

Planning Commission Regular Meeting
Tuesday, September 3, 2024 7:00 PM

Hickman Community Center/City Hall 115
Locust Street, Room 128 Hickman, Nebraska

1. Call to Order
 - 1.A. Participant Sign-In Sheet Available & Disclosure of Meeting Recording Process Notice Posted.
 - 1.B. This is an Open Meeting of the Hickman Nebraska Planning Commission. The Hickman Nebraska Planning Commission abides by the Nebraska Open Meetings Act in conducting business. A copy of the Nebraska Open Meetings Act is on display in this meeting room as required by Nebraska State Law. Notice of meeting and copies of this agenda have been publically posted prior to the meeting at the Hickman City Hall, Hickman U.S. Post Office and U-Stop Market.
 - 1.C. The Hickman Nebraska Planning Commission may vote to go into Executive Closed Session on any agenda item as allowed by Nebraska State Law. The Planning Commission Members may be excused and re-enter the meeting room at any time after reconvening open session.
 - 1.D. Registered Agenda Speakers: All individuals requesting to be Registered Agenda Speakers must fill out a Registered Speaker Card & submit to Recording Clerk. The Planning Commission Chairperson or Presiding Meeting Officer reserves the right to deny this request, or will call you to the podium when your agenda Item is ready to be heard. Presentations, if allowed, may be limited to five (5) minutes per person, with a limit of three (3) individuals speaking per topic position. Please come to the podium, and clearly state your name and address for the record and the agenda topic you wish to speak upon in a professional manner. All individuals requesting to handout documents to Planning Commission Members must deliver them to the Recording Clerk for distribution.
2. Roll Call
3. Approval of the Meeting Minutes
 - 3.A. August 6, 2024 Planning Commission Meeting Minutes
4. Presentations & Introductions
5. Reports

- 5.A. Change of Zone Staff Report
- 5.B. Preliminary Plat Staff Report
6. Public Hearings
 - 6.A. Public Comment on a request from SWG4, LLC for a Change of Zone from current Transitional Agricultural District (TA-1) to Medium Density Residential District (R-2). Property legally described as Etmund Estates 1st Addition, Lot 1, Parcel ID: 1528202001000, Hickman, NE 68372; generally known as west of S. 68th Street and north of Hickman Road.
 - 6.B. Public Comment on a preliminary plat called Etmund Estates 2nd Addition. This request is from Civil Design Group, Inc., on behalf of SWG4 LLC. The Preliminary Plat includes 82 medium density residential lots in the NW quadrant of Hickman's ETJ on 23.88 acres. Property legally described as Etmund Estates 1st Addition, Lot 1, Parcel ID: 1528202001000, Hickman, NE 68372; generally known as west of S. 68th Street and north of Hickman Road.
7. Unfinished Business - None
8. New Business
 - 8.A. Recommendation to City Council on a request from SWG4, LLC for a Change of Zone from current Transitional Agricultural District (TA-1) to Medium Density Residential District (R-2). Property legally described as Etmund Estates 1st Addition, Lot 1, Hickman, NE 68372.
 - 8.B. Recommendation to City Council on Etmund Estates 2nd Addition preliminary plat. Property legally described as Etmund Estates 1st Addition, Lot 1, Hickman, NE 68372.
9. Planning Commission Comments & Correspondence
10. Meeting Adjournment

MINUTES OF THE HICKMAN PLANNING COMMISSION MEETING

August 6, 2024

Call to Order

Planning Commission Chair, Josh Maurer, called the Hickman Planning Commission Meeting to order at 7:00 PM on Tuesday, August 6, 2024. Notices of the meeting were distributed and posted at the Hickman City Hall, U.S. Post Office-Hickman, and U-Stop Market. The Open Meeting Laws Act, document placement in the meeting room and Executive Closed Session allowances were acknowledged and referenced. The participant sign-in sheet, registered agenda topic speaker cards and the meeting recording process were referenced.

Roll Call

Planning Commission Members present for Roll Call included: Cory Ostrander, Chair Josh Maurer, Colby Huenink – ETJ Representative, Eric Nore, Vice Chair Eldren Echternkamp, Nancy Brandt, Lance Murry, Andrew Seuferer and Paul Tran. No Planning Commission Members were recorded as absent.

Approval of Minutes

Chair Maurer noted the minutes have been distributed/read. He asked if there were any corrections to the minutes of the May 7, 2024, Planning Commission Meeting. Hearing none, a motion was made by Vice Chair Echternkamp and seconded by Ostrander to approve the May 7, 2024, Planning Commission Meeting Minutes. The following members voted “YEA,” Ostrander, Maurer, Huenink, Nore, Echternkamp, Seuferer, Tran. The following members voted “NAY,” none. The following members voted “ABSTAIN”, Brandt and Murry. Motion passed 7-0-2.

Presentations & Introductions

Chair Maurer introduced Mayor Goering’s appointment of Mr. Lance Murry as a regular member of the Planning Commission. Chair Maurer Introduced Mayor Goering’s Appointment of Mr. Charles Stewart as the alternate member of the Planning Commission. Both Mr. Murry and Mr. Stewart gave a brief overview of their backgrounds and experience to the other members. Chair Maurer then gave a summary of his time with the Planning Commission, his background and welcomed the new members. The other 7 members in attendance did the same.

Reports – None

Public Hearings – None

Unfinished Business – None

New Business – None

Planning Commission Comments & Correspondence – None

Meeting Adjournment

Motion by PC member Brandt and seconded by Nore to adjourn the meeting at 7:10 PM. The following members voted “YEA,” Ostrander, Maurer, Huenink, Nore, Echternkamp, Brandt, Murry, Seuferer, and Tran. The following members voted “NAY,” none. Motion passed 9-0.

Josh Maurer, Chair

Date

Heidi Hoglund, Recording Clerk

Date

CITY OF HICKMAN
STAFF REPORT FOR PLANNING COMMISSION
SEPTEMBER 3, 2024, MEETING

APPLICATION/FACTS

PROJECT: #2024-96 Change of Zone of Etmund Estates 1st Addition, Lot 1, from Transitional Agriculture District (TA) to Medium Density Residential District (R-2).

APPLICANT: Mike Eckert
Civil Design Group
8535 Executive Woods Drive, Suite 200
Lincoln, Nebraska 68512

OWNER: SWG4, LLC
Gregory Grader
819 O Street
Lincoln, NE 68508

LOCATION: North of Woodland Boulevard and West of 68th Street

LEGAL DESCRIPTION: Etmund Estates 1st Addition, Lot 1

LAND AREA: 23.88 acres

PROPOSAL: Request from SWG4, LLC for a Change of Zone from current Transitional Agriculture District (TA) to Medium Density Residential District (R-2). Property legally described as Etmund Estates 1st Addition, Lot 1, Hickman, NE 68372; generally known as west of 68th Street and north of Woodland Blvd.

EXISTING ZONING: TA Transitional Agriculture

EXISTING LAND USE: Undeveloped Land

SURROUNDING LAND USE AND ZONING:

North:	Transitional Agriculture	TA
South:	Residential and General Commercial	R-2 & C-2
East:	Transitional Agriculture	TA
West:	Transitional Agriculture	TA

Zoning History and Land Use

The land map from 1995 shows this parcel was zoned TA and used for agriculture farming. Most recent use of the land is farmland.

Etmund Estates 1st Addition Subdivision History:

2016 An administrative final plat was approved on December 13, 2016, to split the parcel into two lots. Lot 1, as shown as the preliminary plat, and lot 2 for future water tower site for the City of Hickman.

Comprehensive Plan Specifications

The Future Land Use Map was updated in 2016 and shows the 23.88-acre parcel to be MDR or Medium Density Residential. The proposed zone change to R-2 Medium Density Residential District is a match to MDR in intent for development of the parcel into a residential subdivision of single-family homes 38 detached and 44 attached. The parcel is contiguous with an R-2 single family residential subdivision to the south.

Corridor Overlay District:

This parcel is not within the Corridor Overlay District.

Zoning Regulations:

2023 Hickman Zoning Regulations

Section 5.11 R-2 Medium Density Residential District

5.11.01 Intent: This district is intended to provide single to four family residential development in areas with adequate public facilities and supporting uses near population centers.

Utilities:

The developer will be responsible for the cost associated with connection to City Sewer and Water.

Conclusions:

The Change of Zone is consistent with the Future Land Use Map in the 2016 Comprehensive Plan. The Change of Zone to R-2 Medium Density Residential District would provide an area for residential development. The property is adjacent and contiguous to the city limits. The access to the property for residential use will be evaluated with the preliminary and final plats.

Staff Recommended Motion:

Recommend approval from the Planning Commission to the City Council, on a change of zone request from Transitional Agriculture District (TA) to Medium Density Residential District (R-2) on property legally described as Etmund Estates 1st Addition, Lot 1, Lancaster County, NE.

CITY OF HICKMAN
STAFF REPORT FOR PLANNING COMMISSION
SEPTEMBER 3, 2024 MEETING

APPLICATION/FACTS

PROJECT: #2024-97 Preliminary Plat Etmund Estates 2nd Addition

APPLICANT: Mike Eckert
Civil Design Group
8535 Executive Woods Drive, Suite 200
Lincoln, Nebraska 68512

OWNER: SWG4, LLC
Gregory Grader
819 O Street
Lincoln, NE 68508

LOCATION: North of Woodland Boulevard and West of 68th Street

LEGAL DESCRIPTION: Etmund Estates 1st Addition, Lot 1

LAND AREA: 23.88 acres

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single-family homes 38 detached and 44 attached. The parcel is contiguous with an R-2 single family residential subdivision to the south.

Utilities:

The developer will be responsible for the cost associated with connection to City Sewer and Water.

Topography:

There is a detention cell in Outlot E noted on the preliminary plat which should maintain adequate drainage and collection of storm water. The parcel is not located within the 100-year Floodplain.

Traffic Analysis:

68th Street is a principal arterial street to the east of this area 415 feet. Woodland Boulevard is a collector street with a width of 70' versus a standard residential street with a right-of-way width of 60'. The two proposed access points will connect to Woodland Boulevard by extending city street to the north via Autumn Road and Ridge Road for egress/ingress.

Master Trail Plan:

This area is not included in the 2017 Master Trail Plan.

Etmund Estates 1st Addition Subdivision History:

2016 An administrative final plat was approved on December 13, 2016, to split the parcel into two lots. Lot 1, as shown as the preliminary plat, and lot 2 for future water tower site for the City of Hickman.

Waiver for Section 5.15 Block Length Request:

Civil Design Group is requesting a waiver to Section 5.15 Blocks of the City of Hickman Design Standards, see below:

The Etmund Estates 2nd Addition Preliminary Plat is requesting a waiver to Section 5.15 Blocks of the City of Hickman Design Standards.

The block length on the east side of Autumn Road exceeds the maximum block length of 1,320 feet due to existing topography challenges. Pedestrian easements are shown where possible on the exterior blocks.

Easements:

Instrument#2000-028995 – Property Owners Access Rights

Real estate right of entry perpetual easement 50 feet north of the south property line. This includes the neighboring four lots owned by two individuals to the west of the property.

Instrument#2000-030960 – LPSNRD Access Easement

Partial release given by LPSNRD to C. F. Etmund of the land surrounding the dam. The reservation of easement of 50 feet north of the south property line of S1/2 NE ¼ of Section 28 remains as noted in the original easement dated September 13, 1955 as recorded by the Register of Deeds Office Lancaster County Nebraska on March 22, 1956, in Book 59 of Miscellaneous at page 225.

Instrument#2005-025692 – Rural Water District No. 1 Lancaster County NE Access Easement

Rural Water has an access easement for their water line providing services to four lots west of the proposed development. Their easement stated it shall not exceed 40 feet in width of the centerline of which shall be the water facility as constructed.

Instrument#2017-009175 City Property Access Easement

Access easement noted on the Administrative Final Plat for Etmund Estates 1st Addition shown in a section detail on the plat and listed in the general notes “The owners of Lot 1 hereby grant the owners of Lot 2 a 66 feet wide access easement” and then it lists the sections involved.

Other Entities comments for the Preliminary Plat as of August 29, 2024:

- Christopher Ladegard, Property Appraisal Technician, for the Lancaster County Assessor/Register of Deeds will review the final plat.
- Mikal Stewart, GIS Geo Spatial Analyst for Lancaster County called out a typo for a distance noted on the preliminary plat and it was corrected.
- John Berry, RLS, commented the Lancaster County Surveyor’s Office had the following comments:
 1. *Lancaster County Engineering is requesting that Etmund Estates 2nd Addition be annexed at time of Final Platting*
 2. *If the northerly extension of Cyprus Blvd, as shown in the Exhibit, is to be part of this project, the exhibit should be added to the plans and a General Note added stating who will be responsible for maintenance.*
 3. *Contact the City of Hickman’s Attorney’s office for any special language needed for the 60’ right of way dedication stated in comment 2 and shown in the Exhibit.*
 4. *In the description, there appears to be an error in the last distance show. (1854.58’)*
 5. *On the plat, show dimensions from existing found monuments to the centerline of the roadways. (the lot dimensions may change at the time of Final Platting, however the location of the roadways shall be determined based upon the Preliminary Plat)*
 6. *On Page 2, at the southeast corner of the plat, on South 68th Street, a section corner symbol is shown but not labeled. Show a description along with ties. (at the same location there appears to be a leader that goes northerly without any dimension)*
 7. *On Page 1, on the north boundary line, symbols for sanitary manholes appear to be shown, add a label in the legend.*

The follow comments need to be verified by the City of Hickman’s Engineer.

8. *On Sheet 6, the paving profiles don’t meet our min K values – however ours are for a 30 mph zone. (Does this meet City of Hickman Standards)*
 9. *On Sheet 4 of 7, sub basin D1 has no cover description/curve number in the table?*
 10. *On Sheet 3 of 7 there are two subbasin D callouts for what looks like two different subbasins?*
 11. *In the drainage study, they designed the storm sewer for the 5-year event, but Hickman’s Subdivision Regs call out designing to the 10 year storm. Is this acceptable? if so, the City Attorney’s office may require something in writing saying this is allowable and a comment may need to be added to the General Notes.*
- Drew Ratkovec, Projects Coordinator, Lower Platte South NRD commented the NRD dam was built in the 50s so there is a good chance they will need to complete a rehabilitation project in the next 5 years. That means they would have semi’s hauling heavy equipment

(excavators, bulldozers) on the paved streets. They noted they currently have good access to the flood control structure on the gravel drive.

- Justin Stark, City Engineer, recognizes the LPSNRD has access to the flood control structure to the west. If there was a major project to happen with the dam that would require significant construction traffic, there is a risk of damage to streets due to increased, heavier weight vehicles.

Potential conditions to require:

- 1) If waiver is not granted for block length, then proper 10' easements for pedestrian sidewalk/pathway for block lengths exceeding 600 feet are to be clearly marked on the final plat. No permanent structure to be built within the easement. Sidewalk/pathways shall extend to the street pavement at all intersections at mid-block crossings where appropriate and shall be equipped with handicap access ramps. The city has granted this waiver for other subdivision in the past.
- 2) Easement releases are a concern for the area to be platted and for the adjoining property owners. The preliminary plat general notes state:

19. LOT 7, BLOCK 2; LOTS 1 & 17, BLOCK 4 AND LOT 24, BLOCK 5 SHALL BE PLATTED AS NON-BUILD-ABLE OUTLOTS UNTIL EXISTING EASEMENTS ARE RELEASED.

20. THE PEDESTRIAN WAY SIDEWALK IN OUTLOT 'B' SHALL BE BUILT WHEN LOT 7, BLOCK 2 IS PLATTED AS A BUILD-ABLE LOT.

Leaving the easement involved for the lots as shown on the plat as “future development outlots” will be an option unless confirmation is received from the City Attorney and/or City Engineer the comment in the general note is sufficient and the subdivision agreement with the final plat can further specify details as needed.

- 3) Rural Water noted the existing service line is to be “cased” for the sections the city streets that would overlay it. The cost to do so would be the developers.

Staff Recommended Motion:

Recommendation to discuss further, and if all questions are satisfied, the preliminary plat could move forward with conditional approval from the Planning Commission to the City Council on the Preliminary Plat for Etmund Estates 2nd Addition with the inclusion of any conditions recommended by the City Engineer, City Attorney and Planning Commission for property legally described as Etmund Estates 1st Addition, Lot 1, Lancaster County NE.

PUBLIC NOTICE
City of Hickman, Nebraska
Planning Commission

Notice is hereby given the Hickman Planning Commission will be holding a public hearing on Tuesday, September 3, 2024, during the regular meeting beginning at 7:00 pm at the Hickman Community Center/City Hall, 115 Locust Street, Room 128, Hickman, Nebraska.

The purpose of the hearing is to provide an opportunity for Public Comment on a request from SWG4, LLC for a Change of Zone from current Transitional Agricultural District (TA-1) to Medium Density Residential District (R-2). Property legally described as Etmund Estates 1st Addition, Lot 1, Parcel ID: 1528202001000, Hickman, NE 68372; generally known as west of S. 68th Street and north of Hickman Road.



Jaala Johnson
City Clerk



115 Locust Street, P.O. Box 127
Hickman, NE 68372-0127
Phone 402.792.2212 - Fax 402.792.2210
www.hickman.ne.gov



NOTICE TO ADJOINING PROPERTY OWNERS WITHIN 300 FEET OF PARCEL REQUESTING A CHANGE IN ZONING DISTRICT

An application for a Change of Zoning District has been received from SWG4,LLC as it applies to property legally described as Etmund Estates 1st Addition, Lot 1, Hickman, NE 68372. The parcel is generally located north of Woodland Boulevard and west of 68th Street (map enclosed). The application requests a Change of Zone from (TA-1) Transitional Agricultural zoning district to (R-2) Medium Density Residential zoning district, as described in the 2023 Zoning Regulations adopted and amended by the City of Hickman. The purpose for the zone change request is to allow for medium density residential use of the property.

The Change of Zone Public Hearing will be held by the Planning Commission on Tuesday, September 3, 2024, at 7 Pm (CST), in the Hickman Community Center/City Hall Meeting Room 128 located at 115 Locust Street, Hickman NE 68372, at which time you may appear in person at the meeting, or, submit written comments by noon (12 p.m.) Wednesday, August 28th, 2024, either in support or in opposition of the proposed Change of Zone application.

The public hearing for this application is not limited to those receiving copies of this notice as you are welcome to notify any additional persons interested in this application and the public hearing. This notice is sent as a courtesy and is not a substitute for the official public hearing notice which will be published in the Voice News weekly publication at least 10 days prior to the September 3, 2024, Planning Commission meeting. Any advisory recommendations made by the Planning Commission will be given to the City Council, who after their separate public hearing, may vote on the 1st, 2nd and 3rd readings of the Ordinance. If approved by the City Council, the Official Zoning Map will be amended to reflect the change of zoning district to R-2 for the parcel.

If you would like additional information, you are encouraged to contact the applicant, Scott Wobig, by phone at 402.499.7039, or the Zoning Enforcement Officer, Heidi Hoglund, by phone at 402.792.2212 or by email heidih@hickman.ne.gov.

Respectfully submitted,

Heidi Hoglund , CFM
Zoning Enforcement Officer

Enclosures: Map of Application Site

CITY OF HICKMAN
115 LOCUST ST.
P.O. BOX 127
HICKMAN, NE 68372

PROPOSED
CHANGE OF
ZONE FROM
TR-1 TO R-2
MEDIUM DENSITY
RESIDENTIAL



Printed: 8/12/2024

Map Scale
1: 9,028



115 Locust Street, P.O. Box 127,
Hickman, NE 68372-0127
Phone 402.792.2212 - Fax 402.792.2210
www.hickman.ne.gov

APPLICATION FOR A CHANGE OF ZONING DISTRICT

Application # 2024-96

Owner's Name: SWG4 LLC

Owner's Address: 819 'O' Street, Lincoln, NE Zip Code: 68508

Telephone (home): 402-499-7039 (business): _____

Applicant's Name: Mike Eckert, Civil Design Group, Inc.

Applicant's Address: 8535 Executive Woods Dr, Ste 100, Lincoln, NE Zip Code: 68512

Telephone (home): _____ (business): 402-434-8494

Present Use of subject property: Agricultural (TA)

Proposed Use of subject property: Residential (R2)

Present zoning district: TA Requested zoning district: R2

Legal description of property to be rezoned: Etmund Estates 1st Addition, Lot 1

Area of subject property (square feet or acres): 23.88 # of Lots: 82

Indicate uses of adjoining properties (note the zoning district designation and the actual use of the properties):

North: TA, agricultural South: R2 Residential and C-2 Commercial

East: TA, acreage lot West: TA, agricultural with special permit

- If exhibits are furnished, please describe and enumerate. If possible, furnish a plot or site plan showing existing and proposed structures, easements, water courses, curb cutbacks etc.
- The zoning administrator, who may be accompanied by others, is hereby authorized to enter upon the property during normal working hours for the purpose of becoming familiar with the purposed situation.

List of Property owners within 300 feet of property (attach sheet if necessary) see attached sheet

* Property Owner Signature: [Signature] Date: 8-1-24

Applicant Signature: [Signature] Date: 8-1-24

*NOTE: If application is for a special permit and the applicant is not the owner of the property, the property owner must sign the application or the applicant must attach written permission of the owner authorizing the applicant to sign on behalf of the owner. By signing this application request form or granting the applicant permission to sign on the owner's behalf, the owner hereby grants all authorized City/County personnel to access the property for purposes of review of this application.

For Office Use Only

Application to be processed for: Change of Zone

Date submitted: 8-1-24 Date notice sent: 8-6 + 8-12

Application #. 2024-96 Filing Fee \$ 500.00

Receipt # 610609 Received by: Heidi Date 8-1-24

Abutting property owner's list received: yes

Certificated of ownership received: yes 8-5-24

Date Zoning Signs Posted: 8-22-24

Date Public Hearing for Planning Commission: 9-3-24

Date Notice of Public Hearing Published: 8-22-24

Decision of Planning Commission Recommend Approval Recommend Denial

Date Public Hearing for City Council: _____

Date Notice Public Hearing Published: _____

Decision of City Council Approved Denied Date: _____

Zoning Administrator Signature: _____ Date: _____

JUSTIFICATION
(You must justify your request)

Questions 1 through 10 must be answered completely. Attach additional sheets if needed.

1. Explain how this request is compatible with the future land use elements of the 2016 Comprehensive Plan. **It is shown as future residential and is planned for that use.**
2. What type of development does the 2016 Comprehensive Plan recommend for this general area? **Residential**
3. Can soil conditions support the kinds of development in the proposed zoning district? What is the soil classification of the area?
Yes, the soils are wmore silty clay loams prevalent in Lancaster County
4. Is the proposed zoning district in the floodplain hazard area as delineated under the national flood insurance program?
No
5. What is the proposed lowest level of elevation in the development?
1,300'
6. Provide reasons to support the need for the proposed zoning in this area.
The change of zone is consistent with the future land use map in the comprehensive plan.
7. How would the proposed district conform with adjacent zoning districts?
R2 zoning is adjacent to this prelim plat on the south. Future residential is shown in the comp plan for the land north and west. Future commercial is shown to east.
8. What is the general character of the area? Describe.
Rolling hills in row crop production.
9. What type of sewer and water system will be used?
City of Hickman sanitary sewer and water.
10. Does the change affect any proposed school projects?
No.
11. How will the proposed zoning district affect traffic in the area?
Zoning will produce standard residential trips generation suitable for proposed and adjacent road network.



NEBRASKA TITLE COMPANY

SERVICE BEYOND EXPECTATION

OWNERSHIP AND LIENHOLDER CERTIFICATE

FILE NO: 6124999

**TO: Civil Design Group, Inc.
Jill Schuerman**

Nebraska Title Company, authorized to engage in the business of abstracting in the State of Nebraska under Certificate of Authority No. 56, hereby certifies that the records of Lancaster County, Nebraska have been carefully examined with reference to the following described property, and from such examination finds as follows:

LEGAL DESCRIPTION:

Lot One (1), Etmund Estates 1st Addition, Hickman, Lancaster County, Nebraska.

GRANTEE IN LAST DEED OF RECORD:

SWG4, LLC, a Nebraska limited liability company

UNRELEASED LIENS OF RECORD:

- a. Deed of Trust executed by SWG4, LLC, a Nebraska limited liability company, Trustor to Frontier Bank, Trustee and Beneficiary, in the stated amount of \$100,000.00, dated June 20, 2019, recorded July 2, 2019 as Inst. No. 2019023616; records of Lancaster County, Nebraska. (with other property)

Effective Date: August 1, 2024 at 8:00 am

Nebraska Title Company

By

Registered Abstractor

Please direct inquiries to: Julie Gilburd

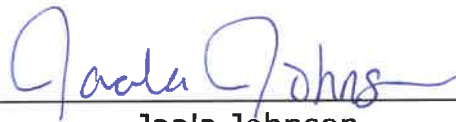
NOTE: THIS IS AN INFORMATIONAL TITLE REPORT

This report is not a guarantee or warranty of title, nor is it an abstract of title, nor is this a commitment to provide, nor does it provide title insurance. Liability hereunder is expressly limited to the sum of \$1,000.00.

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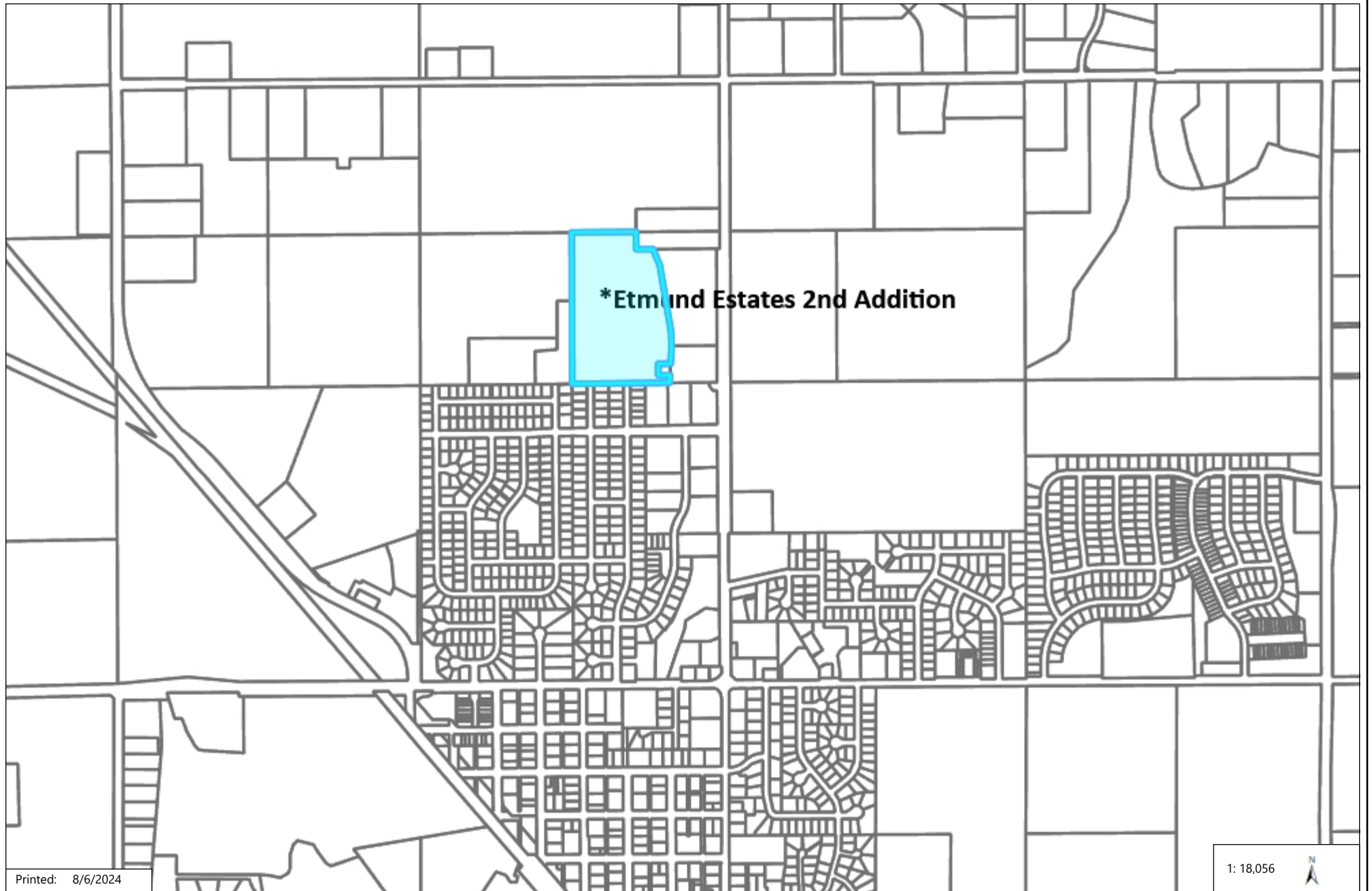
August 6, 2024

- Scott Wobig
SWG4 LLC
819 O Street
Lincoln, NE 68508
- Civil Design Group Inc
Attn: Mike Eckert
8535 Executive Woods Ste 200
Lincoln NE 68512
- Olsson
Attn: Justin Stark P.E.
601 P Street
Lincoln, NE 68508
- Mr. Kelly R. Hoffschneider
Hoffschneider Law
1120 K Street
Lincoln, NE 68508
- Black Hills Energy
Attn: Planning & Engineering
1102 East 1st Street
Papillion, NE 68046
- Windstream Communications
Attn: New Development
Engineer
1440 M Street; 5th Floor
Lincoln, NE 68508
- Zito Media
Attn: Engineering Dept
600 1/2 Grant Ave
York, NE 68467
- Nextlink Internet
Attn: Planning & Engineering
95 Parker Oaks Ln
Hudson Oaks, TX 76087
- Norris Public Power District
Attn: Planning & Engineering
606 Irving Street
Beatrice, NE 68310
- Nebraska 811
824 Weathered Rock Road
Jefferson City, MO 65101
- Hickman Rural Fire District
P.O. Box 67
Hickman, NE 68372
- Norris School District 160
Attn: Administrative Office
25211 South 68th Street
Firth, NE 68358
- Post Office – Hickman
Attn: Postmaster
116 Locust Street
Hickman, NE 68372
- Ms. Pamela L. Dingman
Lancaster Co. Engineer's Off.
444 Cherrycreek Road,
Building C
Lincoln, NE 68528
- Mr. John Berry
Lancaster Co. Engineer's Off.
444 Cherrycreek Road,
Building C
Lincoln, NE 68528
- Lancaster County Assessor
Register of Deeds
555 South 10th Street, Rm 102
Lincoln, NE 68508
- Lancaster County Sheriff's
Office
Administrative Office
575 South 10th Street
Lincoln, NE 68508
- Lincoln/Lancaster County
Attn: Mr. Terry Kathe
555 South 10th Street, Room
203
Lincoln, NE 68508
- Lincoln/Lancaster Co.
Planning
Attn: Mr. George Wesselhoff
555 South 10th Street, Rm 213
Lincoln, NE 68508
- Lancaster County Rural
Water District No. 1
Attn: Mr. Jordan Bang
PO BOX 98
Bennet, NE 68317
- City Bldg. Insp. Dale Stertz
115 Locust Street
Hickman, NE 68372
- 911 Communication Center
Attn: New Development
Planning
575 South 10th, Room 045
Lincoln, NE 68508
- Lower Platte S. Natural
Resources District
Attn: Planning Department
3125 Portia St.
Lincoln, NE 68501-3581

RE: Public Hearing Notice for the Preliminary Plat and Public Hearing Notice for Change in Zoning District from TA to R-2 Medium Density for Etmund Estates 2nd Addition

Parcel ID: 1528202001000 Legal Description: Etmund Estates 1st Addition, Lot 1, Hickman, NE 68372

Enclosed is a copy of the Preliminary Plat submitted by Civil Design Group, Inc., on behalf of SWG4 LLC., for proposed 82 Medium Density residential lots in the NW quadrant of Hickman's ETJ on 23.88 acres, north of Hickman Road and west of S. 68th Street. The **Public Hearings** will be held at Hickman City Hall Room 128, 115 Locust Street, Hickman, NE 68372 during the regular Planning Commission meeting on **Tuesday, September 3, 2024, at 7:00 pm**, at which time you may appear in person. Written comments should be submitted by Wednesday, August 28, 2024, at 12 pm. Comments may be in support or opposition of the proposed preliminary plat application and/or change of zone application. If you would like additional information, you are encouraged to contact the applicant Scott Wobig at (402) 499-7039, or the Hickman City Office by phone (402) 792-2212 or email heidih@hickman.ne.gov. Also enclosed is a map of the application site.





115 Locust Street, P.O. Box 127,
Hickman, NE 68372-0127
Phone 402.792.2212 - Fax 402.792.2210
www.hickman.ne.gov

APPLICATION FOR PRELIMINARY PLAT # 2024-97

Legal Description and Location: Etmund Estates 1st Addition Lot 1, west of S. 68th St, north of The Woodland Plaza

Subdivider:

Name: SWG4 LLC
Address: 819 'O' St
Lincoln, NE 68508
Telephone: 402-499-7039

Agent: (Authorized to act on Subdivider's behalf)

Name: Mike Eckert, Civil Design Group, Inc.
Address: 8535 Executive Woods Dr, Ste 200
Lincoln, NE 68512
Telephone: 402-434-8494

Name of Preliminary Plat: Etmund Estates 2nd Addition Number of Lots: 82

Subdivision Preliminary Plat Fee \$1,000.00 + \$10.00 per Lot Fee Total: \$1,820.00

A. Does the subdivider have any interest in the land surrounding the preliminary plat? Yes X No _____

If yes, please describe the nature of such interest:

Subdivider owns adjacent lot, Etmund Estates, Lot 2

B. Will the preliminary plat require any zoning or other action (rezoning, planned development, conditional use or vacations) to complete the development? Yes X No _____. If yes please describe the nature of action:

Change of Zone from TA to R-2

C. Does the preliminary plat deviate from the requirements of the Land Subdivision Ordinance of the City of Hickman or the City's Design Standards: Yes X No _____. If yes, please state each deviation, how the proposal meets the intent of the subdivision ordinance and why the proposal should be accepted (Additional sheets may be added):

Requesting a waiver of Block Length for Block 5 due to topographic restraints and undevelopable drainage/wetlands east of this preliminary plat.

