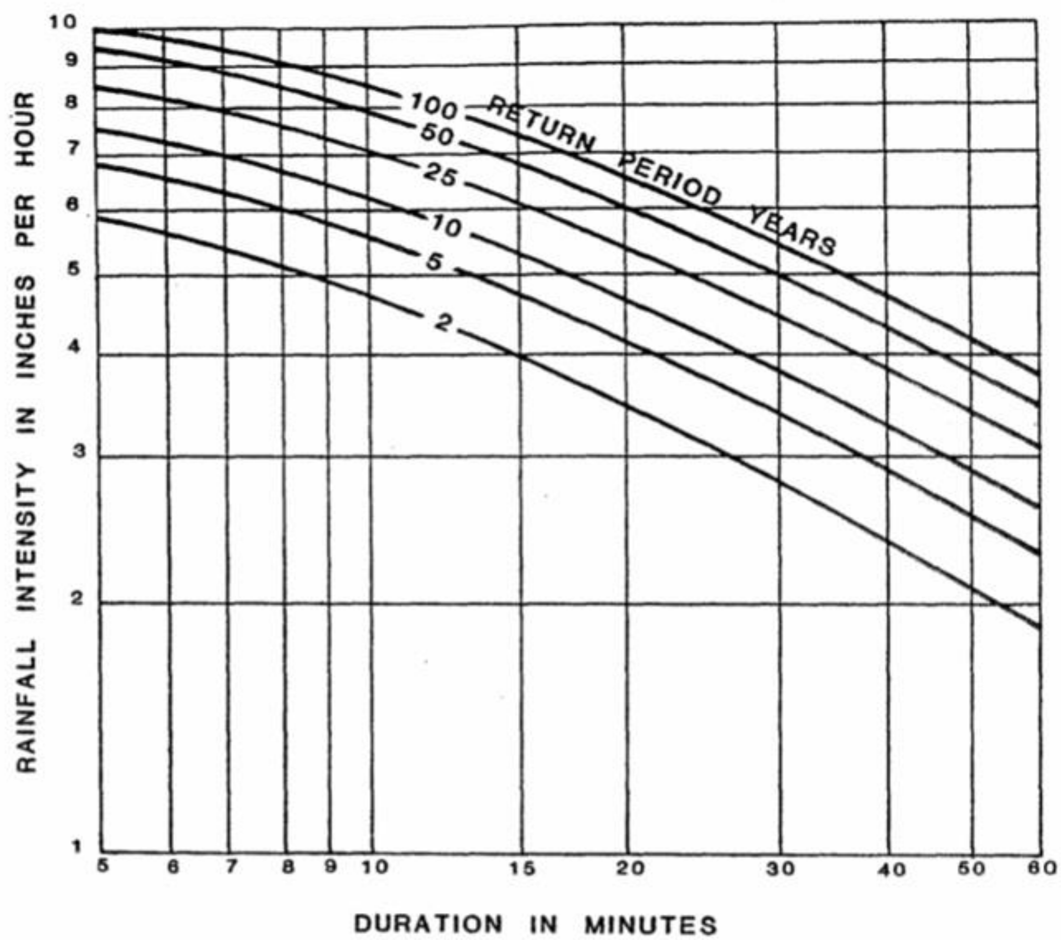
C1 (off site for homes, streets, etc.)
C2 (off site for grass, landscaping, etc.)
C3 (on site for homes, streets, etc.)
C4 (on site for grass. Landscaping, etc.)

A1 (off site area for C1)
A2 (off site area for C2)
A3 (on site area for C3)
A4 (on site area for C4)

The above variable values will be used in designing the Detention Facility. For culvert design, we will use the Post C values for the 25 year storm.

Determination of Intensity Values "I"

For this analysis, we will use the Intensity – Duration - Frequency Chart from the Little Rock Drainage Manual. Whereas the calculated value of I shall be used for Detention, we will use a tc (time of concentration) of 5 min for the culverts to also provide a conservative value.



INTENSITY - DURATION - FREQUENCY

LITTLE ROCK

SOURCE : HYDRO 35 & T.P. No. 40

Drainage Map (Pre-Construction)

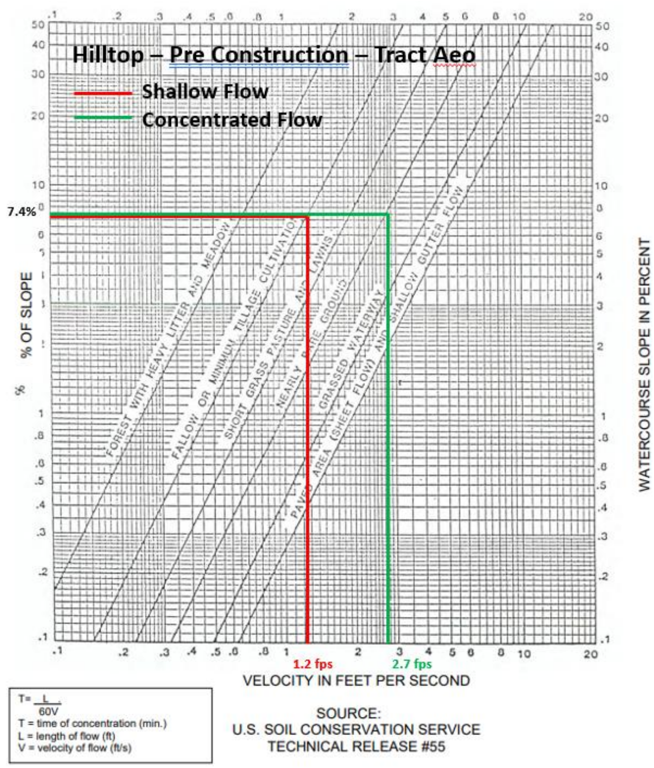
See attached map for additional information

Pre Construction Flowrates – Control Points

The estimated Pre Construction Flowrate for each Control Point is estimated as follows. These values will be used to compare to the Post Construction Flowrate later in this report:

Control Point A

The time of concentration is determined as follows:



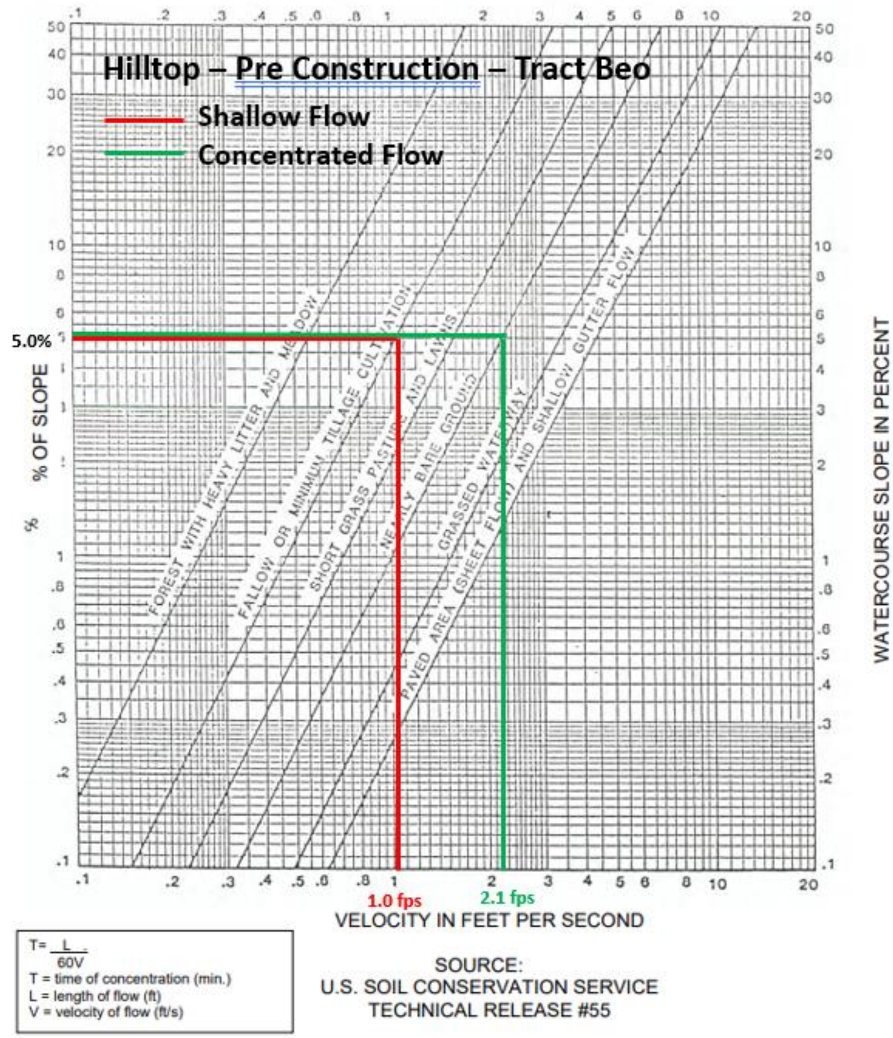
tc = ((300)/(60)(1.2)) + ((300)/(60)(2.7)) = 6 min

Flowrates for various Storm Events (Control Point A):

Storm Event	C	tc	I	A	Q
		(min)	(in/hour)	(acres)	(cfs)
2	0.41	6	5.6	3.02	6.93
5	0.44	6	6.6	3.02	8.77
10	0.47	6	7.3	3.02	10.36
25	**0.52**	**6**	**8.2**	**3.02**	**12.88**
50	0.55	6	9.2	3.02	15.28
100	0.59	6	9.8	3.02	17.46

Control Point B

The time of concentration is determined as follows:



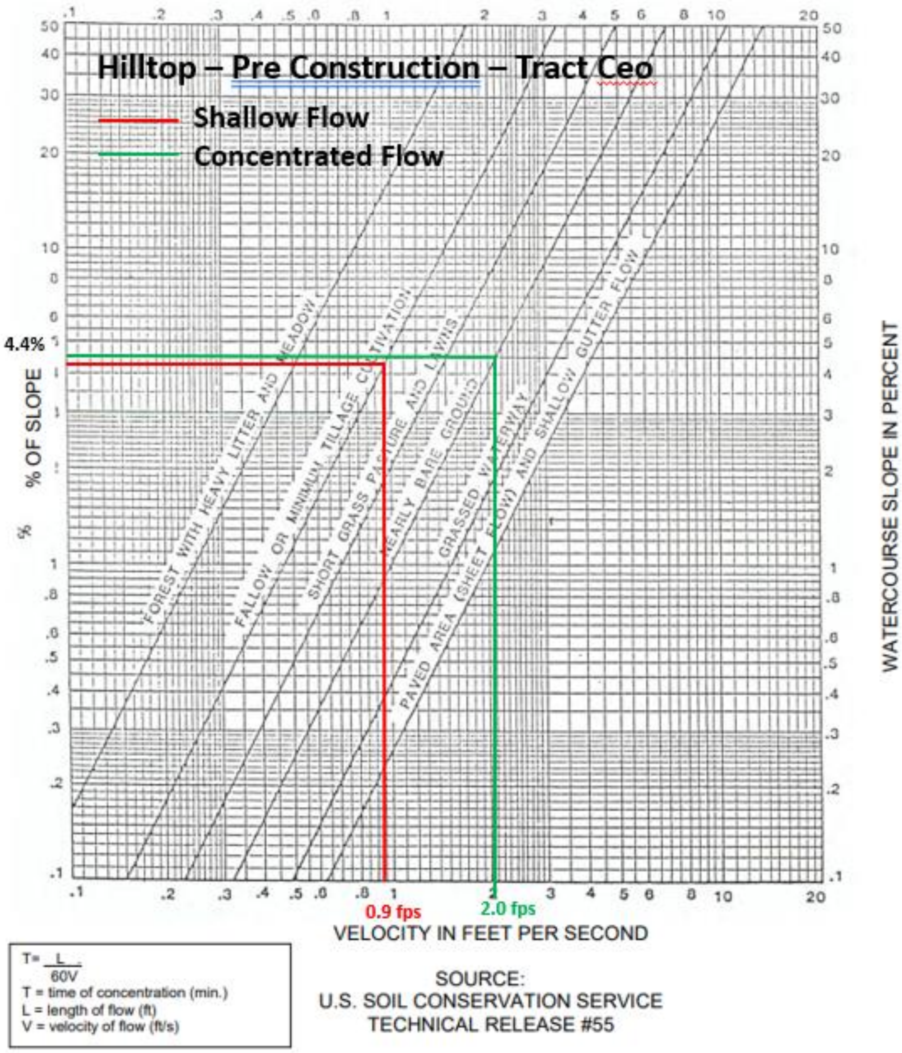
tc = ((300)/(60)(1.0)) + ((200)/(60)(2.1)) = 6.5 min

Flowrates for various Storm Events (Control Point B):

Storm Event	C	tc	I	A	Q
		(min)	(in/hour)	(acres)	(cfs)
2	0.41	6.5	5.6	2.47	5.67
5	0.44	6.5	6.6	2.47	7.17
10	0.47	6.5	7.3	2.47	8.47
25	**0.52**	**6.5**	**8.2**	**2.47**	**10.53**
50	0.55	6.5	9.2	2.47	12.50
100	0.59	6.5	9.8	2.47	14.28

Control Point C

The time of concentration is determined as follows:



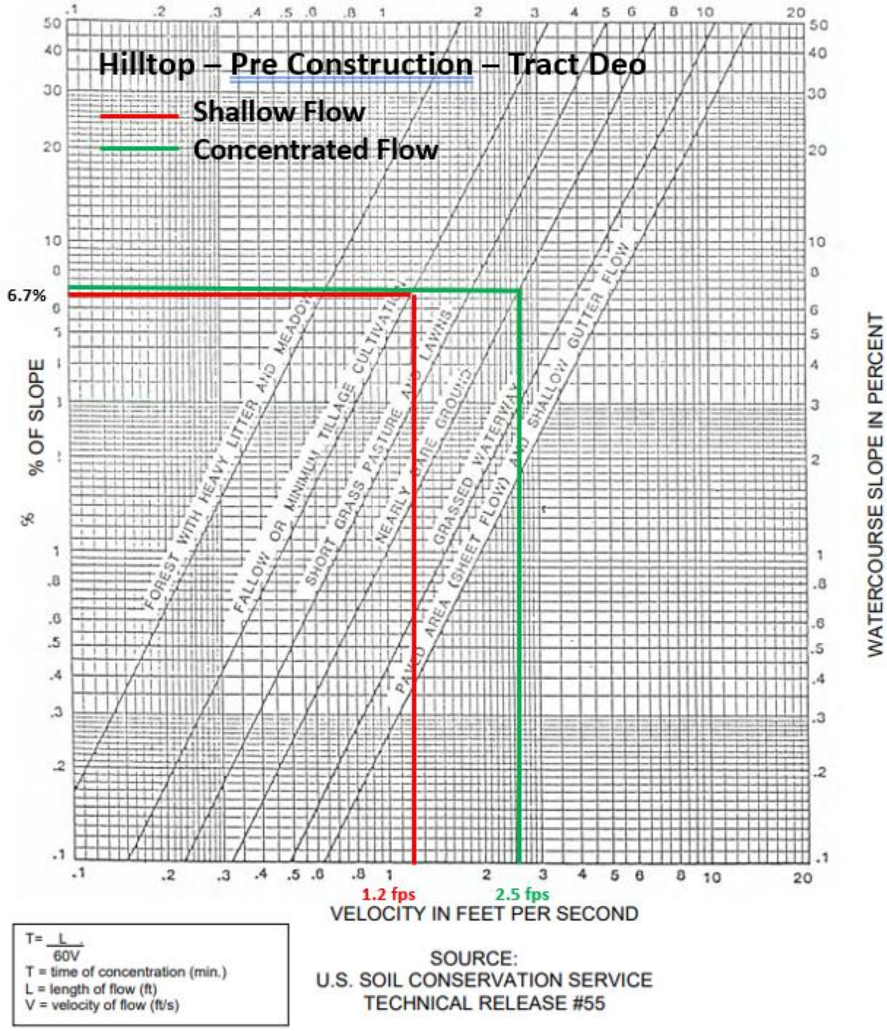
tc = ((300)/(60)(0.9)) + ((300)/(60)(2.0)) = 8 min

Flowrates for various Storm Events (Control Point C):

Storm Event	C	tc	I	A	Q
		(min)	(in/hour)	(acres)	(cfs)
2	0.41	8	5.1	2.75	5.75
5	0.44	8	6	2.75	7.26
10	0.47	8	6.7	2.75	8.66
25	**0.52**	**8**	**7.7**	2.75	**11.01**
50	0.55	8	8.5	2.75	12.86
100	0.59	8	9.1	2.75	14.76

Control Point D

The time of concentration is determined as follows:



tc = ((300)/(60)(1.2)) + ((340)/(60)(2.5)) = 6.4 min

Flowrates for various Storm Events (Control Point D):

Storm Event	C	tc	I	A	Q
		(min)	(in/hour)	(acres)	(cfs)
2	0.41	6.5	5.6	4.16	9.55
5	0.44	6.5	6.6	4.16	12.08
10	0.47	6.5	7.3	4.16	14.27
25	**0.52**	**6.5**	**8.2**	4.16	**17.74**
50	0.55	6.5	9.2	4.16	21.05
100	0.59	6.5	9.8	4.16	24.05

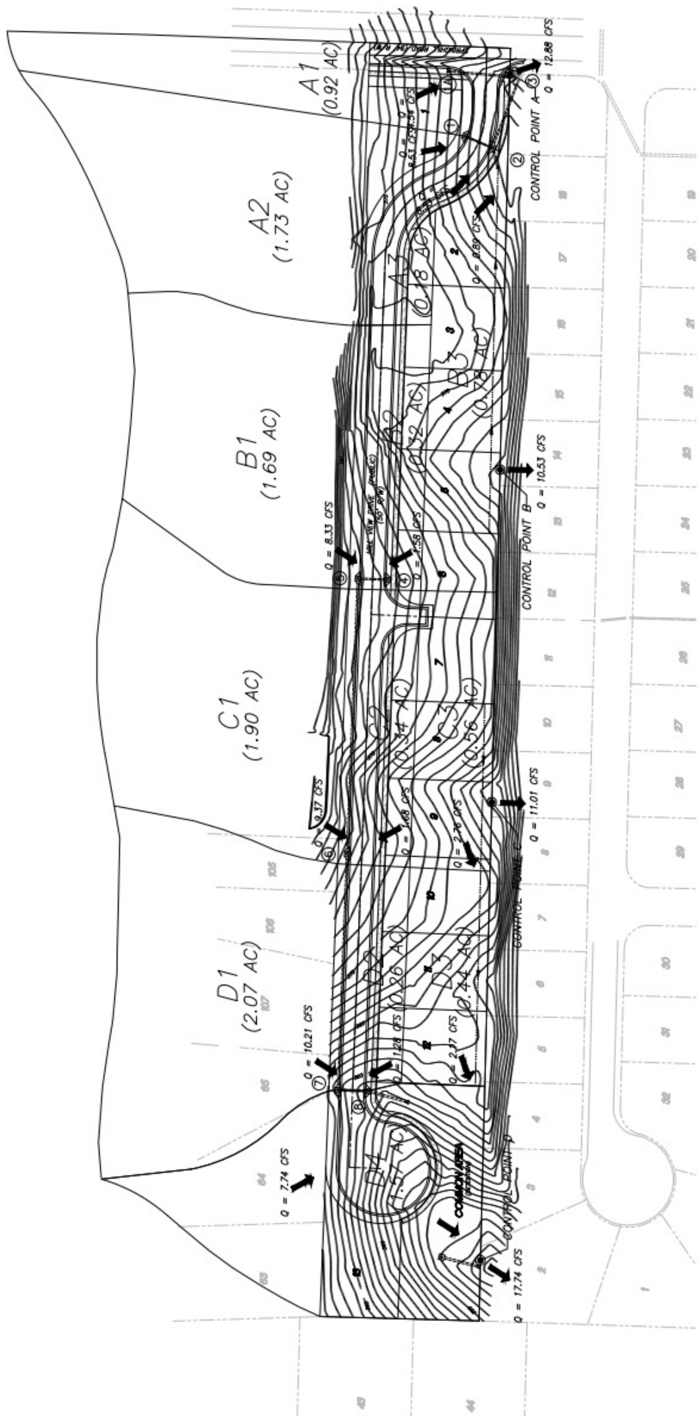
Determination of Flowrates for Culverts & Spreadflow

Attention is called to the following chart which provides C, Intensity, Area, and Flowrate (Q) of each Tract. Again, the Rational Method is being used for all basins. Attention is called to the Maps on the next two pages for a detailed drawings showing the various watershed tracts. The 25 year storm event will be used for culvert design. A conservative tc of 5 minutes is used for the culvert design.

Tract	C(Post)	I25	A	Q25
		(in/hr)	(ac)	(cfs)
A1	0.58	8.5	0.92	4.54
A2	0.58	8.5	1.73	8.53
A3	0.58	8.5	0.18	0.89
B1	0.58	8.5	1.69	8.33
B2	0.58	8.5	0.32	1.58
B3	0.58	8.5	0.78	3.85
C1	0.58	8.5	1.90	9.37
C2	0.58	8.5	0.34	1.68
C3	0.58	8.5	0.56	2.76
D1	0.58	8.5	2.07	10.21
D2	0.58	8.5	0.26	1.28
D3	0.58	8.5	0.44	2.17
D4	0.58	8.5	1.57	7.74

Drainage Map (Post Construction)

Revised 10/21/2024



See attached Map for additional information

Culvert Sizing

All culverts are sized to meet a 25 year storm, and the Rational Method is used. We will use a Manning's Coefficient of 0.012 shall be for all culverts (concrete and HDPE). The d/D ratio and velocity was computed using HawsEDC On-Line Calculator (hawsedc.com).

FES 1a
Q = Qa1 = 4.54 cfs
Use 18" @ 3.5%
Q capacity = 21.94 cfs
V actual = 9.68 fps (d/D = 0.32)

Inlet 1
Q = Qa2 = 8.53 cfs
Use 18" @ 1.1%
Q capacity = 12.30 cfs
V actual = 7.36 fps (d/D = 0.63)

Inlet 2
Q = Inlet 1 + Qa3 = 8.53 + 0.89 = 9.42 cfs
Use 24" @ 0.3%
Q capacity = 13.84 cfs
V actual = 4.63 fps (d/D = 0.62)

Junction Box 3 (verify capacity)
Q = Inlet 2 + Qb3 + Exist 18" in Hurricane Gardens
(Culvert in Hurricane Gardens is an 18" ADS at 0.46%, Capacity = 7.95 cfs at d/D=0.85)
Q = 9.42 + 3.85 + 7.95 = 21.22 cfs
Existing 24" Discharging from Junc Box is 24" ADS @ 5.20%
Q capacity = 57.58 cfs ***Capacity appears to exist***
V actual = 16.61 fps (d/D = 0.43)

Inlet 4
Q = Qb2 = 1.58 cfs
Use 18" @ 0.5%
Q capacity = 8.29 cfs
V actual = 3.53 fps (d/D = 0.30)

Inlet 5
Q = Inlet 4 + Qb1 = 1.58 + 8.33 = 9.91 cfs
Use 18” @ 1.0%
Q capacity = 11.73 cfs
V actual = 7.25 fps (d/D = 0.72)

Inlet 6
Q = Inlet 5 + Qc1 = 9.91 + 9.37 = 19.28 cfs
Use 18” @ 4.60%
Q capacity = 25.15 cfs
V actual = 15.30 fps (d/D = 0.67)

Inlet 7
Q = Inlet 6 + Qd1 = 19.28 + 10.21 = 29.49 cfs
Use 24” @ 2.0%
Q capacity = 35.71 cfs
V actual = 12.38 fps (d/D = 0.71)

Inlet 8
Q = Inlet 7 + Qc2 + Qd2 = 29.49 + 1.68 + 1.28 = 32.45 cfs
Use 24” @ 2.25%
Q capacity = 37.87 cfs
V actual = 13.28 fps (d/D = 0.73)

Street Spreadflow Analysis & Inlet Capture

In this Section of the Report, we will examine how the stormwater in the street gutters may impact in proposed inlets. We will use our 27’ street width (back of curb to back of curb), while giving allowances for the vertical portion of the curb on each side. The crown on the street shall be 3.0%. The available street width, to handle the stormwater, has a width of 26’. Our goal is to provide a minimum “non submerged” street width (“clear space”) of 8 feet. We will use the following equation (as provided in “Urban Drainage and Flood Control District – Urban

Storm Drainage Manual, Volume 1, dated January, 2016) to determine the required length of throat to capture 100% of the stormwater:

Lt = 0.38 (Q^0.51)(Sl^0.058)(1/nSx)^0.46, where:
Lt = required length of throat to capture 100%
Q = flowrate (cfs)
Sl = slope of gutter
N = manning's coef. = 0.012
Sx = cross slope of street = 0.03

Since n and Sx are constant, the equation can be reduced to:
Lt = 0.38 (Q^0.51)(Sl^0.058)(38.38)
Lt = 14.58 (Q^0.51) (Sl^0.058)

Attention is called to the Appendix for the spreadsheets used to evaluate these areas.

