



110 N. Poplar Street • PO Box 218 • West Branch, Iowa 52358
(319) 643-5888 • Fax (319) 643-2305 • www.westbranchiowa.org • city@westbranchiowa.org

PLANNING AND ZONING COMMISSION MEETING

Tuesday, March 24, 2020 • 7:00 p.m.

****West Branch City Council Chambers, 110 N. Poplar St.**

Council Quorum May Be Present

1. Call to Order
2. Roll Call
3. Approve Agenda/Move to action.
 - a. Approve minutes from the January 28, 2020 Planning & Zoning Commission Meeting. / Move to action.
4. Public Hearing/Non-Consent Agenda. /Move to action.
 - a. Introduction and welcome Matt Van Scoyoc.
 - b. Parkside Hills Preliminary Plat – review and provide comments
 - c. West Branch High School Expansion Site Plan – review and provide comments
 - d. Approve draft Ordinance 776 – Corner Lots (amended)
 - e. Discuss and determine I-2 area regulations
5. Old Business
6. City Staff Reports
7. Comments from Chair and Commission Members
8. Next regular Planning & Zoning Commission meeting Tuesday, May 26, 2020.
9. Adjourn

****Meeting will be held via conference call.
Contact the City Office for call in details.****

Planning & Zoning Commission Members: Chair John Fuller, Vice Chair Ryan Bowers, Sally Peck, Emilie Walsh, Brad Bower, Matt Van Scoyoc, Vacant • **Zoning Administrator:** Terry Goerdts • **Deputy City Clerk:** Leslie Brick
Mayor: Roger Laughlin • **Council Members:** Colton Miller, Nick Goodweiler, Jodee Stoolman, Jerry Sexton, Tom Dean
City Administrator/Clerk: Redmond Jones II • **Fire Chief:** Kevin Stoolman • **Police Chief:** Mike Horihan
• **Public Works Director:** Matt Goodale • **Library Director:** Nick Shimmin

(These minutes are not approved until the next Commission meeting.)

City of West Branch Planning & Zoning Commission Meeting
January 28, 2020
West Branch City Council Chambers, 110 North Poplar Street

Chairperson John Fuller opened the Planning & Zoning Commission meeting at 7:00 p.m. welcoming the audience and following city staff; Deputy Clerk Leslie Brick, Zoning Administrator Terry Goerd, City Administrator Redmond Jones and Mayor Roger Laughlin. Commission members Ryan Bowers, Sally Peck, Brad Bower and Emilie Walsh were present. Matt Van Scoyoc was absent.

APPROVE AGENDA/CONSENT AGENDA/MOVE TO ACTION.

Approve the agenda for the January 28, 2020 Planning & Zoning Commission meeting. /Move to action.
Motion by Walsh, second by Peck to approve the agenda. Motion carried on a voice vote.

Approve minutes from the December 3, 2019 Planning & Zoning Commission meeting. /Move to action.
Motion by Bowers, second by Walsh to approve the minutes. Motion carried on a voice vote.

PUBLIC HEARING/NON-CONSENT AGENDA

Introduction and welcome Matt Van Scoyoc.

Unfortunately, Van Scoyoc was unable to attend this meeting.

Approve _____ as Chairperson of the Planning & Zoning Commission. / Move to action.

Bowers nominated Fuller as Chairperson for 2020. Walsh seconded the nomination. There were no other nominations.

Motion by Bowers, second by Walsh to approve Fuller as Chairperson for 2020. Motion carried on a voice vote.

Approve _____ as Vice Chairperson of the Planning & Zoning Commission. / Move to action.

Walsh nominated Bowers as Vice Chairperson for 2020. Peck seconded the nomination. There were no other nominations.

Motion by Walsh, second by Peck to approve Bowers as Vice Chair 2020. Motion carried on a voice vote.

Public Hearing – Rezone a certain parcel of property located north of Interstate 80 and East of Parkside Drive from B-2 Business District to PUD – Planned Unit Development District. (Parkside BP property.)

Fuller opened the public hearing at 7:02 p.m. City Engineer Dave Schechinger explained the challenges the existing building has in relation to the requested improvements submitted by the developer. Schechinger said as the building sets today, the front yard faces Parkside Drive. The existing building is currently five feet from the rear property line which is in violation of the current zoning (B-2) rear yard requirement of twenty feet. Schechinger noted that an auditor's parcel was considered since the owner of this parcel owns the adjacent property. Schechinger continued that when the developer constructs the new street for the future development to the east of this property, the front and rear yards for this property will shift clockwise. With that shift, the front yard will now face the new unnamed street and have approximately a nineteen feet set-back, (required front yard is twenty-five feet). The former rear yard will become a side yard (required side yard is eight feet) and currently is only five feet from the property line. In both scenarios, the existing building has set-back challenges. Schechinger reviewed options with City staff and the developer and it was determined that rezoning from B-2 to a PUD would be the best option for this particular property since a PUD gives flexibility on certain zoning requirements. Fuller was in agreement with the challenges this property has and was in agreement that rezoning was the best option in order for the project to move forward. Mayor Laughlin pledged his support as well for the rezoning request. There were no other public comments. Fuller closed the public hearing at 7:06 p.m.

Approve Rezoning request of a certain parcel of property located north of Interstate 80 and East of Parkside Drive from B-2 Business District to PUD – Planned Unit Development District. (Parkside BP property). / Move to action.

Motion by Bowers, second by Bower to approve the rezoning request. AYES: Bowers, Bower, Fuller, Peck, Walsh. NAYS: None. Absent: Van Scoyoc. Motion carried.

Approve Site Plan for 401 Parkside Drive (Parkside BP). /Move to action.

Bower noted that storm water was shown to discharge to the property to the east and not addressed on-site which is a requirement of the site plan approval process. Developer Chad Kuene, who owns this property and the property to the east stated that storm water from this property will be directed toward the retention basins on the 24 acre parcel (to be constructed). Ron Amelon, MMS Consultants reiterated that storm water would be directed to the basins on the other property and said they are working through the storm water issues with Schechinger to ensure that all requirements are met. Bower also questioned the proposed street width of twenty nine feet and asked Schechinger if he felt that would be a concern with the anticipated amount of traffic from the future development. Schechinger stated that most likely the City would not allow parking on either side of the street but felt that this was the appropriate width for this section of the street. Schechinger reviewed the two major issues being worked through at this time. 1) IDOT is requesting a trip generation to determine the amount of traffic the development to the east will generate, and 2) there will be quite a bit of grading that will need to be done on the south and east part of this property which may require the need for an engineered retaining wall. Schechinger said a recent meeting with IDOT is moving the project forward and said the Site plan was under continuous review but felt the site plan was not ready for final approval at this time. Fuller commented that the site plan 'was preliminary at this time' and suggested that approval should be tabled until the March 24th Planning & Zoning meeting. Amelon asked the commission to consider approving the site plan contingent upon completing the outstanding issues prior to the City Council's approval of the site plan. Fuller asked Schechinger his thoughts. Schechinger responded that if final grading were to end up requiring a retaining wall and the traffic study met IDOT's requirements, the commission could vote to approve with those contingencies. Kuene stated that the traffic study didn't affect this portion of the project, rather it relates to the amount of traffic from the future business and residential property to the east (phase 2) of the project. The commission agreed they could move forward with the approval of the site plan with a contingency on the requirement of a retaining wall once final grading was complete.

Motion by Bowers, second by Walsh to approve the Site Plan contingent upon the determination of the requirement of an engineered retaining wall on the south end of the property. AYES: Bowers, Walsh, Peck, Fuller, Bower. NAYS: None. Absent: Van Scoyoc. Motion carried.

Discuss Ordinance 734 – Corner Lots

Goerdt explained that Ordinance 734 passed in 2015 regarding corner lots omitted how to determine 'a rear yard'. Goerdt explained how the rear yard should be determined for corner lots and presented a written explanation. The commission agreed that additional language should be added to the ordinance and requested that they take this up at the next meeting.

STAFF REPORTS:

Brick gave an update on the current housing developments. Goerdt gave an update on inspections.

COMMENTS FROM CHAIR AND COMMISSION MEMBERS:

Fuller asked for a status on the Volkswagen Grant. Jones responded that the Council didn't approve funding for grant writing services at their January 21st City Council meeting for this particular grant. Jones said staff looked into trying to write the grant in-house but felt that the expertise and time needed to apply was in short supply. Walsh offered to recruit citizen volunteers to assist with writing the grant. Walsh asked for an update on the (former) Croell site now known as the Downtown East Redevelopment project. Laughlin said that one of the buildings had been removed and the second would be coming down in the near future. He said Barnhart was hired to remove the concrete and that work was ongoing.

Adjourn

Fuller adjourned the Planning & Zoning Commission meeting. Motion carried on a voice vote. The meeting adjourned at 7:50 p.m.

Submitted by:

Leslie Brick

Deputy City Clerk



110 N POPLAR ST, PO BOX 218, WEST BRANCH, IA 52340

PRELIMINARY PLAT APPLICATION

Applicant Name: Advantage Development Inc.

Address: 760 Liberty Way North Liberty IA 52317

Street or PO Box

City

State

Zip Code

Phone: 319-665-2997

Email: Chad@acbiowa.com

Signature: _____

Additional Contact

Name: Ron Amelon

Phone: 319-351-8282

Email: r.amelon@mmsconsultants.net

Property Owner (if other than applicant)

Name: _____

Address: _____
Street or PO Box # City State Zip Code

Phone: _____

Email: _____

During the review process City staff, Planning & Zoning Commission or City Council Members may visit the property. If the property owner does not wish to allow visitors onto the property, please sign below:

Property Information

Address (if none, list name of closest streets): 399 Parkside Drive

Assessor's Parcel # (Attach Legal Description): 0490-13-08-151-007-0 & 0490-13-08-177-006-0

Subdivision Name: Parkside Hills

Number of Lots: 14 Property Size: 23.28 AC Current Zoning: PUD

Subdivider's Engineer

Name: Ron Amelon, MMS Consultants, Inc

Address: 1917 S. Gilbert Street Iowa City IA 52240
Street or PO Box # City State Zip Code

Phone: 319-351-8282

Email: r.amelon@mmsconsultants.net

City of West Branch - Preliminary Plat Requirements:

- ☒ Title, scale, north point and date.
- ☒ An outline of the area to be subdivided, identifying approximate dimensions of the boundary lines.
- ☒ An accurate legal description of the land included in the subdivision and giving reference to two section corners within the U.S. public land system in which the plat lies, or if the plat is a subdivision of any portion of an official plat, two established monuments within the official plat.
- ☒ Each lot within the plat shall be assigned a progressive number.
- ☒ Present and proposed streets, alleys and sidewalks with their right of way, in or adjoining subdivision including dedicated widths, approximant gradients, types and widths of surfaces, curbs, and planting strips
- ☒ Proposed layout of lots, showing numbers, approximate dimensions and the square foot areas of lots that are not rectangular.
- ☒ Building setbacks or front yard lines.
- ☒ Parcels of land proposed to be dedicated or reserved for schools, parks, playgrounds or other public, semi-public or community purposes.
- ☒ Present and proposed easements showing locations, widths, purposes and limitations.
- ☒ Present and proposed utility systems including the locations and size of existing sanitary and storm sewers, culverts, water mains, street lights and other public utilities; and the location and alignment of proposed utilities to serve the development.
- ☒ Proposed name of the subdivision which shall not duplicate or resemble existing subdivision names in Cedar County.
- ☒ Name(s) and addresses of the owner, subdivider, and engineer, surveyor or architect who prepared the preliminary plat and the engineer, surveyor or architect who will prepare the final plat.
- ☒ Existing and proposed zoning of the proposed subdivision and adjoining property.
- N/A ☐ A general summary description of any protective covenants or private restrictions to be incorporated in the final plat.
- ☒ Contours at vertical intervals of not more than two (2) feet if the general slope of the site is less than ten percent (10 %) and at vertical intervals of not more the five (5) feet if the general slope is ten percent(10%) or greater, unless the Planning & Zoning Commission waives this requirement.
- ☒ The location of any floodway and flood hazards boundaries and the identification of those areas subject to flooding and high water.
- ☒ Identification of all adjoining properties and where such adjoining properties are part of recorded subdivisions the names of those subdivisions.
- ☒ Identification of areas prone to erosion and by separate document attached to the preliminary plat, a grading plan to explain the methods that will be used to control erosion pursuant to the requirements of Chapter 170.15(15)
- N/A ☐ A proposal to turn over 5% of useable subdivided land or its value to the City of West Branch for park development.
- N/A ☐ A list of all variances from zoning and subdivision regulations that are being requested.

Process: Staff will review the first submittal and issue a preliminary report listing required and recommended changes, and will include a date by which a revised complete set of 7 copies is required to be submitted for final staff review and for Planning & Zoning Commission and Council consideration. Along with a revised set, Acrobat "PDF" files of all materials are required.

PRELIMINARY PLAT CHECKLIST

Please attach following items. Additional materials may be required during the review process. Failure to submit the complete application materials may result in delays in processing.

Submittal Deadline: 1st working day of month by 12:00 p.m.

Submittal Requirements:

- ☒ 1 completed copy of this application form, including checklist.
- ☒ Application Fee: \$300. Applicant is responsible for actual cost of the City Engineer's review and additional engineering reviews.
- ☒ 2 scalable copies folded to 8.5"x11" & Acrobat "PDF" files emailed to leslie@westbranchiowa.org
- N/A ☐ Other information requested by City Staff for review of the proposed project.
- N/A ☐ If the applicant is other than the legal owner, the applicant interest shall be indicated legal owners' authority to apply shall be included in a certified legal form.

For Staff Use:

_____ Date application and preliminary plat received

_____ Information forwarded to City Engineer, City Attorney, Planning & Zoning Commission, Building Inspector, Public Works Director and Fire Chief

_____ Comments received from:

_____ City Engineer

_____ City Attorney

_____ Building Inspector

_____ Public Works Director

_____ Fire Chief

_____ Comments forwarded to Developer and Planning & Zoning Commission.

_____ Date of 1st Planning & Zoning Commission meeting

_____ Date of 2nd Planning & Zoning Commission meeting (if needed)

_____ Date of Planning & Zoning Commission Approval

_____ Stamp Preliminary Plat 'Approved' – email to Subdivider and their engineer & City Council

_____ Forward approved preliminary plat to City Attorney for creation of Resolution and Subdivider's Agreement

_____ Invoice Subdivider for Engineering fees

_____ Date of 1st City Council meeting, preceding P&Z approval

_____ Preliminary Plat Resolution # _____, approved _____

_____ Subdivider's Agreement, approved _____

Signature of City Staff / Title _____ **Date** _____



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ENVIRONMENTAL SPECIALISTS

1917 S. GILBERT ST.
IOWA CITY, IOWA 52240
(319) 351-6282
www.mmsconsultants.net

Date Revision

WEST BRANCH
PROPERTY
EXHIBIT

PARKSIDE HILLS

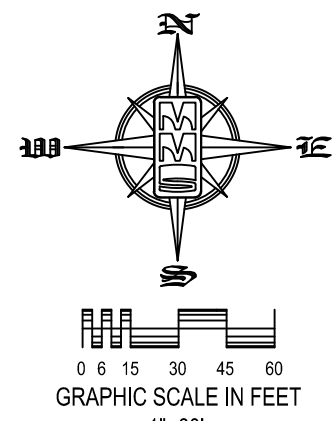
WEST BRANCH
CEDAR COUNTY
STATE OF IOWA

MMS CONSULTANTS, INC.

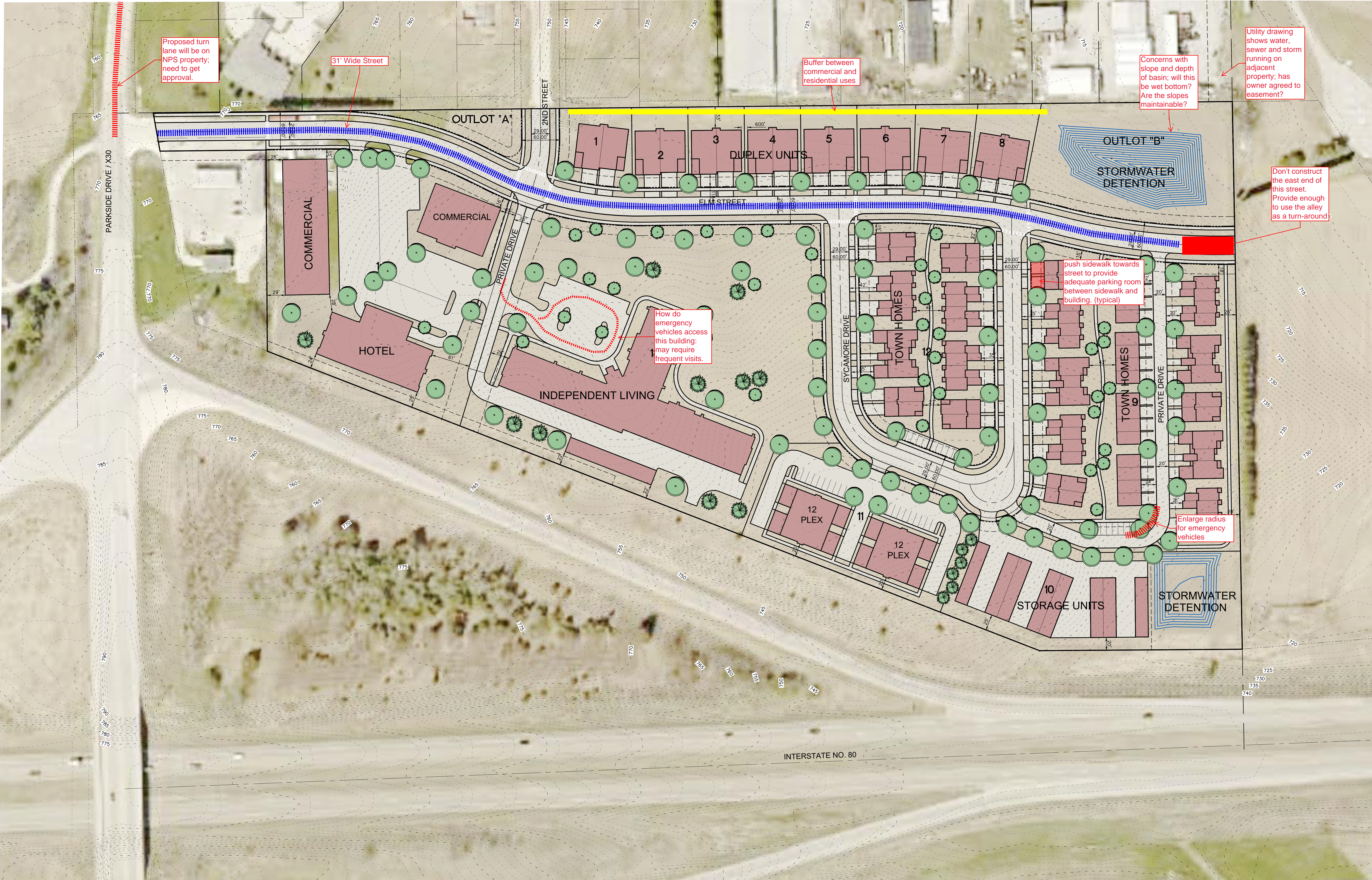
Date:	02-14-2020
Designed by:	JDM
Drawn by:	MAK
Checked by:	RLA
Project No:	IOWA CITY 6992-287
Field Book No:	1239
Scale:	1"=60'
Sheet No:	1

WEST BRANCH PROPERTY EXHIBIT

WEST BRANCH, CEDAR COUNTY, IOWA



DEVELOPMENT CHARACTERISTICS:	
BUILDING CHARACTERISTICS:	
8 DUPLEXES	16 UNITS
22 TOWNHOMES	56 UNITS
2 12-PLEX BUILDINGS	24 UNITS
2 TOTAL RESIDENTIAL UNITS	96 UNITS
COMMERCIAL SPACE	
HOTEL	23,643 SF
INDEPENDENT LIVING	14,103 SF
STORAGE UNITS	35,295 SF
	15,587 SF
TOTAL SITE AREA	
	23.28 ACRES
GREEN SPACE	
	11.11 ACRES (48%)



LEGAL DESCRIPTION:
A PORTION OF LOT D OF THE NORTHWEST QUARTER OF SECTION 8, TOWNSHIP 79 NORTH, RANGE 4 WEST, OF THE FIFTH PRINCIPAL MERIDIAN, WEST BRANCH, CEDAR COUNTY, IOWA, DESCRIBED AS FOLLOWS:
Commencing at the Northwest Corner of Section 8, Township 79 North, Range 4 West, of the Fifth Principal Meridian, West Branch, Cedar County, Iowa, Thence 500°52'40"E, along the West Line of the Northwest Quarter of said Section 8, a distance of 1637.40 feet, Thence N89°24'33"E, 60.52 feet, to a Point on the East Right-of-Way Line of Ramp "E" of Interstate No. 80, and the POINT OF BEGINNING, Thence continuing N89°24'33"E, 232.95 feet, to the Southwest Corner of Cookson Subdivision, in accordance with the Plat thereof Recorded in Book 1211 at Pages 333-334 of the Records of the Cedar County Recorder's Office, Thence N89°22'22"E, along the South Line of said Cookson Subdivision, 650.25 feet, to the Southeast Corner thereof, and the Southwest Corner of Stoolman's 1st Addition, in accordance with the Plat thereof Recorded in Book 140 at Page 129 of the Records of the Cedar County Recorder's Office, Thence N89°25'17"E, along the South Line of said Stoolman's 1st Addition, and the Easterly projection thereof 803.44 feet, to the Northwest Corner of Lot A of Lot D, in accordance with the Plat thereof Recorded in Book 3 at Page 265 of the Records of the Cedar County Recorder's Office, Thence S01°12'25"E, along the West Line of said Lot A of Lot D, a distance of 885.86 feet, to its intersection with the North Right-of-Way Line of said Interstate No. 80, Thence S85°19'30"W, along said North Right-of-Way Line, 3.75 feet, to a Point 150.00 feet normally distant Northerly from Interstate No. 80 centerline station 72+13, Thence S85°35'43"W, along said North Right-of-Way Line 313.16 feet, to a Point 150.00 feet normally distant Northerly from Interstate No. 80 centerline station 69+00, Thence N88°48'05"W, along said Northerly Right-of-Way Line, 1284.22 feet, to the Southeast Corner of the Tract of Land conveyed by Warranty Deed, as Recorded in Book 688 at Pages 68-69 of the Records of the Cedar County Recorder's Office, Thence N00°23'24"W, along the East Line of said conveyed Tract, 334.42 feet, Thence S89°24'33"W, along a line parallel with and 60.00 feet normally distant Southerly from the North Line of said Conveyed Tract, 199.05 feet, to a Point on the West Line of said Conveyed Tract and the said East Right-of-Way Line of Ramp "E", Thence N10°07'24"W, along said West Line and East Right-of-Way Line, 40.56 feet, to the Point of Beginning, Said tract of land contains 23.28 Acres, and is subject to easements and restrictions of record.



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Date	Revision
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WEST BRANCH
PROPERTY
EXHIBIT

PARKSIDE HILLS

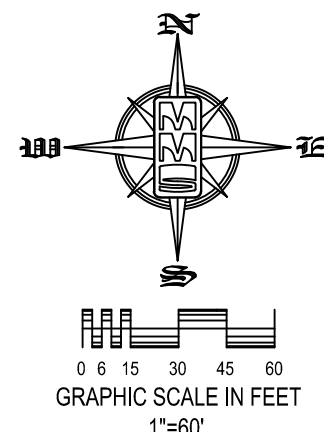
WEST BRANCH
CEDAR COUNTY
STATE OF IOWA

MMS CONSULTANTS, INC.

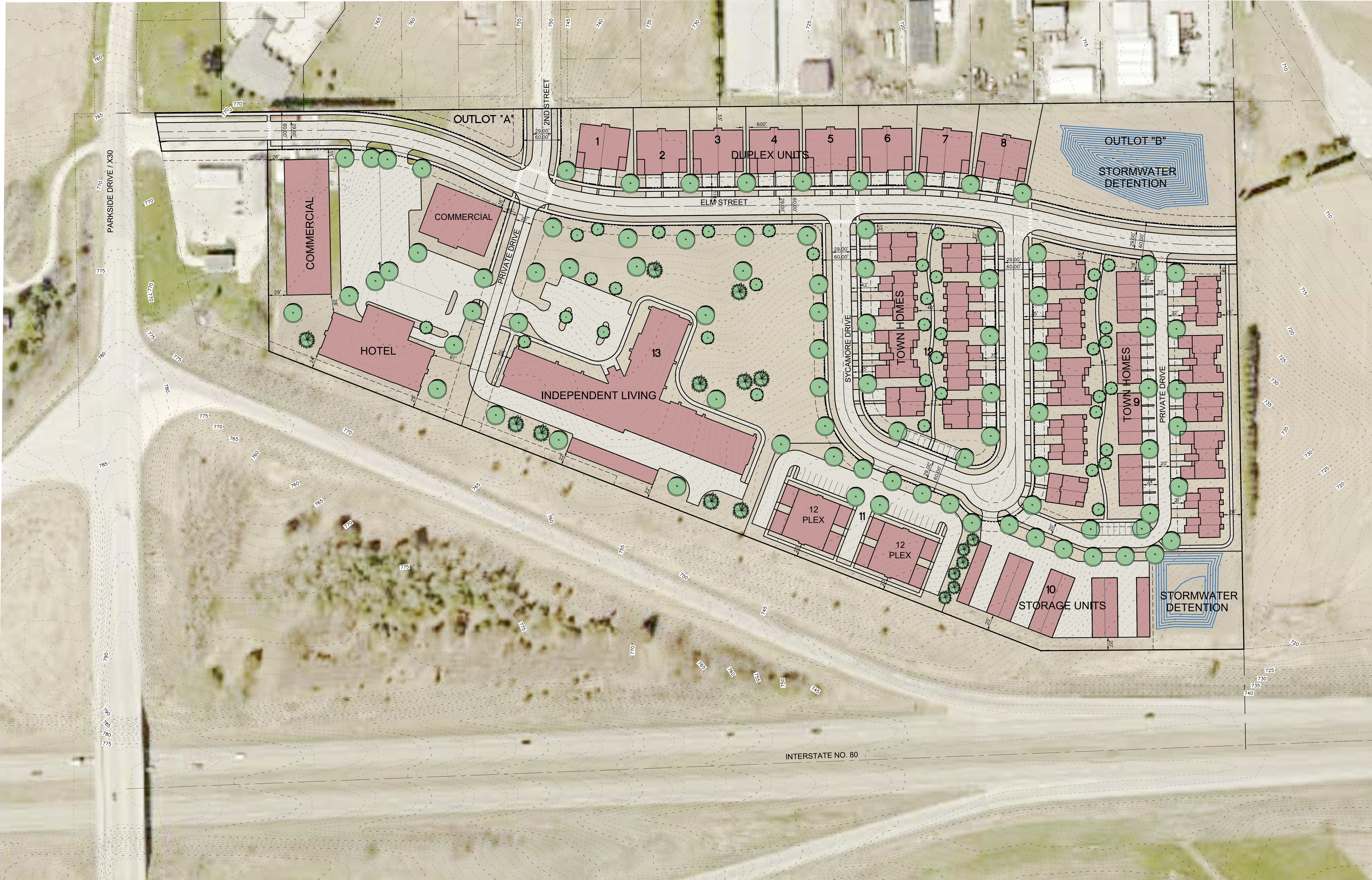
Date:	02-14-2020
Designed by:	JDM
Drawn by:	MAK
Checked by:	RLA
Project No:	IOWA CITY 6992-287
Field Book No:	1239
Scale:	1"=60'
Sheet No:	1

WEST BRANCH PROPERTY EXHIBIT

WEST BRANCH, CEDAR COUNTY, IOWA



DEVELOPMENT CHARACTERISTICS:	
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COMMERCIAL SPACE	
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TOTAL SITE AREA	
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Date Revision

PRELIMINARY PLAT

PARKSIDE HILLS

WEST BRANCH
CEDAR COUNTY
STATE OF IOWA

MMS CONSULTANTS, INC.

Date: 02-14-2020

Designed by: JDM Field Book No: 1239

Drawn by: MAK Scale: 1"=60'

Checked by: RLA Sheet No: 1

Project No: IOWA CITY

6992-287

PRELIMINARY PLAT PARKSIDE HILLS WEST BRANCH, CEDAR COUNTY, IOWA

PLAT PREPARED BY:
MMS CONSULTANTS INC.
1917 S. GILBERT STREET
IOWA CITY, IA 52240

OWNER/APPLICANT:
ADVANTAGE DEVELOPMENT INC.
760 LIBERTY WAY
NORTH LIBERTY, IOWA 52317

APPLICANT'S ATTORNEY:
MATTHEW J. ADAM
1150 5TH STREET, SUITE 170
CORALVILLE, IA 52241

STANDARD LEGEND AND NOTES

- PROPERTY &/or BOUNDARY LINES
- CONGRESSIONAL SECTION LINES
- RIGHT-OF-WAY LINES
- EXISTING RIGHT-OF-WAY LINES
- CENTER LINES
- EXISTING CENTER LINES
- LOT LINES, INTERNAL
- LOT LINES, PLATTED OR BY DEED
- PROPOSED EASEMENT LINES
- EXISTING EASEMENT LINES
- BENCHMARK
- RECORDED DIMENSIONS
- CURVE SEGMENT NUMBER
- POWER POLE
- POWER POLE W/DROP
- POWER POLE W/TRANS
- POWER POLE W/LIGHT
- DUTY POLE
- SANITARY MANHOLE
- FIRE HYDRANT
- WATER VALVE
- DRAINAGE MANHOLE
- CURB INLET
- FENCE LINE
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- EXISTING STORM SEWER
- PROPOSED STORM SEWER
- WATER LINES
- ELECTRICAL LINES
- TELEPHONE LINES
- GAS LINES
- CONTOUR LINES (2' INTERVAL)
- PROPOSED GROUND
- EXISTING TREE LINE
- EXISTING DECIDUOUS TREE & SHRUB
- EXISTING EVERGREEN TREES & SHRUBS

THE ACTUAL SIZE AND LOCATION OF ALL PROPOSED FACILITIES SHALL BE VERIFIED WITH CONSTRUCTION DOCUMENTS, WHICH ARE TO BE PREPARED AND SUBMITTED SUBSEQUENT TO THE APPROVAL OF THIS DOCUMENT.

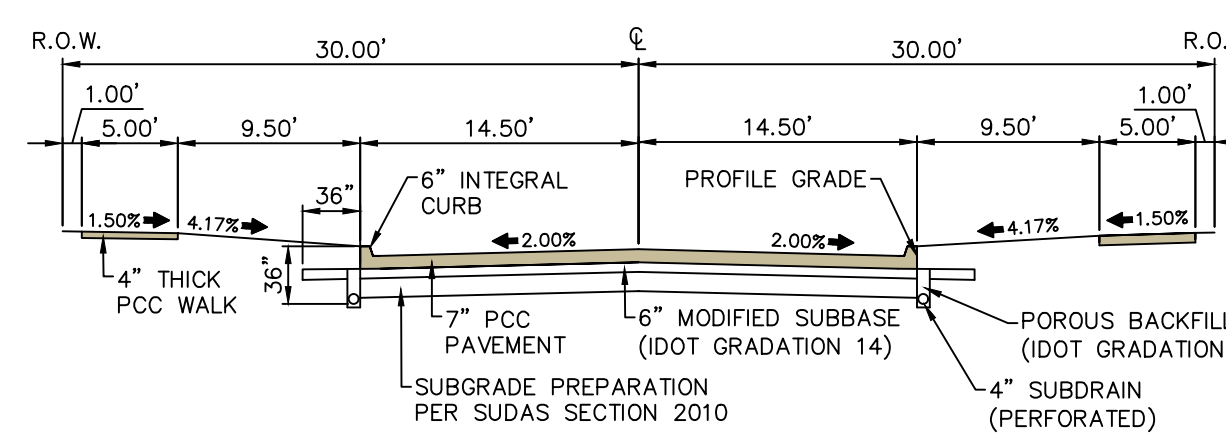
- NOTES:
1. A PORTION OF THIS SITE RESIDES WITHIN THE FEMA 100-YEAR FLOOD ZONE (1.0% CHANCE) AS NOTED IN FEMA PANEL NUMBER 19031C0212C, EFFECTIVE DATE: 08/19/2013.
 2. PRIVATE DRIVES AND UTILITIES IN LOTS 9, 13 AND 14 SHALL BE CONSTRUCTED WITH SITE PLAN IMPROVEMENTS UNLESS NOTED OTHERWISE.

LEGAL DESCRIPTION:

A PORTION OF LOT D OF THE NORTHWEST QUARTER OF SECTION 8, TOWNSHIP 79 NORTH, RANGE 4 WEST, OF THE FIFTH PRINCIPAL MERIDIAN, WEST BRANCH, CEDAR COUNTY, IOWA, DESCRIBED AS FOLLOWS:

Commencing at the Northwest Corner of Section 8, Township 79 North, Range 4 West, of the Fifth Principal Meridian, West Branch, Cedar County, Iowa; Thence S00°52'40"E, along the West Line of the Northwest Quarter of said Section 8, a distance of 1637.40 feet; Thence N89°24'33"E, 60.52 feet, to a Point on the East Right-of-Way Line of Ramp "E" of Interstate No. 80, and the POINT OF BEGINNING; Thence continuing N89°24'33"E, 232.85 feet, to the Southwest Corner of Cookson Subdivision, in accordance with the Plat thereof Recorded in Book 1211 at Pages 333-334 of the Records of the Cedar County Recorder's Office; Thence N89°22'29"E, along the South Line of said Cookson Subdivision, 650.25 feet, to the Southeast Corner thereof, and the Southwest Corner of Stoolman's 1st Addition, in accordance with the Plat thereof Recorded in Book 140 at Page 128 of the Records of the Cedar County Recorder's Office; Thence N89°21'17"E, along the South Line of said Stoolman's 1st Addition, and the Easterly projection thereof 803.44 feet, to the Northwest Corner of Lot A of Lot D, in accordance with the Plat thereof Recorded in Book 3 at Page 655 of the Records of the Cedar County Recorder's Office; Thence S01°02'28"E, along the West Line of said Lot A of Lot D, a distance of 885.86 feet, to its Intersection with the North Right-of-Way Line of said Interstate No. 80; Thence S85°19'36"W, along said North Right-of-Way Line, 3.75 feet, to a Point 150.00 feet normally distant Northerly from Interstate No. 80 centerline station 724+13; Thence S85°32'43"W, along said North Right-of-Way Line 313.16 feet, to a Point 160.00 feet normally distant Northerly from Interstate No. 80 centerline station 69+00; Thence N89°48'05"W, along said Northerly Right-of-Way Line, 1294.32 feet, to the Southeast Corner of the Tract of Land conveyed by Warranty Deed, as Recorded in Book 668 at Pages 88-89 of the Records of the Cedar County Recorder's Office; Thence N00°23'24"W, along the East Line of said conveyed Tract, 334.42 feet; Thence S89°24'33"W, along a line parallel with and 40.00 feet normally distant Southerly from the North Line of said Conveyed Tract, 169.05 feet, to a Point on the West Line of said Conveyed Tract and the said East Right-of-Way Line of Ramp "E"; Thence N10°07'24"W, along said West Line and East Right-of-Way Line, 40.56 feet, to the Point of Beginning. Said tract of land contains 23.28 Acres, and is subject to easements and restrictions of record.

TYPICAL STREET SECTIONS N.T.S.

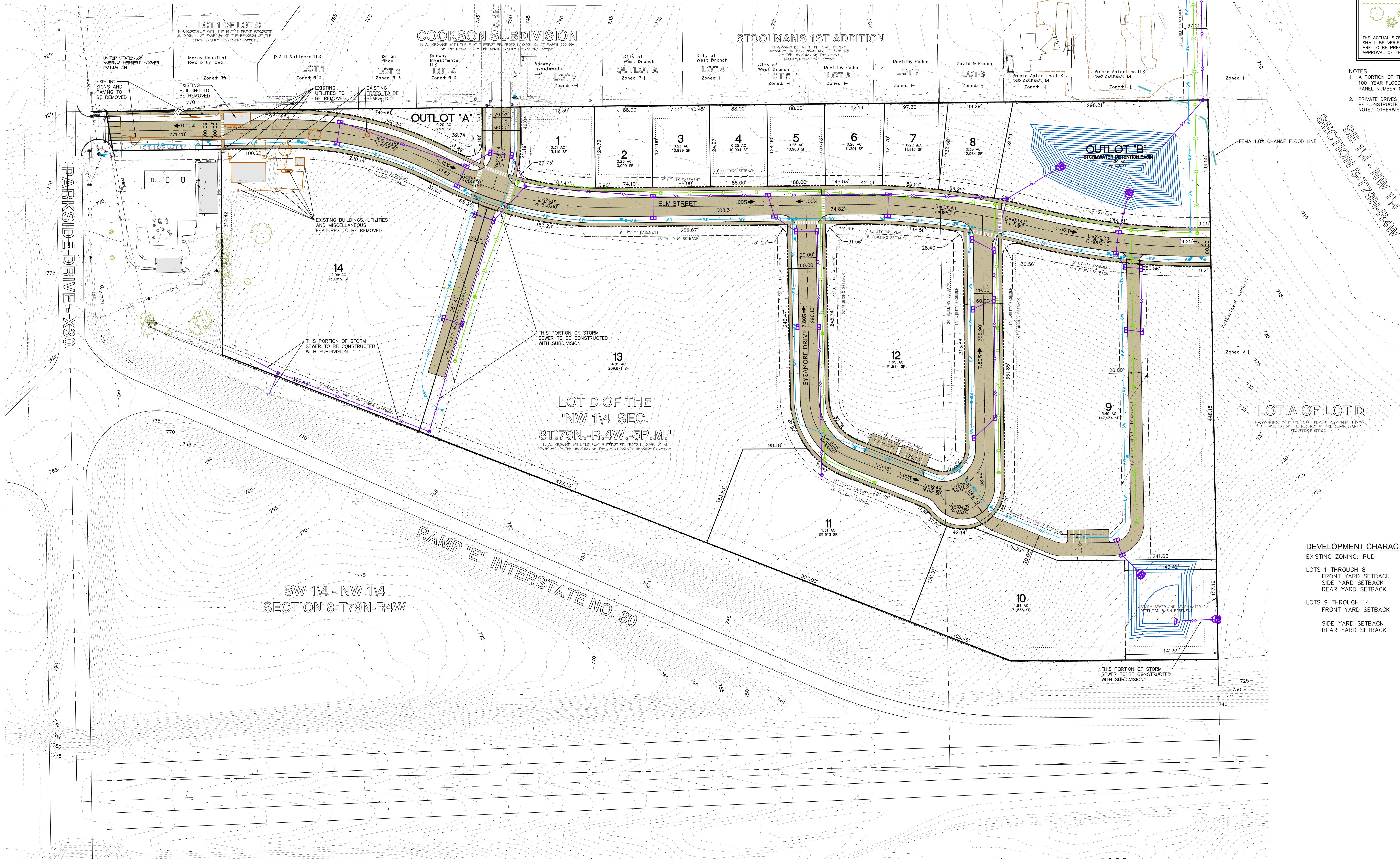


ELM STREET and SYCAMORE DRIVE



PARKSIDE HILLS WEST BRANCH, IOWA

LOCATION MAP NOT TO SCALE



SECTION 14 - NW 1/4
SECTION 8-T79N-R4W

FEMA 1.0% CHANCE FLOOD LINE

OUTLOT 'B'

BIOWATER DETENTION BASIN

OUTLOT 'A'

ELM STREET

SYCAMORE DRIVE

LOT 14

LOT 13

LOT 12

LOT 11

LOT 10

LOT 9

LOT 8

LOT 7

LOT 6

LOT 5

LOT 4

LOT 3

LOT 2

LOT 1

LOT 14

LOT 13

LOT 12

LOT 11

LOT 10

LOT 9

LOT 8

LOT 7

LOT 6

LOT 5

LOT 4

LOT 3

LOT 2

LOT 1

DEVELOPMENT CHARACTERISTICS

EXISTING ZONING: PUD

LOTS 1 THROUGH 8
FRONT YARD SETBACK 20 FEET
SIDE YARD SETBACK 5 FEET
REAR YARD SETBACK 20 FEET

LOTS 9 THROUGH 14
FRONT YARD SETBACK (ELM STREET) 15 FEET
FRONT YARD SETBACK (SYCAMORE DRIVE) 20 FEET
SIDE YARD SETBACK 15 FEET
REAR YARD SETBACK 20 FEET



CIVIL ENGINEERS
LAND PLANNERS
LAND SURVEYORS
LANDSCAPE ARCHITECTS
ENVIRONMENTAL SPECIALISTS

1917 S. GILBERT ST.
IOWA CITY, IOWA 52240
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Date Revision

GRADING AND
EROSION CONTROL
PLAN AND SWPPP

PARKSIDE HILLS

WEST BRANCH
CEDAR COUNTY
STATE OF IOWA

MMS CONSULTANTS, INC.