D. Is any part of the land within the preliminary plat within a flood plain? Yes X No _____. If yes, please include the following information: Hydrological and grade information to determine frequency and extent of inundation of flood waters; location of proposed use and type of use; areas of habitation and employment to include location, size and floor elevation of any structures, location and elevation of parking areas, use, location and elevation of open space; all plans and other information conform to Development Standards; limits of the flood plain; amount of Fill Material brought into the flood plain; a certificate that grading will not result in any increase in the flood plain. (Additional sheets may be added):

Scott Wobig
Signature of Applicant

Scott Wobig
Printed Name

8-1-24
Date

[Signature]
Signature of City Staff

Heidi Hoglund
Printed Name

8-1-24
Date

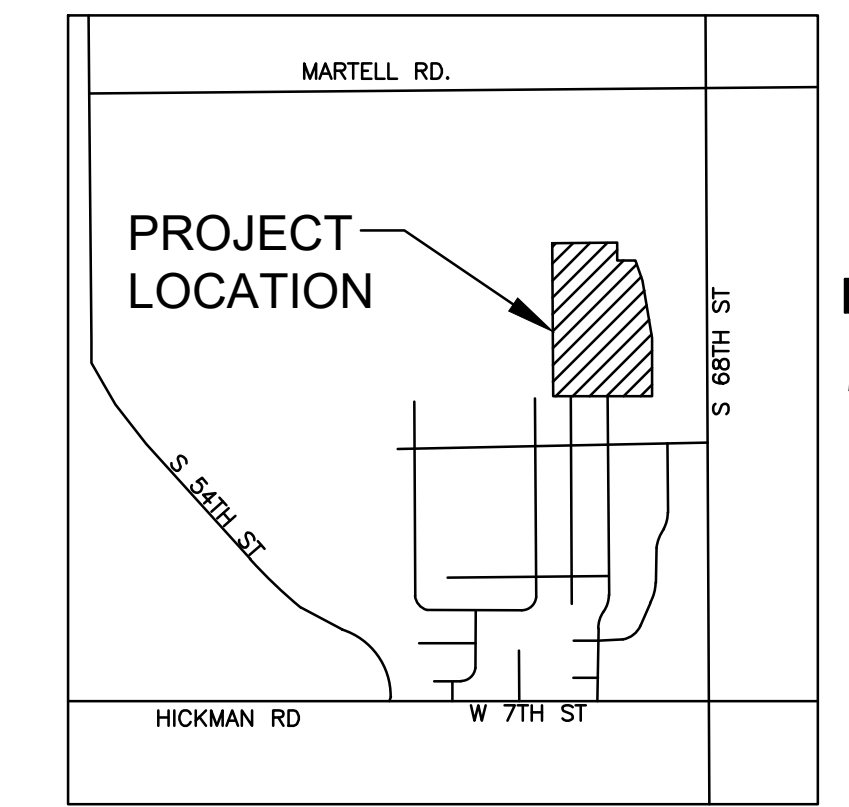
Office Use Only

Receipt No. 110110 Date: 8-1-24 Preliminary Plat #: 2024-97 Fee paid \$ 1820

ETMUND ESTATES 2ND ADDITION PRELIMINARY PLAT

Civil Design Group, Inc.
SUITE 200
LINCOLN, NEBRASKA 68512
PH. 402-434-8494 FAX 686-215-8747
WWW.CDVG.COM

CONSULTING ENGINEERS • LAND USE PLANNERS
CIVIL DESIGN • SITE DEVELOPMENT • PLANNING AND ZONING



VICINITY MAP
NO SCALE

OWNER & DEVELOPER:
SWG4, LLC
819 'O' STREET
LINCOLN, NE 68508

ENGINEER:
CIVIL DESIGN GROUP, INC.
8535 EXECUTIVE WOODS DRIVE
SUITE 200
LINCOLN, NE 68512
(402)434-8494

SURVEYOR:
ALLIED SURVEYING & MAPPING
8535 EXECUTIVE WOODS DRIVE, SUITE 200
LINCOLN, NE 68512
(402)434-2686

SHEET INDEX

SITE UTILITY PLAN	SHEET 1
PRE-DEVELOPED DRAINAGE PLAN	SHEET 2
POST-DEVELOPED DRAINAGE	SHEET 3
POST-DEVELOPED DRAINAGE TABLE & SCHEMATICS	SHEET 4
PRELIMINARY PAVING PROFILES	SHEET 5
PHASING PLAN	SHEET 7

ACCEPTANCE BY THE HICKMAN CITY ENGINEER
THIS PRELIMINARY PLAT OF ETMUND ESTATES ADDITION WAS REVIEWED AND APPROVED BY THE HICKMAN CITY ENGINEER THIS ____ DAY OF ____ 20__.

HICKMAN CITY ENGINEER

APPROVAL OF THE PLANNING COMMISSION OF HICKMAN, NEBRASKA
THIS PRELIMINARY PLAT OF ETMUND ESTATES WAS APPROVED BY THE HICKMAN PLANNING COMMISSION THIS ____ DAY OF ____ 20__.

CHAIRPERSON, HICKMAN PLANNING COMMISSION

ACCEPTANCE BY HICKMAN CITY COUNCIL OF
THIS PRELIMINARY PLAT OF ETMUND ESTATES WAS APPROVED BY THE CITY COUNCIL OF THE CITY OF HICKMAN, NEBRASKA THIS ____ DAY OF ____ 20__ IN ACCORDANCE WITH THE STATE STATUTES OF NEBRASKA.

MAYOR

ATTEST: _____
CITY CLERK

REVISIONS

NO.	DATE	DESCRIPTION

LEGEND

- PROPOSED ROW
- PROPOSED CENTERLINE
- COMMUNITY UNIT PLAN BOUNDARY
- LIMITS OF ANNEXATION AND CHANGE OF ZONE
- EASEMENT
- PROPOSED WATER MAIN
- PROPOSED SEWER MAIN
- FOUND CAPPED REBAR LS483
- SET PROPERTY CORNER
- TEMPORARY POINT
- FOUND 1" PIPE
- SECTION CORNER

LEGAL DESCRIPTION

Mets and bounds description of Lot 1, Edmund Estates 1st Addition, located in the Southeast Quarter of the Northeast Quarter of Section 28, Township 8 North, Range 7 East, of the 6th P.M., Lancaster County, Nebraska, and more particularly described as follows:

Beginning at the Southwest corner of said Lot 1, Edmund Estates 1st Addition, said point also being the Southwest corner of the Southeast Quarter of said Section 28, thence in a Southerly direction on the on the West line of said Lot 1, Edmund Estates 1st Addition and on the West line of the Southeast Quarter of the Northeast Quarter of said Section 28 and on an assumed bearing of N00°13'08"W, for a distance of 1320.32' to the Northwest corner of said Lot 1, Edmund Estates 1st Addition and the Northwest corner of the Southeast Quarter of the Northeast Quarter of said Section 28, thence N89°21'07"E on the North line of said Lot 1, Edmund Estates 1st Addition and on the North line of the Southeast Quarter of the Northeast Quarter of said Section 28, for a distance of 565.33' to a point on the West line of Lot 43 of Irregular Tracts; thence S00°17'07"E on the West line of said Lot 43, said line being a common line of said Lot 43 and said Lot 1, Edmund Estates 1st Addition, for a distance of 153.00' to the Southwest corner of said Lot 43; thence N89°25'47"E on the common line of said Lot 43 and said Lot 1, Edmund Estates 1st Addition, for a distance of 146.81' to the Northwest corner of said Lot 1, Edmund Estates 1st Addition; thence S22°32'21"E on the common line of said Lot 1, Edmund Estates 1st Addition and said Lot 1, Edmund Estates 1st Addition, for a distance of 154.73'; thence S09°39'54"E on the common line of said Lot 1, Edmund Estates 1st Addition and said Lot 1, Edmund Estates 1st Addition, for a distance of 585.18'; thence S01°58'32"E on the common line of said Lot 1, Edmund Estates 1st Addition and said Lot 1, Edmund Estates 1st Addition, for a distance of 122.08' to the Northwest corner of Lot 2, Edmund Estates 1st Addition and said Lot 2, Edmund Estates 1st Addition, for a distance of 100.00' to the Southwest corner of said Lot 2, Edmund Estates 1st Addition; thence N89°20'10"E on the common line of said Lot 1, Edmund Estates 1st Addition and said Lot 2, Edmund Estates 1st Addition, for a distance of 103.85' to the Southeast corner of said Lot 2, Edmund Estates 1st Addition; thence S02°39'55"W on the common line of said Lot 1, Edmund Estates 1st Addition and said Lot 2, Edmund Estates 1st Addition, for a distance of 66.11' to the Southwest corner of said Section 28, thence S89°20'10"W on the South line of the Southeast Quarter of the Northeast Quarter of said Section 28 and on the most Southerly line of said Lot 1, Edmund Estates 1st Addition, for a distance of 854.58' to the POINT OF BEGINNING and containing a calculated area of 23.90 acres, more or less.

Subject to any and all easements, reservations, restrictions and conveyances of record.

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THIS SURVEY WAS MADE UNDER MY DIRECT SUPERVISION AND THAT I AM A LICENSED SURVEYOR UNDER THE LAWS OF THE STATE OF NEBRASKA.

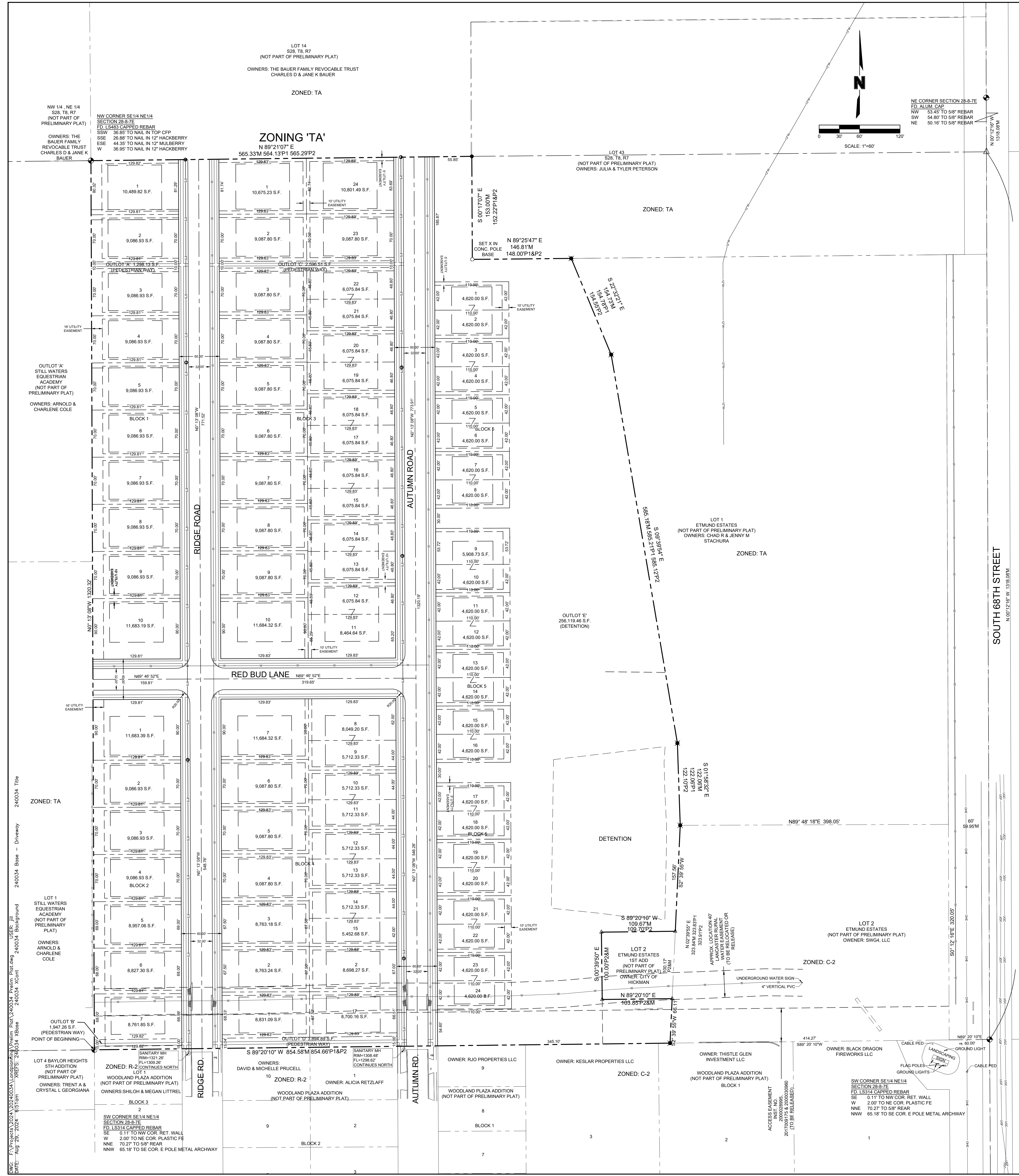
RICHARD KINGMAN RLS #595

GENERAL NOTES

- THIS PRELIMINARY PLAT PERMITS 38 SINGLE FAMILY UNITS AND 44 SINGLE FAMILY ATTACHED UNITS.
- THE EXISTING ZONING IS "TA" AND THE PROPOSED ZONING IS R-2.
- FRONT, SIDE AND REAR YARD SETBACKS SHALL BE AS PER CITY OF HICKMAN ZONING ORDINANCE FOR R-2 ZONING LISTED AS FOLLOWS:
FRONT YARD 25'
SIDE YARD 7.5'
REAR YARD 20'
- SANITARY SEWER AND WATER LINES ARE PUBLIC AND TO BE 8" AND 6" PIPE RESPECTIVELY UNLESS SHOWN OTHERWISE AND SHALL BE BUILT IN ACCORDANCE TO THE CITY OF HICKMAN DESIGN STANDARDS SECTIONS 6.09 & 6.10.
- INTERIOR ROADWAYS SHALL BE PUBLIC AND BUILT IN ACCORDANCE TO THE CITY OF HICKMAN MINIMUM DESIGN STANDARDS FOR PUBLIC ROADWAYS, SECTION 5.25.
- STREET LIGHTING IS TO BE PUBLIC AND SHALL BE BUILT IN ACCORDANCE TO THE CITY OF HICKMAN DESIGN STANDARDS SECTIONS 5.21 & 6.05.
- SURVEY MONUMENT BOXES SHALL BE INSTALLED IN ACCORDANCE TO THE CITY OF HICKMAN DESIGN STANDARDS, SECTION 5.21.
- SIDEWALKS SHALL BE CONSTRUCTED IN ACCORDANCE TO THE CITY OF HICKMAN DESIGN STANDARDS, SECTION 5.21.
- UTILITY EASEMENTS ON FINAL PLATS SHALL BE PROVIDED PER THE CITY OF HICKMAN DESIGN STANDARDS SECTION 5.18.
- STORM WATER DRAINAGE SYSTEMS SHALL BE BUILT IN ACCORDANCE TO THE CITY OF HICKMAN DESIGN STANDARDS SECTIONS 5.19 & 6.08.
- OUTLOT 'E' IS FOR STORM WATER DETENTION FACILITIES AND GREEN SPACE.
- ALL CONTOUR LINES ARE AT 2-FOOT INTERVALS AND ARE BASED ON NAVD83 DATUM.
- THE DEVELOPER AGREES TO COMPLY WITH THE DESIGN STANDARDS OF THE CITY OF HICKMAN SECTION 6.14 FOR EROSION CONTROL AND SEDIMENTATION DURING AND AFTER LAND PREPARATION.
- ALL CURVILINEAR DIMENSIONS ARE CHORD DISTANCES.
- ALL INTERSECTIONS ARE AT 90 DEGREES UNLESS NOTED OTHERWISE.
- LOT DIMENSIONS SHOWN ARE APPROXIMATE. FINAL PLATS DIMENSIONS MAY VARY.
- THE DEVELOPMENT IS NOT LOCATED WITHIN THE 100 YEAR FLOODPLAIN, WHICH FALLS WITHIN THE CONFINES OF ZONE "X" AS DETERMINED BY THE FEMA-FLOOD INSURANCE RATE MAP NO. 310136, PANEL 0444, SUFFIX G, CITY OF HICKMAN, LANCASTER COUNTY, NEBRASKA. THE AREA'S FLOOD POLICY FALLS UNDER THE JURISDICTION OF THE CITY OF HICKMAN.
- COMMON AND PUBLIC ACCESS EASEMENTS SHALL BE GRANTED OVER ALL SIDEWALKS AND PEDESTRIAN WAYS DURING FINAL PLATTING.
- LOT 7, BLOCK 2, LOTS 1 & 17, BLOCK 4 AND LOT 24, BLOCK 5 SHALL BE PLATTED AS NON-BUILD-ABLE OUTLOTS UNTIL EXISTING EASEMENTS ARE RELEASED.
- THE PEDESTRIAN WAY SIDEWALK IN OUTLOT 'B' SHALL BE BUILT WHEN LOT 7, BLOCK 2 IS PLATTED AS A BUILD-ABLE LOT.

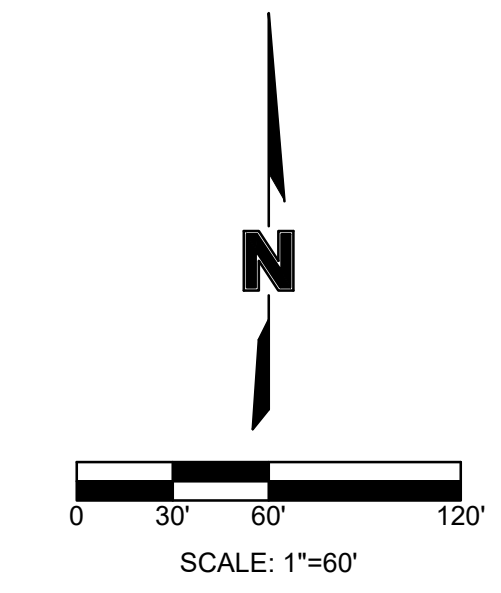
WAIVERS

- TO DESIGN STANDARD SECTION 5.16, BLOCK LENGTH, FOR BLOCK 5.



DATE: JULY 23, 2024
 DRAWN BY: JDS
 CHECKED BY: JDC
 APPROVED BY: JDC
 PROJECT NO.: 2024-0034
 DRAWING NO.:
 DATE: 08/27/2024

ETMUND ESTATES 2ND ADDITION PRELIMINARY PLAT



Pre-Developed Weighted Curve Numbers

Basin	Cover Description	Cover Description	Hydrologic Condition	Hydrologic Soil Group	Area (acres)	Curve Number	Weighted CN
A1	Contoured & Terraced	n/a	Good	A			
				B			
				C		81	
				D			
				Total	2.47		81
Overall Weighted CN							81
B1	Contoured & Terraced	n/a	Good	A			
				B			
				C		81	
				D	14.21		
				Total	14.21		81
Overall Weighted CN							81
C1	Contoured & Terraced	n/a	Good	A			
				B			
				C		81	
				D	4.35		
				Total	4.35		81
Overall Weighted CN							81
D1	Contoured & Terraced	n/a	Good	A			
				B			
				C		81	
				D	2.01		
				Total	2.01		81
Gravel (including right-of-way)			Good	A			
				B			
				C		91	
				D	1.98		
				Total	1.98		91
Overall Weighted CN							86

Pre-Developed TC Calculations

Sub-Basin	Length	E _i	E _o	Slope	TC (min)	Description
A1	N/A	N/A	N/A	N/A	8.00	Basin is small, user input of 8 min. was used
B1	100.00	1,335.00	1,331.71	3.290%	3.97	Sheet Flow
	737.00	1,331.71	1,324.43	0.988%	7.66	Shallow Concentrated Flow
	200.02	1,324.43	1,313.41	5.509%	0.53	Shallow Concentrated Flow
	416.20	1,313.41	1,292.53	5.017%	1.92	Shallow Concentrated Flow
	1,037.02			1.019%	24.08	Overflow
C1	N/A	N/A	N/A	N/A	8.00	Basin is small, user input of 8 min. was used
D1	N/A	N/A	N/A	N/A	8.00	Basin is small, user input of 8 min. was used

LEGEND

- 1168 - - - - - EXISTING MINOR CONTOUR
- 1170 - - - - - EXISTING MAJOR CONTOUR
- PROPERTY LINE
- PROPOSED DRAINAGE BASIN BOUNDARY
- [ID] [AREA] [CN=] PROPOSED DRAINAGE BASIN
- DRAINAGE FLOW PATH

REVISIONS

NO.	DATE	DESCRIPTION

PRE-DEVELOPED DRAINAGE

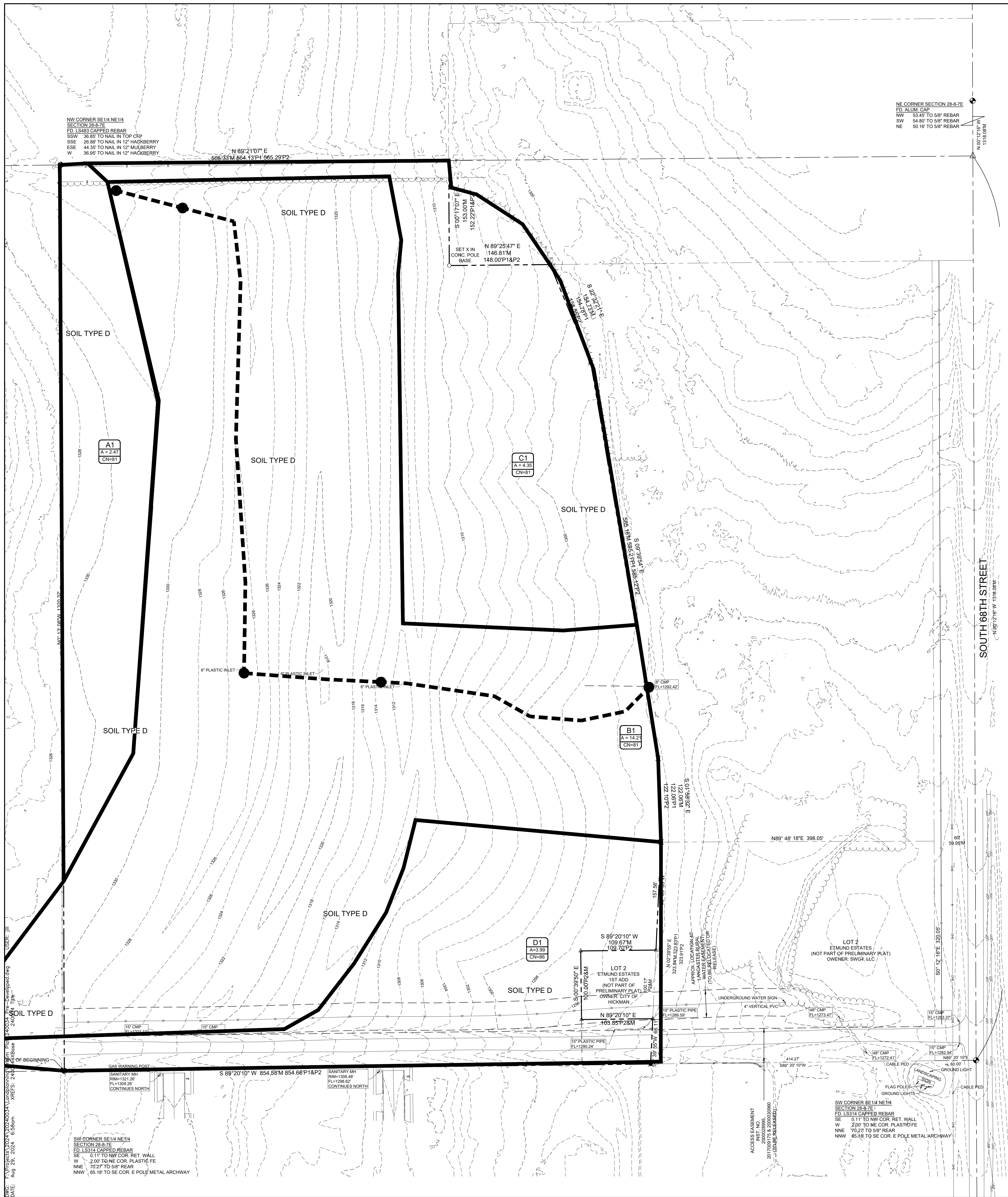
ETMUND ESTATES 2ND ADDITION
PRELIMINARY PLAT

2024

HICKMAN, NEBRASKA

drawn by: JDS
checked by: JDC
approved by: JDC
project no.: 2024-0034
drawing no.:
date: 08/27/2024

SHEET
2 OF 7



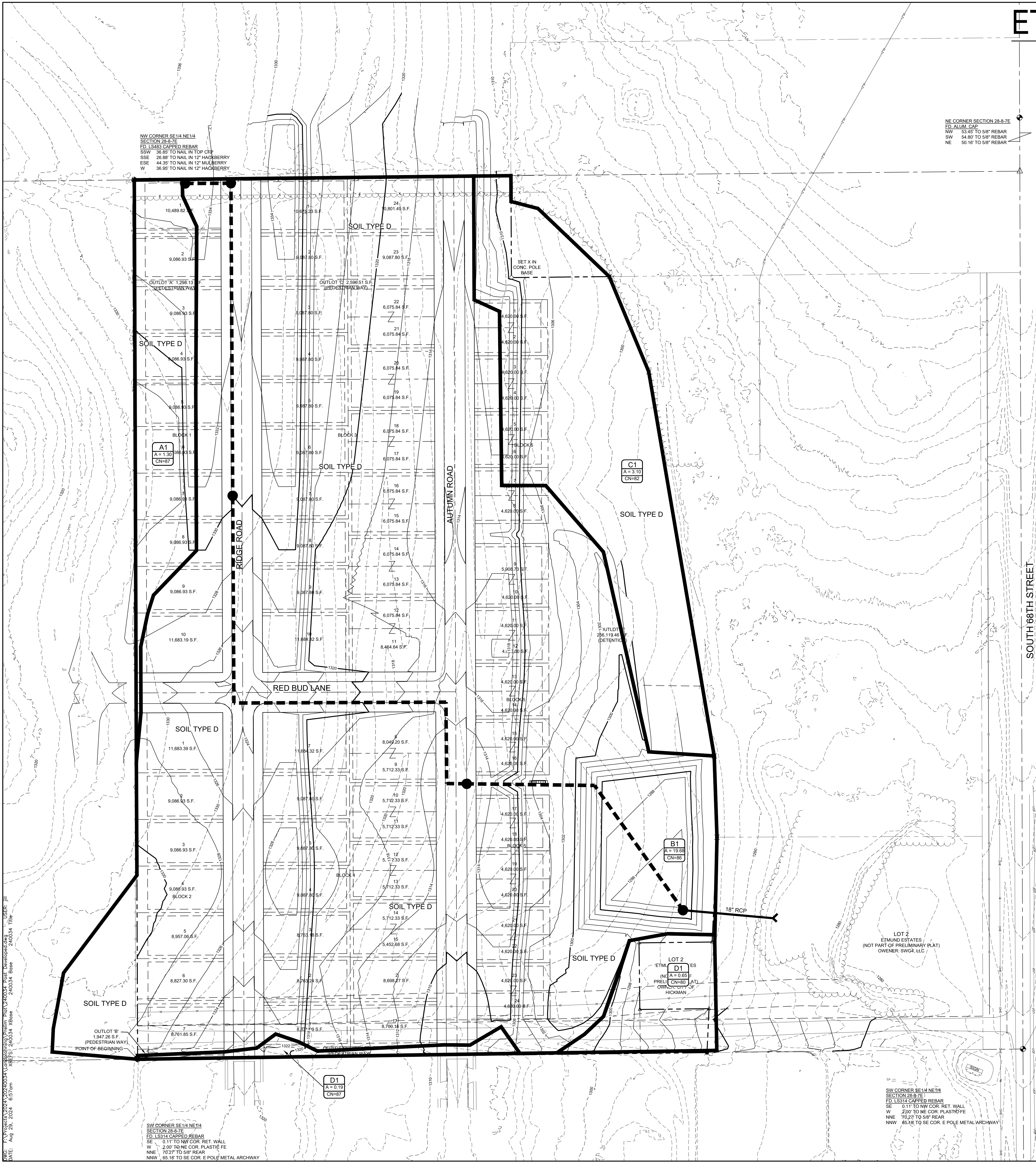
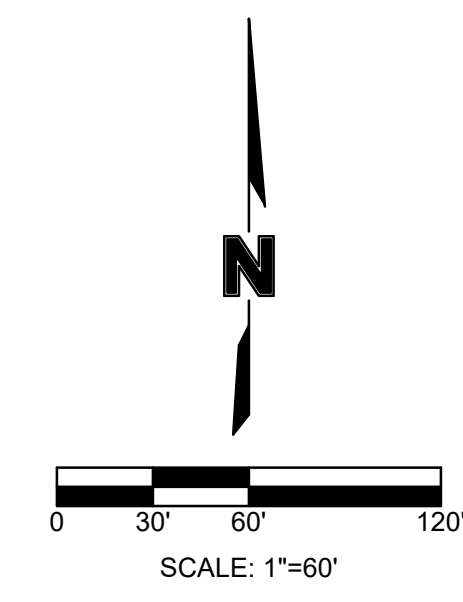
Civil Design Group, Inc.
1101 S. 24th Street, Suite 200
Lincoln, Nebraska 68512
Ph. 402-434-4949 Fax 686-215-8747
www.cdvllg.com

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CIVIL DESIGN • SITE DEVELOPMENT • PLANNING AND ZONING

ETMUND ESTATES 2ND ADDITION PRELIMINARY PLAT

LEGEND

- 1168 EXISTING MINOR CONTOUR
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REVISIONS

NO.	DATE	DESCRIPTION

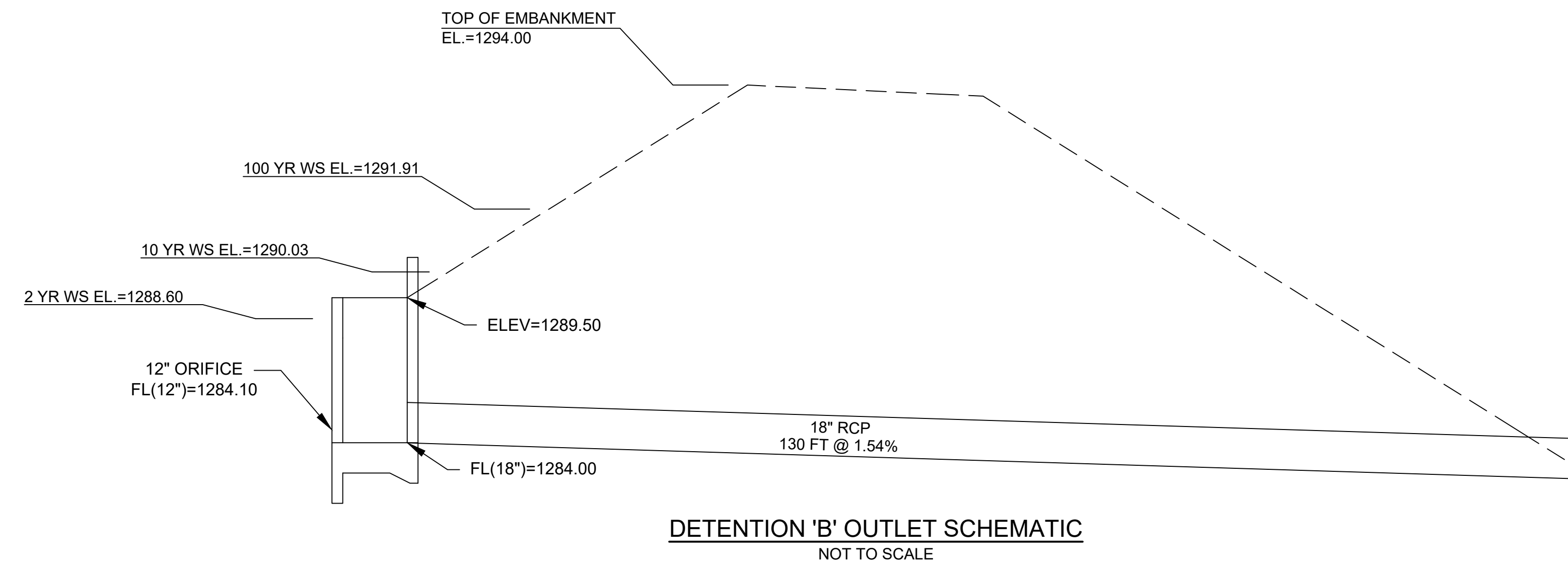
POST-DEVELOPED DRAINAGE
 ETMUND ESTATES 2ND ADDITION
 PRELIMINARY PLAT

HICKMAN, NEBRASKA

drawn by: JDS
 checked by: JDC
 approved by: JDC
 project no.: 2024-0034
 drawing no.:
 date: 08/27/2024

SHEET
 3 OF 7

ETMUND ESTATES 2ND ADDITION PRELIMINARY PLAT



Post-Developed Weighted Curve Numbers									
Basin	Cover Description	Cover Description	Hydrologic Condition	Hydrologic Soil Group	Area (acres)	Curve Number	Weighted CN		
A1	Residential by average lot size (1/4 acre)	n/a	Good	A					
					B				
					C				
					D	1.30	87		87
					Total	1.30			87
Overall Weighted CN							87		
B1	Open Space (Detention Cell & Green Space)	n/a	Good	A					
					B				
					C				
					D	2.90	80		80
	Residential by average lot size (1/4 acre)	n/a	Good	A					
					B				
					C				
					D	16.80	87		87
					Total	19.70			87
					Overall Weighted CN				
C1	Open Space	n/a	Good	A					
					B				
					C				
					D	2.36	80		80
	Residential by average lot size (1/4 acre)	n/a	Good	A					
					B				
					C				
					D	0.74	87		87
					Total	3.10			87
					Overall Weighted CN				
D1		n/a	Good	A					
					B				
					C				
					D				
					Total	0.00			0
Overall Weighted CN							0		
E1	Residential by average lot size (1/4 acre)	n/a	Good	A					
					B				
					C				
					D	0.19	87		87
					Total	0.19			87
Overall Weighted CN							87		

Post-Developed TC Calculations							
Sub-Basin	Length	El _i	El _o	Slope	TC (min)	Description	
A1							
	N/A	N/A	N/A	N/A	8.00	Basin is small, user input of 8 min. was used	
B1							
	69.00	1,334.74	1,332.80	2.812%	6.54	Sheet Flow	
	469.00	1,332.80	1,330.00	0.597%	4.96	Shallow Concentrated Flow	
	782.00	1,330.00	1,312.81	2.198%	4.32	Shallow Concentrated Flow	
	423.00	1,332.81	1,287.00	6.131%	1.76	Shallow Concentrated Flow	
	1,741.00			2.742%	17.58	Overall	
C1							
	N/A	N/A	N/A	N/A	8.00	Basin is small, user input of 8 min. was used	
D1							
	N/A	N/A	N/A	N/A	8.00	Basin is small, user input of 8 min. was used	
E1							
	N/A	N/A	N/A	N/A	8.00	Basin is small, user input of 8 min. was used	