Check Inlet 1 & 2 – Hillcrest Drive (Spreadflow Analysis)

Inlet 1
Q = Qa2 = 8.53 cfs
Gutter Slope = 1.50%
Height of water (from gutter) = 0.33'
Width of water (from gutter) = 11.0'
Clear space (half street) = 13.0 – 11.0' = 2.0'
Inlet 2
Q = Qa3 = 0.89 cfs
Gutter Slope = 1.50%
Height of water (from gutter) = 0.14'
Width of water (from gutter) = 4.5'
Clear space (half street) = 13.0 – 4.5' = 8.5'
Total Clear Space = 2.0 + 8.5 = 10.5'

Stormwater Capture – Inlet 1
Lt = 14.58 (8.53^0.51)(0.015^0.058) = 34.10 feet
Using a 20' throat:
Q captured = 5.01 cfs (58.7%)
Q bypass = 3.52 cfs (41.3%)

Stormwater Capture – Inlet 2
Lt = 14.58 (0.89^0.51)(0.015^0.058) = 10.77 feet
Using a 12' throat:
Q captured = 0.89 cfs (100%)
Q bypass = 0.00 cfs (0%)

Check Inlet 4 & 5 – Hillcrest Drive (Spreadflow Analysis)

Inlet 4

Q = Qb2 = 1.58 cfs
Gutter Slope = 0.5%
Height of water (from gutter) = 0.21'
Width of water (from gutter) = 7.0'
Clear space (half street) = 13.0 – 7.0 = 6.0'

Inlet 5

Q = Qb1 = 8.33 fps
Gutter Slope = 0.5%
Height of water (from gutter) = 0.39'
Width of water (from gutter) = 13.0'
Clear space (half street) = 13.0 – 13.0' = 0.0'

Total Clear Space = 6.0 + 0.0 = 6.0'

TRY 10 YEAR STORM

Inlet 4

Q = Qb2 = 1.26 cfs
Gutter Slope = 0.5%
Height of water (from gutter) = 0.20'
Width of water (from gutter) = 6.5'
Clear space (half street) = 13.0 – 6.5' = 6.5'

Inlet 5

Q = Qb1 = 6.66 cfs
Gutter Slope = 0.5%
Height of water (from gutter) = 0.36'
Width of water (from gutter) = 12.0'
Clear space (half street) = 13.0 – 12.0' = 1.0'

Total Clear Space = 6.5 + 1.0 = 7.5'

Stormwater Capture – Inlet 4

Lt = 14.58 (1.26^0.51)(0.005^0.058) = 12.06 feet
Using a 13' throat:
Q captured = 1.26 cfs (100%)
Q bypass = 0.00 cfs (0%)

Stormwater Capture – Inlet 5

Lt = 14.58 (6.66^0.51)(0.005^0.058) = 28.20 feet
Using a 24' throat:
Q captured = 5.67 cfs (85.1%)
Q bypass = 0.99 cfs (14.9%)

Check Inlet 6 & Across Street – Hillcrest Drive (Spreadflow Analysis)

Inlet 6

Q = Qc1 = 9.37 cfs

Gutter Slope = 2.67%

Height of water (from gutter) = 0.30'

Width of water (from gutter) = 10.0'

Clear space (half street) = 13.0 – 10.0' = 3.0'

Across from Inlet 6

Q = Qc2 = 1.68 cfs

Gutter Slope = 2.67%

Height of water (from gutter) = 0.17'

Width of water (from gutter) = 5.5'

Clear space (half street) = 13.0 – 5.5 = 7.5'

Total Clear Space = 3.0 + 7.5 = 10.5'

Stormwater Capture – Inlet 6

Q = 9.37 + 0.99 (bypass from Inlet 5) = 10.36 cfs

Lt = 14.58 (10.36^0.51)(0.0267^0.058) = 38.93 feet

Using a 30' throat:

Q captured = 7.99 cfs (77.1%)

Q bypass = 2.37 cfs (22.9%)

Check Inlet 7 & 8 – Hillcrest (Spreadflow Analysis)

Inlet 7

Q = Qd1 = 10.21 cfs

Gutter Slope = 4.88%

Height of water (from gutter) = 0.29'

Width of water (from gutter) = 9.5'

Clear space (half street) = 13.0 – 9.5' = 2.5'

Inlet 8

Q = Qc2 + Qd2 = 2.42 + 2.17 = 2.96 cfs

Gutter Slope = 4.88%

Height of water (from gutter) = 0.18'

Width of water (from gutter) = 6.0'

Clear space (half street) = 13.0 – 6.0' = 7.0'

Total Clear Space = 2.5 + 7.0 = 9.5'

Stormwater Capture – Inlet 7

Q = 10.21 + 2.37 (bypass from Inlet 6) = 12.58 cfs

Lt = 14.58 (12.58^0.51)(0.0488^0.058) = 44.5 feet

Using a 30' throat:

Q captured = 8.48 cfs (67.4%)

Q bypass = 4.10 cfs (32.6%)

Stormwater Capture – Inlet 8
Lt = 14.58 (2.96^0.51)(0.0488^0.058) = 21.28 feet
Using a 22' throat:
Q captured = 21.28 cfs (100%)
Q bypass = 0.00 cfs (0%)

Curb Cut on Street at North side of Detention Pond
Q = Qd4 + 4.10 (bypass from Inlet 7) = 7.74 + 4.10 = 11.84 cfs
Use a 6" x 8' Curb Cut with a slope of 3%:
Q = (1.49/n)(A)(R^2/3)(S^1/2) = (1.49/0.012)(4)(4.33)(0.17) = 22.44 cfs

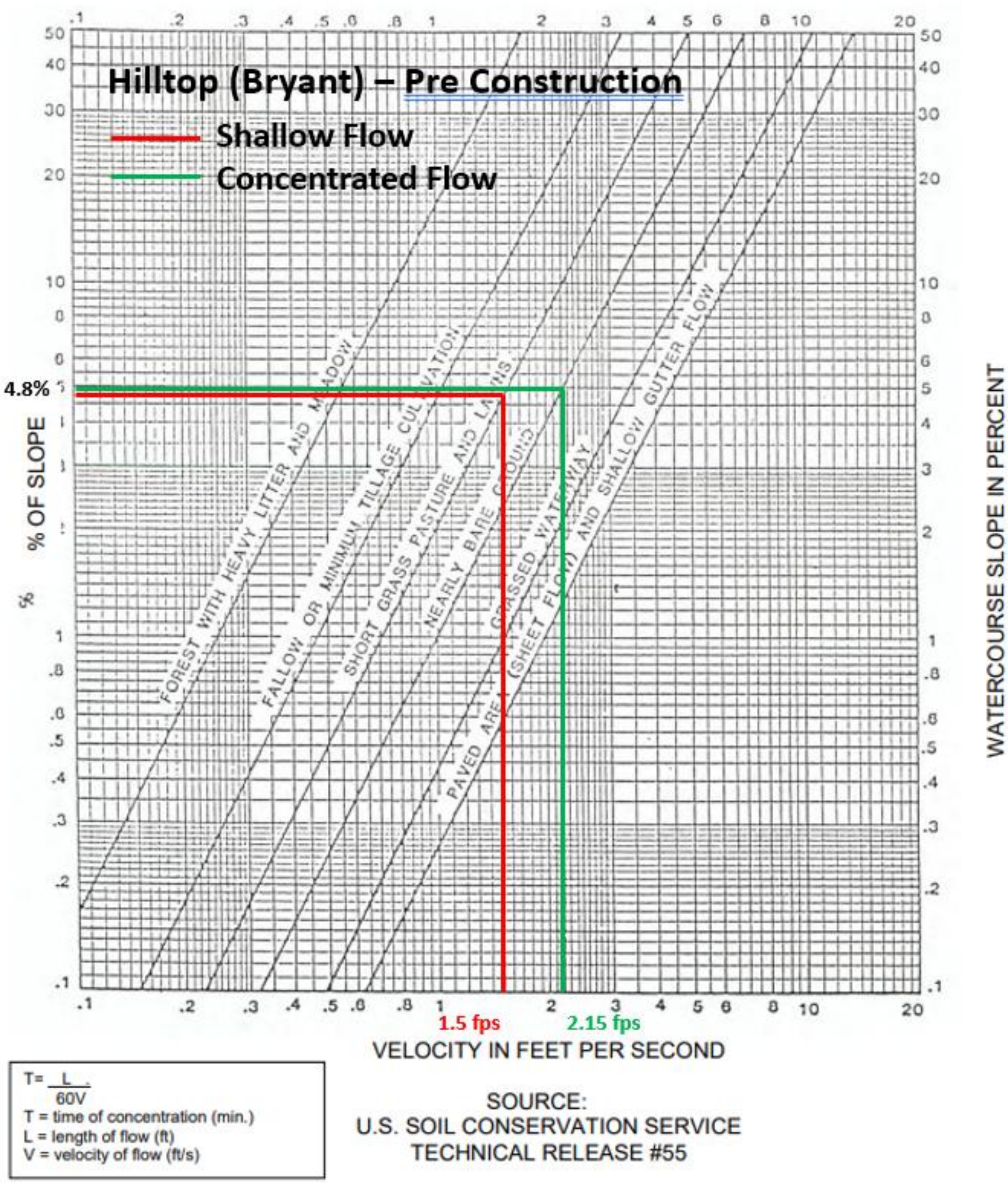
Detention Facility Computations

In this section, we will size the detention facility located in the Common Area (West side of the project). At the completion of this section, a summary of pre and post flows will be provided. Whereas the time of concentration will be used to determine the intensity (I), the runoff coefficient (C) for each storm analysis shall be based on that determined on pages 5 and 6 of this report.

Time of Concentration (tc)

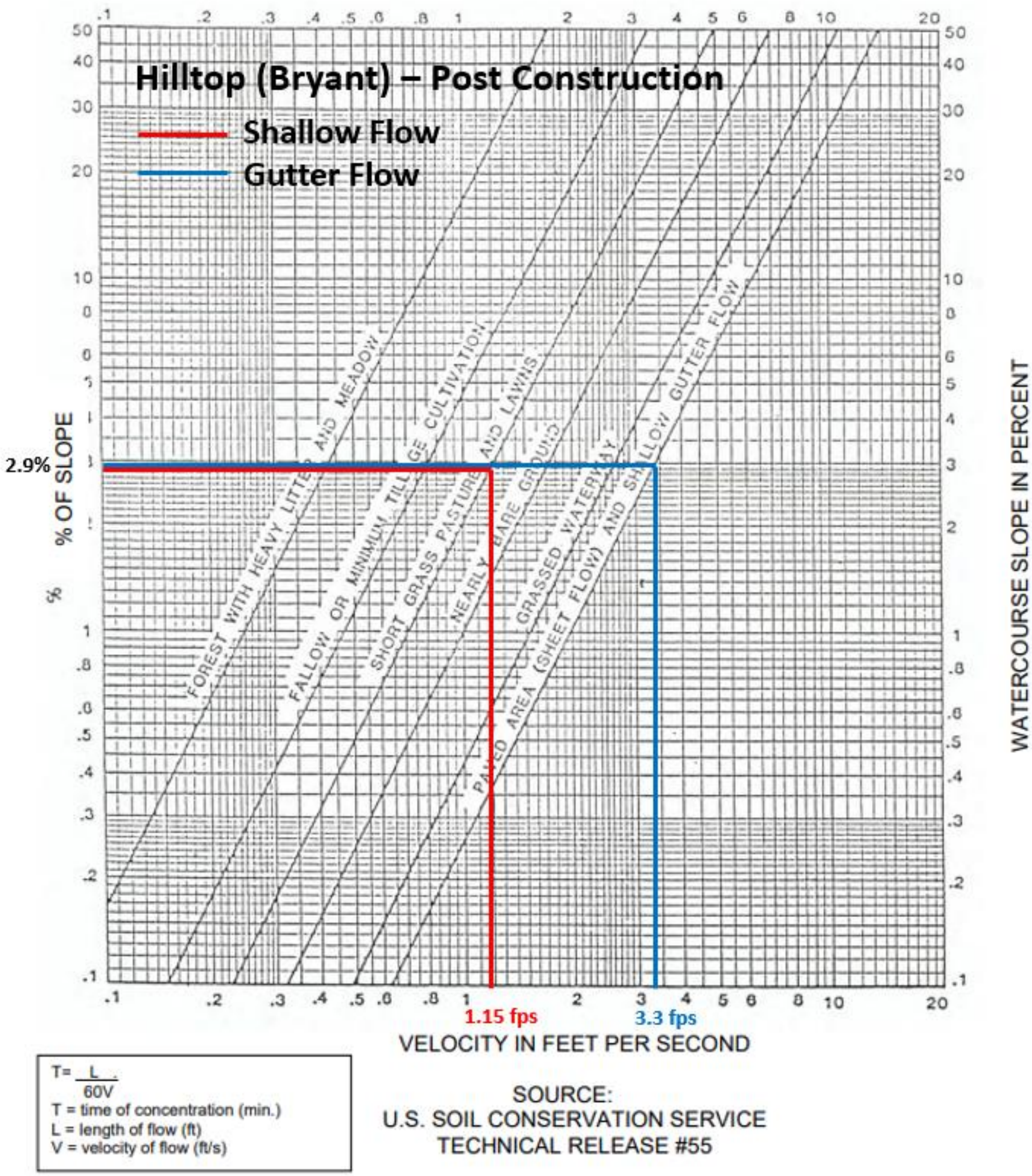
In determining the time of concentration, we must first determine the velocity of the runoff based on the type of ground cover and type of flow. The total tc is a sum of the tc for overland flow, the tc for shallow concentrated flow, and the tc for channelized flow. For this analysis, we will use the US Soil Conservation Service Technical Release #55, "Watercourse Slope vs Velocity" graph. A Pre Construction and Post Construction graph for each watershed is provided on the following pages.

Pre Construction Time of Concentration (tc)



Pre-Construction tc = Σ(L/(60)(V)) = 6 min

Post Construction Time of Concentration (tc)



Post-Construction tc = Σ(L/(60)(V)) = 9 min

Stage – Storage Table

The following Stage Storage Table is provided, based on the grading plan contained in the Civil Plans. The accumulative storage is provided in the right most column.

TYPE 3			
Stage - Storage for Irregular Detention Basin			
Top Elev	Bottom Elev	Increment	
353.5	345.5	1	
Stage	Area	Δ Volume	Volume
msl	sf	cf	cf
345.50	1	0	0
346.50	1853.50	927.25	927.25
347.50	2951.40	2402.45	3329.70
348.50	4240.13	3595.77	6925.47
349.50	5637.46	4938.80	11864.26
350.50	7118.75	6378.11	18242.37
351.50	8673.71	7896.23	26138.60
352.50	10265.99	9469.85	35608.45
353.50	11858.27	11062.13	46670.58

Stage – Discharge Table

The following Stage Discharge Table is provided, based on the grading plan contained in the Civil Plans. The discharge structure planned for this facility is shown later in this report.

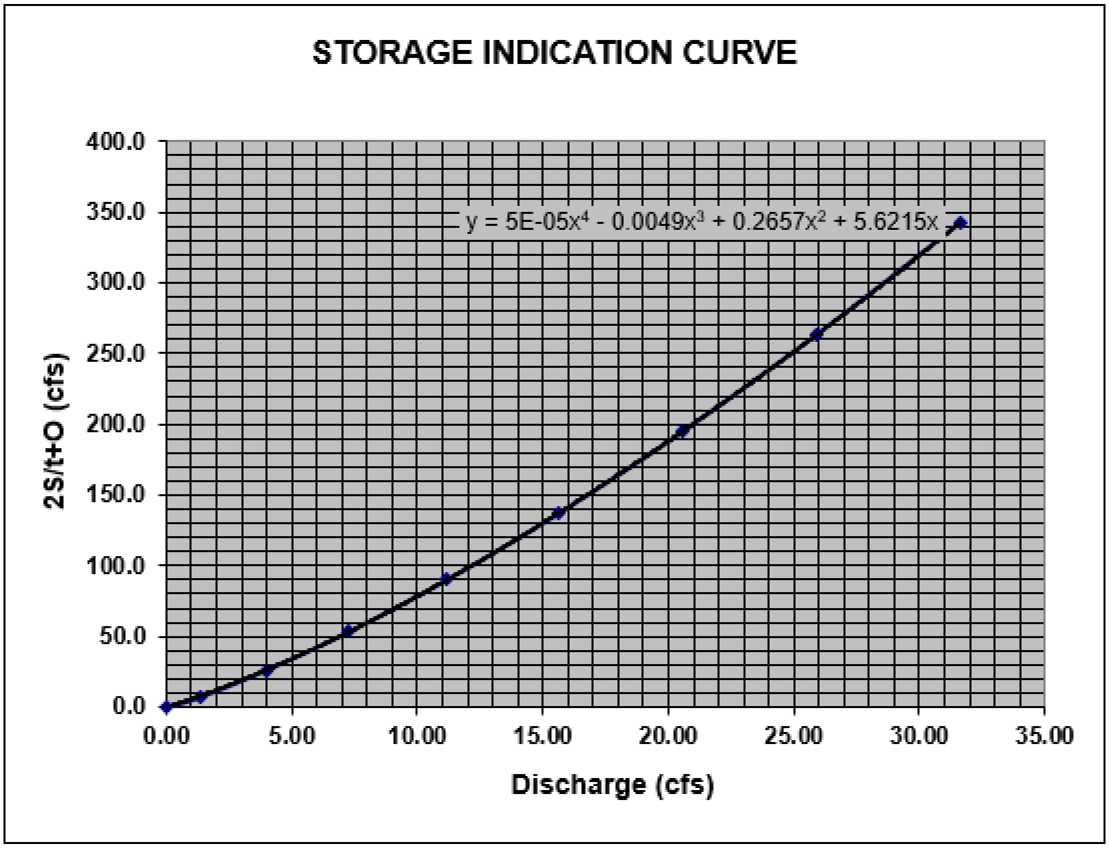
TYPE 2

Stage - Discharge for Rectangular Weir

FL Discharge	Beginning Elevation	Elevation Increment	Top of Basin
345.50	345.50	1.00	353.50

Stage	Head (H)	Weir Length (L)	Area (A)	Orifice Coefficient (C)	Velocity	Discharge (Q)
msl	ft	ft	sf		ft/s	cfs
345.50	0.00	0.42	0.00	3.33	0.00	0.00
346.50	1.00	0.42	0.42	3.33	3.33	1.40
347.50	2.00	0.42	0.84	3.33	4.71	3.96
348.50	3.00	0.42	1.26	3.33	5.77	7.27
349.50	4.00	0.42	1.68	3.33	6.66	11.19
350.50	5.00	0.42	2.10	3.33	7.45	15.64
351.50	6.00	0.42	2.52	3.33	8.16	20.56
352.50	7.00	0.42	2.94	3.33	8.81	25.90
353.50	8.00	0.42	3.36	3.33	9.42	31.65

Storage Indication Curve



Alternate Routing Time

The following spreadsheets represent the Hydrograph Routing for the various storm events. In each case, the Routing Storm Duration time was adjusted to provide the maximum storage required. Also, runoff coefficients C have been adjusted for each storm event:

Storm Event	Pre C	Post C
2	0.41	0.47
5	0.44	0.50
10	0.47	0.53
25	0.52	0.58
50	0.55	0.61
100	0.59	0.66

2 YEAR STORM EVENT

Coefficients for Storage Indication Curve from Chart			
Ax^4	Bx^3	Cx^2	Dx
0.0001	-0.0049	0.2657	5.6215

HYDROGRAPH ROUTING FOR 2 YEAR DESIGN STORM

Routing Storm Duration

20 **minutes**

	1	2	3	4	5	6	7	8
Time	I_1	I_1+I_2	$2S_1/t-Q_1$	$2S_2/t+Q_2$	Q_2	S_2	2S/t-Q	Col 4 - 7
min	cfs	cfs	cfs	cfs	cfs	cf	from eqn.	
0	0.00	15.97	0	15.973	0	0	15.972	0.001
5	8.87	24.85	10.876	35.723	2.548	2013.7	35.724	-0.001
10	15.97	31.95	25.334	57.280	5.194	4579.3	57.280	0.000
15	15.97	31.95	41.818	73.764	7.731	7432.4	73.764	-0.001
20	15.97	23.07	54.737	77.809	9.513	9637.5	77.810	-0.001
25	7.10	7.10	57.939	65.038	9.935	10181.1	8.503	56.535
30	0.00	0.00	62.199	62.199	1.520	9527.8	0.000	62.199
35	0.00	0.00	50.999	50.999	0.000	9329.8	0.000	50.999
40	0.00	0.00	51.199	51.199	0.000	7649.8	0.000	51.199
45	0.00	0.00	51.399	51.399	0.000	7679.8	0.000	51.399
50	0.00	0.00	51.599	51.599	0.000	7709.8	0.000	51.599
55	0.00	0.00	51.799	51.799	0.000	7739.8	0.000	51.799
60	0.00	0.00	51.999	51.999	0.000	7769.8	0.000	51.999

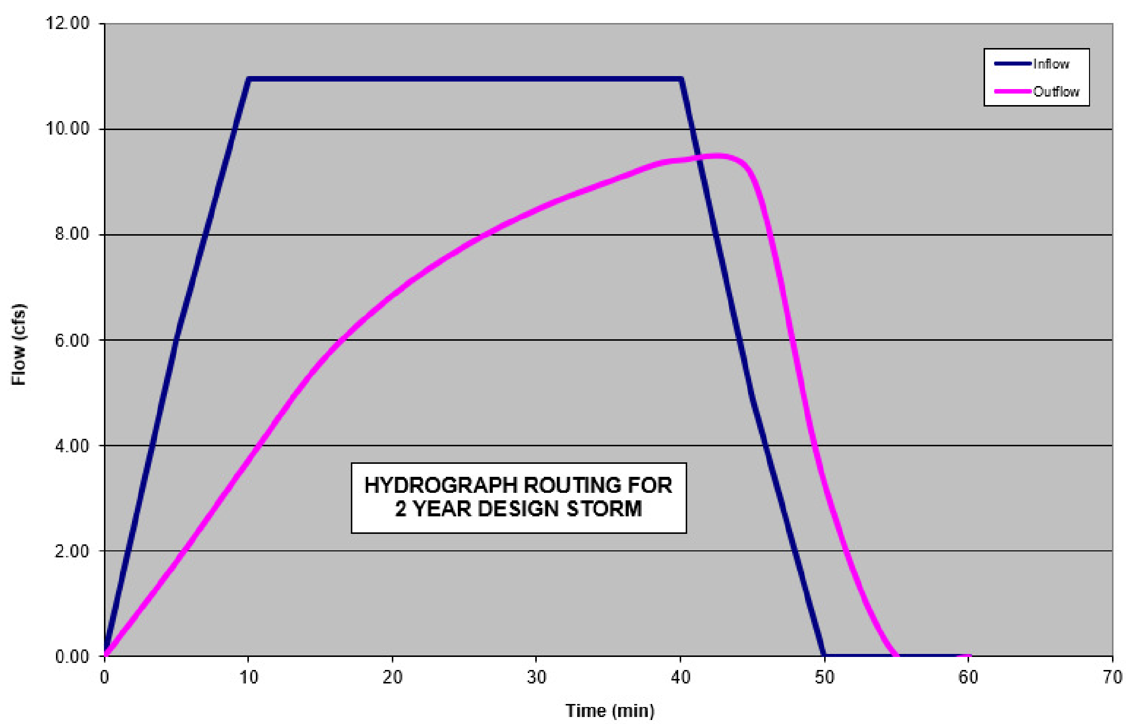
Actual Maximum Storage needed is 10181.1 cubic feet

Maximum Storage required is achieved at an elev. = 349.32

Maximum Allowable (undeveloped) Discharge is 11.99 cfs

Maximum Discharge for the above storm is 9.93 cfs

DETENTION HYDROGRAPH



5 YEAR STORM EVENT

Coefficients for Storage Indication Curve from Chart			
Ax^4	Bx^3	Cx^2	Dx
0.0001	-0.0049	0.2657	5.6215

HYDROGRAPH ROUTING FOR 5 YEAR DESIGN STORM

Routing Storm Duration

30 minutes

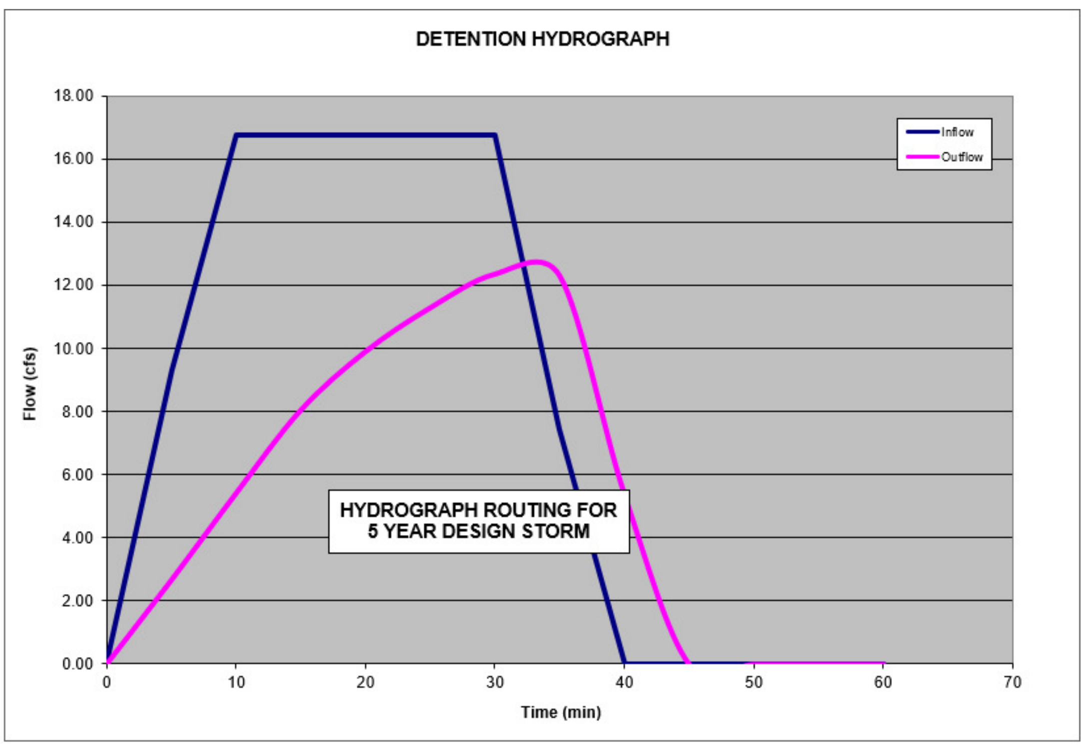
	1	2	3	4	5	6	7	8
Time	I_1	I_1+I_2	$2S_1/t-Q_1$	$2S_2/t+Q_2$	Q_2	S_2	2S/t-Q	Col 4 - 7
min	cfs	cfs	cfs	cfs	cfs	cf	from eqn.	
0	0.00	16.75	0	16.750	0	0	16.749	0.001
5	9.31	26.06	11.428	37.484	2.661	2113.4	37.485	-0.001
10	16.75	33.50	26.658	60.157	5.413	4810.6	60.158	-0.001
15	16.75	33.50	44.056	77.555	8.051	7816.0	77.555	0.001
20	16.75	33.50	57.739	91.238	9.908	10147.0	91.236	0.002
25	16.75	33.50	68.648	102.147	11.295	11991.4	102.146	0.001
30	16.75	24.19	77.420	101.614	12.364	13467.5	101.615	-0.001
35	7.44	7.44	76.989	84.434	12.312	13395.2	36.484	47.950
40	0.00	0.00	73.856	73.856	5.389	11856.7	0.000	73.856
45	0.00	0.00	74.056	74.056	0.000	11078.4	0.000	74.056
50	0.00	0.00	74.256	74.256	0.000	11108.4	0.000	74.256
55	0.00	0.00	74.456	74.456	0.000	11138.4	0.000	74.456
60	0.00	0.00	74.656	74.656	0.000	11168.4	0.000	74.656

Actual Maximum Storage needed is 13467.5 cubic feet

Maximum Storage required is achieved at an elev. = 349.89

Maximum Allowable (undeveloped) Discharge is 14.9 cfs

Maximum Discharge for the above storm is 12.36 cfs



10 YEAR STORM EVENT

Coefficients for Storage Indication Curve from Chart			
Ax^4	Bx^3	Cx^2	Dx
0.0001	-0.0049	0.2657	5.6215

HYDROGRAPH ROUTING FOR 10 YEAR DESIGN STORM

Routing Storm Duration

40 **minutes**

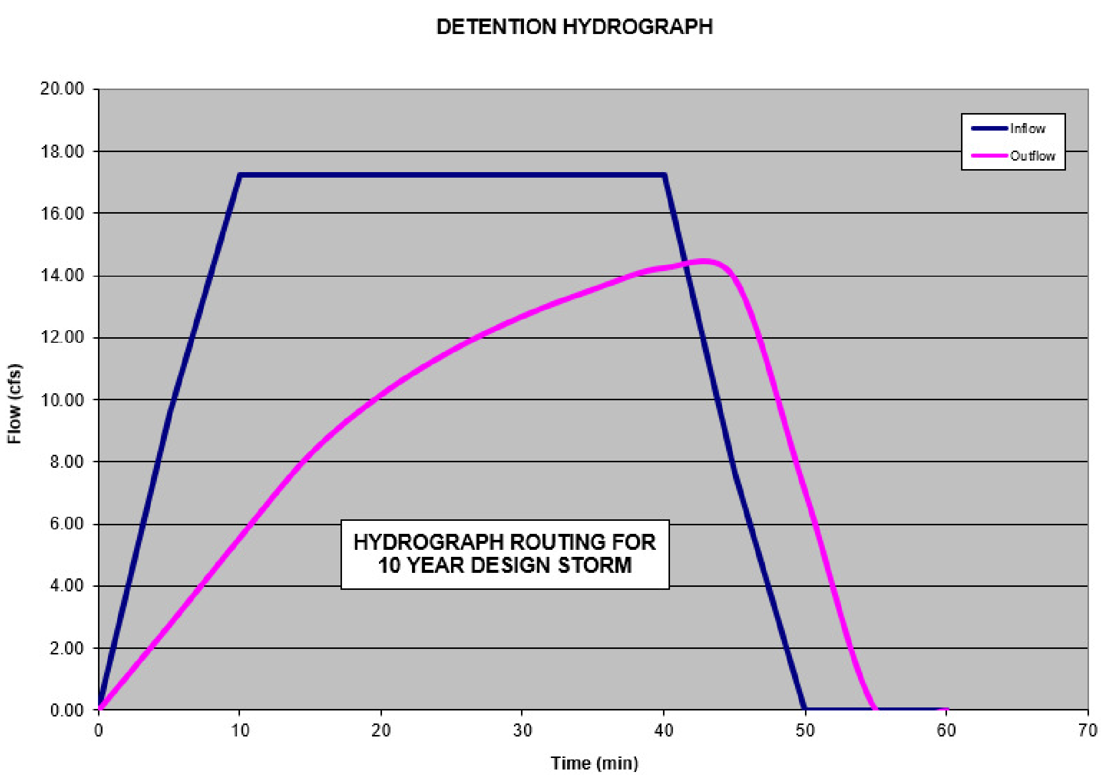
	1	2	3	4	5	6	7	8
Time min	I_1 cfs	I_1+I_2 cfs	$2S_1/t-Q_1$ cfs	$2S_2/t+Q_2$ cfs	Q_2 cfs	S_2 cf	2S/t-Q from eqn.	Col 4 - 7
0	0.00	17.24	0	17.240	0	0	17.239	0.001
5	9.58	26.82	11.778	38.596	2.731	2176.3	38.597	-0.001
10	17.24	34.48	27.496	61.977	5.550	4956.9	61.976	0.001
15	17.24	34.48	45.475	79.956	8.251	8058.9	79.956	0.000
20	17.24	34.48	59.644	94.124	10.156	10469.9	94.123	0.001
25	17.24	34.48	70.962	105.442	11.581	12381.4	105.442	0.000
30	17.24	34.48	80.081	114.561	12.681	13914.2	114.560	0.001
35	17.24	34.48	87.472	121.953	13.544	15152.5	121.953	0.000
40	17.24	24.90	93.489	118.391	14.232	16158.1	118.390	0.001
45	7.66	7.66	90.587	98.249	13.902	15673.3	50.238	48.011
50	0.00	0.00	84.384	84.384	7.032	13682.5	0.000	84.384
55	0.00	0.00	84.584	84.584	0.000	12657.6	0.000	84.584
60	0.00	0.00	84.784	84.784	0.000	12687.6	0.000	84.784

Actual Maximum Storage needed is 16158.1 cubic feet

Maximum Storage required is achieved at an elev. = 350.25

Maximum Allowable (undeveloped) Discharge is 17.36 cfs

Maximum Discharge for the above storm is 14.23 cfs



25 YEAR STORM EVENT

Coefficients for Storage Indication Curve from Chart			
Ax^4	Bx^3	Cx^2	Dx
0.0001	-0.0049	0.2657	5.6215