Date: 02-14-2020
Designed by: JDM Field Book No: 1239
Drawn by: MAK Scale: 1"=60'
Checked by: RLA Sheet No: 1
Project No: IOWA CITY
6992-287

PRELIMINARY PLAT PARKSIDE HILLS WEST BRANCH, CEDAR COUNTY, IOWA

PLAT PREPARED BY:
MMS CONSULTANTS INC.
1917 S. GILBERT STREET
IOWA CITY, IA 52240

OWNER/APPLICANT:
ADVANTAGE DEVELOPMENT INC.
760 LIBERTY WAY
NORTH LIBERTY, IOWA 52317

APPLICANT'S ATTORNEY:
MATTHEW J. ADAM
1150 5TH STREET, SUITE 170
CORALVILLE, IA 52241

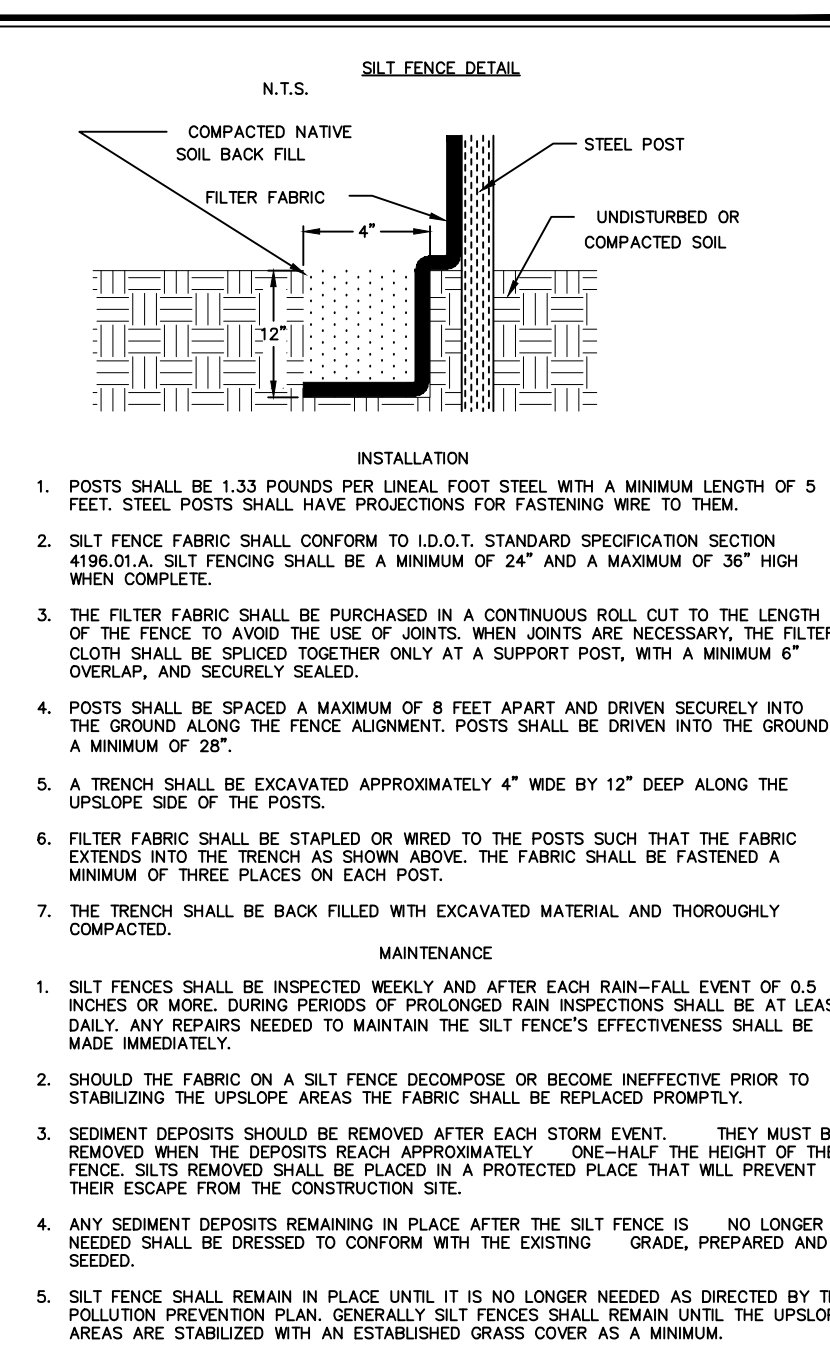
EROSION CONTROL LEGEND	
<ul style="list-style-type: none"> SILT FENCE/FILTER SOCK TEMPORARY ROCK CONSTRUCTION ENTRANCE/EXIT TEMPORARY PARKING AND STORAGE CONCRETE TRUCK/EQUIPMENT WASHOUT PORTABLE RESTROOM DOCUMENT LOCATION (PERMITS, SWPPP, INSPECTION FORMS, ETC.) FILTER SOCK INLET PROTECTION FILTER SOCK BEHIND CURB AT CURB RAMP 	<ul style="list-style-type: none"> PERMETER SILT FENCE TEMPORARY SOIL STOCKPILE AREA DIRECTION OF OVERLAND FLOW DUMPSITE FOR CONSTRUCTION WASTE RIP RAP OUTLET PROTECTION 8' EROSION CONTROL BLANKET OTHER MEASURE:

THE ABOVE LISTED ITEMS ARE SHOWN IN THEIR RECOMMENDED LOCATIONS. IF A CONTROL MEASURE IS ADDED OR MOVED TO A MORE SUITABLE LOCATION, INDICATE THE REASON ON THIS SHEET. THE BLANKS LEFT FOR OTHER MEASURES SHOULD BE FILLED IF AN ITEM NOT SHOWN ABOVE IS IMPLEMENTED ON SITE. ADDITIONAL PRACTICES FOR EROSION PREVENTION AND SEDIMENT CONTROL CAN BE FOUND IN APPENDIX D OF THE SWPPP.

RURAL STABILIZING CROP SEEDING RATES AND SCHEDULE	
MARCH 1 THROUGH OCTOBER 31	
OAT	50 LBS. PER ACRE
GRASS (PERMANENT)	50 LBS. PER ACRE
CANADA WHEAT (SEASONAL)	45 LBS. PER ACRE
NOVEMBER 1 THROUGH FEBRUARY 28 (OR 29)	
OAT	62 LBS. PER ACRE
GRASS (PERMANENT)	62 LBS. PER ACRE
CANADA WHEAT (SEASONAL)	55 LBS. PER ACRE
FOR STABILIZATION CROP ONLY (CANADA WHEAT (SEASONAL) SEEDS WILL NOT BE REQUIRED TO BE CERTIFIED AS SOURCE IDENTIFIED GRAIN (YELLOW TAG) SOURCE QUALITY)	
CANADA WHEAT (SEASONAL) SEEDS SHALL BE DEGRADED OR EQUAL TO FACILITATE APPLICATION OF SEED.	
FERTILIZER SHALL BE APPLIED AT A RATE OF 250 LBS. PER ACRE USING CHEMICALLY COMBINED COMPOSITION 15-15-15 FERTILIZER.	

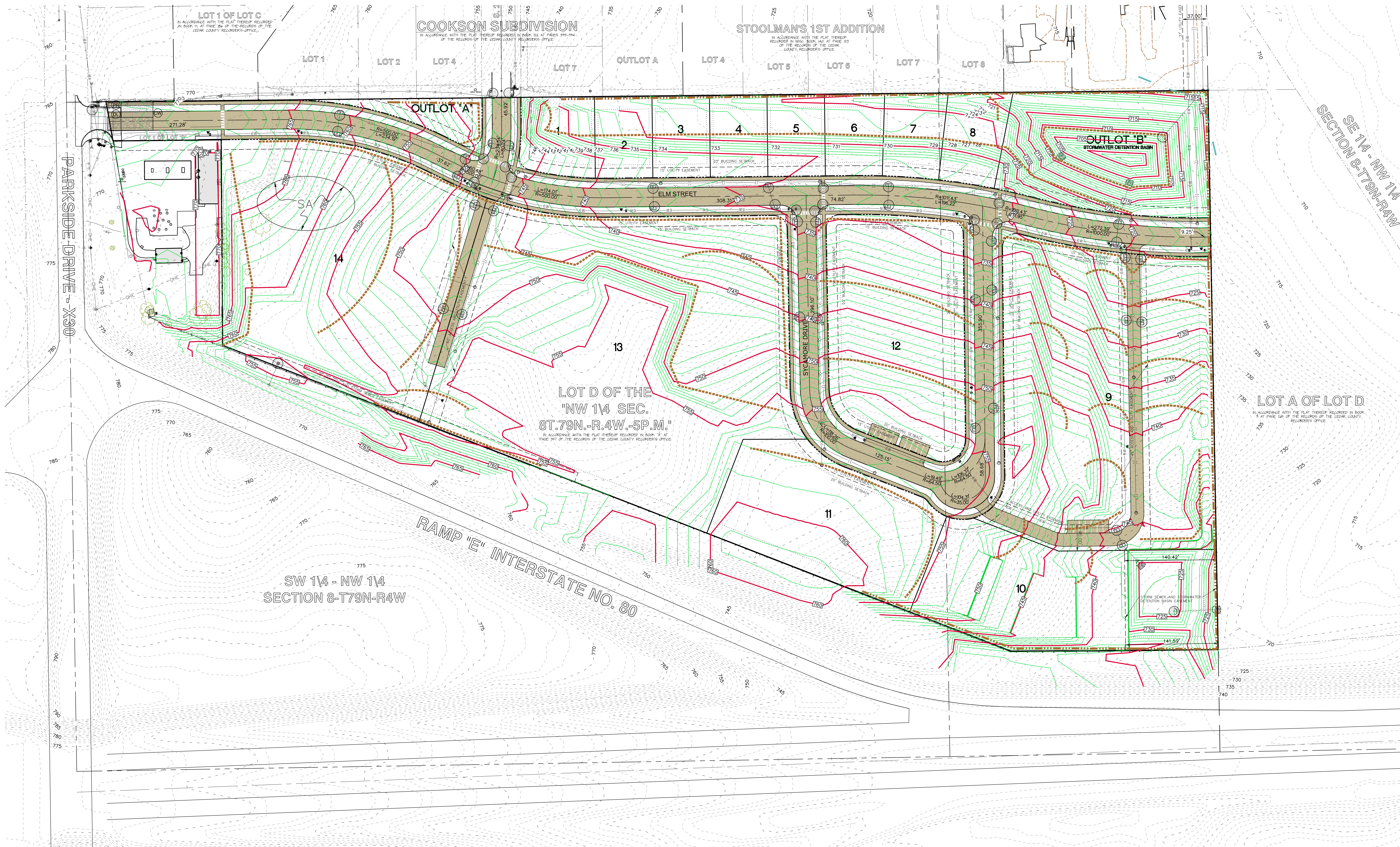
GRADING NOTES

- 1) MAXIMUM SLOPE ON CUTS AND FILLS SHALL BE 3:1 HORIZONTAL TO 1:1 VERTICAL.
- 2) NO EXCAVATION SHALL BE ALLOWED WITHIN 2' OF PROPERTY LINES.
- 3) WHERE HEIGHT OF FILL IS GREATER THAN 20' AN INTERMEDIATE TERRACE OF AT LEAST 4' WIDE SHALL BE ESTABLISHED AT 40' HEIGHT.
- 4) COMPACTION TO BE 95% MODIFIED STANDARD PROCTOR WHERE 3:1 SLOPE.
- 5) ALL TREES OUTSIDE THE LIMITS OF GRADING OPERATIONS SHALL BE SAVED UNLESS OTHERWISE INDICATED TO BE REMOVED. TREES NEAR THE EDGES OF GRADING LINES AND IN THE STORM WATER DETENTION BASIN AREAS SHALL BE SAVED IF POSSIBLE, WITHIN THE REQUIREMENTS OF THE SPECIFICATIONS.
- 6) STABILIZATION SEEDING SHALL BE COMPLETED AS SOON AS POSSIBLE, BUT NOT MORE THAN 14 DAYS UPON COMPLETION OF GRADING IN ANY AREA OF GRADING OPERATIONS. DISTURBED AREAS SHALL BE KEPT AS SMALL AS POSSIBLE TO PREVENT LARGE SCALE EROSION. FERTILIZER AND SEEDING SHALL BE COMPLETED AS SOON AS POSSIBLE, BUT NOT MORE THAN 14 DAYS UPON COMPLETION OF GRADING IN ANY AREA OF GRADING OPERATIONS.
- 7) SILT FENCE LOCATIONS AND LENGTHS, AS INDICATED, ARE APPROXIMATE. ONLY FINAL LOCATIONS AND LENGTHS WILL BE DETERMINED, AS NEEDED, UPON COMPLETION OF GRADING OPERATIONS IN AN AREA.
- 8) ALL STREET SUBURANCES SHALL BE CONSTRUCTED AND COMPACTED IN ACCORDANCE WITH CEDAR COUNTY DESIGN AND CONSTRUCTION MANUALS AND PROCEDURES.
- 9) THE SIDE SLOPES OF THE DETENTION BASINS SHALL BE SEEDING WITH A PERMANENT SEED MIX FOR RURAL AREAS ACCORDING TO IOT SPECIFICATION 300-000.



STANDARD LEGEND AND NOTES	
<ul style="list-style-type: none"> PROPERTY &/or BOUNDARY LINES CONGRESSIONAL SECTION LINES RIGHT-OF-WAY LINES EXISTING RIGHT-OF-WAY LINES CENTER LINES EXISTING CENTER LINES LOT LINES, INTERNAL LOT LINES, PLATTED OR BY DEED PROPOSED EASEMENT LINES EXISTING EASEMENT LINES BENCHMARK RECORDED DIMENSIONS CURVE SEGMENT NUMBER 	<ul style="list-style-type: none"> POWER POLE POWER POLE W/DROP POWER POLE W/TRANS POWER POLE W/LIGHT GUY POLE LIGHT POLE SANITARY MANHOLE FIRE HYDRANT WATER VALVE GRASSMAN MANHOLE CURB INLET FENCE LINE EXISTING SANITARY SEWER PROPOSED SANITARY SEWER EXISTING STORM SEWER PROPOSED STORM SEWER ELECTRICAL LINES WATER LINES TELEPHONE LINES GAS LINES CONTOUR LINES (2' INTERVAL) EXISTING TREE LINE EXISTING DECIDUOUS TREE & SHRUB EXISTING EVERGREEN TREES & SHRUBS

THE ACTUAL SIZE AND LOCATION OF ALL PROPOSED FACILITIES SHALL BE VERIFIED WITH CONSTRUCTION DOCUMENTS, WHICH ARE TO BE PREPARED AND SUBMITTED SUBSEQUENT TO THE APPROVAL OF THIS DOCUMENT.



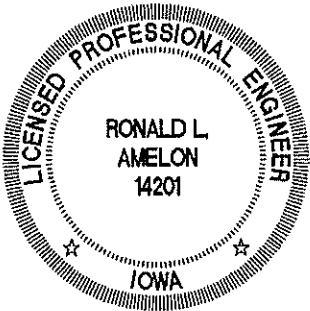
PARKSIDE HILLS

Preliminary Drainage Calculations

Brian J. Cummings

February 12, 2020

MMS CONSULTANTS, INC

 <p>SEAL</p>	<p>I hereby certify that this engineering document was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.</p> <p>_____, 20____ RONALD L. AMELON, P.E. Iowa Lic. No. 14201</p> <p>My license renewal date is December 31, 20 ____.</p> <p><u>Pages or sheets covered by this seal:</u></p> <p>_____</p> <p>_____</p> <p>_____</p>
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PARKSIDE HILLS
6992-287
PRELIMINARY DRAINAGE CALCULATIONS
West Branch, Iowa
February 12, 2020

I. INTRODUCTION

Parkside Hills is a proposed 23.28 acre Planned Unit Development (PUD) subdivision that is located on the east side of the Parkside Drive and immediately north Interstate 80 on the south side of West Branch. The site is bounded by Parkside Drive to the west, farm land to the east, Interstate 80 to the south and a residential/industrial area to the north. Drainage from the site before development is divided into two drainage areas. One consisting of 19.57 acres that drains generally from the south east to the north portion of the development, the other 4.12 acres drains to the south east of the site. There are approximately 6.10 acres of the interstate that drains through the site. There are another 1.84 acres of residential area that drains toward our site. Outlot B and a portion of lot 10 will be used for stormwater management for the developed area. The developed area is broken up into 6 different drainage areas. Area A and Area B drain to the basin in Outlot B. Area C drains to the basin in a portion of lot 10. Areas D and E do not drain to either detention basin but the runoff from those areas will be considered in the total runoff allowed. Area F will remain unchanged and is less than 1 acre in size. There will be a wet bottomed storm water basin in Outlot B and a dry bottom detention basin in lot 10 to provide storm water management for the subdivision. Both basins will provide for the water quality volume, the channel protection volume, and the water quantity volume. The proposed basin can be seen in Appendix A. The drainage areas and soils map can be seen in Appendix B.

Storm water management will be designed to meet the West Branch's Best Management Practices and follows the guidelines established in the "Iowa Storm Water Management Manual". The storm water ordinance has four different criteria that must be met. These are;

- 1) Water Quality Volume
- 2) Channel Protection Storage Volume
- 3) Overbank Flood Protection
- 4) Extreme Flood Protection

II. Water Quality Volume (WQv)

The water quality volume is the storage needed to capture and treat the runoff from 90% of the average annual rainfall. The design rainfall depth to be used for determining the WQv in Iowa is 1.25 inches. The equation used to determine the storage volume in acre-feet is

$$WQv = (P * Rv * A) / 12$$

P = rainfall depth in inches selected for area of state (1.25 inches)

Rv = $0.05 + 0.009 * I$ where I = % impervious area

A = Area in Acres

Area to the North Basin = 19.38 acres

The % impervious is 53.65%.

$$Rv = 0.05 + 0.009 * 53.65 = 0.533$$

$$WQv = (P * Rv * A) / 12 = (1.25 * 0.533 * 19.38) / 12 = 1.076 \text{ acre-feet} = 46,857 \text{ cubic feet.}$$

The water quality volume required for the North pond is 46,857 cubic feet. The Iowa Stormwater Management Manual states that to provide water quality treatment, the water quality volume is the volume required to store and release over a 24 hour period for a 1.25" rainfall event. In order to route the 1.25" event through the basin, an adjusted curve number was calculated for storms fewer than two inches. The maximum release rate for the north basin was calculated to be 1.08 cfs. The calculations can be seen in Appendix C. After routing the 1.25" rainfall event through the basins results in a peak discharge of 0.632 cfs from the north basin and is under the allowable release rate of 1.08 cfs

Area to the South Basin = 3.01 acres

The % impervious is 53.65%.

$R_v = 0.05 + 0.009 * 53.65 = 0.533$

$WQ_v = (P * R_v * A) / 12 = (1.25 * 0.533 * 3.01) / 12 = 0.167 \text{ acre-feet} = 7,278 \text{ cubic feet.}$

The water quality volume required for the south pond is 7,278 cubic feet. The Iowa Stormwater Management Manual states that to provide water quality treatment, the water quality volume is the volume required to store and release over a 24 hour period for a 1.25" rainfall event. In order to route the 1.25" event through the basin, an adjusted curve number was calculated for storms fewer than two inches. The maximum release rate for the south basin was 0.168 cfs respectively. The calculations can be seen in Appendix C. After routing the 1.25" rainfall event through the basin results in a peak discharge of 0.138 cfs from the south basin and is under the allowable release rate of 0.168 cfs.

All of the hydrographs can be found in Appendix E.

IV. Channel Protection Storage Volume

The channel protection storage volume is the volume required to store and release over a 24 hour period the 1 year developed runoff volume. The method in section C3-S6 of the Iowa Stormwater Management manual was used to determine the required channel protection storage volume and the allowable release rate. These calculations can be seen in Appendix D.

The required channel protection volume for the north basin is 123,090 cubic feet. The volume at elevation 715.81 is 123,090 cubic feet in the north basin. The allowable release rate for the channel protection volume is 2.85 cfs for the 19.38 acres of site that drain to the north basin. The detention basin outlet structure will have a 4" DIP pipe at 708.00 to maintain the pond and pass the channel protection volume, with 4 open sides of the box at 712.70 for larger events. The basin structure detail can be seen in Appendix F.

Routing the 1 year storm through the basin produced a hydrograph with a maximum elevation of 712.79 and a peak discharge of 2.736 cfs. The ponding depth means that some water will be going into the openings in the structure but the total discharge from the basin is still less than the allowable discharge of 2.85 cfs.

The required channel protection volume for the south basin is 15,641 cubic feet. The volume at elevation 726.68 is 15,641 in the south basin. The allowable release rate for the channel protection volume is 0.362 cfs for the 3.01 acres of site that drains to the south basin. The detention basin outlet structure will be a 6" perforated riser with the bottom set of perforations at 723.00 and a 2" orifice plate at 722.00 to pass the channel protection volume. The top of the

structure is at 725.70 with beehive grate to allow larger events to pass. The basin structure detail can be seen in Appendix F.

Routing the 1 year storm through the basin produced a hydrograph with a maximum elevation of 725.72 and a peak discharge of 0.321 cfs. The depth of the water in the basin means that some water will be going over the rim and into the structure but the total discharge from the structure is still under the allowable of 0.362 cfs release rate.

All of the hydrographs can be found in Appendix E.

IV. Overbank Flood Protection

The overbank flood protection requires that the 100 year post developed runoff rate is less than the 5 year predeveloped runoff rate. Any offsite area is allowed to have the 100 year runoff pass through the site.

The 5 year undeveloped runoff rate from Area AA is 24.27 cfs. Offsite Areas 1 and 2 drain to the basin. Offsite Area 1 is routed through a basin between Interstate 80 and the off-ramp prior to combining with Offsite Area 2. The 100 year total offsite area runoff that flows through the site is 39.29 cfs. The allowable release rate from the site is $24.27 \text{ cfs} + 39.29 \text{ cfs} = 63.56 \text{ cfs}$ from the north basin.

The 100 year release rate from the north basin is 34.00 cfs. There are 0.71 acres in Area E that does not drain to the basin. This area has a 100 year runoff rate of 5.57 cfs. Area B's 5year runoff will be captured by storm intakes to the north basin while the remaining flow for larger events will bypass the basin. This area has a 100 year runoff rate of 15.88 cfs. The total developed runoff from the site is $34.00 \text{ cfs} + 5.57 \text{ cfs} + 15.88 \text{ cfs} = 55.45 \text{ cfs}$. This is less than the allowable release rate of 63.56 cfs.

The 5 year undeveloped runoff rate from Area BB is 5.11 cfs. There are no offsite areas that drain through this basin. The allowable release rate from the south basin is 5.11 cfs.

The 100 year release rate from the south basin is 1.692. There are 0.59 acres from Area D that does not drain to the basin and consists of mostly open space grass. This area has a 100 year runoff rate of 3.60cfs. Both areas are within the allowable release rate of 5.11 cfs. To check the peak discharge from both areas is within the allowable release rate, the hydrograph from the basin was combined with Area D to get the peak runoff from the site. The 100 year runoff from the combined south basin and Area D is 4.92 cfs. This is less than the allowable release rate of 5.11 cfs.

Below is a summary of the hydrographs. The hydrographs can be seen in appendix E.

Hydrograph #1 – This hydrograph is for the 100 year undeveloped flow from the Offsite Area 1. This hydrograph produces a peak flow of 22.30 cfs.

Hydrograph #2 – This hydrograph is for the 100 year developed flow from the Offsite Area 2. This hydrograph produces a peak flow of 17.92 cfs.

Hydrograph #3 – This hydrograph is for the 100 year developed flow from the Offsite Area 3. This hydrograph produces a peak flow of 13.56 cfs.

Hydrograph #4 – This hydrograph is for the 5 year pre-developed Area AA. This hydrograph produces a peak flow of 24.27 cfs.

Hydrograph #5 – This hydrograph is for the 5 year pre-developed area BB. This hydrograph produces a peak flow of 5.11 cfs.

Hydrograph #7A – This hydrograph is for the 100 year developed Area A. This hydrograph produces a peak flow of 123.60 cfs.

Hydrograph #7B – This hydrograph is for the 1.25" event for developed Area A. This hydrograph produces a peak flow of 15.14 cfs and a volume of 39,244 cubic feet.

Hydrograph #8A – This hydrograph is for the 100 year developed Area B. This hydrograph produces a peak flow of 28.29 cfs.

Hydrograph #8B – This hydrograph is for the 1.25" event for developed Area B. This hydrograph produces a peak flow of 3.47 cfs and a volume of 8,984 cubic feet.

Hydrograph #9A – This hydrograph is for the 100 year developed Area C. This hydrograph produces a peak flow of 23.59 cfs.

Hydrograph #9B – This hydrograph is for the 1.25" event for developed Area C. This hydrograph produces a peak flow of 2.889 cfs and a volume of 7,490 cubic feet.

Hydrograph #10 – This hydrograph is for the 100 year developed Area D. This hydrograph produces a peak flow of 3.60 cfs.

Hydrograph #11 – This hydrograph is for the 100 year developed Area E. This hydrograph produces a peak flow of 5.57 cfs.

Hydrograph #13 – This hydrograph is for routing the 100 year Offsite Area 1 through the DOT Basin created by a 24" RCP pipe under the off ramp. This hydrograph produces a peak flow of 21.94 cfs at an elevation of 757.42 ft.

Hydrograph #14 – This hydrograph is combining Offsite Areas 1 and 2 (hydrographs #2 & #13). This hydrograph produces a peak flow of 39.29 cfs.

Hydrograph #15 – This hydrograph combines the total offsite area runoff and Area A 100yr runoff (hydrographs #7 & #14). This hydrograph produces a peak flow of 162.63 cfs.

Hydrograph #16 – This hydrograph diverts Area B's 100 year runoff based on 5 year storm being captured by storm intakes along the roads. This hydrograph produces a peak runoff of 12.41 cfs.

Hydrograph #17 – This hydrograph diverts Area B's 100 year runoff based on 100 year storm not being captured by storm intakes along the roads. This hydrograph produces a peak runoff of 15.88 cfs.

Hydrograph #18 – This hydrograph combines the total offsite area runoff, Area A's 100yr runoff, and Area B's 5 year runoff (hydrographs #15 & #16) that goes to the north basin. This hydrograph produces a peak flow of 175.04 cfs.

Hydrograph #19A – This hydrograph is the routing of hydrograph #18 for the 100 year event through the north basin. This hydrograph produces a peak runoff of 34.00 cfs at an elevation of 718.80 ft.

Hydrograph #19B – This hydrograph is the routing of hydrograph #18 for the 1 year event through the north basin. This hydrograph produces a peak runoff of 2.736 cfs at an elevation of 712.79 ft.

Hydrograph #19C – This hydrograph is the routing of hydrograph #18 for a 1.25" rain event through the north basin. This hydrograph produces a peak runoff of 0.632 cfs at an elevation of 710.52 ft.

Hydrograph #19D – This hydrograph is the routing of hydrograph #18 for a 100 year event through the north basin assuming the outlet structure is plugged and flow will pass over the emergency spillway. This hydrograph produces a peak runoff of 106.79 cfs at an elevation of 719.41 ft.

Hydrograph #20A – This hydrograph is the routing of hydrograph #9 for the 100 year event through the south basin. This hydrograph produces a peak runoff of 1.69 cfs at an elevation of 728.92 ft.

Hydrograph #20B – This hydrograph is the routing of hydrograph #9 for the 1 year event through the south basin. This hydrograph produces a peak runoff of 0.321 cfs at an elevation of 725.72 ft.

Hydrograph #20C – This hydrograph is the routing of hydrograph #9 for a 1.25” rain event through the south basin. This hydrograph produces a peak runoff of 0.138 cfs at an elevation of 724.81 ft.

Hydrograph #20D – This hydrograph is the routing of hydrograph #9 for a 100 year event through the south basin assuming the outlet structure is plugged and flow will pass over the emergency spillway. This hydrograph produces a peak runoff of 4.70 cfs at an elevation of 729.13 ft.

Hydrograph #21 – This Hydrograph is the combined Area D and south basin runoff (hydrographs #10 & #20). This hydrograph produces a peak runoff of 4.92 cfs.

V. Extreme Flood Protection

The extreme flood protection requires that there is an emergency overflow spillway. The spillway shall be designed for the 100 year event assuming the initial outlet controls are completely blocked.

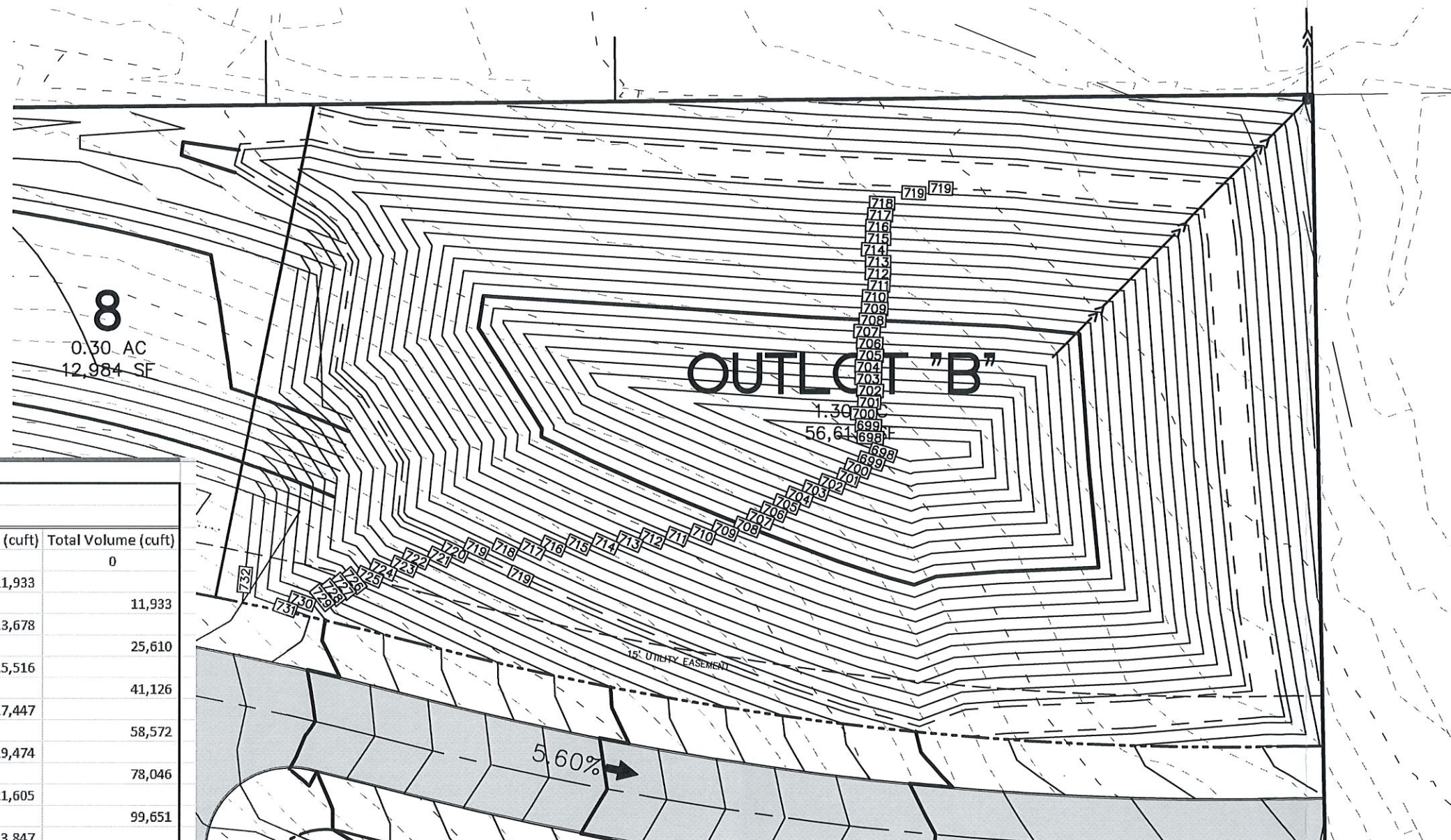
The emergency spillway for the north basin is at elevation 719.00 and is 160 feet in width. The top of the dam is at elevation 719.50. Routing the 100 year storm event through the north basin without an active outlet structure produces a peak flow of 106.79cfs at an elevation of 719.41ft. This is 0.09 feet below the elevation of the top of the dam.

The emergency spillway for the south basin is at elevation 729.00 and is 40 feet in width. The top of the dam is at elevation 729.50. Routing the 100 year storm event through the south basin without an active outlet structure produces a peak flow of 4.70 cfs at an elevation of 729.13ft. This is 0.37 feet below the elevation of the top of the dam.

All of the hydrographs can be found in Appendix E.