Pond Name	Elevation	Area (ft ²)	Incremental Storage (ft ³)	Cumulative Storage (ft ³)
POND B	1,284.00	-	-	-
	1,285.00	1,609.00	536.00	804.50
	1,286.00	6,289.00	3,693.00	4,753.50
	1,287.00	12,817.00	9,360.00	14,305.50
	1,288.00	19,692.00	16,130.00	30,561.00
	1,289.00	24,903.00	22,244.00	52,858.50
	1,290.00	28,214.00	26,539.00	79,417.00
	1,291.00	31,009.00	29,598.00	109,028.50
	1,292.00	33,933.00	32,457.00	141,489.50
	1,293.00	36,984.00	35,444.00	176,958.00
	1,294.00	40,162.00	38,558.00	215,531.00

DETENTION CELL 'B'						
RETURN PERIOD (YEAR)	PEAK FLOW		STORAGE (AC-FT)	STAGE (FEET)	POOL ELEVATION (FEET)	
	IN (CFS)	OUT (CFS)				
2	40.10	7.10	0.99	4.60	1288.60	
10	69.84	19.41	1.82	6.03	1290.03	
100	129.47	49.78	3.16	7.91	1291.91	

DRAINAGE BASIN SUMMARY						
BASIN ID	2 YR - PEAK FLOW		10 YR - PEAK FLOW		100 YR - PEAK FLOW	
	PRE (CFS)	POST (CFS)	PRE (CFS)	POST (CFS)	PRE (CFS)	POST (CFS)
A1	5.51	3.79	10.29	6.43	20.22	11.67
B1	25.36	7.10	48.01	19.41	95.18	49.78
C1	9.70	7.25	18.12	13.32	35.60	25.81
D1	11.15	1.38	19.23	2.62	35.33	5.23
E1	NA	0.55	NA	0.94	NA	1.71

MINIMUM OPENING/FLOOR ELEVATION SUMMARY				
BLOCK	LOT	100 YEAR WATER SURFACE ELEVATION	LOWEST FLOOR ELEVATION	MINIMUM OPENING ELEVATION
5	15*	1292.71	-	1305.00
	16*	1292.71	-	1305.00
	17*	1292.71	-	1305.00
	18*	1292.71	-	1305.00
	19*	1292.71	-	1305.00
	20*	1292.71	-	1305.00
	21*	1292.71	-	1301.00
	22*	1292.71	-	1301.00
	23*	1292.71	-	1301.00
	24*	1292.71	-	1301.00

*NOTE: Min. Opening elevation is based on overtopping of Pond B as well as the grading of the rear lots

LEGEND

- 1185 - EXISTING MINOR CONTOUR
- 1170 - EXISTING MAJOR CONTOUR
- PROPERTY LINE
- PROPOSED DRAINAGE BASIN BOUNDARY
- [ID AREA CN] PROPOSED DRAINAGE BASIN
- DRAINAGE FLOW PATH

REVISIONS

NO.	DATE	DESCRIPTION

POST-DEVELOPED DRAINAGE TABLES & SCHEMATICS

ETMUND ESTATES 2ND ADDITION
PRELIMINARY PLAT

HICKMAN, NEBRASKA

2024

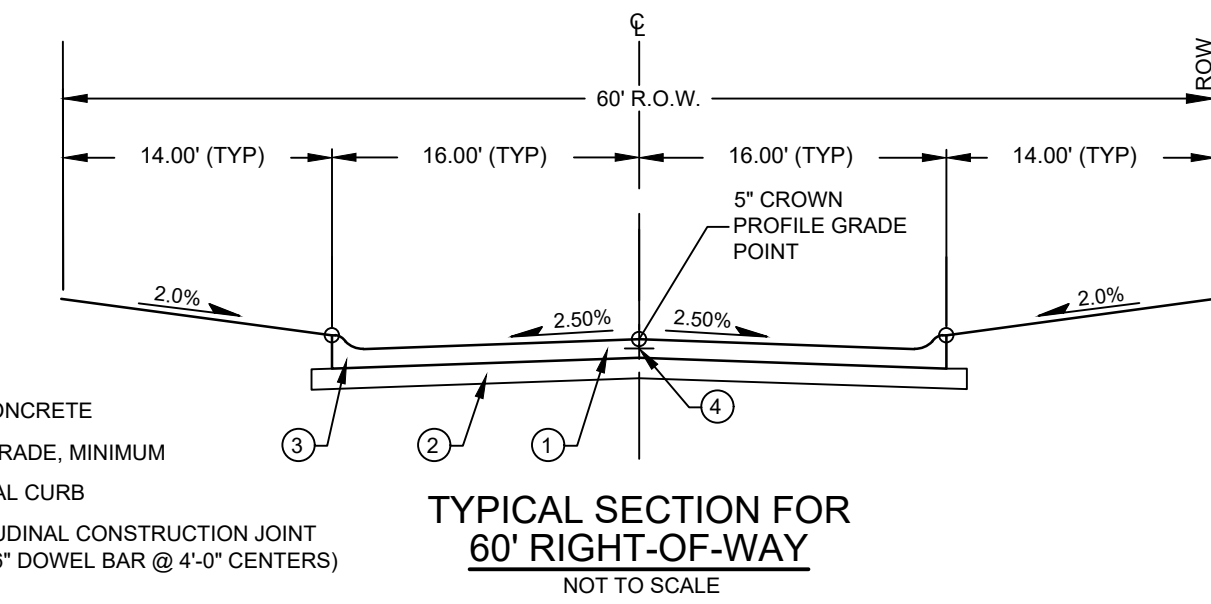
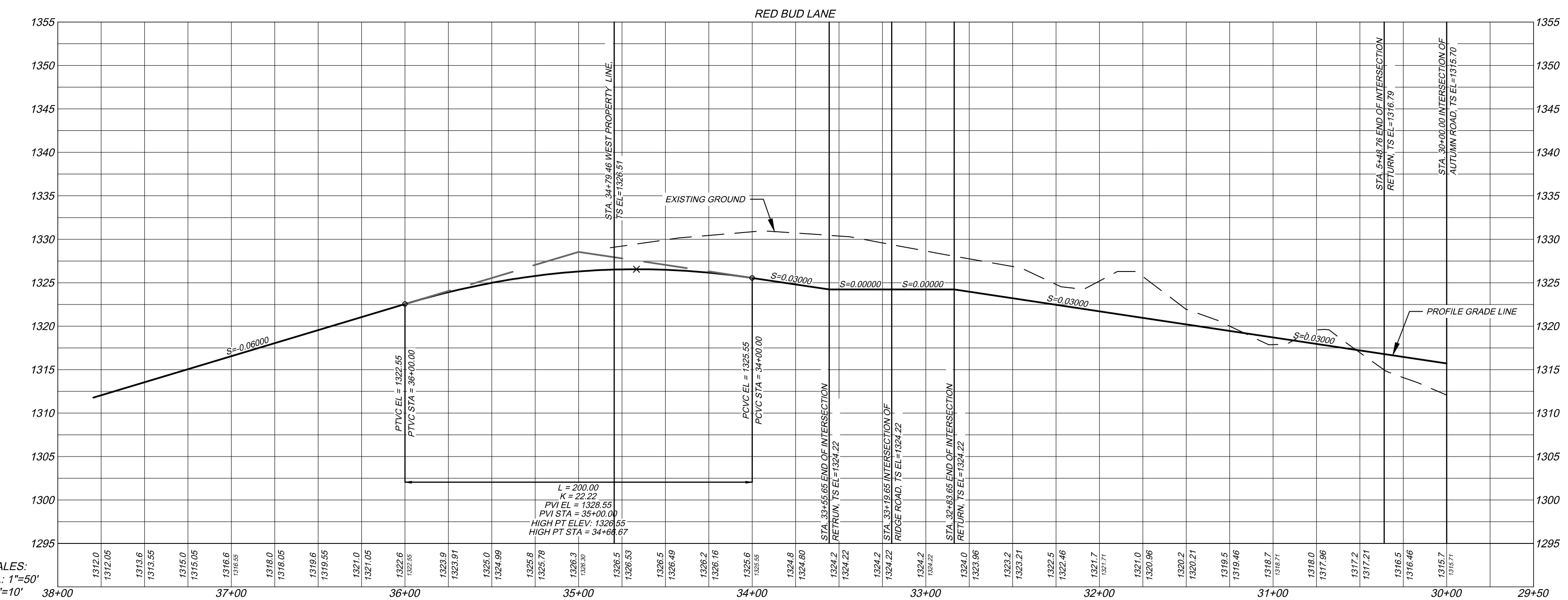
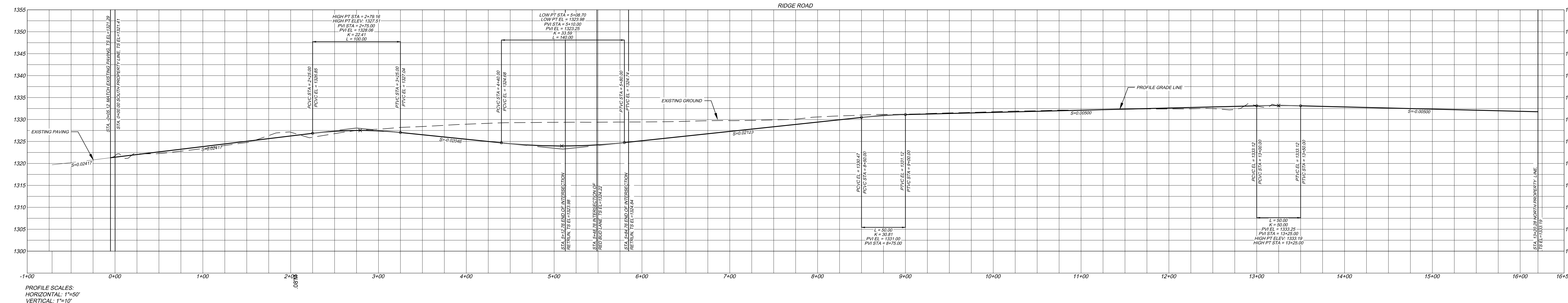
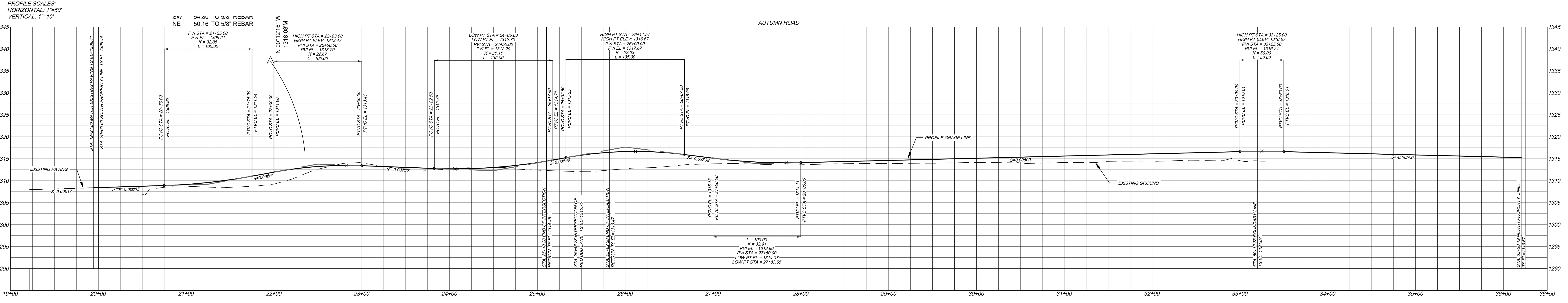
SHEET 4 OF 7

Civil Design Group, Inc.
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CIVIL DESIGN • SITE DEVELOPMENT • PLANNING AND ZONING

P:\Projects\2024\20240203\A\mapdrawing.dwg User: jds Date: 2/20/24 Title: ETMUND ESTATES 2ND ADDITION PRELIMINARY PLAT
 PLOT: Aug 29, 2024 9:05am AUC: 24034 Area: 24034 Size: 24034

ETMUND ESTATES 2ND ADDITION PRELIMINARY PLAT



REVISIONS	
NO.	DESCRIPTION

2024

PRELIMINARY PAVING PROFILES
ETMUND ESTATES 2ND ADDITION
PRELIMINARY PLAT

HICKMAN, NEBRASKA

drawn by: JDS
checked by: JDC
approved by: JDC
project no.: 2024-0034
drawing no.:
date: 08/27/2024

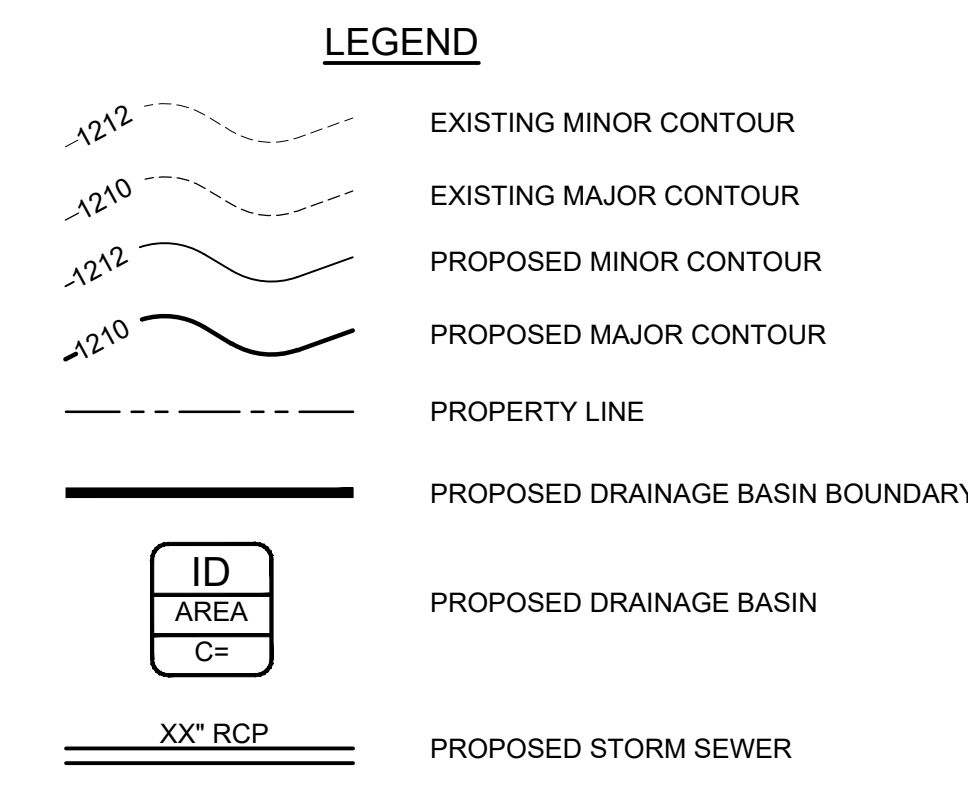
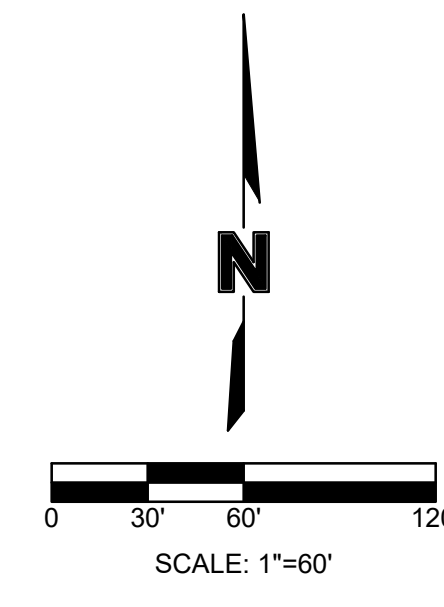
SHEET 6 OF 7

PROJECT: ETMUND ESTATES 2ND ADDITION PRELIMINARY PLAT
DATE: AUG 29, 2024 1:00pm
DRAWN BY: JDS
CHECKED BY: JDC
APPROVED BY: JDC
PROJECT NO.: 2024-0034
DRAWING NO.:
DATE: 08/27/2024

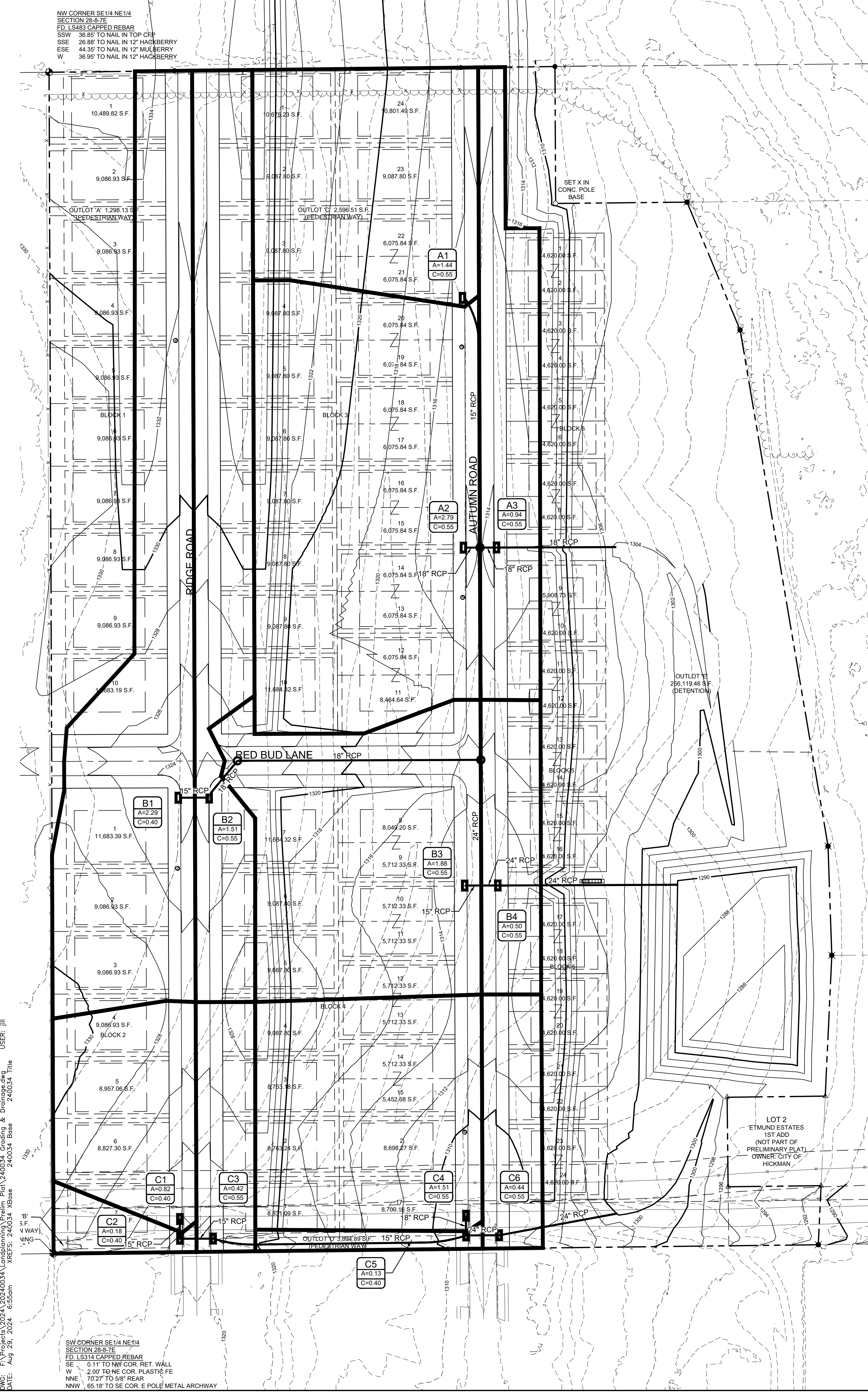
ETMUND ESTATES 2ND ADDITION PRELIMINARY PLAT

Civil Design Group, Inc.
1101 S. G ST., SUITE 200
LINCOLN, NEBRASKA 68512
PH. 402-434-8494 FAX 686-215-8747
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CONSULTING ENGINEERS • LAND USE PLANNERS
CIVIL DESIGN • SITE DEVELOPMENT • PLANNING AND ZONING



- GENERAL NOTES**
- ALL ELEVATIONS ARE TO NAVD 88 DATUM.
 - THE MAXIMUM GRADE FOR PEDESTRIAN SIDEWALKS WITHIN THIS SUBDIVISION SHALL NOT EXCEED 12:1 SLOPE (8.33%) WITH A 5' LONG FLAT AREA (50:1 SLOPE) FOR EVERY 30 INCHES OF VERTICAL DROP. HAND RAILS WILL BE PROVIDED ON BOTH SIDES OF THE PEDESTRIAN SIDEWALK WHEN THE SLOPE EXCEEDS A 20:1 SLOPE (5.0%).
 - OUTLET VELOCITIES FOR ALL AREAS WILL BE CONTROLLED WITH RIP-RAP SUFFICIENT TO PREVENT EROSION AT DISCHARGE POINTS. SIZE AND LOCATION OF RIP-RAP WILL BE DETERMINED DURING FINAL DESIGN.



PRELIMINARY PIPE SIZING CALCULATIONS

Location	Area A (acres)	Coefficient C	Minor Storm System Conveyance Analysis					Major Storm System Conveyance Analysis										Comments						
			A ² C	Sum A ² C	Time of Conc. (min.)	Intensity (in/hr)	Runoff Q (cfs)	Pipe Slope (ft/ft)	Pipe Length (ft)	Pipe Diameter (in.)	Pipe Capacity (cfs)	Pipe Velocity (fps)	Travel Time (min.)	I ₁₀₀ (in/hr)	Frequency Factor C _f	Runoff Q ₁₀₀ (in/hr)	Overflow Route Slope (ft/ft)		Conveyance Constant (K)	Capacity (cfs)	Conveyance Constant (K)	Capacity (cfs)	Overflow plus pipe capacity (cfs)	
A1	1.44	0.55	0.79	0.79	8.00	5.58	4.42	0.010	282.22	15	6.36	5.18	0.91	9.96	1.25	9.96	0.005	620	43.84	0	0.00	50.20		
A2	2.79	0.55	1.53	1.53	8.91	5.58	8.56	0.031	16.00	18	11.74	6.65	0.04	9.96	1.25	19.10	0.250	0	0.00	780	390.00	401.74		
MH	0.00	0.00	2.33	2.33	8.00	5.58	12.98	0.031	16.00	18	18.58	10.52	0.03	9.96	1.25	28.96	-	-	-	-	-	-	-	
A3	0.94	0.55	0.52	2.84	8.03	5.58	15.87	0.037	136.13	18	20.12	11.39	0.20	9.96	1.25	35.40	0.250	0	0.00	780	390.00	410.12	Outfall to Pond	
B1	2.29	0.40	0.92	0.92	8.00	5.58	5.11	0.008	32.00	15	5.71	4.65	0.11	9.96	1.25	11.40	0.030	620	107.39	0	0.00	113.09		
B2	1.51	0.55	0.83	1.75	8.11	5.58	9.75	0.015	51.86	18	12.65	7.16	0.12	9.96	1.25	21.74	0.030	620	107.39	0	0.00	120.04		
MH	0.00	0.00	2.66	2.66	8.00	5.58	14.86	0.029	271.88	18	18.01	10.19	0.44	9.96	1.25	33.15	-	-	-	-	-	-	-	
MH	0.00	0.00	2.66	2.66	8.00	5.58	14.86	0.018	140.45	24	30.18	9.81	0.24	9.96	1.25	33.15	-	-	-	-	-	-	-	
B3	1.88	0.55	1.03	1.03	8.00	5.58	5.77	0.016	16.00	15	8.07	6.57	0.04	9.96	1.25	12.87	0.250	0	0.00	780	390.00	398.07		
MH	0.00	0.00	3.70	3.70	8.00	5.58	20.63	0.031	16.00	24	40.02	12.74	0.02	9.96	1.25	46.02	-	-	-	-	-	-	-	
B4	0.50	0.55	0.28	3.97	8.02	5.58	22.16	0.071	191.35	24	60.11	19.13	0.17	9.96	1.25	49.45	0.250	0	0.00	780	390.00	450.11	Outfall to Pond	
C1	0.82	0.40	0.33	0.33	8.00	9.96	3.27	0.011	22.00	15	6.90	5.62	0.07	9.96	1.25	4.08	0.050	620	138.64	0	0.00	145.63	Basin C to capture and pipe 100-year event	
C2	0.18	0.40	0.07	0.40	8.07	9.96	3.98	0.007	37.15	15	5.29	4.31	0.14	9.96	1.25	4.98	0.050	620	138.64	0	0.00	143.92	Basin C to capture and pipe 100-year event	
C3	0.42	0.55	0.23	0.63	8.14	9.96	6.28	0.048	23.34	15	14.09	11.48	0.03	9.96	1.25	7.86	0.050	620	138.64	0	0.00	152.73	Basin C to capture and pipe 100-year event	
C4	1.51	0.55	0.83	0.83	8.00	9.96	8.27	0.011	22.00	18	11.22	6.35	0.06	9.96	1.25	10.34	0.110	620	205.63	0	0.00	216.85	Basin C to capture and pipe 100-year event	
C5	0.13	0.40	0.05	1.51	8.06	9.96	15.07	0.015	37.15	24	27.52	8.76	0.07	9.96	1.25	18.84	0.110	620	205.63	0	0.00	233.15	Basin C to capture and pipe 100-year event	
C6	0.44	0.55	0.24	1.76	8.07	9.96	17.48	0.022	133.72	24	33.63	10.70	0.21	9.96	1.25	21.86	0.110	620	205.63	0	0.00	239.26	Outfall to Pond. Capturing 100 year event.	

REVISIONS

NO.	DATE	DESCRIPTION

POST-DEVELOPED DRAINAGE TABLES & SCHEMATICS

ETMUND ESTATES 2ND ADDITION
PRELIMINARY PLAT

HICKMAN, NEBRASKA

drawn by: JDS
checked by: JDC
approved by: JDC
project no.: 2024-0034
drawing no.:
date: 08/27/2024

SHEET
5 OF 7

DRAINAGE REPORT
FOR
Etmund Estates 2nd Addition

Lancaster County, Hickman, Nebraska

Prepared for:

SWG4, LLC
819 'O' Street
Lincoln, Nebraska 68508

Prepared by:

Civil Design Group, Inc.
8535 Executive Woods Drive
Lincoln, NE 68512

CDG Project Number: 2024-0034

August 2024



Procedure

The following is a study of storm water runoff, and detention for the proposed development, Etmund Estates. The proposed development consists of approximately 24 acres of single-family and townhome residential lots and is generally located north of Woodland Blvd. and Ridge Road, west of S. 68th Street in Hickman, Nebraska.

Storm water discharge for the site was analyzed under pre-developed and post-developed conditions using the SCS Unity Hydrograph Method and HydraflowTM Hydrographs computer modeling software.

The existing soil types for the site were investigated using the National Cooperative Soil Survey Web Soil Survey. The soils identified are listed in Table 1.

Soil Name	Hydrologic Soil Group
Mayberry silty clay loam (3% to 6%)	D
Judson silt loam (2% to 6%)	C
Wymore silty clay loam (1% to 3% eroded)	D
Wymore silty clay loam (3% to 6% eroded)	D

Table 1, Soil Types

Weighted curve numbers were calculated for pre-developed and post-developed conditions using TR-55¹ based on soil type and land use. Worksheets for weighted curve numbers are provided in this report.

Time of concentration calculations were performed using HydraflowTM Hydrographs computer modeling software. This software is based on TR-55¹ which divides the flow pattern into sheet flow, shallow concentrated flow and channel flow. All post-developed basins routed the 100-year event through the basin as overland flow. A minimum time of concentration 8 minutes was used for some smaller sub-basins. All other sub-basins had a time of concentration greater than 8 minutes as determined using the methodology outlined above.

Pre-Developed Run-Off Conditions

The site has four existing drainage basins that generally drain from the west to the east through a series of farm terraces and overland flow until it discharges into an existing drainageway located west of S. 68th Street, on Etmund Estates Lot 2, which is also owned by the developer. This property currently has a private gravel roadway that will be removed from the 48" culvert crossing to the west property line.

Basin A1 is the only portion of the property that drains west and consists of contoured and terraced crop. This basin discharges as sheet flow across the property line and eventually to an existing pond on the neighboring property.

Basins B1, C1 and D1 all discharge along the eastern property line and could have been studied all as one basin. We broke them out separately because Basin B1 has more of a defined discharge point due to the series of terraces upstream, while C1 and D1 discharge as sheet flow.

Due to sheet flow conditions across the property line, choosing an analysis point was difficult due to an undefined discharge point. Ultimately, we chose to separate the basins into north, middle and southern portions to better understand the discharge along the east property line.

Basin B1 is the largest and comprises most of the site. This basin generally drains to the east through a series of terraces and consists of contoured and terrace crop.

Basin C1 is in the northeast portion of the site and consists of contoured and terraced crops. This basin discharges across the east property line as sheet flow.

Basin D1 is in the southern portion of the site and consists of contoured and terraced crops as well as the private gravel road. The north and south ditch of the road generally discharges at the same location, so we chose the east property line as an analysis point for this basin.

There is no floodplain located on the property.

Post-Developed Run-Off Conditions

For post-developed conditions, the site has an added basin along the south property line, as explained below. The analysis points for the basins remained generally the same. Basins A, C and D all maintained the same location as they all discharge as sheet flow across the property line. Basin B1's analysis point changed slightly, as described below. Since most of the basins discharge as sheet flow, the property lines were used as points of analysis between pre and post-developed flows for the 2yr, 10yr, and 100yr rainfall events.

Basin A1 shrunk in size in order to reduce the sheet flow across the west property line.

Basin B1 has a detention cell that all stormwater will be routed to and because of this, the basin area is larger. The location of discharge for the pond is south of the discharge point for pre-developed conditions. This is because the developer of Etmund Estates also owns Etmund Estates Lot 2, which is on the corner of S. 68th Street and the private gravel road. Since it's the same owner, we wanted to discharge the pond onto their property and remove the point discharge from the neighbor to the north, thus reducing the impacts to

that property. The location we are discharging the pond onto Lot 2 is located west of the drainageway in Lot 2 and is undevelopable property. There are portions of Ridge Road and Autumn Road that will drain to the south towards the existing neighborhood. In order to not increase the runoff onto them, storm sewer will be designed and installed south of the high points in these roads to collect the 100-year event and pipe it to the detention cell.

Basin C1 was reduced in size from the pre-developed conditions and discharges the rear of the townhome lots on the east side of Ridge Road as well as the green space behind the lots. This area will continue to sheet flow to the east property line in the northeast portion of the site.

Basin D1 now only includes the green space in the southeastern portion of the site that won't be routed to the detention cell. This basin was reduced in size from pre-developed conditions. This area will continue to discharge as sheet flow at the east property line prior to entering the drainageway on Lot 2.

We had to add a drainage basin, E1 for post-developed conditions to account for a small area along the southern boundary that will drain south into the existing neighborhood. Even though we added storm sewer to collect the 100-year event prior to discharge into the existing neighborhood, there is a small area south of where we can physically locate the inlets that will not be collected. A small ditch was added to the north side of the sidewalk on the west side of Ridge Road to force the water from the west towards our proposed inlets as this area would have had the most impact to the existing lots south of the development. We wanted to quantify this small amount of water since it is draining into a built environment. As you will see below, the amount of water is minimal, and we don't believe this will have an adverse impact downstream.

Table 2 is a summary of the pre- and post-developed stormwater runoff calculations.

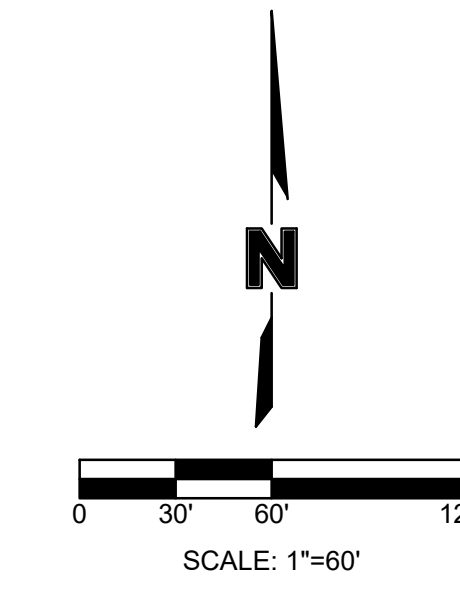
DRAINAGE BASIN SUMMARY						
BASIN ID	2 YR - PEAK FLOW		10 YR - PEAK FLOW		100 YR - PEAK FLOW	
	PRE	POST	PRE	POST	PRE	POST
	(CFS)	(CFS)	(CFS)	(CFS)	(CFS)	(CFS)
A1	5.51	3.79	10.29	6.43	20.22	11.67
B1	25.36	7.10	48.01	19.41	95.18	49.78
C1	9.70	7.25	18.12	13.32	35.60	25.81
D1	11.15	1.38	19.23	2.62	35.33	5.23
E1	NA	0.55	NA	0.94	NA	1.71

Table 2, Basin Summary

For additional information reference the Hydraflow™ Hydrographs models for the pre- and post-developed conditions.