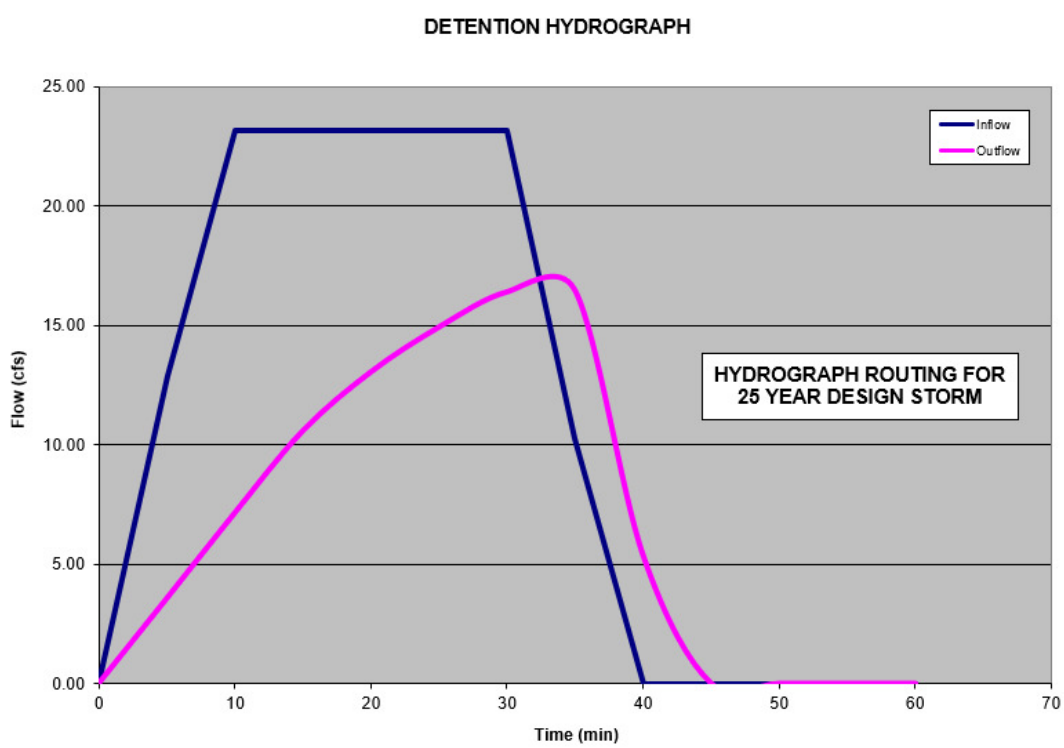
HYDROGRAPH ROUTING FOR 25 YEAR DESIGN STORM

Routing Storm Duration

30 **minutes**

	1	2	3	4	5	6	7	8
Time min	I_1 cfs	I_1+I_2 cfs	$2S_1/t-Q_1$ cfs	$2S_2/t+Q_2$ cfs	Q_2 cfs	S_2 cf	2S/t-Q from eqn.	Col 4 - 7
0	0.00	23.16	0	23.158	0	0	23.159	-0.001
5	12.87	36.02	16.041	52.065	3.559	2939.9	52.066	-0.001
10	23.16	46.32	37.780	84.097	7.142	6738.4	84.098	-0.001
15	23.16	46.32	62.939	109.256	10.579	11027.7	109.256	0.000
20	23.16	46.32	83.168	129.485	13.044	14431.8	129.484	0.001
25	23.16	46.32	99.641	145.958	14.922	17184.4	145.957	0.001
30	23.16	33.45	113.166	146.617	16.396	19434.3	146.616	0.001
35	10.29	10.29	113.708	124.001	16.454	19524.4	36.239	87.762
40	0.00	0.00	113.484	113.484	5.359	17796.3	0.000	113.484
45	0.00	0.00	113.684	113.684	0.000	17022.6	0.000	113.684
50	0.00	0.00	113.884	113.884	0.000	17052.6	0.000	113.884
55	0.00	0.00	114.084	114.084	0.000	17082.6	0.000	114.084
60	0.00	0.00	114.284	114.284	0.000	17112.6	0.000	114.284

Actual Maximum Storage needed is 19524.4 cubic feet
Maximum Storage required is achieved at an elev. = 350.65
Maximum Allowable (undeveloped) Discharge is 19.53 cfs
Maximum Discharge for the above storm is 16.45 cfs



50 YEAR STORM EVENT

Coefficients for Storage Indication Curve from Chart			
Ax^4	Bx^3	Cx^2	Dx
0.0001	-0.0049	0.2657	5.6215

HYDROGRAPH ROUTING FOR 50 YEAR DESIGN STORM

Routing Storm Duration

30 **minutes**

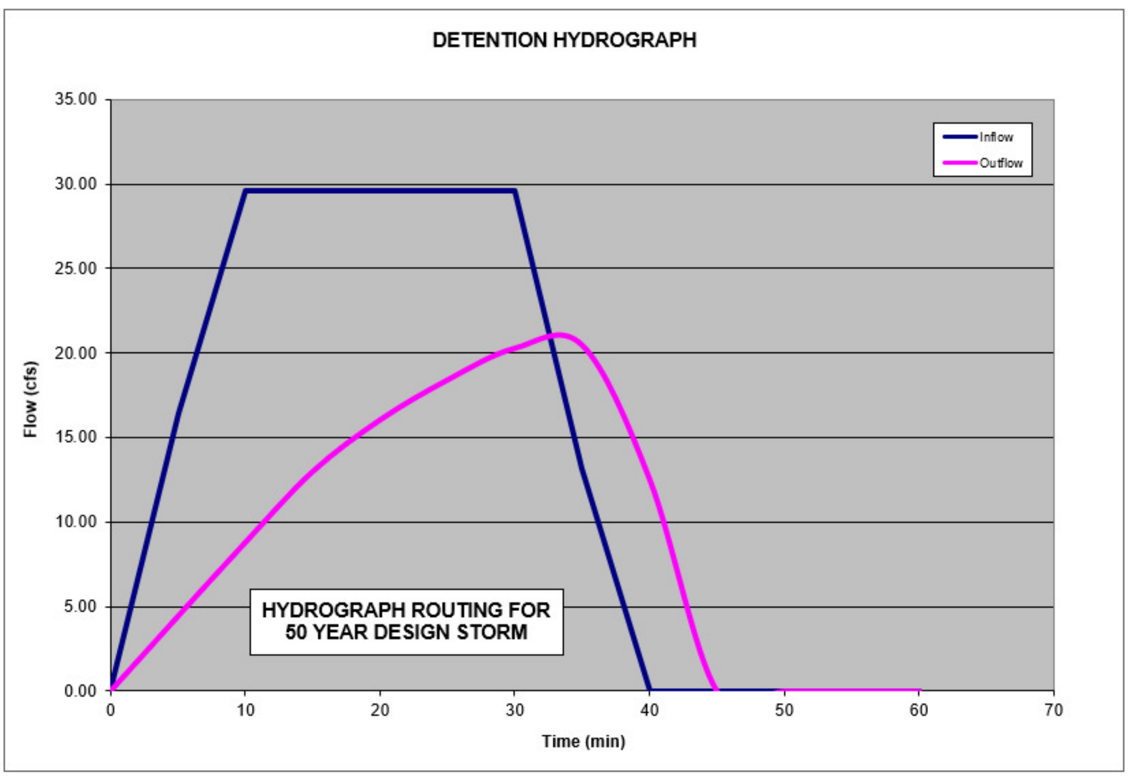
	1	2	3	4	5	6	7	8
Time	I_1	I_1+I_2	$2S_1/t-Q_1$	$2S_2/t+Q_2$	Q_2	S_2	2S/t-Q	Col 4 - 7
min	cfs	cfs	cfs	cfs	cfs	cf	from eqn.	
0	0.00	29.62	0	29.616	0	0	29.615	0.001
5	16.45	46.07	20.781	66.850	4.417	3779.8	66.850	0.000
10	29.62	59.23	49.291	108.522	8.779	8710.6	108.523	-0.001
15	29.62	59.23	82.573	141.804	12.974	14332.1	141.804	0.000
20	29.62	59.23	109.747	168.978	16.029	18866.3	168.978	0.000
25	29.62	59.23	132.202	191.433	18.388	22588.5	191.434	0.000
30	29.62	42.78	150.904	193.682	20.265	25675.3	193.683	-0.001
35	13.16	13.16	152.783	165.945	20.449	25984.8	102.860	63.085
40	0.00	0.00	141.080	141.080	12.532	23011.9	0.000	141.080
45	0.00	0.00	141.280	141.280	0.000	21162.0	0.000	141.280
50	0.00	0.00	141.480	141.480	0.000	21192.0	0.000	141.480
55	0.00	0.00	141.680	141.680	0.000	21222.0	0.000	141.680
60	0.00	0.00	141.880	141.880	0.000	21252.0	0.000	141.880

Actual Maximum Storage needed is 25984.8 cubic feet

Maximum Storage required is achieved at an elev. = 351.37

Maximum Allowable (undeveloped) Discharge is 25.68 cfs

Maximum Discharge for the above storm is 20.45 cfs



100 YEAR STORM EVENT

Coefficients for Storage Indication Curve from Chart			
Ax^4	Bx^3	Cx^2	Dx
0.0001	-0.0049	0.2657	5.6215

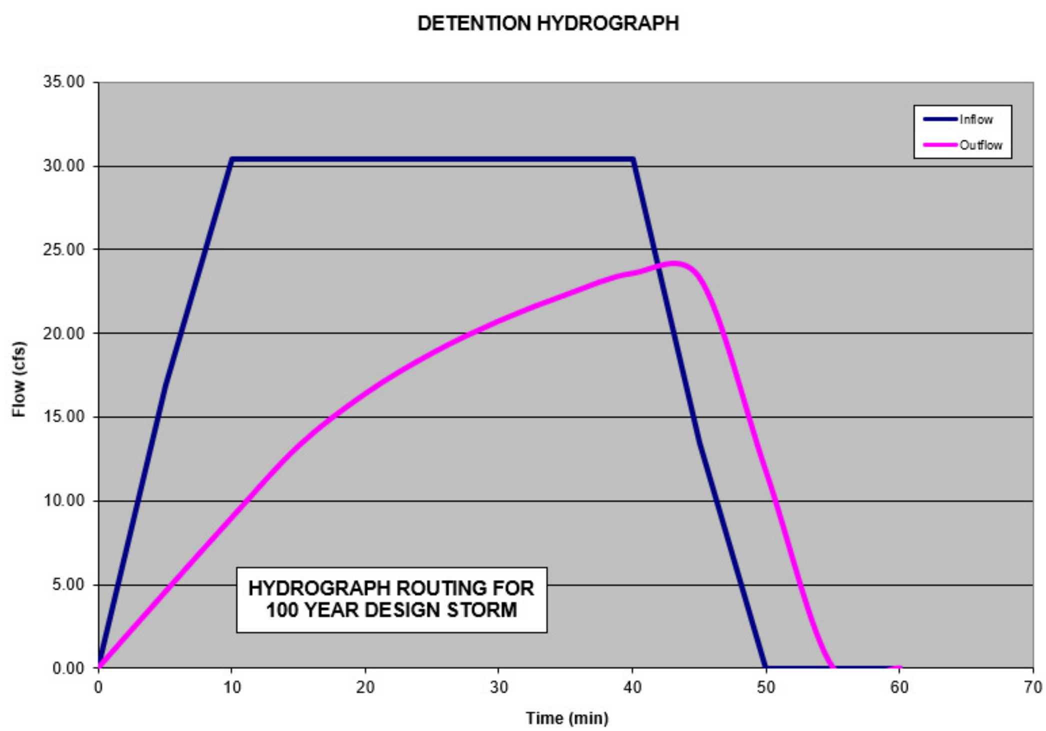
HYDROGRAPH ROUTING FOR 100 YEAR DESIGN STORM

Routing Storm Duration

40 **minutes**

	1	2	3	4	5	6	7	8
Time	I_1	I_1+I_2	$2S_1/t-Q_1$	$2S_2/t+Q_2$	Q_2	S_2	2S/t-Q	Col 4 - 7
min	cfs	cfs	cfs	cfs	cfs	cf	from eqn.	
0	0.00	30.44	0	30.441	0	0	30.440	0.001
5	16.91	47.35	21.393	68.745	4.524	3887.5	68.746	-0.001
10	30.44	60.88	50.780	111.662	8.983	8964.4	111.661	0.001
15	30.44	60.88	85.119	146.000	13.272	14758.5	146.001	-0.001
20	30.44	60.88	113.200	174.082	16.400	19440.0	174.083	-0.001
25	30.44	60.88	136.442	197.324	18.820	23289.3	197.323	0.001
30	30.44	60.88	155.829	216.711	20.747	26486.5	216.710	0.001
35	30.44	60.88	172.091	232.972	22.310	29160.1	232.973	-0.001
40	30.44	43.97	185.788	229.759	23.592	31407.1	229.758	0.001
45	13.53	13.53	183.077	196.607	23.341	30962.7	94.375	102.232
50	0.00	0.00	173.395	173.395	11.706	27735.1	0.000	173.395
55	0.00	0.00	173.595	173.595	0.000	26009.2	0.000	173.595
60	0.00	0.00	173.795	173.795	0.000	26039.2	0.000	173.795

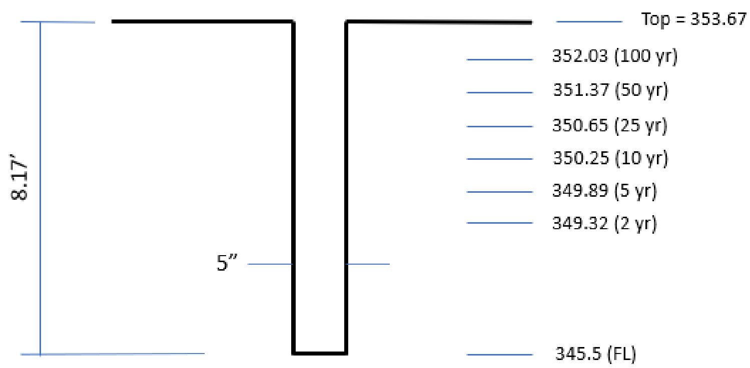
Actual Maximum Storage needed is 31407.1 cubic feet
Maximum Storage required is achieved at an elev. = 352.03
Maximum Allowable (undeveloped) Discharge is 29.36 cfs
Maximum Discharge for the above storm is 23.59 cfs



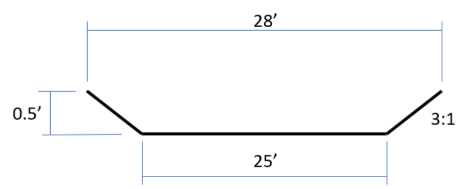
Summary – Detention

Storm Event	Volume Needed (cf)	WSE	Max Discharge Allowed (cfs)	Max Discharge Model (cfs)
2	10181.1	349.32	11.99	9.93
5	13467.5	349.89	14.90	12.36
10	16158.1	350.25	17.36	14.23
25	19524.4	350.65	19.53	16.45
50	25984.8	351.37	25.68	20.45
100	31407.1	352.03	29.36	23.59

Discharge Structure Detail



Overflow Structure Detail

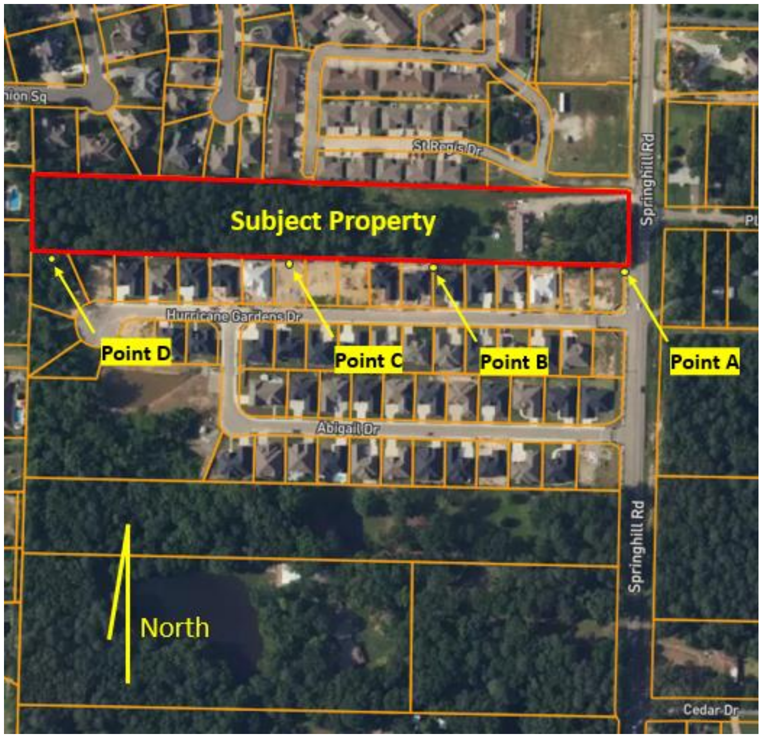


Q = (1.49/n)(A)(R^2/3)(S^0.5)

Q = (1.49/0.025)(13.25)(0.60)(0.1) = 47.38 cfs

Required Capacity = 23.59 cfs (2) = 47.18 cfs

Study Point Summary (25 yr Storm)



Study Point	Pre Construction	Post Construction	Post Construction	Change - Pre to Post
	Q	Q (no detention)	Q (with detention)	(with detention)
	(cfs)	(cfs)	(cfs)	(cfs)
A	12.88	16.81	16.81	3.93
B	10.53	0	0	-10.53
C	11.01	0	0	-11.01
D	17.74	38.08	16.45	-1.29
TOTAL	52.16	54.89	33.26	-18.9

* *Existing culvert originating at the Junction Box near the NE corner of Hurricane Gardens has adequate capacity to accept this slight increase in flow.*

Downstream Considerations

The discharge from the proposed Detention Facility will enter into an existing ditch that drains to the West, into Hurricane Lake, Phase 3. The ditch exists between Lots 47 and 48 of said development (based on Saline County GIS map). A 54" CMP (Helical) culvert exists under Worth Ave, at a grade of 0.7% (as shot in the field). Using an n of 0.012, the capacity of this culvert is computed at 183.65 cfs at d/D of 0.85 (velocity = 12.75 fps). It should be noted that the estimated post construction discharge is 1.29 cfs less than the estimated existing runoff from the same area. Therefore, this development should not have a negative impact on the downstream properties.

Source: Saline County GIS

Engineering Certification

I, Tim Lemons, Arkansas Registered Professional Engineer No. 7373, hereby certify that the drainage reports, and calculations contained in this report, have been prepared in accordance with sound engineering practice and principles, and based on best known available data. Improvements as outlined in this report and depicted on the preliminary plat and design drawings should not increase the risk of endangerment to life or have negative impacts on adjacent or downstream property or watersheds.

Timothy B. Lemons, PE
Arkansas Professional Engineer, #7373

Appendix

GUTTER CAPACITY OF STREETS - 27' BC to BC

Slope = 0.5%, n = 0.012

Width (ft)	Slope	Height (ft)	Area (sf)	R	R^2/3	S	S^1/2	Q (cfs)
0.5	0.030	0.02	0.00	0.01	0.04	0.00500	0.0707	0.00
1	0.030	0.03	0.02	0.01	0.06	0.00500	0.0707	0.01
1.5	0.030	0.05	0.03	0.02	0.08	0.00500	0.0707	0.02
2	0.030	0.06	0.06	0.03	0.10	0.00500	0.0707	0.05
2.5	0.030	0.08	0.09	0.04	0.11	0.00500	0.0707	0.09
3	0.030	0.09	0.14	0.04	0.13	0.00500	0.0707	0.15
3.5	0.030	0.11	0.18	0.05	0.14	0.00500	0.0707	0.22
4	0.030	0.12	0.24	0.06	0.15	0.00500	0.0707	0.32
4.5	0.030	0.14	0.30	0.07	0.16	0.00500	0.0707	0.44
5	0.030	0.15	0.38	0.07	0.18	0.00500	0.0707	0.58
5.5	0.030	0.17	0.45	0.08	0.19	0.00500	0.0707	0.75
6	0.030	0.18	0.54	0.09	0.20	0.00500	0.0707	0.94
6.5	0.030	0.20	0.63	0.10	0.21	0.00500	0.0707	1.17
7	0.030	0.21	0.74	0.10	0.22	0.00500	0.0707	1.43
7.5	0.030	0.23	0.84	0.11	0.23	0.00500	0.0707	1.71
8.5	0.030	0.26	1.08	0.13	0.25	0.00500	0.0707	2.39
9	0.030	0.27	1.22	0.13	0.26	0.00500	0.0707	2.79
9.5	0.030	0.29	1.35	0.14	0.27	0.00500	0.0707	3.22
10	0.030	0.30	1.50	0.15	0.28	0.00500	0.0707	3.69
10.5	0.030	0.32	1.65	0.16	0.29	0.00500	0.0707	4.21
11	0.030	0.33	1.82	0.16	0.30	0.00500	0.0707	4.76
11.5	0.030	0.35	1.98	0.17	0.31	0.00500	0.0707	5.36
12	0.030	0.36	2.16	0.18	0.32	0.00500	0.0707	6.01
12.5	0.030	0.38	2.34	0.19	0.33	0.00500	0.0707	6.70
13	0.030	0.39	2.54	0.19	0.33	0.00500	0.0707	7.44

GUTTER CAPACITY OF STREETS - 27' BC to BC

Slope = 1.50%, n = 0.012

Width (ft)	Slope	Height (ft)	Area (sf)	R	R^2/3	S	S^1/2	Q (cfs)
0.5	0.030	0.02	0.00	0.01	0.04	0.01500	0.1225	0.00
1	0.030	0.03	0.02	0.01	0.06	0.01500	0.1225	0.01
1.5	0.030	0.05	0.03	0.02	0.08	0.01500	0.1225	0.04
2	0.030	0.06	0.06	0.03	0.10	0.01500	0.1225	0.09
2.5	0.030	0.08	0.09	0.04	0.11	0.01500	0.1225	0.16
3	0.030	0.09	0.14	0.04	0.13	0.01500	0.1225	0.26
3.5	0.030	0.11	0.18	0.05	0.14	0.01500	0.1225	0.39
4	0.030	0.12	0.24	0.06	0.15	0.01500	0.1225	0.55
4.5	0.030	0.14	0.30	0.07	0.16	0.01500	0.1225	0.76
5	0.030	0.15	0.38	0.07	0.18	0.01500	0.1225	1.01
5.5	0.030	0.17	0.45	0.08	0.19	0.01500	0.1225	1.30
6	0.030	0.18	0.54	0.09	0.20	0.01500	0.1225	1.64
6.5	0.030	0.20	0.63	0.10	0.21	0.01500	0.1225	2.03
7	0.030	0.21	0.74	0.10	0.22	0.01500	0.1225	2.47
7.5	0.030	0.23	0.84	0.11	0.23	0.01500	0.1225	2.97
8.5	0.030	0.26	1.08	0.13	0.25	0.01500	0.1225	4.15
9	0.030	0.27	1.22	0.13	0.26	0.01500	0.1225	4.83
9.5	0.030	0.29	1.35	0.14	0.27	0.01500	0.1225	5.58
10	0.030	0.30	1.50	0.15	0.28	0.01500	0.1225	6.40
10.5	0.030	0.32	1.65	0.16	0.29	0.01500	0.1225	7.29
11	0.030	0.33	1.82	0.16	0.30	0.01500	0.1225	8.25
11.5	0.030	0.35	1.98	0.17	0.31	0.01500	0.1225	9.29
12	0.030	0.36	2.16	0.18	0.32	0.01500	0.1225	10.41
12.5	0.030	0.38	2.34	0.19	0.33	0.01500	0.1225	11.61
13	0.030	0.39	2.54	0.19	0.33	0.01500	0.1225	12.89

GUTTER CAPACITY OF STREETS - 27' BC to BC
Slope = 2.67%, n = 0.012

Width (ft)	Slope	Height (ft)	Area (sf)	R	R^2/3	S	S^1/2	Q (cfs)
0.5	0.030	0.02	0.00	0.01	0.04	0.02670	0.1634	0.00
1	0.030	0.03	0.02	0.01	0.06	0.02670	0.1634	0.02
1.5	0.030	0.05	0.03	0.02	0.08	0.02670	0.1634	0.05
2	0.030	0.06	0.06	0.03	0.10	0.02670	0.1634	0.12
2.5	0.030	0.08	0.09	0.04	0.11	0.02670	0.1634	0.21
3	0.030	0.09	0.14	0.04	0.13	0.02670	0.1634	0.34
3.5	0.030	0.11	0.18	0.05	0.14	0.02670	0.1634	0.52
4	0.030	0.12	0.24	0.06	0.15	0.02670	0.1634	0.74
4.5	0.030	0.14	0.30	0.07	0.16	0.02670	0.1634	1.01
5	0.030	0.15	0.38	0.07	0.18	0.02670	0.1634	1.34
5.5	0.030	0.17	0.45	0.08	0.19	0.02670	0.1634	1.73
6	0.030	0.18	0.54	0.09	0.20	0.02670	0.1634	2.18
6.5	0.030	0.20	0.63	0.10	0.21	0.02670	0.1634	2.70
7	0.030	0.21	0.74	0.10	0.22	0.02670	0.1634	3.29
7.5	0.030	0.23	0.84	0.11	0.23	0.02670	0.1634	3.96
8.5	0.030	0.26	1.08	0.13	0.25	0.02670	0.1634	5.53
9	0.030	0.27	1.22	0.13	0.26	0.02670	0.1634	6.44
9.5	0.030	0.29	1.35	0.14	0.27	0.02670	0.1634	7.44
10	0.030	0.30	1.50	0.15	0.28	0.02670	0.1634	8.53
10.5	0.030	0.32	1.65	0.16	0.29	0.02670	0.1634	9.72
11	0.030	0.33	1.82	0.16	0.30	0.02670	0.1634	11.01
11.5	0.030	0.35	1.98	0.17	0.31	0.02670	0.1634	12.40
12	0.030	0.36	2.16	0.18	0.32	0.02670	0.1634	13.89
12.5	0.030	0.38	2.34	0.19	0.33	0.02670	0.1634	15.49
13	0.030	0.39	2.54	0.19	0.33	0.02670	0.1634	17.20

GUTTER CAPACITY OF STREETS - 27' BC to BC								
Slope = 4.88%, n = 0.012								
Width (ft)	**Slope**	**Height (ft)**	**Area (sf)**	**R**	**R^2/3**	**S**	**S^1/2**	**Q (cfs)**
0.5	0.030	0.02	0.00	0.01	0.04	0.04880	0.2209	0.00
1	0.030	0.03	0.02	0.01	0.06	0.04880	0.2209	0.02
1.5	0.030	0.05	0.03	0.02	0.08	0.04880	0.2209	0.07
2	0.030	0.06	0.06	0.03	0.10	0.04880	0.2209	0.16
2.5	0.030	0.08	0.09	0.04	0.11	0.04880	0.2209	0.28
3	0.030	0.09	0.14	0.04	0.13	0.04880	0.2209	0.46
3.5	0.030	0.11	0.18	0.05	0.14	0.04880	0.2209	0.70
4	0.030	0.12	0.24	0.06	0.15	0.04880	0.2209	1.00
4.5	0.030	0.14	0.30	0.07	0.16	0.04880	0.2209	1.37
5	0.030	0.15	0.38	0.07	0.18	0.04880	0.2209	1.81
5.5	0.030	0.17	0.45	0.08	0.19	0.04880	0.2209	2.34
6	0.030	0.18	0.54	0.09	0.20	0.04880	0.2209	2.95
6.5	0.030	0.20	0.63	0.10	0.21	0.04880	0.2209	3.65
7	0.030	0.21	0.74	0.10	0.22	0.04880	0.2209	4.45
7.5	0.030	0.23	0.84	0.11	0.23	0.04880	0.2209	5.35
8.5	0.030	0.26	1.08	0.13	0.25	0.04880	0.2209	7.48
9	0.030	0.27	1.22	0.13	0.26	0.04880	0.2209	8.71
9.5	0.030	0.29	1.35	0.14	0.27	0.04880	0.2209	10.06
10	0.030	0.30	1.50	0.15	0.28	0.04880	0.2209	11.54
10.5	0.030	0.32	1.65	0.16	0.29	0.04880	0.2209	13.14
11	0.030	0.33	1.82	0.16	0.30	0.04880	0.2209	14.88
11.5	0.030	0.35	1.98	0.17	0.31	0.04880	0.2209	16.76
12	0.030	0.36	2.16	0.18	0.32	0.04880	0.2209	18.77
12.5	0.030	0.38	2.34	0.19	0.33	0.04880	0.2209	20.94
13	0.030	0.39	2.54	0.19	0.33	0.04880	0.2209	23.25

SITE WITH AUTOMATIC COVERAGE (LESS THAN 5 ACRES) CONSTRUCTION SITE NOTICE

FOR THE
Division of Environmental Quality (DEQ)
Stormwater Program

NPDES GENERAL PERMIT NO. ARR150000

The following information is posted in compliance with **Part I.B.8.a** of the DEQ General Permit Number **ARR150000** for discharges of stormwater runoff from sites with automatic coverage. Additional information regarding the DEQ stormwater program may be found on the internet at:
www.adeq.state.ar.us/water/branch_npdes/stormwater

Permit Number	ARR150000
Contact Name: Phone Number:	Lance Massey, Developer/Construction Manager 501-428-3866
Project Description (Name, Location, etc.): Start Date: End Date: Total Acres:	Hillcrest Addition - Springhill Rd. near intersection of Springhill Rd. and Hurricane Gardens Rd. July 31 2024 on or before August 31, 2025 4.89
Location of Stormwater Pollution Prevention Plan:	Mailbox at Construction Site

Does this construction activity take place, and does the stormwater discharge occur within the drainage area addressed by a TMDL?