APPENDIX A

North Basin



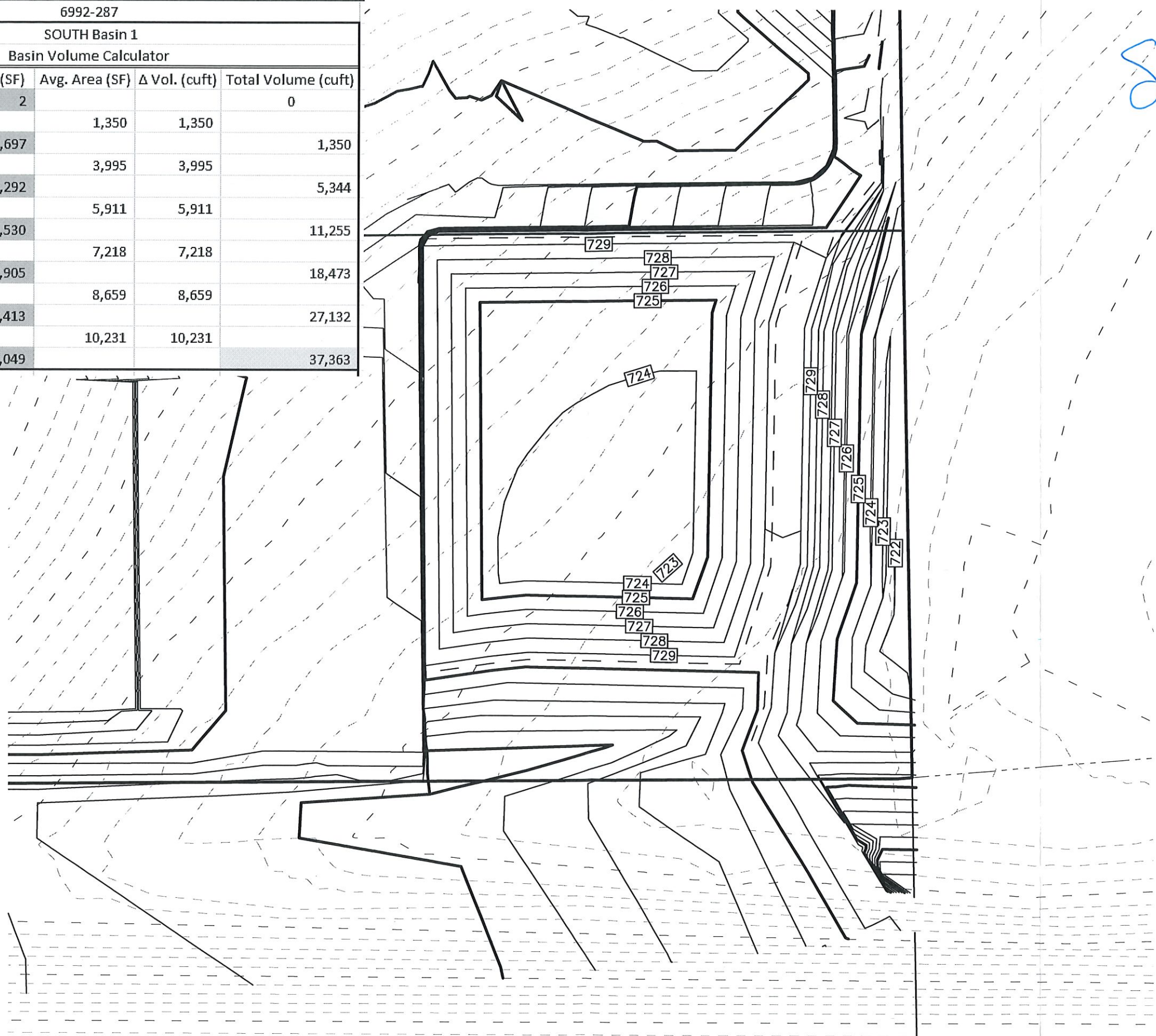
6992-287					
NORTH Basin 7					
Basin Volume Calculator					
Elevation	Δ Elv.	Area (SF)	Avg. Area (SF)	Δ Vol. (cuft)	Total Volume (cuft)
708		11,083			0
709	1	12,782	11,933	11,933	11,933
710	1	14,573	13,678	13,678	25,610
711	1	16,458	15,516	15,516	41,126
712	1	18,435	17,447	17,447	58,572
713	1	20,512	19,474	19,474	78,046
714	1	22,698	21,605	21,605	99,651
715	1	24,995	23,847	23,847	123,497
716	1	27,406	26,201	26,201	149,698
717	1	29,970	28,688	28,688	178,386
718	1	32,689	31,330	31,330	209,715
719	1	35,530	34,110	34,110	243,825
719.5	0.5	36,987	36,259	18,129	261,954

6992-287

NORTH Basin 7
Basin Volume Calculator

Elevation	Δ Elv.	Area (SF)	Avg. Area (SF)	Δ Vol. (cuft)	Total Volume (cuft)
708		11,083			0
	1		11,933	11,933	
709		12,782			11,933
	1		13,678	13,678	
710		14,573			25,610
	1		15,516	15,516	
711		16,458			41,126
	1		17,447	17,447	
712		18,435			58,572
	1		19,474	19,474	
713		20,512			78,046
	1		21,605	21,605	
714		22,698			99,651
	1		23,847	23,847	
715		24,995			123,497
	1		26,201	26,201	
716		27,406			149,698
	1		28,688	28,688	
717		29,970			178,386
	1		31,330	31,330	
718		32,689			209,715
	1		34,110	34,110	
719		35,530			243,825
	0.5		36,259	18,129	
719.5		36,987			261,954
	0		18,494	-	
		-			261,954
	0		-	-	
		-			261,954
	0		-	-	
		-			261,954

6992-287					
SOUTH Basin 1					
Basin Volume Calculator					
Elevation	Δ Elev.	Area (SF)	Avg. Area (SF)	Δ Vol. (cuft)	Total Volume (cuft)
723		2			0
	1		1,350	1,350	
724		2,697			1,350
	1		3,995	3,995	
725		5,292			5,344
	1		5,911	5,911	
726		6,530			11,255
	1		7,218	7,218	
727		7,905			18,473
	1		8,659	8,659	
728		9,413			27,132
	1		10,231	10,231	
729		11,049			37,363



South Basin

6992-287

SOUTH Basin 1
Basin Volume Calculator

Elevation	Δ Elv.	Area (SF)	Avg. Area (SF)	Δ Vol. (cuft)	Total Volume (cuft)
723		2			0
	1		1,350	1,350	
724		2,697			1,350
	1		3,995	3,995	
725		5,292			5,344
	1		5,911	5,911	
726		6,530			11,255
	1		7,218	7,218	
727		7,905			18,473
	1		8,659	8,659	
728		9,413			27,132
	1		10,231	10,231	
729		11,049			37,363

Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

Wednesday, 02 / 12 / 2020

Pond No. 10 - SOUTH BASIN 1

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Beginning Elevation = 723.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	723.00	02	0	0
1.00	724.00	2,697	924	924
2.00	725.00	5,292	3,922	4,846
3.00	726.00	6,530	5,900	10,746
4.00	727.00	7,905	7,206	17,951
5.00	728.00	9,413	8,647	26,599
6.00	729.00	11,049	10,219	36,818

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 6.00	2.00	0.00	0.00
Span (in)	= 6.00	2.00	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 721.90	723.00	0.00	0.00
Length (ft)	= 60.00	0.00	0.00	0.00
Slope (%)	= 1.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 6.28	0.00	0.00	0.00
Crest El. (ft)	= 725.70	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	---	---	---
Multi-Stage	= Yes	No	No	No
Exfil.(in/hr)	= 0.000 (by Wet area)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

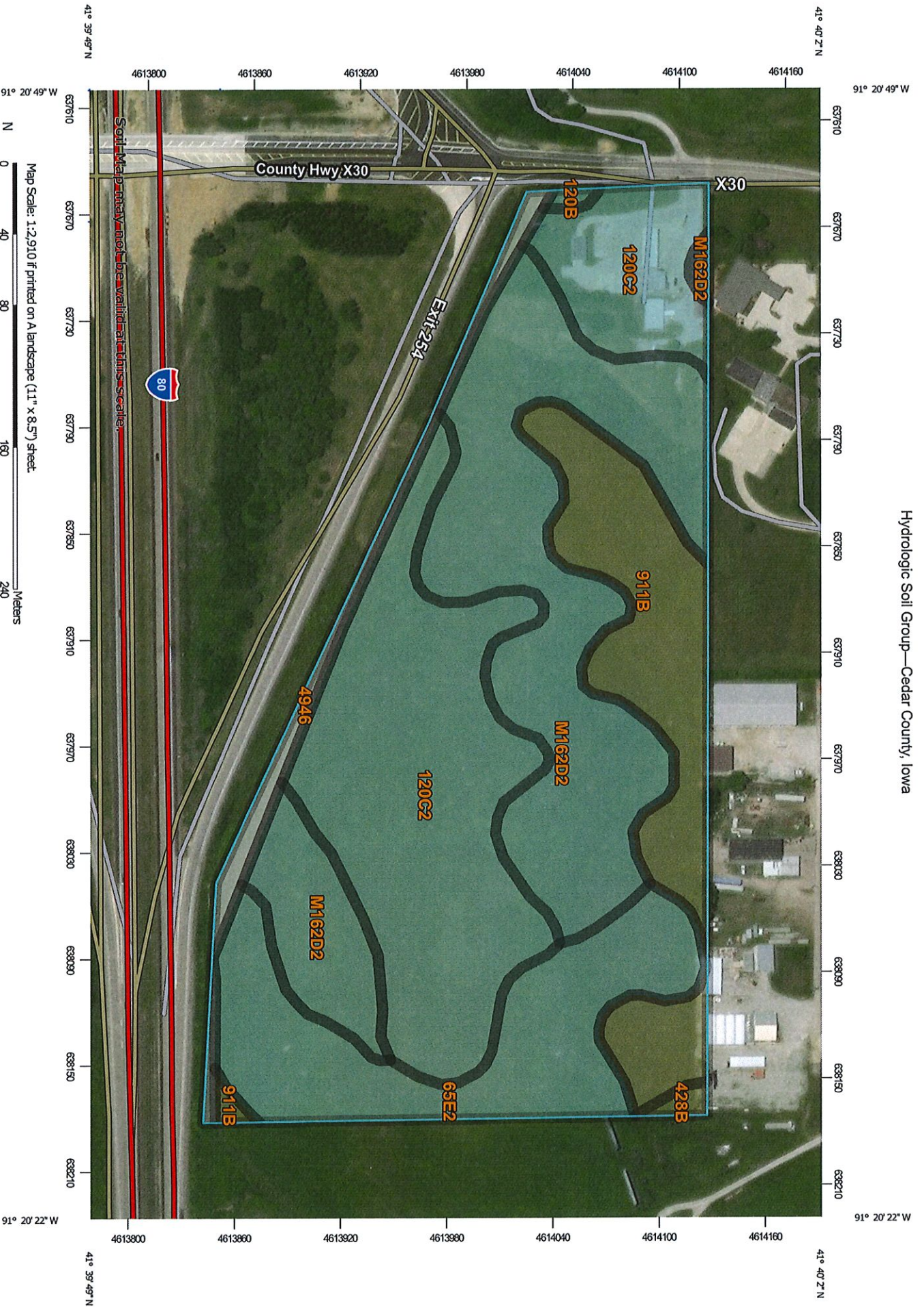
Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	723.00	0.00	0.00	---	---	0.00	---	---	---	---	---	0.000
1.00	924	724.00	0.69 oc	0.10 ic	---	---	0.00	---	---	---	---	---	0.101
2.00	4,846	725.00	0.69 oc	0.15 ic	---	---	0.00	---	---	---	---	---	0.145
3.00	10,746	726.00	1.30 oc	0.01 ic	---	---	1.28 s	---	---	---	---	---	1.295
4.00	17,951	727.00	1.45 oc	0.00 ic	---	---	1.38 s	---	---	---	---	---	1.379
5.00	26,599	728.00	1.58 oc	0.00 ic	---	---	0.74 s	---	---	---	---	---	0.744
6.00	36,818	729.00	1.70 oc	0.00	---	---	0.00	---	---	---	---	---	1.701




































Ramp Basin	
Elevation	Area (ft ²)
757	0
758	1,377
760	3,540
762	7,447
764	13,824
766	23,009
768	34,506
770	

APPENDIX B

Hydrologic Soil Group—Cedar County, Iowa



MAP LEGEND

 Area of Interest (AOI)	 C
 Area of Interest (AOI)	 C/D
Soils	 D
Soil Rating Polygons	 Not rated or not available
 A	Water Features
 A/D	 Streams and Canals
 B	Transportation
 B/D	 Rails
 C	 Interstate Highways
 C/D	 US Routes
 D	 Major Roads
 Not rated or not available	 Local Roads
Soil Rating Lines	Background
 A	 Aerial Photography
 A/D	
 B	
 B/D	
 C	
 C/D	
 D	
 Not rated or not available	
Soil Rating Points	
 A	
 A/D	
 B	
 B/D	

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

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

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Cedar County, Iowa
Survey Area Data: Version 24, Sep 14, 2019

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

Date(s) aerial images were photographed: Apr 12, 2011—Feb 15, 2017

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
65E2	Lindley loam, 14 to 18 percent slopes, moderately eroded	C	4.4	15.9%
120B	Tama silty clay loam, 2 to 5 percent slopes	C	0.1	0.2%
120C2	Tama silty clay loam, 5 to 9 percent slopes, eroded	C	9.0	32.7%
428B	Ely silty clay loam, 2 to 5 percent slopes	C/D	0.1	0.4%
911B	Colo-Ely complex, 0 to 5 percent slopes	C/D	4.2	15.1%
4946	Udorthents-Highway complex, 0 to 5 percent slopes		0.9	3.2%
M162D2	Downs silt loam, till plain, 9 to 14 percent slopes, eroded	C	8.9	32.3%
Totals for Area of Interest			27.6	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.

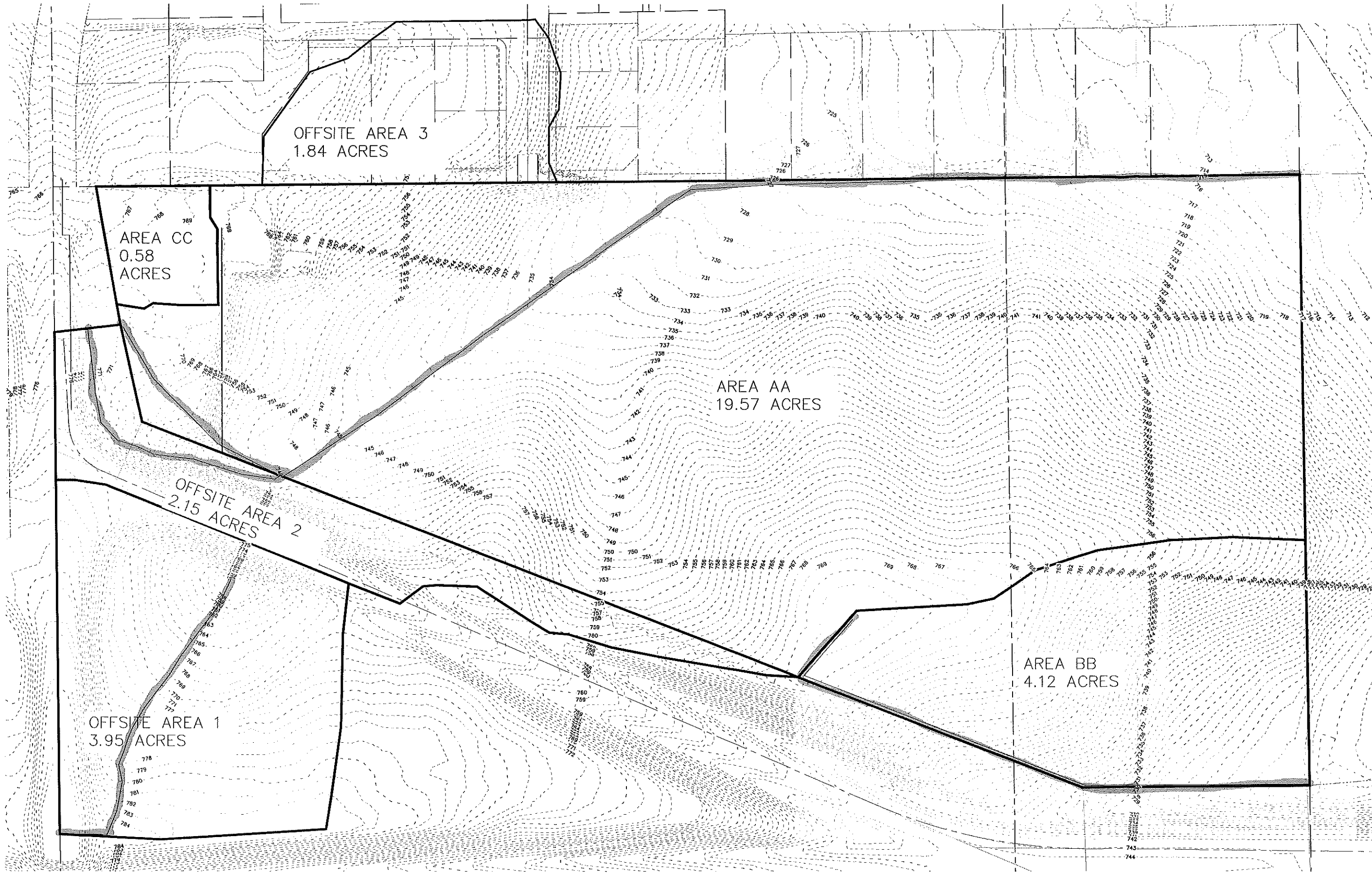
If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher



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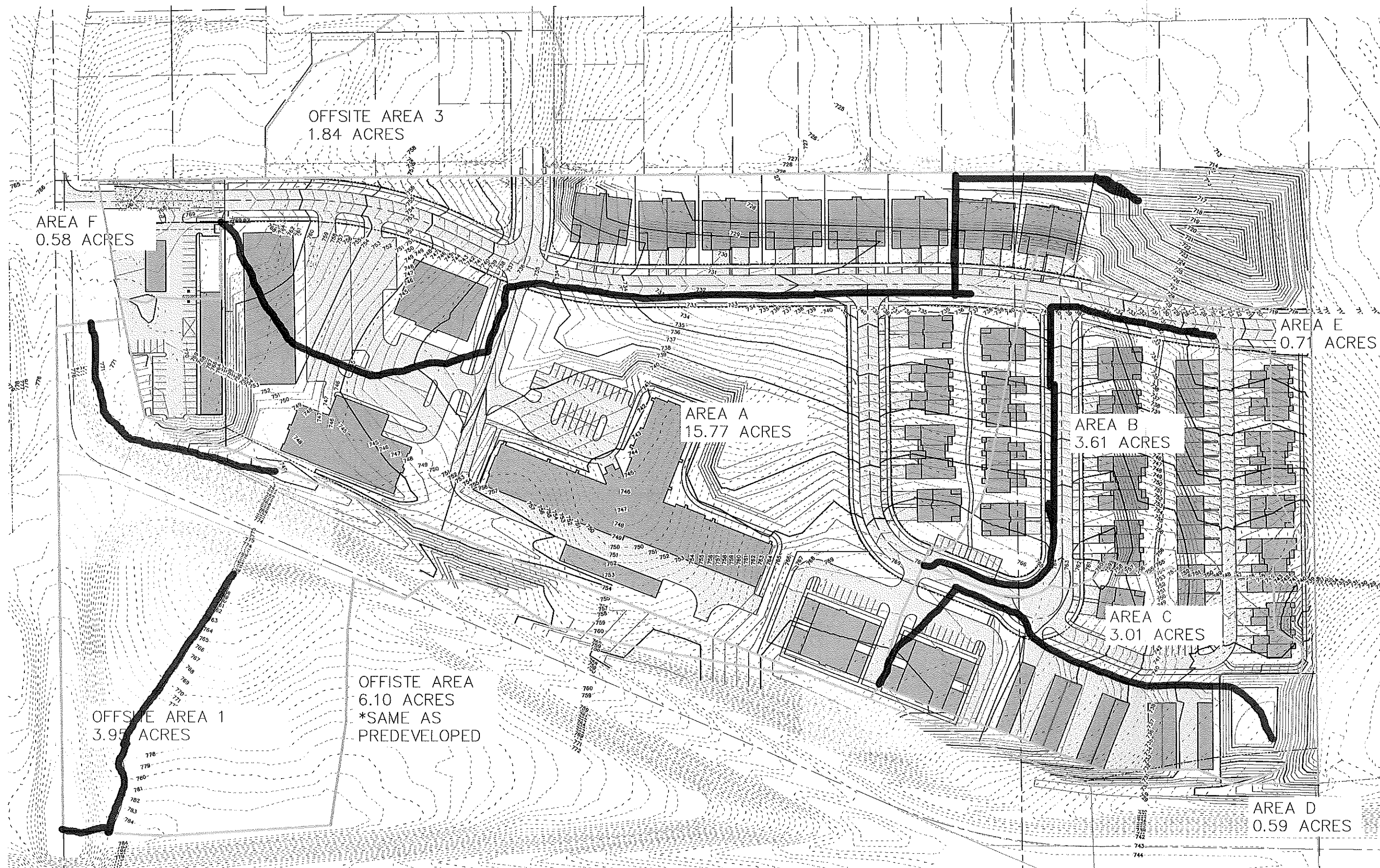
Date	Revision
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PRE-DEVELOPED
DRAINAGE AREAS

PARK SIDE DRIVE

WEST BRANCH
CEDAR COUNTY
IOWA

MMS CONSULTANTS, INC.	
Date:	02/06/2020
Designed by:	Field Book No.
Drawn by:	Scale:
Checked by:	Sheet No.
Project No:	1
IOWA CITY	of 1
6992-287	



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Date: Revision:

DEVELOPED
DRAINAGE AREAS

PARK SIDE DRIVE

WEST BRANCH
CEDAR COUNTY
IOWA

MMS CONSULTANTS, INC.

Date: 02/06/2020
Designed by: BJC
Drawn by: BJC
Checked by: RLA
Project No: IOWA CITY
6992-287

Field Book No:
Scale: 1"=60'
Sheet No: 1
of: 1



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PROJECT: 6992-287

SUBJECT: Developed Curve Number

DATE: _____

PREPARED BY: _____

REVIEWED BY: _____

PAGE ____ OF ____

Impervious Area	Gas Station	Site	Soil Group C
	36,149 SF	531,275 SF	

$$\begin{array}{r} \text{Total Area} = \\ 1017275 \\ + 40418 \\ \hline 1057693 \text{ SF} \end{array}$$

Total Impervious = 567424 SF CN = 98

Open Space = 490269 SF CN = 74

$$CN_{\text{Developed}} = \left(\frac{490269}{1057693} \right) (74) + \left(\frac{567424}{1057693} \right) 98$$

$$CN_{\text{Dev}} = 34.3 + 52.57 = \underline{\underline{86.87}}$$

APPENDIX C

Developed Area to North Basin

Water Quality Volume Calculation

$$WQ_v = R_v * P * A / 12$$

$$R_v = 0.05 + 0.009 * I$$

where

WQ_v = water quality volume (ac-ft)

R_v = volumetric runoff coefficient

A = total drainage area (ac)

I = percent impervious cover (%)

P = water quality rainfall depth (in)

$$P = 1.25 \text{ inches}$$

$$A = 19.38 \text{ acres}$$

$$I = 53.65 \%$$

$$R_v = 0.53285$$

$$WQ_v = 1.07569 \text{ ac-ft}$$

$$WQ_v = 46,857 \text{ ft}^3$$

Calculate the adjusted CN for storms under two inches.

$$CN = 1000 / [10 + 5P + 10Q_a - 10(Q_a^2 + 1.25Q_aP)]^{1/2}$$

$$Q_a = 0.6660625$$

$$CN = 93.221094$$

where

P = rainfall (inches)

Q_a = water quality volume in inches ($R_v * P$)

Store and release over 24 hrs

@ EIU.

$$2. \left(\frac{46,857}{24.3600} \right) = 1.08 \text{ cfs max}$$

$$\frac{712 - 711}{58,527 - 41,092} = \frac{712 - X}{58,527 - 46,857}$$

$$X_{WQ_v} = 711.33$$

Developed Area to South Basin

Water Quality Volume Calculation

$$WQ_v = R_v * P * A / 12$$

$$R_v = 0.05 + 0.009 * I$$

where

WQ_v = water quality volume (ac-ft)

R_v = volumetric runoff coefficient

A = total drainage area (ac)

I = percent impervious cover (%)

P = water quality rainfall depth (in)

$$P = 1.25 \text{ inches}$$

$$A = 3.01 \text{ acres}$$

$$I = 53.65 \%$$

$$R_v = 0.53285$$

$$WQ_v = 0.16707 \text{ ac-ft}$$

$$WQ_v = 7,278 \text{ ft}^3$$

Calculate the adjusted CN for storms under two inches.

$$CN = 1000 / [10 + 5P + 10Q_a - 10(Q_a^2 + 1.25Q_aP)^{1/2}]$$

$$Q_a = 0.6660625$$

$$CN = 93.221094$$

where

P = rainfall (inches)

Q_a = water quality volume in inches ($R_v * P$)

Stone release over 24 hrs

$$2.0 \left(\frac{7278}{24.3600} \right) = 0.168 \text{ cfs max}$$

@ ELV.

$$\begin{array}{r} 726.00 - 725.00 = 726 - X \\ \hline 10,746 - 4846 \quad 10,746 - 7278 \\ \hline X_{WQV} = 725.41' \end{array}$$

APPENDIX D



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SUBJECT: _____

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REVIEWED BY: _____

PAGE ____ OF ____

North Basin

Channel Protection Volume

$$F = 123,090 \text{ cu ft} / (24.3600) = 1.425$$
$$CRA_{\text{max}} = \frac{1.425 \times 2}{2.85 \text{ cfs}}$$

CPV elev. $\frac{716 - 715}{127,595 - 103,677} = \frac{716 - X_{\text{CPV}}}{127,595 - 123,090}$

$$X_{\text{CPV}} = 715.812'$$

South Basin CRA

$$F = 15,641 \text{ cu ft} / (24.3600) = .181$$

$$\text{Max } C_{\text{PV}} = 2 \cdot .181 = .362 \text{ cfs}$$

CPV elev. $\frac{727 - 726}{17,951 - 10,746} = \frac{727 - X_{\text{CPV}}}{17,951 - 15,641}$

$$X_{\text{CPV}} = 726.68$$

This spreadsheet determines the capacity of a perforated riser pipe.

INLET CONTROL

WHERE: H= HEAD MEASURED FROM CENTROID OF PIPE AT INLET

$$Q=CA(2GH)^{0.5}$$

0.6

G₂ 32.2

Riser diameter

6 inches

Hole diameter

0.5 inches

Hole Area (sf)

0.00136354

Number of columns

12

Row Spacing

6 inches

[illegible]

APPENDIX E

Hydrograph Report

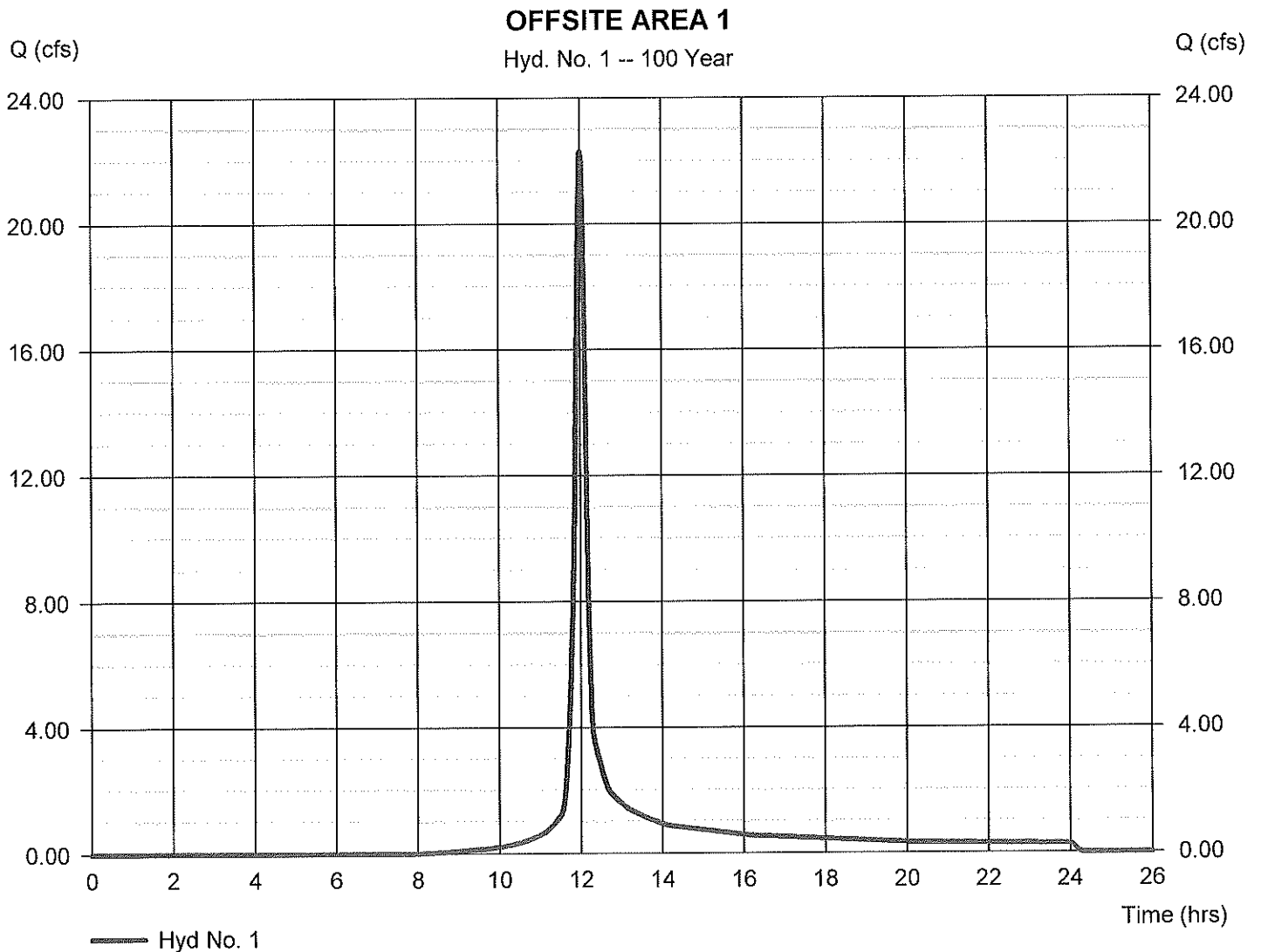
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

Wednesday, 02 / 5 / 2020

Hyd. No. 1

OFFSITE AREA 1

Hydrograph type	= SCS Runoff	Peak discharge	= 22.30 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 57,806 cuft
Drainage area	= 3.950 ac	Curve number	= 71
Basin Slope	= 7.3 %	Hydraulic length	= 473 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 7.22 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

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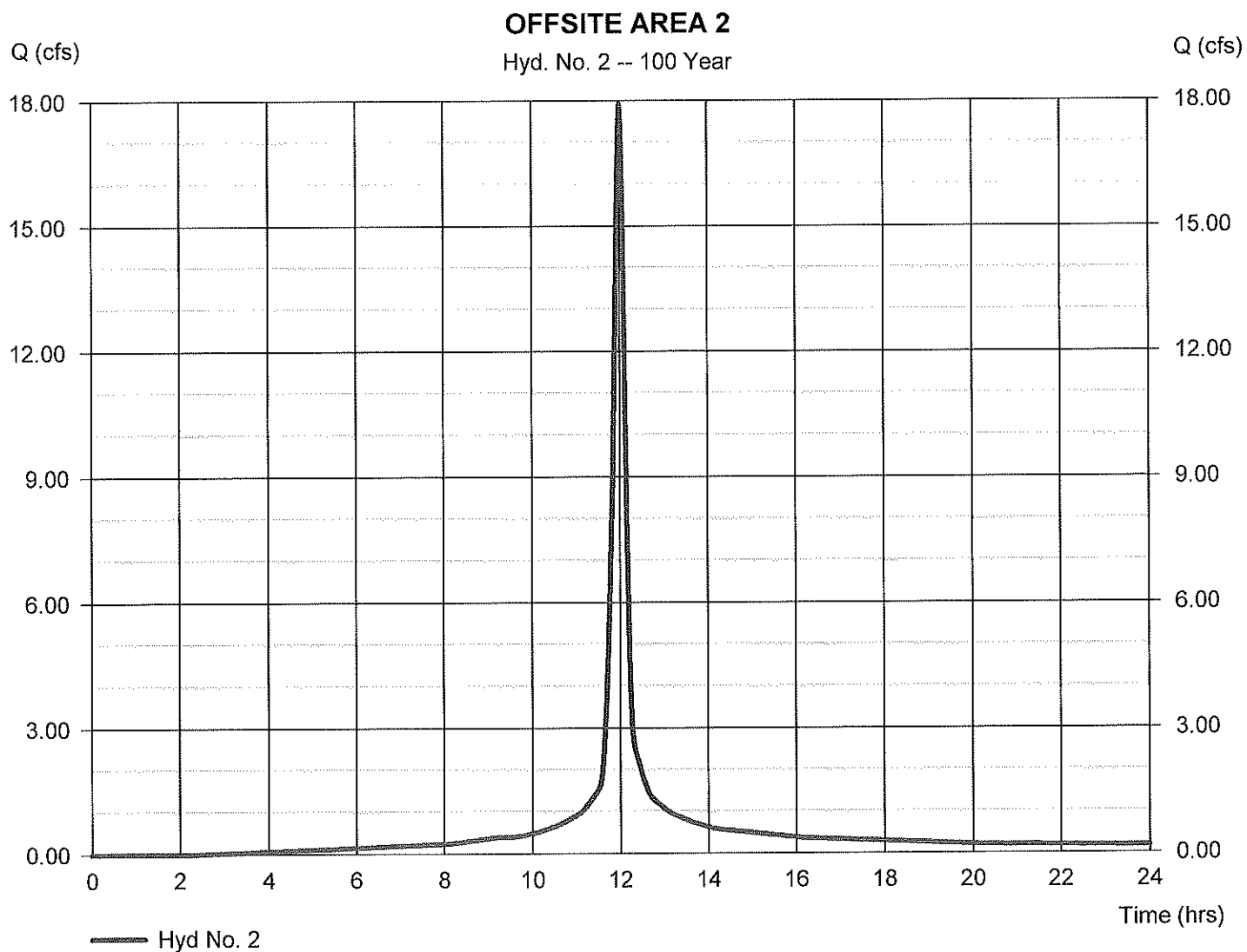
Wednesday, 02 / 5 / 2020

Hyd. No. 2

OFFSITE AREA 2

Hydrograph type = SCS Runoff
Storm frequency = 100 yrs
Time interval = 2 min
Drainage area = 2.150 ac
Basin Slope = 5.4 %
Tc method = TR55
Total precip. = 7.22 in
Storm duration = 24 hrs

Peak discharge = 17.92 cfs
Time to peak = 12.00 hrs
Hyd. volume = 50,480 cuft
Curve number = 92
Hydraulic length = 402 ft
Time of conc. (Tc) = 11.60 min
Distribution = Type II
Shape factor = 484



TR55 Tc Worksheet

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

Hyd. No. 2

OFFSITE AREA 2

<u>Description</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Totals</u>			
Sheet Flow							
Manning's n-value	= 0.130	0.011	0.011				
Flow length (ft)	= 100.0	0.0	0.0				
Two-year 24-hr precip. (in)	= 3.01	0.00	0.00				
Land slope (%)	= 1.40	0.00	0.00				
Travel Time (min)	= 10.39	+	0.00	+	0.00	=	10.39
Shallow Concentrated Flow							
Flow length (ft)	= 301.90	0.00	0.00				
Watercourse slope (%)	= 6.62	0.00	0.00				
Surface description	= Unpaved	Paved	Paved				
Average velocity (ft/s)	=4.15	0.00	0.00				
Travel Time (min)	= 1.21	+	0.00	+	0.00	=	1.21
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				11.60 min			

Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

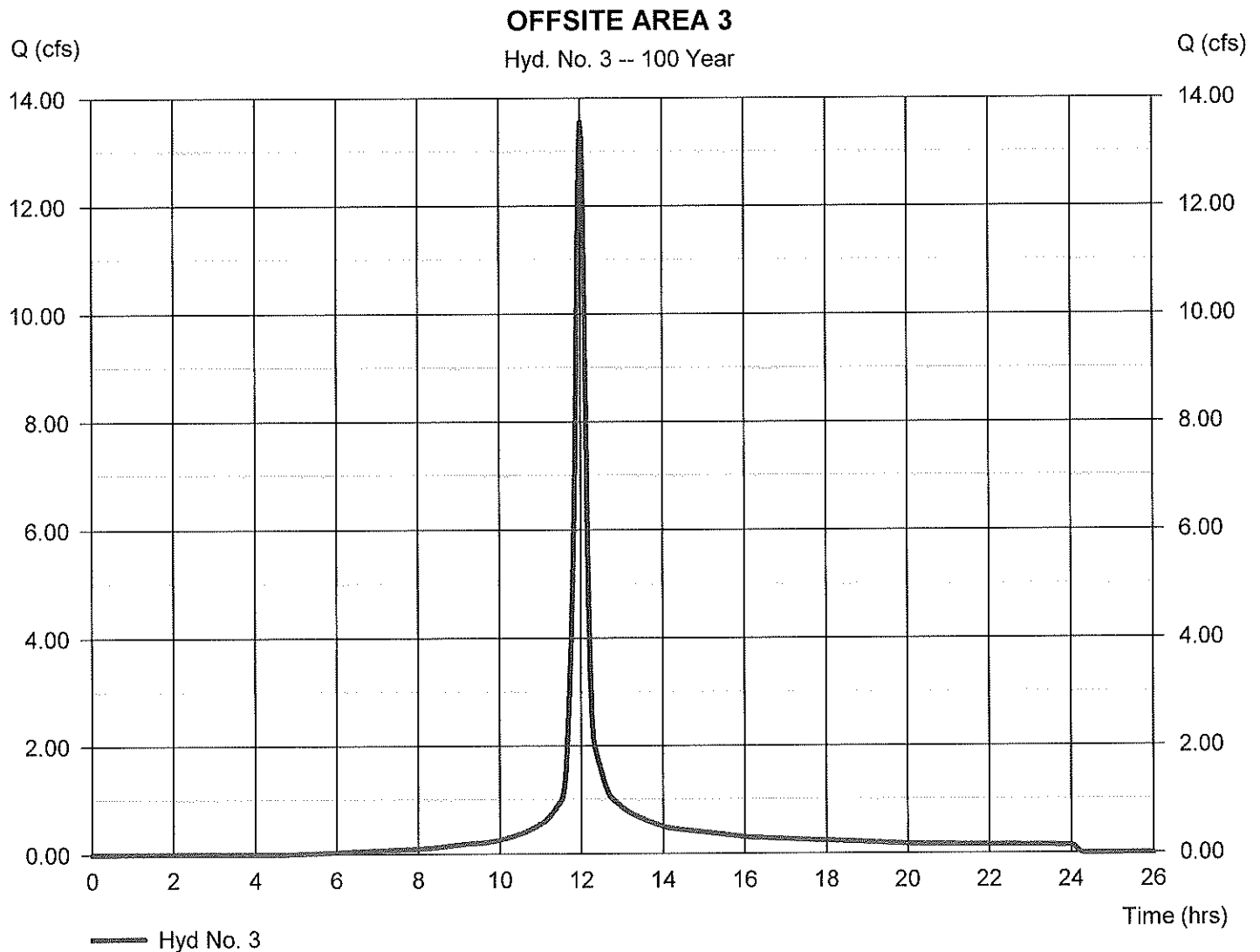
Wednesday, 02 / 5 / 2020

Hyd. No. 3

OFFSITE AREA 3

Hydrograph type = SCS Runoff
Storm frequency = 100 yrs
Time interval = 2 min
Drainage area = 1.840 ac
Basin Slope = 3.8 %
Tc method = User
Total precip. = 7.22 in
Storm duration = 24 hrs

Peak discharge = 13.56 cfs
Time to peak = 12.00 hrs
Hyd. volume = 36,063 cuft
Curve number = 83
Hydraulic length = 400 ft
Time of conc. (Tc) = 10.00 min
Distribution = Type II
Shape factor = 484



Hydrograph Report

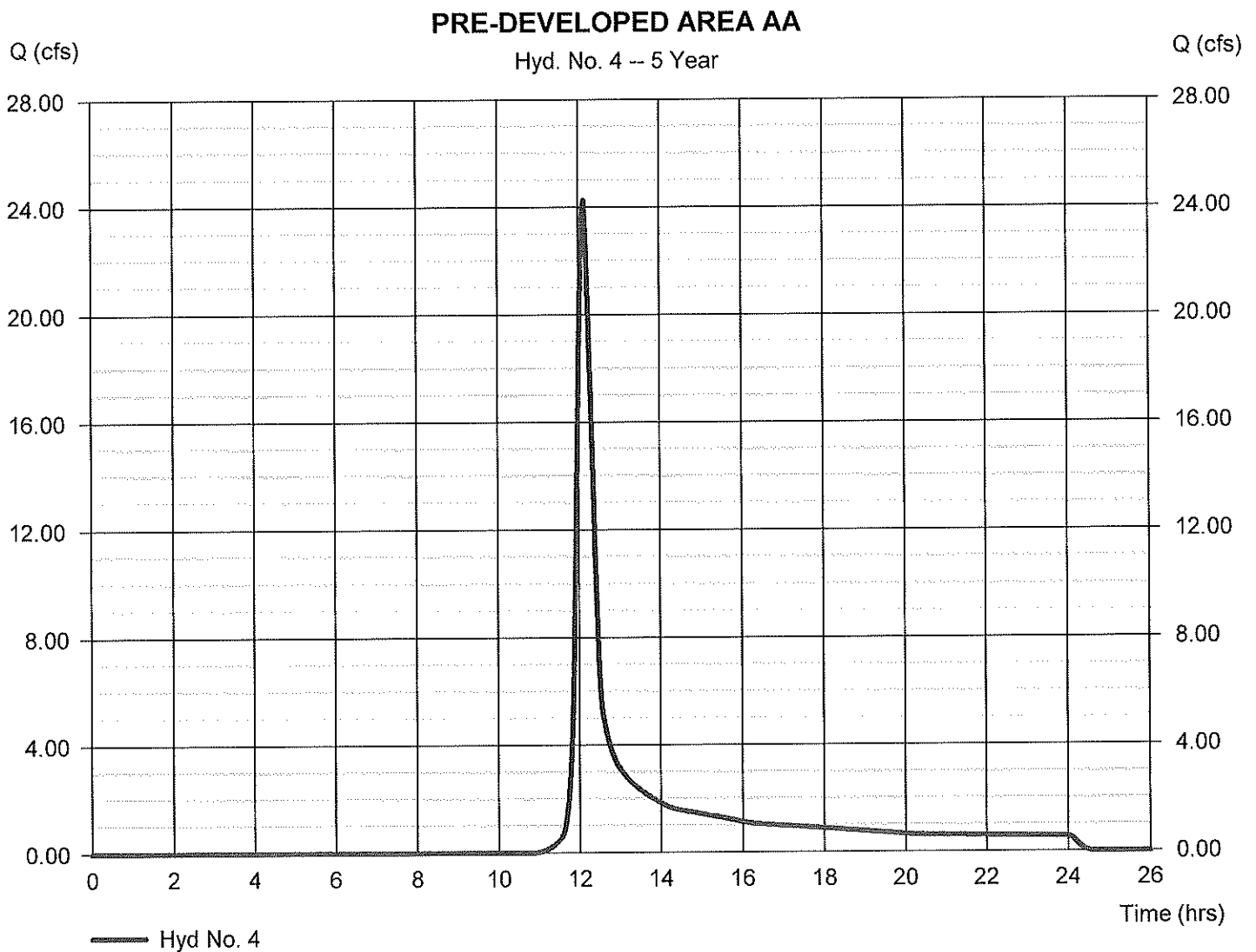
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

Wednesday, 02 / 5 / 2020

Hyd. No. 4

PRE-DEVELOPED AREA AA

Hydrograph type	= SCS Runoff	Peak discharge	= 24.27 cfs
Storm frequency	= 5 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 88,644 cuft
Drainage area	= 19.570 ac	Curve number	= 71
Basin Slope	= 3.2 %	Hydraulic length	= 1865 ft
Tc method	= TR55	Time of conc. (Tc)	= 22.10 min
Total precip.	= 3.75 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



TR55 Tc Worksheet

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

Hyd. No. 4

PRE-DEVELOPED AREA AA

<u>Description</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Totals</u>
Sheet Flow				
Manning's n-value	= 0.240	0.011	0.011	
Flow length (ft)	= 100.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 3.01	0.00	0.00	
Land slope (%)	= 3.40	0.00	0.00	
Travel Time (min)	= 11.90	+	0.00	+
			0.00	= 11.90
Shallow Concentrated Flow				
Flow length (ft)	= 1765.50	0.00	0.00	
Watercourse slope (%)	= 3.17	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	=2.87	0.00	0.00	
Travel Time (min)	= 10.24	+	0.00	+
			0.00	= 10.24
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	
Travel Time (min)	= 0.00	+	0.00	+
			0.00	= 0.00
Total Travel Time, Tc				22.14 min