PRE-DEVELOPED DRAINAGE CONDITIONS

ETMUND ESTATES 2ND ADDITION PRELIMINARY PLAT



Pre-Developed Weighted Curve Numbers

Basin	Cover Description	Cover Description	Hydrologic Condition	Hydrologic Soil Group	Area (acres)	Curve Number	Weighted CN
A1	Contoured & Terraced	n/a	Good	A			
				B			
				C		81	
				D	2.47		
				Total	2.47		81
Overall Weighted CN = 81							

Basin	Cover Description	Cover Description	Hydrologic Condition	Hydrologic Soil Group	Area (acres)	Curve Number	Weighted CN
B1	Contoured & Terraced	n/a	Good	A			
				B			
				C		81	
				D	14.21		
				Total	14.21		81
Overall Weighted CN = 81							

Basin	Cover Description	Cover Description	Hydrologic Condition	Hydrologic Soil Group	Area (acres)	Curve Number	Weighted CN
C1	Contoured & Terraced	n/a	Good	A			
				B			
				C	4.35	81	
				D			
				Total	4.35		81
Overall Weighted CN = 81							

Basin	Cover Description	Cover Description	Hydrologic Condition	Hydrologic Soil Group	Area (acres)	Curve Number	Weighted CN
D1	Contoured & Terraced	n/a	Good	A			
				B			
				C		81	
				D	2.01		
				Total	2.01		81
Gravel (including right-of-way)			Good	A			
				B			
				C			
				D	1.98	91	
				Total	1.98		91
Overall Weighted CN = 86							

Pre-Developed TC Calculations

Sub-Basin	Length	E _i	E _o	Slope	TC (min)	Description
A1	N/A	N/A	N/A	N/A	8.00	Basin is small, user input of 8 min. was used

Sub-Basin	Length	E _i	E _o	Slope	TC (min)	Description
B1	100.00	1,335.00	1,331.71	3.290%	3.97	Sheet Flow
	737.00	1,331.71	1,324.43	0.988%	7.66	Shallow Concentrated Flow
	200.02	1,324.43	1,313.41	5.509%	0.53	Shallow Concentrated Flow
	416.20	1,313.41	1,292.53	5.017%	1.92	Shallow Concentrated Flow
	1,037.02			1.019%	14.08	Overall

Sub-Basin	Length	E _i	E _o	Slope	TC (min)	Description
C1	N/A	N/A	N/A	N/A	8.00	Basin is small, user input of 8 min. was used

Sub-Basin	Length	E _i	E _o	Slope	TC (min)	Description
D1	N/A	N/A	N/A	N/A	8.00	Basin is small, user input of 8 min. was used

LEGEND

- - - 1168 EXISTING MINOR CONTOUR
- - - 1170 EXISTING MAJOR CONTOUR
- — — PROPERTY LINE
- — — PROPOSED DRAINAGE BASIN BOUNDARY
- — — PROPOSED DRAINAGE BASIN
- — — DRAINAGE FLOW PATH

REVISIONS

NO.	DATE	DESCRIPTION

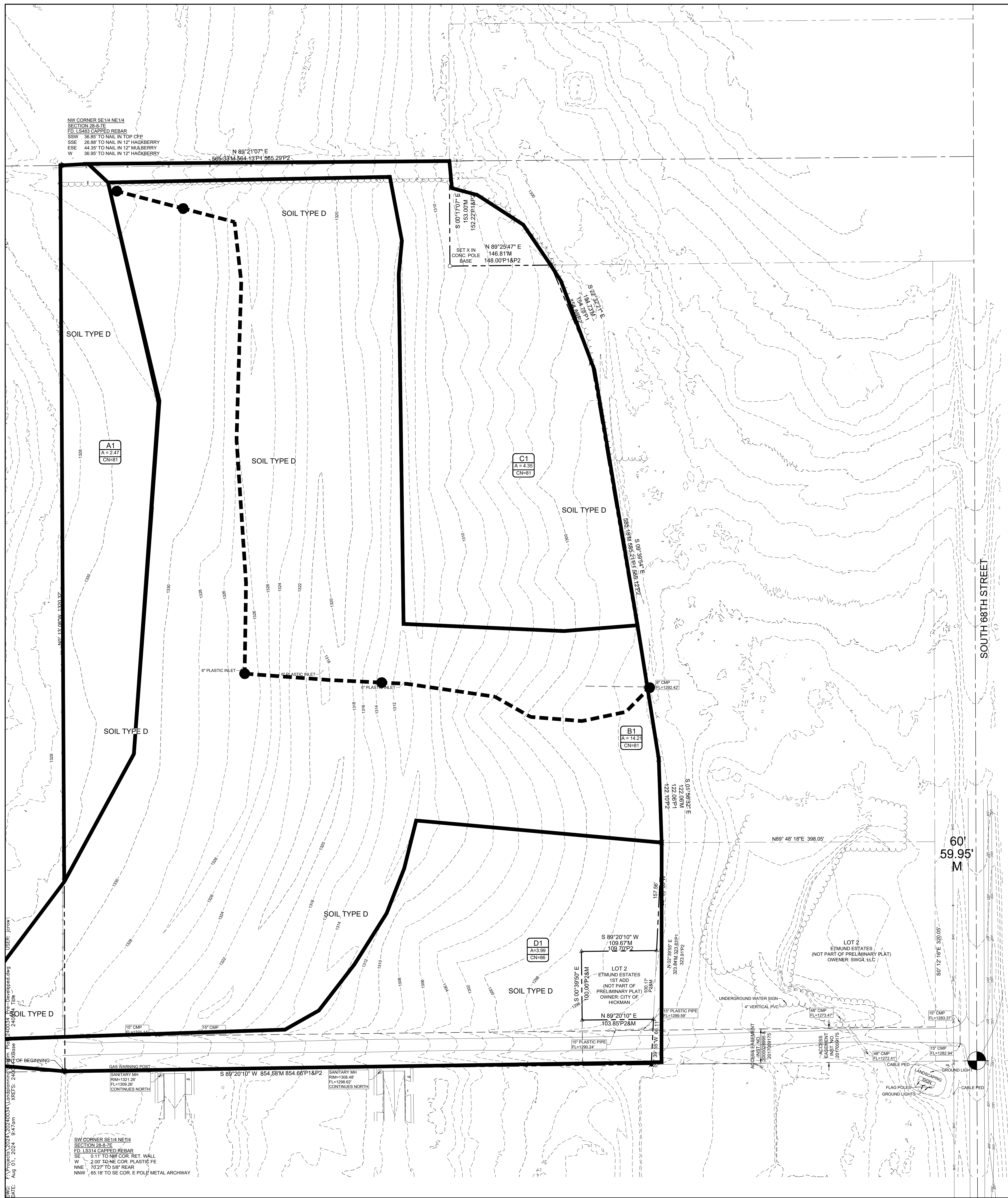
PRE-DEVELOPED DRAINAGE

ETMUND ESTATES 2ND ADDITION
PRELIMINARY PLAT

2024

HICKMAN, NEBRASKA

drawn by: JDS
checked by: JDC
approved by: JDC
project no.: 2024-0034
drawing no.:
date: 08/01/2024



NW CORNER SE1/4 NE1/4
SECTION 28-3-7E
FOLIATED CAPPED REBAR
SSW 36.85' TO NAIL IN TOP C/P
SSE 28.85' TO NAIL IN 12" HACKBERRY
ESE 44.35' TO NAIL IN 12" MULBERRY
W 36.85' TO NAIL IN 12" HACKBERRY

N 89° 21' 07" E
605.43' M 564.19' P1 565.20' P2

SOIL TYPE D

S 00° 17' 07" E
153.00' M
152.22' P1&P2

SET X IN
CONC POLE
BASE
N 89° 25' 47" E
146.81' M
148.00' P1&P2

SOIL TYPE D

A1
A=2.47
CN=81

SOIL TYPE D

C1
A=4.35
CN=81

SOIL TYPE D

B1
A=14.21
CN=81

SOIL TYPE D

SOIL TYPE D

D1
A=3.99
CN=86

LOT 2
ETMUND ESTATES
1ST ADD
(NOT PART OF
PRELIMINARY PLAT)
OWNER: CITY OF
HICKMAN

100.00' P&M

N 89° 20' 10" E
103.55' P&M

S 89° 20' 10" W
109.67' M
108.70' P2

N 07° 39' 52" E
122.00' M
122.00' P2

S 01° 46' 32" E
122.00' M
122.00' P2

N 89° 20' 10" E
103.55' P&M

S 89° 20' 10" W
854.58' M 854.65' P1&P2

N 07° 39' 52" E
122.00' M
122.00' P2

S 01° 46' 32" E
122.00' M
122.00' P2

N 89° 20' 10" E
103.55' P&M

N 89° 48' 18" E 398.05'

60'
59.95'
M

LOT 2
ETMUND ESTATES
(NOT PART OF
PRELIMINARY PLAT)
OWNER: SWGA, LLC

100.00' P&M

N 89° 20' 10" E
103.55' P&M

S 89° 20' 10" W
109.67' M
108.70' P2

N 07° 39' 52" E
122.00' M
122.00' P2

S 01° 46' 32" E
122.00' M
122.00' P2

N 89° 20' 10" E
103.55' P&M

S 89° 20' 10" W
854.58' M 854.65' P1&P2

N 07° 39' 52" E
122.00' M
122.00' P2

S 01° 46' 32" E
122.00' M
122.00' P2

N 89° 20' 10" E
103.55' P&M

SW CORNER SE1/4 NE1/4
SECTION 28-3-7E
FOLIATED CAPPED REBAR
S 0.11' TO NW COR RET. WALL
W 2.00' TO CONC CORR PLASTIC PIE
NNE 70.27' TO 58" REAR
NNW 66.18' TO SE COR. E POLE METAL ARCHWAY

SANITARY MH
RIM=131.28'
FL=130.28'
CONTINUES NORTH

SANITARY MH
RIM=130.48'
FL=129.62'
CONTINUES NORTH

15" PLASTIC PIPE
FL=129.24'

15" PLASTIC PIPE
FL=128.92'

15" PLASTIC PIPE
FL=127.47'

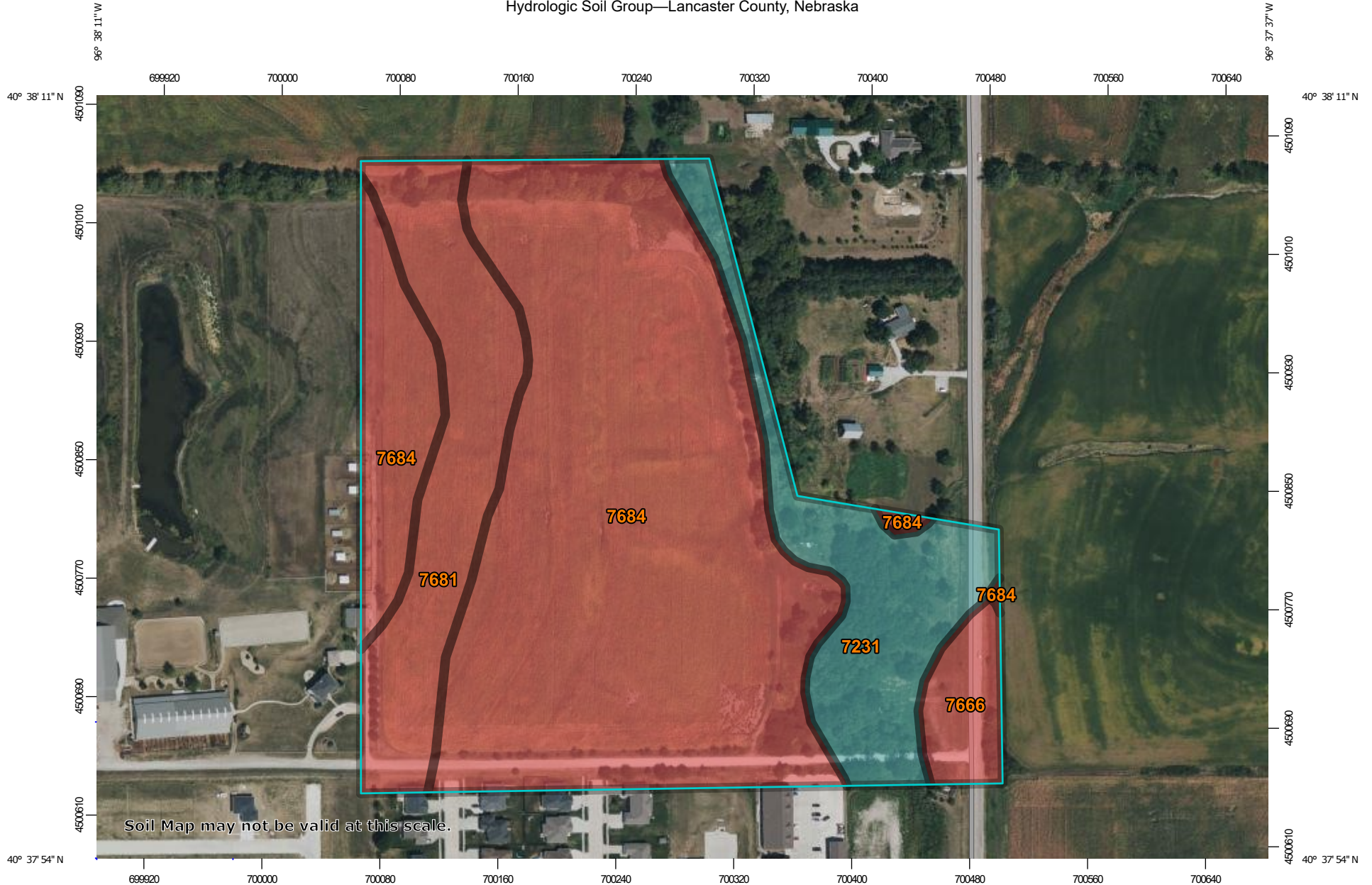
15" PLASTIC PIPE
FL=126.94'

15" PLASTIC PIPE
FL=125.41'

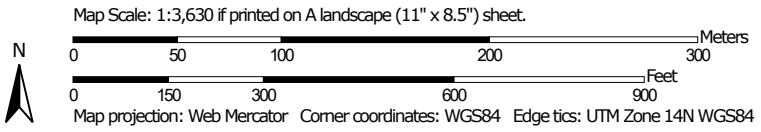
15" PLASTIC PIPE
FL=123.94'

15" PLASTIC PIPE
FL=122.41'

Hydrologic Soil Group—Lancaster County, Nebraska



Soil Map may not be valid at this scale.



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons





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

Soil Rating Lines


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

Soil Rating Points

 A
 A/D
 B
 B/D

 C
 C/D
 D
 Not rated or not available

Water Features

 Streams and Canals

Transportation

 Rails
 Interstate Highways
 US Routes
 Major Roads
 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

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: Lancaster County, Nebraska
 Survey Area Data: Version 28, Sep 6, 2023

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

Date(s) aerial images were photographed: Aug 21, 2021—Aug 28, 2021

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.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
7231	Judson silt loam, 2 to 6 percent slopes	C	5.2	14.4%
7666	Mayberry silty clay loam, 3 to 6 percent slopes, eroded	D	1.4	3.9%
7681	Wymore silty clay loam, 1 to 3 percent slopes	D	5.8	16.1%
7684	Wymore silty clay loam, 3 to 6 percent slopes, eroded	D	23.5	65.6%
Totals for Area of Interest			35.9	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Watershed Model Schematic

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022



Legend

<u>Hyd. Origin</u>	<u>Description</u>
1	SCS Runoff A1
2	SCS Runoff B1
3	SCS Runoff C1
4	SCS Runoff D1

Hydrograph Return Period Recap

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

Hyd. No.	Hydrograph type (origin)	Inflow hyd(s)	Peak Outflow (cfs)								Hydrograph Description
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
1	SCS Runoff	-----	-----	5.507	-----	7.965	10.29	13.87	16.94	20.22	A1
2	SCS Runoff	-----	-----	25.36	-----	37.03	48.01	65.02	79.57	95.18	B1
3	SCS Runoff	-----	-----	9.699	-----	14.03	18.12	24.44	29.83	35.60	C1
4	SCS Runoff	-----	-----	11.15	-----	15.37	19.23	25.10	30.05	35.33	D1

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

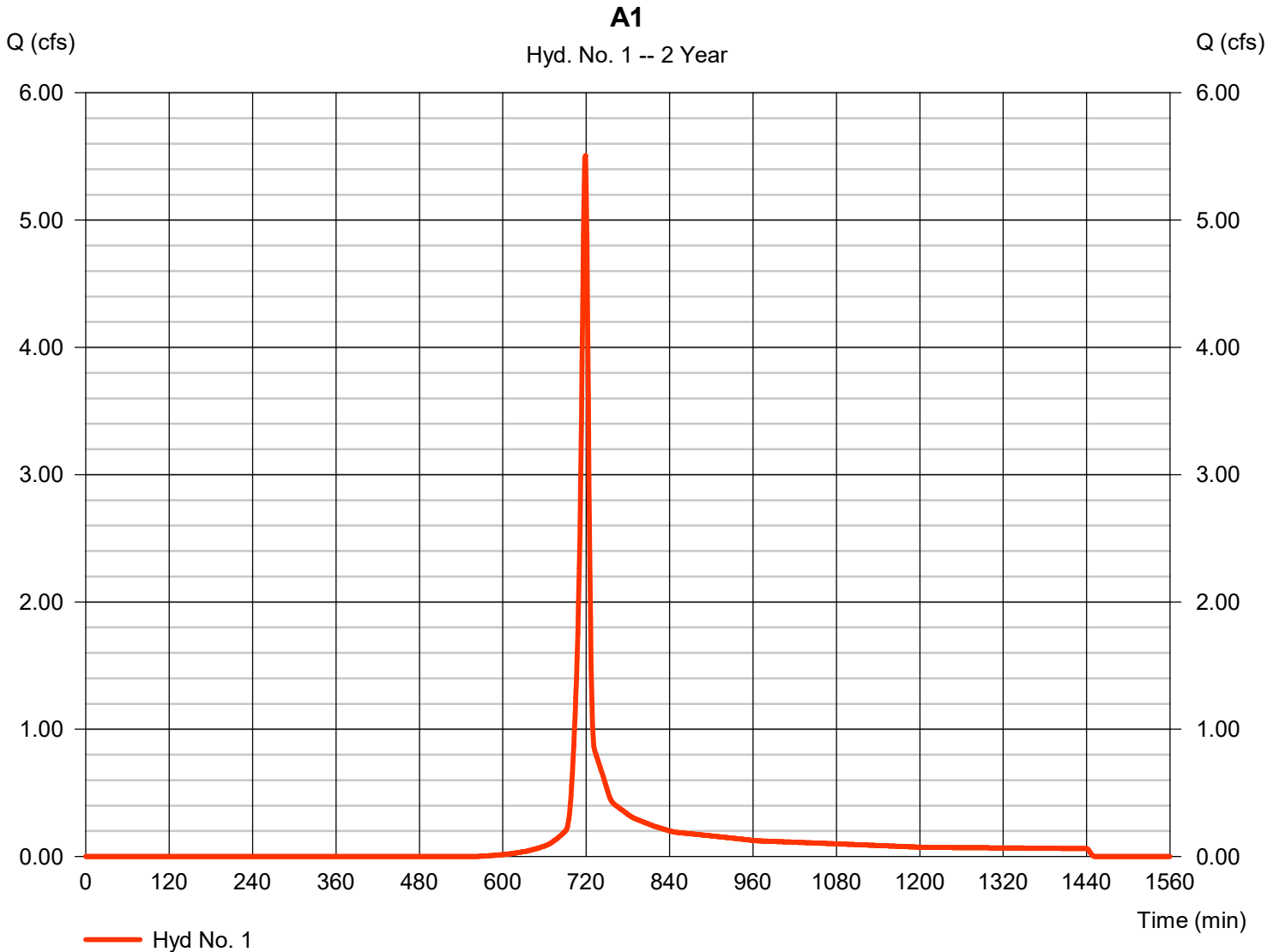
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	5.507	1	719	11,617	-----	-----	-----	A1
2	SCS Runoff	25.36	1	722	68,547	-----	-----	-----	B1
3	SCS Runoff	9.699	1	719	20,459	-----	-----	-----	C1
4	SCS Runoff	11.15	1	718	23,719	-----	-----	-----	D1
PRE- DEV.gpw					Return Period: 2 Year			Friday, 07 / 26 / 2024	

Hydrograph Report

Hyd. No. 1

A1

Hydrograph type	= SCS Runoff	Peak discharge	= 5.507 cfs
Storm frequency	= 2 yrs	Time to peak	= 719 min
Time interval	= 1 min	Hyd. volume	= 11,617 cuft
Drainage area	= 2.470 ac	Curve number	= 81
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 8.00 min
Total precip.	= 3.02 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

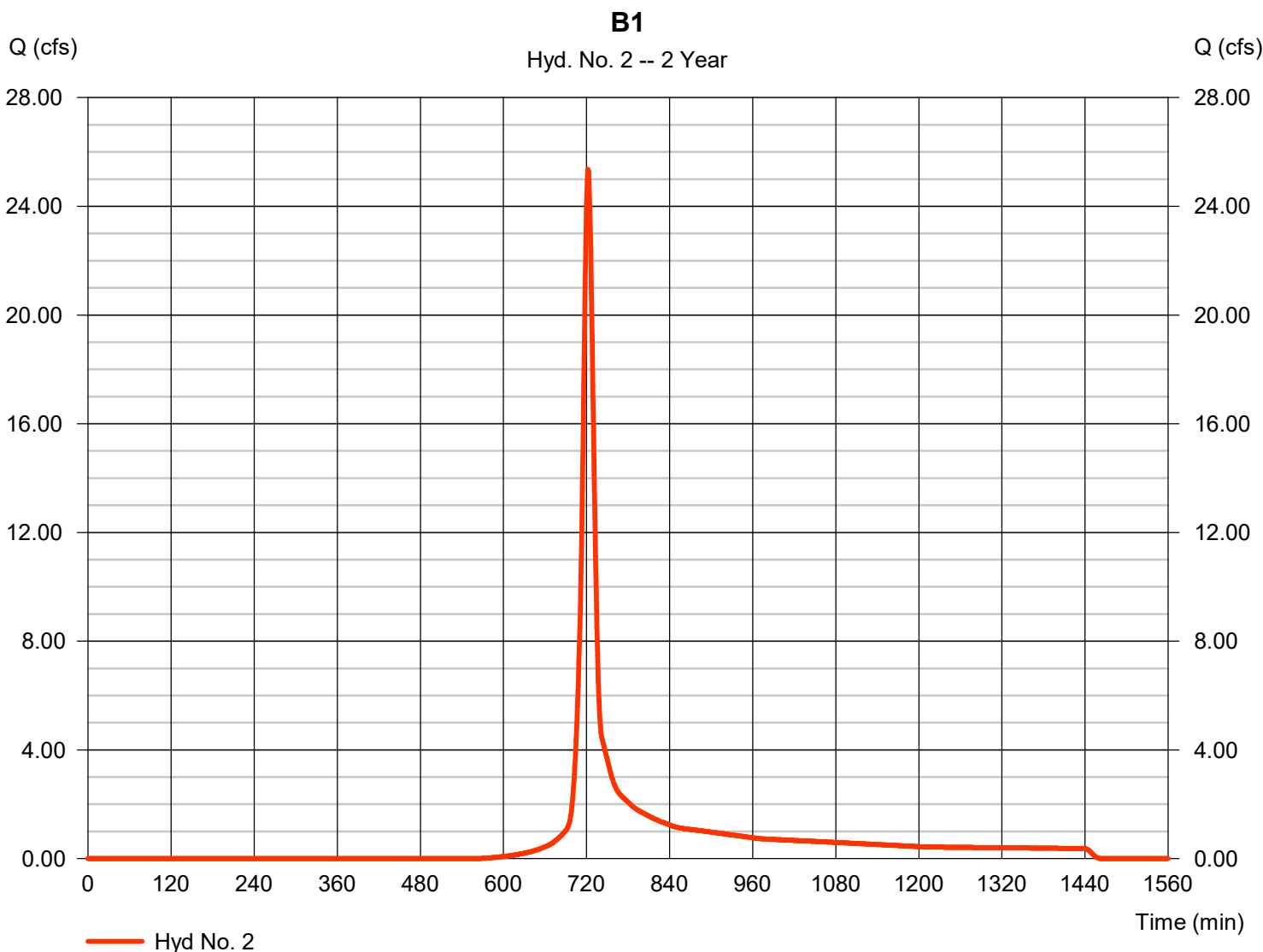
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

Friday, 07 / 26 / 2024

Hyd. No. 2

B1

Hydrograph type	= SCS Runoff	Peak discharge	= 25.36 cfs
Storm frequency	= 2 yrs	Time to peak	= 722 min
Time interval	= 1 min	Hyd. volume	= 68,547 cuft
Drainage area	= 14.210 ac	Curve number	= 81
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 14.10 min
Total precip.	= 3.02 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



TR55 Tc Worksheet

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

Hyd. No. 2

B1

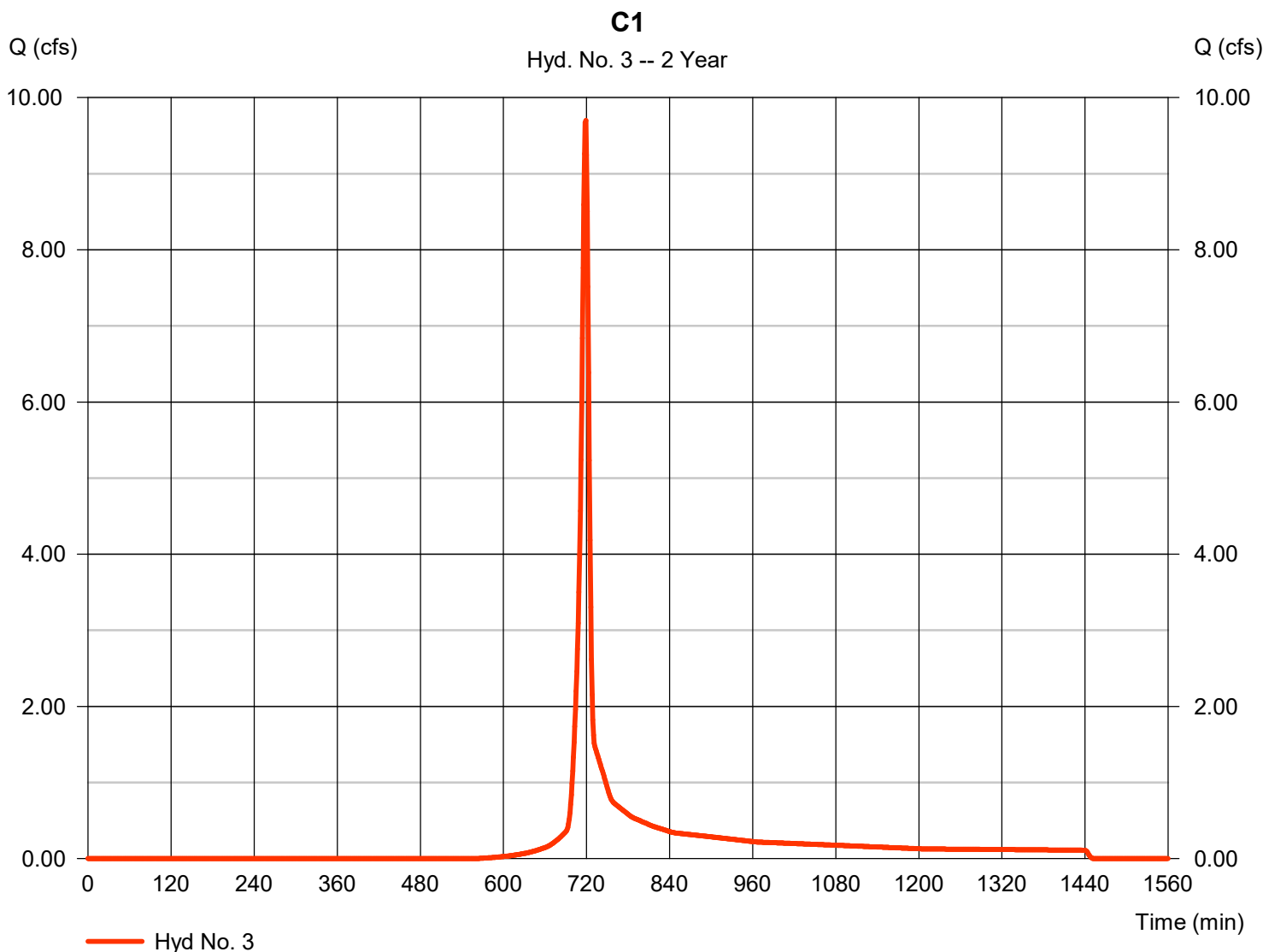
<u>Description</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Totals</u>
Sheet Flow				
Manning's n-value	= 0.060	0.011	0.011	
Flow length (ft)	= 100.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 3.02	3.02	0.00	
Land slope (%)	= 3.29	0.00	0.00	
Travel Time (min)	= 3.97	+ 0.00	+ 0.00	= 3.97
Shallow Concentrated Flow				
Flow length (ft)	= 737.00	121.19	416.20	
Watercourse slope (%)	= 0.99	5.51	5.02	
Surface description	= Unpaved	Unpaved	Unpaved	
Average velocity (ft/s)	=1.60	3.79	3.61	
Travel Time (min)	= 7.66	+ 0.53	+ 1.92	= 10.11
Channel Flow				
X sectional flow area (sqft)	= 0.00	0.00	0.00	
Wetted perimeter (ft)	= 0.00	0.00	0.00	
Channel slope (%)	= 0.00	0.00	0.00	
Manning's n-value	= 0.015	0.015	0.015	
Velocity (ft/s)	=0.00	0.00	0.00	
Flow length (ft)	({0})0.0	0.0	0.0	
Travel Time (min)	= 0.00	+ 0.00	+ 0.00	= 0.00
Total Travel Time, Tc				14.10 min

Hydrograph Report

Hyd. No. 3

C1

Hydrograph type	= SCS Runoff	Peak discharge	= 9.699 cfs
Storm frequency	= 2 yrs	Time to peak	= 719 min
Time interval	= 1 min	Hyd. volume	= 20,459 cuft
Drainage area	= 4.350 ac	Curve number	= 81
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 8.00 min
Total precip.	= 3.02 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

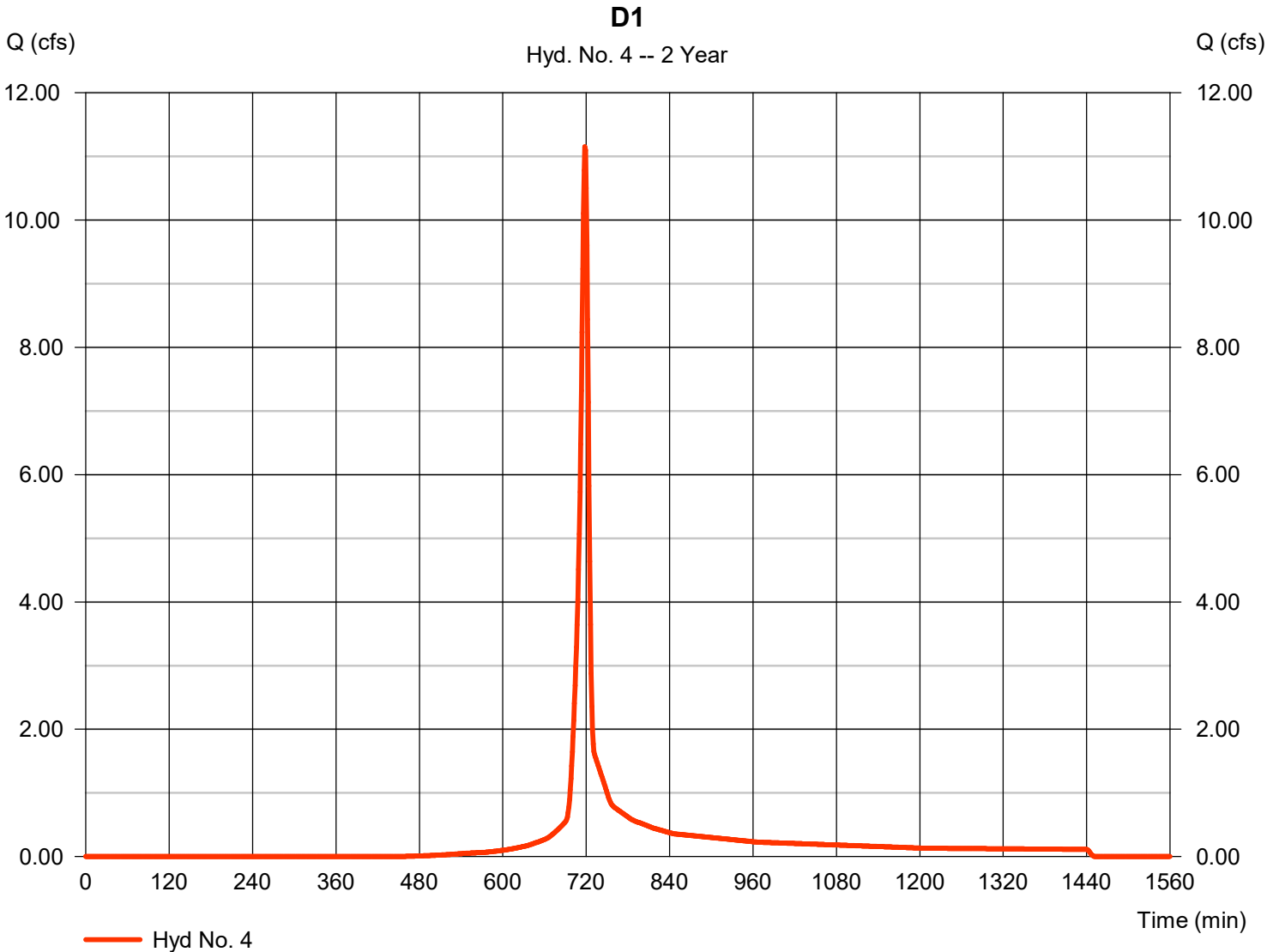


Hydrograph Report

Hyd. No. 4

D1

Hydrograph type	= SCS Runoff	Peak discharge	= 11.15 cfs
Storm frequency	= 2 yrs	Time to peak	= 718 min
Time interval	= 1 min	Hyd. volume	= 23,719 cuft
Drainage area	= 3.990 ac	Curve number	= 86
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 8.00 min
Total precip.	= 3.02 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	10.29	1	718	21,898	----	----	----	A1
2	SCS Runoff	48.01	1	722	129,208	----	----	----	B1
3	SCS Runoff	18.12	1	718	38,565	----	----	----	C1
4	SCS Runoff	19.23	1	718	41,761	----	----	----	D1
PRE- DEV.gpw					Return Period: 10 Year			Friday, 07 / 26 / 2024	

Hydrograph Report

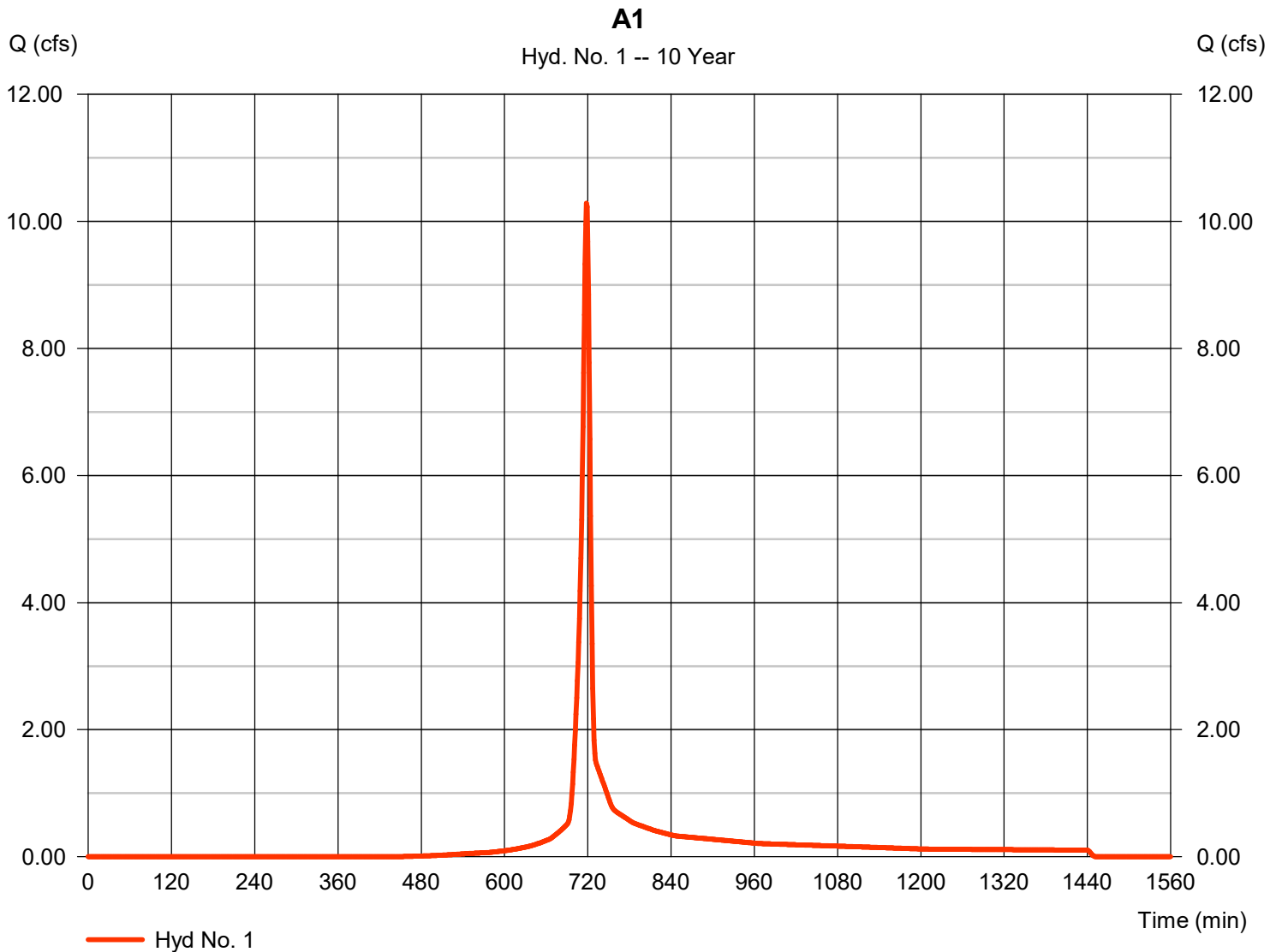
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