______YES ✓ NO

For Construction Sites Authorized under **Part I.B.6.a** (Automatic Coverage) the following certification must be completed:

I Lance Massey, Developer/Construction Manager (Typed or Printed Name of Person Completing this Certification) certify under penalty of law that I have read and understand the eligibility requirements for claiming an authorization under Part I.B.2. of the DEQ General Permit Number ARR150000. A stormwater pollution prevention plan has been developed and implemented according to the requirements contained in Part II.A.2.B & D of the permit. I am aware there are significant penalties for providing false information or for conducted unauthorized discharges, including the possibility of fine and imprisonment for knowing violations.

____________________ 7-9-2024

Signature and Title Date

STORMWATER POLLUTION PREVENTION PLAN

National Pollution Discharge Elimination System

Prepared for:
Hillcrest Addition

July 2024

Volume No. 1
Copy 1 of 4

Prepared by:
LEMONS ENGINEERING CONSULTANTS, INC.
204 CHERRY STREET
CABOT, AR 72023
(501) 843-5081
(501) 941-0959 Fax

Table of Contents

General

Nature of Activity

Hillcrest Addition is a residential development located off Springhill Road, in Bryant, Saline County, Arkansas. The developer and permitee of this project is:

Springhill Hwy 5 Developments LLC
816 East Oak Street
Conway, Arkansas 72032

The target timeline for this project is to have construction completed by August 2025.

Of course, the main purpose of activity to be covered under this Storm Water Pollution Prevention Plan is found in the construction necessary for the development of this project. Erosion control and sedimentation protection will be the main target of this Plan.

Site Evaluation & Design Development

Collection of Site Description

Site Location

A legal description of Hillcrest Addition and the pre-construction contours of this project are provided on Attachment ‘A’. This is a residential planned unit development site w/this construction.

Intended Sequence of Major Construction Activities

1.) Provide clearing and grubbing of the construction area
2.) Provide erosion and sediment control (silt fencing) in areas where required
3.) Install utilities and permanent storm drainage items (more specifically storm water, sanitary sewer and water)
4.) Rough cut streets to near sub grade elevation
5.) Install sedimentation barriers at all curb inlets
6.) Provide undercutting of streets where applicable
7.) Upon completion of utilities, install concrete curb and gutter on streets
8.) Install gravel sub-base (complete set-up)
9.) Complete construction of utilities
10.) Begin seeding/sodding of disturbed areas
11.) Remove silt fencing as needed
12.) Complete street construction
13.) Once stabilization is complete, remove remaining erosion and sediment control measures

Site Plan Development-Acreage

The goal of this Storm Water Pollution Prevention Plan is to minimize the amount of vegetation to be disturbed; to minimize the amount of cut and fill to be moved; and to limit the impact construction may have on steep slopes, erodible soils, and existing drainage facilities. The nature of the construction activity for this project shall be related to the clearing and grubbing of the project area. Utilities to be placed in this development include: water, sewer and storm water. These utilities will be placed on grades as specified by the engineered plans (where applicable). The plans pertaining to the construction of utilities are available for review in the office of Lemons

Engineering Consultants, Inc. The disturbance of soils within the project area will be from construction as pertaining to clearing and grubbing, excavation, stockpiling, rough grading, final grading, preparation for seeding and sod (where applicable), and excavation for trenches as pertaining to utilities, drainage structures and swales.

Total Acres: 4.89 ac

Total Disturbed Acres: 4.89 ac

Computed Runoff Coefficient

For the 'lotted' areas, the following assumptions were made:

For paved areas (drives, roofs, etc.)	C = 0.90 (Existing & Proposed)
For unpaved areas (grass, landscaping, etc.)	C = 0.35 (Existing)
	C = 0.22 (Proposed)

Existing Site Conditions:

Area Runoff Coefficient = 0.35

Proposed Site Conditions:

Area Runoff Coefficient = 0.40

Soils Data

According to the "Soil Survey of Saline County, Arkansas", prepared by the United States Department of Agriculture, Soil Conservation Service in cooperation with the Arkansas Agricultural Experiment Station (issued April 1979), soil in Hillcrest Addition is 100 percentage of Carnasaw-Townley Association (9), undulating slopes (see Attachment 'B' on the next page). Under Table 8 – Woodland Management and Productivity, Carnasaw-Townley Association provides only a slight risk as pertaining to "erosion hazard"; Table 12 – Water Management, "Grassed Waterways" percs slowly, slope in Carnasaw soil classifications and droughty, rooting depth, slope in Townley soil classifications. Under Table 14 – Wildlife Habitat Potentials, Carnasaw-Townley Association is good for grasses and legumes, wild herbaceous plants, hardwood trees, coniferous plants, and both openland wildlife and woodland wildlife.

Responsible Parties

General Contractor:	Lance Massey 816 East Oak Street Conway, Arkansas 72032
Inspector:	Lance Massey 816 East Oak Street Conway, Arkansas 72032

Name of Stream Which Will Receive Runoff

According to the Congo Quadrangle Map, as published by the U.S. Geological Survey, and the City of Bryant FIRM (Community Panel No 05125C0225E, June 5, 2020); Unnamed tributary of Hurricane Lake is the receiving water; thence into Hurricane Lake; thence into Hurricane Creek; thence into the Saline River; the Saline River eventually empties into the Ouachita River. Attention is called to Attachment 'C' on the following page, which shows the project as depicted on said Quadrangle Map.

Water Quality Standard

There are no specific requirements for Water quality standards, however the contractor will assure any necessary measures to ensure that any discharges do not cause or contribute to an excursion above any applicable water quality standards. Saline River is listed on the Arkansas water quality limited Waterbodies (streams) - 2020 303(d) list for Lead, Temperature, Turbidity, and Dissolved Oxygen and the 2020 303(d) list 4a (streams) for Mercury. In the event that specific water quality standards or TMDL's are specified by ADEQ, City of Bryant, or any other governing authority, the contractor shall adjust the erosion controls as needed to meet the applicable standard and provide documentation discharges where required.

Endangered Species

According to the US Fish & Wildlife, this property has nine endangered species in proximity of the storm water discharge and BMP's will be constructed to control storm water runoff. The project does not effect any proposed or established critical habitats for any of these nine species.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Arkansas Ecological Services Field Office
110 South Amity Suite 300
Conway, AR 72032-8975
Phone: (501) 513-4470 Fax: (501) 513-4480

In Reply Refer To: 07/09/2024 21:12:42 UTC
Project Code: 2024-0113660
Project Name: Hillcrest Addition

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

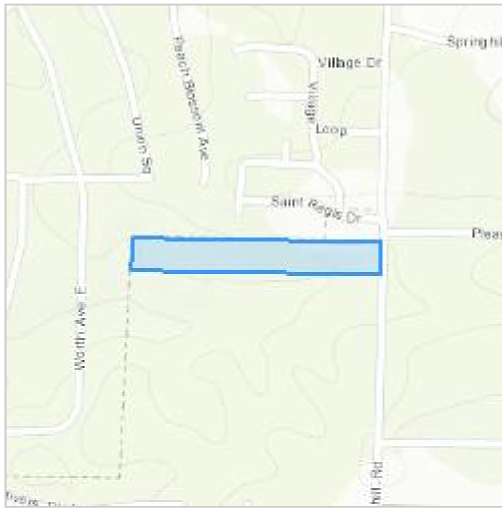
This species list is provided by:

Arkansas Ecological Services Field Office
110 South Amity Suite 300
Conway, AR 72032-8975
(501) 513-4470

PROJECT SUMMARY

Project Code: 2024-0113660
Project Name: Hillcrest Addition
Project Type: Residential Construction
Project Description: Residential Subdivision in Bryant, Saline County, AR
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@34.631429100000005,-92.51751319346704,14z



Counties: Saline County, Arkansas

ENDANGERED SPECIES ACT SPECIES

There is a total of 9 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: ▪ This species only needs to be considered if the project includes wind turbine operations. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered

BIRDS

NAME	STATUS
Eastern Black Rail *Laterallus jamaicensis ssp. jamaicensis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10477	Threatened
Piping Plover *Charadrius melodus* Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6039	Threatened
Rufa Red Knot *Calidris canutus rufa* There is **proposed** critical habitat for this species. Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened

REPTILES

NAME	STATUS
Alligator Snapping Turtle *Macrochelys temminckii* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4658	Proposed Threatened

CLAMS

NAME	STATUS
Ouachita Fanshell *Cyprogenia sp. cf. aberti* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/10889	Threatened
Pink Mucket (pearlymussel) *Lampsilis abrupta* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7829	Endangered
Winged Mapleleaf *Quadrula fragosa* Population: Wherever found, except where listed as an experimental population No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4127	Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: Lemons Engineering Consultants
Name: Erica Burke
Address: 204 West Cherry Street
City: Cabot
State: AR
Zip: 72023
Email eburke@lemonsengineering.com
Phone: 5016057665

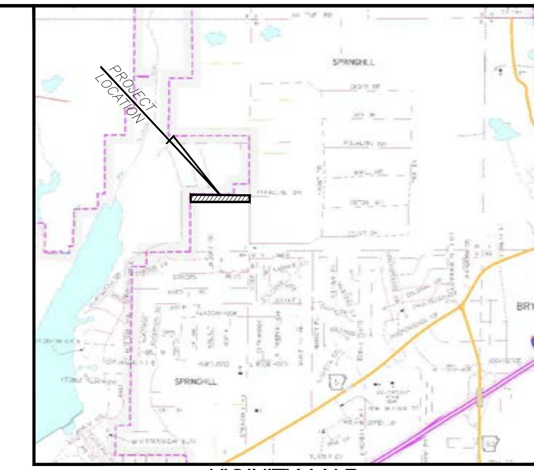
LEGAL DESCRIPTION:

PART OF THE SE ¼, OF THE SE ¼, SECTION 17, T–1–S, R–14–W, SALINE COUNTY, ARKANSAS, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHEAST CORNER OF THE SE ¼, OF THE SE ¼, SECTION 17, T–1–S, R–14–W, SALINE COUNTY, ARKANSAS; THENCE N 02°17'33" E, 1167.19 FEET TO THE POINT OF BEGINNING; THENCE N 88°34'40" W, 1344.97 FEET; THENCE N 01°36'19" E, 167.98 FEET; THENCE S 87°44'58" E, 1346.85 FEET; THENCE S 02°18'02" W, 148.52 FEET; TO THE POINT OF BEGINNING, CONTAINING 4.89 ACRES, MORE OR LESS.

FLOOD CERTIFICATION:

BASED UPON REVIEW OF THE FEDERAL EMERGENCY MANAGEMENT AGENCY, FIRM COMMUNITY PANEL NO. 05125C0225E, EFFECTIVE DATE: JUNE 5, 2020 THE PROPERTY DEPICTED ON THIS PLAT IS LOCATED WITHIN ZONE X, AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.



VICINITY MAP
SCALE: 1" = 2000'

LEMONS ENGINEERING CONSULTANTS, INC.
204 CHERRY STREET
CABOT, ARKANSAS 72023
(501) 843–5081 • Fax (501) 941–0959
ENGINEERING + SURVEYING
WATER • SEWER • TRANSPORTATION • SUBDIVISIONS

ATTACHMENT A
HILLCREST ADDITION

PART OF THE SE 1/4 OF THE SE 1/4 OF SECTION 17, T–1–S, R–14–W
CITY OF BRYANT, SALINE COUNTY, ARKANSAS

Prepared For:
Springhill HWY 5 Development, LLC
816 E. Oak Street
Conway, Arkansas 72032

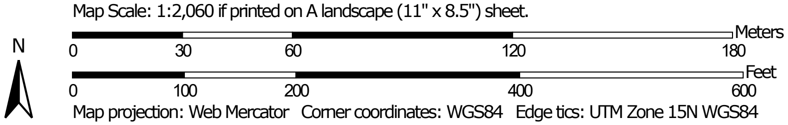
No.	Revisions	Date	By

Project No.:	24–018
Date:	JULY 9, 2024
File:	Attachment A
Scale:	1" = 50'
Drawn By:	B. Judd
Sheet:	1 of 1

Attachment B

Custom Soil Resource Report
Soil Map (Hillcrest Addition - Bryant)

Map Scale: 1:2,060 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

Attachment C
Hurricane Cr
500
NORTHLAKE RD
8
PIERCE MANSE LOOP
9
MILLER
T1S R14W
WEDGEWOOD DR
34
BRYANT
Rose
Garden Cem
HILLTOP RD
SEVERN LANDING RD
WORTH AVE E
HICKORY DR
33
OAK ACRES
17
16
LEXINGTON AVE
SPRINGHILL RD
MULBERRY ACRES
PALM BEACH AVE
FRONT DR
MAPLE ACRES
PINE DR
ASPEN ACRES
BENTON
COMMONWEALTH DR
CEDAR DR
Project Location
Hurricane
Lake
[38]32[000]
STIVERS BLVD
20
WARD DR
21
BIRCH ST
43
44
[5]45[000m]E
-92.5000°

Control Selection & Plan Design

Erosion & Sediment Controls

Erosion and sediment controls include stabilization measures for disturbed areas and structural controls to divert runoff and remove sediment. Erosion and sediment controls are implemented during the construction period to prevent and/or control the loss of soil from the construction site into the receiving waters. Any and all inadequate controls shall be replaced, and all off-site accumulations shall be removed at a frequency sufficient to minimize off-site impacts. Erosions and sediment controls include temporary or permanent measures, including, but not limited to:

- Areas of permanent seeding
- Areas of sod stabilization
- Silt fence
- Rock barriers
- Earth dikes
- Drainage swales
- Storm drain – inlet protection
- Temporary & permanent sediment barriers
- Slope Drains

Attention is called to the following pages which provide specifications and typical section for each of these measures. These pages shall further illustrate the when and why specific control measures are used. These specifications accompany the Erosion Control and Stormwater Management Plan as shown on the attached Attachments.

Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily of permanently ceased, except where the initiation of stabilization measures by the 14^{th} day after construction activity temporarily of permanently ceases is precluded by snow cover, stabilization measures shall be initiated as soon as practicable or where construction activity will resume on a portion of the site within 14 days from when activities ceased, then stabilization measure do not have to be initiated on that portion of the site by the 14^{th} day after construction activity temporarily ceased.

Other Controls

If erosion & sediment controls indicate that they have been used inappropriately or incorrectly, they are to be replaced or modified to control the site appropriately or correctly. Any off-site sediment shall be removed immediately to minimize any off-site impacts. The contractor shall obtain permission from property owner prior to clean-up of the off-site sediment. When sediment ponds or traps have reached 50% capacity, the sediment shall be removed.

Solid waste which can be burned on-site such as trees, shrubs, brush, and wooden material shall be burned in accordance with local City or County Code. The contractor shall obtain the necessary permit to perform such activity. Additional solid waste that is not suitable for on-site burning such as plastics, foam packaging, PVC pipe scraps, shall be collected in a central location designated by the contractor and placed in appropriated containers (dumpsters or garbage cans) for disposal. No solid materials, including building materials, shall be discharged to waters of the State. Contractor shall coordinate with the local municipality or waste disposal service to arrange for pickup and disposal of this waste at an approved off-site location. There will not be any off-site storage with this project.

Date when major grading activities occurred: ______________________

Date when construction activities ceased:
Date_______________ Area_________________________________ temporarily or permanently
Date _______________Area_________________________________ temporarily or permanently

Date when an area is stabilized:
Date _______________Area_________________________________ temporarily or permanently
Stabilization practice used __________________________________

Date _______________Area_________________________________ temporarily or permanently
Stabilization practice used __________________________________

Structural practices for this project site that shall control the runoff from this site shall be silt fence with haybales. This project site will not have a dedicated detention area. Rock Check Dams and Curb Inlet Sediment Barriers shall be used for Erosion Control Measures. A sod swale shall control the velocity dissipation for this project.

At any point where construction vehicles are entering or leaving the site a temporary gravel construction entrance shall be constructed and maintained throughout the course of construction. The entrance shall be wide enough to accommodate all vehicles that will use this entrance and long enough to adequately remove sediment from construction vehicles tires so that it will not be tracked onto public roads. Any off-site tracking from construction vehicles is to be removed and disposed of properly. The entrance shall be constructed with filter fabric over the sub grade followed by 12 inches of B-stone. C-Ballast can be used over the top of the B-stone to level the driving surface, but the larger stone is preferred due to its sediment removal ability.

If any portable sanitary facilities are used on this project, contractor shall ensure and demonstrate compliance with applicable State or local waste disposal, temporary and permanent sanitary sewer or septic system regulations.

No liquid concrete waste shall be discharged to waters of the State. Appropriated controls to prevent the discharge of concrete washout waters must be implemented if concrete washout will occur on-site. A concrete washout area is in approximate area as shown on Erosion Control Plan.

No contaminants from fuel storage areas, hazardous waste storage and truck wash areas shall be discharged to waters of the State. Methods for protecting these areas shall be identified and implemented. These areas should not be located near a water body, if there is a water body on or near the project.

Allowable Non-Storm Water Discharges

The following is a list of some allowable non-storm water discharges that are common to construction sites:

- Irrigation water used for seeding and planting
- Pavement wash waters or waters used for dust control (No detergents or chemicals are permitted)
- Uncontaminated ground water from dewatering of excavated areas
- New construction exterior building wash down discharges
- Fire-fighting activities
- Fire Hydrant flushing

As with storm water discharges the contractor shall take the necessary precautions to prevent the above activities from discharging sediment into receiving waters. Where practical the contractor shall attempt to route non-storm water discharges to the natural drainage paths planned for storm water so that no additional erosion and sediment controls will be necessary. In the event that the non-storm water discharge can not be routed to the storm water drainage paths, the contractor shall implement the additional controls necessary to prevent excessive erosion.

Post-Construction Storm Water Management Controls

Storm water management controls are constructed to prevent or control pollution of storm water after the construction is complete. Post construction controls for this site will be seed or sod on the lots.

State & Local Standards

Contractor must comply with the lawful requirements of municipalities, counties, drainage districts, and other local agencies regarding any discharges of stormwater to storm drain systems or other water sources under their jurisdiction, including applicable requirements in municipal stormwater management programs developed to comply with the ADEQ permits, *Authorization to Discharge under the National Pollutant Discharge Elimination System and the Arkansas Water and Air Pollution Control Act*. Contractor must comply with local, County, City of Bryant, stormwater management requirements, policies, or guidelines including erosion and sediment control. It is also the contractors' responsibility to determine if any other Federal requirements apply and address them accordingly (such as a 404 Permit). Contractor shall comply with State or local waste disposal, sanitary sewer (including portable toilets), or septic system regulations. Sanitary sewer shall be serviced by the city of Bryant for this project.

Assessment

Measurement of Site Area

Hillcrest Addition is 4.89 acres which is part of the SE ¼ of Section 17, T-1-S, R-14-W, to the City of Bryant, Saline County, Arkansas. The area included in this Storm Water Pollution Prevention Plan is all 4.89 acres, and the amount of soil to be disturbed is also all 4.89 acres.

Measurement of Drainage Areas

It should be noted that individual watersheds were evaluated for the design of the drainage improvements, as shown on Attachment 'D'. Copies of the detailed drainage design calculations are available in the office of the Engineer.

Computed Runoff Coefficient

For the 'lotted' areas, the following assumptions were made:

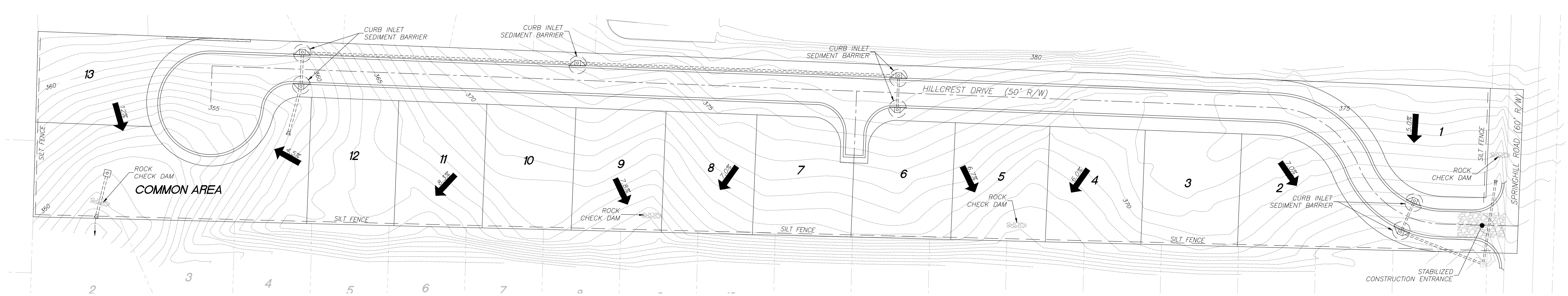
For paved areas (drives, roofs, etc.)	C = 0.90
For unpaved areas (grass, landscaping, etc.)	C = 0.28

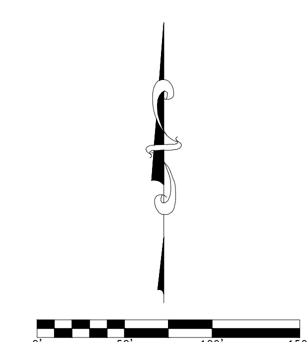
For most lots, half will be improved (C=0.9), while the remainder should fit into the unpaved category (C=0.28). Using the 'weighted average', we will have a runoff coefficient of 0.5. This conservative figure does take into account the streets to exist in front of said lots. For the purpose of these analyses, a pre-construction runoff coefficient of 0.4 is used.

LEGEND:

415 – EXISTING CONTOUR

5.0% – SLOPE & DIRECTION BEFORE GRADING





SCALE: 1" = 50'

LEMONS ENGINEERING CONSULTANTS, INC.
204 CHERRY STREET
CABOT, ARKANSAS 72023
(501) 843-5081 • Fax (501) 941-0959
ENGINEERING + SURVEYING
WATER • SEWER • TRANSPORTATION • SUBDIVISIONS

ATTACHMENT D
HILLCREST ADDITION
PART OF THE SE 1/4 OF SECTION 17, T-1-S, R-14-W
CITY OF BRYANT, SALINE COUNTY, ARKANSAS

Prepared For:
Springhill HWY 5
Development, LLC
816 E. Oak Street
Conway, Arkansas 72032

No.	Revisions	Date	By

Project No.: 24-018	Date: JULY 9, 2024
File: Attachment D	Scale: 1" = 50'
Sheet: 1 of 1	Drawn By: B. Judd

Inspection & Maintenance Plan

This section provides an overview of the inspection and maintenance plan and controls as pertaining to the Stormwater Pollution Prevention Plan. This inspection procedure should be conducted by qualified personnel, (which the permitee provides along with any necessary training, see next sheet) and is necessary in the prevention and control of pollution of storm water on the construction site. Items included in this Plan include the inspection and maintenance of vegetation, erosion and sediment control, and related measures, which are part of this plan. Attention is called to Pages B-1 through B-25 (of the previous section) for information pertaining to maintenance of each anticipated control component. This information, in part, is derived from the "Storm Water Management for Construction Activities" as developed by EPA.

The following list includes the practices that will be used to maintain erosion and sediment controls for this Plan:

- All control measures will be inspected every week and within 24 hours following any storm event of 0.25 inches rainfall or greater rainfall event as measured in the rain gauge located on-site;
- All measures will be inspected to ensure that they meet the proper specs. Repairs to control measures shall be initiated within 72 hours of the report where possible. Additional time may be needed depending on the location of the repair and field conditions. On-site inspector shall determine if extra time is required;
- Inspections are not required when snow cover exists over the entire sire for an extended period and melting conditions do not exist. However, if any runoff occurs at any time during snow cover, regular inspections are required as specified in this permit. If conditions prevent compliance, documentation must be made of when the beginning and ending of winter conditions occurred.
- When adverse weather conditions; such as flooding, high winds or electrical storms, make inspections impractical, an inspection is to be made as soon as conditions are safe and feasible. If conditions prevent compliance, documentation must be made of when the beginning and ending of adverse weather conditions occurred.
- Built up sediment will be removed from silt fencing when sediment has reached a height of 1/3 of fence;
- Silt fence shall be inspected for sediment depth, tears, and proper anchoring;
- Sod swales shall be inspected for sediment build-up. Sediment shall be removed as needed;
- Control measures in and around culverts, inlets, and other permanent structures shall be kept clean of debris and sediment;
- Seeding and planting shall be inspected for bare spots, washouts, and adequate growth;
- A maintenance inspection report will be made after each inspection. Blank inspection report form(s) are included in this Plan;
- Sediment barriers and sediment traps will be cleaned out when they reach 50% of the original capacity. (where applicable)

- Construction entrance/exit hall be inspected to ensure no off-site tracking is occurring.
- Inspection Reports are to be kept for a minimum of 3 years after NOT is issued.
- Any off-site sediment is to be removed ASAP. Consent from adjoining owners is to be obtained prior to removal.

Responsible Parties

The owner of this project shall be responsible for the inspection and maintenance of all erosion control measures. As structures are constructed on lots, the lot owner/home builder shall be responsible for the lot they are constructing a home on.

Employee Training

The permitee shall also be responsible for the proper training of all personnel who will be responsible for implementing the activities identified in this SWPPP, the goals and requirements of the general permit. This shall include all contractors and subcontractors. Training must be given by a knowledgeable and qualified trainer. Records of training must be maintained below. Records that are kept electronically, are not required to be maintained with the SWPPP, but must be accessible upon request. Training class given by a third-party is recommended, but not required. The permitee is responsible for the content of the training being adequate for personnel to implement the requirements of this permit.

Training classes:
Date:________________________________
Location:_____________________________
Time:________________________________

Date:________________________________
Location:_____________________________
Time:________________________________

Date:________________________________
Location:_____________________________
Time:________________________________

ARR150000 Inspection Form

Appendix B

Inspector Name: ______________________________ Date of Inspection: ______________

Inspector Title: ______________________________

Date of Rainfall: ______________________ Duration of Rainfall: ______________________

Days Since Last Rain Event: ____________ days Rainfall Since Last Rain Event: ________ inches

Description of any Discharges During Inspection: ______________________________

Location of Discharges of Sediment/Other Pollutant (specify pollutant & location): ______________________________

____

Locations in Need of Additional BMPs: ______________________________

Information on Location of Construction Activities

Location	Activity Begin Date	Activity Occuring Now (y/n)?	Activity Ceased Date	Stabilization Initiated Date	Stabilization Complete Date

Information on BMPs in Need of Maintenance

Location	In Working Order?	Maintenance Scheduled Date	Maintenance Completed Date	Maintenance to be Performed By

Changes required to the SWPPP: ______________________ Reasons for changes: ______________________

______________________________ ______________________________

______________________________ ______________________________

SWPPP changes completed (date): ______________

"I certify under penalty of law that this document and all attachments such as Inspection Form were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Signature of Responsible or Cognizant Official: ______________________________ Date: ____________

Title: ______________________________

SEE VOLUME #3

FOR

INSPECTION

REPORTS

INSPECTORS CERTIFICATION

I certify under penalty of law that I understand the terms and conditions set forth by the permittee (operator) under the Stormwater Pollution Prevention Plan associated with the construction site identified as part of this certification. I shall make major observations relating to the implementation of the stormwater pollution prevention plan and take actions in accordance with the requirements of this permit and retain as part of this plan for at least three (3) years from the date that this site is finally stabilized. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

7-9-2024

Signature Date

Lance Massey, Developer/Construction Manager

Printed Name & Title

501-428-3866

Phone Number

***Inspectors certification must be signed by inspector prior to any construction of work beginning.**

CONTRACTORS CERTIFICATION

I certify under penalty of law that I understand the terms and conditions set forth by the permittee (operator) under the Stormwater Pollution Prevention Plan associated with the construction site identified as part of this certification. Furthermore, I understand that the ADEQ and/or the operator may require me to obtain my own permit coverage for the construction site and that there would be penalties for failure to comply with my permit.

7-9-2024

Signature Date

Lance Massey, Developer/Construction Manager

Printed Name & Title

Springhill Hwy 5 Developments LLC

Name of Contracting Firm

816 East Oak Street, Conway, AR 72032

Address

501-428-3866

Phone Number

***Contractors certification must be signed by contractor prior to any construction of work beginning.**

PLAN CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

7-9-2024

Signature Date

Lance Massey, Developer/Construction Manager

Printed Name & Title

7-9-2024

Signature Date

Tim Lemons - Engineer

Printed Name & Title

Lemons Engineering Consultants, Inc.