Hydrograph Report

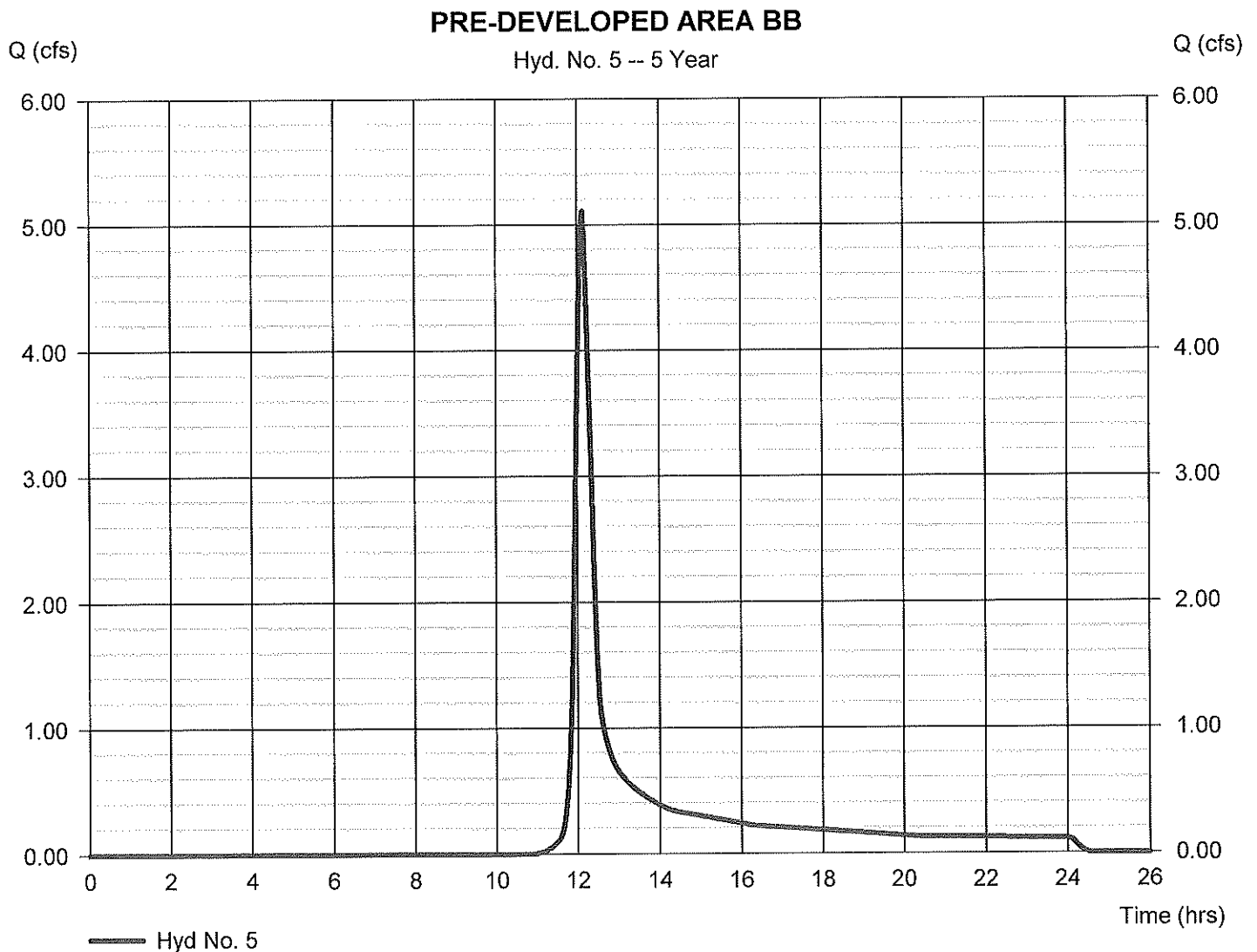
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Wednesday, 02 / 5 / 2020

Hyd. No. 5

PRE-DEVELOPED AREA BB

Hydrograph type	= SCS Runoff	Peak discharge	= 5.110 cfs
Storm frequency	= 5 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 18,662 cuft
Drainage area	= 4.120 ac	Curve number	= 71
Basin Slope	= 6.0 %	Hydraulic length	= 844 ft
Tc method	= TR55	Time of conc. (Tc)	= 20.50 min
Total precip.	= 3.75 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



TR55 Tc Worksheet

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

Hyd. No. 5

PRE-DEVELOPED AREA BB

<u>Description</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Totals</u>			
Sheet Flow							
Manning's n-value	= 0.240	0.011	0.011				
Flow length (ft)	= 100.0	0.0	0.0				
Two-year 24-hr precip. (in)	= 3.01	0.00	0.00				
Land slope (%)	= 1.30	0.00	0.00				
Travel Time (min)	= 17.48	+	0.00	+	0.00	=	17.48
Shallow Concentrated Flow							
Flow length (ft)	= 744.30	0.00	0.00				
Watercourse slope (%)	= 6.50	0.00	0.00				
Surface description	= Unpaved	Paved	Paved				
Average velocity (ft/s)	=4.11	0.00	0.00				
Travel Time (min)	= 3.02	+	0.00	+	0.00	=	3.02
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				20.50 min			

Hydrograph Report

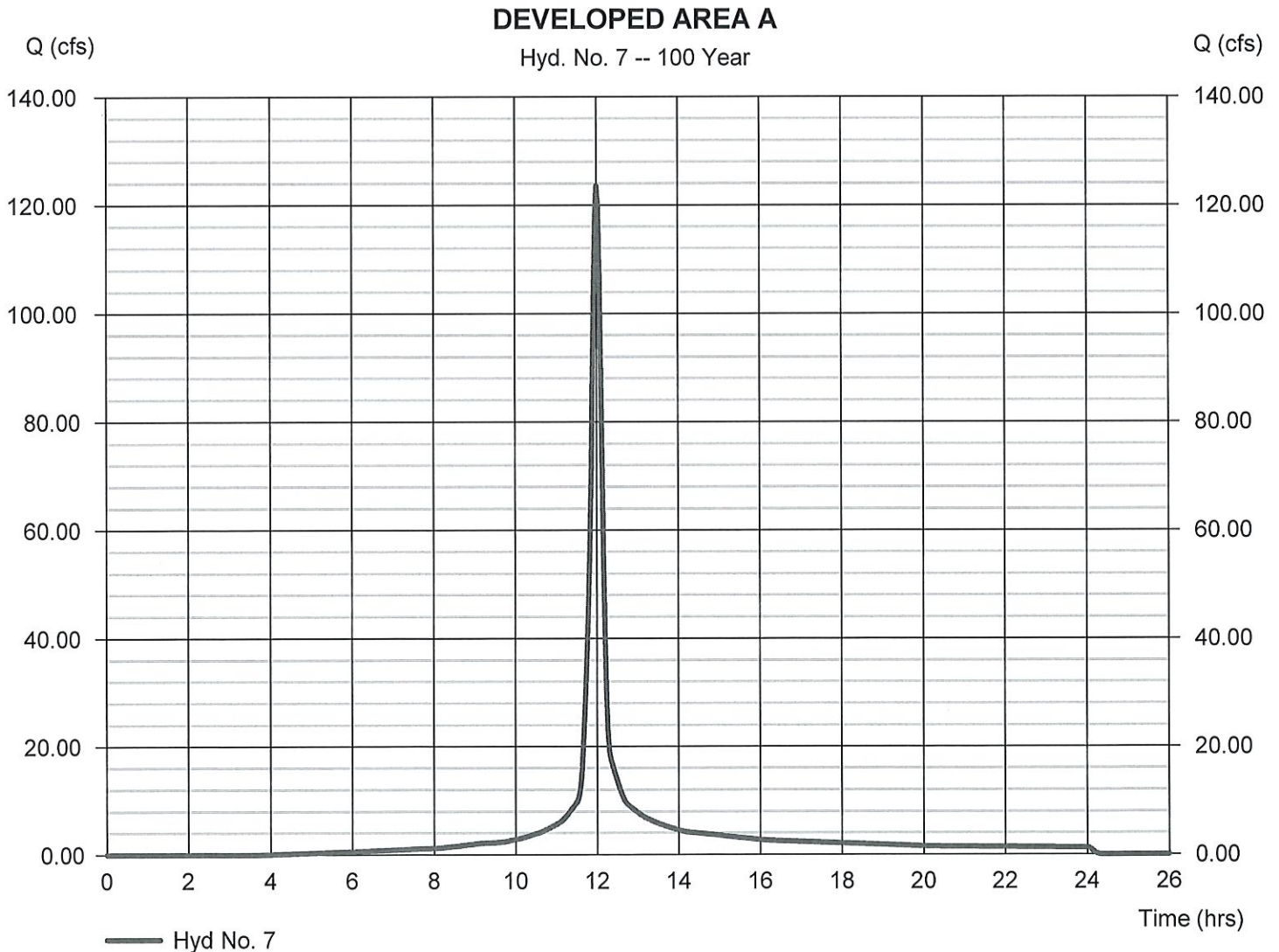
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

Thursday, 02 / 6 / 2020

Hyd. No. 7 A

DEVELOPED AREA A

Hydrograph type	= SCS Runoff	Peak discharge	= 123.60 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 335,356 cuft
Drainage area	= 15.770 ac	Curve number	= 86.9
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 7.22 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

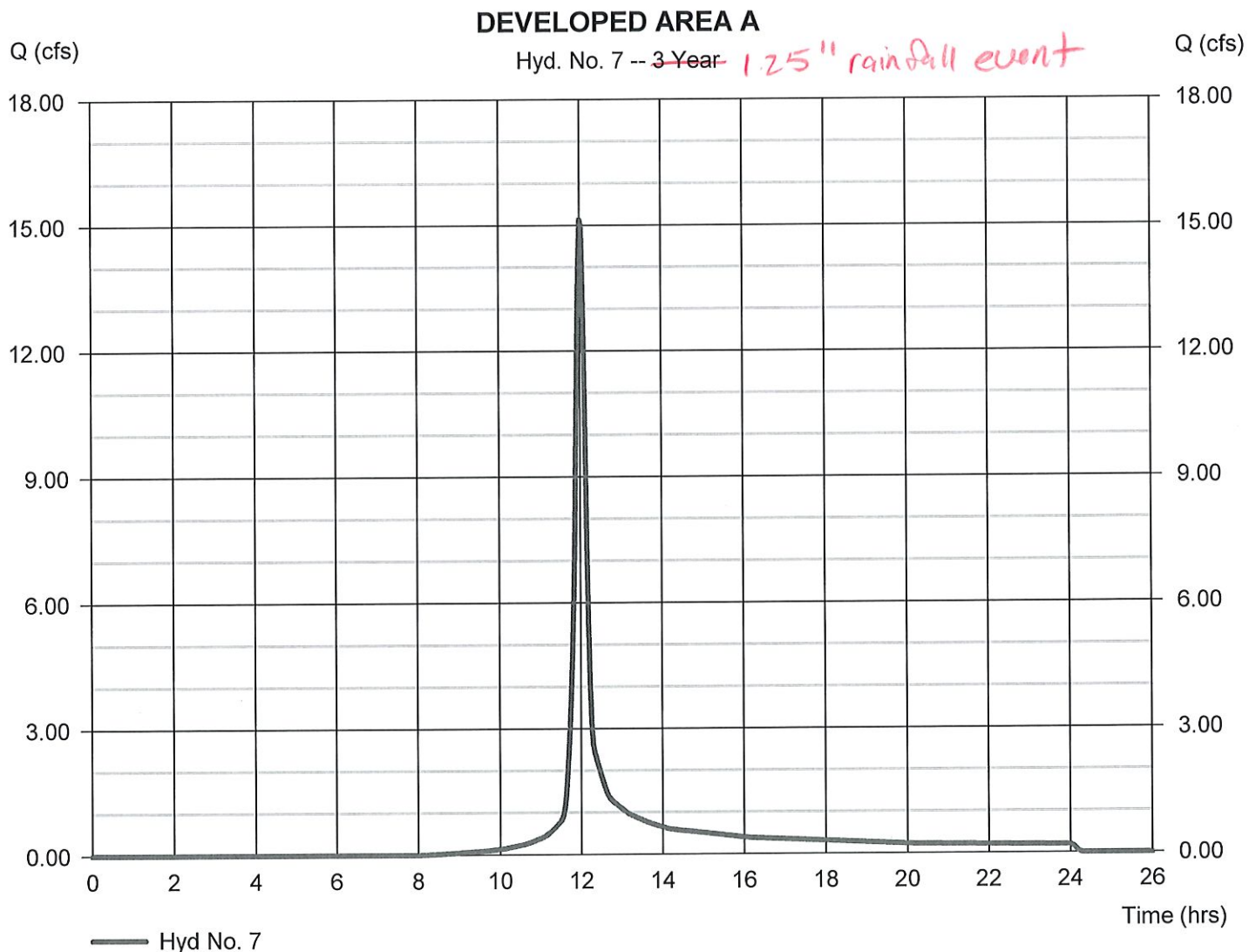
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

Tuesday, 02 / 11 / 2020

Hyd. No. 7 **B**

DEVELOPED AREA A

Hydrograph type	= SCS Runoff	Peak discharge	= 15.14 cfs
Storm frequency	= 3-yr 1.25" event	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 39,244 cuft
Drainage area	= 15.770 ac	Curve number	= 93.2
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 1.25 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

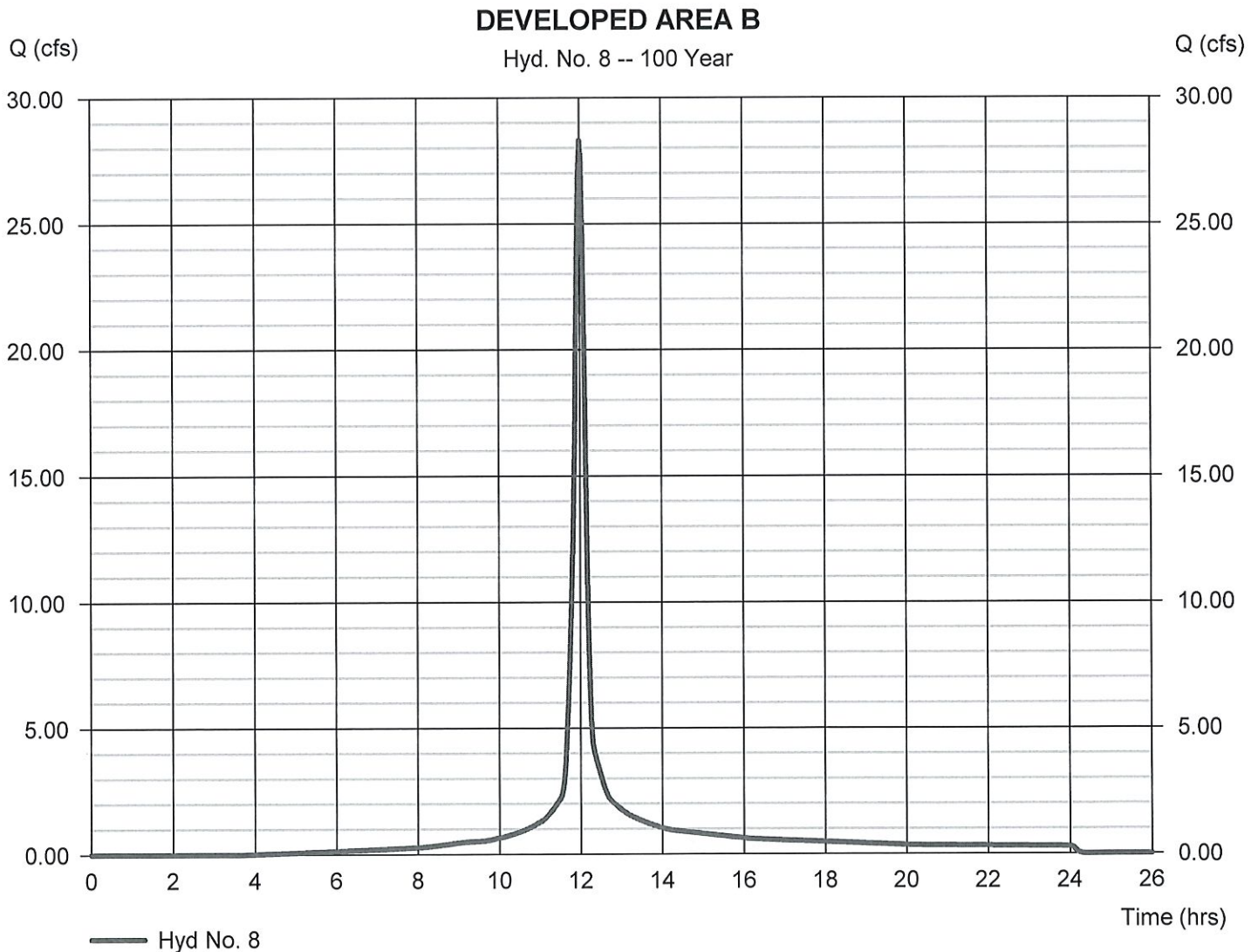
Thursday, 02 / 6 / 2020

Hyd. No. 8 A

DEVELOPED AREA B

Hydrograph type = SCS Runoff
 Storm frequency = 100 yrs
 Time interval = 2 min
 Drainage area = 3.610 ac
 Basin Slope = 0.0 %
 Tc method = User
 Total precip. = 7.22 in
 Storm duration = 24 hrs

Peak discharge = 28.29 cfs
 Time to peak = 12.00 hrs
 Hyd. volume = 76,768 cuft
 Curve number = 86.9
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Type II
 Shape factor = 484



Hydrograph Report

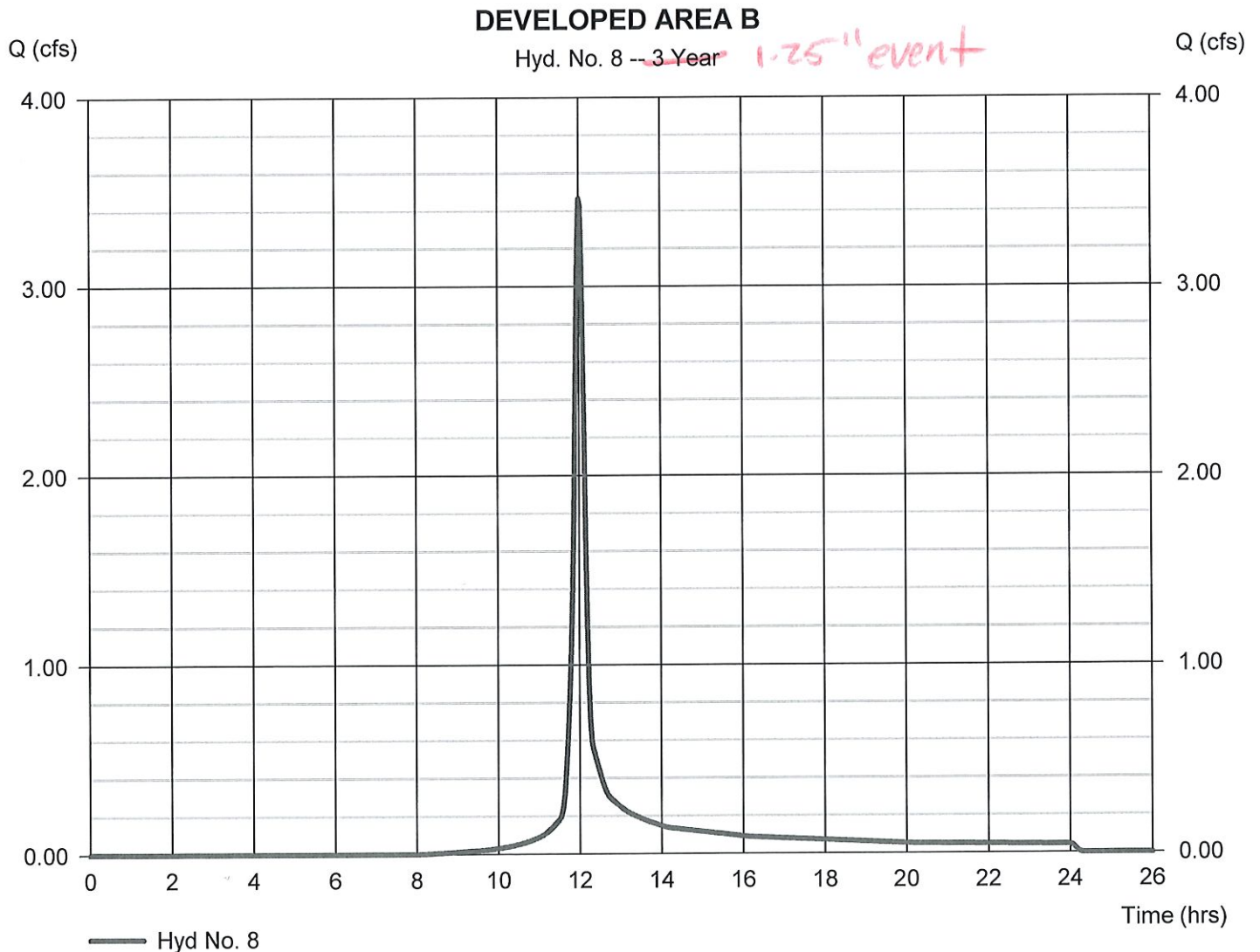
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

Tuesday, 02 / 11 / 2020

Hyd. No. 8 ^B

DEVELOPED AREA B

Hydrograph type	= SCS Runoff	Peak discharge	= 3.465 cfs
Storm frequency	= 3-yr 1.25" rainfall event	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 8,984 cuft
Drainage area	= 3.610 ac	Curve number	= 93.2
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 1.25 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

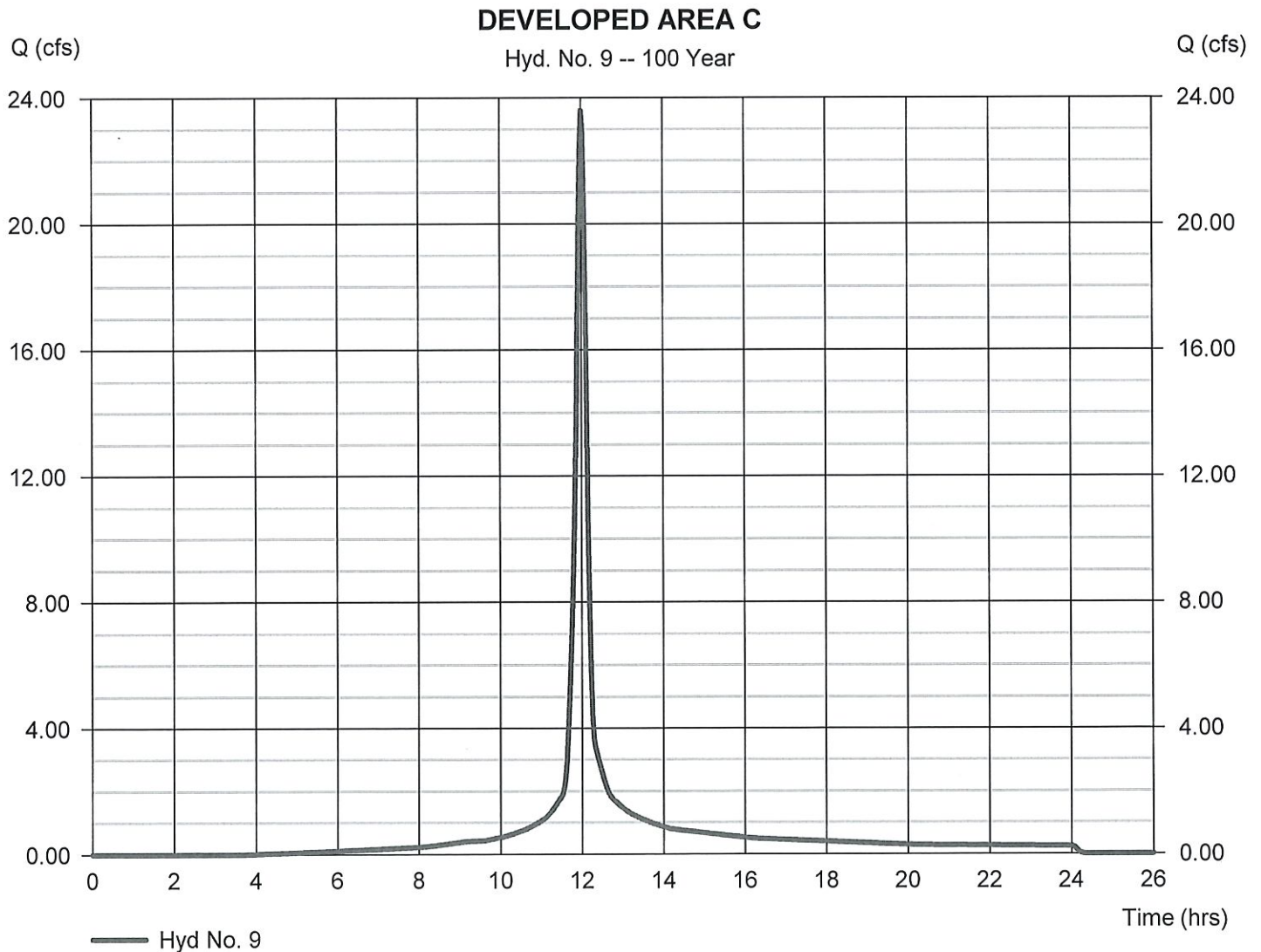
Thursday, 02 / 6 / 2020

Hyd. No. 9 A

DEVELOPED AREA C

Hydrograph type = SCS Runoff
 Storm frequency = 100 yrs
 Time interval = 2 min
 Drainage area = 3.010 ac
 Basin Slope = 0.0 %
 Tc method = User
 Total precip. = 7.22 in
 Storm duration = 24 hrs

Peak discharge = 23.59 cfs
 Time to peak = 12.00 hrs
 Hyd. volume = 64,009 cuft
 Curve number = 86.9
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Type II
 Shape factor = 484



Hydrograph Report

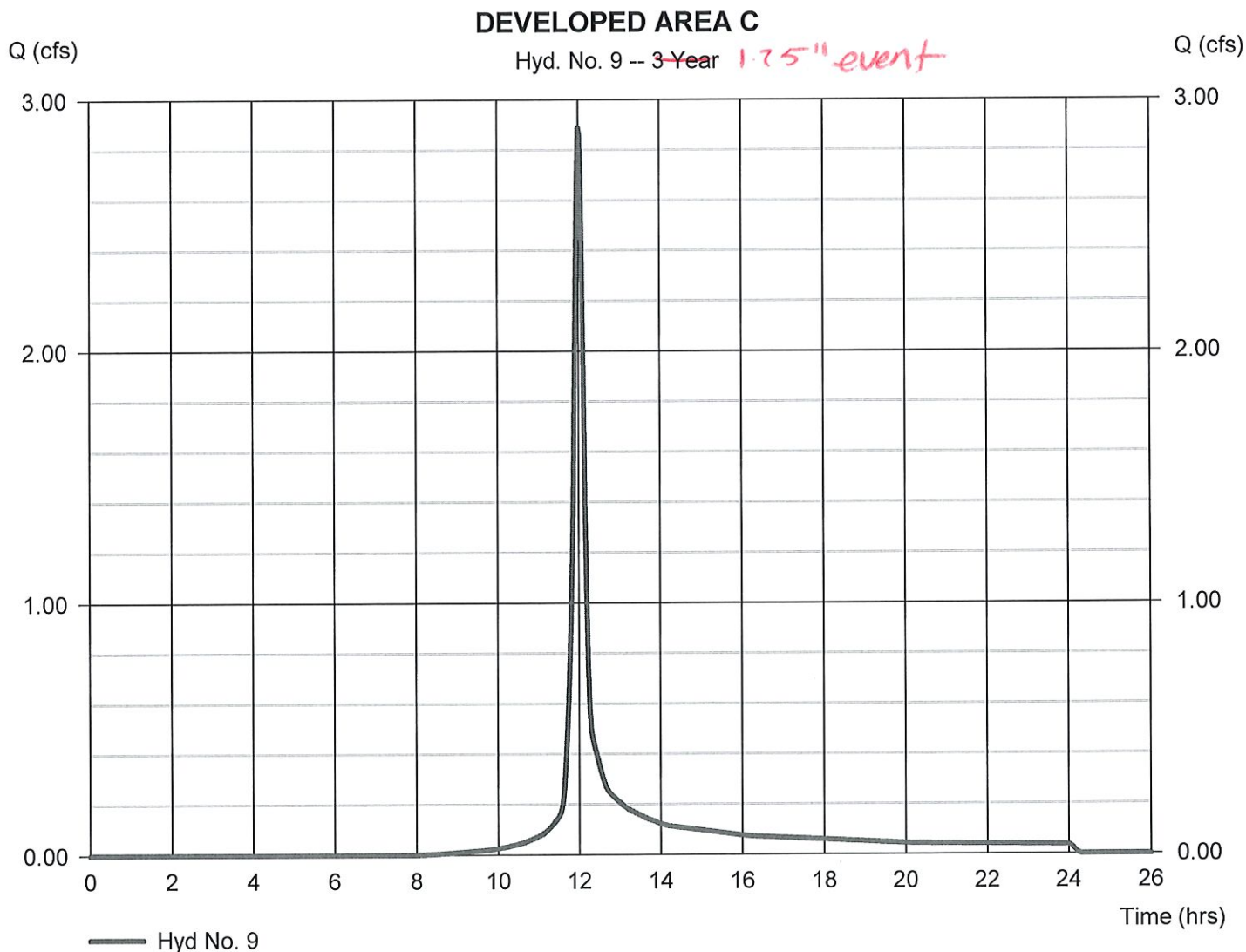
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

Tuesday, 02 / 11 / 2020

Hyd. No. 9 **B**

DEVELOPED AREA C

Hydrograph type	= SCS Runoff	Peak discharge	= 2.889 cfs
Storm frequency	= 3 yrs <i>1.25" event</i>	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 7,490 cuft
Drainage area	= 3.010 ac	Curve number	= 93.2
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 1.25 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

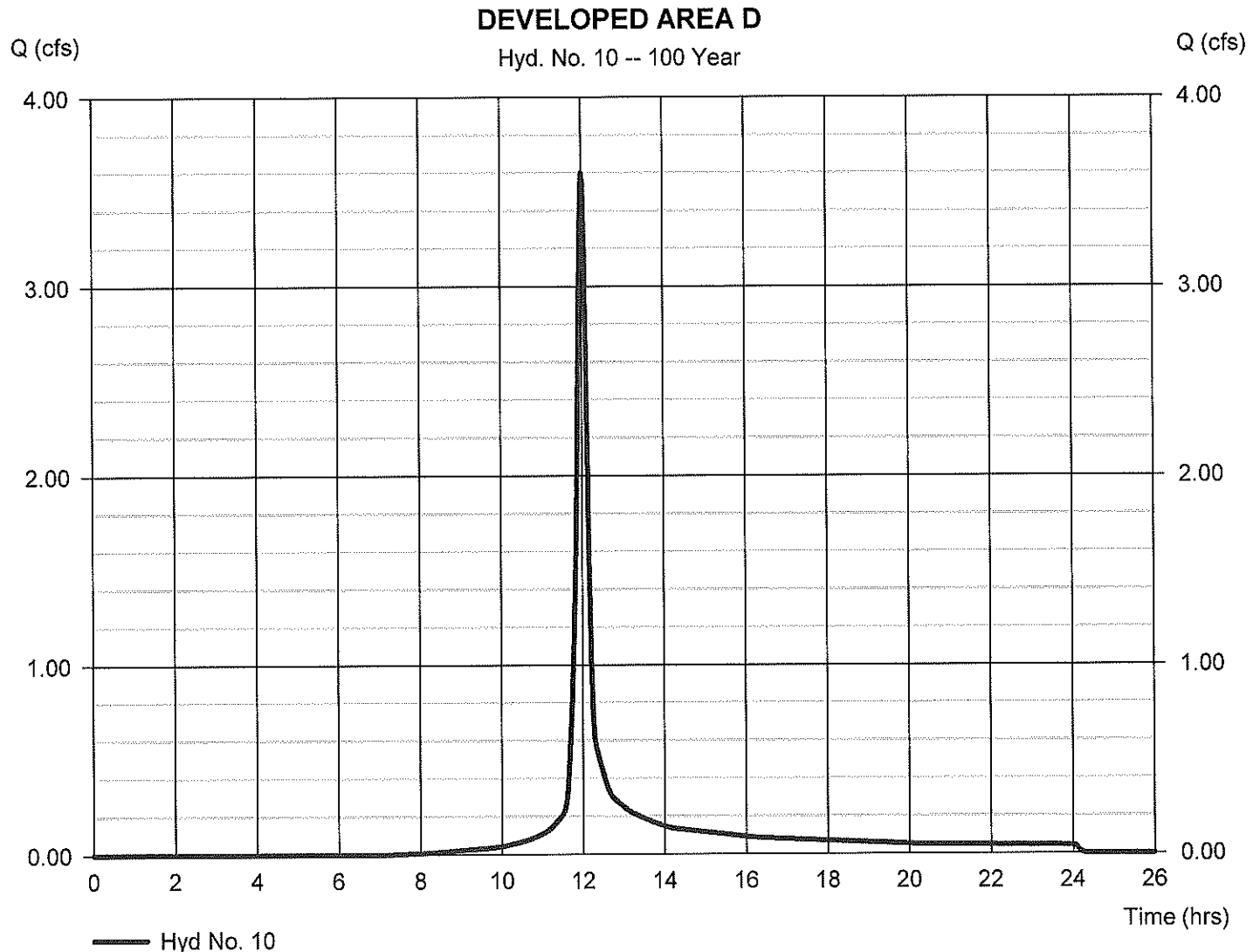
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

Thursday, 02 / 6 / 2020

Hyd. No. 10

DEVELOPED AREA D

Hydrograph type	= SCS Runoff	Peak discharge	= 3.600 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 9,352 cuft
Drainage area	= 0.590 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 7.22 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

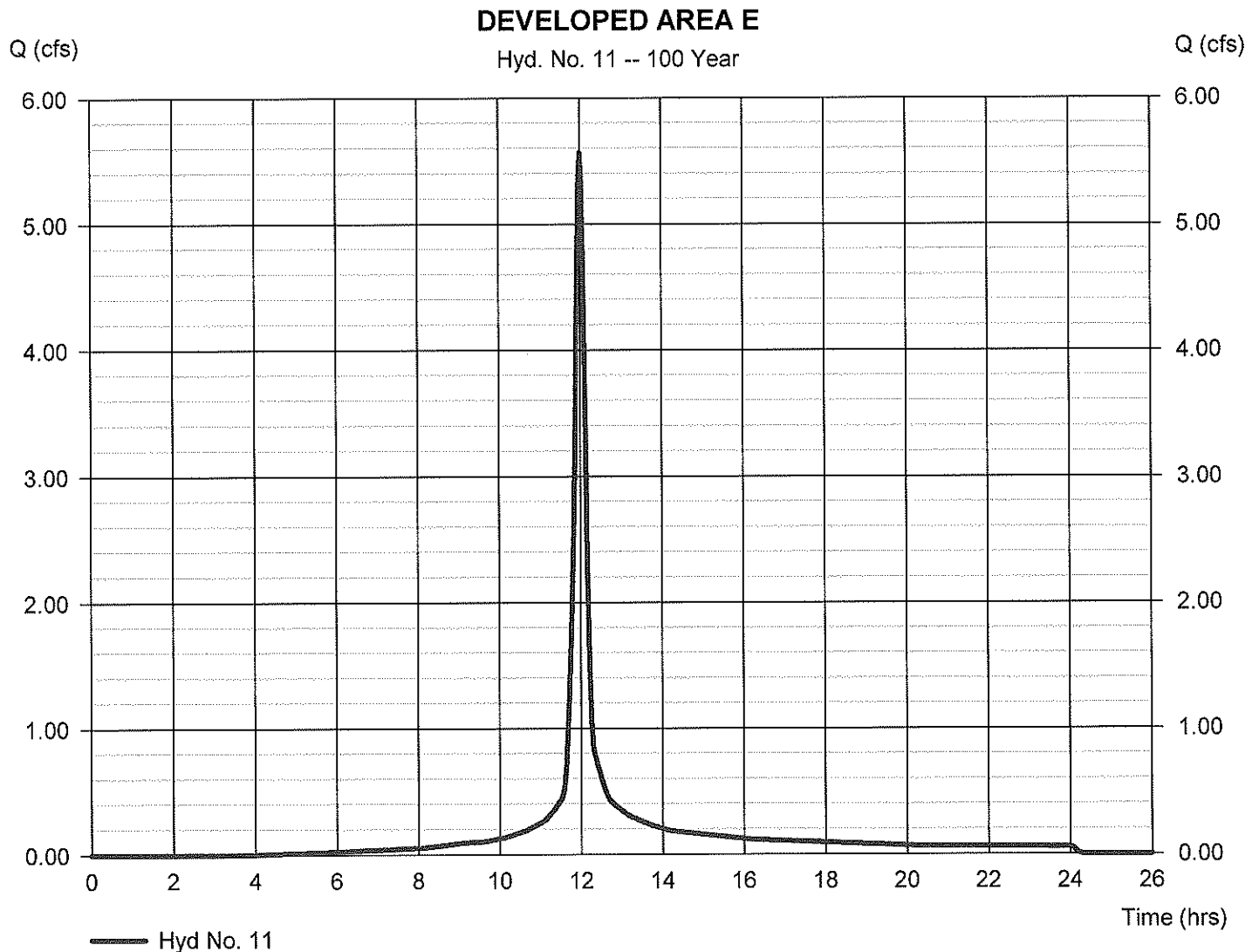
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

Thursday, 02 / 6 / 2020

Hyd. No. 11

DEVELOPED AREA E

Hydrograph type	= SCS Runoff	Peak discharge	= 5.565 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 15,098 cuft
Drainage area	= 0.710 ac	Curve number	= 86.9
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 7.22 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

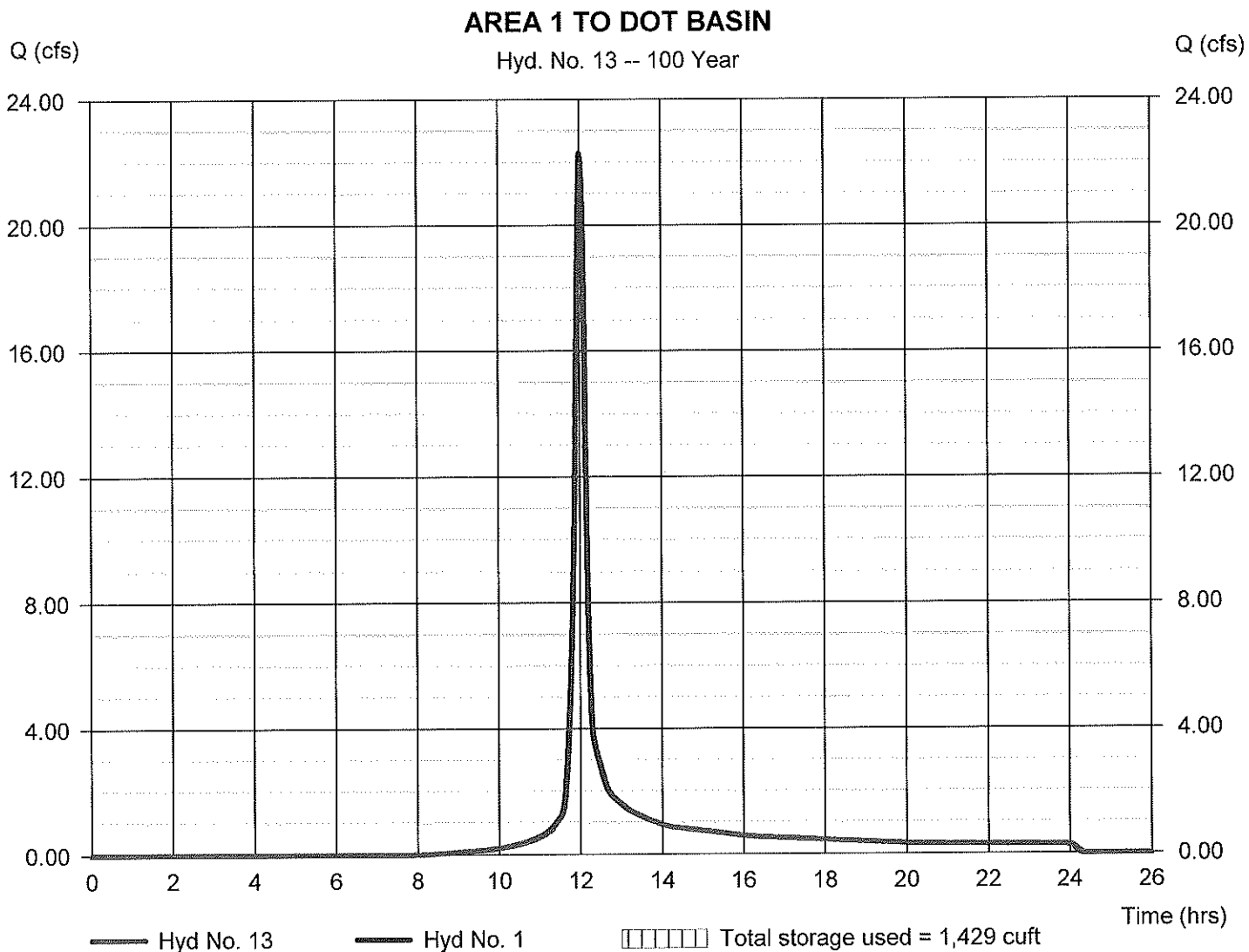
Wednesday, 02 / 5 / 2020

Hyd. No. 13

AREA 1 TO DOT BASIN

Hydrograph type	= Reservoir	Peak discharge	= 21.97 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.03 hrs
Time interval	= 2 min	Hyd. volume	= 57,806 cuft
Inflow hyd. No.	= 1 - OFFSITE AREA 1	Max. Elevation	= 757.42 ft
Reservoir name	= DOT Ramp Basin	Max. Storage	= 1,429 cuft

Storage Indication method used.