Friday, 07 / 26 / 2024

Hyd. No. 1

A1

Hydrograph type	= SCS Runoff	Peak discharge	= 10.29 cfs
Storm frequency	= 10 yrs	Time to peak	= 718 min
Time interval	= 1 min	Hyd. volume	= 21,898 cuft
Drainage area	= 2.470 ac	Curve number	= 81
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 8.00 min
Total precip.	= 4.45 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

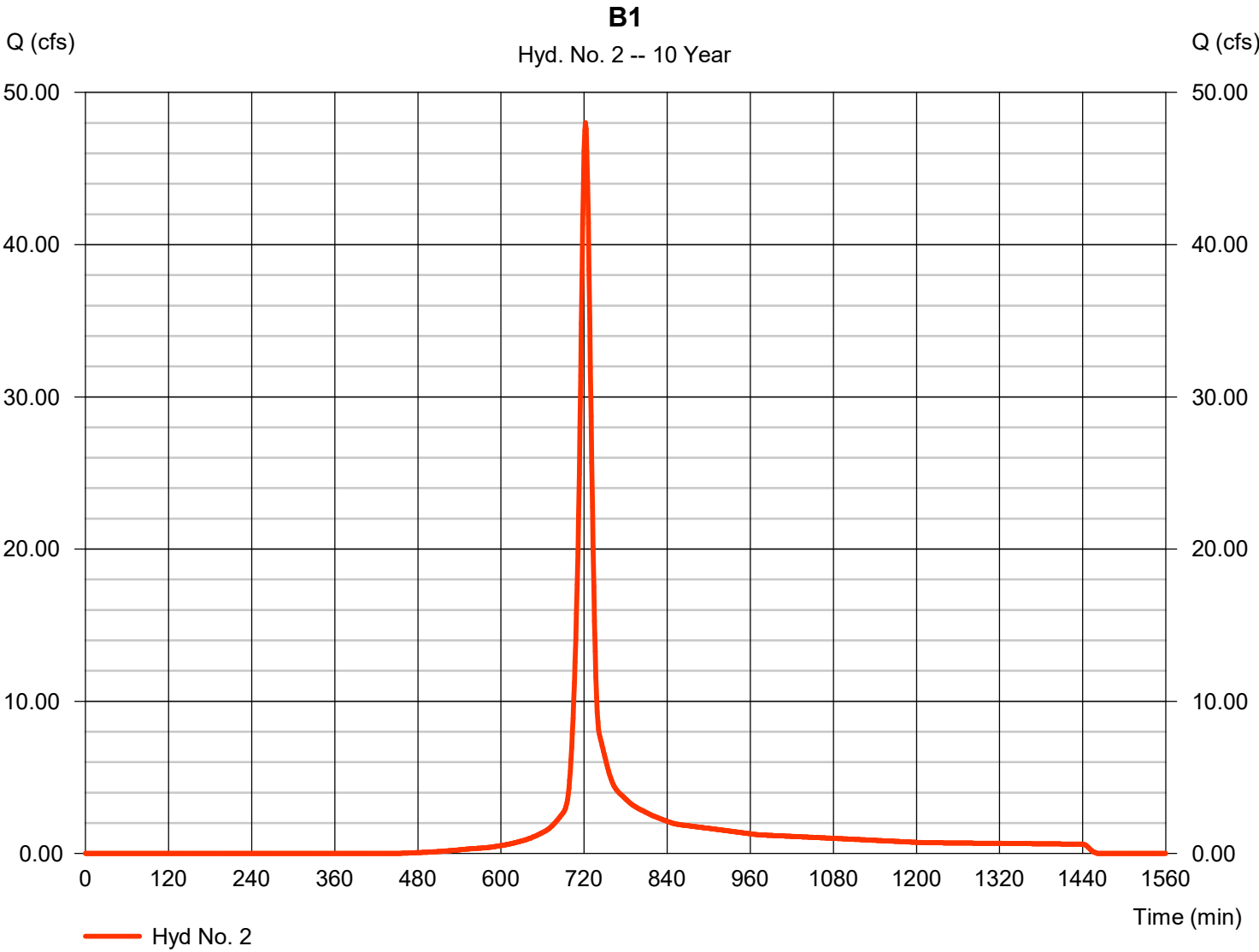


Hydrograph Report

Hyd. No. 2

B1

Hydrograph type	= SCS Runoff	Peak discharge	= 48.01 cfs
Storm frequency	= 10 yrs	Time to peak	= 722 min
Time interval	= 1 min	Hyd. volume	= 129,208 cuft
Drainage area	= 14.210 ac	Curve number	= 81
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 14.10 min
Total precip.	= 4.45 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

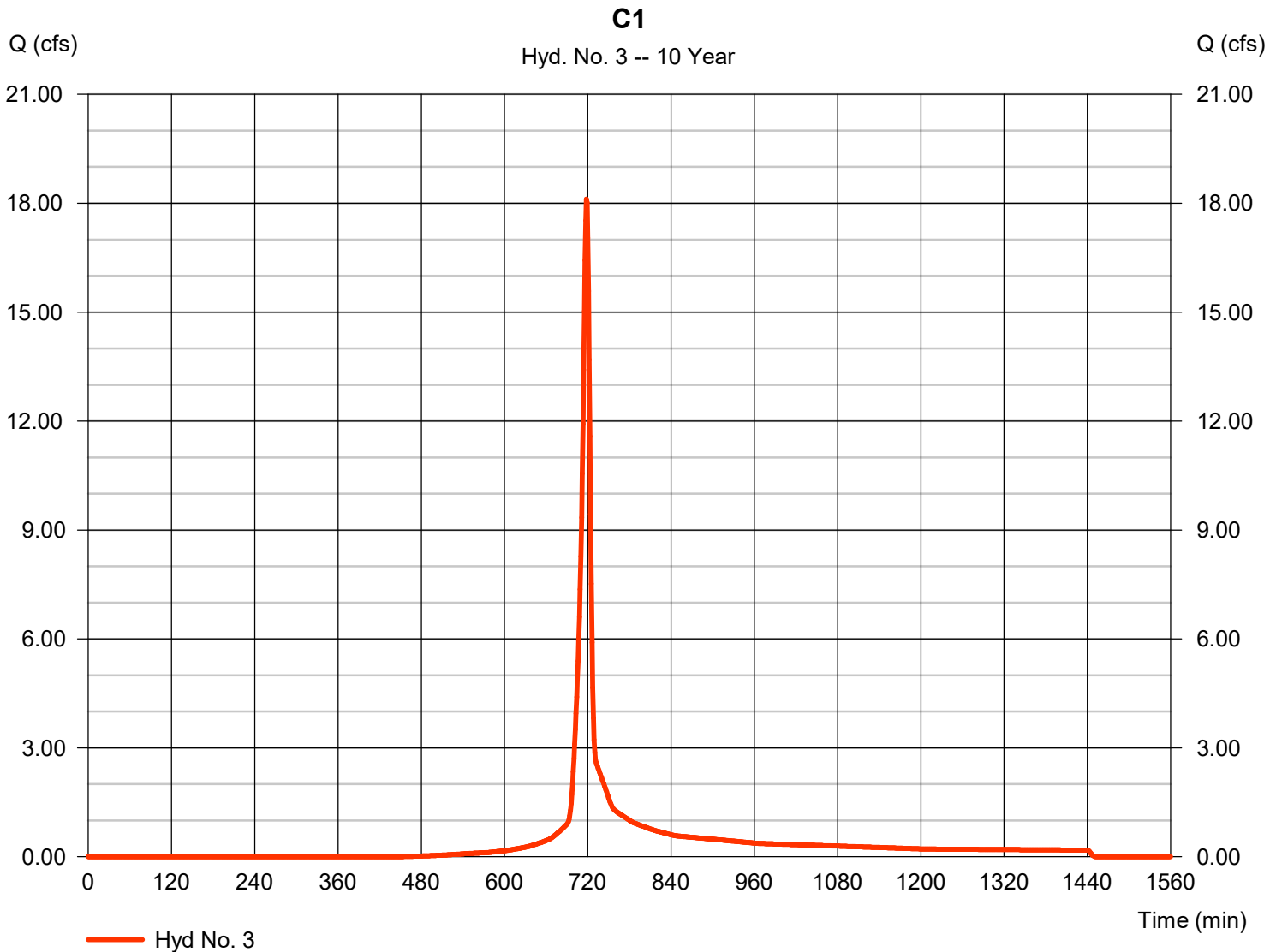
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

Friday, 07 / 26 / 2024

Hyd. No. 3

C1

Hydrograph type	= SCS Runoff	Peak discharge	= 18.12 cfs
Storm frequency	= 10 yrs	Time to peak	= 718 min
Time interval	= 1 min	Hyd. volume	= 38,565 cuft
Drainage area	= 4.350 ac	Curve number	= 81
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 8.00 min
Total precip.	= 4.45 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

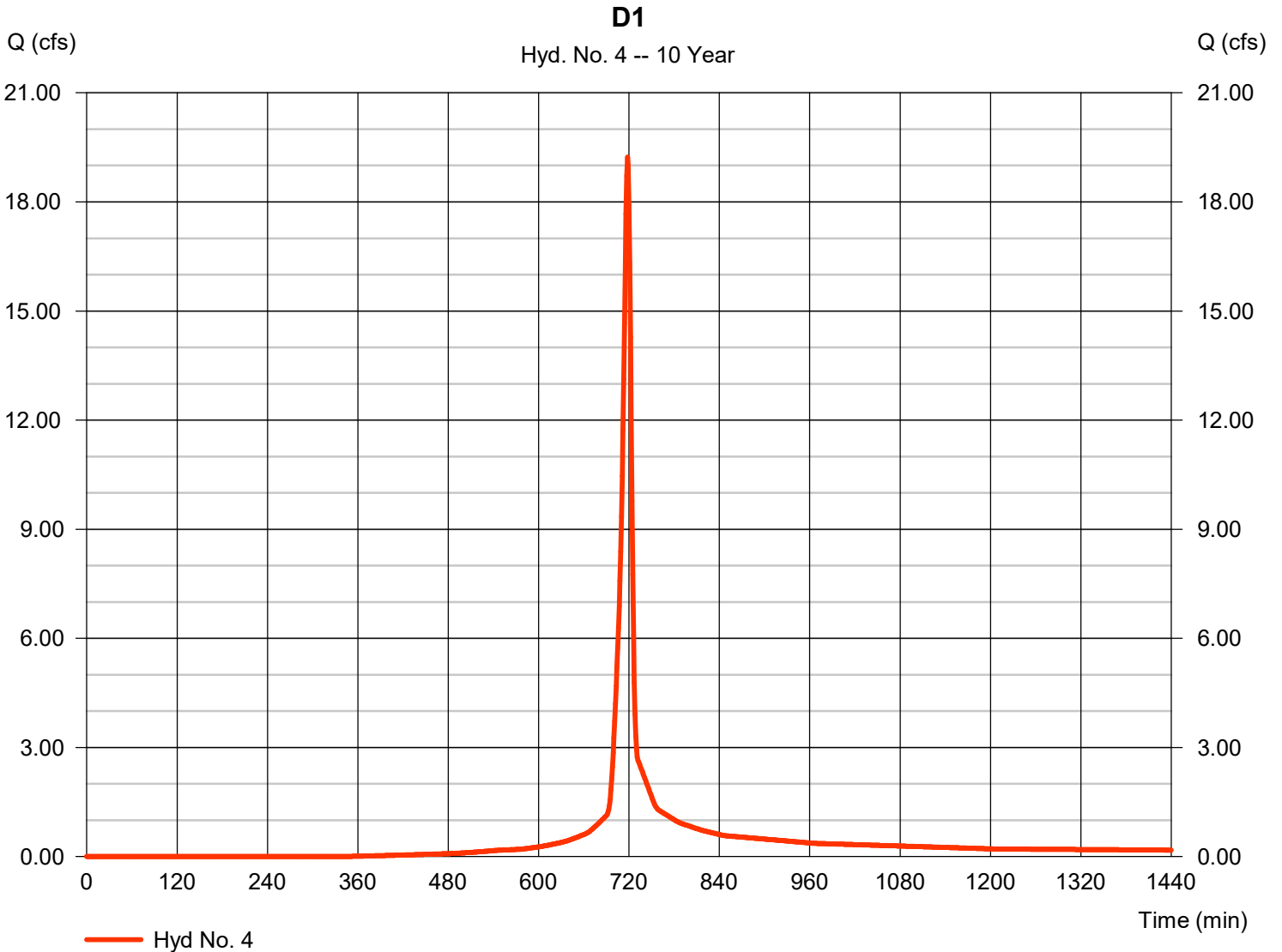
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

Friday, 07 / 26 / 2024

Hyd. No. 4

D1

Hydrograph type	= SCS Runoff	Peak discharge	= 19.23 cfs
Storm frequency	= 10 yrs	Time to peak	= 718 min
Time interval	= 1 min	Hyd. volume	= 41,761 cuft
Drainage area	= 3.990 ac	Curve number	= 86
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 8.00 min
Total precip.	= 4.45 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description	
1	SCS Runoff	20.22	1	718	44,288	-----	-----	-----	A1	
2	SCS Runoff	95.18	1	722	261,321	-----	-----	-----	B1	
3	SCS Runoff	35.60	1	718	77,996	-----	-----	-----	C1	
4	SCS Runoff	35.33	1	718	79,579	-----	-----	-----	D1	
PRE- DEV.gpw					Return Period: 100 Year			Friday, 07 / 26 / 2024		

Hydrograph Report

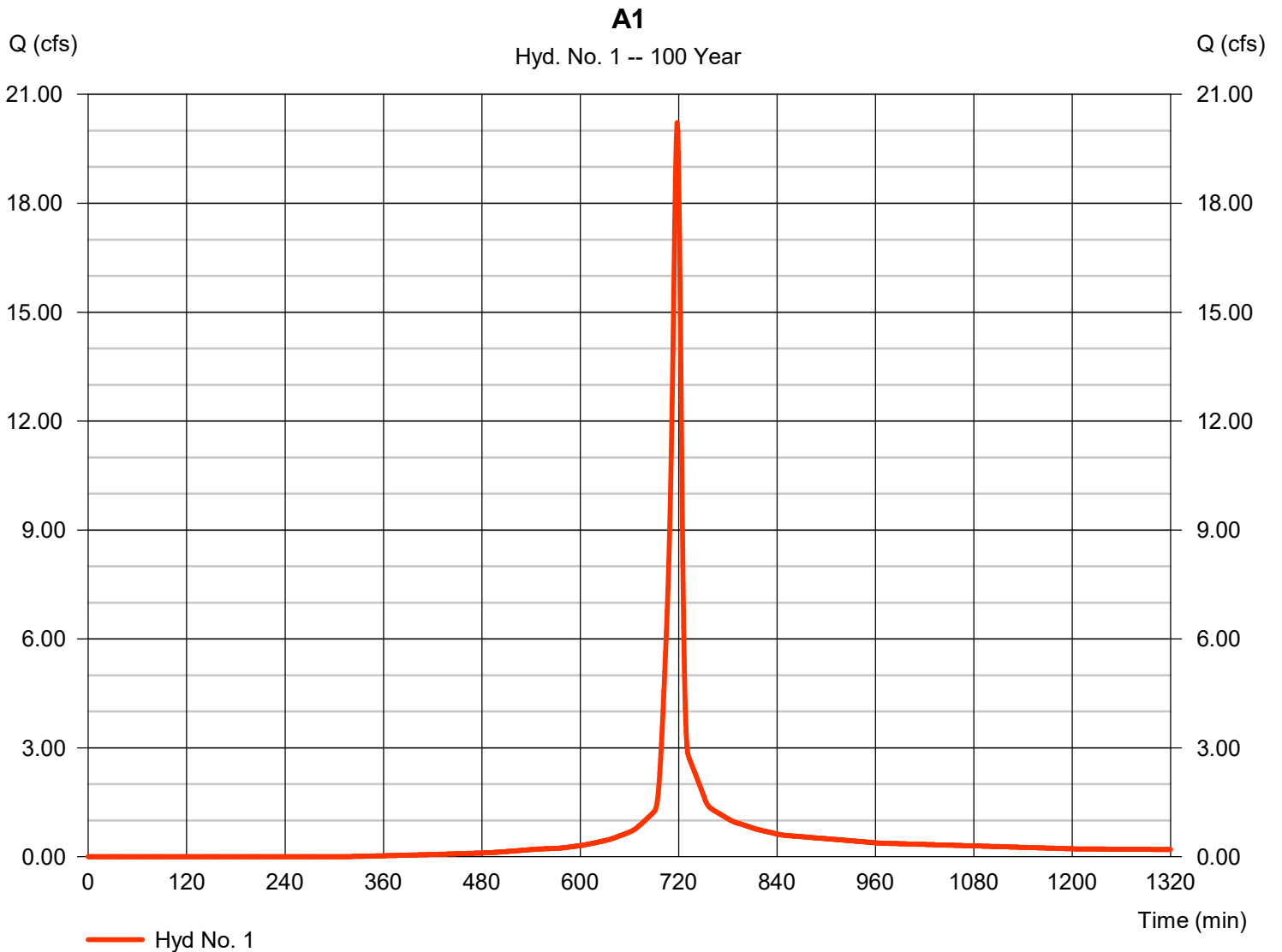
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

Friday, 07 / 26 / 2024

Hyd. No. 1

A1

Hydrograph type	= SCS Runoff	Peak discharge	= 20.22 cfs
Storm frequency	= 100 yrs	Time to peak	= 718 min
Time interval	= 1 min	Hyd. volume	= 44,288 cuft
Drainage area	= 2.470 ac	Curve number	= 81
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 8.00 min
Total precip.	= 7.28 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

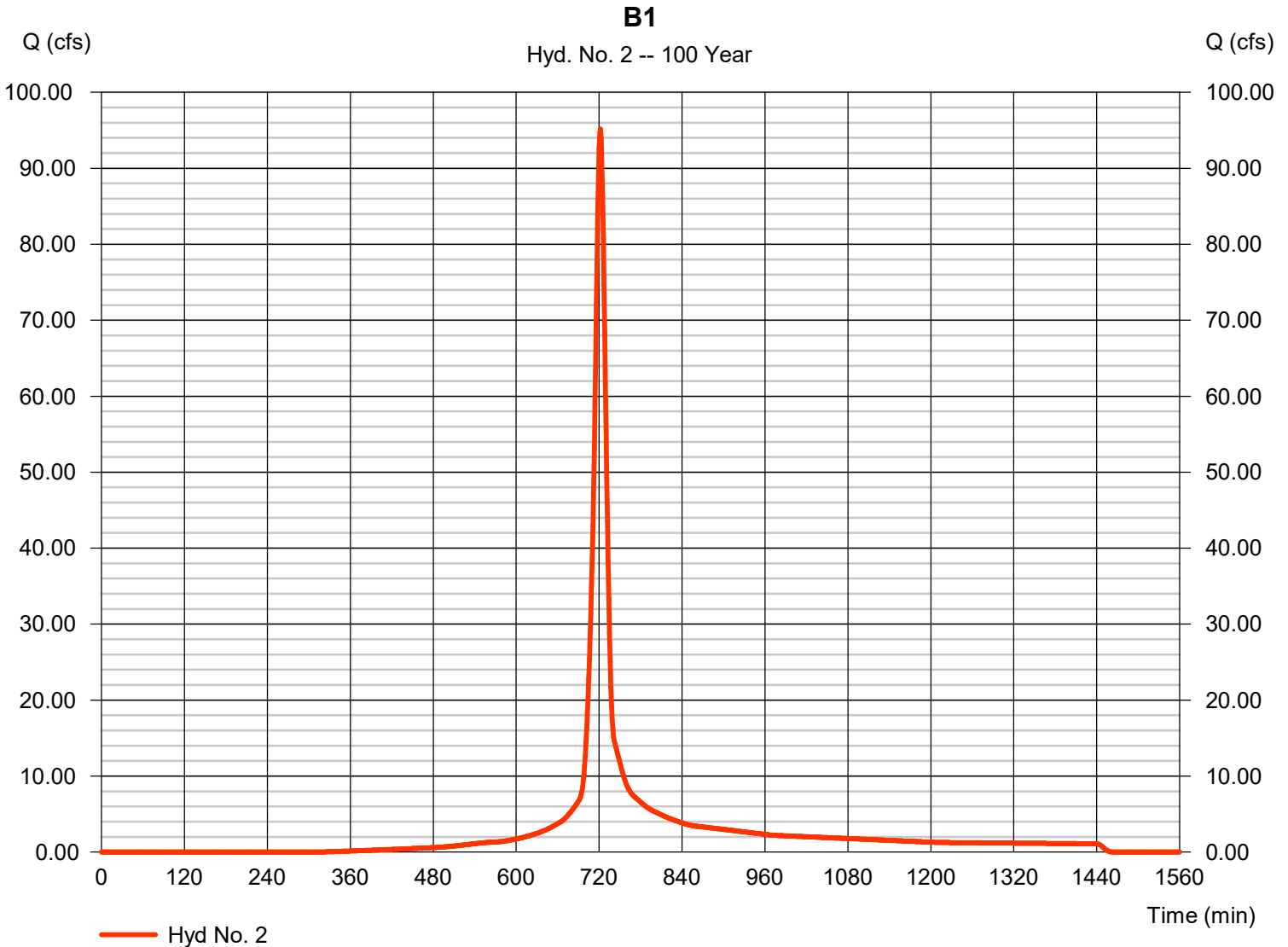
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

Friday, 07 / 26 / 2024

Hyd. No. 2

B1

Hydrograph type	= SCS Runoff	Peak discharge	= 95.18 cfs
Storm frequency	= 100 yrs	Time to peak	= 722 min
Time interval	= 1 min	Hyd. volume	= 261,321 cuft
Drainage area	= 14.210 ac	Curve number	= 81
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 14.10 min
Total precip.	= 7.28 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

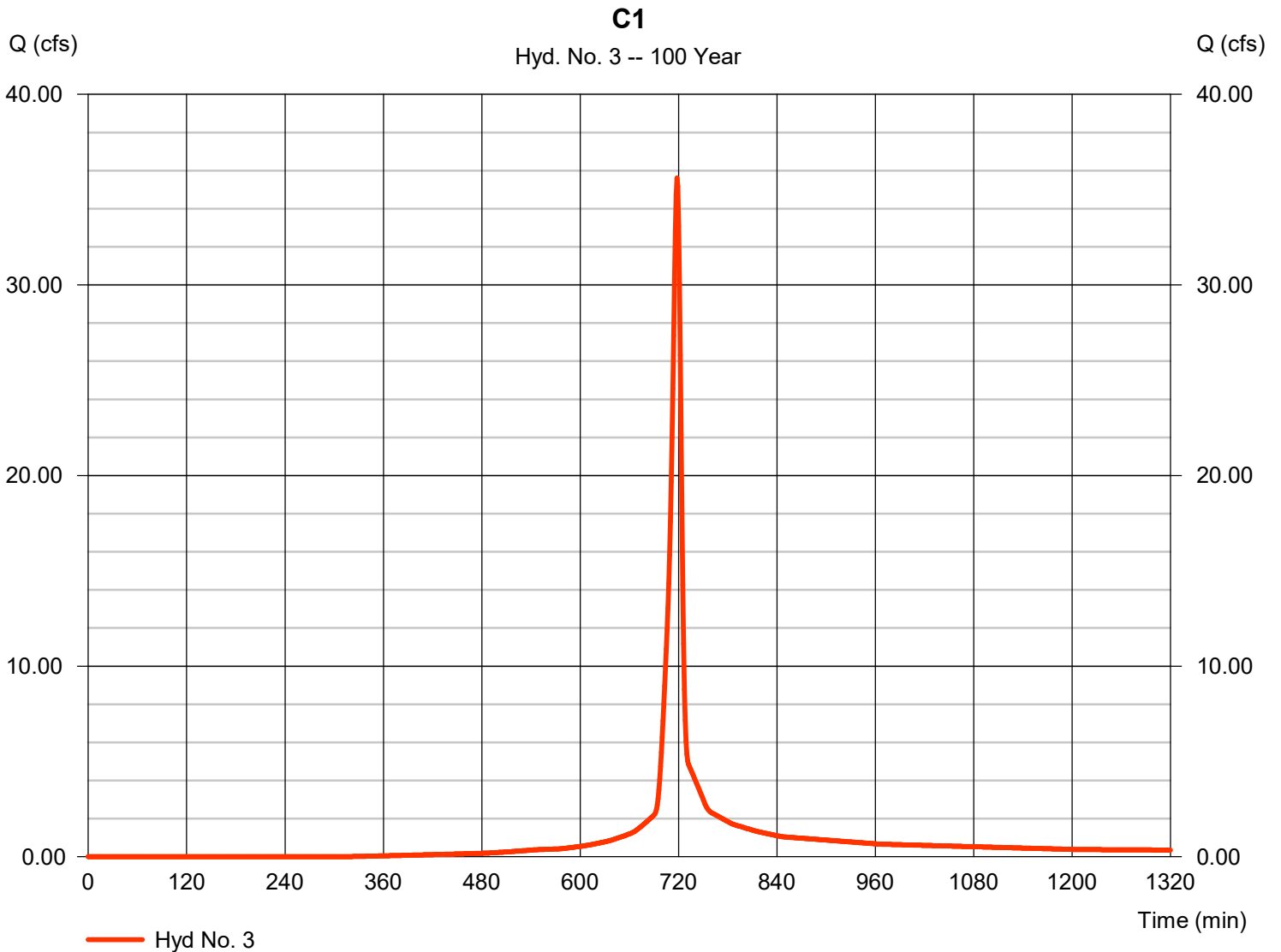
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

Friday, 07 / 26 / 2024

Hyd. No. 3

C1

Hydrograph type	= SCS Runoff	Peak discharge	= 35.60 cfs
Storm frequency	= 100 yrs	Time to peak	= 718 min
Time interval	= 1 min	Hyd. volume	= 77,996 cuft
Drainage area	= 4.350 ac	Curve number	= 81
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 8.00 min
Total precip.	= 7.28 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

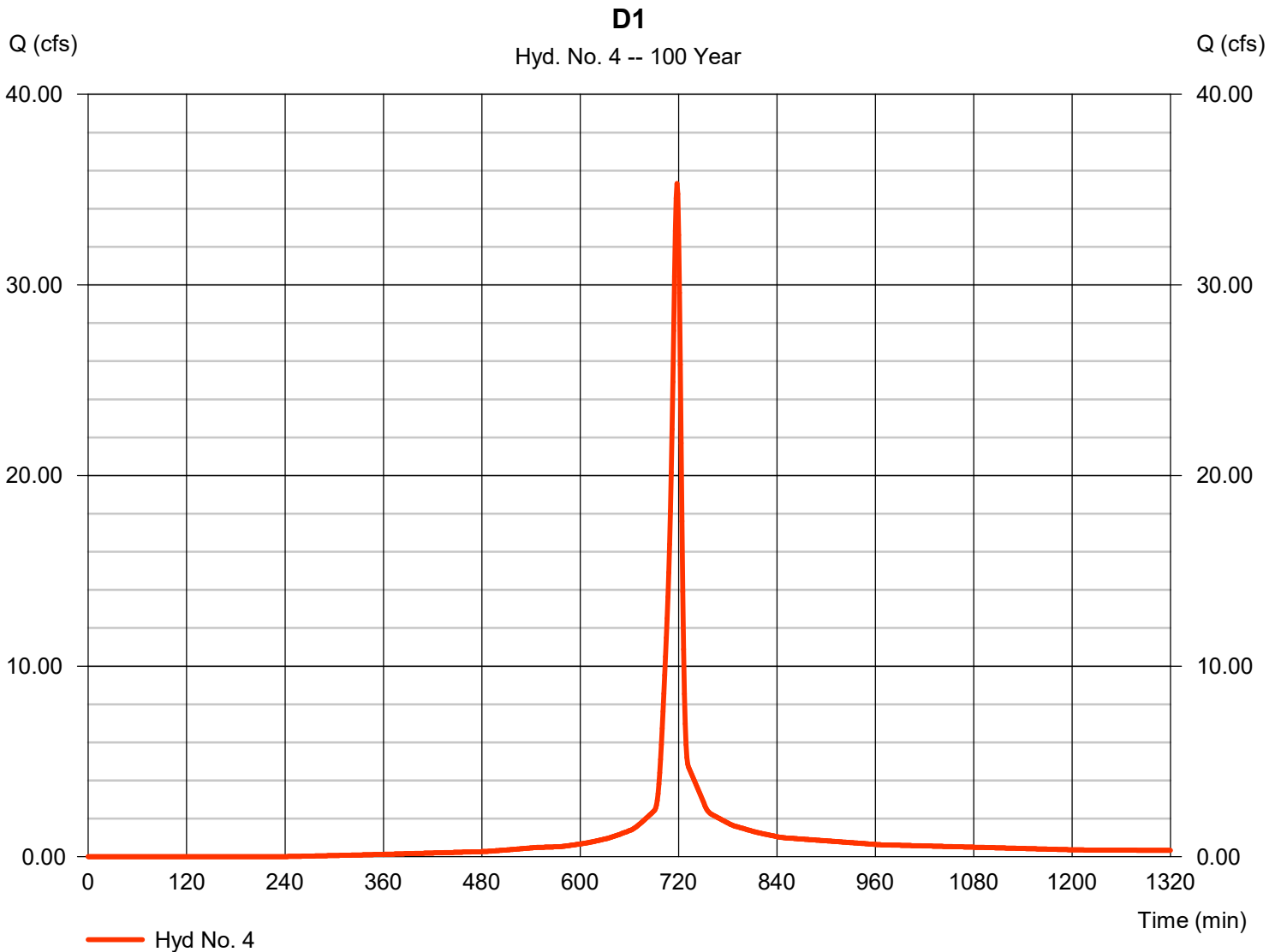
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

Friday, 07 / 26 / 2024

Hyd. No. 4

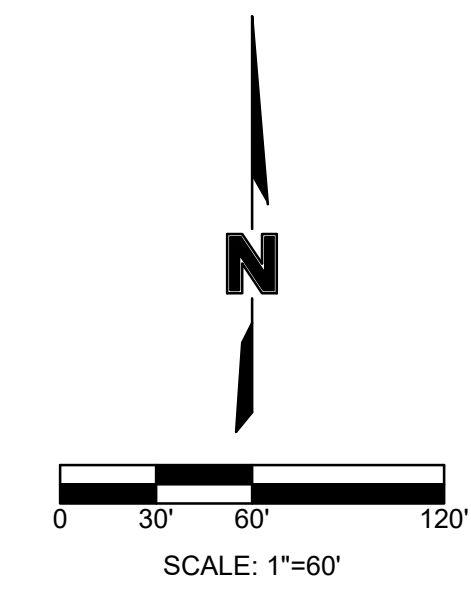
D1

Hydrograph type	= SCS Runoff	Peak discharge	= 35.33 cfs
Storm frequency	= 100 yrs	Time to peak	= 718 min
Time interval	= 1 min	Hyd. volume	= 79,579 cuft
Drainage area	= 3.990 ac	Curve number	= 86
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 8.00 min
Total precip.	= 7.28 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

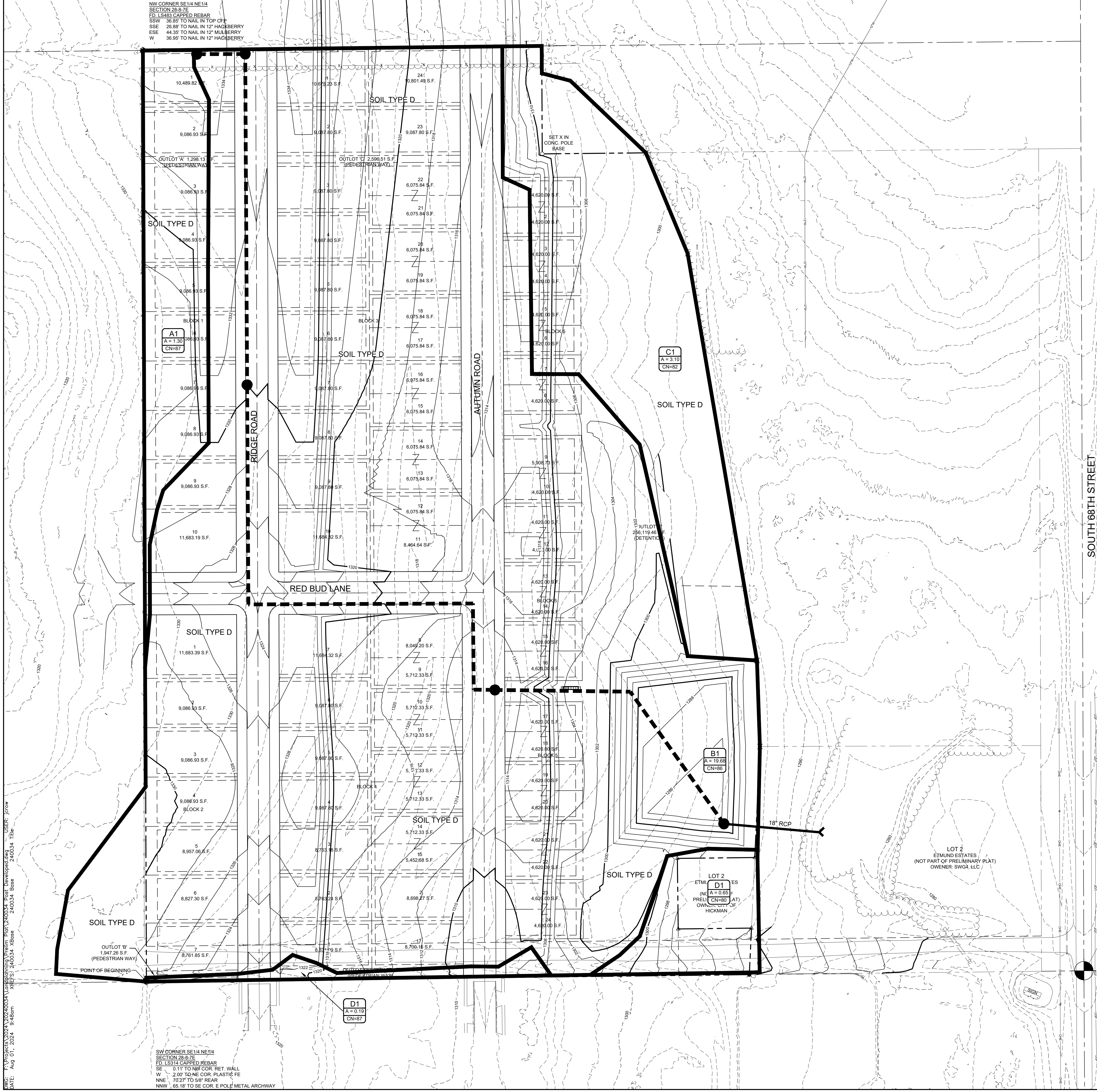


POST-DEVELOPED DRAINAGE CONDITIONS

ETMUND ESTATES 2ND ADDITION PRELIMINARY PLAT



- LEGEND**
- EXISTING MINOR CONTOUR
 - EXISTING MAJOR CONTOUR
 - PROPERTY LINE
 - PROPOSED DRAINAGE BASIN BOUNDARY
 - PROPOSED DRAINAGE BASIN
 - DRAINAGE FLOW PATH