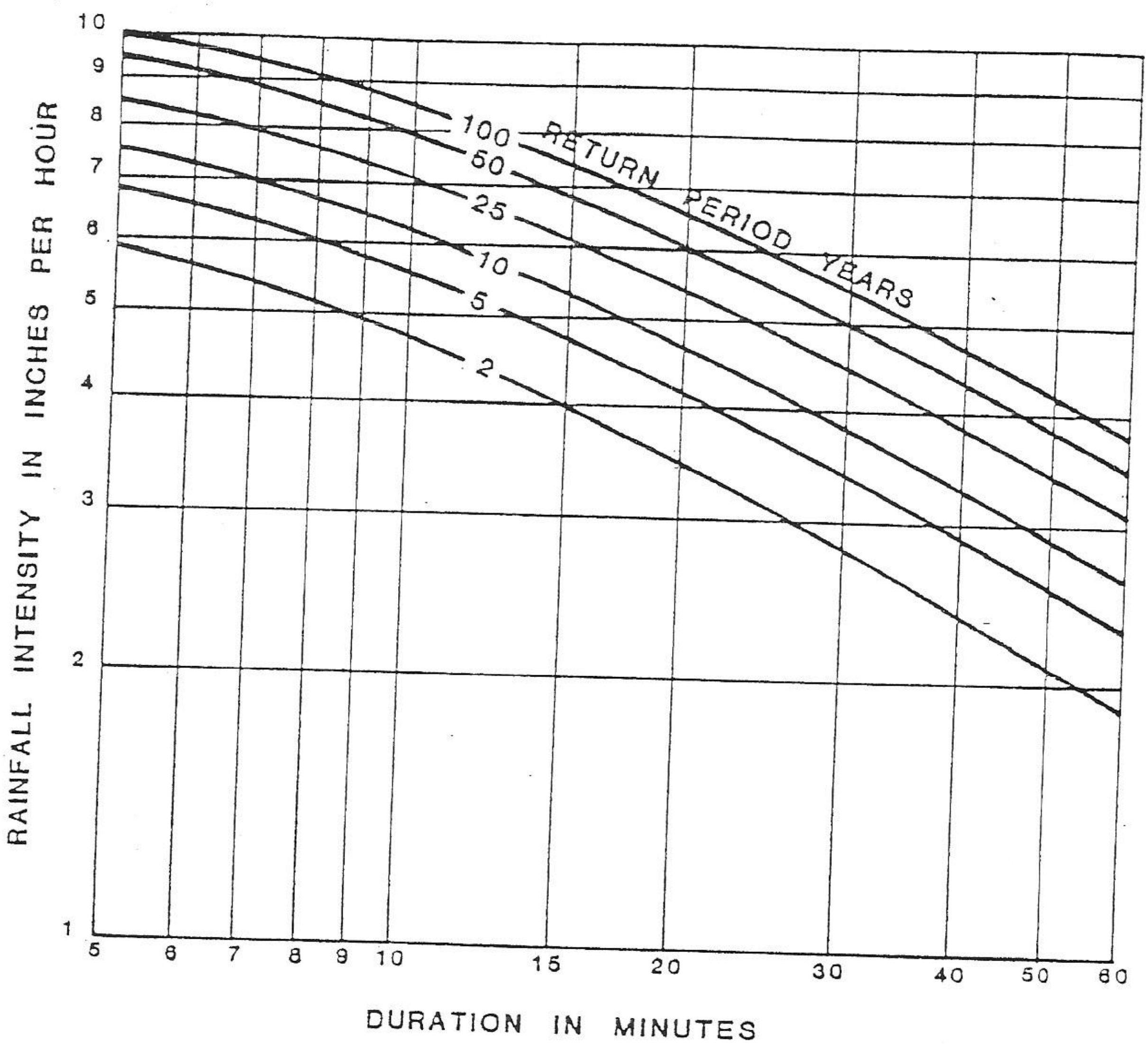
Name of Contracting Firm

204 Cherry Street, Cabot, AR 72023

Address

501-605-7565

Phone Number



INTENSITY - DURATION - FREQUENCY

LITTLE ROCK

SOURCE: HYDRO 35 & T.P. No. 40

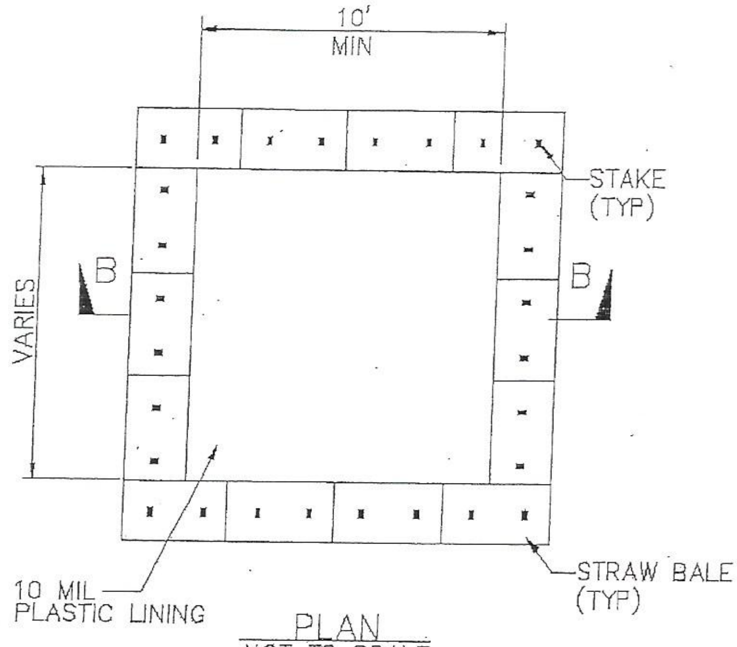
TABLE 2.1 RUNOFF COEFFICIENTS FOR RATIONAL METHOD

LAND USE TYPES	RUNOFF COEFFICIENTS — FREQUENCY 10	25	100
Business:			
Central Business District	.90	.93	.95
Commercial Area	.85(.70-.95)*	.90	.95
Neighborhood Area	.70(.50-.75)	.75	.80
Residential:			
Single Family	.50(.30-.60)	.60	.70
Multi-Unit (Detached)	.60(.40-.65)	.65	.75
Multi-Unit (Attached)	.70(.60-.75)	.75	.80
1/2 AC Lots or Larger	.40(.25-.50)	.45	.65
Apartments	.70(.50-.80)	.75	.80
Industrial:			
Light Areas	.80(.50-.85)	.82	.85
Heavy Areas	.85(.60-.90)	.87	.90
Parks and Cemeteries	.30(.10-.40)	.40	.60
Playgrounds	.35(.20-.40)	.50	.70
Schools and Churches	.60(.50-.75)	.65	.75
Railroad Yards	.50(.30-.60)	.60	.70
Offsite Flow Analysis (When Land Use Not Defined)	.55(.45-.65)	.67	.70

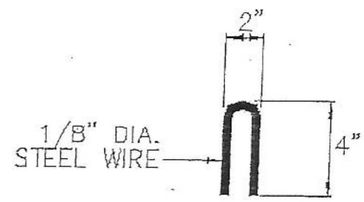
*NOTE: The range of runoff coefficients based on soil type: The low value is for sandy soils, while the high value is for clay soils. The given runoff coefficient outside the parenthesis is to be used for design, unless the Engineer of Record receives approval from the City Engineer for another value located within the given coefficient range.

TABLE 2.2 RUNOFF COEFFICIENTS FOR RATIONAL METHOD COMPOSITE ANALYSIS

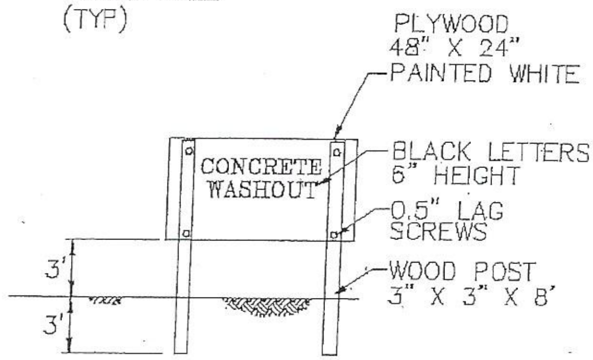
CHARACTER OF SURFACE	RUNOFF COEFFICIENTS FREQUENCY 10	25	100
Undeveloped Areas:			
Historic Flow Analysis, Greenbelts, Agricultural, Natural Vegetation			
Clay Soil			
Flat, 2%	.30	.33	.37
Average, 2-7%	.40	.44	.50
Steep 7%	.50	.55	.62
Sandy Soil			
Flat, 2%	.12	.13	.15
Average, 2-7%	.20	.22	.25
Steep 7%	.30	.33	.37
Streets:			
Paved	.90	.92	.95
Gravel	.35	.50	.65
Drives and Walks:	.90	.91	.92
Roofs:	.90	.92	.95
Lawns:			
Clay Soil			
Flat, 2%	.18	.20	.25
Average, 2-7%	.22	.28	.35
Steep, 7%	.35	.45	.60
Sandy Soil			
Flat, 2%	.10	.25	.40
Average, 2-7%	.15	.30	.45
Steep, 7%	.20	.35	.50



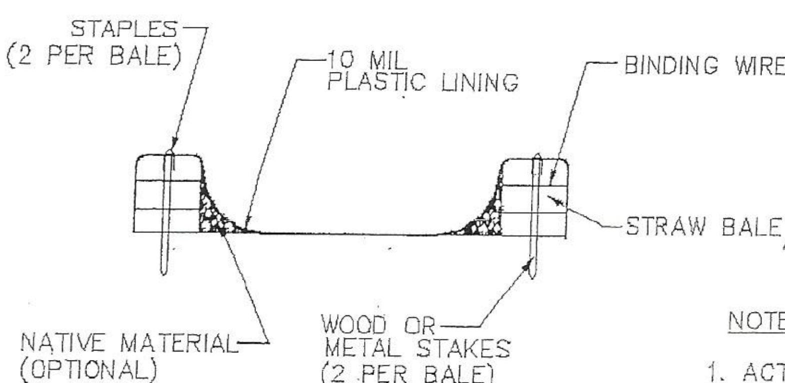
PLAN
NOT TO SCALE
TYPE "ABOVE GRADE"
WITH STRAW BALES



STAPLE DETAIL



CONCRETE WASHOUT
SIGN DETAIL
(OR EQUIVALENT)



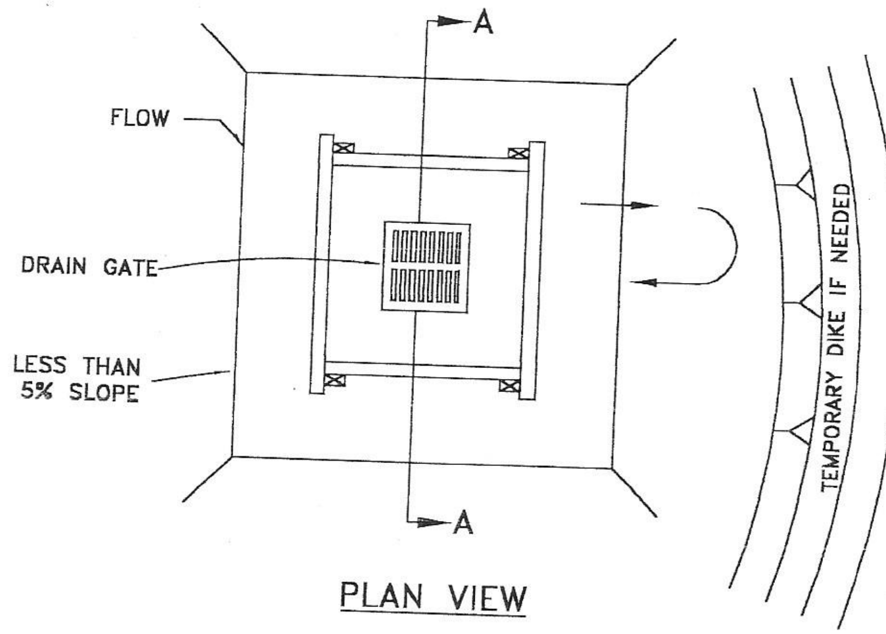
SECTION B–B
NOT TO SCALE

NOTES

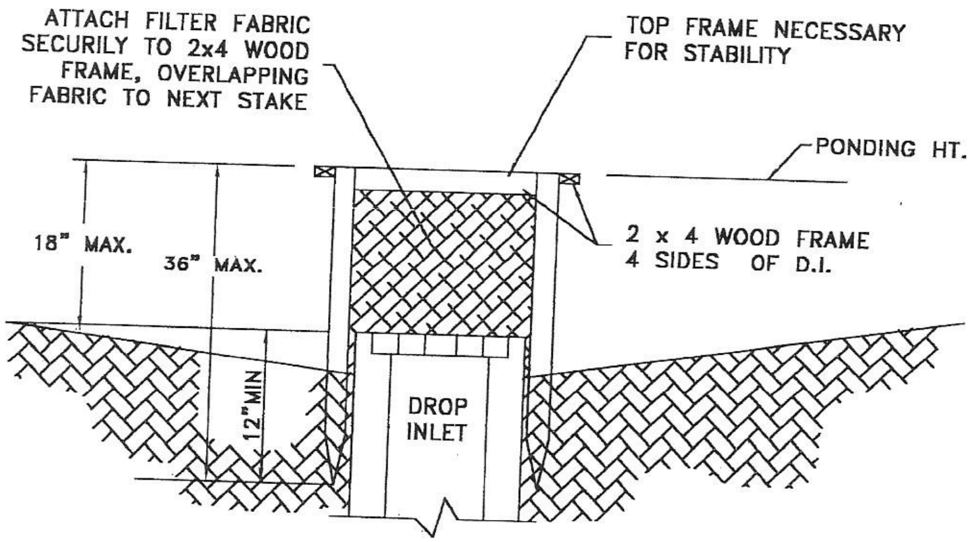
1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FT. OF THE TEMPORARY CONCRETE WASHOUT FACILITY.

Onsite Temporary Concrete Washout Facility

- Temporary concrete washout facilities should be located a minimum of 50 ft from storm drain inlets, open drainage facilities, and watercourses. Each facility should be located away from construction traffic of access areas to prevent disturbance or tracking.
- A sign should be installed adjacent to each washout facility to inform concrete equipment operators to utilize the proper facilities.
- Temporary concrete washout facilities should be constructed above grade. Facility should be constructed and maintained in sufficient quantity and size to contain all liquids generated during washout procedures.
- Temporary washout facilities should have a temporary pit or bermed areas of sufficient volume to completely contain all liquid and waste concrete materials generated during washout procedures.
- Washout of concrete trucks should be performed in designated areas only.
- Only concrete from mixer truck chutes should be washed into concrete washout.
- Concrete washout from concrete pumper bins can be washed into concrete pumper trucks and discharged into designed washout areas or properly disposed of offsite.
- Once concrete wastes are washed into the designated areas and slowed to harden, the concrete should be broken up, removed and disposed of. Dispose of hardened concrete on a regular basis.
- Temporary concrete washout facility should be constructed according to the detail, with a recommended minimum length and minimum width of 10 ft, but with sufficient quantity and volume to contain all liquid and concrete waste generated by washout operations.
- Plastic lining material should be a minimum of 10 mil in polyethylene sheeting and should be free of holes, tears, or other defects that compromise the impermeability of the material.



PLAN VIEW



SECTION A – A

NOTES:

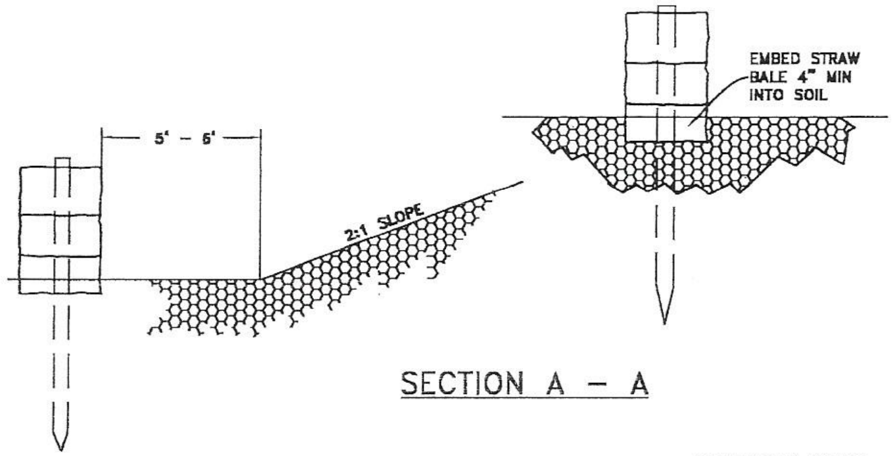
1.) DROP INLET SEDIMENT BARRIERS ARE TO BE USED FOR SMALL NEARLY LEVEL DRAINAGE AREAS.

2.) USE 2 x 4 WOOD OR EQUIVALENT METAL STAKES, (3 FT. MIN. LENGTH).

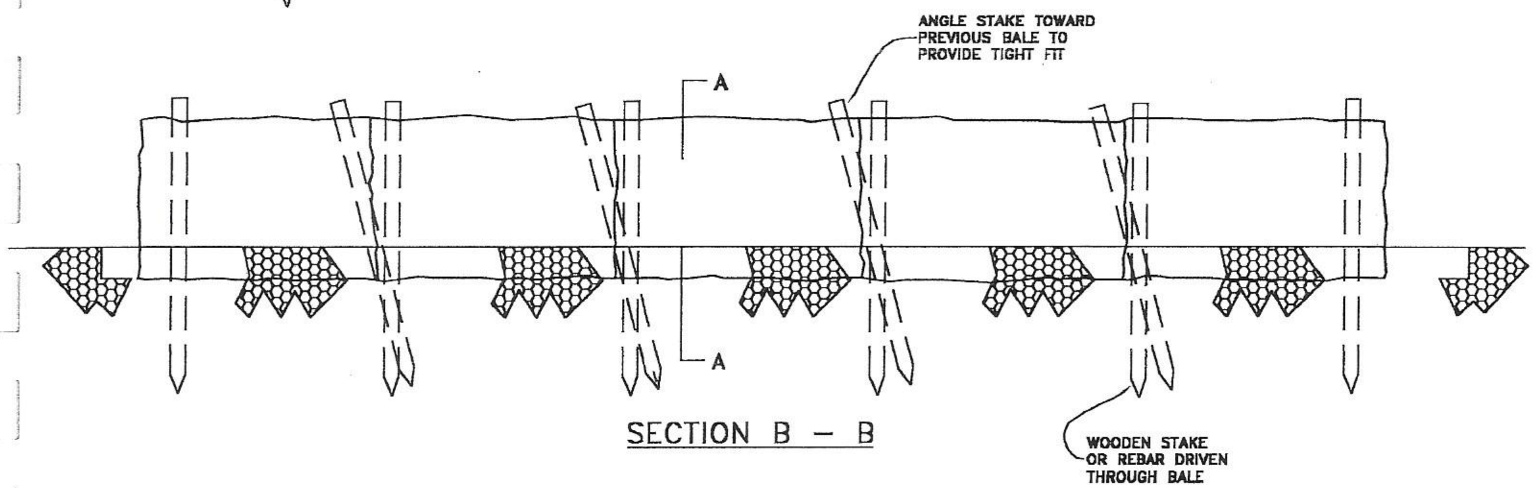
3.) INSTALL 2 x 4 WOOD TOP FRAME TO INSURE STABILITY.

4.) THE TOP OF THE FRAME (PONDING HEIGHT) MUST BE WELL BELOW THE GROUND ELEVATION DOWNSLOPE TO PREVENT RUNOFF FROM BY-PASSING THE INLET. A TEMPORARY DIKE MAY BE NECESSARYON THE DOWNSLOPE SIDE OF THE STRUCTURE.

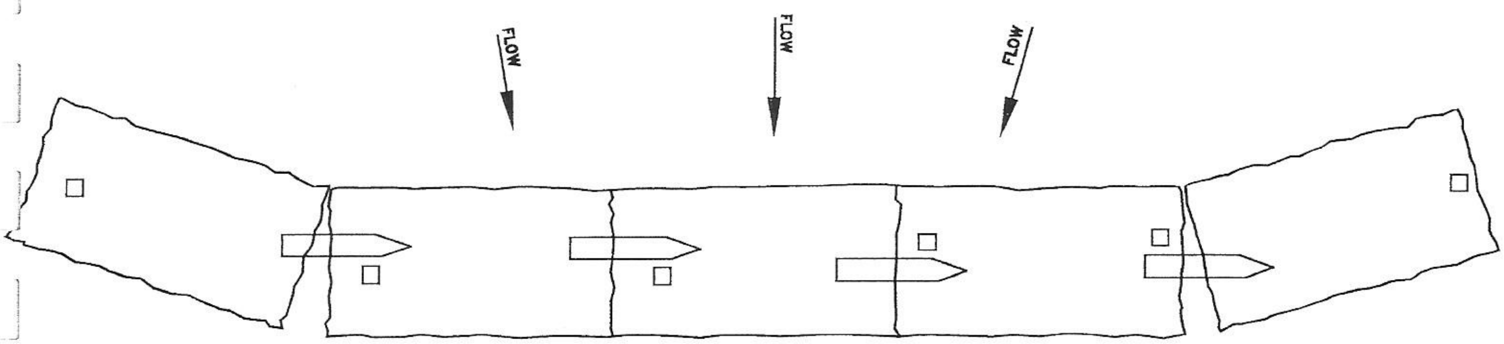
SILT FENCE DROP INLET SEDIMENT BARRIER



SECTION A – A



SECTION B – B

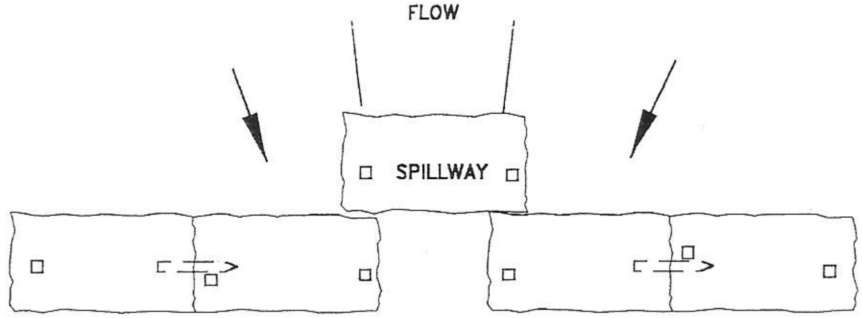


PLAN

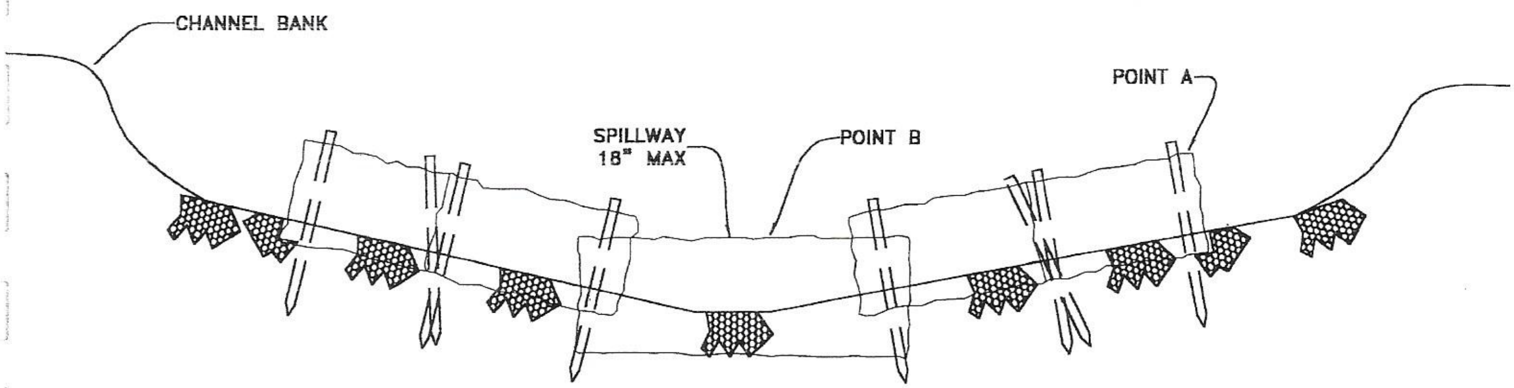
NOTES:

1.) THE STRAW BALES SHALL BE PLACED ON THE SLOPE CONTOUR.
2.) BALES TO BE PLACED IN A ROW WITH THE ENDS TIGHTLY ABUTTING. USE STRAW, ROCKS, OR FILTER FABRIC TO FILL THE GAPS BETWEEN THE BALES AND TAMP THE BACKFILL MATERIAL TO PREVENT EROSION OR BACK FLOW AROUND BALES.

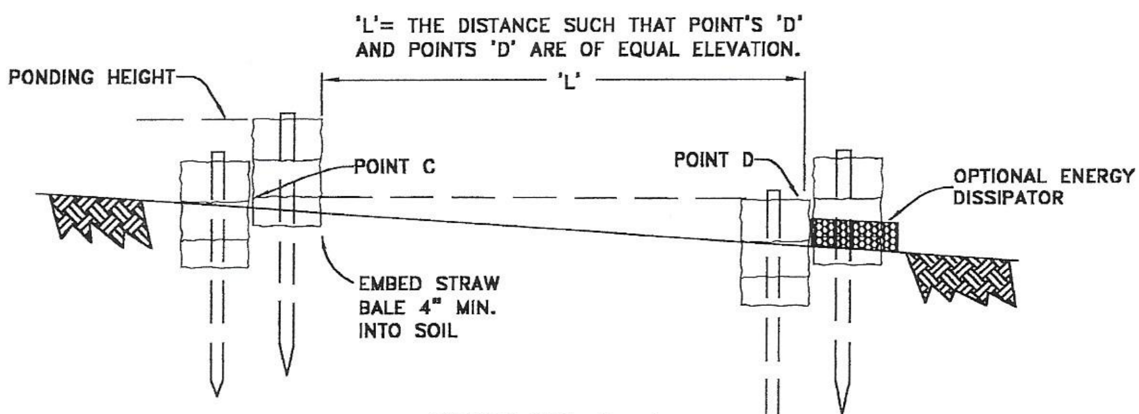
STRAW BALE DIKE



PLAN



VIEW LOOKING UPSTREAM

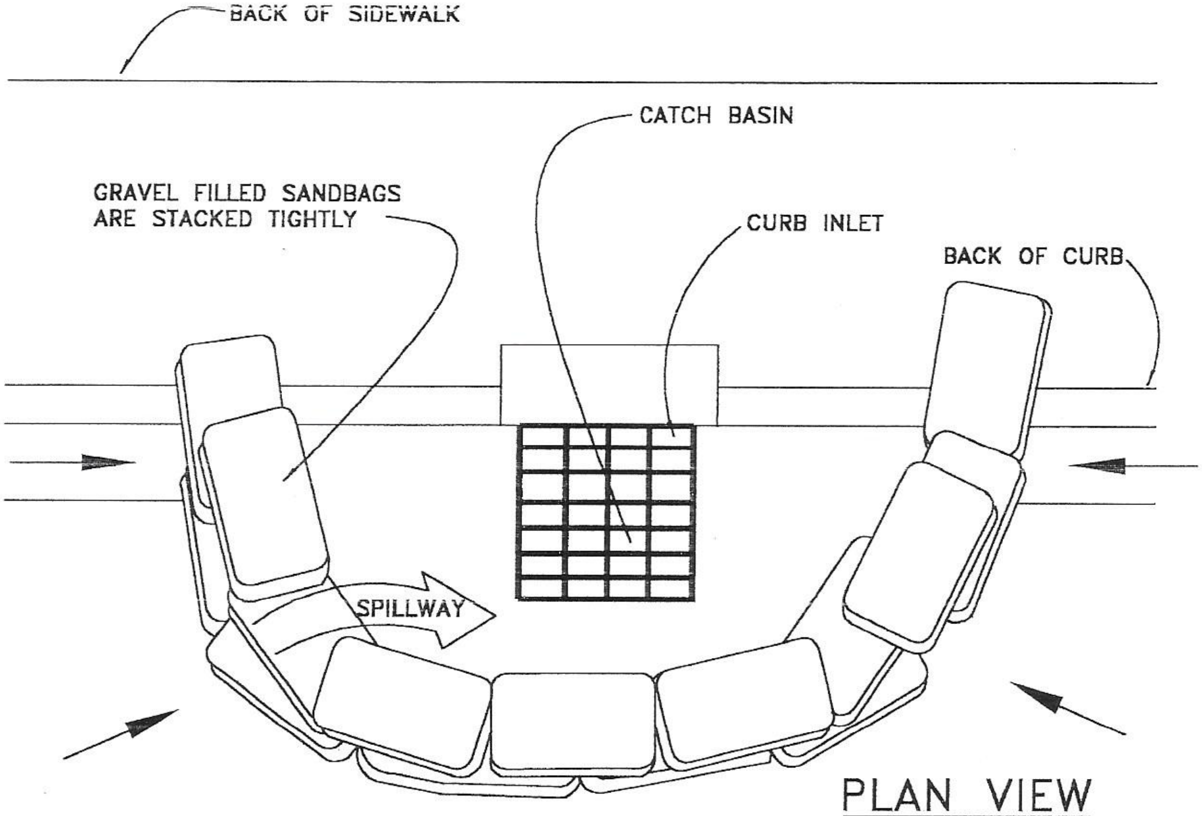


SECTION A-A
SPACING BETWEEN CHECK DAMS

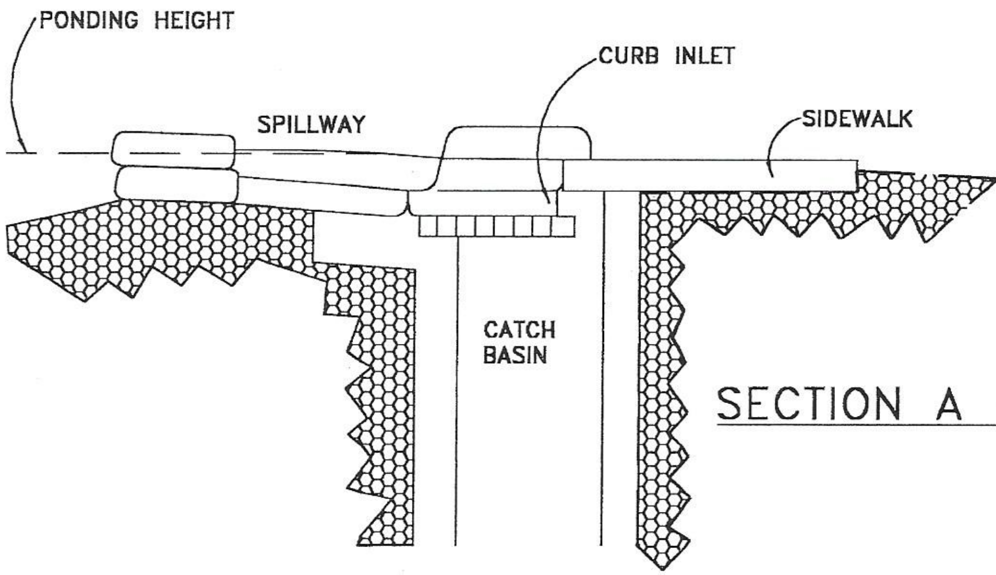
NOTES:

1.) EMBED BALES 4" INTO THE SOIL AND 'KEY' BALES INTO THE CHANNEL BANKS.
2.) POINT 'A' MUST BE HIGHER THAN POINT 'B' (SPILLWAY HEIGHT)
3.) PLACE BALES PERPENDICULAR TO THE FLOW WITH ENDS TIGHTLY ABUTTING. USE STRAW, ROCKS OR FILTER FABRIC TO FILL ANY GAPS AND TAMP BACKFILL MATERIAL TO PREVENT EROSION OR FLOW AROUND THE BALES.
4.) SPILLWAY HEIGHT SHALL NOT EXEED 18".
5.) INSPECT AFTER EACH SIGNIFICANT STORM, MAINTAIN AND REPAIR PROMPTLY.
6.) SPACING OF CHECK DAMS ARE AS SHOWN.