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

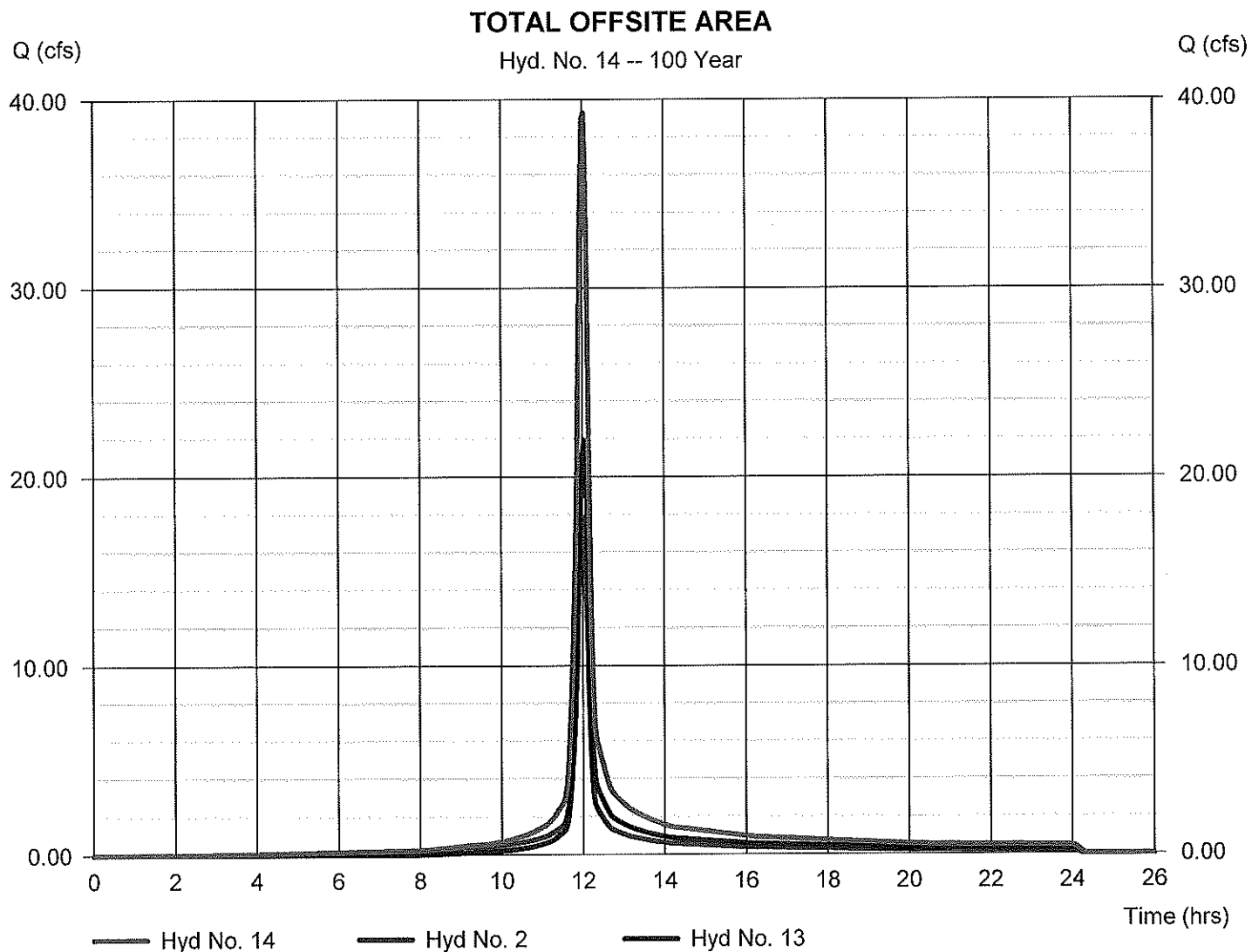
Wednesday, 02 / 5 / 2020

Hyd. No. 14

TOTAL OFFSITE AREA

Hydrograph type = Combine
Storm frequency = 100 yrs
Time interval = 2 min
Inflow hyds. = 2, 13

Peak discharge = 39.29 cfs
Time to peak = 12.03 hrs
Hyd. volume = 108,286 cuft
Contrib. drain. area = 2.150 ac



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

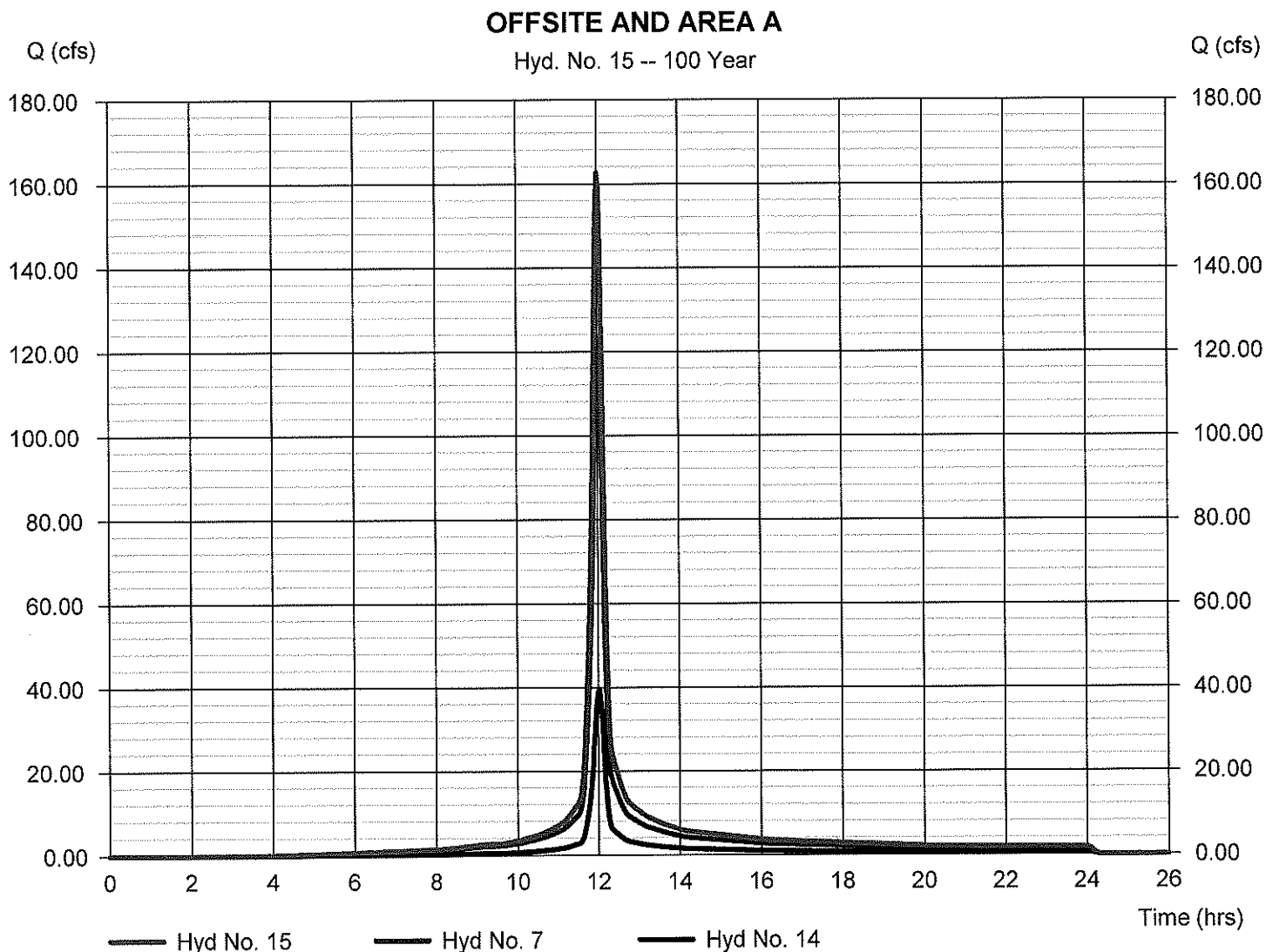
Thursday, 02 / 6 / 2020

Hyd. No. 15

OFFSITE AND AREA A

Hydrograph type = Combine
Storm frequency = 100 yrs
Time interval = 2 min
Inflow hyds. = 7, 14

Peak discharge = 162.63 cfs
Time to peak = 12.00 hrs
Hyd. volume = 443,642 cuft
Contrib. drain. area = 15.770 ac



Hydrograph Report

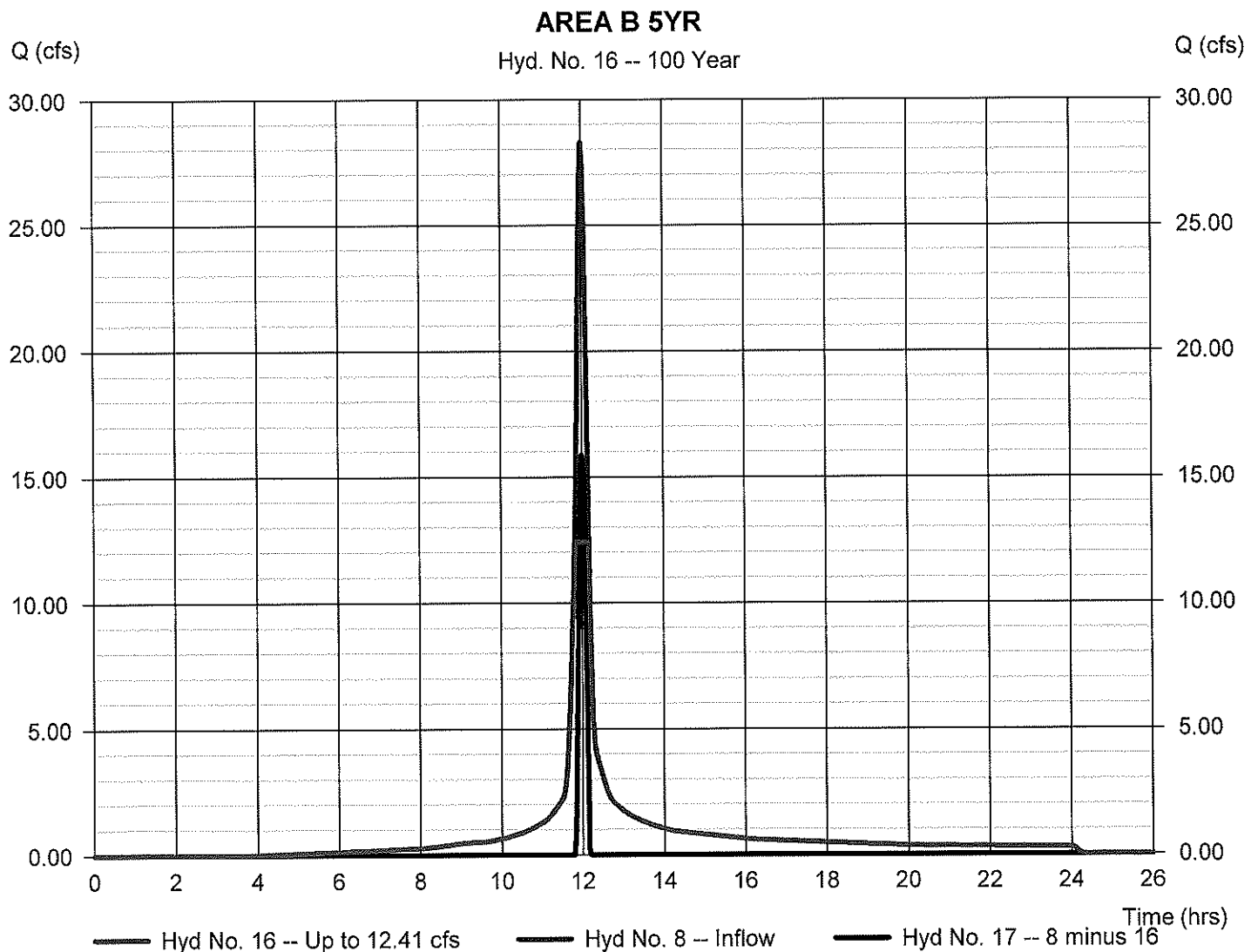
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

Thursday, 02 / 6 / 2020

Hyd. No. 16

AREA B 5YR

Hydrograph type	= Diversion1	Peak discharge	= 12.41 cfs
Storm frequency	= 100 yrs	Time to peak	= 11.83 hrs
Time interval	= 2 min	Hyd. volume	= 65,561 cuft
Inflow hydrograph	= 8 - DEVELOPED AREA B	2nd diverted hyd.	= 17
Diversion method	= Constant Q	Constant Q	= 12.41 cfs



Hydrograph Report

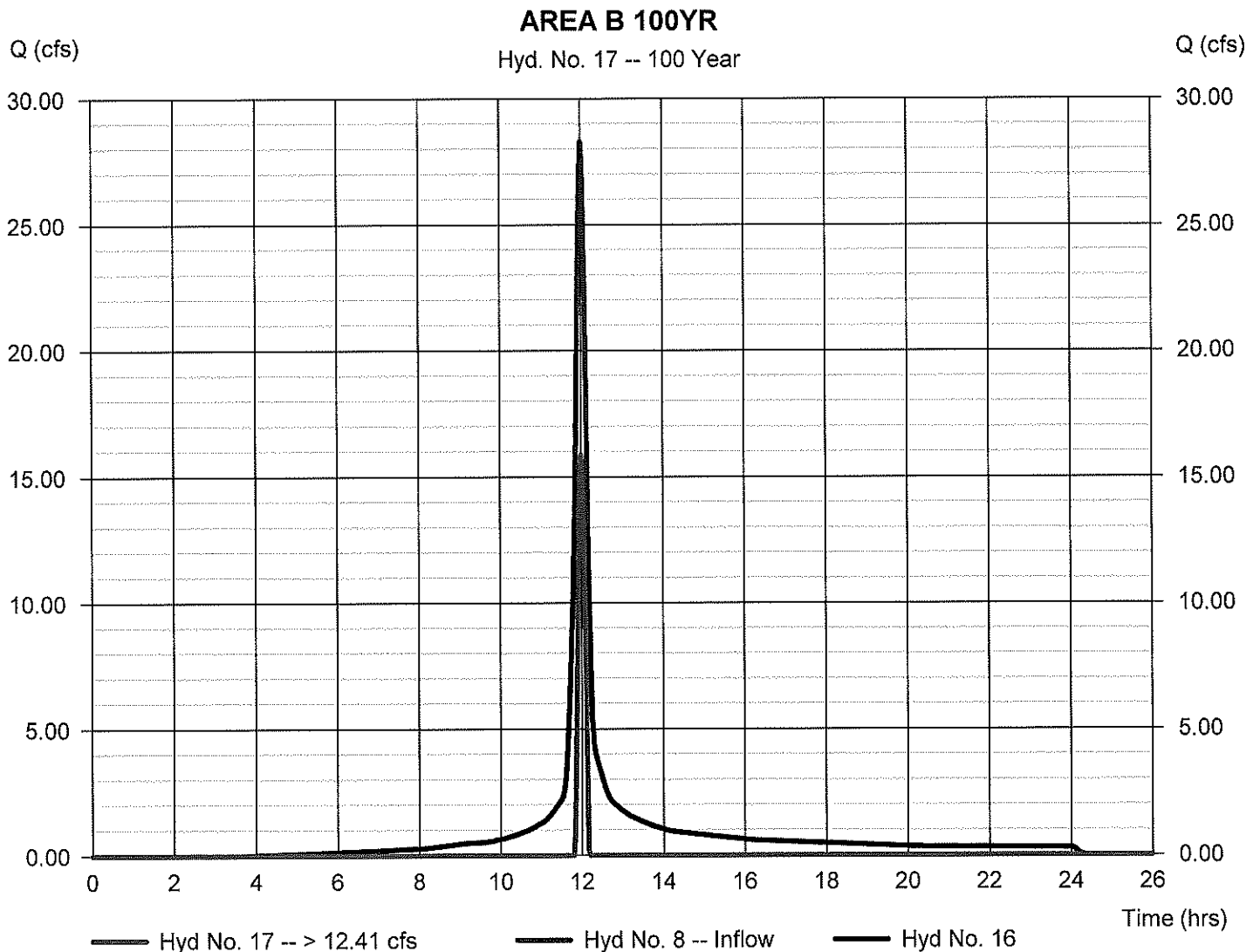
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

Thursday, 02 / 6 / 2020

Hyd. No. 17

AREA B 100YR

Hydrograph type	= Diversion2	Peak discharge	= 15.88 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 11,207 cuft
Inflow hydrograph	= 8 - DEVELOPED AREA B	2nd diverted hyd.	= 16
Diversion method	= Constant Q	Constant Q	= 12.41 cfs



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

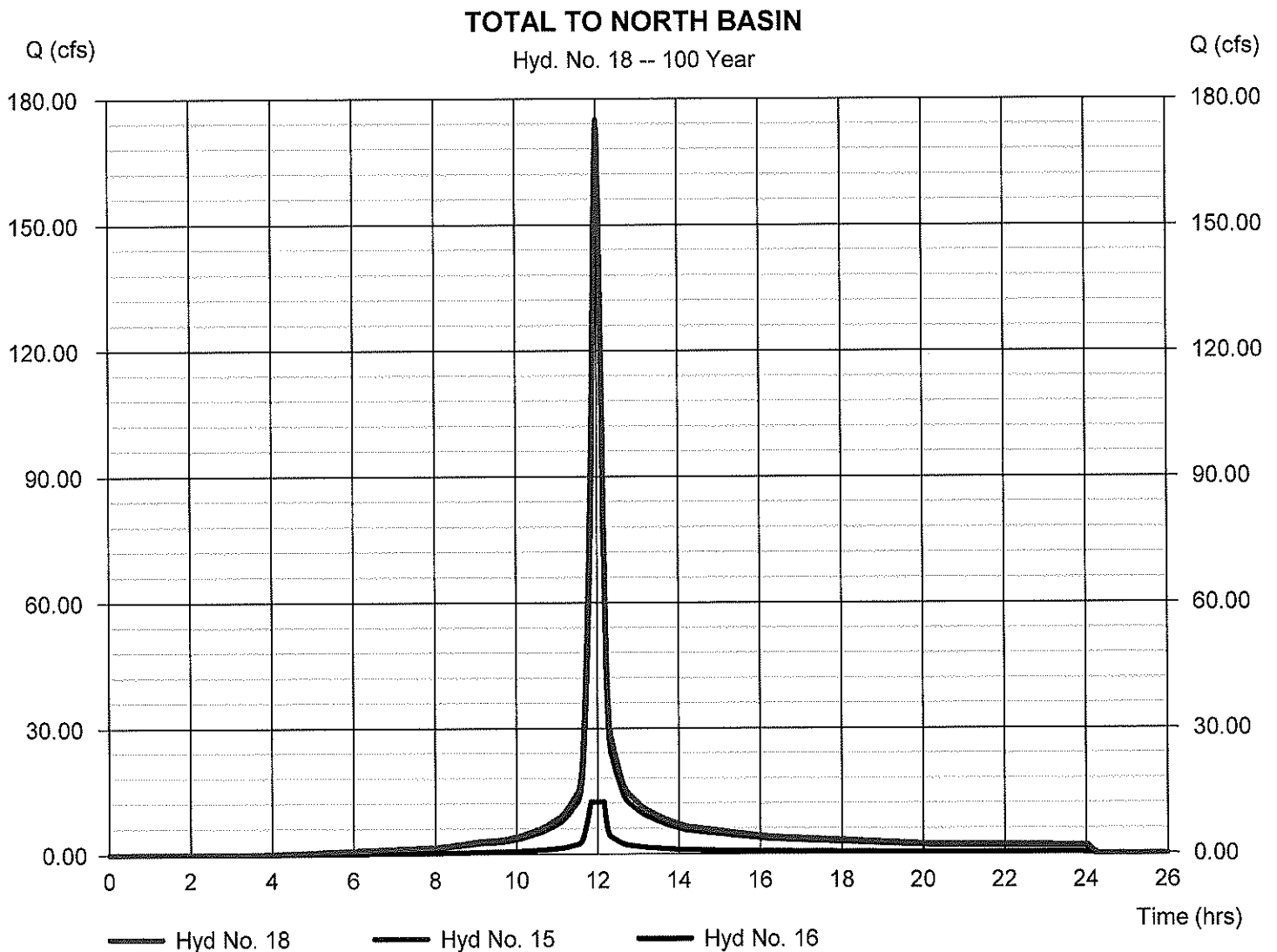
Thursday, 02 / 6 / 2020

Hyd. No. 18

TOTAL TO NORTH BASIN

Hydrograph type = Combine
Storm frequency = 100 yrs
Time interval = 2 min
Inflow hyds. = 15, 16

Peak discharge = 175.04 cfs
Time to peak = 12.00 hrs
Hyd. volume = 509,202 cuft
Contrib. drain. area = 0.000 ac



Hydrograph Report

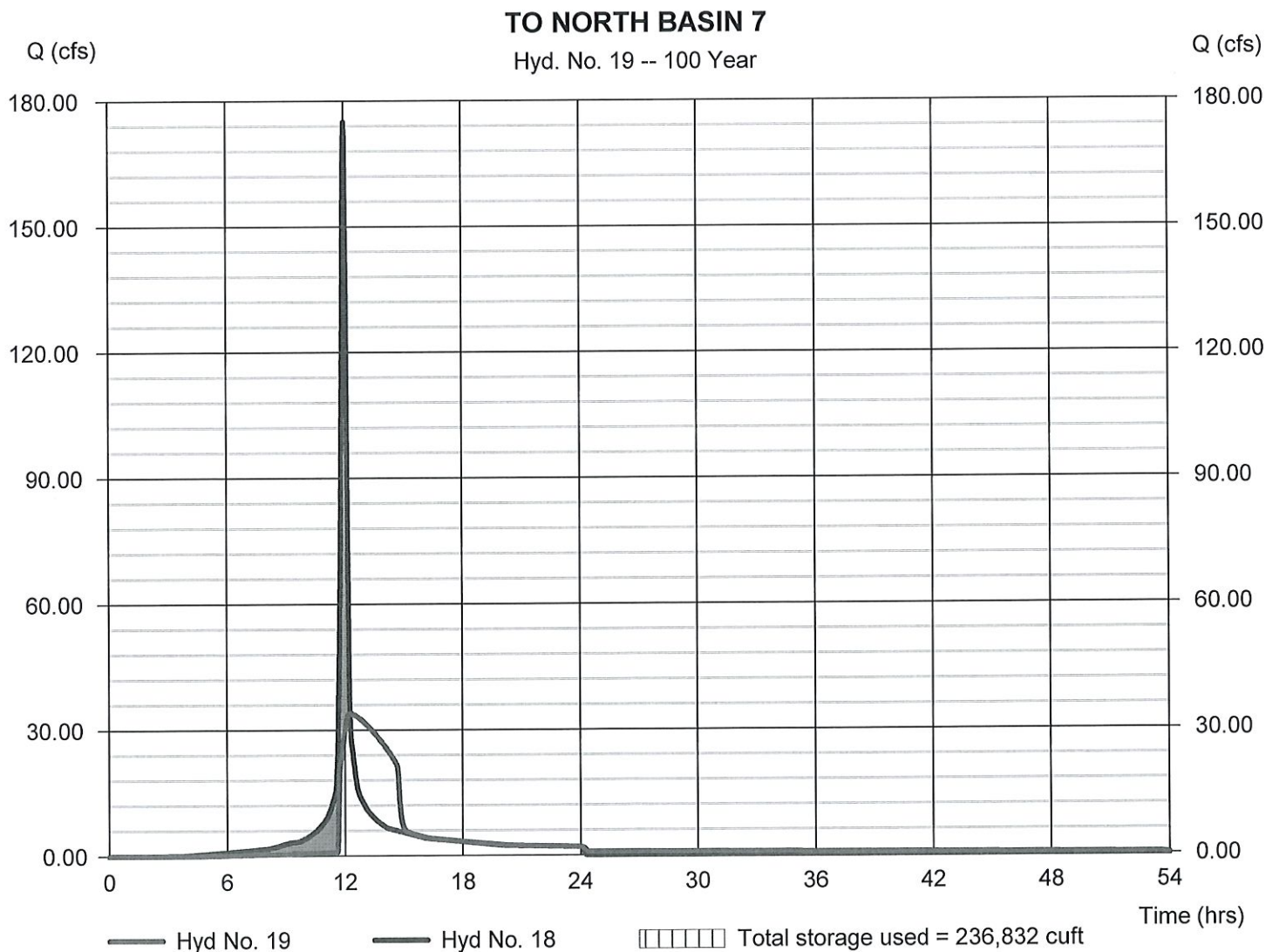
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

Wednesday, 02 / 12 / 2020

Hyd. No. 19 ^A TO NORTH BASIN 7

Hydrograph type	= Reservoir	Peak discharge	= 34.00 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.27 hrs
Time interval	= 2 min	Hyd. volume	= 509,035 cuft
Inflow hyd. No.	= 18 - TOTAL TO NORTH BASIN 7	Max. Elevation	= 718.80 ft
Reservoir name	= NORTH BASIN 7	Max. Storage	= 236,832 cuft

Storage Indication method used.



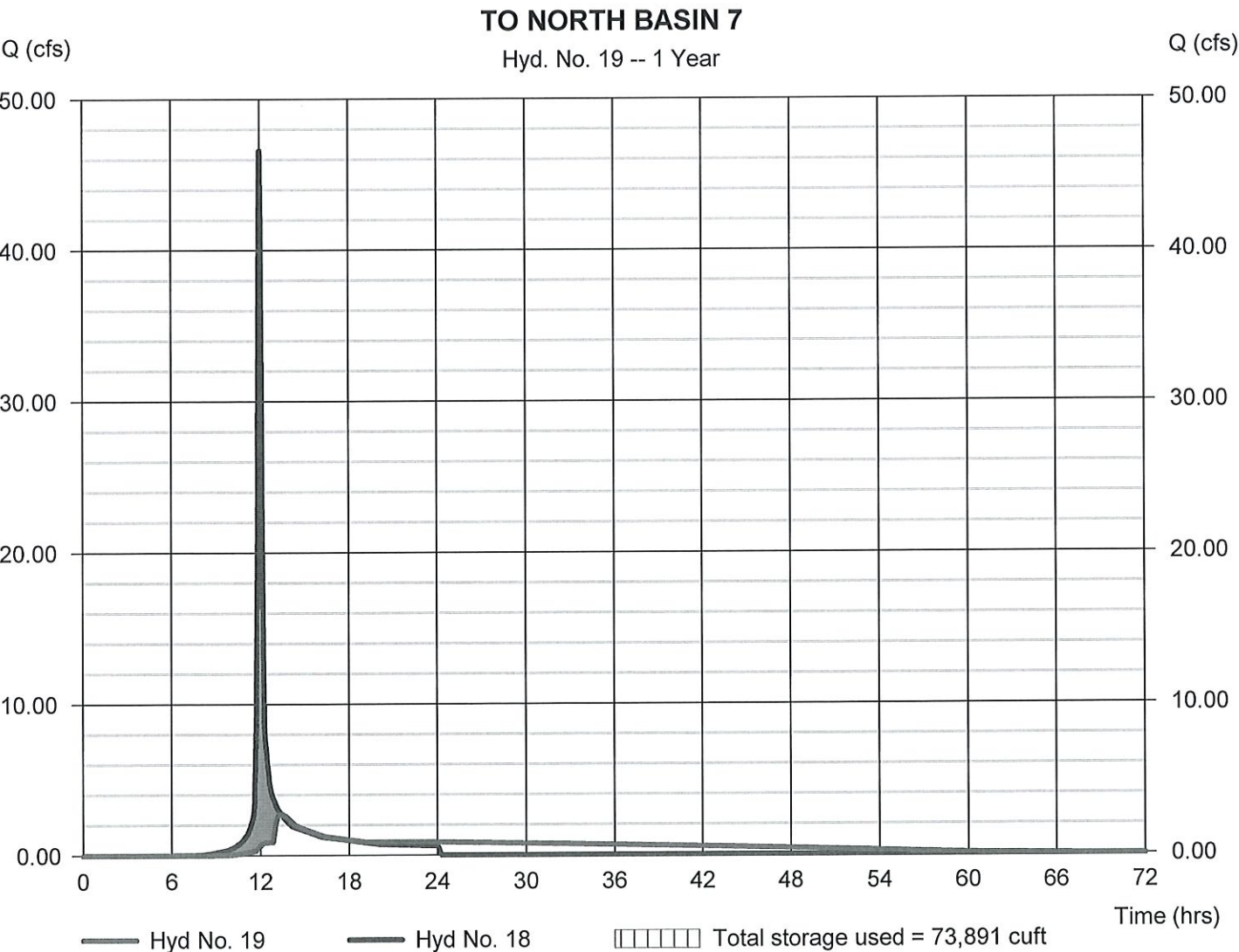
Hydrograph Report

Hyd. No. 19 B

TO NORTH BASIN 7

Hydrograph type	= Reservoir	Peak discharge	= 2.736 cfs
Storm frequency	= 1 yrs	Time to peak	= 13.40 hrs
Time interval	= 2 min	Hyd. volume	= 122,937 cuft
Inflow hyd. No.	= 18 - TOTAL TO NORTH BASIN 7	Max. Elevation	= 712.79 ft
Reservoir name	= NORTH BASIN 7	Max. Storage	= 73,891 cuft

Storage Indication method used.



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

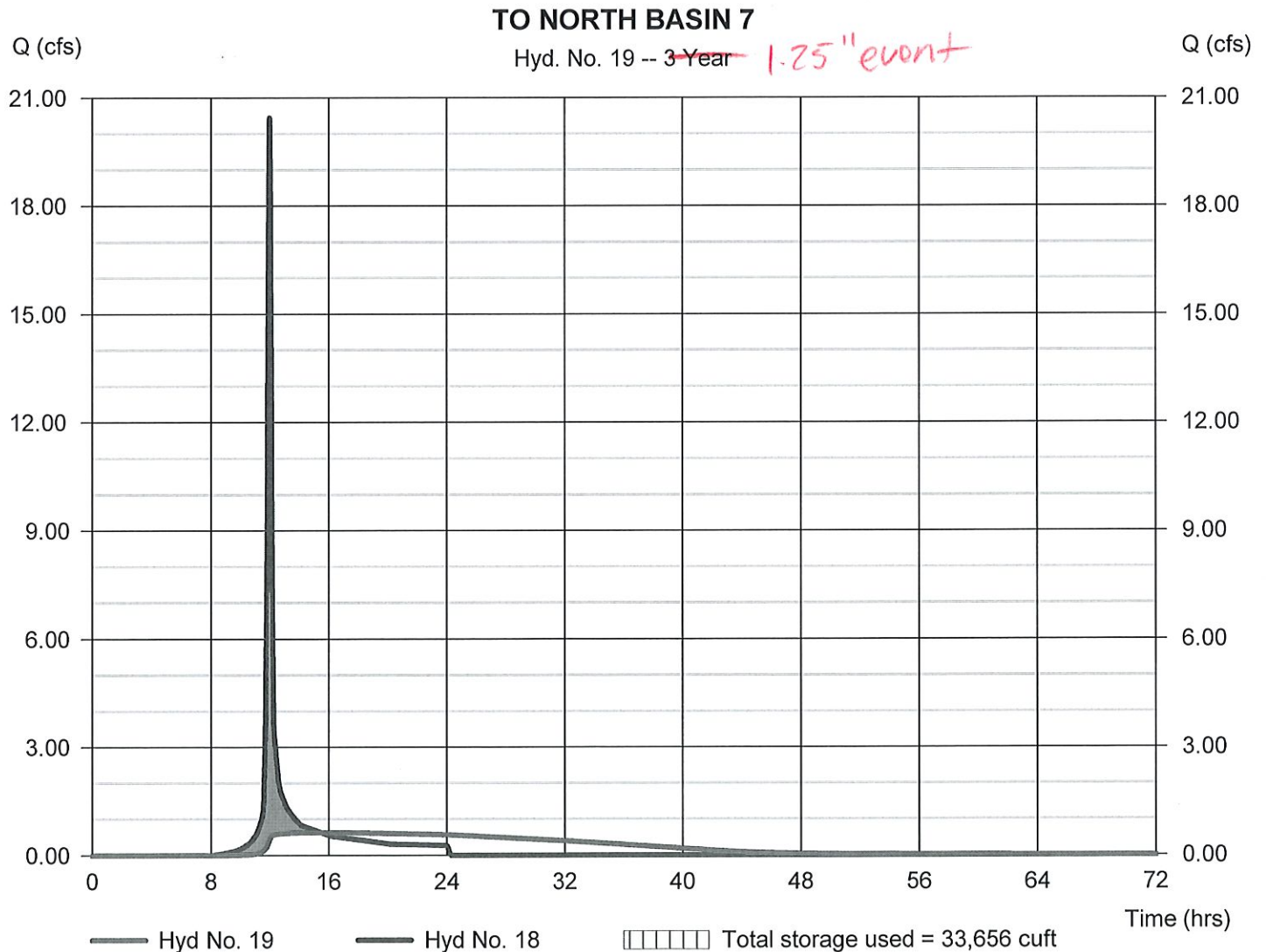
Wednesday, 02 / 12 / 2020

Hyd. No. 19 C

TO NORTH BASIN 7

Hydrograph type	= Reservoir	Peak discharge	= 0.632 cfs
Storm frequency	= 3-yr 1.25" event	Time to peak	= 15.53 hrs
Time interval	= 2 min	Hyd. volume	= 53,581 cuft
Inflow hyd. No.	= 18 - TOTAL TO NORTH BASIN 7	Max. Elevation	= 710.52 ft
Reservoir name	= NORTH BASIN 7	Max. Storage	= 33,656 cuft

Storage Indication method used.



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

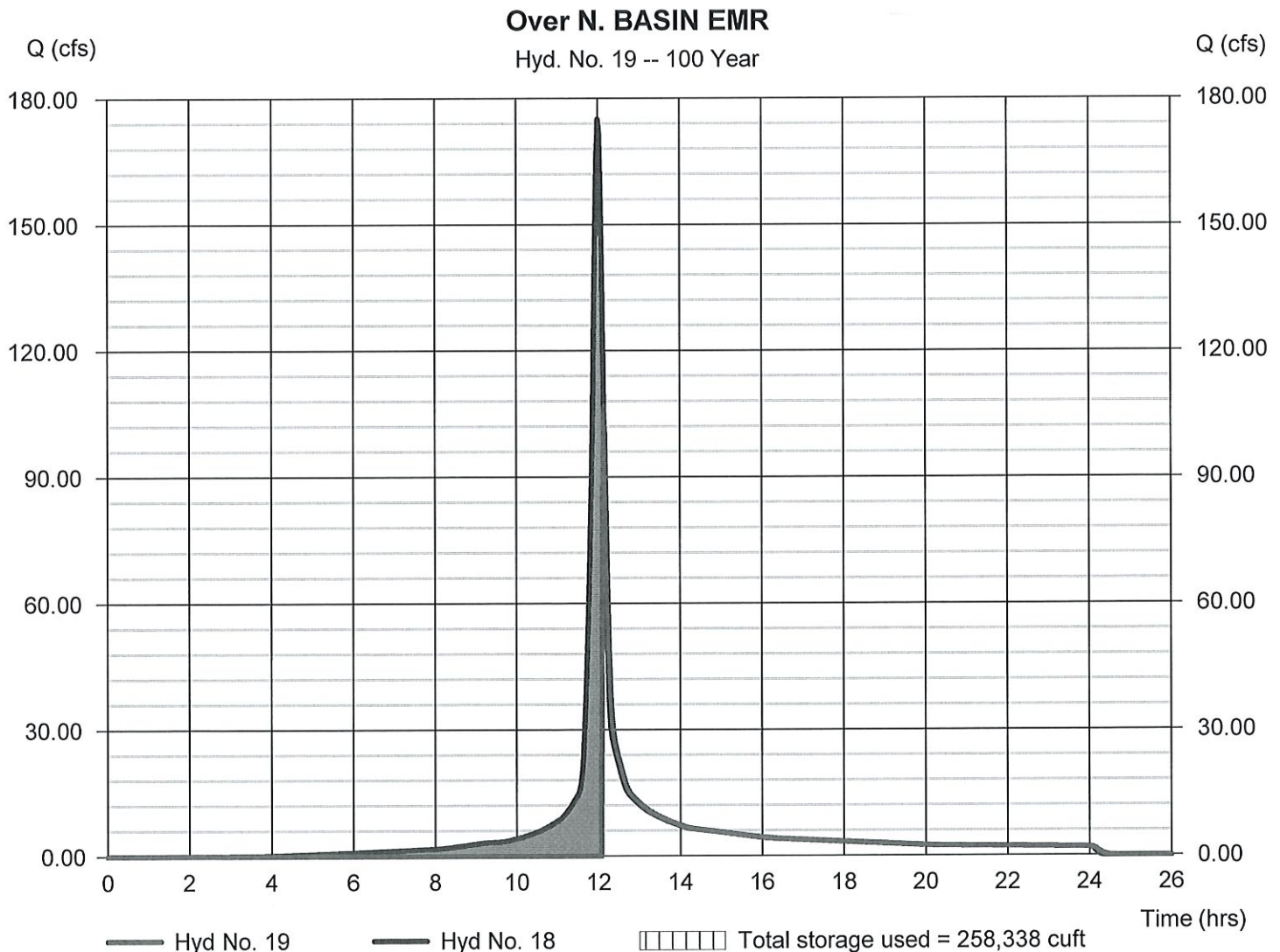
Thursday, 02 / 13 / 2020

Hyd. No. 19 D

Over N. BASIN EMR

Hydrograph type	= Reservoir	Peak discharge	= 106.79 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 265,507 cuft
Inflow hyd. No.	= 18 - TOTAL TO NORTH BASIN	Max. Elevation	= 719.41 ft
Reservoir name	= NORTH BASIN EMR Spillway	Max. Storage	= 258,338 cuft

Storage Indication method used.



Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

Thursday, 02 / 13 / 2020

Pond No. 12 - NORTH BASIN EMR Spillway

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Beginning Elevation = 708.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	708.00	11,083	0	0
1.00	709.00	12,782	11,921	11,921
2.00	710.00	14,573	13,666	25,588
3.00	711.00	16,458	15,504	41,092
4.00	712.00	18,435	17,435	58,527
5.00	713.00	20,512	19,462	77,990
6.00	714.00	22,698	21,594	99,583
7.00	715.00	24,995	23,835	123,418
8.00	716.00	27,406	26,189	149,607
9.00	717.00	29,970	28,676	178,282
10.00	718.00	32,689	31,317	209,599
11.00	719.00	35,530	34,096	243,695
11.50	719.50	36,987	18,126	261,821

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	Inactive	Inactive	Inactive	0.00
Span (in)	= 21.00	4.00	60.00	0.00
No. Barrels	= 1	1	4	0
Invert El. (ft)	= 707.80	708.00	712.70	0.00
Length (ft)	= 100.00	0.00	0.00	0.00
Slope (%)	= 0.10	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 160.00	0.00	0.00	0.00
Crest El. (ft)	= 719.00	0.00	0.00	0.00
Weir Coeff.	= 2.60	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= No	No	No	No
Exfil.(in/hr)	= 0.000 (by Wet area)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Civ A cfs	Civ B cfs	Civ C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	708.00	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.00	11,921	709.00	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
2.00	25,588	710.00	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
3.00	41,092	711.00	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
4.00	58,527	712.00	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
5.00	77,990	713.00	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
6.00	99,583	714.00	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
7.00	123,418	715.00	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
8.00	149,607	716.00	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
9.00	178,282	717.00	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
10.00	209,599	718.00	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
11.00	243,695	719.00	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
11.50	261,821	719.50	0.00	0.00	0.00	---	147.08	---	---	---	---	---	147.08

Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

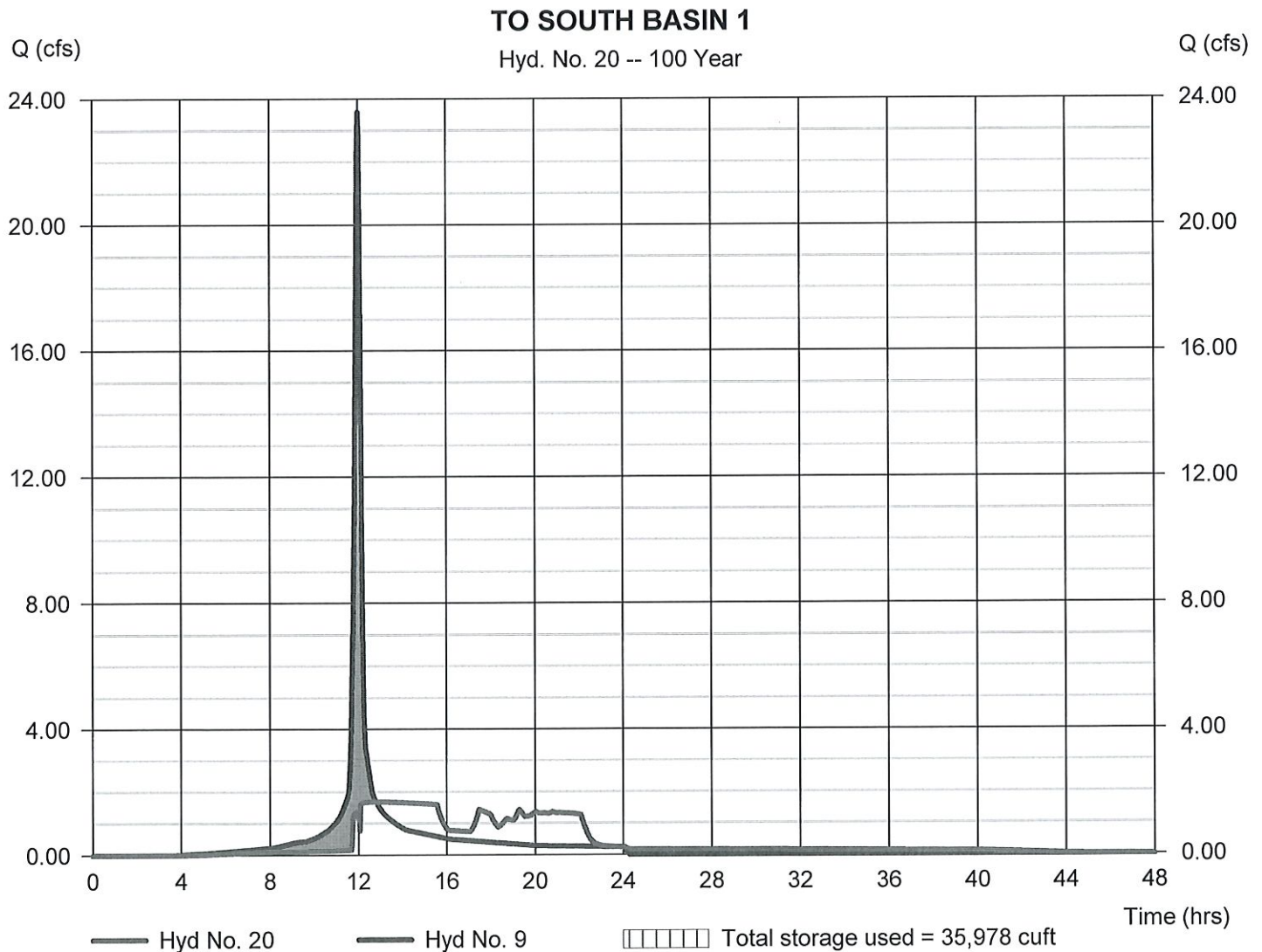
Wednesday, 02 / 12 / 2020

Hyd. No. 20 A

TO SOUTH BASIN 1

Hydrograph type	= Reservoir	Peak discharge	= 1.692 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.80 hrs
Time interval	= 2 min	Hyd. volume	= 64,003 cuft
Inflow hyd. No.	= 9 - DEVELOPED AREA C	Max. Elevation	= 728.92 ft
Reservoir name	= SOUTH BASIN 1	Max. Storage	= 35,978 cuft

Storage Indication method used.



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

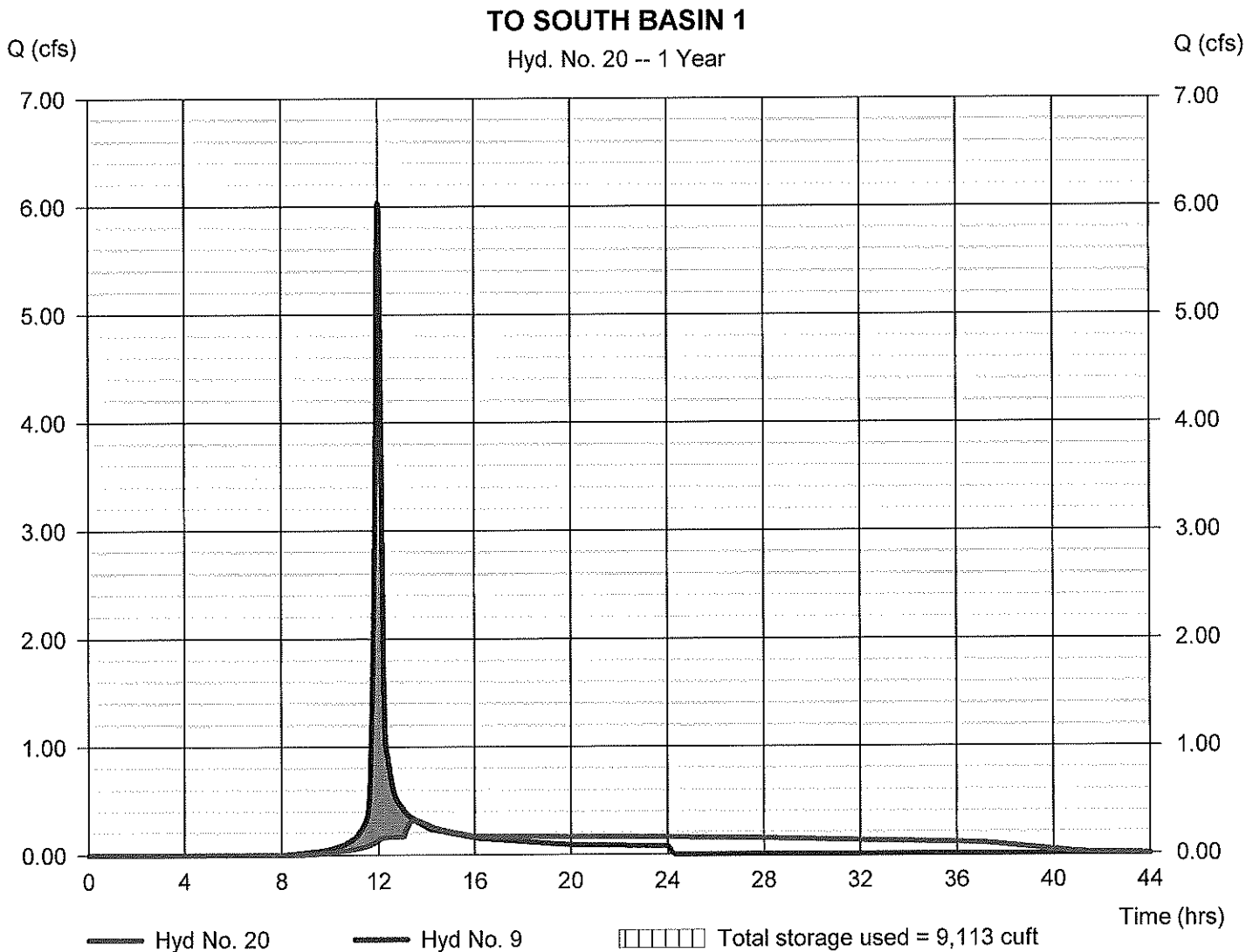
Wednesday, 02 / 12 / 2020

Hyd. No. 20

TO SOUTH BASIN 1

Hydrograph type	= Reservoir	Peak discharge	= 0.321 cfs
Storm frequency	= 1 yrs	Time to peak	= 13.53 hrs
Time interval	= 2 min	Hyd. volume	= 15,635 cuft
Inflow hyd. No.	= 9 - DEVELOPED AREA C	Max. Elevation	= 725.72 ft
Reservoir name	= SOUTH BASIN 1	Max. Storage	= 9,113 cuft

Storage Indication method used.



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

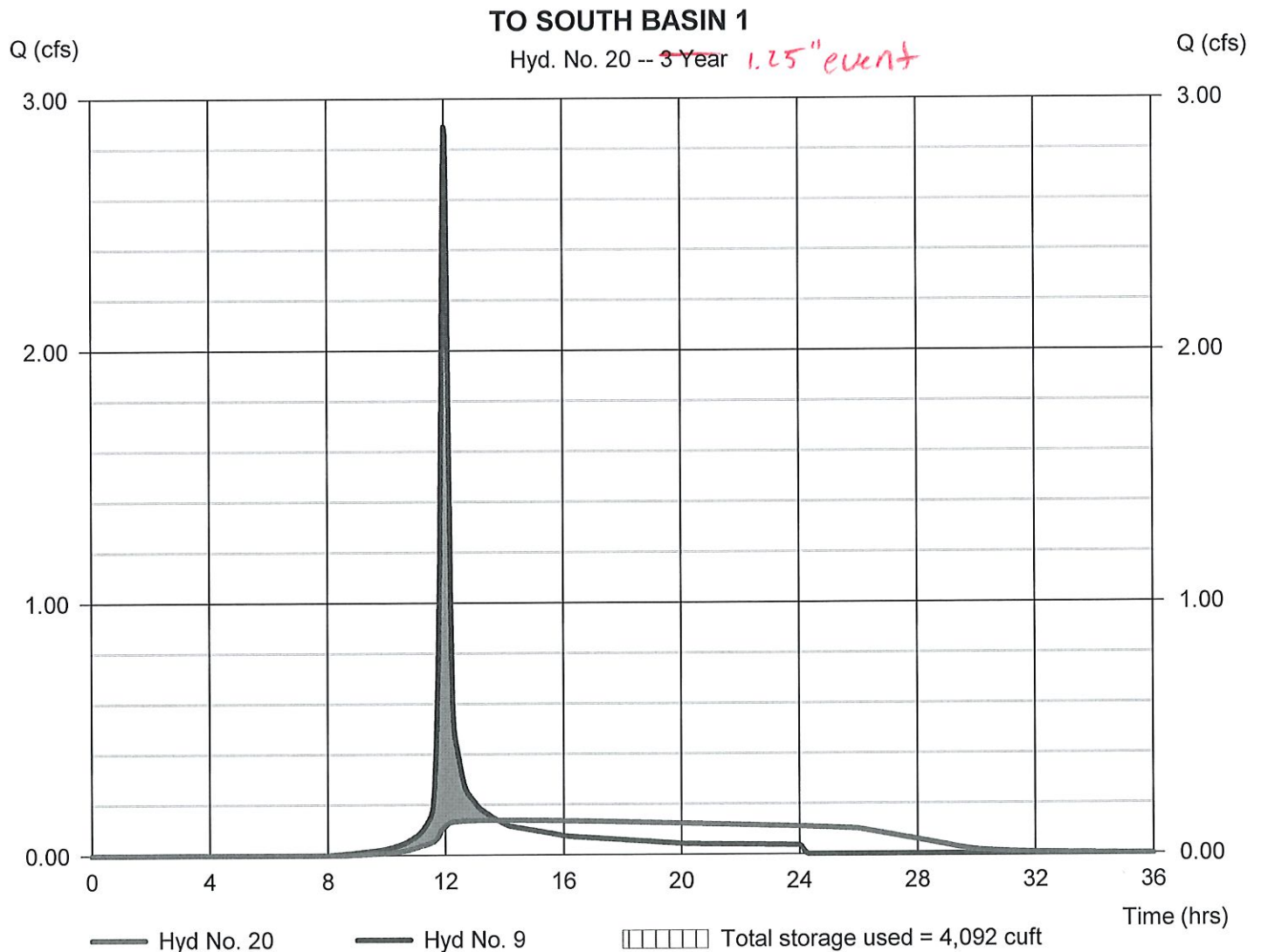
Wednesday, 02 / 12 / 2020

Hyd. No. 20 *C*

TO SOUTH BASIN 1

Hydrograph type	= Reservoir	Peak discharge	= 0.138 cfs
Storm frequency	= 3-yr <i>1.25" event</i>	Time to peak	= 13.77 hrs
Time interval	= 2 min	Hyd. volume	= 7,484 cuft
Inflow hyd. No.	= 9 - DEVELOPED AREA C	Max. Elevation	= 724.81 ft
Reservoir name	= SOUTH BASIN 1	Max. Storage	= 4,092 cuft

Storage Indication method used.



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

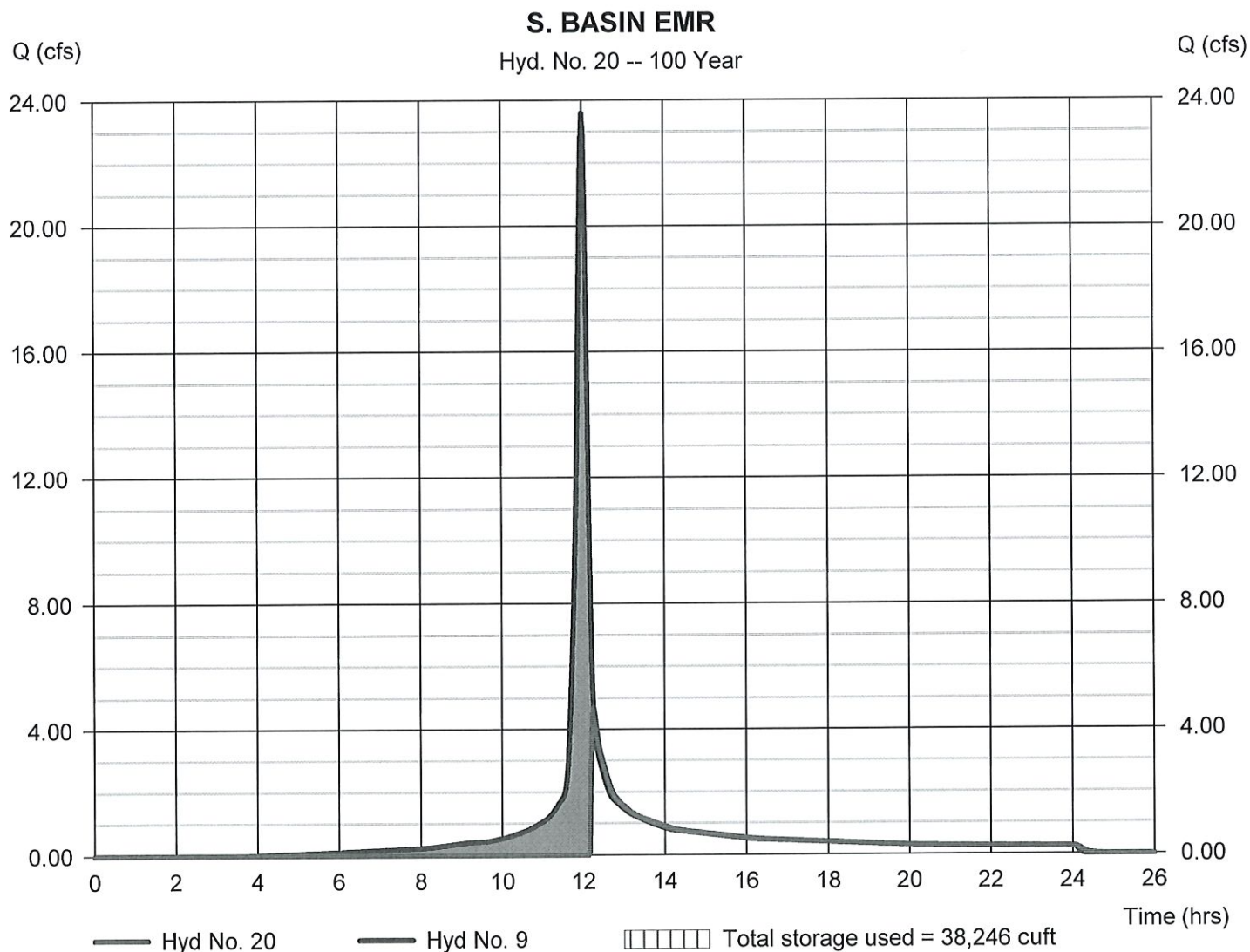
Thursday, 02 / 13 / 2020

Hyd. No. 20 D

S. BASIN EMR

Hydrograph type	= Reservoir	Peak discharge	= 4.702 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.27 hrs
Time interval	= 2 min	Hyd. volume	= 27,191 cuft
Inflow hyd. No.	= 9 - DEVELOPED AREA C	Max. Elevation	= 729.13 ft
Reservoir name	= SOUTH BASIN EMR Spillway	Max. Storage	= 38,246 cuft

Storage Indication method used.



Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

Thursday, 02 / 13 / 2020

Pond No. 13 - SOUTH BASIN EMR Spillway

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Beginning Elevation = 723.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	723.00	02	0	0
1.00	724.00	2,697	924	924
2.00	725.00	5,292	3,922	4,846
3.00	726.00	6,530	5,900	10,746
4.00	727.00	7,905	7,206	17,951
5.00	728.00	9,413	8,647	26,599
6.00	729.00	11,049	10,219	36,818
6.50	729.50	11,679	5,681	42,498

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	Inactive	Inactive	0.00	0.00
Span (in)	= 6.00	2.00	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 721.90	723.00	0.00	0.00
Length (ft)	= 60.00	0.00	0.00	0.00
Slope (%)	= 1.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	Inactive	40.00	0.00	0.00
Crest El. (ft)	= 725.70	729.00	0.00	0.00
Weir Coeff.	= 3.33	2.60	3.33	3.33
Weir Type	= 1	Broad	---	---
Multi-Stage	= Yes	No	No	No
Exfil.(in/hr)	= 0.000 (by Wet area)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	723.00	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.00	924	724.00	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.00	4,846	725.00	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.00	10,746	726.00	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.00	17,951	727.00	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
5.00	26,599	728.00	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
6.00	36,818	729.00	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
6.50	42,498	729.50	0.00	0.00	---	---	0.00	36.77	---	---	---	---	36.77

Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

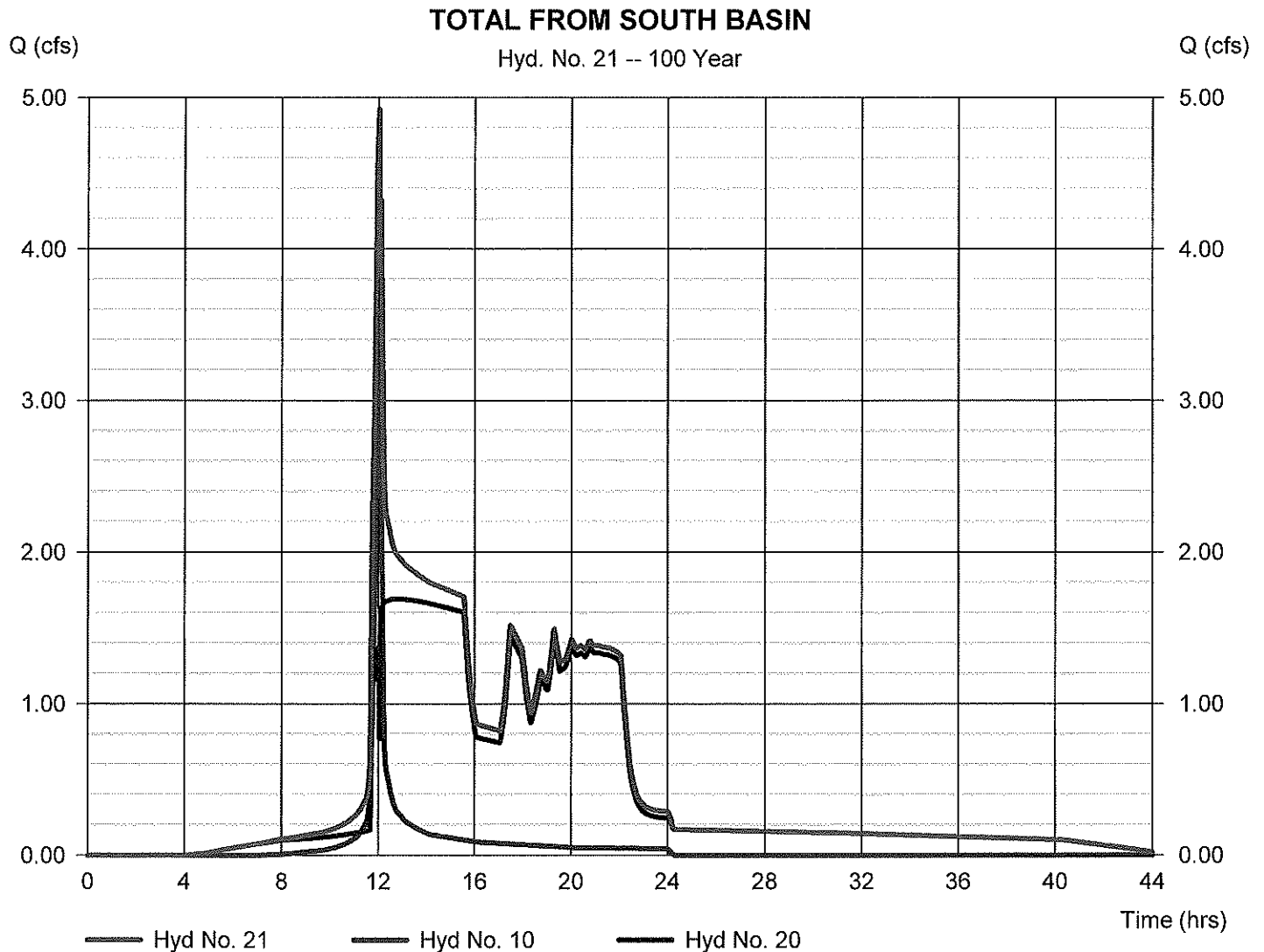
Wednesday, 02 / 12 / 2020

Hyd. No. 21

TOTAL FROM SOUTH BASIN

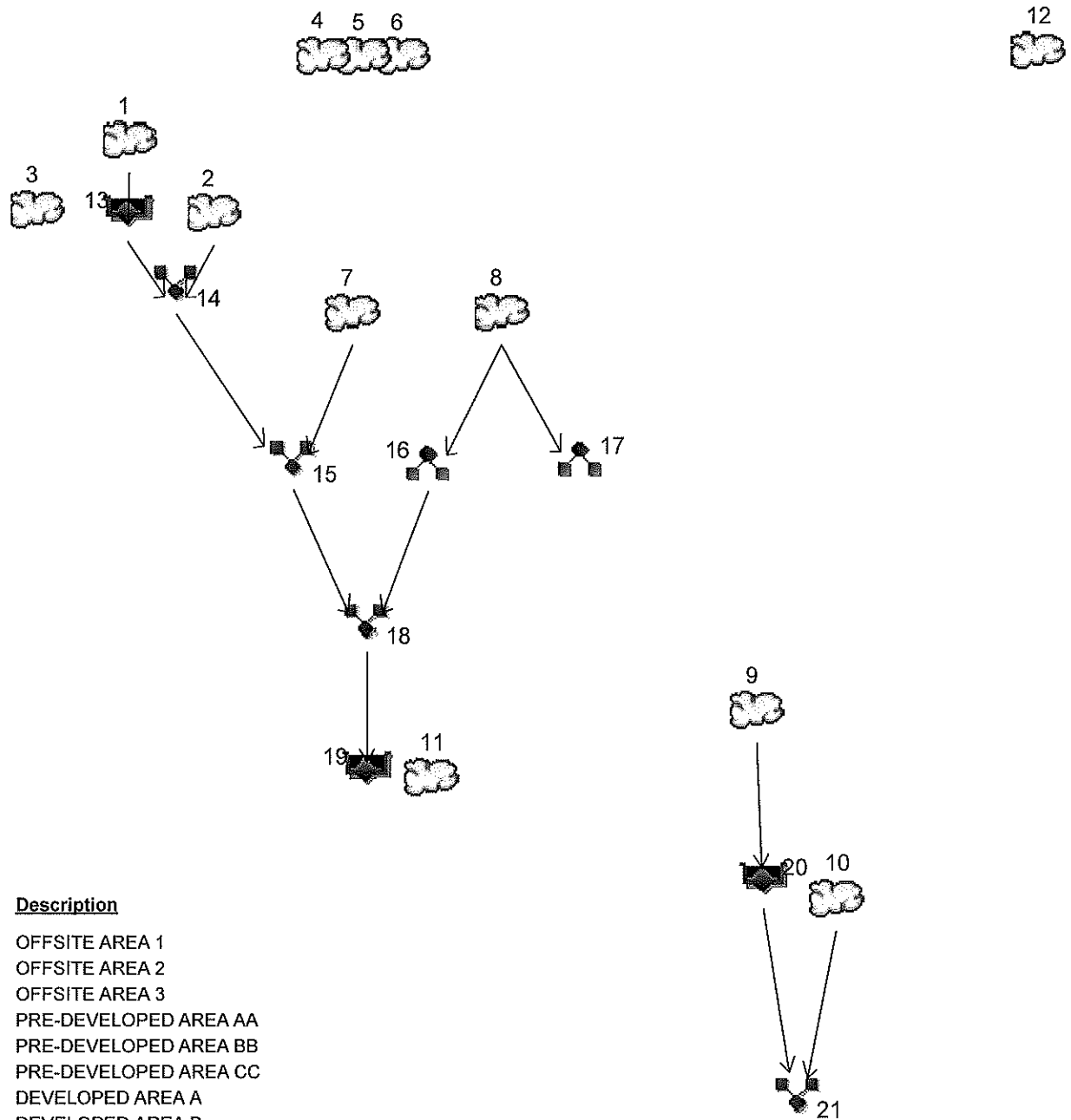
Hydrograph type = Combine
Storm frequency = 100 yrs
Time interval = 2 min
Inflow hyds. = 10, 20

Peak discharge = 4.923 cfs
Time to peak = 12.03 hrs
Hyd. volume = 73,355 cuft
Contrib. drain. area = 0.590 ac



Watershed Model Schematic

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

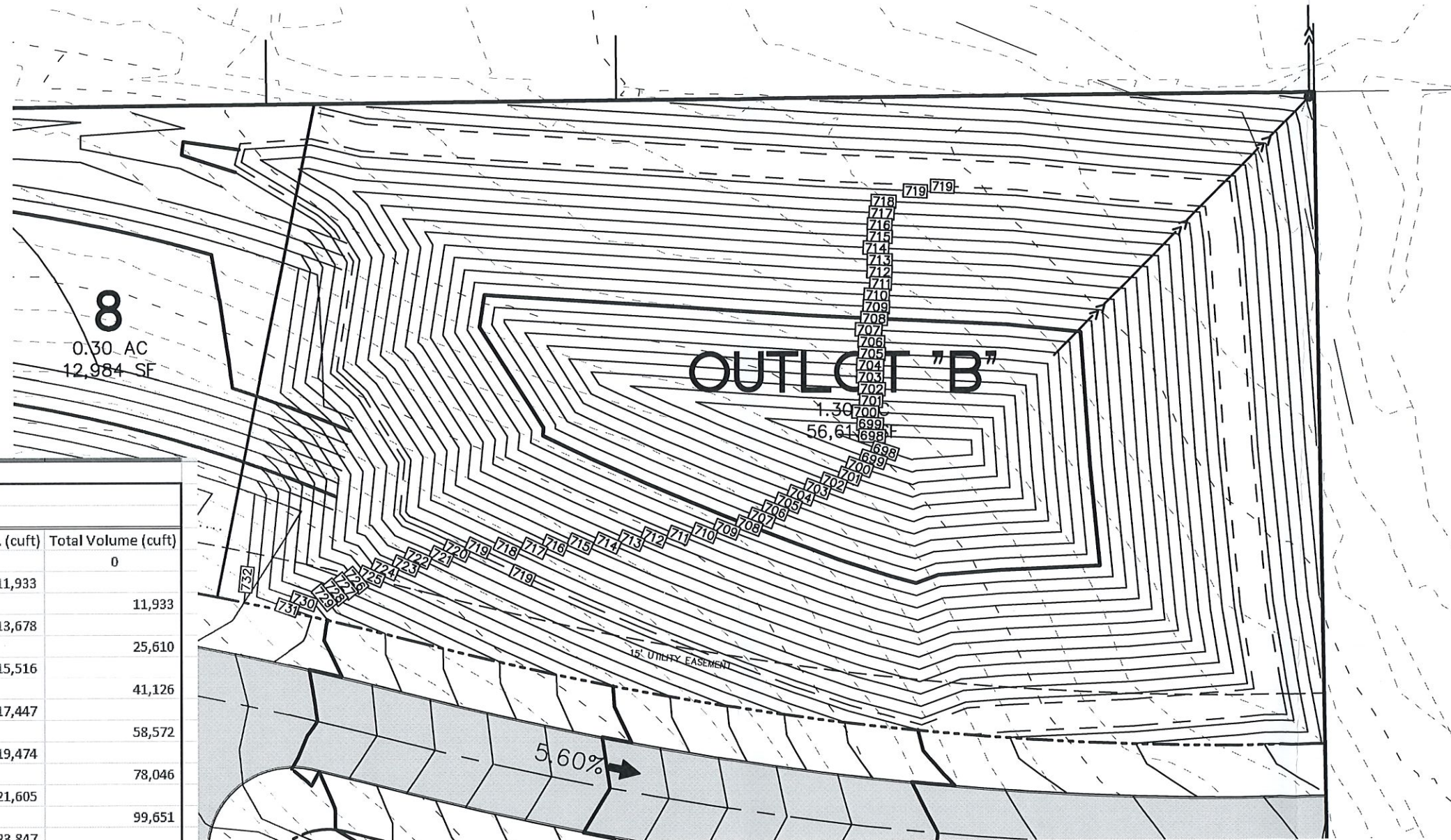


Legend

Hvd.	Origin	Description
1	SCS Runoff	OFFSITE AREA 1
2	SCS Runoff	OFFSITE AREA 2
3	SCS Runoff	OFFSITE AREA 3
4	SCS Runoff	PRE-DEVELOPED AREA AA
5	SCS Runoff	PRE-DEVELOPED AREA BB
6	SCS Runoff	PRE-DEVELOPED AREA CC
7	SCS Runoff	DEVELOPED AREA A
8	SCS Runoff	DEVELOPED AREA B
9	SCS Runoff	DEVELOPED AREA C
10	SCS Runoff	DEVELOPED AREA D
11	SCS Runoff	DEVELOPED AREA E
12	SCS Runoff	DEVELOPED AREA F
13	Reservoir	AREA 1 TO DOT BASIN
14	Combine	TOTAL OFFSITE AREA
15	Combine	OFFSITE AND AREA A
16	Diversion1	AREA B 5YR
17	Diversion2	AREA B 100YR
18	Combine	TOTAL TO NORTH BASIN
19	Reservoir	TO NORTH BASIN 7
20	Reservoir	TO SOUTH BASIN 1
21	Combine	TOTAL FROM SOUTH BASIN

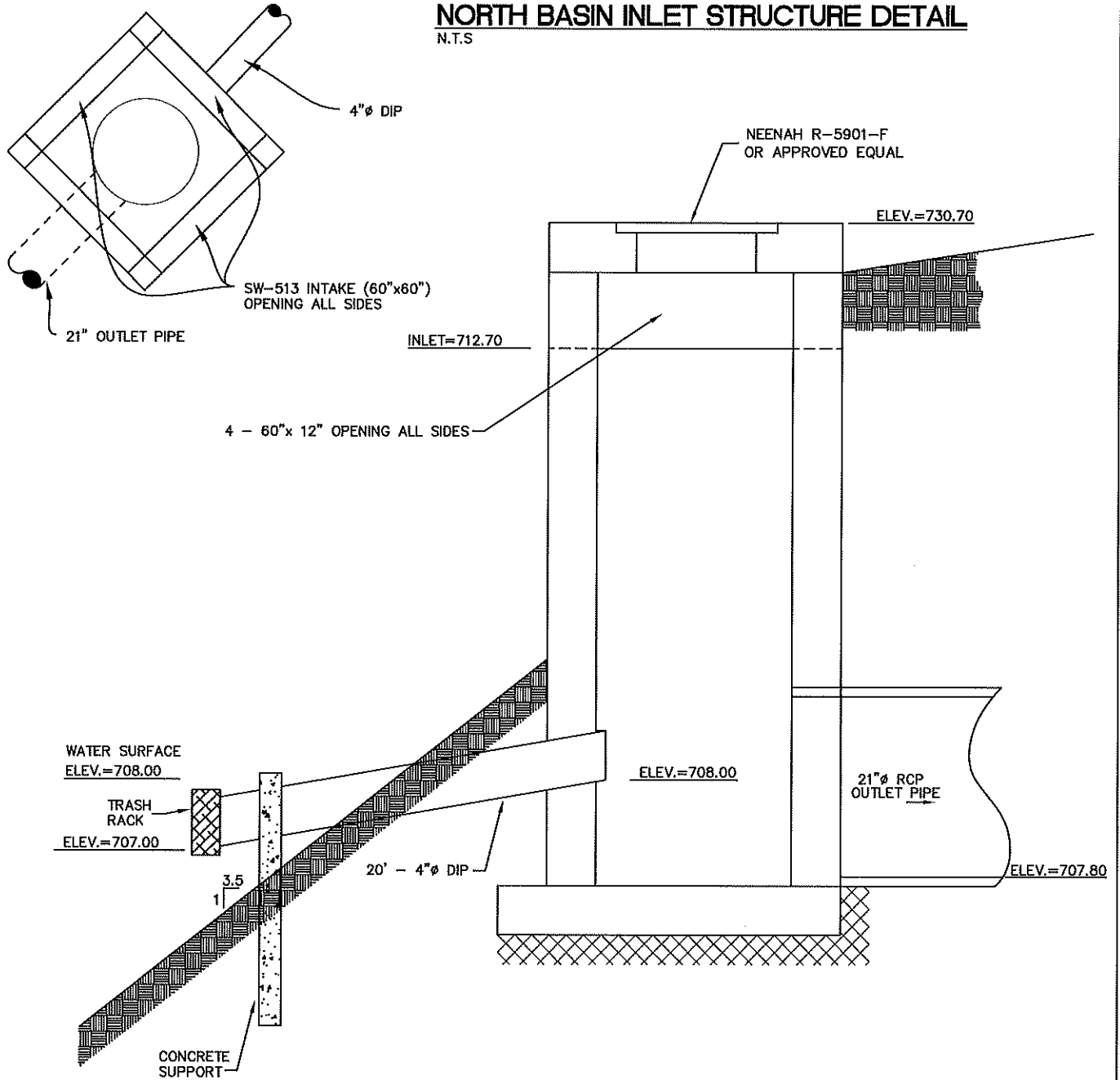
APPENDIX F

North Basin

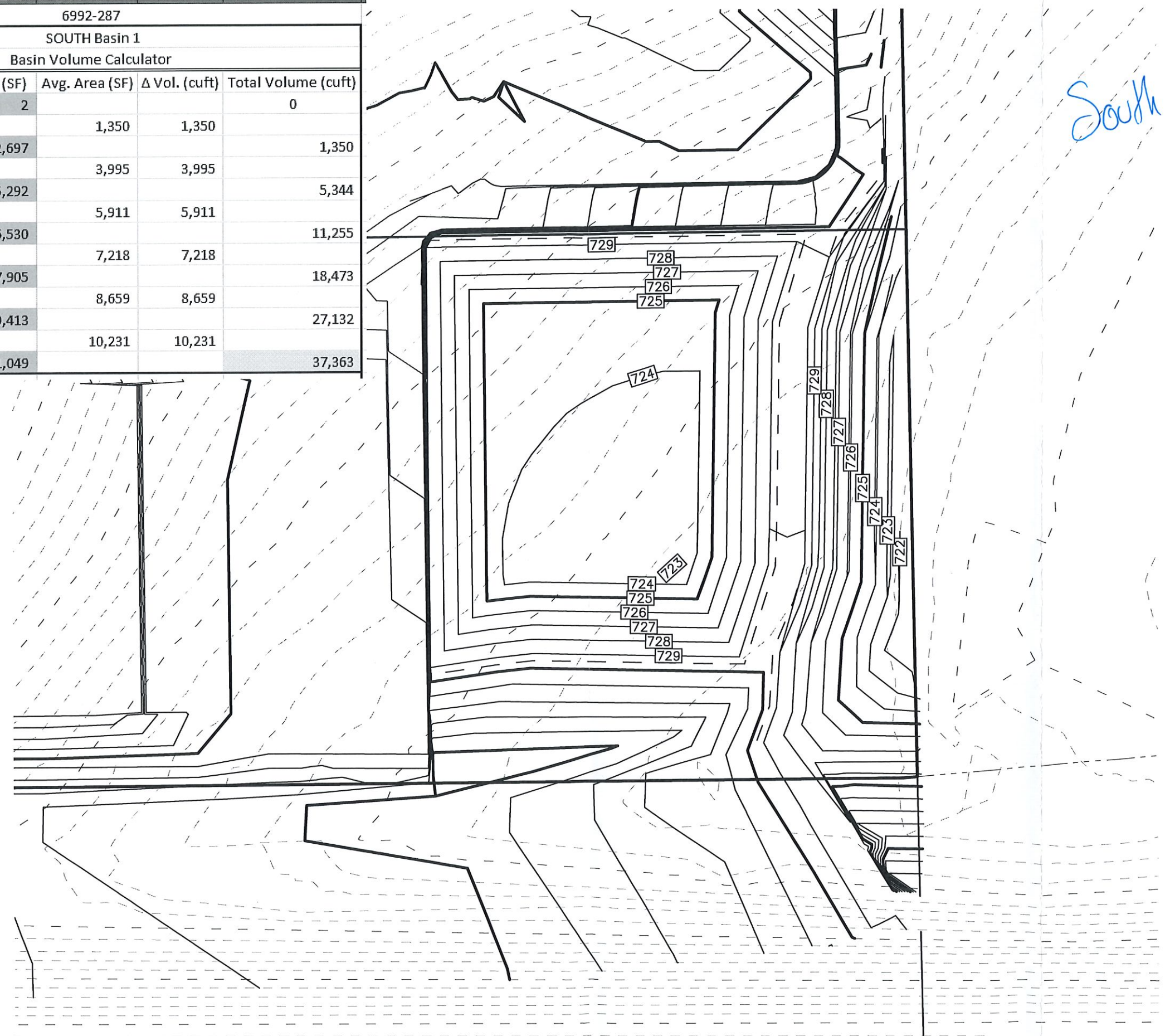


6992-287					
NORTH Basin 7					
Basin Volume Calculator					
Elevation	Δ Elv.	Area (SF)	Avg. Area (SF)	Δ Vol. (cuft)	Total Volume (cuft)
708		11,083			0
709	1	12,782	11,933	11,933	11,933
710	1	14,573	13,678	13,678	25,610
711	1	16,458	15,516	15,516	41,126
712	1	18,435	17,447	17,447	58,572
713	1	20,512	19,474	19,474	78,046
714	1	22,698	21,605	21,605	99,651
715	1	24,995	23,847	23,847	123,497
716	1	27,406	26,201	26,201	149,698
717	1	29,970	28,688	28,688	178,386
718	1	32,689	31,330	31,330	209,715
719	1	35,530	34,110	34,110	243,825
719.5	0.5	36,987	36,259	18,129	261,954