NW CORNER SE1/4 NE1/4 SECTION 28-3-7E
FD 15314 CAPPED REBAR
SSW 39.95' TO NAIL IN TOP C/P
SSE 26.88' TO NAIL IN 12" HACKBERRY
ESE 44.32' TO NAIL IN 12" HACKBERRY
W 36.95' TO NAIL IN 12" HACKBERRY

SW CORNER SE1/4 NE1/4 SECTION 28-3-7E
FD 15314 CAPPED REBAR
SE 0.11' TO NW COR. RET. WALL
W 2.07' TO NE COR. PLASTIC PE
NW 10.27' TO 6\"/>

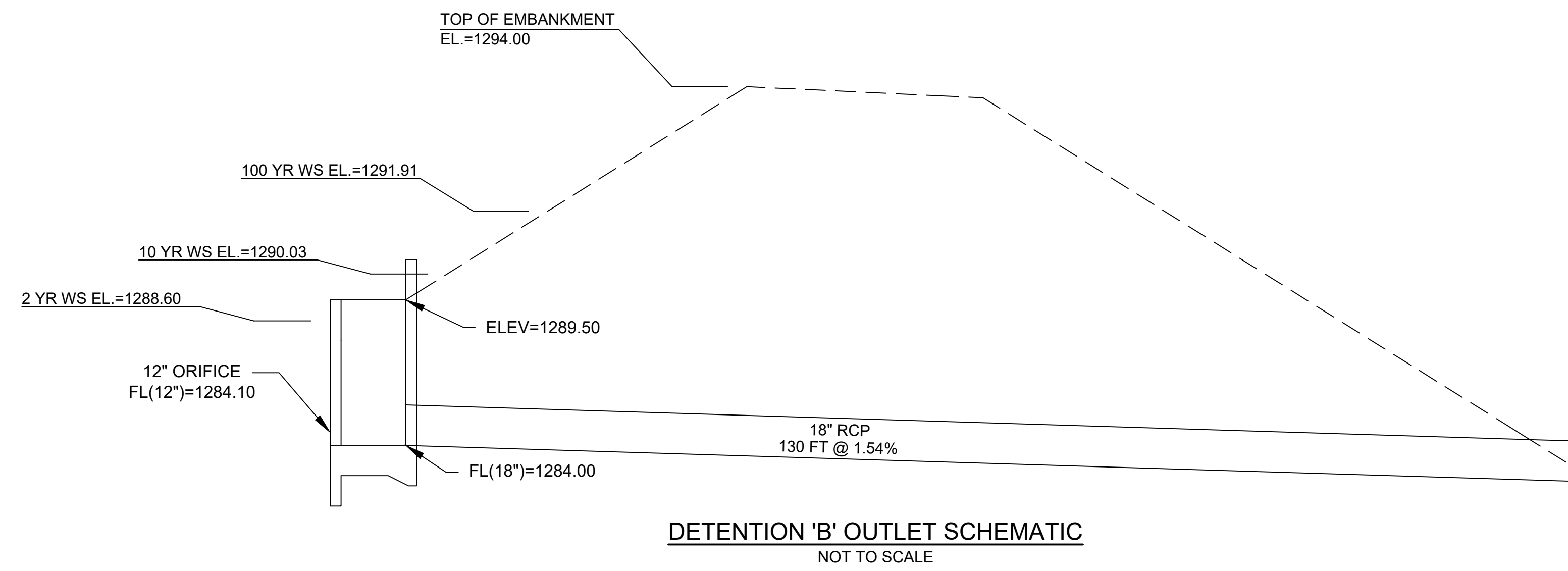
Civil Design Group, Inc.
1501 S. UNIVERSITY AVENUE, SUITE 200
LINCOLN, NEBRASKA 68502
PH. 402-434-8494 FAX 866-218-8747
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REVISIONS	
NO.	DATE / DESCRIPTION

POST-DEVELOPED DRAINAGE	2024
ETMUND ESTATES 2ND ADDITION PRELIMINARY PLAT	
HICKMAN, NEBRASKA	
drawn by: JDS	checked by: JDC
approved by: JDC	project no.: 2024-0334
drawing no.:	date: 08/01/2024

ETMUND ESTATES 2ND ADDITION PRELIMINARY PLAT



Basin	Cover Description	Cover Description	Hydrologic Condition	Hydrologic Soil Group	Area (acres)	Curve Number	Weighted CN	
A1	Residential by average lot size (1/4 acre)	n/a	Good	A				
				B				
				C	1.30	87		
				D				
				Total	1.30	87	87	
							Overall Weighted CN	87

Basin	Cover Description	Cover Description	Hydrologic Condition	Hydrologic Soil Group	Area (acres)	Curve Number	Weighted CN			
B1	Open Space (Detention Cell & Green Space)	n/a	Good	A						
				B						
				C	2.90	80				
				D						
				Total	2.90	80	80			
	Residential by average lot size (1/4 acre)	n/a	Good	A						
				B						
				C	16.80	87				
				D						
				Total	16.80	87	87			
							Total	19.70	Overall Weighted CN	86

Basin	Cover Description	Cover Description	Hydrologic Condition	Hydrologic Soil Group	Area (acres)	Curve Number	Weighted CN			
C1	Open Space	n/a	Good	A						
				B						
				C	2.36	80				
				D						
				Total	2.36	80	80			
	Residential by average lot size (1/4 acre)	n/a	Good	A						
				B						
				C	0.74	87				
				D						
				Total	0.74	87	87			
							Total	3.10	Overall Weighted CN	82

Basin	Cover Description	Cover Description	Hydrologic Condition	Hydrologic Soil Group	Area (acres)	Curve Number	Weighted CN	
D1		n/a	Good	A				
				B				
				C				
				D				
				Total	0.00		0	
							Overall Weighted CN	0

Basin	Cover Description	Cover Description	Hydrologic Condition	Hydrologic Soil Group	Area (acres)	Curve Number	Weighted CN	
E1	Residential by average lot size (1/4 acre)	n/a	Good	A				
				B				
				C	0.19	87		
				D				
				Total	0.19	87	87	
							Overall Weighted CN	87

Sub-Basin	Length	E _i	E _o	Slope	TC (min)	Description
A1		N/A	N/A	N/A	8.00	Basin is small, user input of 8 min. was used
B1	69.00	1,334.74	1,332.80	2.812%	6.54	Sheet Flow
	469.00	1,332.80	1,330.00	0.597%	4.96	Shallow Concentrated Flow
	792.00	1,330.00	1,312.81	2.198%	4.32	Shallow Concentrated Flow
	421.00	1,312.81	1,287.00	6.131%	1.76	Shallow Concentrated Flow
	1,741.00			2.742%	17.58	Overall
C1		N/A	N/A	N/A	8.00	Basin is small, user input of 8 min. was used
D1		N/A	N/A	N/A	8.00	Basin is small, user input of 8 min. was used
E1		N/A	N/A	N/A	8.00	Basin is small, user input of 8 min. was used

Pond Name	Elevation	Area (ft ²)	Incremental Storage (ft ³)	Cumulative Storage (ft ³)
POND B	1,284.00	-	-	-
	1,285.00	1,609.00	536.00	804.50
	1,286.00	6,289.00	3,693.00	4,753.50
	1,287.00	12,817.00	9,360.00	14,305.50
	1,288.00	19,692.00	16,130.00	30,561.00
	1,289.00	24,903.00	22,244.00	52,858.50
	1,290.00	28,214.00	26,539.00	79,417.00
	1,291.00	31,009.00	29,598.00	109,028.50
	1,292.00	33,933.00	32,457.00	141,499.50
	1,293.00	36,984.00	35,444.00	176,958.00
	1,294.00	40,162.00	38,558.00	215,531.00

RETURN PERIOD (YEAR)	PEAK FLOW (CFS)		STORAGE (AC-FT)	STAGE (FEET)	POOL ELEVATION (FEET)
	IN	OUT			
2	40.10	7.10	0.99	4.60	1288.60
10	69.84	19.41	1.82	6.03	1290.03
100	129.47	49.78	3.18	7.91	1291.91

BASIN ID	2 YR - PEAK FLOW (CFS)		10 YR - PEAK FLOW (CFS)		100 YR - PEAK FLOW (CFS)	
	PRE	POST	PRE	POST	PRE	POST
A1	5.51	3.79	10.29	6.43	20.22	11.67
B1	25.36	7.10	48.01	19.41	95.18	49.78
C1	9.70	7.25	18.12	13.32	35.60	25.81
D1	11.15	1.38	19.23	2.62	35.33	5.23
E1	NA	0.55	NA	0.94	NA	1.71

BLOCK	LOT	100 YEAR WATER SURFACE ELEVATION		MINIMUM OPENING ELEVATION
		HIGHEST	LOWEST	
5	15*	1292.71	-	1305.00
	16*	1292.71	-	1305.00
	17*	1292.71	-	1305.00
	18*	1292.71	-	1305.00
	19*	1292.71	-	1305.00
	20*	1292.71	-	1305.00
	21*	1292.71	-	1301.00
	22*	1292.71	-	1301.00
	23*	1292.71	-	1301.00
	24*	1292.71	-	1301.00

*NOTE: Min. Opening elevation is based on overtopping of Pond B as well as the grading of the rear lots

LEGEND

- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPERTY LINE
- PROPOSED DRAINAGE BASIN BOUNDARY
- PROPOSED DRAINAGE BASIN
- DRAINAGE FLOW PATH

REVISIONS

NO.	DATE	DESCRIPTION

POST-DEVELOPED DRAINAGE TABLES & SCHEMATICS

**ETMUND ESTATES 2ND ADDITION
PRELIMINARY PLAT**

HICKMAN, NEBRASKA

drawn by: JDS
 checked by: JDC
 approved by: JDC
 project no.: 2024-0304
 drawing no.:
 date: 08/01/2024

P:\Projects\2024\20240304\20240304_Prelim\Drawings\20240304_Prelim\20240304_Prelim.dwg
 USER: jdc
 DATE: Aug 01, 2024 9:45am
 XREFS: 240304_Reuse 240304_Bump

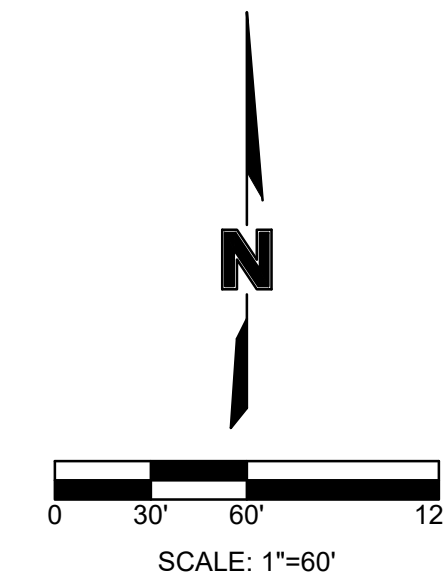
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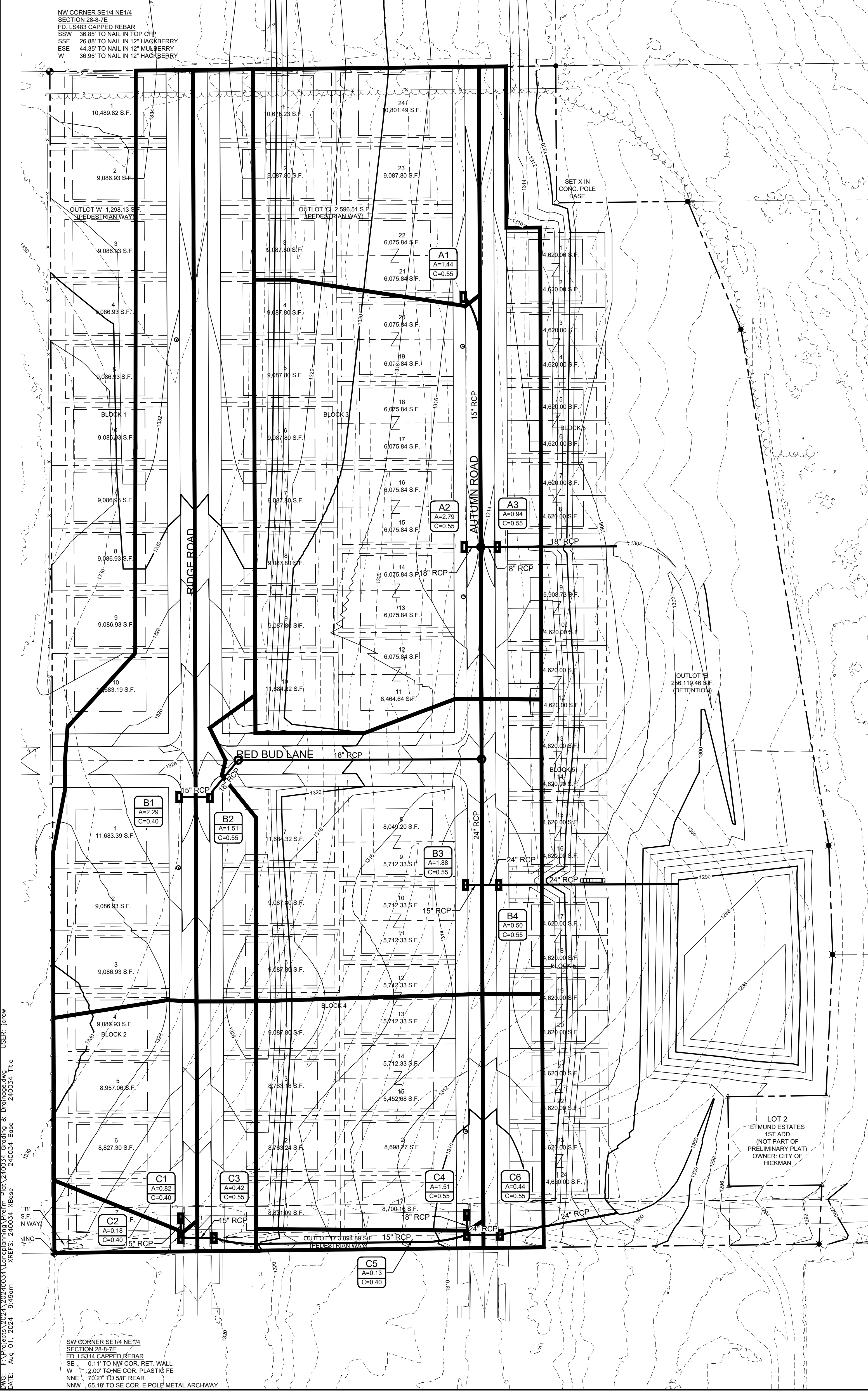
CONSULTING ENGINEERS • LAND USE PLANNERS
CIVIL DESIGN • SITE DEVELOPMENT • PLANNING AND ZONING



LEGEND

- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPERTY LINE
- PROPOSED DRAINAGE BASIN BOUNDARY
- PROPOSED DRAINAGE BASIN
-

- ### GENERAL NOTES
- ALL ELEVATIONS ARE TO NAVD 88 DATUM.
 - THE MAXIMUM GRADE FOR PEDESTRIAN SIDEWALKS WITHIN THIS SUBDIVISION SHALL NOT EXCEED 12:1 SLOPE (8.33%) WITH A 5' LONG FLAT AREA (50:1 SLOPE) FOR EVERY 30 INCHES OF VERTICAL DROP. HAND RAILS WILL BE PROVIDED ON BOTH SIDES OF THE PEDESTRIAN SIDEWALK WHEN THE SLOPE EXCEEDS A 20:1 SLOPE (5.0%).
 - OUTLET VELOCITIES FOR ALL AREAS WILL BE CONTROLLED WITH RIP-RAP SUFFICIENT TO PREVENT EROSION AT DISCHARGE POINTS. SIZE AND LOCATION OF RIP-RAP WILL BE DETERMINED DURING FINAL DESIGN.



PRELIMINARY PIPE SIZING CALCULATIONS

Design Storm Frequency =	Minor Storm System Conveyance Analysis										Major Storm System Conveyance Analysis													
	Location	Area (acres)	Coefficient C	A°C	Sum A°C	Time of Conc. (min.)	Intensity (in/hr)	Runoff Q (cfs)	Pipe Slope (ft/ft)	Pipe Length (ft)	Pipe Diameter (in.)	Pipe Capacity (cfs)	Pipe Velocity (fps)	Travel Time (min.)	Intensity I ₁₀₀ (in/hr)	Frequency Factor C _f	Runoff Q ₁₀₀ (in/hr)	Overflow Route Slope (ft/ft)	Conveyance Constant (K)	Capacity (cfs)	Overflow plus pipe capacity (cfs)	Comments		
5 (Residential = 5yr, Commercial = 10yr)	A1	1.44	0.55	0.79	8.00	5.58	4.42	0.010	282.22	15	6.36	5.18	0.91	9.96	1.25	9.86	0.005	620	43.84	0	0.00	50.20		
5	A2	2.79	0.55	1.53	1.53	8.91	5.58	8.56	0.013	16.00	18	11.74	6.65	0.04	9.96	1.25	19.10	0.250	0	0.00	780	390.00	401.74	
5	MH			0.00	2.33		5.58	12.98	0.031	16.00	18	18.58	10.52	0.03	9.96	1.25	28.96	-	-	-	-	-	-	
5	A3	0.94	0.55	0.52	2.84	8.03	5.58	15.87	0.037	136.13	18	20.12	11.39	0.20	9.96	1.25	35.40	0.250	0	0.00	780	390.00	410.12	Outfall to Pond
5	B1	2.29	0.40	0.92	0.92	8.00	5.58	5.11	0.008	32.00	15	5.71	4.65	0.11	9.96	1.25	11.40	0.030	620	107.39	0	0.00	113.09	
5	B2	1.51	0.50	0.83	1.75	8.11	5.58	9.75	0.015	51.86	18	12.65	7.16	0.12	9.96	1.25	21.74	0.030	620	107.39	0	0.00	120.04	
5	MH			0.00	2.66		5.58	14.86	0.029	271.88	18	18.01	10.19	0.44	9.96	1.25	33.15	-	-	-	-	-	-	
5	MH			0.00	2.66		5.58	14.86	0.018	140.45	24	30.18	9.61	0.24	9.96	1.25	33.15	-	-	-	-	-	-	
5	B3	1.88	0.55	1.03	1.03	8.00	5.58	5.77	0.016	16.00	15	8.07	6.57	0.04	9.96	1.25	12.87	0.250	0	0.00	780	390.00	398.07	
5	MH			0.00	3.70		5.58	20.63	0.031	16.00	24	40.02	12.74	0.02	9.96	1.25	46.02	-	-	-	-	-	-	
5	B4	0.50	0.55	0.28	3.97	8.02	5.58	22.16	0.071	191.35	24	60.11	19.13	0.17	9.96	1.25	49.45	0.250	0	0.00	780	390.00	450.11	Outfall to Pond
5	C1	0.82	0.40	0.33	0.33	8.00	9.96	3.27	0.011	22.00	15	6.90	5.62	0.07	9.96	1.25	4.08	0.050	620	138.64	0	0.00	145.53	Basin C to capture and pipe 100-year event
5	C2	0.18	0.40	0.07	0.40	8.07	9.96	3.98	0.007	37.15	15	5.29	4.31	0.14	9.96	1.25	4.98	0.050	620	138.64	0	0.00	143.92	Basin C to capture and pipe 100-year event
5	C3	0.42	0.55	0.23	0.63	8.14	9.96	6.28	0.048	23.34	15	14.09	11.48	0.03	9.96	1.25	7.86	0.050	620	138.64	0	0.00	152.73	Basin C to capture and pipe 100-year event
5	C4	1.51	0.55	0.83	0.83	8.00	9.96	8.27	0.011	22.00	18	11.22	6.35	0.06	9.96	1.25	10.34	0.110	620	205.63	0	0.00	216.85	Basin C to capture and pipe 100-year event
5	C5	0.13	0.40	0.05	1.51	8.08	9.96	15.07	0.015	37.15	24	27.52	8.76	0.07	9.96	1.25	18.84	0.110	620	205.63	0	0.00	233.15	Basin C to capture and pipe 100-year event
5	C6	0.44	0.55	0.24	1.76	8.07	9.96	17.48	0.022	133.72	24	33.63	10.70	0.21	9.96	1.25	21.86	0.110	620	205.63	0	0.00	239.26	Outfall to Pond. Capturing 100 year event.

NW CORNER SE1/4 NE1/4 SECTION 28-2-E T20N R10E S14W NEBRASKA
 SW CORNER SE1/4 NE1/4 SECTION 28-2-E T20N R10E S14W NEBRASKA
 DATE: Aug 01, 2024 9:40am
 USER: jrw
 PROJECT: 2024-08-01-ETMUND ESTATES 2ND ADDITION PRELIMINARY PLAT
 XREFS: 240204-01-Submittal 240204-01-Submittal

REVISIONS

NO.	DATE	DESCRIPTION

POST-DEVELOPED DRAINAGE TABLES & SCHEMATICS

ETMUND ESTATES 2ND ADDITION
PRELIMINARY PLAT

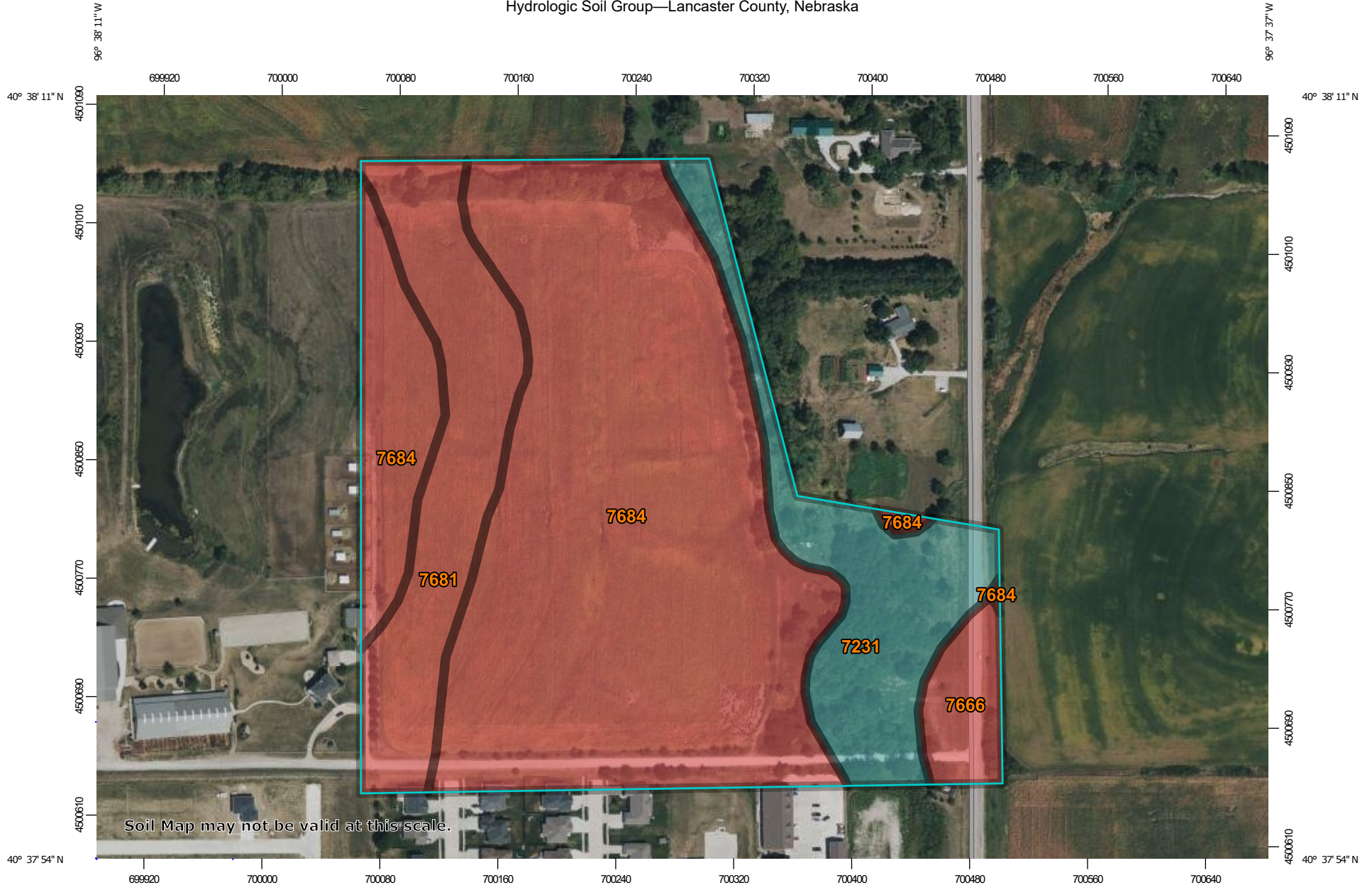
HICKMAN, NEBRASKA

2024

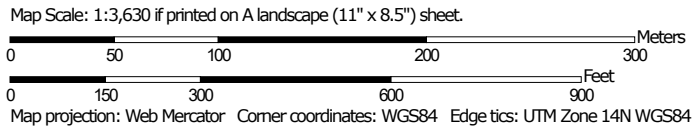
drawn by: JDS
checked by: JDC
approved by: JDC
project no.: 2024-08-034
drawing no.:
date: 08/01/2024

SHEET
5 OF 6

Hydrologic Soil Group—Lancaster County, Nebraska



Soil Map may not be valid at this scale.



MAP LEGEND

Area of Interest (AOI)









 Area of Interest (AOI)

Soils

Soil Rating Polygons





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

Soil Rating Lines


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

Soil Rating Points






 A
 A/D
 B
 B/D

 C
 C/D
 D
 Not rated or not available

Water Features

 Streams and Canals

Transportation

 Rails
 Interstate Highways
 US Routes
 Major Roads
 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

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: Lancaster County, Nebraska
 Survey Area Data: Version 28, Sep 6, 2023

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

Date(s) aerial images were photographed: Aug 21, 2021—Aug 28, 2021

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.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
7231	Judson silt loam, 2 to 6 percent slopes	C	5.2	14.4%
7666	Mayberry silty clay loam, 3 to 6 percent slopes, eroded	D	1.4	3.9%
7681	Wymore silty clay loam, 1 to 3 percent slopes	D	5.8	16.1%
7684	Wymore silty clay loam, 3 to 6 percent slopes, eroded	D	23.5	65.6%
Totals for Area of Interest			35.9	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

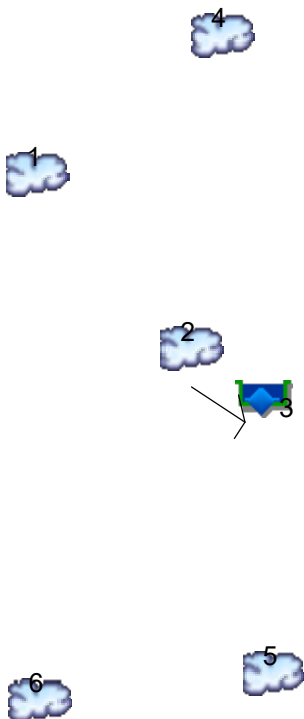
Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Watershed Model Schematic

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022



Legend

<u>Hyd. Origin</u>	<u>Description</u>
1	SCS Runoff A1
2	SCS Runoff B1
3	Reservoir POND B
4	SCS Runoff C1
5	SCS Runoff D1
6	SCS Runoff E1

Hydrograph Return Period Recap

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

Hyd. No.	Hydrograph type (origin)	Inflow hyd(s)	Peak Outflow (cfs)								Hydrograph Description
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
1	SCS Runoff	----	----	3.786	----	5.168	6.430	8.342	9.952	11.67	A1
2	SCS Runoff	----	----	40.06	----	55.54	69.77	91.46	109.78	129.33	B1
3	Reservoir	2	----	6.818	----	7.854	17.12	19.52	20.57	21.59	POND B
4	SCS Runoff	----	----	7.247	----	10.38	13.32	17.85	21.70	25.81	C1
5	SCS Runoff	----	----	1.380	----	2.015	2.620	3.559	4.363	5.225	D1
6	SCS Runoff	----	----	0.553	----	0.755	0.940	1.219	1.455	1.705	E1

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

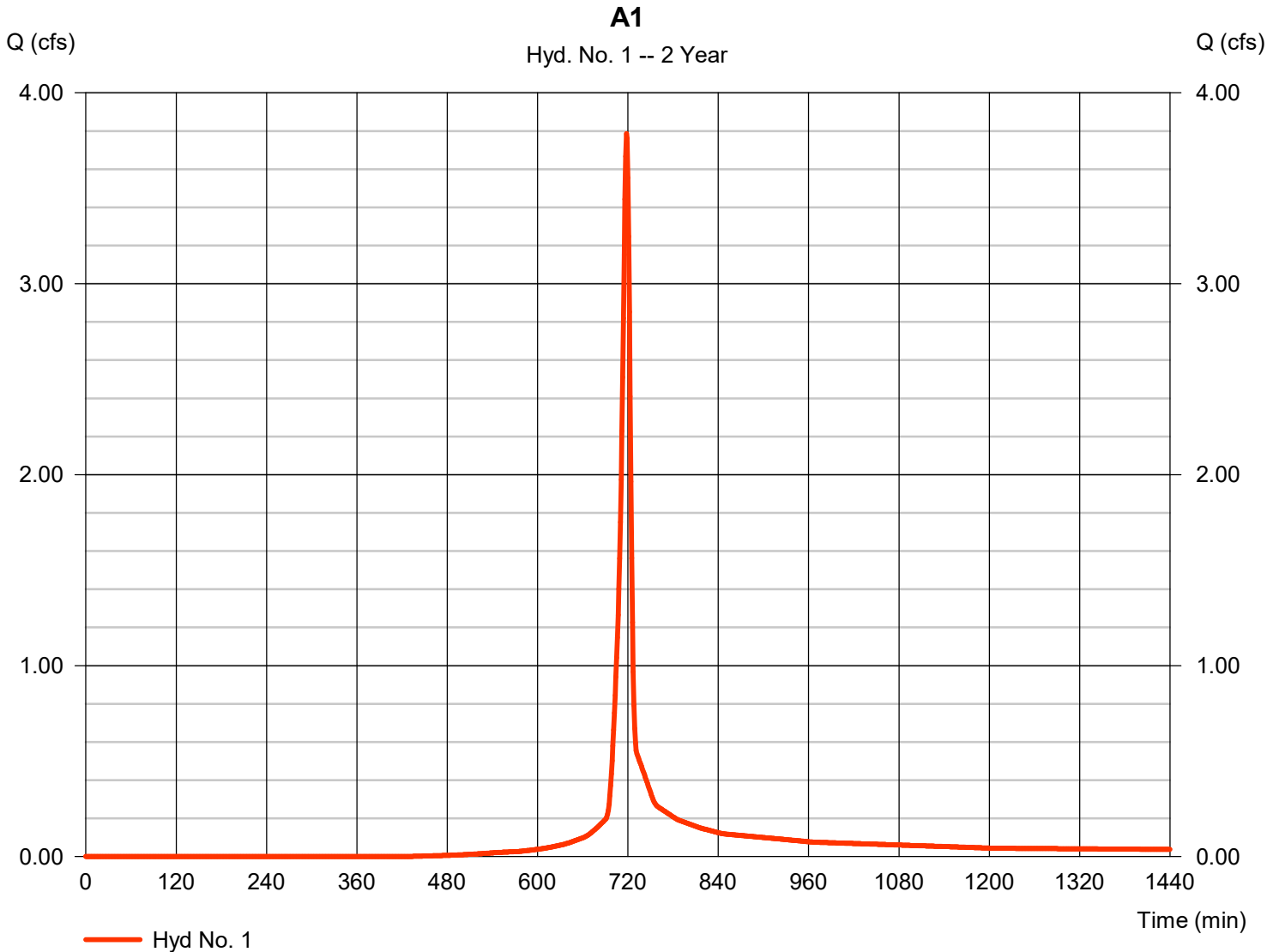
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description	
1	SCS Runoff	3.786	1	718	8,082	----	----	----	A1	
2	SCS Runoff	40.06	1	724	118,626	----	----	----	B1	
3	Reservoir	6.818	1	747	118,571	2	1288.63	43,793	POND B	
4	SCS Runoff	7.247	1	719	15,303	----	----	----	C1	
5	SCS Runoff	1.380	1	719	2,910	----	----	----	D1	
6	SCS Runoff	0.553	1	718	1,181	----	----	----	E1	
Post Developed.gpw					Return Period: 2 Year			Friday, 07 / 26 / 2024		

Hydrograph Report

Hyd. No. 1

A1

Hydrograph type	= SCS Runoff	Peak discharge	= 3.786 cfs
Storm frequency	= 2 yrs	Time to peak	= 718 min
Time interval	= 1 min	Hyd. volume	= 8,082 cuft
Drainage area	= 1.300 ac	Curve number	= 87
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 8.00 min
Total precip.	= 3.02 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