STRAW BALE CHECK DAM



PLAN VIEW



SECTION A – A

NOTES:

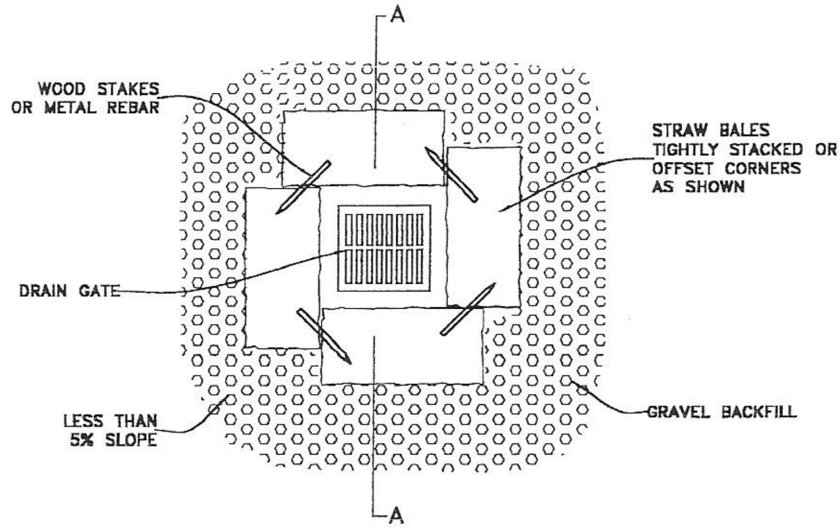
1.) PLACE CURB TYPE SEDIMENT BARRIERS ON GENTLY SLOPING STREET SEGMENTS WHERE WATER CAN POND AND ALLOW SEDIMENT TO SEPARATE FROM RUNOFF.

2.) SANDBAGS OF EITHER BURLAP OR WOVEN GEOTEXTILE FABRIC ARE FILLED WITH GRAVEL, LAYERED, AND PACKED TIGHTLY.

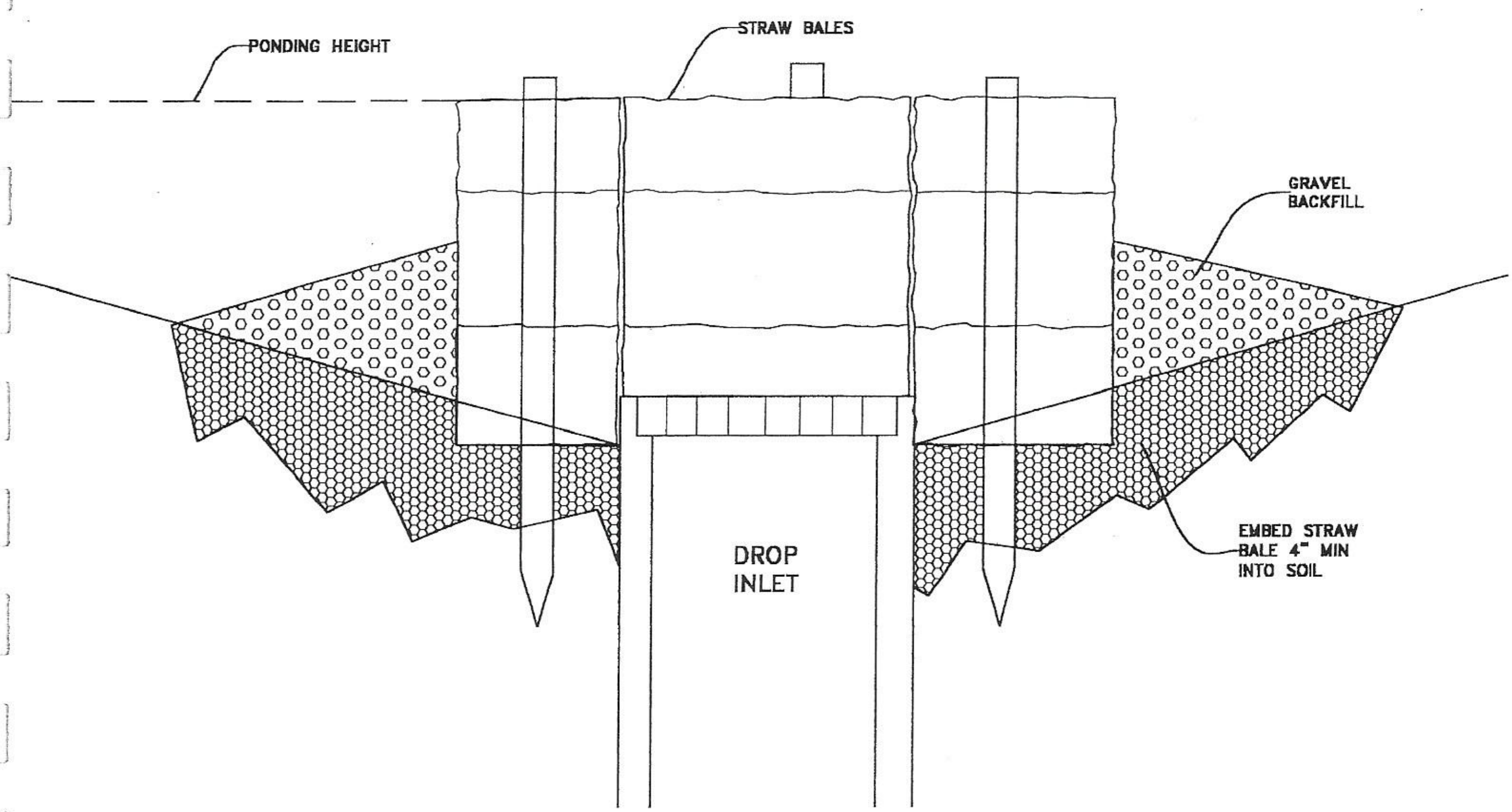
3.) LEAVE ONE SANDBAG GAP IN THE TOP ROW TO PROVIDE A SPILLWAY FOR OVERFLOW.

4.) INSPECT BARRIERS AND REMOVE SEDIMENT AFTER EACH STORM EVENT. SEDIMENT AND GRAVEL MUST BE REMOVED FROM THE TRAVELED WAY IMMEDIATELY.

CURB INLET SEDIMENT BARRIER



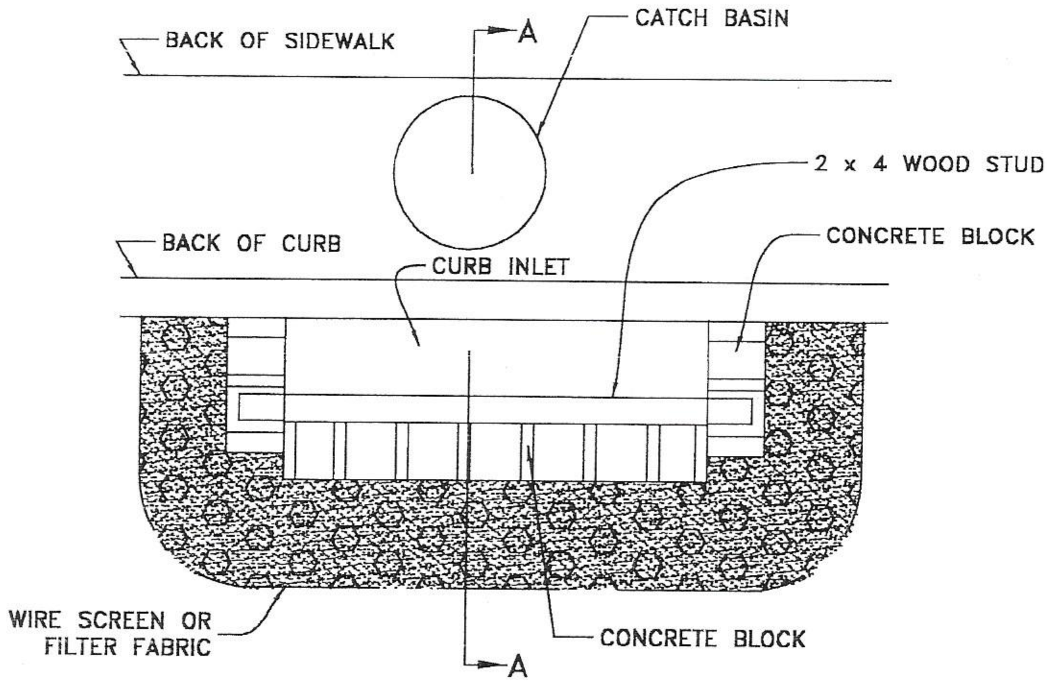
PLAN VIEW



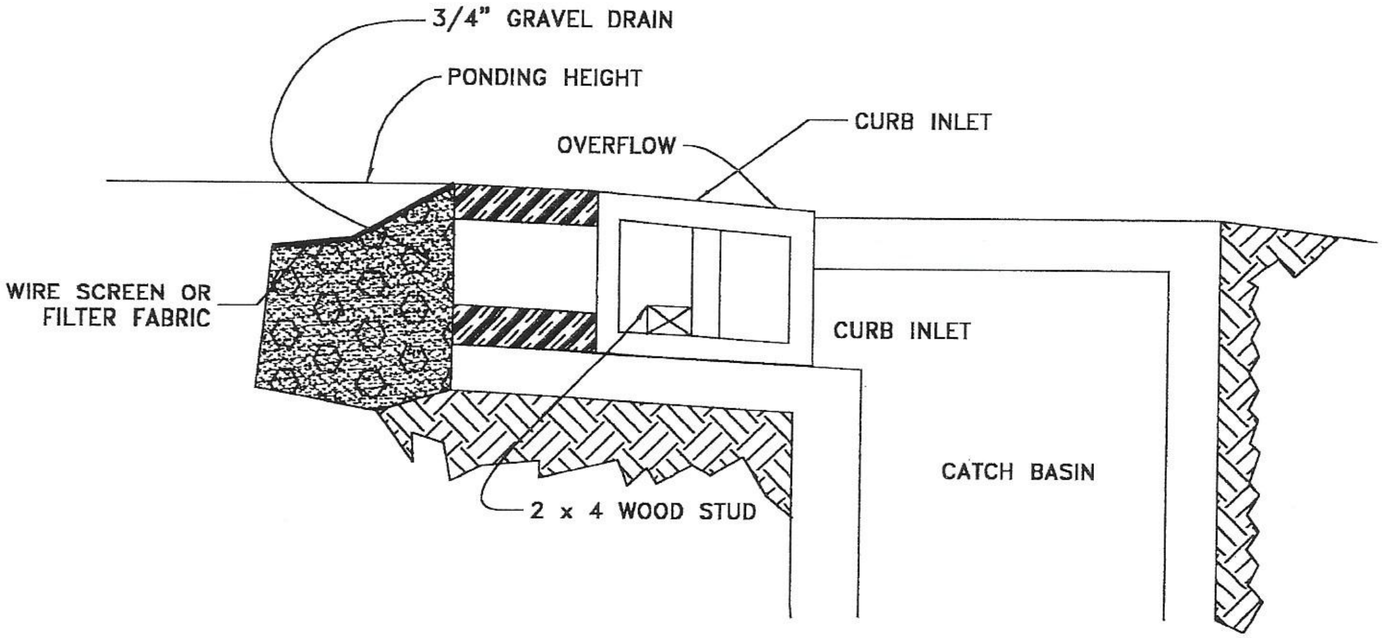
SECTION A–A

NOTES:
1.) DROP INLET SEDIMENT BARRIERS ARE TO BE USED FOR SMALL NEARLY LEVEL DRAINAGE AREAS.
2.) EMBED THE BALES 4" INTO THE SOIL AND OFFSET THE CORNERS OR PLACE BALES WITH ENDS TIGHTLY ABUTING. GRAVEL BACKFILL WILL PREVENT EROSION OR FLOW AROUND THE BALES.
3.) THE TOP OF THE STRUCTURE (PONDING HEIGHT) MUST BE WELL BELOW THE GROUND ELEVATION DOWNSLOPE TO PREVENT RUNOFF FROM BY–PASSING THE INLET. EXCAVATION OF A BASIN ADJACENT TO THE DROP INLET OR A TEMPORARY DIKE ON THE DOWNSLOPE OF THE STRUCTURE MAY BE NECESSARY.

STRAW BALE/GRAVEL DROP INLET SEDIMENT BARRIER



PLAN VIEW



SECTION A – A

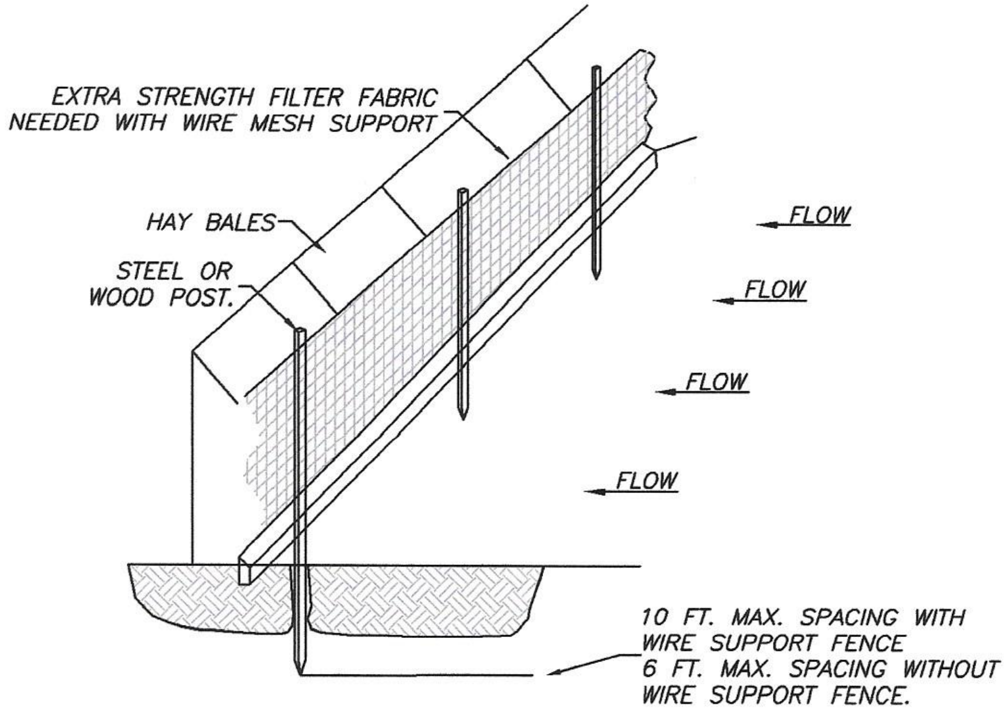
NOTES:

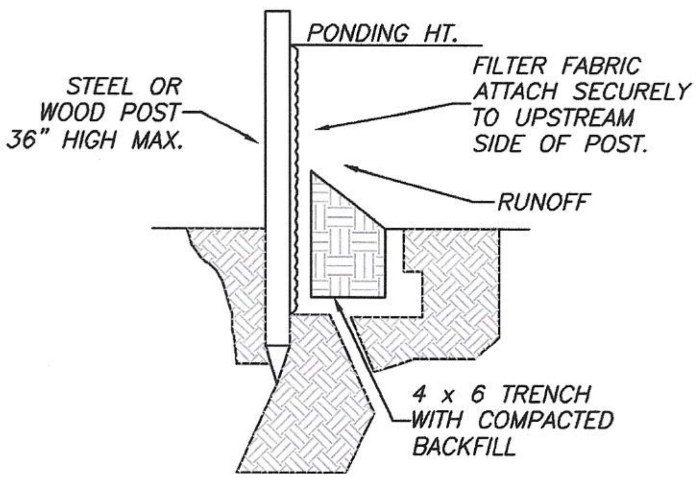
1.) USE BLOCK AND GRAVEL TYPE SEDIMENT BARRIER WHEN CURB INLET IS LOCATED IN GENTLY SLOPING STREET SEGMENT, WHERE WATER CAN POND AND ALLOW SEDIMENT TO SEPARATE FROM RUNOFF.

2.) BARRIER SHALL ALLOW FOR OVERFLOW FROM SEVERE STORM EVENT.

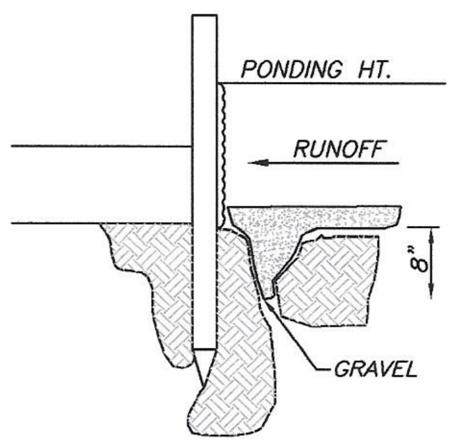
3.) INSPECT BARRIERS AND REMOVE SEDIMENT AFTER EACH STORM EVENT. SEDIMENT AND GRAVEL MUST BE REMOVED FROM THE TRAVELED WAY IMMEDIATELY.

CURB INLET
SEDIMENT BARRIER





STANDARD DETAIL
TRENCH WITH NATIVE GRAVEL



ALTERNATE DETAIL
TRENCH WITH GRAVEL

NOTE:

1.) INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY.

2.) REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.

3.) SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.

SILT FENCE
NTS

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Design Criteria

- Silt fences are appropriate at the following general locations:
  - Immediately upstream of the point(s) of runoff discharge from a site before flow becomes concentrated (maximum design flow rate should not exceed 0.5 cubic feet per second).
  - Below disturbed areas where runoff may occur in the form of overland flow.
- Ponding should not be allowed behind silt fences since they will collapse under high pressure; the design should provide sufficient outlets to prevent overtopping.
- The drainage area should not exceed 0.25 acre per 100 feet of fence length.
- For slopes between 50:1 and 5:1, the maximum allowable upstream flow path length to the fence is 100 feet; for slopes of 2:1 and steeper, the maximum is 20 feet.
- The maximum upslope grade perpendicular to the fence line should not exceed 1:1.
- Synthetic silt fences should be designed for 6 months of service; burlap is only acceptable for periods of up to 60 days.

Materials

- Synthetic filter fabric should be a pervious sheet of polypropylene, nylon, polyester, or polyethylene yarn conforming to the requirements in Table 1 below.

TABLE 1. SYNTHETIC FILTER FABRIC REQUIREMENTS

Physical Property	Requirements
Filtering Efficiency	75% - 85% (minimum)
Tensile Strength at 20% (maximum) Elongation	Standard Strength - 30 lb/linear inch (minimum)
	Extra Strength - 50 lb/linear inch (minimum)
Slurry Flow Rate	0.3 gal/ft^2/min (minimum)

- Synthetic filter fabric should contain ultraviolet ray inhibitors and stabilizers to provide a minimum of 6 months of expected usable construction life at a temperature range of 0 to 120°F.
- Burlap of 10 ounces per square yard of fabric can also be used.
- The filter fabric should be purchased in a continuous roll to avoid joints.
- While not required, wire fencing may be used as a backing to reinforce standard strength filter fabric. The wire fence (14 gauge minimum) should be at 22-48 inches wide and should have a maximum mesh spacing of 6 inches.
- Posts should be 2-4 feet long and should be composed of either 2" x 2-4" pine (or equivalent) or 1.00 to 1.33 lb/linear ft steel. Steel posts should have projections for fastening wire and fabric to them.

Construction Specifications

- The maximum height of the filter fence should range between 18 and 36 inches above the ground surface (depending on the amount of upslope ponding expected).

- Posts should be spaced 8 to 10 feet apart when a wire mesh support fence is used and no more than 6 feet apart when extra strength filter fabric (without a wire fence) is used. The posts should extend 12 to 30 inches into the ground.
- A trench should be excavated 4 to 8 inches wide and 4 to 12 inches deep along the upslope side of the line of posts.
- If standard strength filter fabric is to be used, the optional wire mesh support fence may be fastened to the upslope side of the posts using 1 inch heavy duty wire staples, tie wires, or hog rings. Extend the wire mesh support to the bottom of the trench. The filter fabric should then be stapled or wired to the fence, and 8 to 20 inches of the fabric should extend into the trench (Figure 1).
- Extra strength filter fabric does not require a wire mesh support fence. Staple or wire the filter fabric directly to the posts and extend 8 to 20 inches of the fabric into the trench (Figure 1).
- Where joints in the fabric are required, the filter cloth should be spliced together only at a support post, with a minimum 6-inch overlap, and securely sealed.
- Do not attach filter fabric to trees.
- Backfill the trench with compacted soil or 0.75 inch minimum diameter gravel placed over the filter fabric.

Maintenance

- Inspect filter fences daily during periods of prolonged rainfall, immediately after each rainfall event, and weekly during periods of no rainfall. Make any required repairs immediately.
- Sediment must be removed when it reaches one-third to one-half the height of the filter fence. Take care to avoid damaging the fence during cleanout.
- Filter fences should not be removed until the upslope area has been permanently stabilized. Any sediment deposits remaining in place after the filter fence has been removed should be dressed to conform with the existing grade, prepared, and seeded.

Cost

- Silt fence installation costs approximately $6.00 per linear foot.

Sources

- Commonwealth of Virginia - County of Fairfax, 1987. 1987 Check List For Erosion And Sediment Control - Fairfax County, Virginia.
- State of North Carolina, 1988. Erosion and Sediment Control Planning and Design Manual. North Carolina Sedimentation Control Commission, Department of Natural Resources and Community Development.
- Maryland Department of the Environment, 1991. 1991 Maryland Standards And Specifications For Soil Erosion And Sediment Control - Draft.

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Design Criteria

- Pipe Slope Drains (PSD) are appropriate in the following general locations:
  - On cut or fill slopes before permanent storm water drainage structures have been installed.
  - Where earth dikes or other diversion measures have been used to concentrate flows.
  - On any slope where concentrated runoff crossing the face of the slope may cause gullies, channel erosion, or saturation of slide-prone soils.
  - As an outlet for a natural drainageway.
- The drainage area may be up to 10 acres; however, many jurisdictions consider 5 acres the recommended maximum.
- The PSD design should handle the peak runoff for the 10-year storm. Typical relationships between area and pipe diameter are shown in Table 2 below.

TABLE 2. RELATIONSHIP BETWEEN AREA AND PIPE DIAMETER

Maximum Drainage Area (Acres)	Pipe Diameter (D) (Inches)
0.5	12
0.75	15
1.0	18

Materials

- Pipe may be heavy duty flexible tubing designed for this purpose, e.g., nonperforated, corrugated plastic pipe, corrugated metal pipe, bituminous fiber pipe, or specially designed flexible tubing.
- A standard flared end section secured with a watertight fitting should be use for the inlet. A standard T-section fitting may also be used.
- Extension collars should be 12-inch long sections of corrugated pipe. All fittings must be watertight.

Construction Specifications

- Place the pipe slope drain on undisturbed or well-compacted soil.
- Soil around and under the entrance section must be hand-tamped in 4-inch to 8-inch lifts to the top of the dike to prevent piping failure around the inlet.
- Place filter cloth under the inlet and extend 5 feet in front of the inlet and be keyed in 6-inches on all sides to prevent erosion. A 6-inch metal toe plate may also be used for this purpose.
- Ensure firm contact between the pipe and the soil at all points by backfilling around and under the pipe with stable soil material hand compacted in lifts of 4-inches to 8-inches.
- Securely stake the PSD to the slope using grommets provided for this purpose at intervals of 10 feet or less.
- Ensure that all slope drain sections are securely fastened together and have watertight fittings.

- Extend the pipe beyond the toe of the slope and discharge at a nonerosive velocity into a stabilized area (e.g., rock outlet protection may be used) or to a sedimentation trap or pond.
- The PSD should have a minimum slope of 3 percent or steeper.
- The height at the centerline of the earth dike should range from a minimum of 1.0 foot over the pipe to twice the diameter of the pipe measured from the invert of the pipe. It should also be at least 6 inches higher than the adjoining ridge on either side.
- At no point along the dike will the elevation of the top of the dike be less than 6 inches higher than the top of the pipe.
- Immediately stabilize all areas disturbed by installation or removal of the PSD.

Maintenance

- Inspect regularly and after every storm. Make any necessary repairs.
- Check to see that water is not bypassing the inlet and undercutting the inlet or pipe. If necessary, install headwall or sandbags.
- Check for erosion at the outlet point and check the pipe for breaks or clogs. Install additional outlet protection if needed and immediately repair the breaks and clean any clogs.
- Do not allow construction traffic to cross the PSD and do not place any material on it.
- If a sediment trap has been provided, clean it out when the sediment level reaches 1/3 to 1/2 the design volume.
- The PSD should remain in place until the slope has been completely stabilized or up to 30 days after permanent slope stabilization.

Cost

- Pipe slope drain costs are generally based upon the pipe type and size (generally, flexible PVC at $5.00 per linear foot). Also adding to this cost are any expenses associated with inlet and outlet structures.

Sources

- Commonwealth of Virginia - County of Fairfax, 1987. 1987 Check List For Erosion And Sediment Control - Fairfax County, Virginia.
- State of North Carolina, 1988. Erosion and Sediment Control Planning and Design Manual. North Carolina Sedimentation Control Commission, Department of Natural Resources and Community Development.
- Maryland Department of the Environment, 1991. 1991 Maryland Standards And Specifications For Soil Erosion And Sediment Control - Draft.
- Storm Water Management Manual for the Puget Sound Basin. State of Washington, Department of Ecology, 1991.
- Cost Data:
  - Draft Sediment and Erosion Control, An Inventory of Current Practices, April 20, 1990. Prepared by Kamber Engineering for the U.S. Environmental Protection Agency, Office of Water Enforcement and Permits, Washington, D.C. 20460.

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Design Criteria

- A Stabilized Construction Entrance (SCE) is appropriate in the following locations:
  - Wherever vehicles are leaving a construction site and enter onto a public road
  - At any unpaved entrance/exit location where there is risk of transporting mud or sediment onto paved roads.

- The width should be at least 10 feet to 12 feet or the as wide as the entire width of the access. At sites where traffic volume is high the entrance should be wide enough for two vehicles to pass safely.
- The length should be between 50 to 75 feet in length.
- Flare the entrance where it meets the existing road to provide a turning radius.
- Runoff from a stabilized construction entrance should drain to a sediment trap or sediment basin.
- Pipe placed under the entrance to handle runoff should be protected with a mountable berm.
- Dust control should be provided in accordance with Section 3.2.1.