NORTH BASIN INLET STRUCTURE DETAIL N.T.S

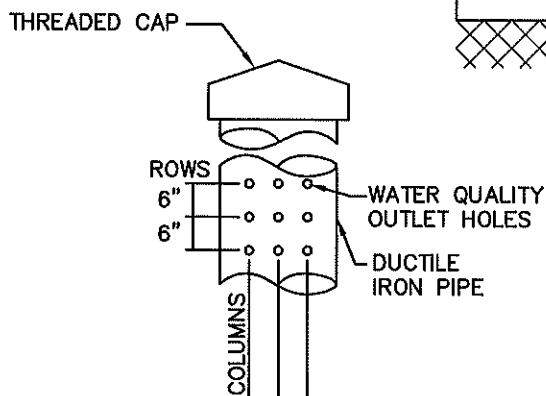
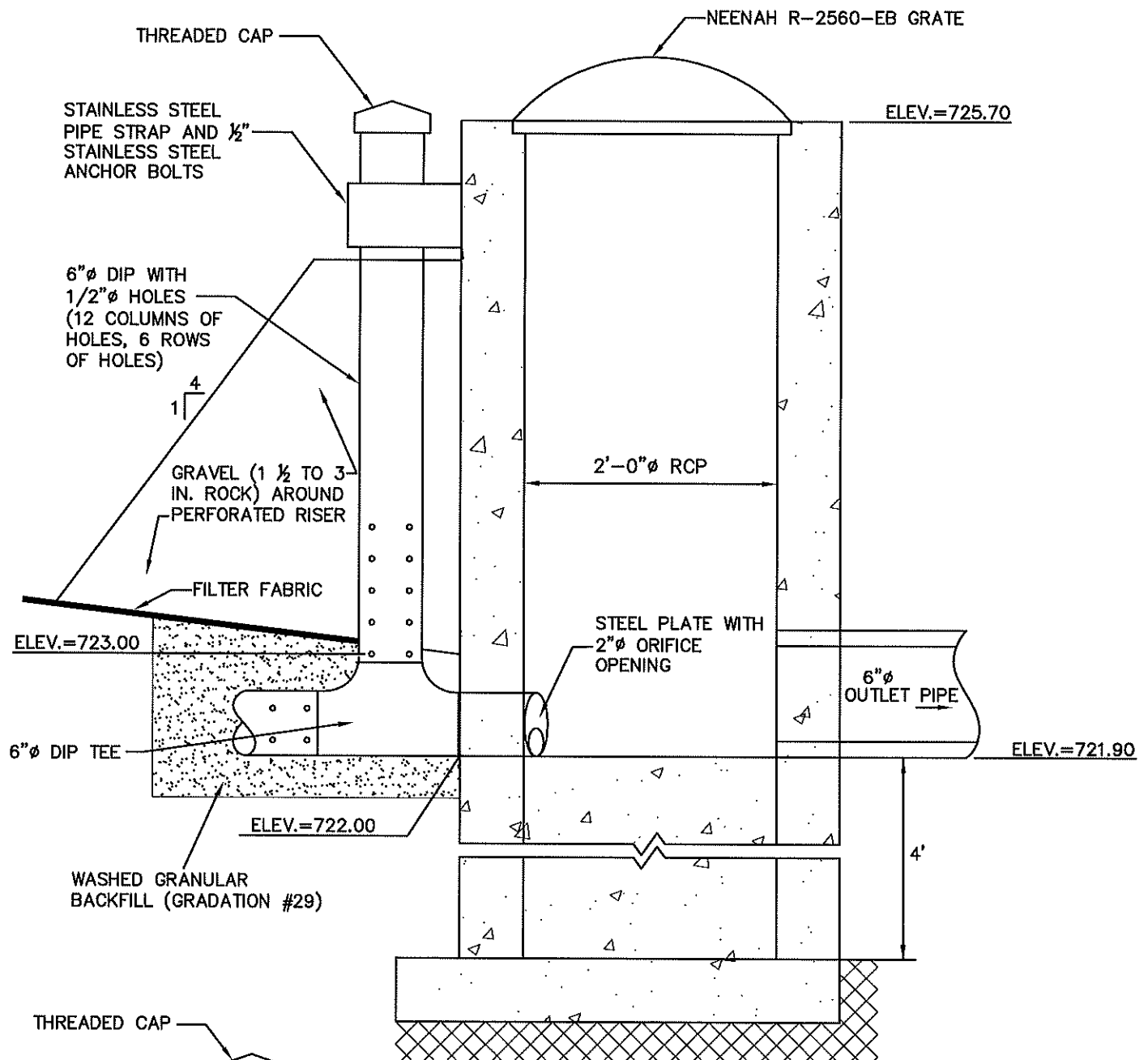


6992-287					
SOUTH Basin 1					
Basin Volume Calculator					
Elevation	Δ Elev.	Area (SF)	Avg. Area (SF)	Δ Vol. (cuft)	Total Volume (cuft)
723		2			0
724	1	2,697	1,350	1,350	1,350
725	1	5,292	3,995	3,995	5,344
726	1	6,530	5,911	5,911	11,255
727	1	7,905	7,218	7,218	18,473
728	1	9,413	8,659	8,659	27,132
729	1	11,049	10,231	10,231	37,363



South Basin

SOUTH BASIN INLET STRUCTURE DETAIL



WATER QUALITY RISER PIPE DETAIL
SCALE: NTS

OUTLET WORKS WITH RISER BARREL AND GRAVEL PACK FOR INLET DEBRIS PROTECTION
SCALE: NTS

NUMBER OF PERFORATED COLUMNS	
RISER DIAMETER, IN.	HOLE DIAMETER, IN.
	1/2 IN.
6	12 COLUMNS
HOLE DIAMETER, IN.	AREA OF HOLE, SQ. IN.
1/2	0.1964

22	23	24	25	26	27	28	29
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24 25

36 | 37 | 38 | 39

33 34 35 36

37 | 38 | 39

37 | 38 | 39

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Key Plan

Revision

Description

Date

OPN Project No.

19248000

Sheet Name

PRELIMINARY SITE PLAN

03/18/2020

Sheet Number

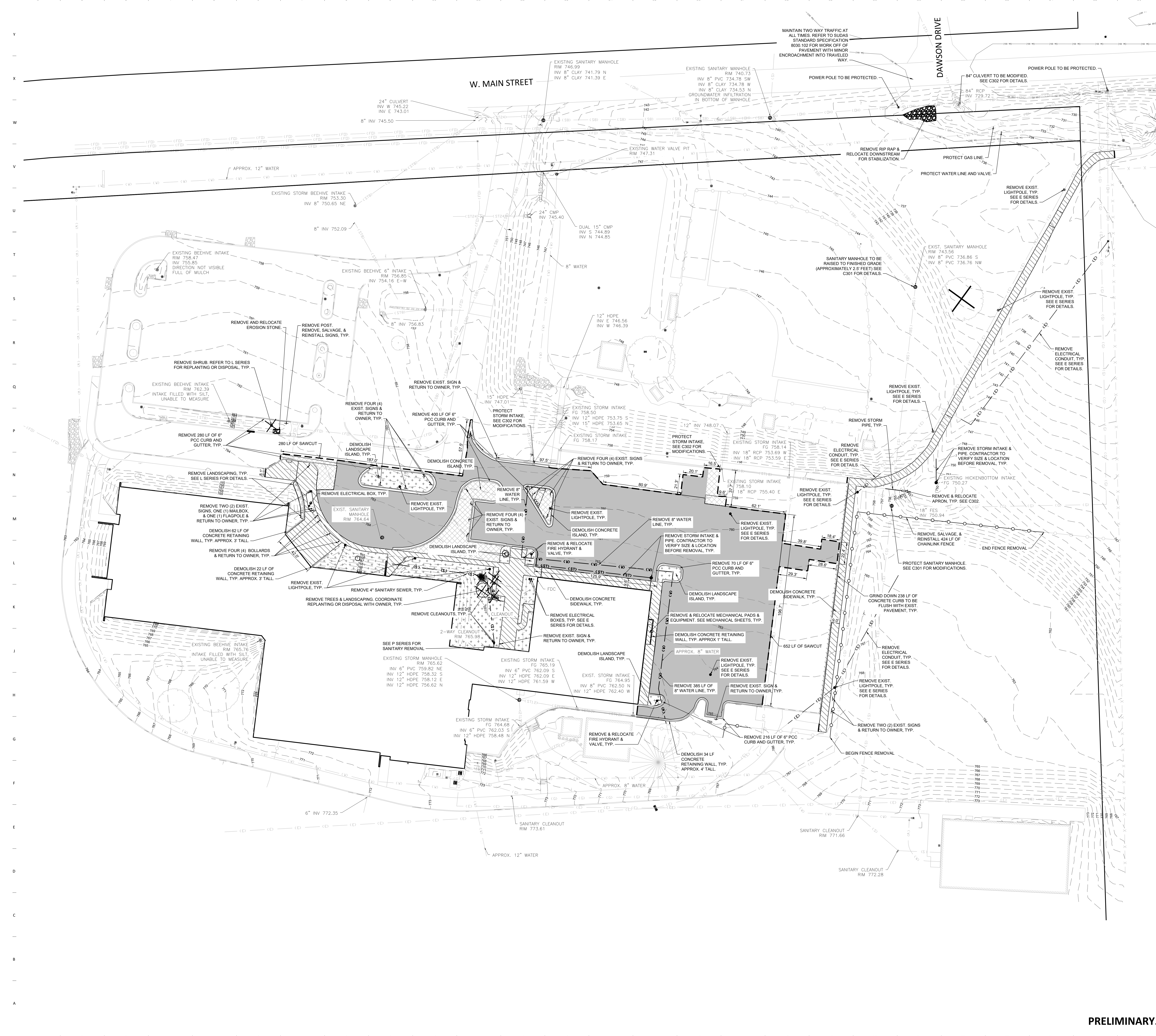
REVIEW

Sheet Name

Existing Conditions & Demolition Plan

Sheet Number

CD01



- LEGEND**
- ASSUME 7" ASPHALT FULL DEPTH PAVEMENT REMOVAL LIMITS.
- ASSUME 7" PCC FULL DEPTH PAVEMENT REMOVAL LIMITS OVER 6" GRANULAR
- ASSUME 6" PCC SIDEWALK FULL DEPTH REMOVAL LIMITS
- ASSUME 6" GRAVEL FULL DEPTH REMOVAL LIMITS
- LANDSCAPING TURF REMOVAL
- DOUBLE SAWCUT EXISTING PAVEMENT EDGE FOR REMOVAL
- TREE AND SHRUB REMOVAL INCLUDES STUMP REMOVAL
- EXISTING CONDITIONS & DEMOLITION PLAN NOTES**
1. CONTRACTOR TO CONFIRM THE HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UTILITIES AND INFORM THE ENGINEER OF ANY POTENTIAL CONFLICTS WITH PROPOSED UTILITIES PRIOR TO CONSTRUCTION.

2. ALL UTILITIES AND PAVEMENT NOT SHOWN TO BE REMOVED SHALL BE PROTECTED. IF DAMAGED, IT IS THE CONTRACTOR'S RESPONSIBILITY TO REPLACE AND REPAIR.

3. CONTRACTOR SHALL COORDINATE WITH OWNER PRIOR TO ANY SERVICE OR ACCESS DISRUPTIONS.

4. ADJUSTMENTS TO EXISTING MANHOLE RIM ELEVATIONS REQUIRE BARREL SECTIONS TO BE REMOVED AND REPLACED AS NEEDED TO ADJUST TO THE PROPOSED ELEVATION. ONLY 12" OF RISERS WILL BE ALLOWED. BOLT DOWN LIDS AND CASTINGS ARE REQUIRED.

5. EXISTING LIGHTING, ELECTRICAL, AND COMMUNICATION DEMOLITION AND MODIFICATION BY ELECTRICAL SUBCONTRACTOR. SEE E-SHEETS. PROVIDED FOR INFORMATION ONLY.

6. EXISTING EXTERIOR LIGHTING, BOLLARDS, SIGNAGE AND SITE AMENITIES WITHIN SITE DISTURBANCE LIMITS SHALL BE REMOVED AND SALVAGED TO OWNER. UNLESS OTHERWISE NOTED FOR PROTECTION OR DEMOLITION, TYP.

7. ALL PCC PAVEMENT AND SIDEWALK REMOVALS SHALL BE SAW CUT FULL DEPTH REMOVED TO NEAREST JOINT AND DISPOSED OFF-SITE IN ACCORDANCE WITH APPLICABLE REGULATIONS.

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Drawn/Revised Date

PRELIMINARY SITE PLAN REVIEW

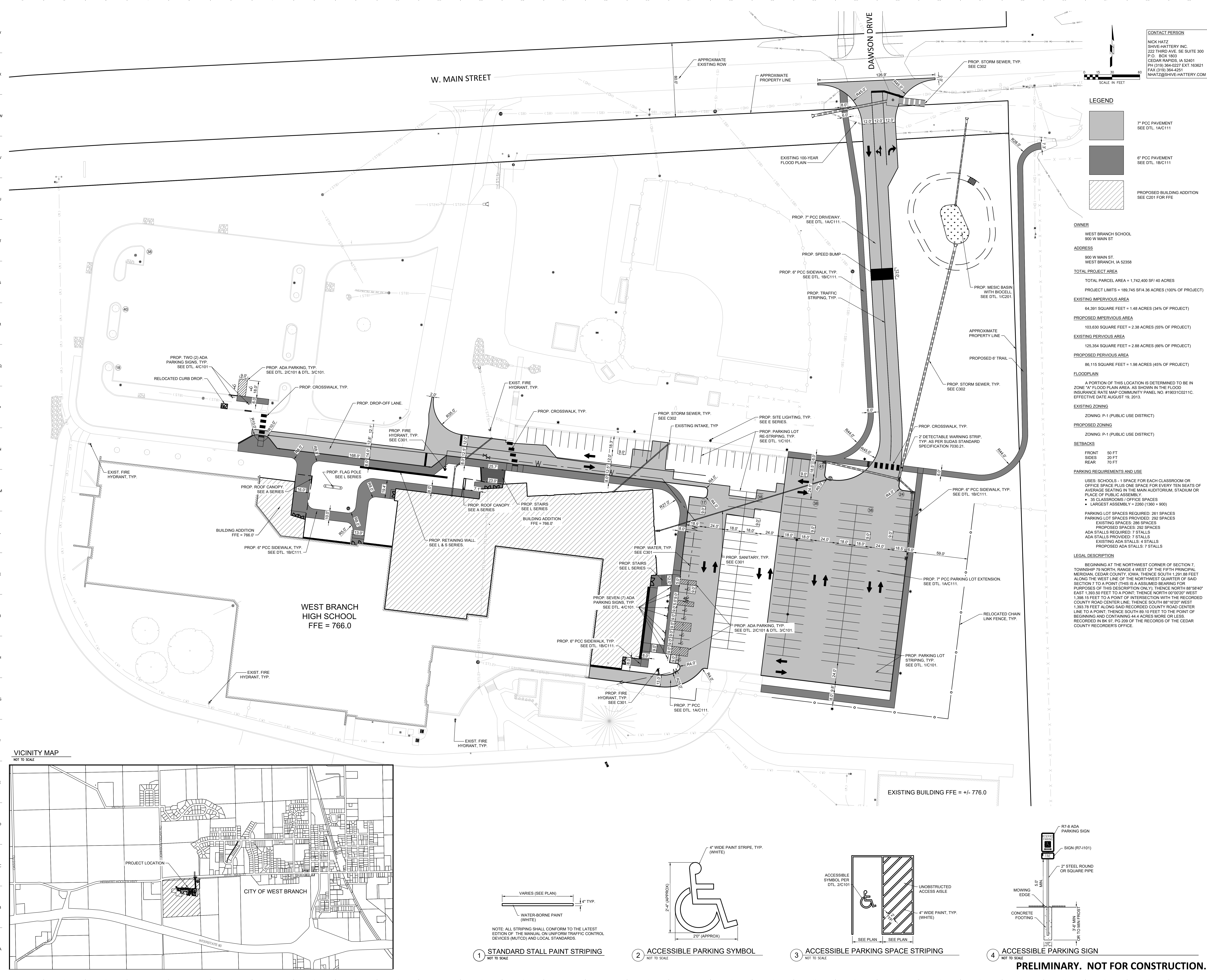
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Drawn Name

SITE PLAN

Drawn Number

C101



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West Branch Community School District

Project
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ADDITION AND RENOVATION**

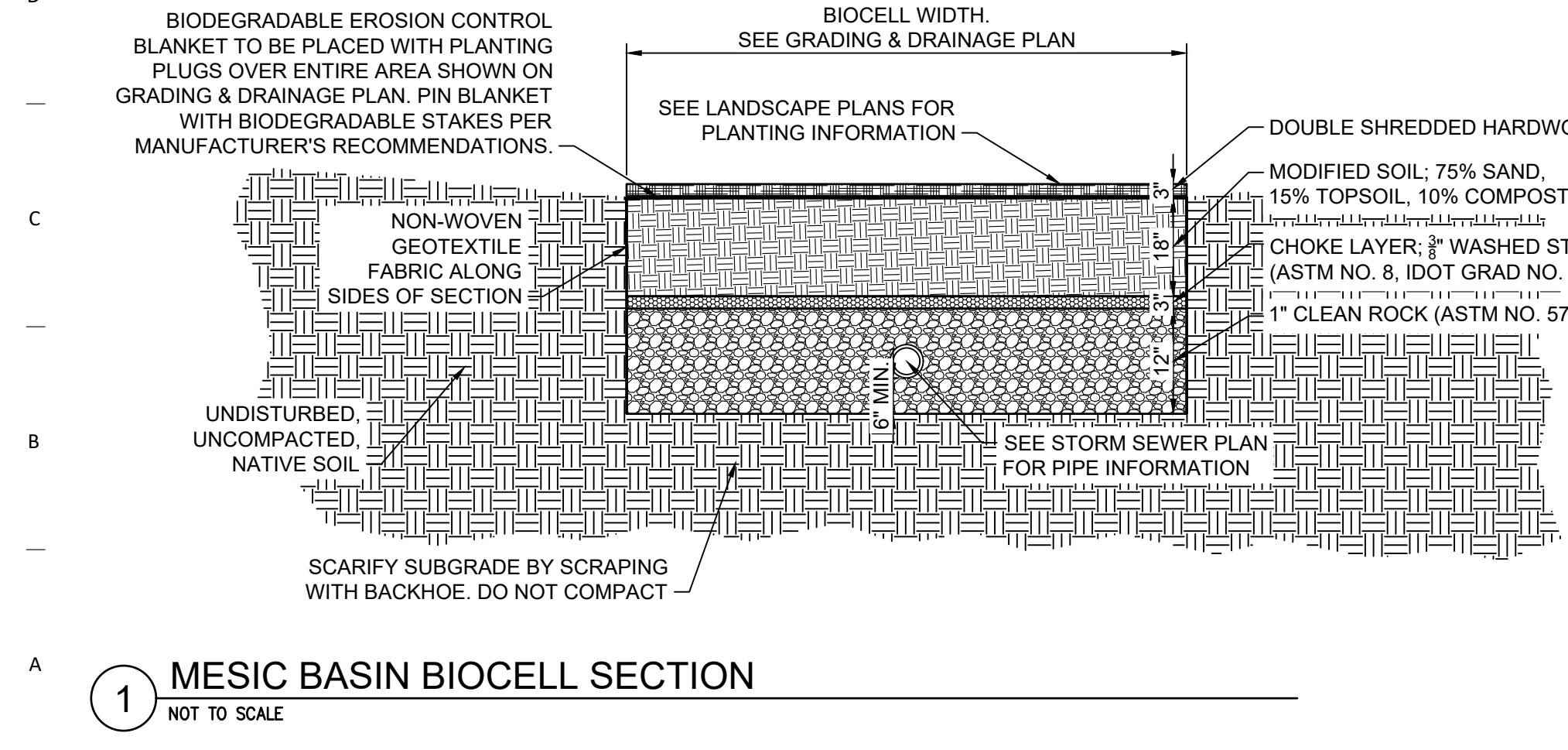
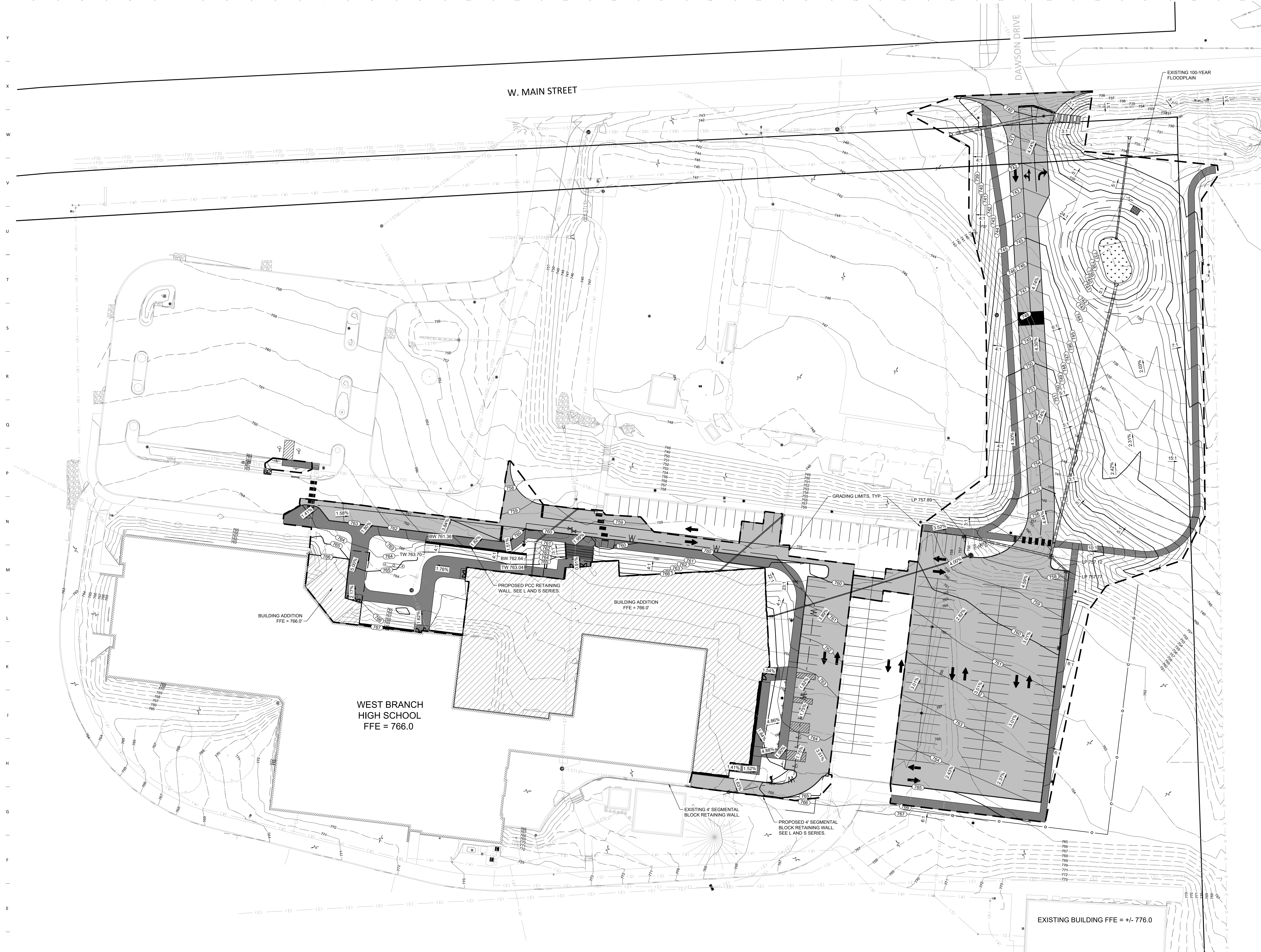
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District

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Key Plan

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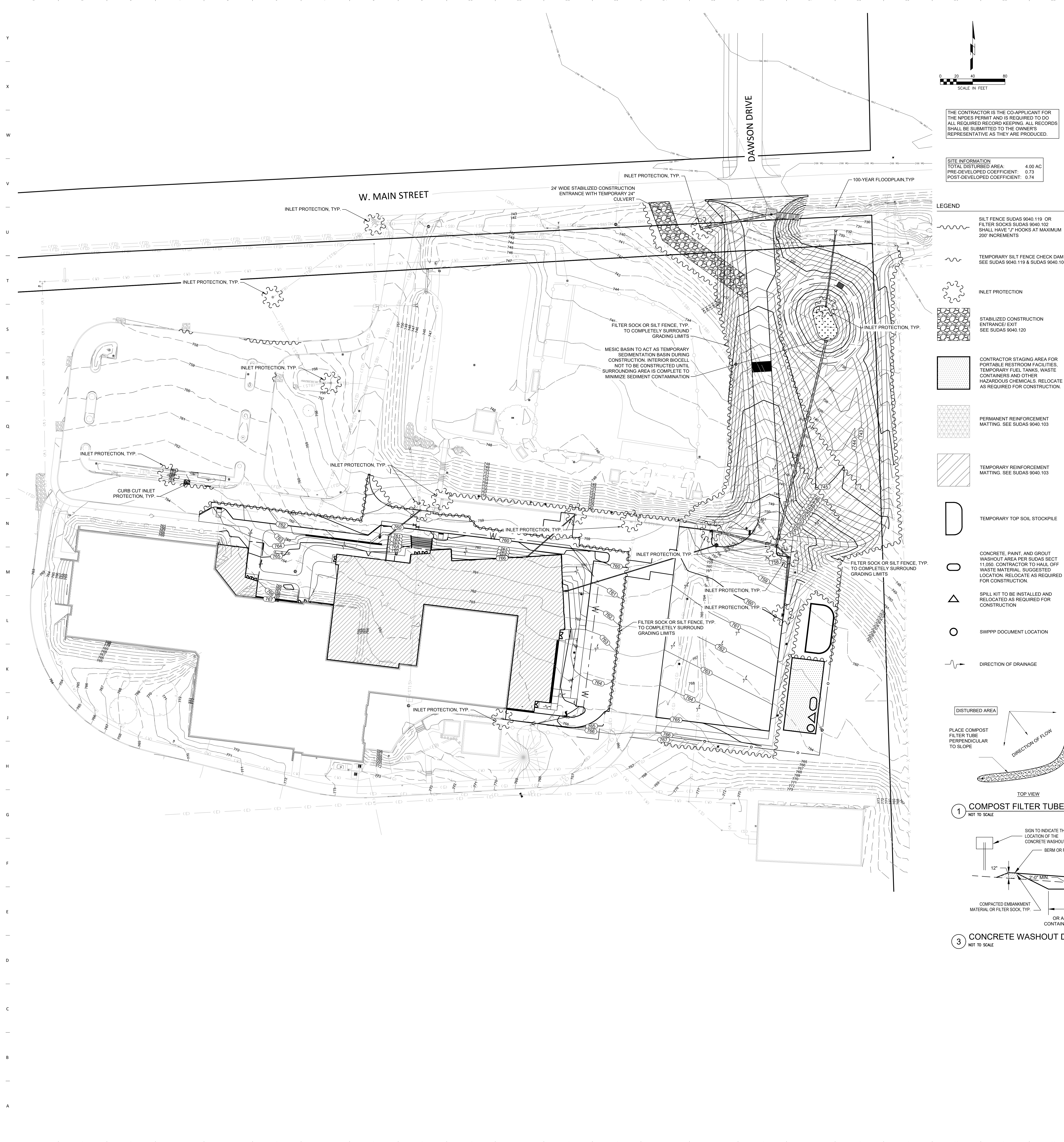
PRELIMINARY SITE PLAN 03/18/2020 REVIEW

Sheet Name

Stormwater Pollution Prevention Plan

Sheet Number

C251



- STORMWATER POLLUTION PREVENTION PLAN NOTES
1.

EROSION/ SEDIMENTATION CONTROL MEASURES ARE REQUIRED REGARDLESS OF THE TIME OF YEAR. THIS PLAN AND ITS ASSOCIATED REQUIREMENTS FOR THE PERMIT MUST BE IMPLEMENTED DURING WINTER MONTHS AS WELL.
2.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTROL EROSION/ SEDIMENTATION ON THE SITE AT ALL TIMES. THE CONTROL MEASURES SHOWN ON THE PLAN ARE A MINIMUM. THE CONTRACTOR SHALL PROVIDE ADDITIONAL EROSION/ SEDIMENTATION CONTROL MEASURES AS NECESSARY TO FULFILL THIS REQUIREMENT. CONTRACTOR IS REQUIRED TO MAINTAIN SWPPP DOCUMENTATION.
3.

THE CONTRACTOR IS REQUIRED TO USE STABILIZATION CONTROLS ON ALL DISTURBED AREAS OF THE SITE REGARDLESS OF THE TIME PERIOD BEFORE THEY WILL BE DISTURBED AGAIN. IN THE EVENT THAT CONSTRUCTION ACTIVITY WITHIN A DISTURBED AREA WILL NOT OCCUR FOR A PERIOD OF 14 OR MORE CALENDAR DAYS, THE CONTRACTOR SHALL INSTALL STABILIZATION MEASURES NO LATER THAN THE 14TH DAY AFTER CONSTRUCTION ACTIVITY CEASED IN THAT AREA. THE CONTRACTOR SHALL SEED DISTURBED AREAS AS SOON AS WORK IS COMPLETED AS INDICATED ON THE PLANS AND PROJECT MANUAL.
4.

THE CONTRACTOR SHALL USE CONTROL MEASURES AS REQUIRED TO KEEP SOILS FROM LEAVING THE SITE EXCEPT IN CLOSED CONTAINERS. CONTRACTOR SHALL IMPLEMENT SITE SPECIFIC BEST MANAGEMENT PRACTICES (BMPs) AS SHOWN AND REQUIRED BY THE SWPPPS/ESC. ADDITIONAL BEST MANAGEMENT PRACTICES SHALL BE IMPLEMENTED BY THE CONTRACTOR AS DICTATED BY SITE CONDITIONS OR THE PROJECT GOVERNING AUTHORITIES AT NO ADDITIONAL COST TO THE OWNER THROUGHOUT ALL PHASES OF CONSTRUCTION.
5.

IF AFTER REPEATED FAILURE ON THE PART OF THE CONTRACTOR TO PROPERLY CONTROL SOIL EROSION, SEDIMENT AND/OR POLLUTION FROM THE PROJECT SITE, THE GOVERNING AUTHORITIES RESERVE THE RIGHT TO EFFECT NECESSARY CORRECTIVE MEASURES AND CHARGE ANY COSTS TO THE CONTRACTOR.
6.

ALL BEST MANAGEMENT PRACTICES AND CONTROLS SHALL CONFORM TO THE APPLICABLE FEDERAL, STATE, OR LOCAL REQUIREMENTS, STANDARDS, AND SPECIFICATIONS OR MANUAL OF PRACTICE.
7.

ALL BMPs AND CONTROLS INSTALLED ON GREEN INFRASTRUCTURE SHALL REMAIN UNTIL CONSTRUCTION IS COMPLETED.
8.

IN THE EVENT THAT SOILS LEAVE THE SITE, CLEANUP OF ALL SURROUNDING ROADS, DRIVES, AND PARKING LOTS SHALL BE PERFORMED ON A DAILY BASIS AT A MINIMUM AND UPON REQUEST BY OWNER'S REPRESENTATIVE AT NO ADDITIONAL COST. PAVEMENT IS TO BE SCRAPED OF DEBRIS AND MUD AND BROOMED CLEAN. MUD TRACKS ARE TO BE REMOVED AS THEY ARE CREATED.
9.

IF DURING CONSTRUCTION OPERATIONS ANY LOOSE MATERIALS ARE DEPOSITED IN THE FLOW LINE OF GUTTERS, DRAINAGE STRUCTURES, OR DITCHES SUCH THAT THE NATURAL FLOW LINE OF WATER IS OBSTRUCTED, THIS LOOSE MATERIAL SHALL BE REMOVED.
10.

ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY EXISTING STORM DRAINAGE SYSTEMS BY THE USE OF INLET PROTECTION OR OTHER APPROVED FUNCTIONAL METHODS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING SEDIMENT RESULTING FROM CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS PROJECT.
11.

CONSTRUCTION ACCESS POINTS TO THE SITE SHALL BE PROTECTED IN SUCH A WAY AS TO PREVENT TRACKING OF MUD OR SOIL ONTO PUBLIC THOROUGHFARES. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY BY THE CONTRACTOR.
12.

MAINTAIN SILT FENCING AT ALL TIMES IN AN UPRIGHT POSITION. CLEAN SILT FROM FENCING/FILTER SOCKS ON A REGULAR BASIS AS PER THE STANDARD SPECIFICATIONS. SILT FENCES MUST BE CLEANED OUT WHEN THEY ARE 50% FULL. FILTER SOCKS MUST BE CLEANED OUT WHEN THEY ARE 33% FULL.
13.

CONTRACTOR TO LOCATE/ RELOCATE SILT FENCING/FILTER SOCKS AS NECESSARY THROUGHOUT THE PROJECT TO CONTROL EROSION/ SEDIMENTATION. SILT FENCE INSTALLATION IS TO FOLLOW SUDAS 9040.119. FILTER SOCK INSTALLATION IS TO FOLLOW SUDAS 9040.102. REMOVE ALL TEMPORARY EROSION/ SEDIMENTATION CONTROLS NOT CALLED OUT TO REMAIN AFTER SITE HAS BEEN STABILIZED AND APPROVED BY THE OWNER'S REPRESENTATIVE.
14.

CONTRACTOR IS REQUIRED TO PROVIDE SILT FENCE/ FILTER SOCKS AROUND STOCKPILED OR EXCAVATED SOILS IF RAIN IS FORECASTED BEFORE STOCKPILE IS RE-SPREAD.
15.

CONTRACTOR TO USE EXTREME CAUTION WHILE INSTALLING SILT FENCE OR OTHER EROSION CONTROL DEVICES SO AS NOT TO DAMAGE UNDERGROUND UTILITIES.
16.

WHERE WATER IS PUMPED FROM EXCAVATIONS ON SITE, PROVISIONS SHALL BE MADE TO REMOVE SEDIMENT FROM THE WATER BEFORE IT IS RELEASED. REFER TO SUDAS SECT. 3.04 FOR DEWATERING GUIDANCE.
17.

WHERE WATER IS RELEASED FROM A DEWATERING SYSTEM, PRECAUTIONS SHALL BE TAKEN TO ENSURE THAT EROSION GULLIES DO NOT FORM. WATER MUST BE FILTERED THROUGH AN APPROPRIATE FILTER DEVICE BEFORE DISCHARGING.
18.

A 12" FILTER SOCK MAY BE SUBSTITUTED FOR SILT FENCE WHEN SOILS ARE LESS THAN 10% SILT. FILTER SOCKS MUST BE STAKED IN PLACE.
19.

EROSION CONTROL BLANKETS SHALL BE USED IN AREAS OF 4:1 SLOPE OR STEEPER.
20.

SANITARY WASTE DISPOSAL. PORTABLE REST ROOM FACILITIES ARE NOT ANTICIPATED TO BE PLACED ON-SITE. IN THE EVENT THAT PORTABLE REST ROOM FACILITIES ARE USED ON-SITE, THE CONTRACTOR IS REQUIRED TO INSTALL AN EROSION CONTROL DEVICE AROUND THE FACILITY TO MINIMIZE THE RADIUS OF THE AFFECTED ZONE IN THE EVENT OF A SPILL. WASTES SHALL BE COLLECTED AND DISPOSED OF IN COMPLETE COMPLIANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS. PORTABLE RESTROOM FACILITIES MUST NOT BE LOCATED NEAR DRAINAGE WAYS.
21.

IDENTIFICATION OF ALLOWABLE NON-STORMWATER DISCHARGES: DURING CONSTRUCTION THE NON-STORMWATER DISCHARGES, WHICH INCLUDE WATER FLUSHED FROM WATER LINES, PAVEMENT WASHING (WHERE NO SPILLS OR LEAKS HAVE OCCURRED, UNLESS THE SPILLED MATERIAL HAS BEEN CLEANED UP), VEHICLE WASHING, AND GROUNDWATER (DEWATERING), SHOULD BE DIRECTED AS MUCH AS POSSIBLE TOWARDS VEGETATED AREAS AND AWAY FROM DRAINAGE WAYS. REFER TO THE IDNR NPDES GENERAL PERMIT NO. 2 FOR ALLOWABLE NON-STORMWATER DISCHARGES.
22.

POLLUTION AND SPILL PREVENTION PLANNING: POTENTIALLY HAZARDOUS MATERIALS ON THE CONSTRUCTION SITE INCLUDE FUEL, LUBRICANTS, CURING COMPOUNDS, FERTILIZERS, GREASE AND CLEANING SOLVENTS. ALL REASONABLE PRECAUTIONS WILL BE TAKEN TO PREVENT SPILLS. ANY SPILLED MATERIAL WILL IMMEDIATELY BE DIRECTED AWAY FROM STORM WATER INTAKES, DETENTION BASINS, OR DRAINAGE WAYS. SPILLED MATERIALS WILL BE CLEANED AND, IF NECESSARY, SOIL REMEDIATION PRACTICES WILL BE USED. A RECORD OF SPILLS WILL BE MAINTAINED BY THE MAIN CONTRACTOR.
23.