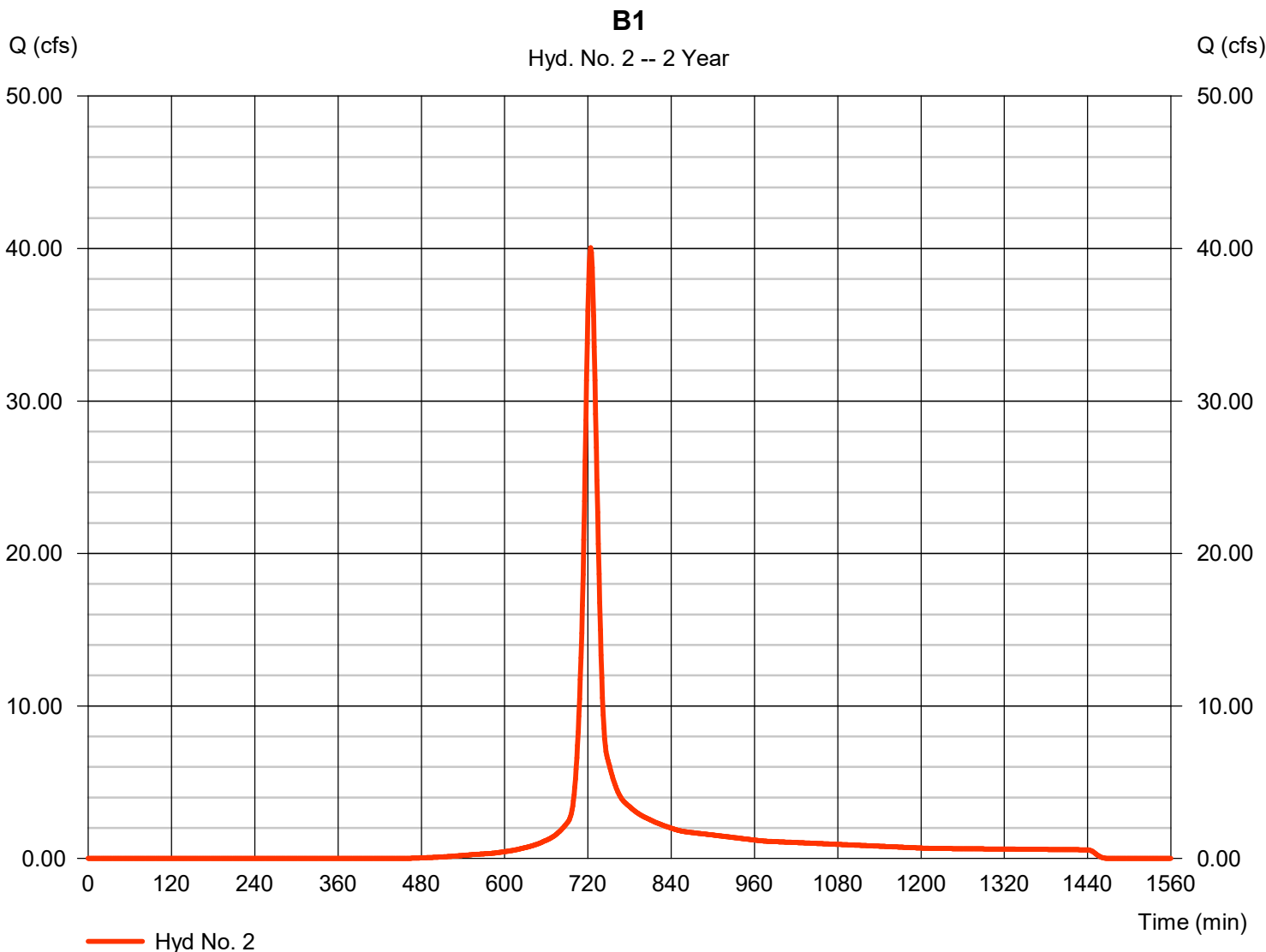
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

Friday, 07 / 26 / 2024

Hyd. No. 2

B1

Hydrograph type	= SCS Runoff	Peak discharge	= 40.06 cfs
Storm frequency	= 2 yrs	Time to peak	= 724 min
Time interval	= 1 min	Hyd. volume	= 118,626 cuft
Drainage area	= 19.680 ac	Curve number	= 86
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 17.60 min
Total precip.	= 3.02 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



TR55 Tc Worksheet

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

Hyd. No. 2

B1

<u>Description</u>	<u>A</u>		<u>B</u>		<u>C</u>		<u>Totals</u>
Sheet Flow							
Manning's n-value	= 0.150		0.011		0.011		
Flow length (ft)	= 69.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.02		3.02		0.00		
Land slope (%)	= 2.81		0.00		0.00		
Travel Time (min)	= 6.54	+	0.00	+	0.00	=	6.54
Shallow Concentrated Flow							
Flow length (ft)	= 469.00		782.00		421.00		
Watercourse slope (%)	= 0.60		2.20		6.13		
Surface description	= Paved		Paved		Unpaved		
Average velocity (ft/s)	=1.57		3.02		3.99		
Travel Time (min)	= 4.96	+	4.32	+	1.76	=	11.04
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=0.00		0.00		0.00		
Flow length (ft)	{{0}}0.0		0.0		0.0		
Travel Time (min)	= 0.00	+	0.00	+	0.00	=	0.00
Total Travel Time, Tc							17.60 min

Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

Friday, 07 / 26 / 2024

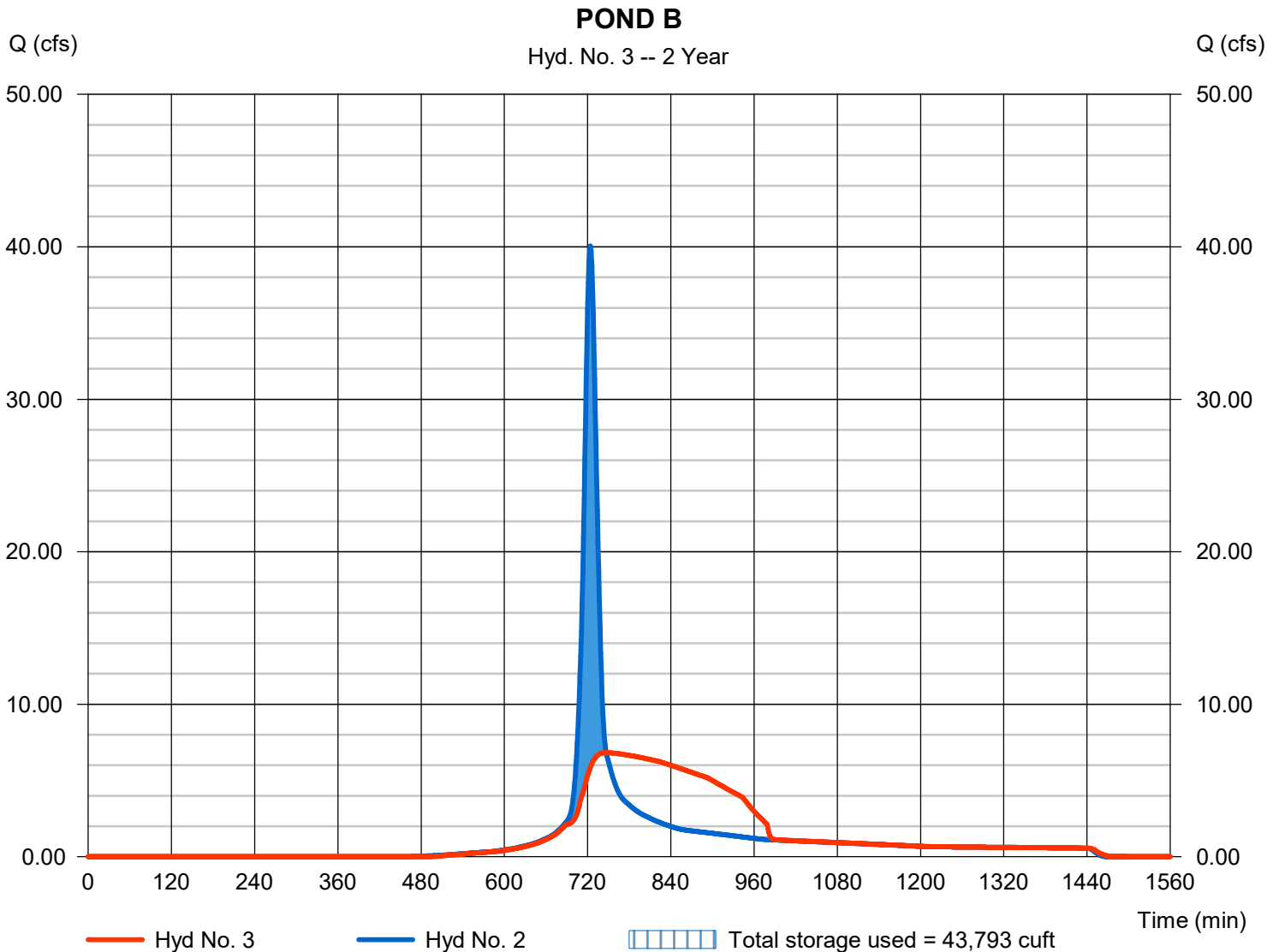
Hyd. No. 3

POND B

Hydrograph type = Reservoir
Storm frequency = 2 yrs
Time interval = 1 min
Inflow hyd. No. = 2 - B1
Reservoir name = POND B

Peak discharge = 6.818 cfs
Time to peak = 747 min
Hyd. volume = 118,571 cuft
Max. Elevation = 1288.63 ft
Max. Storage = 43,793 cuft

Storage Indication method used.

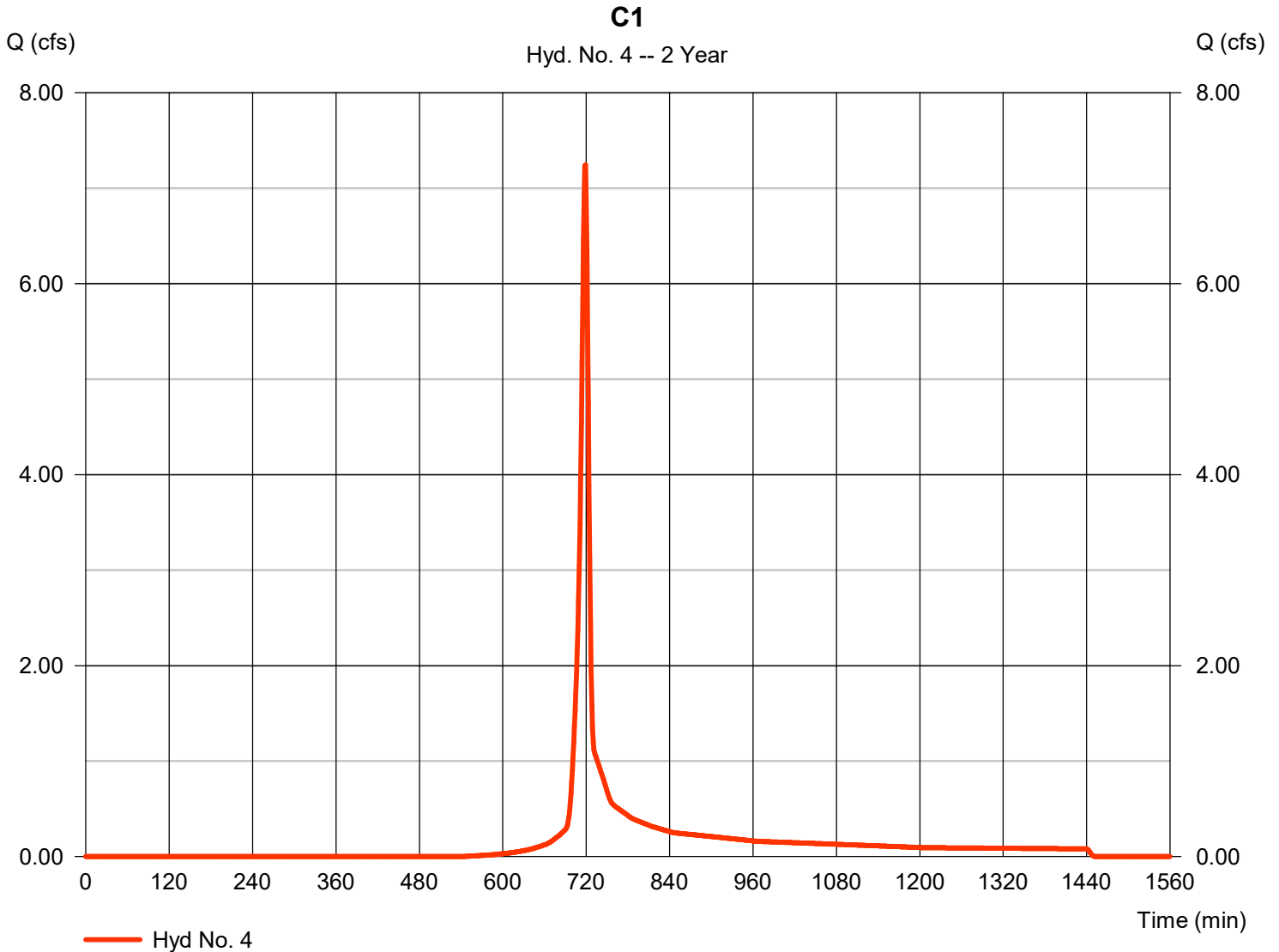


Hydrograph Report

Hyd. No. 4

C1

Hydrograph type	= SCS Runoff	Peak discharge	= 7.247 cfs
Storm frequency	= 2 yrs	Time to peak	= 719 min
Time interval	= 1 min	Hyd. volume	= 15,303 cuft
Drainage area	= 3.100 ac	Curve number	= 82
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 8.00 min
Total precip.	= 3.02 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

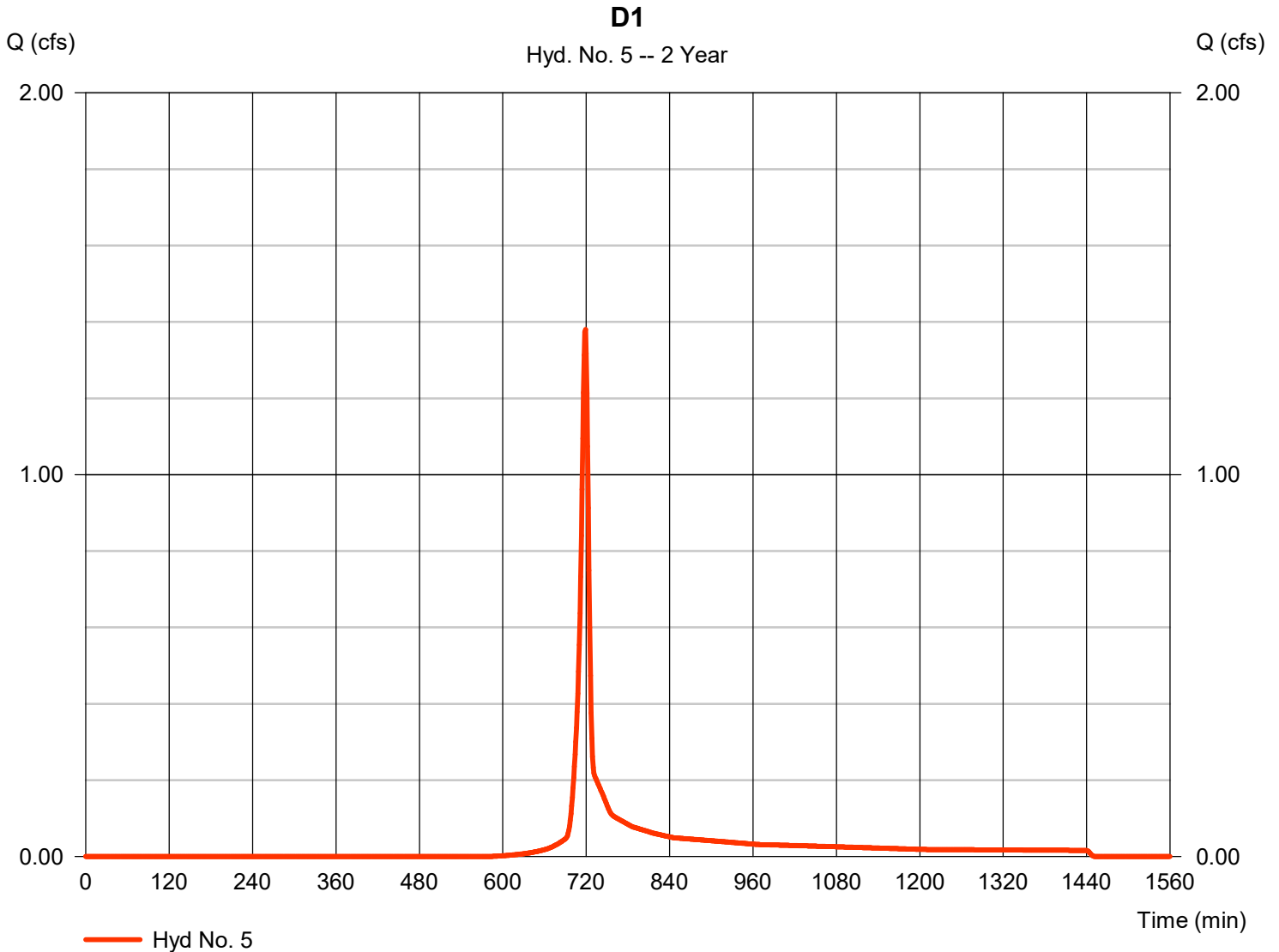


Hydrograph Report

Hyd. No. 5

D1

Hydrograph type	= SCS Runoff	Peak discharge	= 1.380 cfs
Storm frequency	= 2 yrs	Time to peak	= 719 min
Time interval	= 1 min	Hyd. volume	= 2,910 cuft
Drainage area	= 0.650 ac	Curve number	= 80
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 8.00 min
Total precip.	= 3.02 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

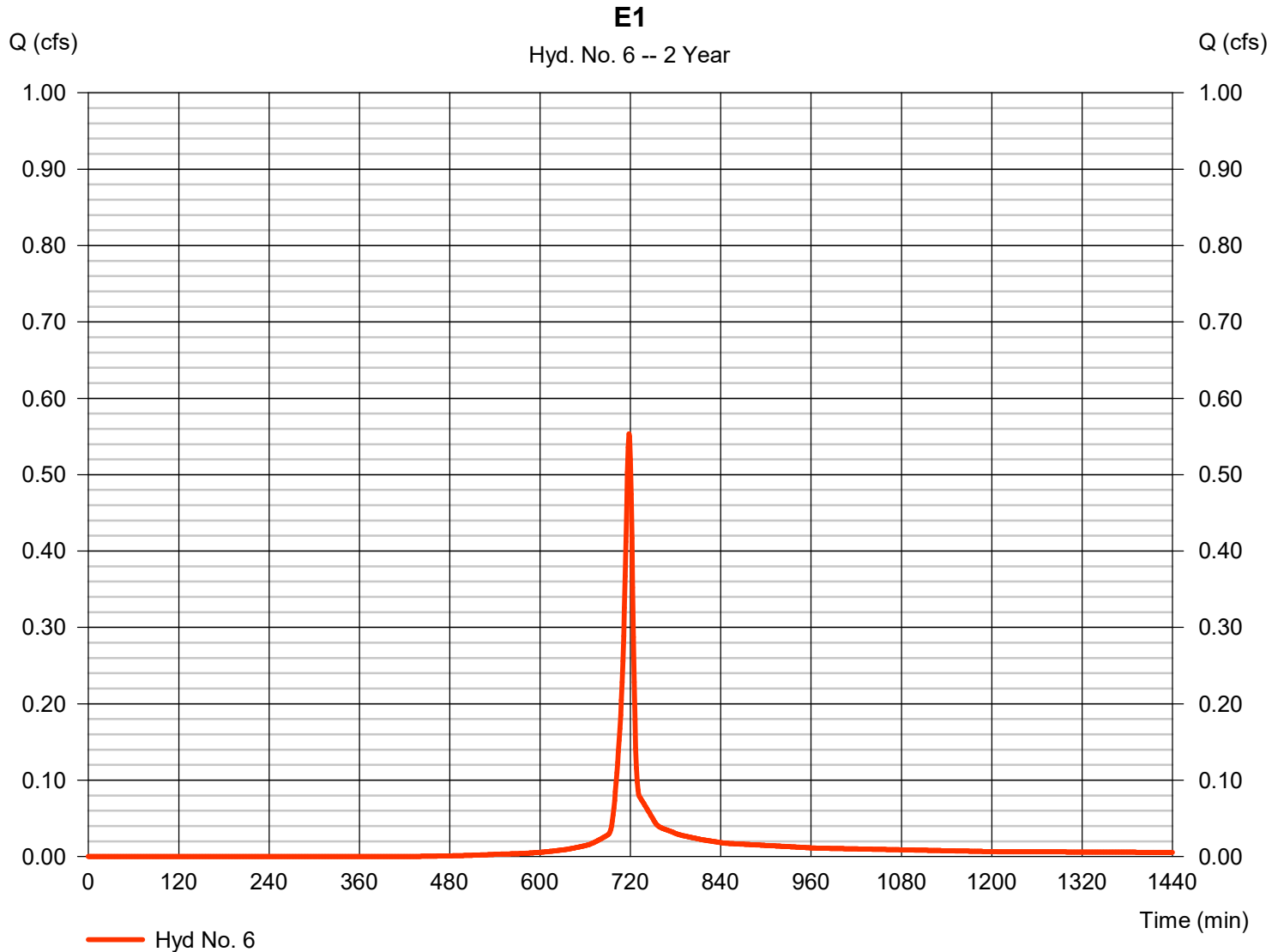
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Friday, 07 / 26 / 2024

Hyd. No. 6

E1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.553 cfs
Storm frequency	= 2 yrs	Time to peak	= 718 min
Time interval	= 1 min	Hyd. volume	= 1,181 cuft
Drainage area	= 0.190 ac	Curve number	= 87
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 8.00 min
Total precip.	= 3.02 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description	
1	SCS Runoff	6.430	1	718	14,044	-----	-----	-----	A1	
2	SCS Runoff	69.77	1	724	208,857	-----	-----	-----	B1	
3	Reservoir	17.12	1	741	208,803	2	1290.09	81,173	POND B	
4	SCS Runoff	13.32	1	718	28,442	-----	-----	-----	C1	
5	SCS Runoff	2.620	1	718	5,565	-----	-----	-----	D1	
6	SCS Runoff	0.940	1	718	2,053	-----	-----	-----	E1	
Post Developed.gpw					Return Period: 10 Year			Friday, 07 / 26 / 2024		

Hydrograph Report

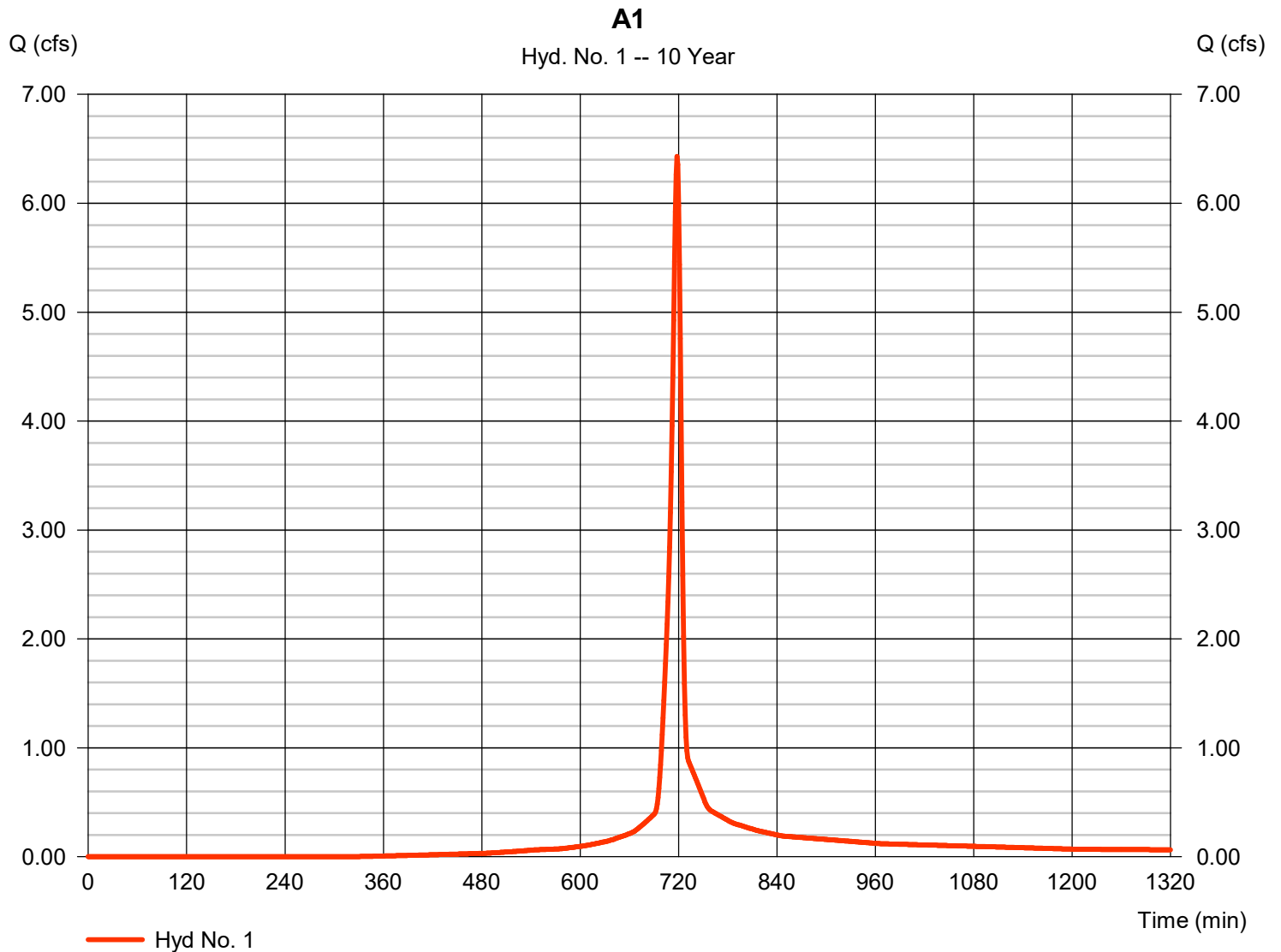
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

Friday, 07 / 26 / 2024

Hyd. No. 1

A1

Hydrograph type	= SCS Runoff	Peak discharge	= 6.430 cfs
Storm frequency	= 10 yrs	Time to peak	= 718 min
Time interval	= 1 min	Hyd. volume	= 14,044 cuft
Drainage area	= 1.300 ac	Curve number	= 87
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 8.00 min
Total precip.	= 4.45 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

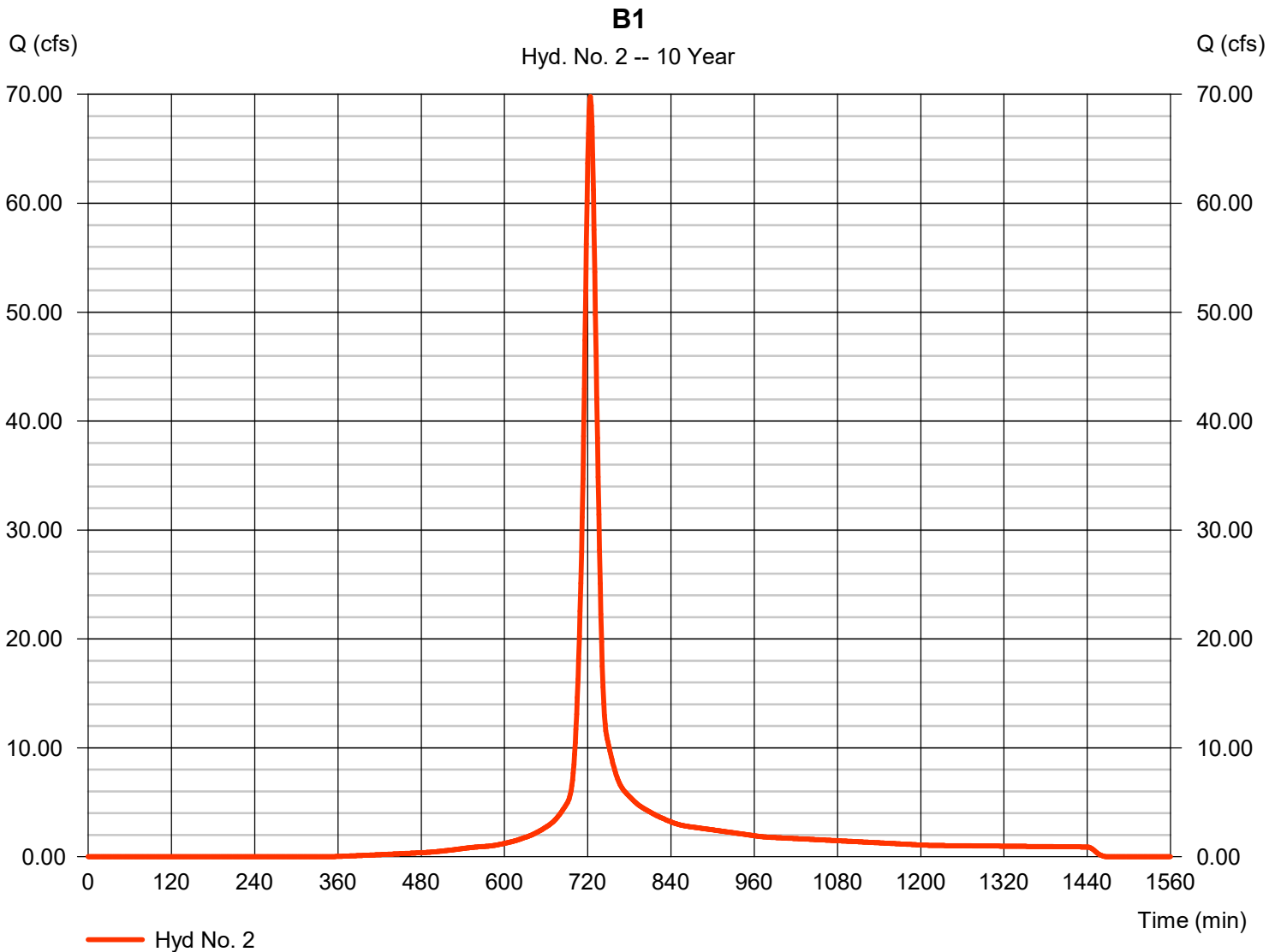
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

Friday, 07 / 26 / 2024

Hyd. No. 2

B1

Hydrograph type	= SCS Runoff	Peak discharge	= 69.77 cfs
Storm frequency	= 10 yrs	Time to peak	= 724 min
Time interval	= 1 min	Hyd. volume	= 208,857 cuft
Drainage area	= 19.680 ac	Curve number	= 86
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 17.60 min
Total precip.	= 4.45 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

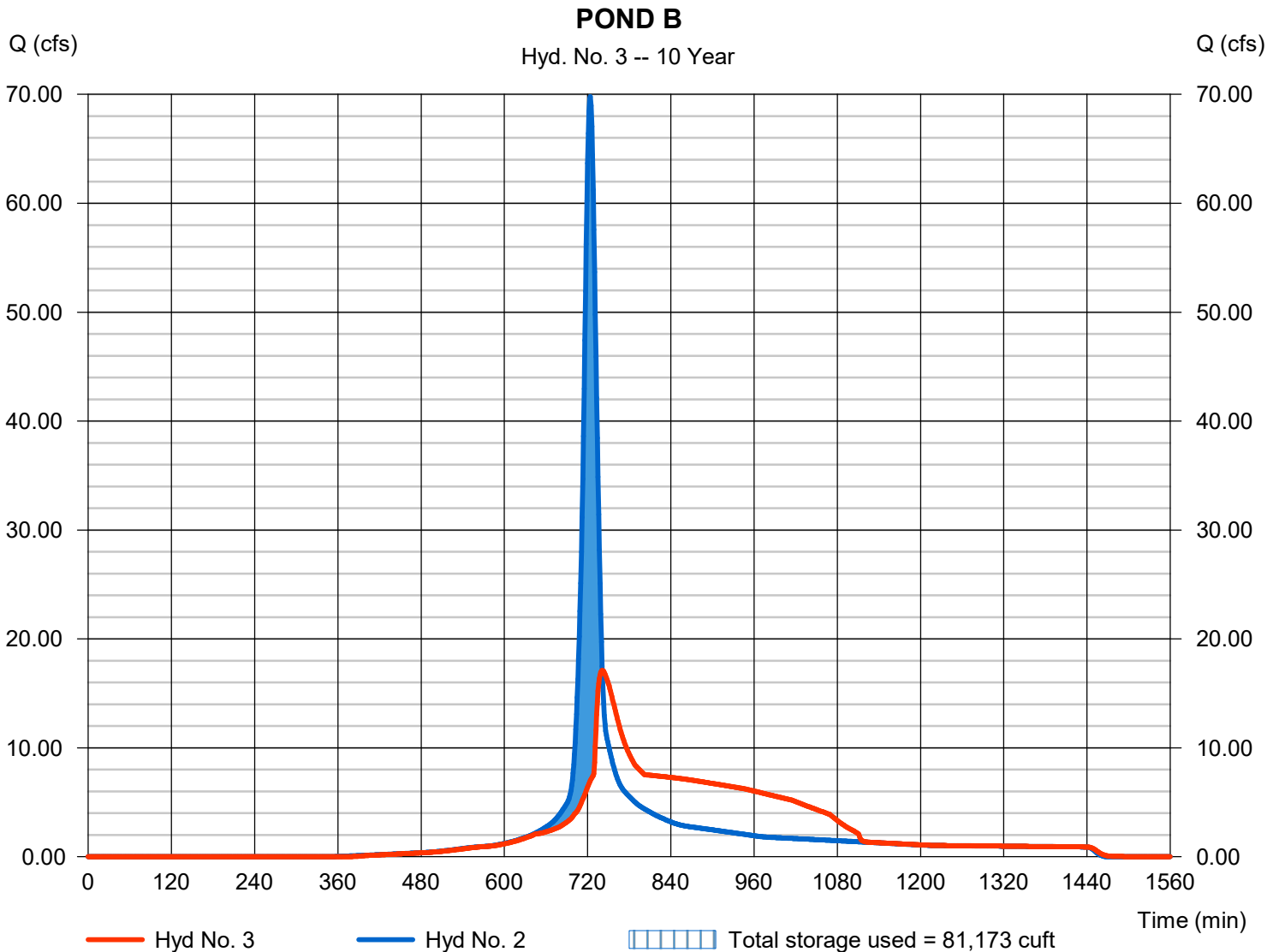
Friday, 07 / 26 / 2024

Hyd. No. 3

POND B

Hydrograph type	= Reservoir	Peak discharge	= 17.12 cfs
Storm frequency	= 10 yrs	Time to peak	= 741 min
Time interval	= 1 min	Hyd. volume	= 208,803 cuft
Inflow hyd. No.	= 2 - B1	Max. Elevation	= 1290.09 ft
Reservoir name	= POND B	Max. Storage	= 81,173 cuft

Storage Indication method used.