Materials

- Crushed stone 2-inches-4-inches in diameter
- Geotextile (filter fabric) with the properties listed in Table 3 below.

TABLE 3. GEOTEXTILE REQUIREMENTS

Physical Property	Requirements
Grab Tensile Strength	220 lbs. (ASTM D1682)
Elongation Failure	60 % (ASTM D1682)
Mullen Burst Strength	430 lbs. (ASTM D3768)
Puncture Strength	125 lbs. (ASTM D751) (modified)
Equivalent Opening	Size 40-80 (US std Sieve) (CW-02215)

Construction Specifications

- Clear all vegetation, roots and all other obstructions in preparation for grading.
- Prior to placing geotextile (filter fabric) make sure that the entrance is properly graded and compacted.

- To reduce maintenance and loss of aggregate place geotextile fabric (filter cloth) over the existing ground before placing the stone for the entrance.
- Stone should be placed to a depth of 6-inches or greater for the entire width and length of the SCE.

Maintenance

- Inspect the measure on a regular basis and after there has been a high volume of traffic or storm event.
- Apply additional stone periodically and when repair is required.
- Immediately remove sediments or any other materials tracked onto the public roadway.
- Ensure that associated sediment control measures are in good working condition.

Cost

- Stabilized construction entrances cost ranges from $1,500 to $5,000 to install.

Sources

- Commonwealth of Virginia - County of Fairfax, 1987. 1987 Check List For Erosion And Sediment Control - Fairfax County, Virginia.
- State of North Carolina, 1988. Erosion and Sediment Control Planning and Design Manual. North Carolina Sedimentation Control Commission, Department of Natural Resources and Community Development.
- Maryland Department of the Environment, 1991. 1991 Maryland Standards And Specifications For Soil Erosion And Sediment Control - Draft.
- Storm Water Management Manual for the Puget Sound Basin. State of Washington, Department of Ecology, 1991.
- Cost Data:
  - Draft Sediment and Erosion Control, An Inventory of Current Practices, April 20, 1990. Prepared by Kamber Engineering for the U.S. Environmental Protection Agency, Office of Water Enforcement and Permits, Washington, D.C. 20460.

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Design Criteria

- Inlet protection is appropriate in the following locations:
  - In small drainage areas (less than 1 acre) where the storm drain inlet is functional before the drainage area has been permanently stabilized.
  - Where there is danger of sediment silting in an inlet which is in place prior to permanent stabilization.

- Filter fabric inlet protection is appropriate for most types of inlets where the drainage area is one acre or less.
- The drainage area should be fairly flat with slopes of 5% or less and the area immediately surrounding the inlet should not exceed a slope of 1%.
- Overland flow to the inlet should be no greater than 0.5 cfs.
- This type of inlet protection is not appropriate for use in paved areas because the filter fabric requires staking.
- To avoid failure caused by pressure against the fabric when overtopping occurs, it is recommended that the height of the filter fabric be limited to 1.5 feet above the crest of the drop inlet.
- It is recommended that a sediment trapping sump of 1 to 2 feet in depth with side slopes of 2:1 be provided.

Materials

- Filter fabric (see the fabric specifications for silt fence).
- Wooden stakes 2" x 2" or 2"x 4" with a minimum length of 3 feet.
- Heavy-duty wire staples at least ½ inch in length.
- Washed gravel ¾ inches in diameter.

Construction Specifications

- Place a stake at each corner of the inlet and around the edges at no more than 3 feet apart. Stakes should be driven into the ground 18 inches or at a minimum 8 inches.
- For stability a framework of wood strips should be installed around the stakes at the crest of the overflow area 1.5 feet above the crest of the drop inlet.
- Excavate a trench of 8 inches to 12 inches in depth around the outside perimeter of the stakes. If a sediment trapping sump is being provided then the excavation may be as deep as 2 feet.
- Staple the filter fabric to the wooden stakes with heavy-duty staples, overlapping the joints to the next stake. Ensure that between 12 inches to 32 inches of filter fabric extends at the bottom so it can be formed into the trench.
- Place the bottom of the fabric in the trench and backfill the trench all the way around using washed gravel to a minimum depth of 4 inches.

Maintenance

- Inspect regularly and after every storm. Make any repairs necessary to ensure the measure is in good working order.
- Sediment should be removed and the trap restored to its original dimensions when sediment has accumulated to ½ the design depth of the trap.
- If the filter fabric becomes clogged it should be replaced immediately.
- Make sure that the stakes are firmly in the ground and that the filter fabric continues to be securely anchored.
- All sediments removed should be properly disposed.
- Inlet protection should remain in place and operational until the drainage area is completely stabilized or up to 30 days after the permanent site stabilization is achieved.

Cost

- The cost of storm drain inlet protection varies dependent upon the size and type of inlet to be protected but generally is about $300.00 per inlet.

Sources

- Commonwealth of Virginia - County of Fairfax, 1987. 1987 Check List For Erosion And Sediment Control - Fairfax County, Virginia.
- State of North Carolina, 1988. Erosion and Sediment Control Planning and Design Manual. North Carolina Sedimentation Control Commission, Department of Natural Resources and Community Development.
- Maryland Department of the Environment, 1991. 1991 Maryland Standards And Specifications For Soil Erosion And Sediment Control - Draft.
- Storm Water Management Manual for the Puget Sound Basin. State of Washington, Department of Ecology, 1991.
- Cost Data:
  - Draft Sediment and Erosion Control, An Inventory of Current Practices, April 20, 1990. Prepared by Kamber Engineering for the U.S. Environmental Protection Agency, Office of Water Enforcement and Permits, Washington, D.C. 20460.

EXCAVATED GRAVEL INLET PROTECTION

September 1992

Design Criteria

- Inlet protection is appropriate in the following locations:
  - In small drainage areas (less than 1 acre) where the storm drain inlet is functional before the drainage area has been permanently stabilized.
  - Where there is danger of sediment silting in an inlet which is in place prior to permanent stabilization.
  - Where ponding around the inlet structure could be a problem to traffic on site.

- Excavated gravel and mesh inlet protection may be used with most inlets where overflow capability is needed and in areas of heavy flows, 0.5 cfs or greater.
- The drainage area should not exceed 1 acre.
- The drainage area should be fairly flat with slopes of 5% or less.
- The trap should have a sediment trapping sump of 1 to 2 feet measured from the crest of the inlet. Side slopes should be 2:1. The recommended volume of excavation is 35 yd^3/acre disturbed.
- To achieve maximum trapping efficiency the longest dimension of the basin should be oriented toward the longest inflow area.

Materials

- Hardware cloth or wire mesh with ½ inch openings.
- Filter fabric (see the fabric specifications for silt fence).
- Washed gravel ¾ inches to 4 inches in diameter.

Construction Specifications

- Remove any obstructions to excavating and grading. Excavate sump area, grade slopes and properly dispose of soil.
- The inlet grate should be secured to prevent seepage of sediment laden water.
- Place wire mesh over the drop inlet so that the wire extends a minimum of 1 foot beyond each side of the inlet structure. Overlap the strips of mesh if more than one is necessary.
- Place filter fabric over the mesh extending it at least 18 inches beyond the inlet opening on all sides. Ensure that weep holes in the inlet structure are protected by filter fabric and gravel.
- Place stone/gravel over the fabric/wire mesh to a depth of at least 1 foot.

Maintenance

- Inspect regularly and after every storm. Make any repairs necessary to ensure the measure is in good working order.
- Sediment should be removed and the trap restored to its original dimensions when sediment has accumulated to ½ the design depth of the trap.
- Clean or remove and replace the stone filter or filter fabric if they become clogged.
- Inlet protection should remain in place and operational until the drainage area is completely stabilized or up to 30 days after the permanent site stabilization is achieved.

Cost

- The cost of storm drain inlet protection varies dependent upon the size and type of inlet to be protected but generally is about $300.00 per inlet.

Sources

- Commonwealth of Virginia - County of Fairfax, 1987. 1987 Check List For Erosion And Sediment Control - Fairfax County, Virginia.
- State of North Carolina, 1988. Erosion and Sediment Control Planning and Design Manual. North Carolina Sedimentation Control Commission, Department of Natural Resources and Community Development.
- Maryland Department of the Environment, 1991. 1991 Maryland Standards And Specifications For Soil Erosion And Sediment Control - Draft.
- Storm Water Management Manual for the Puget Sound Basin. State of Washington, Department of Ecology, 1991.
- Cost Data:
  - Draft Sediment and Erosion Control, An Inventory of Current Practices, April 20, 1990. Prepared by Kamber Engineering for the U.S. Environmental Protection Agency, Office of Water Enforcement and Permits, Washington, D.C. 20460.

BLOCK AND GRAVEL INLET PROTECTION

September 1992

Design Criteria

- Inlet protection is appropriate in the following locations:

  - In drainage areas (less than 1 acre) where the storm drain inlet is functional before the drainage area has been permanently stabilized.
  - Where there is danger of sediment silting in an inlet which is in place prior to permanent stabilization.

- Block and gravel inlet protection may be used with most types of inlets where overflow capability is needed and in areas of heavy flows 0.5 cfs or greater.
- The drainage area should not exceed 1 acre.
- The drainage area should be fairly flat with slopes of 5% or less.
- To achieve maximum trapping efficiency the longest dimension of the basin should be oriented toward the longest inflow area.
- Where possible the trap should have sediment trapping sump of 1 to 2 feet in depth with side slopes of 2:1.
- There are several other types of inlet protection also used to prevent siltation of storm drainage systems and structures during construction, they are:

  - Filter Fabric Inlet Protection
  - Excavated Gravel Inlet Protection

Materials

- Hardware cloth or wire mesh with ½ inch openings
- Filter fabric (see the fabric specifications for silt fence)
- Concrete block 4 inches to 12 inches wide.
- Washed gravel ¾ inches to 4 inches in diameter

Construction Specifications

- The inlet grate should be secured to prevent seepage of sediment laden water.
- Place wire mesh over the drop inlet so that the wire extends a minimum of 12 inches to 18 inches beyond each side of the inlet structure. Overlap the strips of mesh if more than one is necessary.
- Place filter fabric (optional) over the mesh and extend it at least 18 inches beyond the inlet structure.
- Place concrete blocks over the filter fabric in a single row lengthwise on their sides along the sides of the inlet. The foundation should be excavated a minimum of 2 inches below the crest of the inlet and the bottom row of blocks should be against the edge of the structure for lateral support.
- The open ends of the block should face outward not upward and the ends of adjacent blocks should abut. Lay one block on each side of the structure on its side to allow for dewatering of the pool.
- The block barrier should be at least 12 inches high and may be up to a maximum of 24 inches high and may be from 4 inches to 12 inches in depth depending on the size of block used.
- Prior to backfilling, place wire mesh over the outside vertical end of the blocks so that stone does not wash down the inlet.
- Place gravel against the wire mesh to the top of the blocks.

Maintenance

- ▲ Inspect regularly and after every storm. Make any repairs necessary to ensure the measure is in good working order.
- ▲ Sediment should be removed and the trap restored to its original dimensions when sediment has accumulated to ½ the design depth of the trap.
- ▲ All sediments removed should be properly disposed of.
- ▲ Inlet protection should remain in place and operational until the drainage area is completely stabilized or up to 30 days after the permanent site stabilization is achieved.

Cost

- ▲ The cost of storm drain inlet protection varies dependent upon the size and type of inlet to be protected but generally is about $300.00 per inlet.

Sources

- ▲ Commonwealth of Virginia - County of Fairfax, 1987. 1987 Check List For Erosion And Sediment Control - Fairfax County, Virginia.
- ▲ State of North Carolina, 1988. Erosion and Sediment Control Planning and Design Manual. North Carolina Sedimentation Control Commission, Department of Natural Resources and Community Development.
- ▲ Maryland Department of the Environment, 1991. 1991 Maryland Standards And Specifications For Soil Erosion And Sediment Control - Draft.
- ▲ Storm Water Management Manual for the Puget Sound Basin. State of Washington, Department of Ecology, 1991.
- ▲ Cost Data:
  - ▲ Draft Sediment and Erosion Control, An Inventory of Current Practices, April 20, 1990. Prepared by Kamber Engineering for the U.S. Environmental Protection Agency, Office of Water Enforcement and Permits, Washington, D.C. 20460.

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Design Criteria

- Check dams are appropriate for use in the following locations:
  - Across swales or drainage ditches to reduce the velocity of flow.
  - Where velocity must be reduced because a vegetated channel lining has not yet been established.
- Check dams may never be used in a live stream unless approved by the appropriate government agency.
- The drainage area above the check dam should be between 2 acres and 10 acres.
- The dams must be spaced so that the toe of the upstream dam is never any higher than the top of the downstream dam.
- The center of the dam must be 6 inches to 9 inches lower than either edge, and the maximum height of the dam should be 24 inches.
- The check dam should be as much as 18 inches wider than the banks of the channel to prevent undercutting as overflow water re-enters the channel.
- Excavating a sump immediately upstream from the check dam improves its effectiveness.
- Provide outlet stabilization below the lowest check dam where the risk of erosion is greatest.
- Consider the use of channel linings or protection such as plastic sheeting or riprap where there may be significant erosion or prolonged submergence.

Materials

- Stone 2 inches to 15 inches in diameter
- Logs 6 inches to 8 inches in diameter
- Sandbags filled with pea gravel
- Filter fabric (see the fabric specifications for silt fence)

Construction Specifications

- Rock Check Dams
  - Place the stones on the filter fabric either by hand or using appropriate machinery; do not simply dump them in place.
  - Extend the stone 18 inches beyond the banks and keep the side slopes 2:1 or flatter.
  - Lining the upstream side of the dam with ¾ inch to 1¼ inch gravel 1 foot in depth is a suggested option.
- Log Check Dams
  - Logs must be firmly embedded in the ground; 18 inches is the recommended minimum depth.
- Sand Bag Check Dams
  - Be sure that bags are all securely sealed.
  - Place bags by hand or use appropriate machinery.

Maintenance

- Inspect regularly and after every storm. Make any repairs necessary to ensure the measure is in good working order.
- Accumulated sediment and leaves should be removed from behind the dams and erosive damage to the channel restored after each storm or when ½ the original height of the dam is reached.
- All accumulated material removed from the dam shall be properly disposed.
- Replace stone as necessary for the dams to maintain their correct height.
- If sand bags are used, the fabric of the bags should be inspected for signs of deterioration.
- Remove stone or riprap if grass lined channel requires mowing.
- Check dams should remain in place and operational until the drainage area and channel are completely stabilized or up to 30 days after the permanent site stabilization is achieved.
- Restore the channel lining or establish vegetation when each check dam is removed.

Cost

- The costs for the construction of check dams varies with the material used. Rock costs about $100 per dam. Log check dams are usually slightly less expensive than rock check dams. All costs vary depending on the width of channel to be checked.

Sources

- Commonwealth of Virginia - County of Fairfax, 1987. 1987 Check List For Erosion And Sediment Control - Fairfax County, Virginia.
- State of North Carolina, 1988. Erosion and Sediment Control Planning and Design Manual. North Carolina Sedimentation Control Commission, Department of Natural Resources and Community Development.
- Maryland Department of the Environment, 1991. 1991 Maryland Standards And Specifications For Soil Erosion And Sediment Control - Draft.
- Storm Water Management Manual for the Puget Sound Basin. State of Washington, Department of Ecology, 1991.
- Cost Data:
  - Draft Sediment and Erosion Control, An Inventory of Current Practices, April 20, 1990. Prepared by Kamber Engineering for the U.S. Environmental Protection Agency, Office of Water Enforcement and Permits, Washington, D.C. 20460.

Design Criteria

- Earth dikes are appropriate in the following situations:
  - To divert upslope flows away from disturbed areas such as cut or fill slopes and to divert runoff to a stabilized outlet
  - To reduce the length of the slope runoff will cross
  - At the perimeter of the construction site to prevent sediment-laden runoff from leaving the site
  - To direct sediment-laden runoff to a sediment trapping device.
- When the drainage area to the earth dike is greater than 10 acres, the United States Department of Agriculture - Soil Conservation Service (USDA - SCS) standards and specification for diversions should be consulted.
- Table 4 contains suggested dike design criteria.

TABLE 4. SUGGESTED DIKE DESIGN CRITERIA

Drainage Area	Under 5 Acres	Between 5-10 Acres
Dike Height	18 inches	30 inches
Dike Width	24 inches	36 inches
Flow Width	4 feet	6 feet
Flow Depth	12 inches	24 inches
Side Slopes	2:1 or less	2:1 or less
Grade	0.5% - 10%	0.5% - 10%

- The base for a dike 18 inches high and 24 wide at the top should be between 6 feet - 8 feet. The height of the dike is measured on the upslope side.
- If the dike is constructed using coarse aggregate the side slopes should be 3:1 or flatter.
- The channel formed behind the dike should have a positive grade to a stabilized outlet. The channel should be stabilized with vegetative or other stabilization measures.
- Grades over 10% may require an engineering design.
- Construct the dike where it will not interfere with major areas of construction traffic so that vehicle damage to the dike will be kept to the minimum.
- Diversion dikes should be installed prior to the majority of soil disturbing activity, and may be removed when stabilization of the drainage area and outlet are complete.

Materials

- Compacted Soil
- Coarse Aggregate

Construction Specifications

- Clear the area of all trees, brush, stumps or other obstructions.
- Construct the dike to the designed cross-section, line and grade making sure that there are no irregularities or bank projections to impede the flow.
- The dike should be compacted using earth moving equipment to prevent failure of the dike.
- The dike must be stabilized as soon as possible after installation.

Maintenance

- Inspect regularly and after every storm, make any repairs necessary to ensure the measure is in good working order.
- Inspect the dike, flow channel and outlet for deficiencies or signs of erosion.
- If material must be added to the dike be sure it is properly compacted.
- Reseed or stabilize the dike as needed to maintain its stability regardless if there has been a storm event or not.

Cost

- The cost associated with earth dike construction is roughly $4.50 per linear foot which covers the earthwork involved in preparing the dike. Also added to this cost is approximately $1.00 per linear foot for stabilization practices. It should be noted that for most construction projects, the cost of earth dike construction is insignificant compared to the overall earthwork project costs.

Sources

- Commonwealth of Virginia - County of Fairfax, 1987. 1987 Check List For Erosion And Sediment Control - Fairfax County, Virginia.
- State of North Carolina, 1988. Erosion and Sediment Control Planning and Design Manual. North Carolina Sedimentation Control Commission, Department of Natural Resources and Community Development.
- Maryland Department of the Environment, 1991. 1991 Maryland Standards And Specifications For Soil Erosion And Sediment Control - Draft.
- Storm Water Management Manual for the Puget Sound Basin. State of Washington, Department of Ecology, 1991.
- Cost Data:
  - Draft Sediment and Erosion Control, An Inventory of Current Practices, April 20, 1990. Prepared by Kamber Engineering for the U.S. Environmental Protection Agency, Office of Water Enforcement and Permits, Washington, D.C. 20460.

DRAINAGE SWALE

September 1992

Design Criteria

- Temporary drainage swales are appropriate in the following situations:
  - To divert upslope flows away from disturbed areas such as cut or fill slopes and to divert runoff to a stabilized outlet
  - To reduce the length of the slope runoff will cross
  - At the perimeter of the construction site to prevent sediment-laden runoff from leaving the site
  - To direct sediment-laden runoff to a sediment trapping device.

- When the drainage area is greater than 10 acres the United States Department of Agriculture - Soil Conservation Service (USDA - SCS) standards and specifications for diversions should be consulted.
- Swales may have side slopes ranging from 3:1 to 2:1.
- The minimum channel depth should be between 12 inches and 18 inches.
- The minimum width at the bottom of the channel should be 24 inches and the bottom should be level.
- The channel should have a uniform positive grade between 2% and 5%, with no sudden decreases where sediments may accumulate and cause overtopping.
- The channel should be stabilized with temporary or permanent stabilization measures.
- Grades over 10% may require an engineering design.
- Construct the swale away from areas of major construction traffic.
- Runoff must discharge to a stabilized outlet.

Materials

- Grass seed for temporary or permanent stabilization
- Sod
- Coarse aggregate or riprap

Construction Specifications

- Clear the area of all trees, brush, stumps or other obstructions.
- Construct the swale to the designed cross-section, line and grade making sure that there are no irregularities or bank projections to impede the flow.
- The lining should be well compacted using earth moving equipment and stabilization initiated as soon as possible.
- Stabilize lining with grass seed, sod, or riprap.
- Surplus material should be properly distributed or disposed of so that it does not interfere with the functioning of the swale.
- Outlet dissipation measures should be used to avoid the risk of erosion.

Maintenance

- Inspect regularly and after every storm, make any repairs necessary to ensure the measure is in good working order.
- Inspect the flow channel and outlet for deficiencies or signs of erosion.
- If surface of the channel requires material to be added be sure it is properly compacted.
- Reseed or stabilize the channel as needed to prevent erosion during a storm event.

Cost

- Drainage swale can vary widely depending on the geometry of the swale and the type of lining material:

  - Grass $3.00/square yard
  - Sod $4.00/square year
  - Riprap $45.00/square year

- No matter which liner type is used, the entire swale must be stabilized (i.e., seeded and mulched at a cost of $1.25/square yard).

Sources

- Commonwealth of Virginia - County of Fairfax, 1987. 1987 Check List For Erosion And Sediment Control - Fairfax County, Virginia.
- State of North Carolina, 1988. Erosion and Sediment Control Planning and Design Manual. North Carolina Sedimentation Control Commission, Department of Natural Resources and Community Development.
- Maryland Department of the Environment, 1991. 1991 Maryland Standards And Specifications For Soil Erosion And Sediment Control - Draft.
- Storm Water Management Manual for the Puget Sound Basin. State of Washington, Department of Ecology, 1991.
- Cost Data:

  - Draft Sediment and Erosion Control, An Inventory of Current Practices, April 20, 1990. Prepared by Kamber Engineering for the U.S. Environmental Protection Agency, Office of Water Enforcement and Permits, Washington, D.C. 20460.

September 1992

Design Criteria

- Temporary sediment traps are appropriate in the following locations:
  - At the outlet of the perimeter controls installed during the first stage of construction.
  - At the outlet of any structure which concentrates sediment-laden runoff, e.g. at the discharge point of diversions, channels, slope drains, or other runoff conveyances.
  - Above a storm water inlet that is in line to receive sediment-laden runoff.
- Temporary sediment traps may be constructed by excavation alone or by excavation in combination with an embankment.
- Temporary sediment traps are often used in conjunction with a diversion dike or swale.
- The drainage area for the sediment trap should not exceed 5 disturbed acres.
- The trap must be accessible for ease of regular maintenance which is critical to its functioning properly.
- Sediment traps are temporary measures and should not be planned to remain in place longer than between 18 and 24 months.
- The capacity of the sedimentation pool should provide storage volume for 3,600 cubic feet/acre drainage area.
- The outlet should be designed to provide a 2 foot settling depth and an additional sediment storage area 1 ½ feet deep at the bottom of the trap.
- The embankment may not exceed 5 feet in height.
- The recommended minimum width at the top of the embankment is between 2 feet and 5 feet.
- The minimum recommended length of the weir is between 3 feet and 4 feet, and the maximum is 12 feet in length.
- Table 5 illustrates the typical relationship between the embankment height, the height of the outlet (H_o), and the width (W) at the top of the embankment.

TABLE 5. EMBANKMENT HEIGHT vs. OUTLET HEIGHT AND WIDTH

H	H_o	W
1.5	0.5	2.0
2.0	1.0	2.0
2.5	1.5	2.5
3.0	2.0	2.5
3.5	2.5	3.0
4.0	3.0	3.0
4.5	3.5	4.0
5.0	4.0	4.5

Materials

- Filter fabric (see fabric requirement for silt fence)
- Coarse aggregate or riprap 2 inches to 14 inches in diameter
- Washed gravel ¾ to 1 ½ inches in diameter
- Seed and mulch for stabilization

Construction Specifications

- ▲ Clear the area of all trees, brush, stumps or other obstructions.
- ▲ Construct the embankment in 8 inch lifts compacting each lift with the appropriate earth moving equipment. Fill material must be free of woody vegetation, roots, or large stones.
- ▲ Keep cut and fill slopes between 3:1 and 2:1 or flatter.
- ▲ Line the outlet area with filter fabric prior to placing stone or gravel.
- ▲ Construct the gravel outlet using heavy stones between 6 inches and 14 inches in diameter and face the upstream side with a 12 inch layer of ¾ inch to 1½ inch washed gravel on the upstream side.
- ▲ Seed and mulch the embankment as soon as possible to ensure stabilization.

Maintenance

- ▲ Inspect regularly and after every storm. Make any repairs necessary to ensure the measure is in good working order.
- ▲ Frequent removal of sediment is critical to the functioning of this measure. At a minimum sediment should be removed and the trap restored to its original volume when sediment reaches ⅓ of the original volume.
- ▲ Sediment removed from the trap must be properly disposed.
- ▲ Check the embankment regularly to make sure it is structurally sound.

Cost

- ▲ Costs for a sediment trap vary widely based upon their size and the amount of excavation and stone required, they usually can be installed for $500 to $7,000.

Sources

- ▲ Commonwealth of Virginia - County of Fairfax, 1987. 1987 Check List For Erosion And Sediment Control - Fairfax County, Virginia.
- ▲ State of North Carolina, 1988. Erosion and Sediment Control Planning and Design Manual. North Carolina Sedimentation Control Commission, Department of Natural Resources and Community Development.
- ▲ Maryland Department of the Environment, 1991. 1991 Maryland Standards And Specifications For Soil Erosion And Sediment Control - Draft.
- ▲ Storm Water Management Manual for the Puget Sound Basin. State of Washington, Department of Ecology, 1991.
- ▲ Cost Data:
  - ▲ Draft Sediment and Erosion Control, An Inventory of Current Practices, April 20, 1990. Prepared by Kamber Engineering for the U.S. Environmental Protection Agency, Office of Water Enforcement and Permits, Washington, D.C. 20460.

TECHNICAL SPECIFICATIONS
SEEDING

Description. This item shall consist of furnishing and applying lime, fertilizer, seed, mulch cover, asphalt, and water according to these specifications at locations shown on the plans or as directed.

The work under this item shall be accomplished as soon as practicable after the grading in an area has been completed in order to deter erosion of the roadway and siltation of streams.

Materials. (a) Lime shall be agricultural grade ground limestone or equivalent as approved by the Engineer.

(b) Fertilizer shall be a commercial grade, uniform in composition, free flowing, and suitable for application with mechanical equipment. It shall be delivered to the site in labeled containers conforming to current Arkansas fertilizer laws and bearing the name, trademark, and warranty of the producer.

(c) Except as modified herein, the seed shall comply with the current rules and regulations of the Arkansas State Plant Board and the germination test shall be valid on the date the seed is used. It shall have a minimum of 98% pure seed and 85% germination by weight, and shall contain no more than 1% weed seeds. A combined total of 110 noxious weed seeds shall be the maximum amount allowed per kg (50 per pound) of seed with the following exceptions: Johnson grass seed, wild onion seed, wild garlic seed, field bindweed seed, nut grass seed, sickle pod seed, sesbania seed, indigo seed, morning-glory seed, and cocklebur seed will not be allowed in any amount. Seed shall be furnished in sealed, standard containers. Seed that has become wet, moldy, or otherwise damaged in transit or in storage will not be acceptable.

Legumes shall be inoculated with an approved culture as recommended by the manufacturer, just prior to seeding.

Seed shall be composed of the varieties and amounts by weight as shown below.

Seed planted between June 16 and August 31 may require more water than that specified in subsection (f) in order to survive. Therefore, watering shall continue after germination until growth is established.

The seeding mixture may be altered by the Engineer in selected areas with no adjustment in contract price. The alteration shall be on an equivalent cost basis.

Seed Variety:	kg/ha	lbs./acre
Group I		
Districts 1, 2, 5, 6, and 10		
March 1 - June 15		
Bermuda Grass (Common) unhulled	10	10
Bermuda Grass (Common) hulled	5	5
Lespedeza (Kobe)	40	35
June 16 - August 31		
Bermuda Grass (Common) unhulled	10	10
Bermuda Grass (Common) hulled	5	5
Weeping Love Grass (Eragrostis Curvula)	10	10
September 1 - February 28/29		
Wheat	35	30
Crimson Clover (Dixie)	20	20
Bermuda Grass (Common) unhulled	20	20
Lespedeza (Kobe)	40	35
Group II		
Districts 3, 4, 7, 8, and 9		
March 15 - June 15		
Bermuda Grass (Common) unhulled	10	10
Bermuda Grass (Common) hulled	5	5
Lespedeza (Korean)	35	30
June 16 - August 31		
Bermuda Grass (Common) unhulled	10	10
Bermuda Grass (Common) hulled	5	5
Weeping Love Grass (Eragrostis Curvula)	10	10
September 1 - March 14		
Annual Rye Grass or other Cereal Grasses	35	30
Crimson Clover (Dixie)	20	20
Bermuda Grass (Common) unhulled	20	20
Lespedeza (Korean)	35	30

(d) Mulch cover shall consist of straw from threshed rice, oats, wheat, barley, or rye; of wood excelsior; or of hay obtained from various legumes or grasses, such as lespedeza, clover, vetch, soybeans, bermuda, carpet sedge, bahia, fescue, or other legumes or grasses; or a combination thereof. Mulch shall be dry and reasonably free from Johnson grass or other noxious weeds, and shall not be excessively brittle or in an advanced state of decomposition. All material will be inspected and approved prior to use.