Hydrograph Report

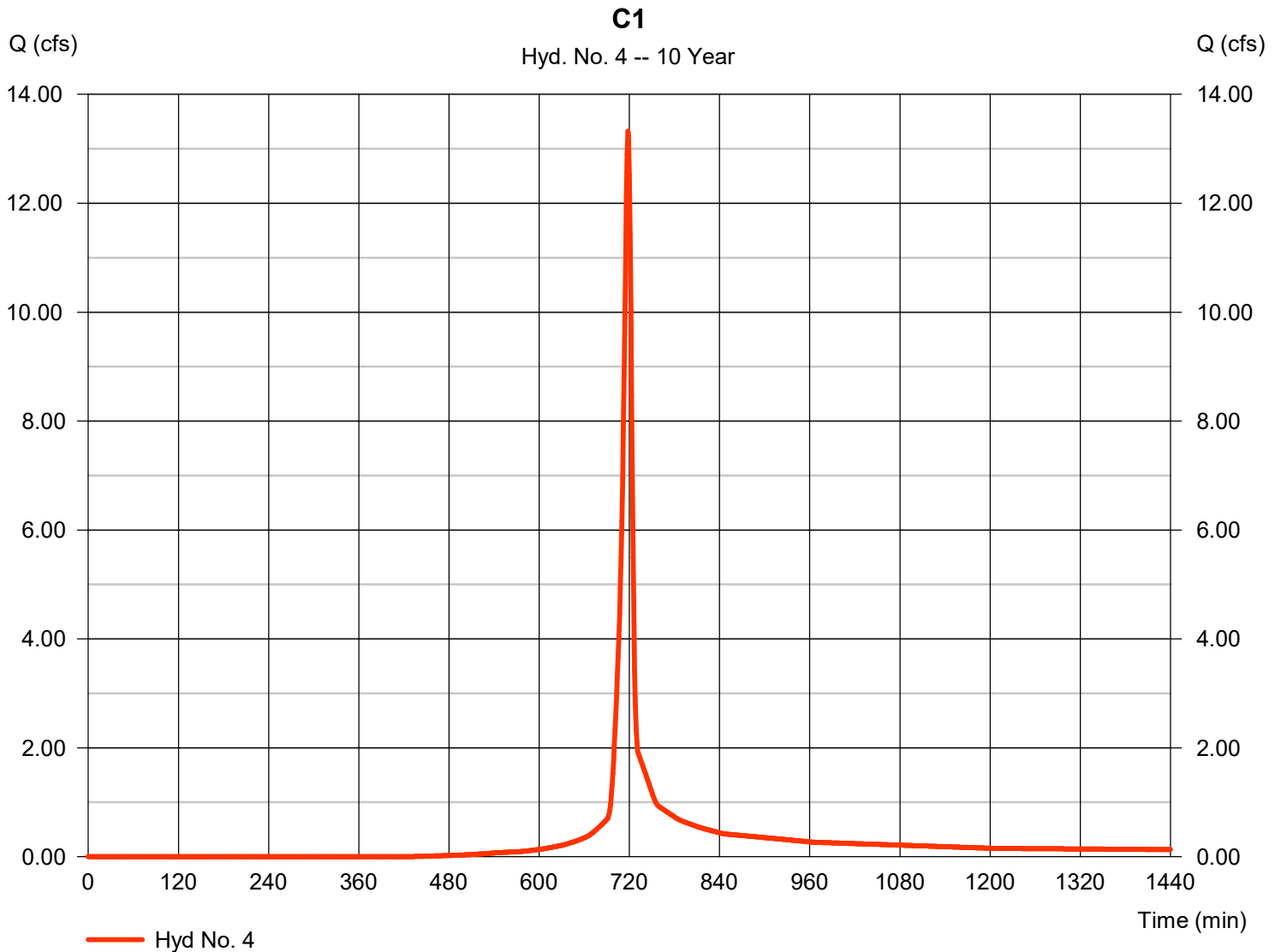
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

Friday, 07 / 26 / 2024

Hyd. No. 4

C1

Hydrograph type	= SCS Runoff	Peak discharge	= 13.32 cfs
Storm frequency	= 10 yrs	Time to peak	= 718 min
Time interval	= 1 min	Hyd. volume	= 28,442 cuft
Drainage area	= 3.100 ac	Curve number	= 82
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 8.00 min
Total precip.	= 4.45 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

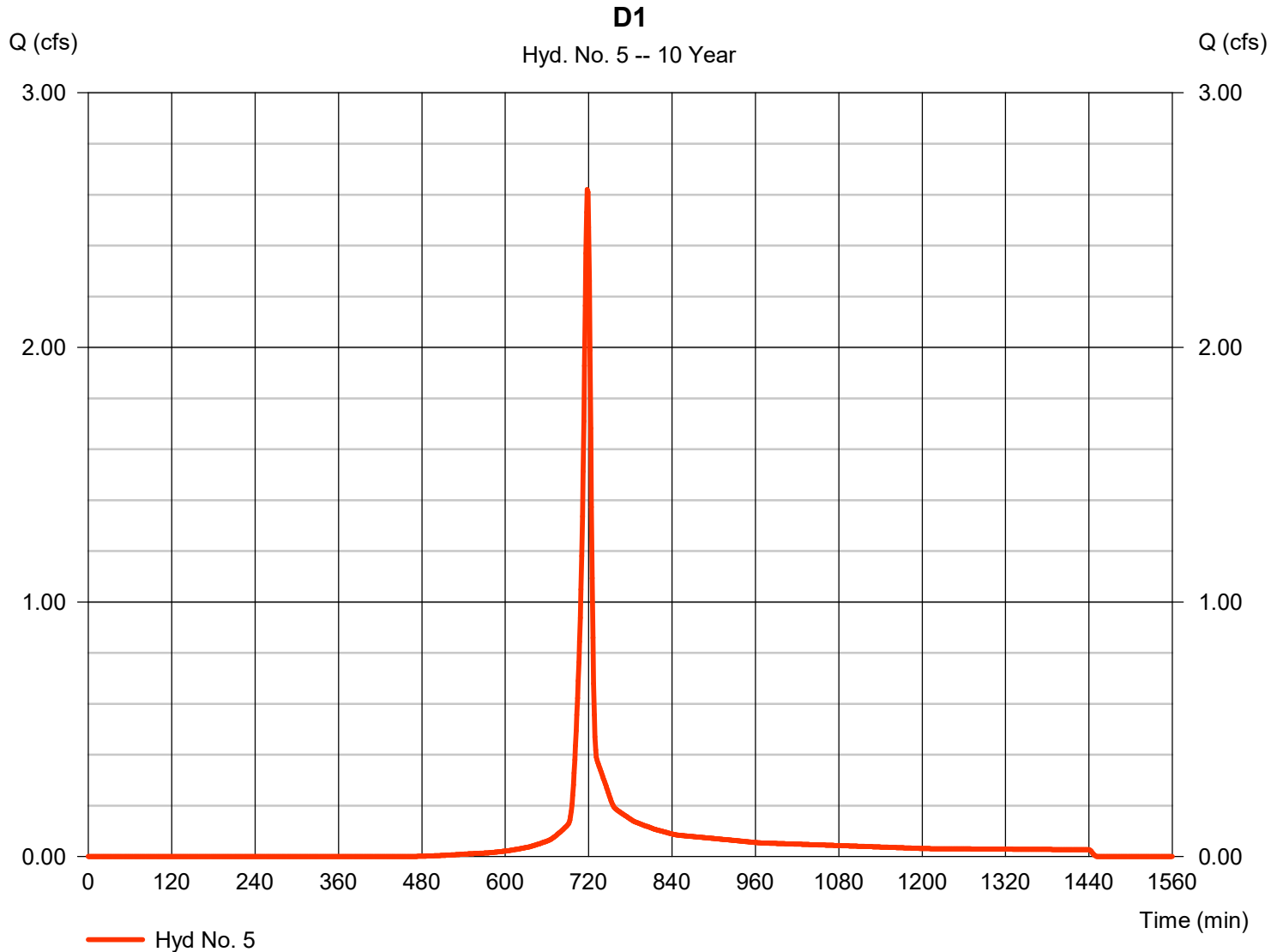


Hydrograph Report

Hyd. No. 5

D1

Hydrograph type	= SCS Runoff	Peak discharge	= 2.620 cfs
Storm frequency	= 10 yrs	Time to peak	= 718 min
Time interval	= 1 min	Hyd. volume	= 5,565 cuft
Drainage area	= 0.650 ac	Curve number	= 80
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 8.00 min
Total precip.	= 4.45 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

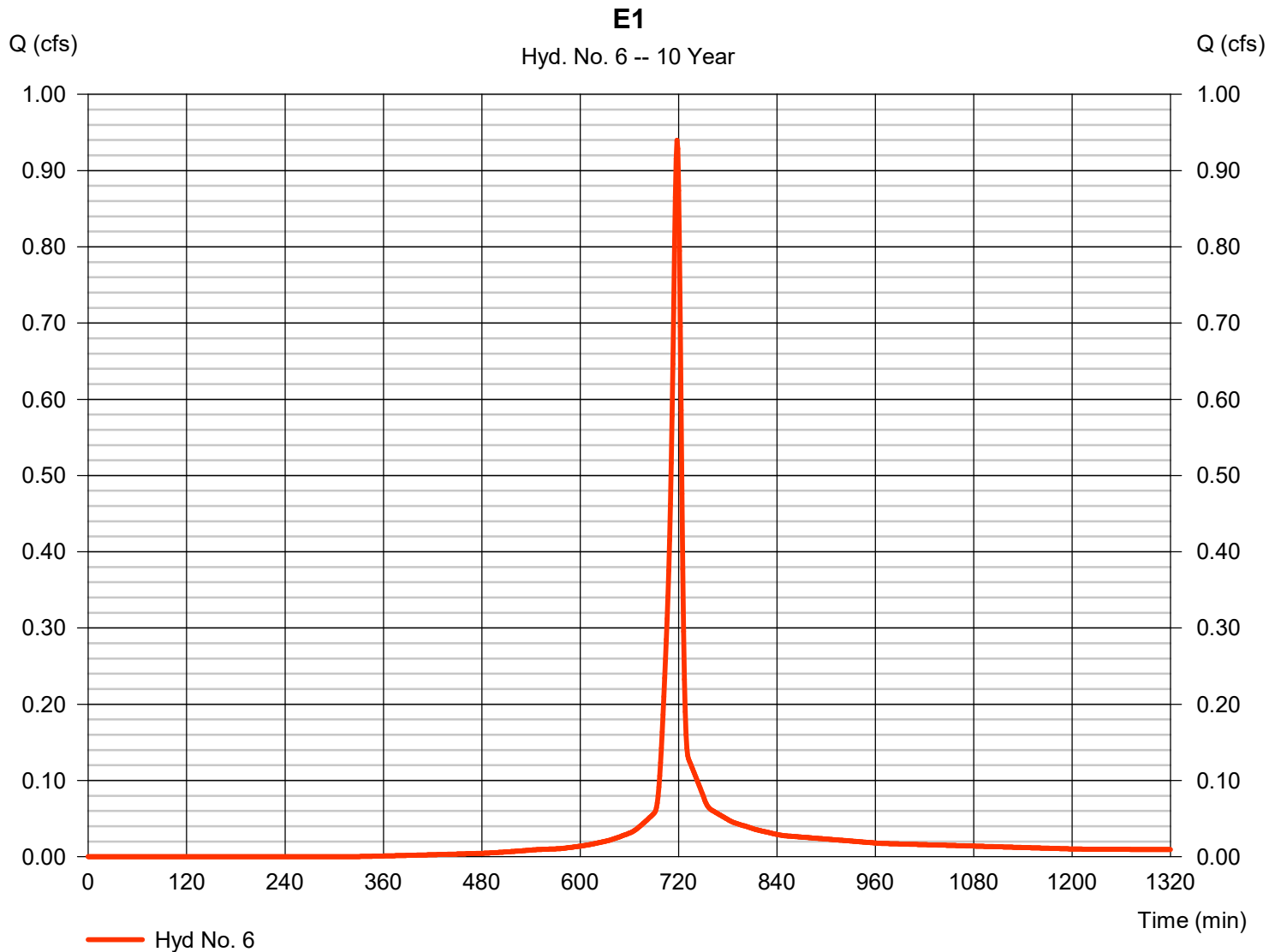
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

Friday, 07 / 26 / 2024

Hyd. No. 6

E1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.940 cfs
Storm frequency	= 10 yrs	Time to peak	= 718 min
Time interval	= 1 min	Hyd. volume	= 2,053 cuft
Drainage area	= 0.190 ac	Curve number	= 87
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 8.00 min
Total precip.	= 4.45 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description	
1	SCS Runoff	11.67	1	718	26,457	-----	-----	-----	A1	
2	SCS Runoff	129.33	1	723	398,002	-----	-----	-----	B1	
3	Reservoir	21.59	1	745	397,947	2	1292.71	165,725	POND B	
4	SCS Runoff	25.81	1	718	56,824	-----	-----	-----	C1	
5	SCS Runoff	5.225	1	718	11,396	-----	-----	-----	D1	
6	SCS Runoff	1.705	1	718	3,867	-----	-----	-----	E1	
Post Developed.gpw					Return Period: 100 Year			Friday, 07 / 26 / 2024		

Hydrograph Report

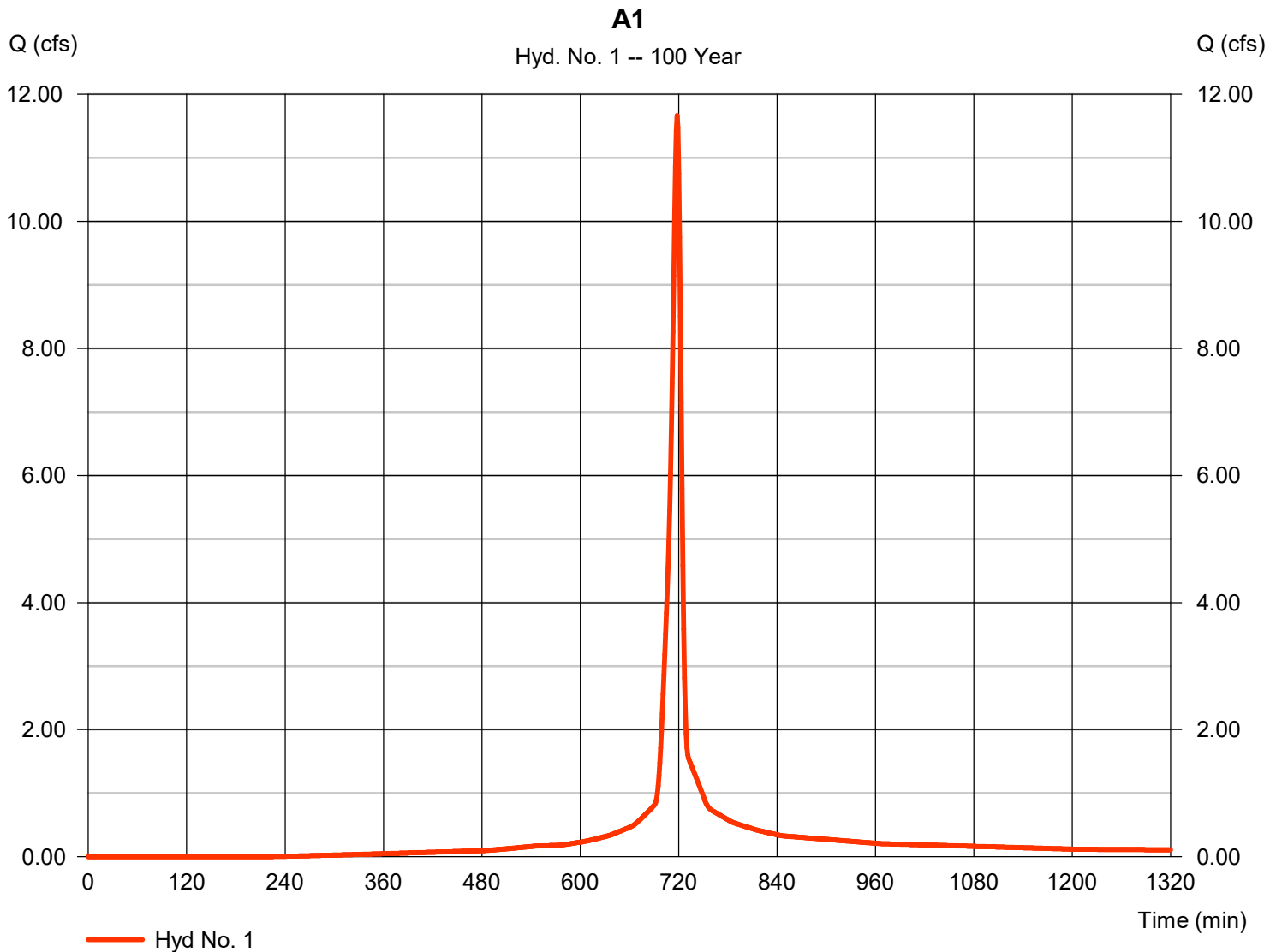
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Friday, 07 / 26 / 2024

Hyd. No. 1

A1

Hydrograph type	= SCS Runoff	Peak discharge	= 11.67 cfs
Storm frequency	= 100 yrs	Time to peak	= 718 min
Time interval	= 1 min	Hyd. volume	= 26,457 cuft
Drainage area	= 1.300 ac	Curve number	= 87
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 8.00 min
Total precip.	= 7.28 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

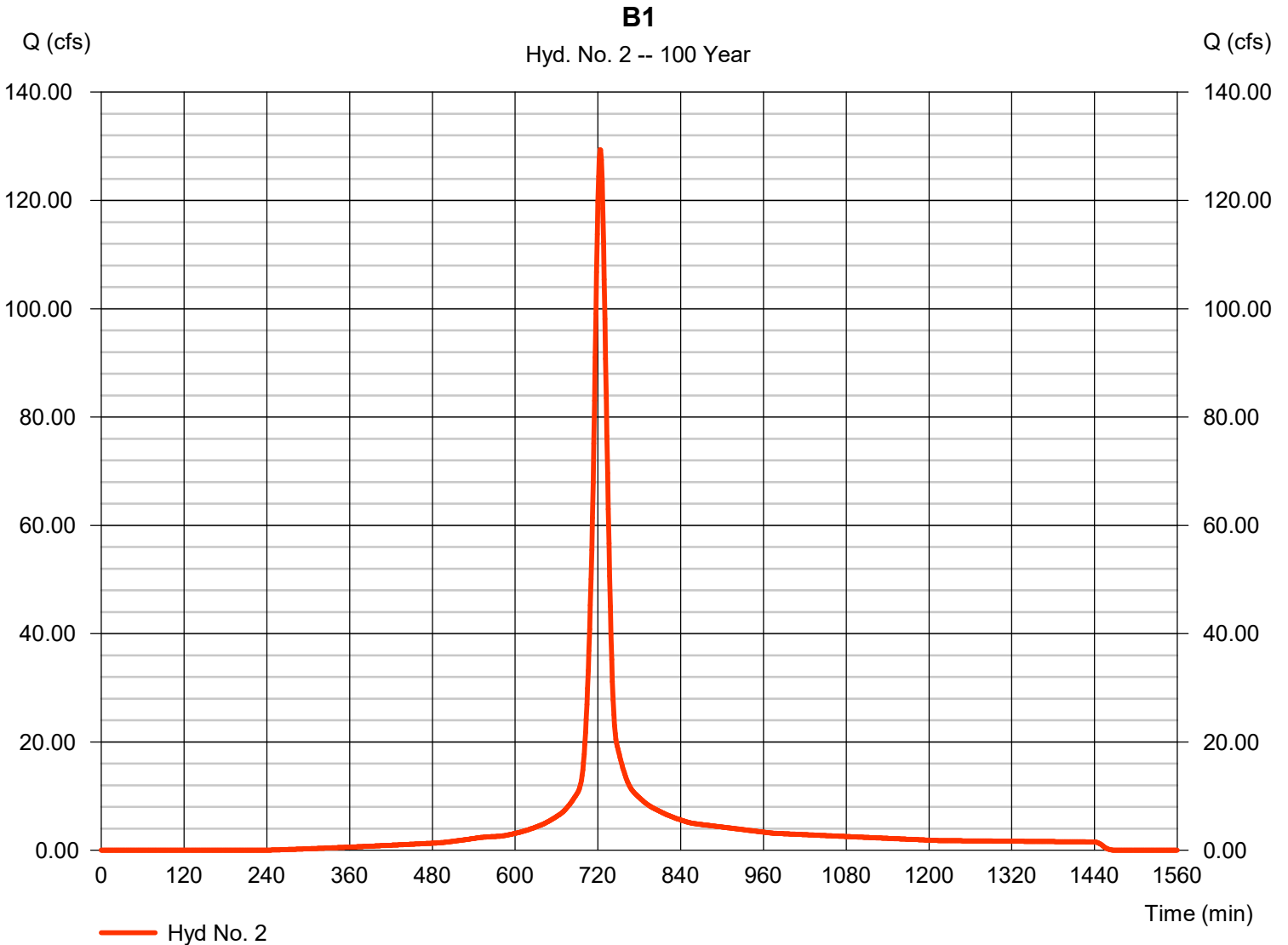
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Friday, 07 / 26 / 2024

Hyd. No. 2

B1

Hydrograph type	= SCS Runoff	Peak discharge	= 129.33 cfs
Storm frequency	= 100 yrs	Time to peak	= 723 min
Time interval	= 1 min	Hyd. volume	= 398,002 cuft
Drainage area	= 19.680 ac	Curve number	= 86
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 17.60 min
Total precip.	= 7.28 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

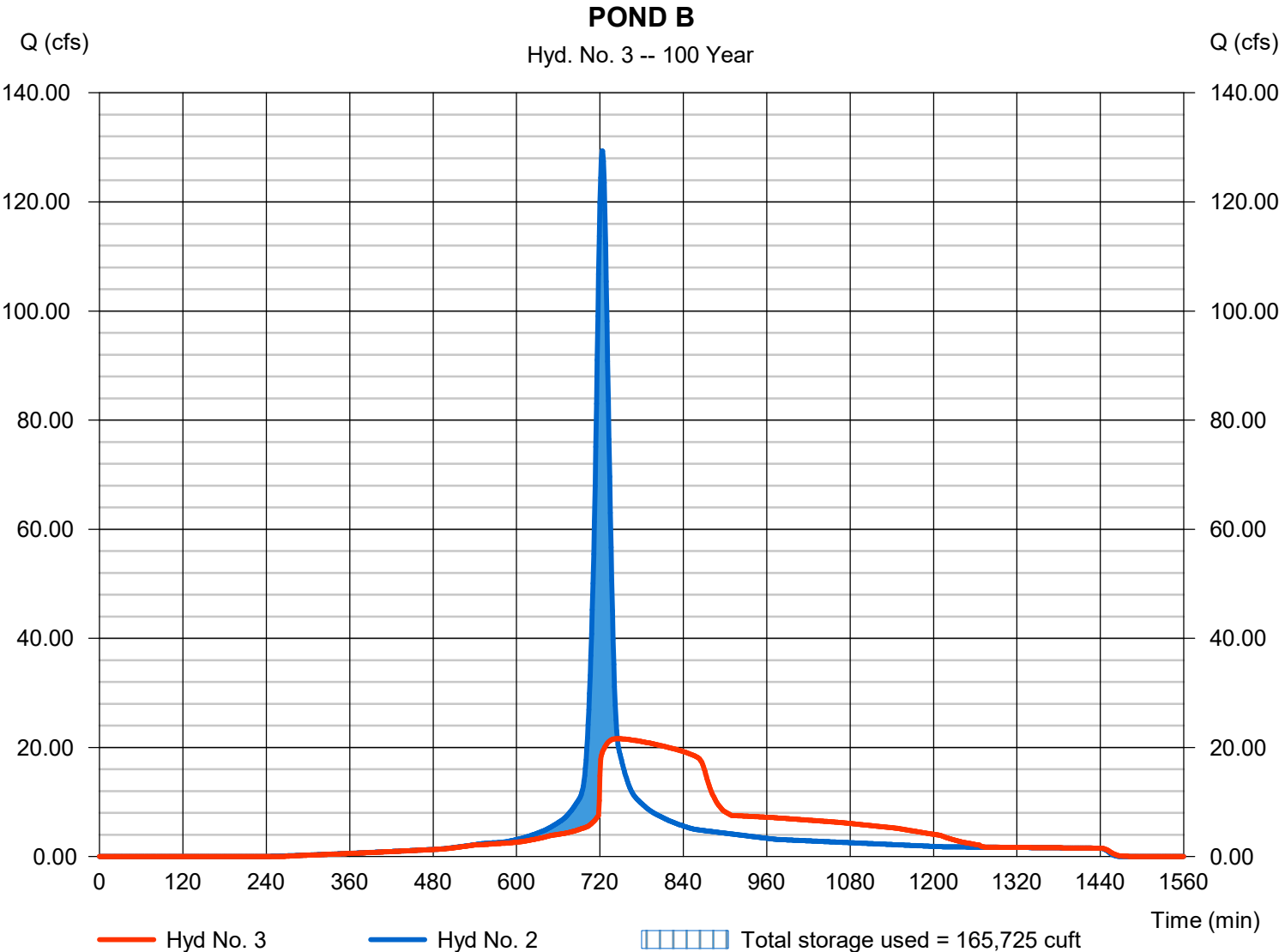
Friday, 07 / 26 / 2024

Hyd. No. 3

POND B

Hydrograph type	= Reservoir	Peak discharge	= 21.59 cfs
Storm frequency	= 100 yrs	Time to peak	= 745 min
Time interval	= 1 min	Hyd. volume	= 397,947 cuft
Inflow hyd. No.	= 2 - B1	Max. Elevation	= 1292.71 ft
Reservoir name	= POND B	Max. Storage	= 165,725 cuft

Storage Indication method used.



Hydrograph Report

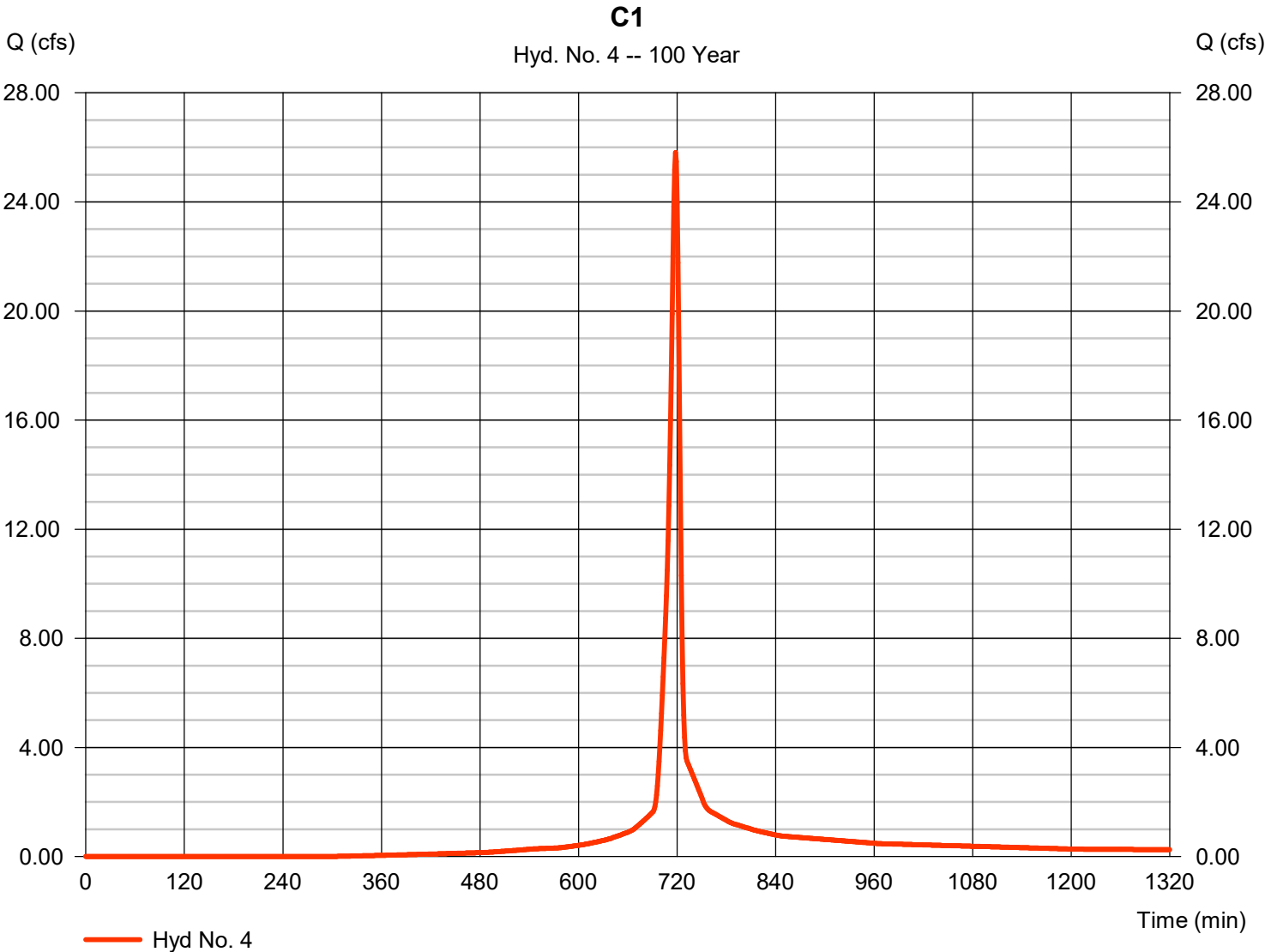
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Friday, 07 / 26 / 2024

Hyd. No. 4

C1

Hydrograph type	= SCS Runoff	Peak discharge	= 25.81 cfs
Storm frequency	= 100 yrs	Time to peak	= 718 min
Time interval	= 1 min	Hyd. volume	= 56,824 cuft
Drainage area	= 3.100 ac	Curve number	= 82
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 8.00 min
Total precip.	= 7.28 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

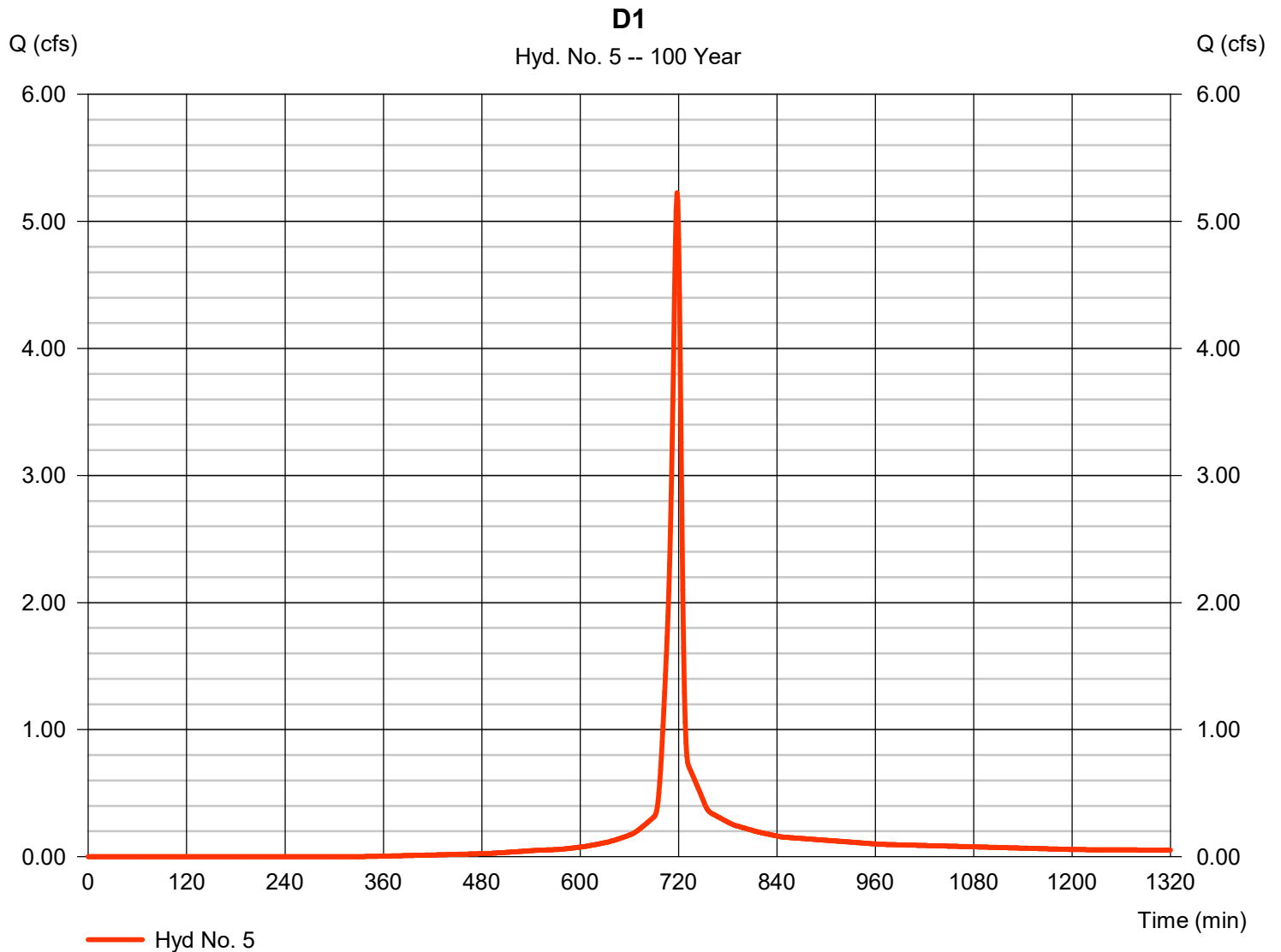
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Friday, 07 / 26 / 2024

Hyd. No. 5

D1

Hydrograph type	= SCS Runoff	Peak discharge	= 5.225 cfs
Storm frequency	= 100 yrs	Time to peak	= 718 min
Time interval	= 1 min	Hyd. volume	= 11,396 cuft
Drainage area	= 0.650 ac	Curve number	= 80
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 8.00 min
Total precip.	= 7.28 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

Hyd. No. 6

E1

Hydrograph type	= SCS Runoff	Peak discharge	= 1.705 cfs
Storm frequency	= 100 yrs	Time to peak	= 718 min
Time interval	= 1 min	Hyd. volume	= 3,867 cuft
Drainage area	= 0.190 ac	Curve number	= 87
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 8.00 min
Total precip.	= 7.28 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