(e) **Tackifiers.** Tackifiers used in mulch anchoring shall be of such quality that the mulch cover will be bound together to form a cover mat that will stay intact under normal climatic conditions.

All tackifiers used shall have prior approval or be listed on the Owner's Qualified Products List (QPL).

(f) Water shall be of irrigation quality and free of impurities that would be detrimental to plant growth.

Construction Requirements. (a) **Seedbed Preparation.** Areas to be seeded shall be dressed to the shape and section shown on the plans. If the plans call for replacing topsoil, this shall be done before any preparations for seeding. Before beginning the seedbed preparation, soil samples shall be obtained from each major soil area (such as cut backslope or fill foreslope) by the Engineer for lime requirement analysis.

Lime, at the rate determined by the lime requirement test, shall be uniformly spread on areas to be seeded prior to their being roughened or scarified. The seedbed shall be thoroughly pulverized by means of disk harrows or other approved methods, thoroughly mixing lime and soil to a depth of not less than 100 mm (4") (50 mm [2"] for slopes 4:1 or steeper) below finish slope elevation. Regardless of the pulverizing method used, the soil shall be broken with the contour of the slope. Objectionable foreign matter shall be removed and the soil left in a suitable horticultural condition to receive the fertilizer and seed. Water may be applied before, during, and after seedbed preparation, as directed by the Engineer, in order to maintain the desired moisture content in the soil.

When no lime is required, seedbed preparation shall be accomplished as specified above regardless of the method used in the distribution of fertilizer, seed, and mulch cover.

(b) **Fertilization.** Fertilizer shall be applied at the rate of 900 kg/ha (800 pounds per acre) of 10-20-10, or the equivalent amount of plant food. Fertilizer shall be uniformly incorporated into the soil alone or in conjunction with the required lime. If the Contractor so elects, the fertilizer may be drilled into the soil or combined with the seed in the hydro-seeding operation.

(c) **Seeding. (1) Broadcasting.** Broadcast sowing may be accomplished by hand seeders or by approved power equipment. Either method shall result in uniform distribution and no work shall be performed during high winds. The area seeded shall be lightly firmed with a cultipacker immediately after broadcasting.

(2) **Drilled in Rows.** When seed is drilled in rows, the rows shall be horizontal (parallel to contour lines). Fertilizer and seed shall not be drilled together and shall not be mixed.

(3) **Hydro-seeding.** If a hydro-seeder is used for seeding, fertilizer and seed may be incorporated into one operation but a maximum of 95 kg of fertilizer shall be permitted for each 1500 L (maximum of 800 pounds for each 1500 gallons) of water. If the Contractor so elects, the fertilizer may be applied during preparation of the seedbed. The area shall be lightly firmed with a cultipacker immediately before hydro-seeding.

(d) **Mulch Cover.** Mulch cover shall be applied at the rate of 4500 kg/ha (4000 pounds per acre) immediately after seeding and shall be spread uniformly over the entire area by approved power mulching equipment. When approved by the Engineer, the Contractor may use hand methods to apply mulch cover to small or inaccessible areas. If the Contractor so elects, an approved mulching machine may be used whereby the application of mulch cover and tackifier may be combined into one operation. If this method is used, no change in application rates will be allowed. In its final position, the anchored mulch shall be loose enough to allow air to circulate, but compact enough to partially shade the ground and reduce the impact of rainfall on the surface of the soil. Care shall be taken to prevent tackifier materials from discoloring or marking structures, pavements, utilities, or other plant growth. Removal of any objectionable discoloration shall be at no cost to the Owner.

(e) **Mulch Anchoring.** Immediately following or during the application of the mulch cover on seeded areas, the mulch shall be anchored by one of the following methods:

- **Tracking or Roller Method.** The mulch shall be effectively pressed into the soil using steel cleated track or cleated roller equipment. The anchoring shall be performed so that the grooves formed are perpendicular to the flow of water down backslopes and foreslopes. The equipment and method used shall produce acceptable results.
- **Asphalt Tackifier.** Asphalt shall be applied at the rate of approximately 0.2 L/sq m (0.05 gallon per square yard). Application shall be made using a pressure distributor to ensure constant and uniform distribution. The use of asphalt may be reduced or eliminated by the Engineer at selected locations.
- **Other Tackifiers.** Tackifiers listed on the QPL shall be applied according to the rates recommended in the QPL.

The method used shall be at the Contractor's option unless otherwise specified or directed. In lieu of separate application of tackifiers, the Contractor may use equipment that combines the application of mulch and tackifier into one operation. Application shall be at the specified rates.

(f) **Water.** After application of the mulch cover, water shall be applied in sufficient quantity, as directed by the Engineer, to thoroughly moisten the soil to the depth of pulverization and then as necessary to germinate the seed.

When directed by the Engineer, the Contractor shall apply water in an amount such that, in conjunction with any rainfall, the seeded and mulched areas will receive an amount equivalent to a minimum of 25 mm (1") of water each week beginning the week after seeding and continuing for a minimum of three (3) weeks. (25 mm [1"] of water is equivalent to 250 cu m or 250 kL per ha [27 M Gallons per acre].)

Failure to meet this requirement will result in a partial withholding and/or recovery of payments for the seeding and mulch cover. Additional work and materials required due to the Contractor's negligence in maintaining completed work or failure to water grass as directed shall be accomplished at no cost to the

Department. If payments are withheld and subsequently a stand of grass satisfactory to the Engineer develops, payments will be released.

The Contractor shall have on the project before seeding is started such equipment of adequate capacity and a suitable water supply to achieve the desired moisture level in the soil. The time required for application of water will not be included in the computations of contract time for completion of the project provided all other work under the Contract has been completed.

(g) For areas seeded in the September 1-February 28/29 or September 1-March 14 season, final acceptance will be delayed until an acceptable stand of grass of uniform color and density is established to the satisfaction of the Engineer. The soil condition shall be suitable for preparation of the seedbed according to the above requirements in the areas to be seeded during the September 1-February 28/29 or September 1-March 14 season.

(h) Before final acceptance, the Contractor shall repair or replace any seeding or mulching that is defective or damaged. If the defect or damage is due to the Contractor's negligence, the work shall be done at no additional cost to the Owner. If the damage or defect is not the Contractor's fault, the work will be measured and paid for according to these specifications.

ADEQ
ARKANSAS
Department of Environmental Quality

NOTICE OF INTENT
FOR DISCHARGES OF STORMWATER
ASSOCIATED WITH LARGE CONSTRUCTION ACTIVITY
AUTHORIZED UNDER NPDES GENERAL PERMIT ARR150000

The enclosed form may be used to obtain coverage under NPDES general permit ARR150000 for discharges of stormwater associated with large construction activity at any site or common plan of development or sale that will result in the disturbance of five (5) or more acres of total land area.

Return the completed form to:

Arkansas Department of Environmental Quality
Permit Branch, Office of Water Quality
5301 Northshore Drive
North Little Rock, AR 72118

Unless notified by the Director to the contrary, dischargers who submit a complete Notice of Intent in accordance with the requirements of this permit are authorized to discharge stormwater from construction sites under the terms and conditions of this permit two weeks after the date the NOI is postmarked.

As required by ADEQ Regulation No. 9, an initial permit fee of $200.00 must be submitted with this NOI. Subsequent annual fees of $200.00 per year will be billed by the Department. Failure to remit the required permit fee may be grounds for the Director to deny coverage under this general permit, and to require the owner or operator to apply for an individual NPDES permit.

NOTE: A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) SHALL BE PREPARED PRIOR TO SUBMITTAL OF THIS NOI PER PART II.A OF THE GENERAL PERMIT. THE SWPPP MUST BE SUBMITTED FOR REVIEW ALONG WITH THIS NOI FOR LARGE CONSTRUCTION SITES PER PART I.B.6.B OF THE GENERAL PERMIT.

For additional information please contact:

Stormwater Runoff Engineer
Ph.: (501) 682-0623
Fax: (501) 682-0880
website: www.adeq.state.ar.us

INSTRUCTIONS

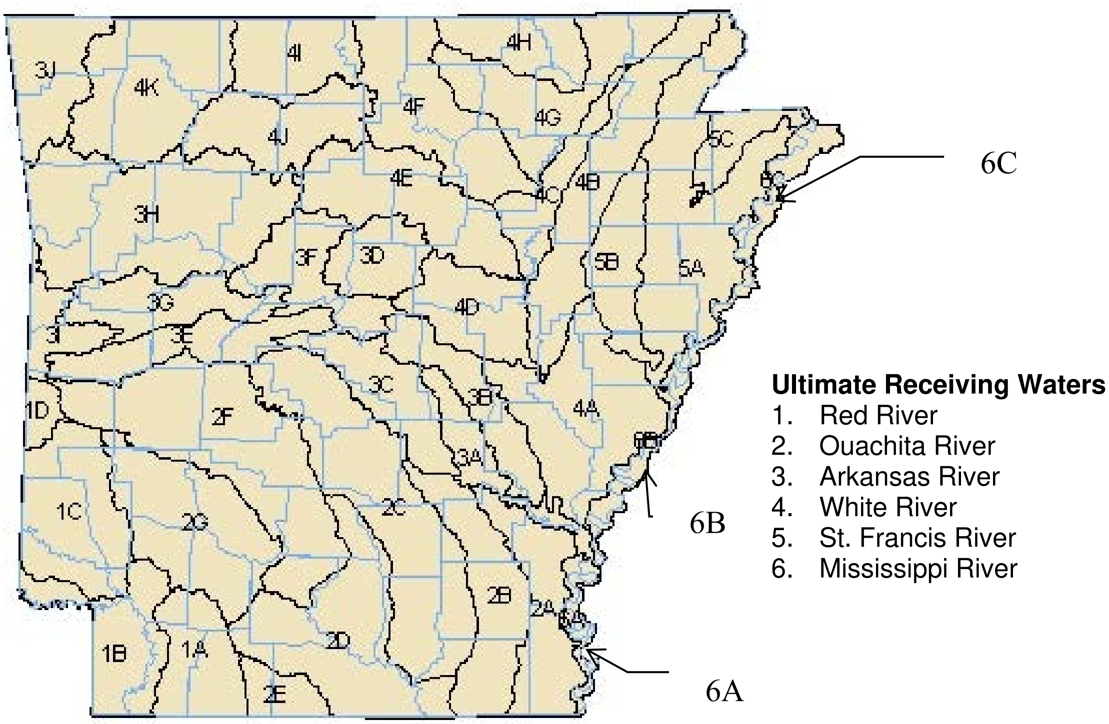
I. How to Determine Latitude and Longitude:

1. If a physical address is known go to www.terraserver-usa.com.
2. Select Advanced Find
3. Select Address
4. Input address
5. Click on Aerial Photo
6. Click on the Info link at the top of the page
7. Note the Latitude and Longitude are in Decimal Coordinates.
8. Go to www.geology.enr.state.nc.us/gis/latlon.html to convert coordinates to Degrees, Minutes, and Seconds.

NOTE: If a physical address does not exist you may find the coordinates in the Legal Description of the property.

II. How to Determine your Ultimate Receiving Waters:

1. Locate the county of your project.
2. Find the numbered segment overlaying the county. For example 2C overlays most of Saline County.
3. Match the number from the segment to the one of the numbered Ultimate Receiving Waters. For example: A project located in Western Saline County is in segment 2C. The "2" determines that the Ultimate Receiving Water for the project is the Ouachita River.



III. How to determine if the receiving stream is on the approved Arkansas 303(d) List:

1. Go to www.epa.gov/owow/tmdl
2. Using the map of the United States, click on Arkansas.
3. Using the "Waters Listed by Waterbody Type" links search for your receiving stream.
4. If your receiving stream is not listed, than your receiving stream is not on the approved Arkansas 303(d) List.
5. If your receiving stream is listed, then click on the links for that receiving stream to determine the pollutants causing the impairment. If the receiving stream is listed as an impaired for any pollutant, you must incorporate into the SWPPP any additional BMPs needed to sufficiently protect water quality. The Department may require additional BMPs.
6. Once a determination is made that your receiving stream is on the approved Arkansas 303(d) List, than you must determine if the receiving stream has an approved TMDL by using the "Approved TMDLs by Pollutant since January 1, 1996" links toward the bottom of the webpage.
   i. If the approved TMDL has established a specific numeric allocation that would apply to a project's discharges, you will be required to incorporate the allocation into your SWPPP and implement steps to meet the allocation.
   ii. If the approved TMDL has assigned to the facility, quarterly monitoring must be submitted to the Department demonstrating compliance with the assigned Waste Load Allocation.

IV. How to obtain information in regard to Endangered Species:

Contact the U.S. Fish and Wildlife Service at (501) 513-4470 or www.fws.gov/arkansas-es.

Arkansas Department of Environmental Quality
Permits Branch, Office of Water Quality
5301 Northshore Drive
North Little Rock, AR 72118
(501) 682-0623

NOTICE OF INTENT FOR DISCHARGERS OF STORMWATER RUNOFF ASSOCIATED WITH LARGE CONSTRUCTION ACTIVITY AUTHORIZED UNDER NPDES GENERAL PERMIT ARR150000

Application Type: New ☒ Renewal ☐ **(Permit Tracking Number ARR(_____)**

I. PERMITTEE/OPERATOR INFORMATION

Permittee (Legal Name): Springhill Hwy 5 Developments LLC
Permittee Mailing Address: 816 East Oak Street
Permittee City: Conway
Permittee State: AR Zip: 72032
Permittee Telephone Number: 501-428-3866
Permittee Fax Number:
Permittee E-mail Address: masseydevelopmentgroup@hotmail.com

Operator Type:
☐ STATE ☐ PARTNERSHIP
☐ FEDERAL ☒ CORPORATION*
☐ SOLE PROPRIETORSHIP
☐ PUBLIC ☐ OTHER

*State of Incorporation: AR

* The legal name of the Permittee must be identical to the name listed with the Arkansas Secretary of State.

II. INVOICE MAILING INFORMATION

Invoice Contact Person: Lance Massey
Invoice Mailing Company: Springhill Hwy 5 Developments LLC
Invoice Mailing Address: 816 East Oak Street
City: Conway
State: AR Zip: 72032
Telephone: 501-428-3866

III. FACILITY/PROJECT CONSTRUCTION SITE INFORMATION

1 acre = 43,560 square feet

Project Name: Hillcrest Addition
Project County: Saline
Directions to the Project: Heading West on I-30, take exit 123. Continue 1.9 miles, then turn Right onto Springhill Road. Construction entrance to the Project is on the left in approximately 1.4 miles.
Project Estimated Start Date: August 2024
Project Estimated End Date: September 2025

Contact Person: Lance Massey
Project Physical Address: Springhill Road, 0.4 miles North of the intersection of Springhill Rd. and Hurricane Gardens Dr.
Project City: Bryant Zip: 72022
Telephone Number: 501-428-3866
Total amount of soil to be disturbed (estimate to nearest 1/2 acre): 4.89 ac
Total Project Acreage (Estimate to nearest ½ acre): 4.89 ac

Project Latitude: 34 degrees 37 minutes 53.93 seconds N
Project Longitude: -92 degrees 30 minutes 55.57 seconds W

Type of Project: Subdivision ☒ School ☐ Other:

Facility SIC Code(s): 1521 NAICS Code (s): 236115

Is the Project part of a larger common plan of development or sale? Yes ☒ No ☐

Linear Project Starting Coordinates (if applicable):
Latitude: Longitude:

Linear Project Ending Coordinates (if applicable):
Latitude: Longitude:

IV. DISCHARGE INFORMATION

Name of Receiving Stream (i.e. an unnamed tributary of Mill Creek, thence into Mill Creek; thence into Arkansas River): Unnamed tributary Hurricane Lake; thence into Hurricane Lake; thence into Hurricane Creek; thence into the Saline River; the Saline River empties into the Ouachita River.

Choose Your Ultimate Receiving Stream: Red River ☐ Ouachita River ☒ Arkansas River ☐
White River ☐ St. Francis River ☐ Mississippi River ☐

Name of Receiving Municipal Storm Sewer System (If applicable): City of Bryant

Will you be conducting any in-stream or wetted area activities (i.e. re-routing, trenching, stabilizing, sloping, etc.) ? __Yes x No

If yes, have you obtained an approval for a Short Term Activity Authorization (STAA) from the Department? __Yes __No

Is the stream or wetted area considered "Waters of the United States"? __Yes _x_ No

If yes, have you obtained a 404 permit from the U.S. Army Corps of Engineers? __Yes __ No

For information regarding what constitutes " Waters of the United States" please contact the U.S. Army Corps of Engineers, Regulatory Division in the District in which the activity is to take place. Below is the contact information for the three U.S. Army Corps of Engineers Districts in the State:

Little Rock District	Ph: (501) 324-5295, CESWL-Regulatory@usace.army.mil
Vicksburg District:	Ph: (601) 631-7071, regulatory@usace.army.mil
Memphis District:	Ph: (901) 544-3471, MemphisPAO@usace.army.mil

V. FACILITY/SITE PERMIT INFORMATION

NPDES Individual Permit Number (If Applicable): AR00

NPDES General Permit Number (If Applicable): ARG

NPDES General Industrial Stormwater Permit Number (If Applicable): ARR00

NPDES General Construction Stormwater Permit Number (If Applicable): ARR15

VI. OTHER INFORMATION:

Location of SWPPP on the Construction Site: At Construction Entrance

Consultant Company: Lemons Engineering Consultants, Inc.

Consultant Contact Name: Tim Lemons

Consultant Email Address: eburke@lemonsengineering.com

Consultant Address: 204 Cherry Street City: Cabot State: AR Zip: 72023

Consultant Phone Number: 1-501-605-7565 Consultant Fax Number: 1-501-941-0959

VII. CERTIFICATION OF OPERATOR

"I certify that, if this facility is a corporation, it is registered with the Secretary of State of Arkansas. Please provide the full name of corporation if different than that listed in Section I above. "

"I certify that as a whole the stormwater discharge(s), and the construction and implementation of Best Management Practices (BMP's) to control stormwater runoff, are not likely to adversely affect species of critical habitat for a listed species."

"I certify that a stormwater pollution prevention plan has been prepared for this facility in accordance with Part II.A of this permit, which provides for, or will provide for, compliance with local sediment and erosion plans, local stormwater permits or stormwater management plans, in accordance with Part II.A.4.c of this permit."

"I certify that the cognizant official designated in Part VIII of this Notice of Intent is qualified to act as a duly authorized representative under the provisions of 40 CFR 122.22(b). If no cognizant official has been designated, I understand that the Department will accept reports signed by the applicant"

"I certify under penalty of law that this document and all attachments such as Inspection Form were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Responsible Official Printed Name: Lance Massey
Title: Developer/Construction Manager
Responsible Official Signature: ____________________
Date: 7-9-2024

VIII. COGNIZANT OFFICIAL

Cognizant Official Printed Name: Lance Massey
Title: Developer/Construction Manager
Cognizant Official Signature: ____________________
Telephone: 501-428-3866

IX. PERMIT REQUIREMENT VERIFICATION

Please check the following to verify completion of permit requirements.

	Yes	No*
Submittal of Complete NOI?	☒	☐
Submittal of Required Permit Fee?	☒	☐
Check Number: ____________		
Complete SWPPP?	☒	☐

*** If you answer No to any of the above questions, then a permit can not be issued!**

BILL OF ASSURANCE
HILLCREST ADDITION
BRYANT, SALINE COUNTY, AR

KNOW ALL MEN BY THESE PRESENTS:

That, ____________________________________, being the Owner & Developer of the following described lands lying in the State of Arkansas, County of Saline, City of Bryant, to wit:

Hillcrest Addition, Lots 1 – 13, located in Section 17, T-1-S, R-14-W, Bryant, Saline County, Arkansas

AND, WHEREAS, it is desirable that all the above property be platted into lots, tracts and streets.

NOW THEREFORE WITNESSETH:

THAT, the said owner & Developer, hereinafter termed Grantor, has caused said tract of land to be preliminary plated by Lemons Engineering Consultants, Inc., Registered Professional Engineers, No. 7373, and a preliminary plat thereof made which is identified by the title "Final Plat – Hillcrest Addition" and approved by the Bryant Planning Commission, and is of record in the Saline County Courthouse.

AND. the Grantor does make this Bill of Assurance.

AND, Grantor does hereby certify that he had laid off, platted and subdivided and does hereby lay off, plat, and subdivide said real estate in accordance with said plat. The lands embraced in said plat shall be forever known as:

HILLCREST ADDITION
BRYANT, SALINE COUNTY, ARKANSAS

There are strips of ground shown and dimensioned on said plat marked "easement" reserved for the use of public utilities, sanitary sewer and/or drainage purposes subject at all times to the proper authorities and the easement herein reserved. The owners of lots in this subdivision shall take their title subject to the right of public utilities and the public.

The filing of the Final Bill of Assurance and Plat for the record in the office of Circuit Clerk and Ex-Officio Recorder of Saline County, Arkansas shall be a valid and complete delivery and dedication of the easements and streets as shown on said plat.

Hereinafter, conveyance and description of any of said lands by lot number as shown on said plat shall be a proper and sufficient description thereof.

Lots in said subdivision shall be sold by the Grantor and shall be purchased by the buyers thereof subject to the following covenants, to-wit:

BUILDING REQUIREMENTS:

1. Lots within the subdivision shall be used as single family residential dwellings. Dwellings constructed shall have not less than three (3) bedrooms, and two (2) baths as a minimum. A minimum of ninety percent (70%) of the exterior finish of all structures on lots must be either brick, stone, and/or cement board with foundation blocks covered. Roof Pitch will be a minimum of 8/12 pitch. All lots are required to have solid sodded yards, no seed, mulch or sprigs will be allowed. Driveways shall be of concrete and run from garage to street. Architectural shingles are required on dwellings.

2. Any property owner or builder/contractor performing services for the property owner shall comply with the provisions of this Bill of Assurance and shall be responsible for actions of Contractors to the contrary. No person shall damage in any way, the utility or streets in any manner and damage so inflicted shall become the responsibility of the person who creates the damage. Contractor is responsible for clearing all construction debris from construction site when complete. No trash shall be left behind. If trash is left behind, clean up will be hired and charged back to property owner.

3. Minimum heated and cooled square footage of dwelling must be 1400 square feet, which excludes porches, breezeways, terraces, garages, porte-cocheres and outbuildings.

4. Dwellings constructed on lots within the subdivision shall be placed according to the building setback line shown on the plat. Setback requirement for lots shall be as shown on the Final Plat, referenced above. No dwelling shall be constructed more than two (2) stories in height.

5. No building, fence, incinerator or any other permanent structure or improvement of any kind whether herein specifically enumerated or not, shall be built or maintained, within the area of any of the easements shown on the plat; and in the event any such obstruction is placed thereon in violation of this restriction and reservation, no utility will be liable for destruction of same in maintaining or repairing its lines located within the area of said easement.

6. Privacy fences shall begin at the back corner of the dwelling unless approved by the Developers. Side load dwellings have a 25’ set back from property line at driveway side. All fences

constructed shall be of wood type privacy fence with a height of 6 feet. No chain link fence shall be allowed.

7. Residential lots shall have no sign of any kind displayed to the public view on any lot except one sign of not more than five square feet (5') advertising the property for sale or signs used by a builder to advertise the property during the construction or sale period. No motor homes or recreational vehicles, boats or trailers of any kind shall be allowed to be kept on any lot except behind a privacy fence or in garage without written consent from developer. No vehicles shall be parked in yard or in streets except for special occasions, holidays, family events.

8. Storage buildings must be same brick matching house and have same architectural shingled roof to match house. Building must be approved by developer. Storage buildings not to exceed 400 sq. ft. unless approved by developer. Storage buildings must be behind 6' wood privacy fence – no exceptions. No above ground pools shall be allowed on any lot unless behind a 6' wood privacy fence. No storage building, trailer, tent, shack, garage, barn, or other outbuilding shall be used on any lot at any time as a residence either temporarily or permanently. No hunting or offensive conduct shall be permitted. No storage building to be constructed over easements.

9. No vehicles can be placed on any vacant lot. Vacant lots cannot be used for storage or garden or disposal of grass clippings or trash. It is the responsibility of the buyer to keep vacant lots clean and mowed until the residence is built.

10. No animals of any kind shall be raised, bred or kept on any lot, except household pets provided that they are not kept, bred or maintained for any commercial purpose. All animals are required to be contained in the home or behind a privacy fence and shall not become a nuisance with noise or running loose.

11. No fence, wall, hedge or shrub planting which obstructs sight lines at elevations of more than 30 inches above which roadways shall be placed or permitted to remain on connecting them at points 50 feet from the intersection of the street lines or in the case of a rounded property corner within the triangle formed by tangents to the curve at its beginning and end and a line connecting them at points 50 feet from their intersection. No tree shall be permitted to remain within such distances of such intersection unless the foliage line is maintained by owner.

12. No fences, buildings or obstructions of any kind shall be constructed to project into or across the drainage easement at the side or rear of the lots where these easements contain open ditch drainage. Satellite dishes may be erected on the roof at the side or rear of dwellings.

13. Maintenance of the common areas and entrance signs/landscaping, shall be the responsibility of the Property Owners Association.

14. Monthly cost for street lights shall be the responsibility of the Property Owners Association (POA).

These covenants and restrictions shall not be amended, canceled or supplemented unless an instrument signed by at least seventy (70) percent of the owners of the aforesaid lots agreeing to change the covenants and restrictions in whole or in part. Multiple lot owners have a vote for each lot. This requirement shall remain in force until all lots are completely built on with residential structures. Once all lots have been built on, these covenants and restrictions shall not be amended, canceled or supplemented unless an instrument signed by a majority of lot owners (a minimum of 51%) of the aforesaid lots agreeing to change the covenants and restrictions in whole or in part. Multiple lot owners have a vote for each lot.

In the event of any attempt or violation of any of these covenants restrictions herein before the expiration date thereof, it shall be lawful for any proceedings at law or in equity against the person or persons violating or attempting to violate any such covenants or restrictions either to prevent him or them from so doing to recover damages or other dues for such violations.

Invalidation of any one of these covenants or restrictions by judgment or court order shall in no way affect any of the other provisions which shall remain in full force and effect.

IN TESTIMONY WHEREOF, the name of the Grantor is hereunto affixed this _____________
day of _________________________, 20____.

____

ACKNOWLEDGEMENT

STATE OF ARKANSAS

COUNTY OF ____________________________

BE IT REMEMBERED that on this day came before me, a Notary Public, within and for the County and State aforesaid duly qualified, commissioned and acting, the within named ____________________________________ to me well known and stated and acknowledged that he had executed the same and delivered the foregoing instrument for the consideration, uses and purposes therein mentioned and set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal this ________________

day of _______________________________, 2024.

____
Notary Public

My Commission Expires: ____

Lemons Engineering Consultants, Inc.
204 West Cherry Street
Cabot, Arkansas 72023
(501) 605-7565
arstrep43@gmail.com

July 10, 2024

Mr. Colton Leonard, City Planner
City of Bryant, Arkansas
Community Development
210 SW 3rd Street
Bryant, Arkansas 72022

Re: Preliminary Plat
3927 Springhill Road, Bryant, AR
Parcel # 840-11855-000

Dear Mr. Leonard:

Enclosed you will find the Civil Plans, Drainage Report, Draft Bill of Assurance, and related information as pertaining to the referenced project. Please begin the review on this project, and include on the agenda of the August 12, 2024, City of Bryant Planning Commission Meeting.

Please accept this letter as the Project Narrative. The following information should assist you in the review:

Name of Development:	Hillcrest Addition
Property Address:	3927 Springhill Road, Bryant, Arkansas 70222
Tax Parcel ID:	840-11855-000
Source of Title:	2021-030121 (Corp Warranty Deed)
Owner/Developer:	Springhill – HWY 5 Development, LLC, 816 E. Oak Street, Conway, AR 72032
Zoning:	R-2 (Single Family Detached Homes)
Total Area:	4.89 acres
Total # of Lots:	13
Density:	2.65 lots per acre
Minimum Lot Size:	9000.91 sf (Minimum 9000 sf)
Minimum Lot Width:	79.10 feet
Neighboring Properties:	Residential (Single Family Detached) on the South & West Residential (Multi Family) on the North Undeveloped on the East (across from Springhill Road)
Water:	Salem Water
Sewer:	City of Bryant

Restrictive Covenants:	See attached (Draft)
Property in SFHA:	No
Existing Structures:	Yes, one house. This house will be removed as part of the development.
Drainage:	This plan will reduce the flow of runoff onto the properties to the South. Attention is called to the enclosed Drainage Design Report.

Please contact me if you have any questions or concerns.

Sincerely,

Tim Lemons, PE