CONCRETE, PAINT AND GROUT WASHOUT AREA: THE WASHOUT AREA IS TO BE CONSTRUCTED PER SUDAS SECT 11.050. PROTECT WITH AN EROSION CONTROL DEVICE (IF USING FILTER SOCKS, STACK TWO (2) TALL) IF A PUMP TRUCK IS USED ON-SITE AND UNABLE TO USE THE WASHOUT AREA, THE CONTRACTOR SHALL DIG A PIT FOR WASTE MATERIAL. CONTRACTOR TO HAUL OFF ALL WASTE MATERIAL. ALL LOCATIONS OF CONCRETE, PAINT AND GROUT WASHOUT AREAS MUST BE PROVIDED BY THE CONTRACTOR AND IDENTIFIED ON THE PLAN (RELOCATE AS REQUIRED FOR CONSTRUCTION). THE CONTRACTOR IS REQUIRED TO INSTALL A SIGN THAT DESIGNATES THE WASHOUT AREA.
24.

SPILL KIT: THE LOCATION OF THE SPILL KIT MUST BE IDENTIFIED ON THE PLAN. THE SPILL KIT SHALL BE A SEALED STORAGE SHED LOCATED NEAR THE CONSTRUCTION TRAILER OR FUELING AREA. THE SPILL KIT SHALL CONTAIN, BUT NOT BE LIMITED TO THE FOLLOWING ITEMS: A GARBAGE CAN, GLOVES, SAFETY GOGGLES, BROOM AND DUST PAN, AND OIL ABSORBENT CLAY CHIPS OR PADS. THE SPILL KIT SHALL BE RESTOCKED AS SUPPLIES ARE USED. THE CONTRACTOR SHALL INSTALL A SIGN THAT DESIGNATES THE SPILL KIT. RELOCATE AS REQUIRED FOR CONSTRUCTION.
25.

DUST CONTROL: THE CONTRACTOR SHALL IMPLEMENT DUST CONTROL MEASURES WHERE DUST IS GENERATED. FREQUENT WATERING OF THE SITE, SPRINKLED, VEGETATIVE COVER, MULCH, WINDBREAKS, TILLAGE, STONE AND SPRAY-ON CHEMICAL SOIL TREATMENTS (PALLIATIVES) ARE POSSIBLE DUST CONTROL MEASURES. IF THE DUST CONTROL IS NOT ACCEPTABLE IT SHALL BE CHANGED AS DIRECTED BY THE OWNER'S REPRESENTATIVE.
26.

STOCKPILED MATERIALS: CONTRACTOR TO IDENTIFY ALL LOCATIONS OF STOCKPILED MATERIALS ON THE STORMWATER POLLUTION PREVENTION PLAN. CONTRACTOR SHALL PROVIDE ALL EROSION/SEDIMENTATION CONTROLS AS REQUIRED TO CONTAIN MATERIALS ON-SITE. AT A MINIMUM, THE CONTRACTOR IS REQUIRED TO PROVIDE SILT FENCE/ FILTER SOCKS AROUND STOCKPILED SOILS BEFORE STOCKPILE IS RE-SPREAD. CONTRACTOR IS ALSO REQUIRED TO SEED ANY SOILS STOCKPILED FOR MORE THAN 14 DAYS WITH OATS.
27.

THE PERMITEE SHALL AMEND THE SWPPP WHENEVER THERE IS A CHANGE IN DESIGN, CONSTRUCTION, OPERATION OR MAINTENANCE OF A STORMWATER BMP.
28.

PRE-QUALIFIED PERSONNEL (PROVIDED BY THE CONTRACTOR) SHALL INSPECT DISTURBED AREAS OF THE CONSTRUCTION SITE THAT HAVE NOT BEEN FINALLY STABILIZED, STRUCTURAL, CONTROL MEASURES, AND LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS AND WITHIN TWENTY-FOUR (24) HOURS OF THE END OF A RAINFALL EVENT THAT IS 0.5 INCH OR GREATER (OR EQUIVALENT SNOWFALL). REQUIRED REPAIRS SHOULD BE COMPLETED WITHIN FORTY-EIGHT (48) HOURS OF THE INSPECTION.
- 1

COMPOST FILTER TUBE DETAIL

NOT TO SCALE
- 2

STABILIZED CONSTRUCTION ENTRANCE/ CONTRACTOR STAGING AND LAYDOWN AREA

NOT TO SCALE
- 3

CONCRETE WASHOUT DETAIL

NOT TO SCALE

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PRELIMINARY SITE PLAN

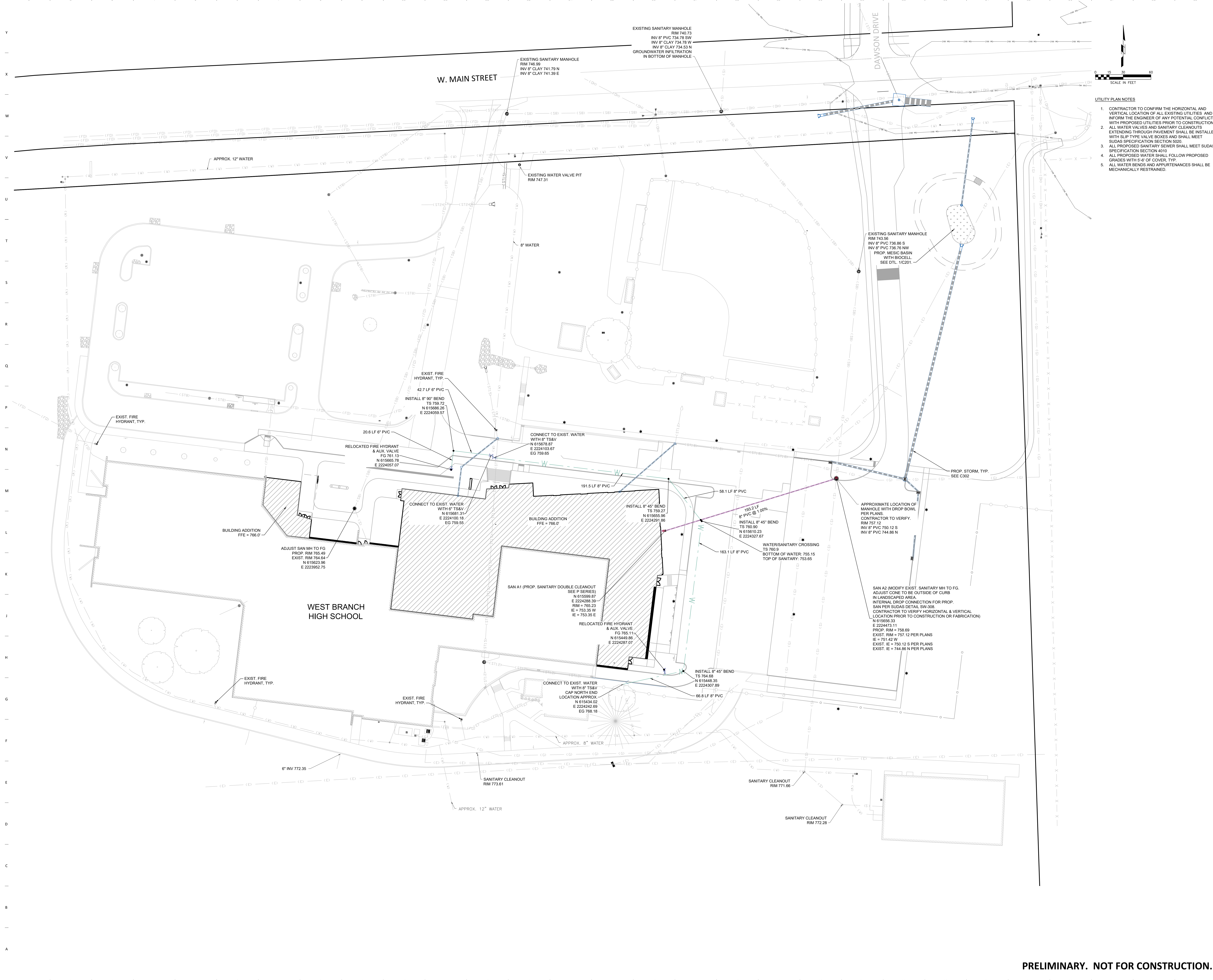
03/18/2020
REVIEW

Sheet Name

Utility Plan

Sheet Number

C301



- UTILITY PLAN NOTES**
1. CONTRACTOR TO CONFIRM THE HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UTILITIES AND INFORM THE ENGINEER OF ANY POTENTIAL CONFLICTS WITH PROPOSED UTILITIES PRIOR TO CONSTRUCTION.
 2. ALL WATER VALVES AND SANITARY CLEANOUTS EXTENDING THROUGH PAVEMENT SHALL BE INSTALLED WITH SLIP TYPE VALVE BOXES AND SHALL MEET SUDAS SPECIFICATION SECTION 5020.
 3. ALL PROPOSED SANITARY SEWER SHALL MEET SUDAS SPECIFICATION SECTION 4010.
 4. ALL PROPOSED WATER SHALL FOLLOW PROPOSED GRADES WITH 5'-0" OF COVER, TYP.
 5. ALL WATER BENDS AND APPURTENANCES SHALL BE MECHANICALLY RESTRAINED.

PRELIMINARY. NOT FOR CONSTRUCTION.

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Owner
West Branch Community School District

Project
**WEST BRANCH HIGH SCHOOL
ADDITION AND RENOVATION**

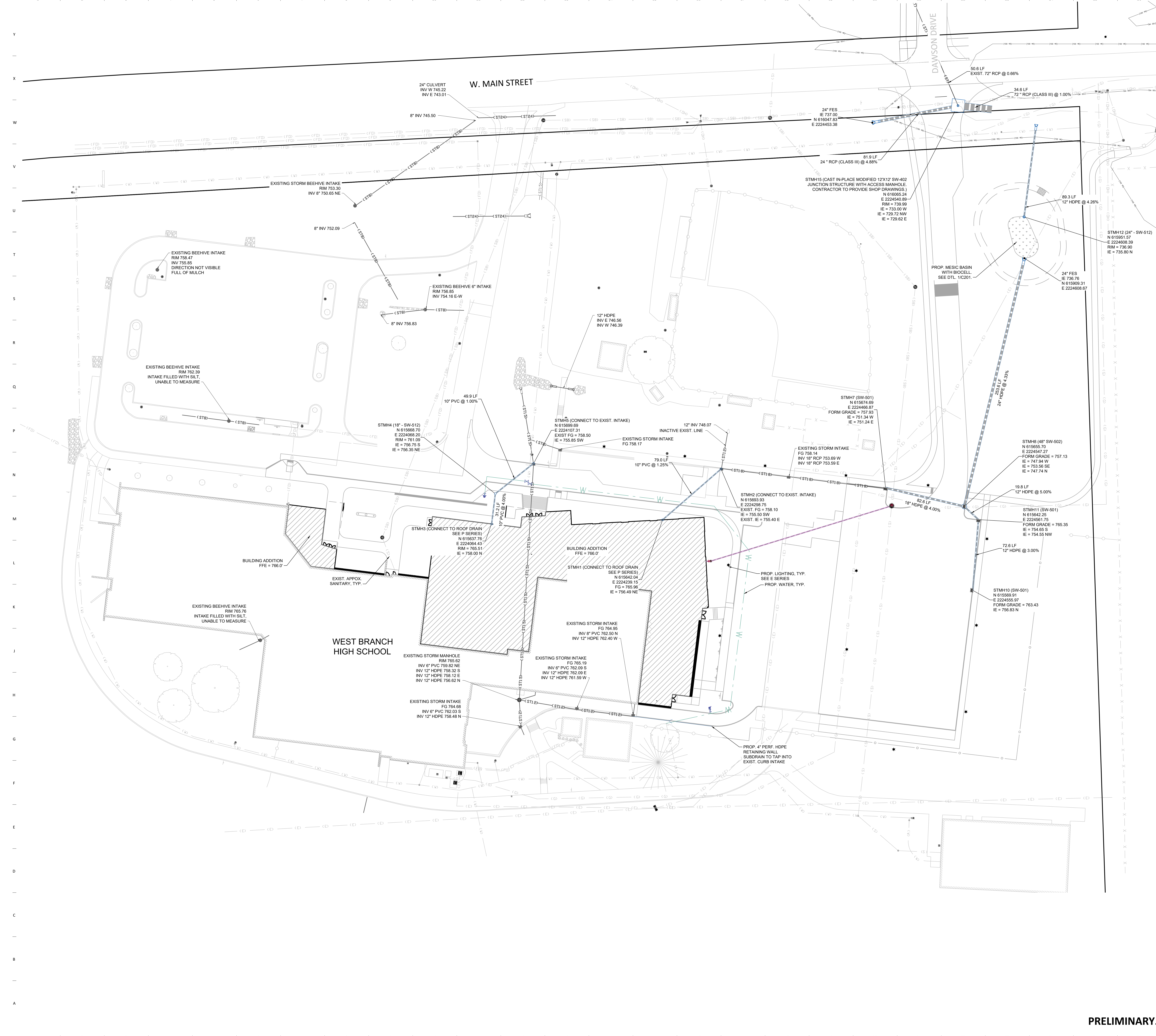
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Contact: Tyler Lutenberger

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P: 612.802.1536
Contact: Jody Kovalick

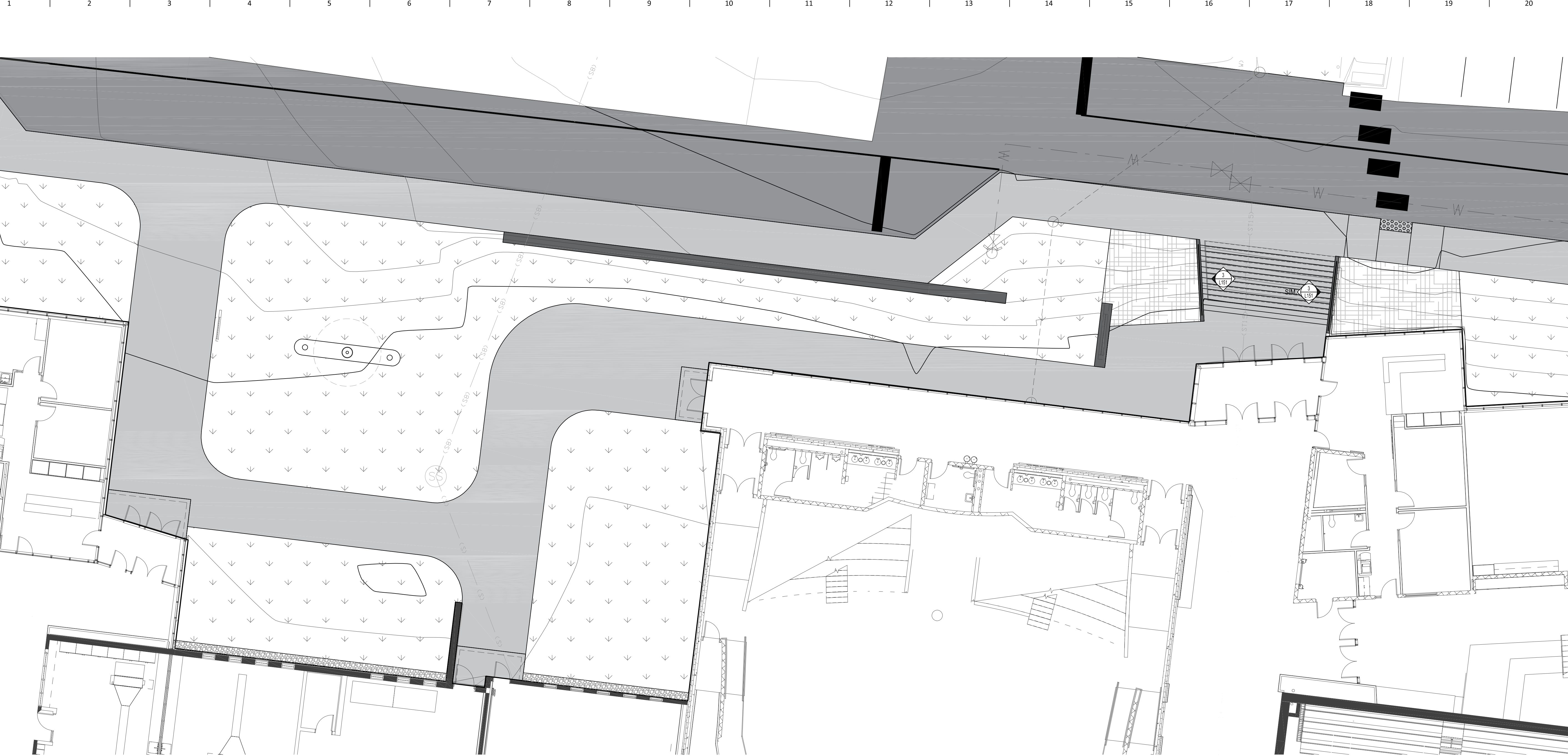
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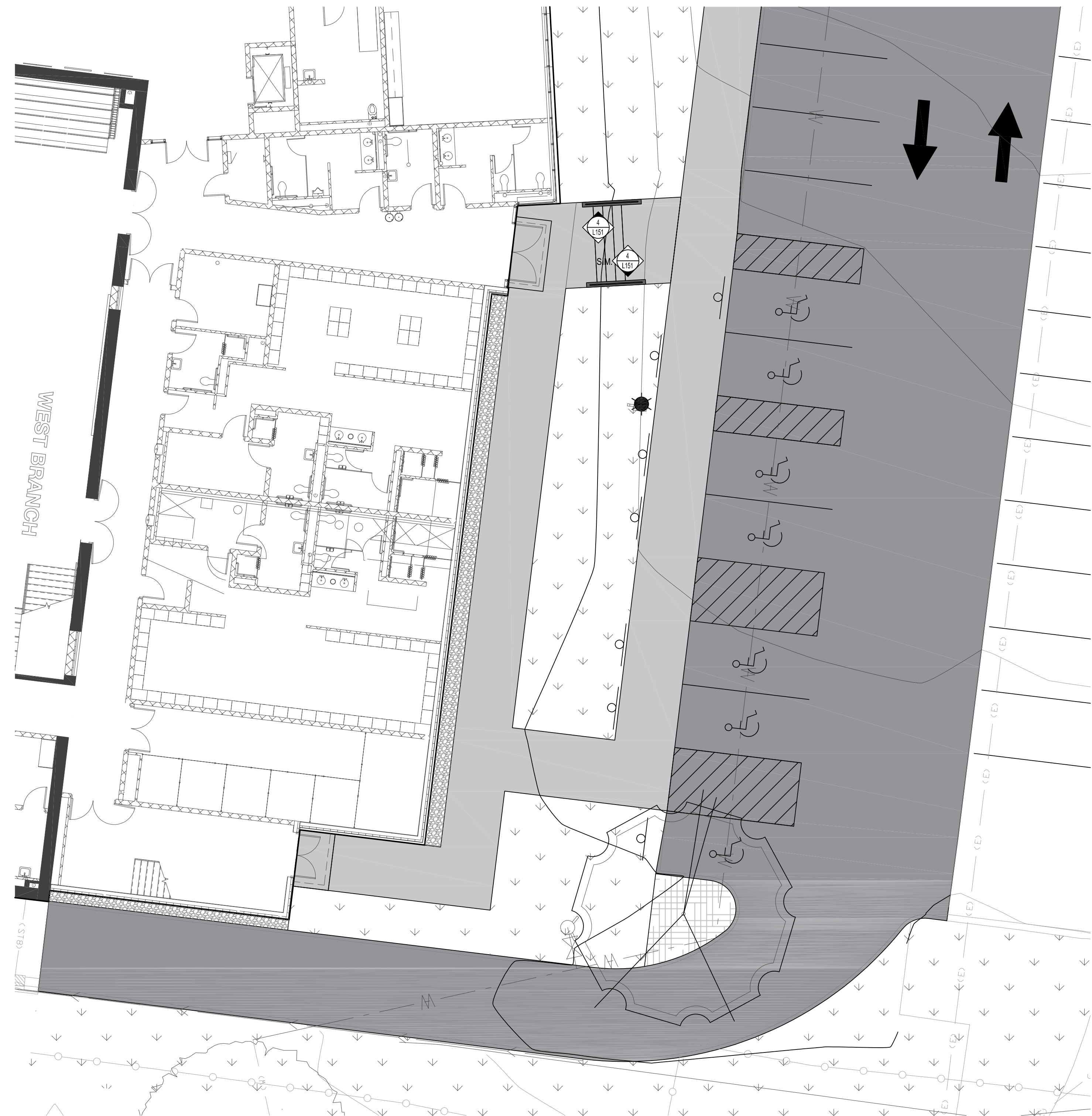
STORM SEWER PLAN NOTES

1. ALL APRONS ARE TO BE SUDAS 4030 222, TYPE II WITH APRON GUARD PER SUDAS 4030 224. ANY CONCRETE APRON 24" OR LARGER IN DIAMETER SHALL HAVE A FOOTING PER SUDAS 4030 221.

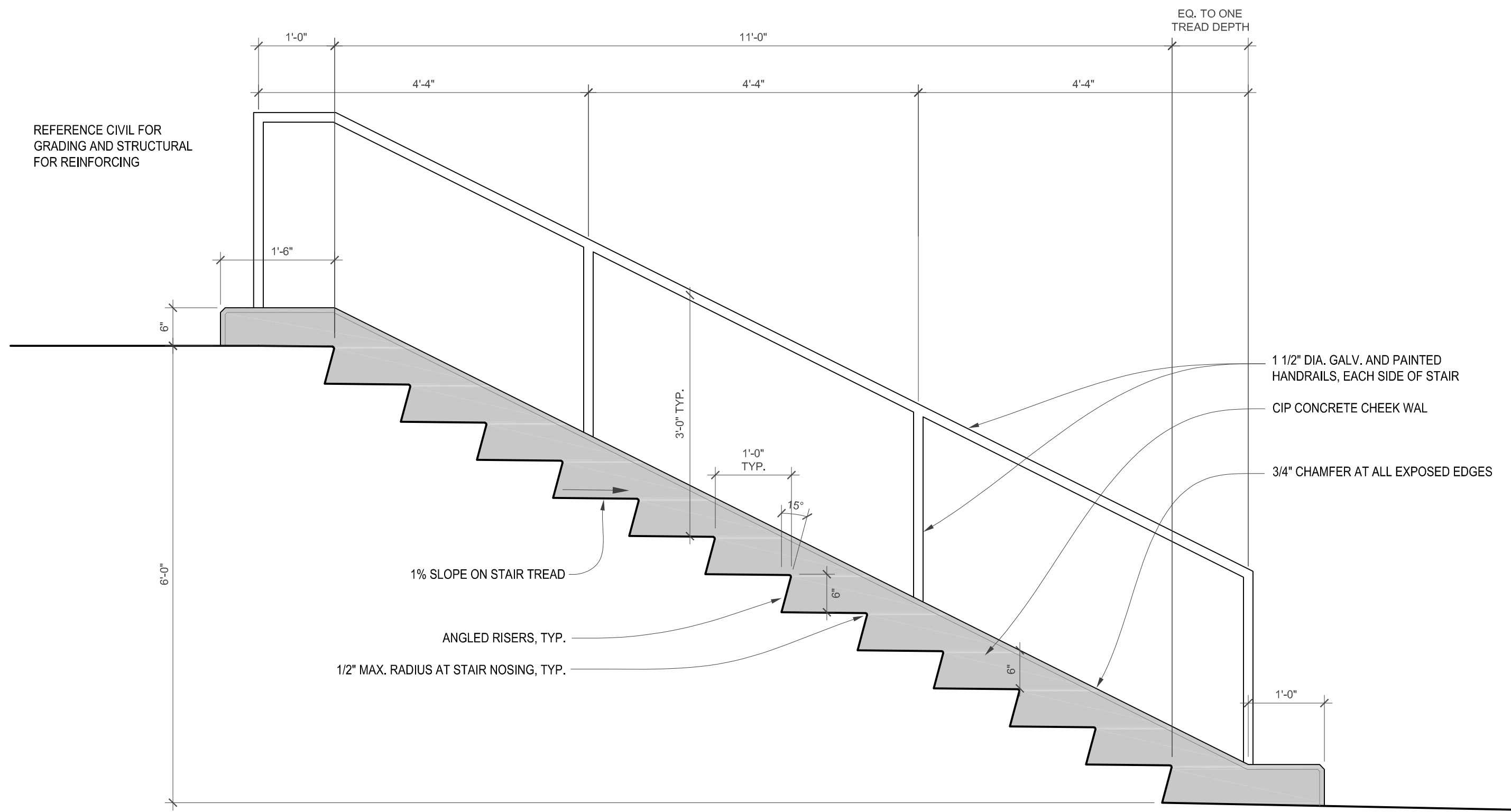
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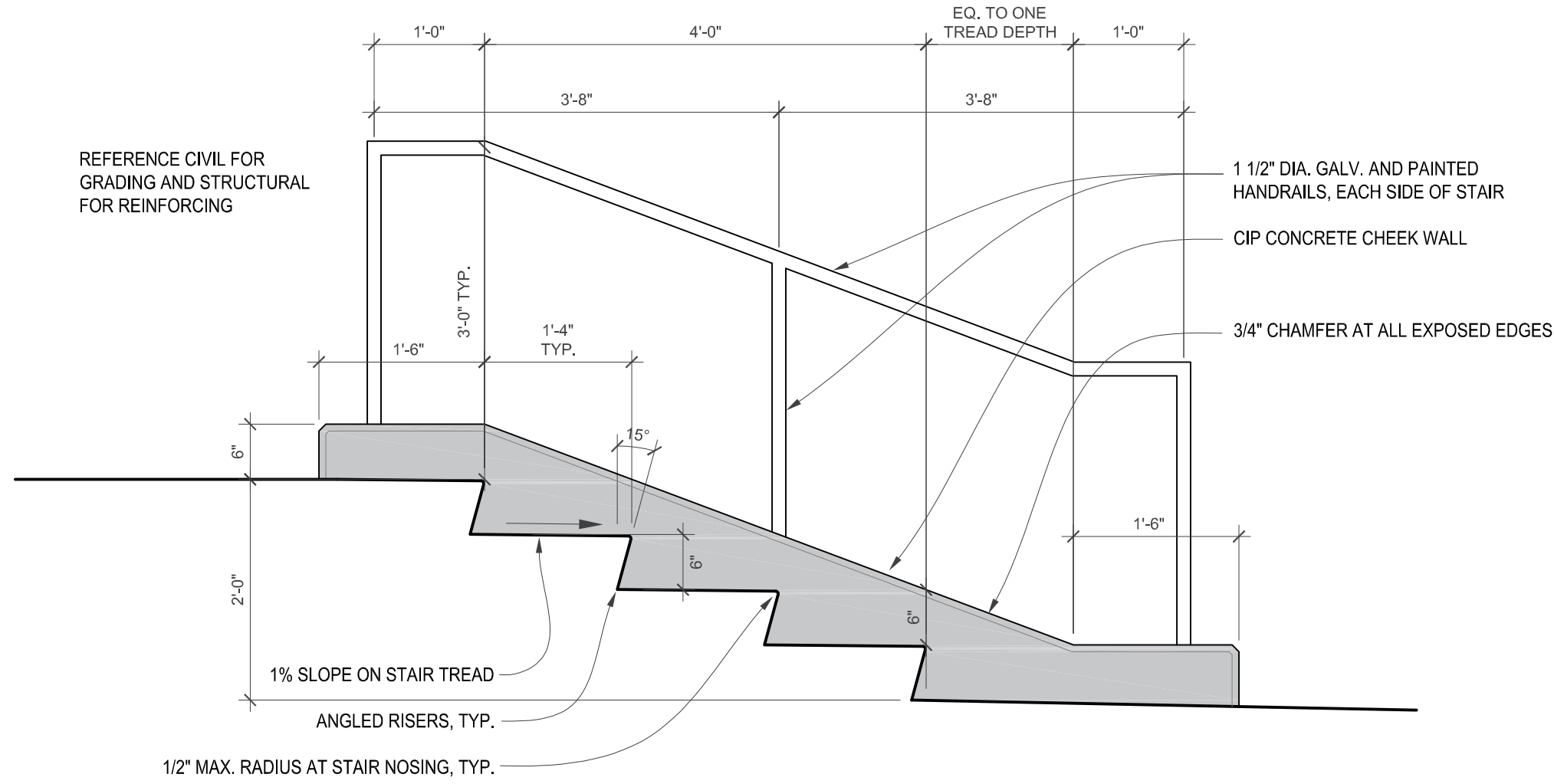
1 SITE PLAN ENLARGEMENT
1" = 10'-0"



2 SITE PLAN ENLARGEMENT
1" = 10'-0"



3 STAIR SECTION
3/4" = 1'-0"



4 STAIR SECTION
3/4" = 1'-0"

GENERAL NOTES:

1. FIELD VERIFY ALL EXISTING SITE CONDITIONS, UNDERGROUND UTILITIES, ABOVE GRADE UTILITIES, AND UTILITY STRUCTURES. EXTENT OF PAVING AND CURBS, AND ALL EXISTING VEGETATION PRIOR TO DEMOLITION OR NEW CONSTRUCTION. CONTACT ROWA ONE-CALL AND OWNER FOR UTILITY LOCATES PRIOR TO ANY WORK ON SITE. NOTIFY ARCHITECT OF ANY DISCREPANCIES BEFORE CONTINUING DEMOLITION OR NEW CONSTRUCTION.
2. REFERENCE CIVIL SHEETS FOR DEMOLITION, PAVING, SITE STRUCTURES, UTILITIES, AND GRADING.
3. REFERENCE ELECTRICAL SHEETS FOR SITE LIGHTING FIXTURES AND POWER.
4. CONTRACTOR MUST PROVIDE EROSION / SEDIMENTATION CONTROLS AS REQUIRED TO CONTAIN SEDIMENT WITHIN CONSTRUCTION AREA. REFERENCE CIVIL SHEETS FOR ADDITIONAL INFORMATION.

LANDSCAPE NOTES:

1. PLANT MATERIAL SHALL MEET THE REQUIREMENTS SET FORTH IN THE MOST RECENT EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK, ANSI Z60.1, PUBLISHED BY THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION.
2. LANDSCAPE INSTALLATION CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE ACTIVITIES UNTIL FINAL ACCEPTANCE IS GIVEN BY LANDSCAPE ARCHITECT AND OWNER.
3. AT COMPLETION OF REQUIRED MAINTENANCE PERIODS, THE LANDSCAPE INSTALLATION CONTRACTOR SHALL REQUEST THE GENERAL CONTRACTOR SCHEDULE A MEETING FOR FINAL ACCEPTANCE AND MAINTENANCE TURN-OVER WITH OWNER AND LANDSCAPE ARCHITECT.
4. IT SHALL BE THE RESPONSIBILITY OF THE LANDSCAPE INSTALLATION CONTRACTOR TO CONFIRM THAT UPON TURN-OVER OF MAINTENANCE ACTIVITIES, OWNER PROPERLY MAINTAINS PLANTINGS AND SEED INSTALLATIONS UNTIL END OF WARRANTY PERIODS.
5. PLANT WARRANTY PERIODS SHALL BEGIN AT THE TIME OF FINAL ACCEPTANCE BY THE OWNER AND LANDSCAPE ARCHITECT AND SHALL BE FOR THE DURATION LISTED BELOW.

MAINTENANCE PERIODS

TREES	30 DAYS
SHRUBS	30 DAYS
PERENNIALS	30 DAYS
SEEDS AREAS	90 DAYS

WARRANTY PERIODS

TREES	1 YEAR
SHRUBS	1 YEAR
PERENNIALS	1 YEAR
LAWNES	6 MONTHS

MAINTENANCE ACTIVITIES

LANDSCAPE MAINTENANCE INCLUDES WATERING, WEEDING, FERTILIZING, MOVING, PRUNING, REPLACEMENT OF MULCH, REPAIR OF SOIL SETTLEMENT, TREATMENT FOR INSECTS OR DISEASE, AND ALL OTHER OPERATIONS DEEMED NECESSARY TO PROMOTE PLANT ESTABLISHMENT AND PROVIDE A NEAT APPEARANCE.

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ADDITION AND RENOVATION

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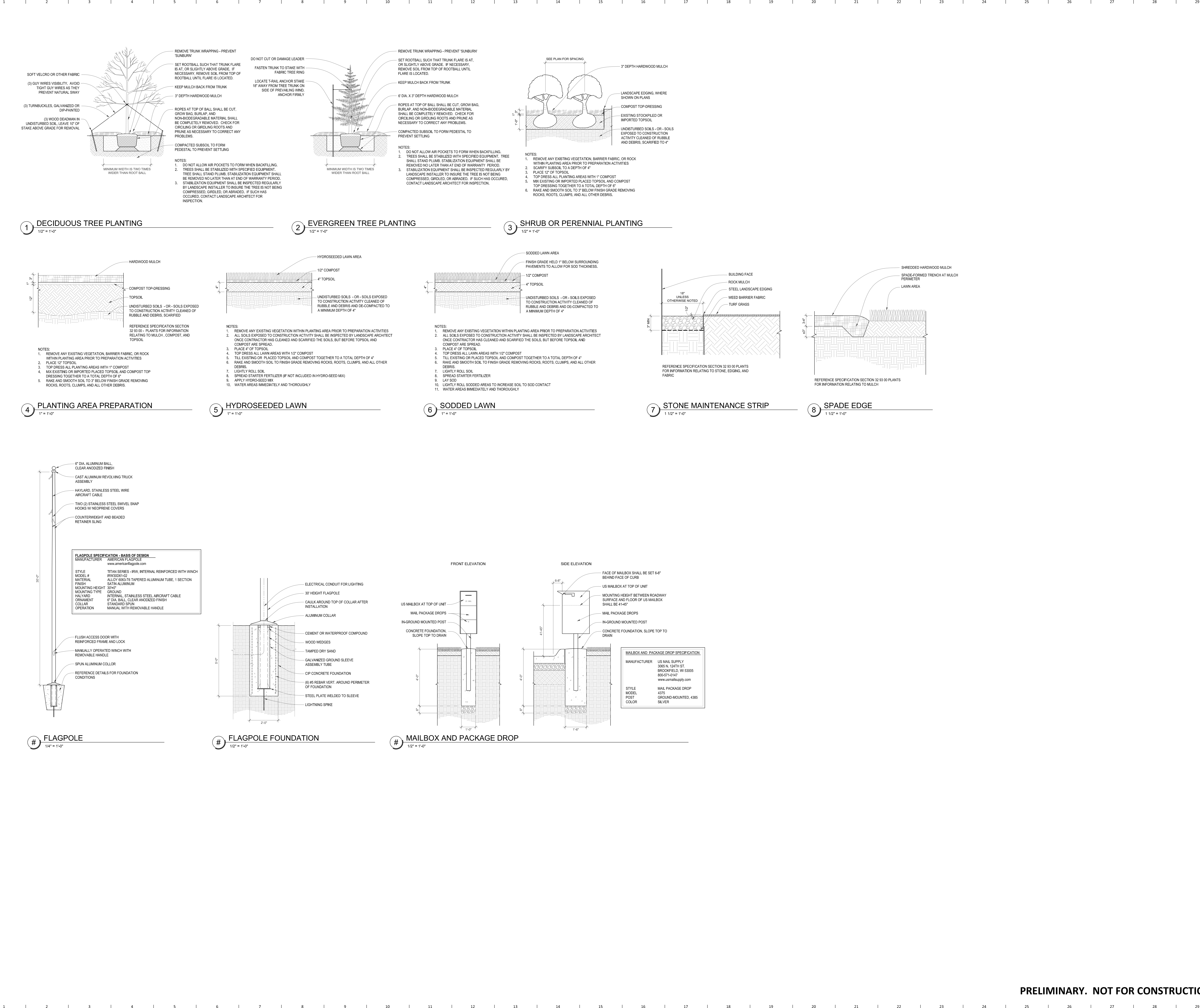
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OPN Project No.
19248000

Sheet Issue Date
PRELIMINARY
SITE PLAN REVIEW
03/18/2020

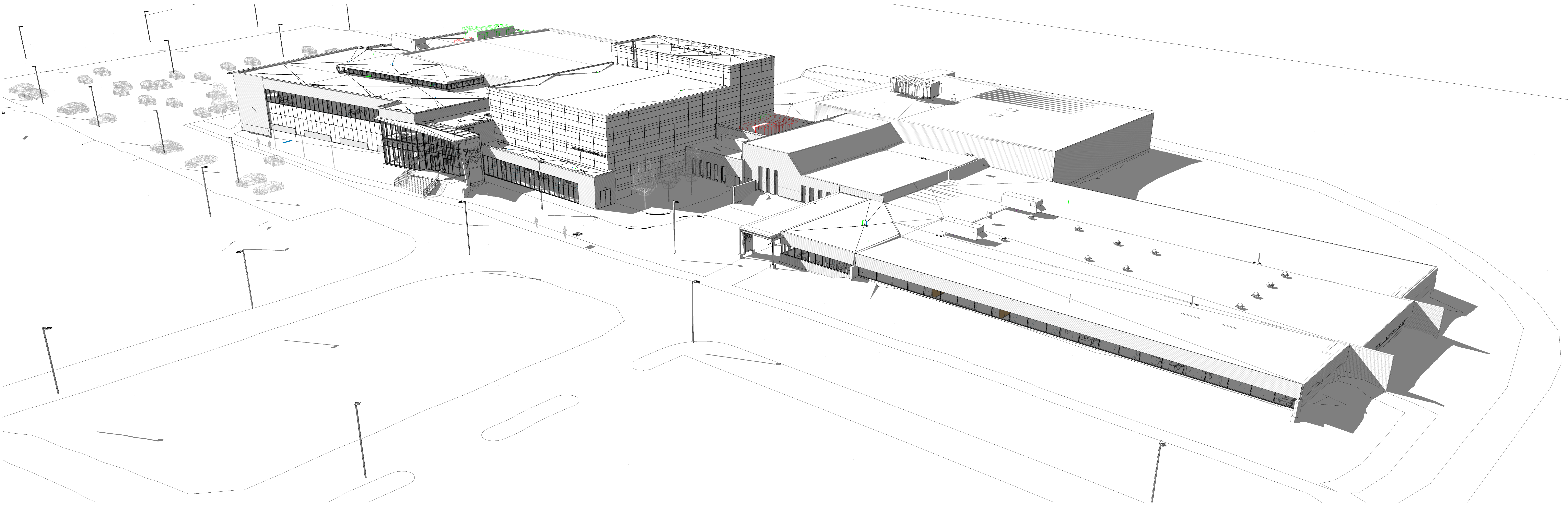
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Sheet Number



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N1 1-NE View



A1 2-NW View

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Owner

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Project

WEST BRANCH HIGH SCHOOL
ADDITION AND RENOVATION

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Key Plan

Revision	Description	Date
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OPN Project No:
19248000

Project Name:
PRELIMINARY
SITE PLAN REVIEW

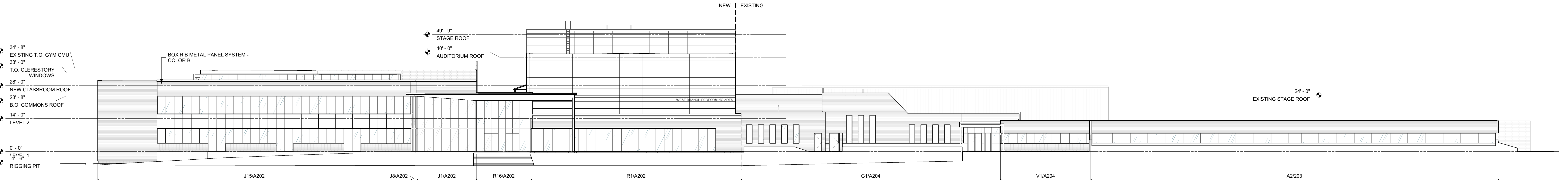
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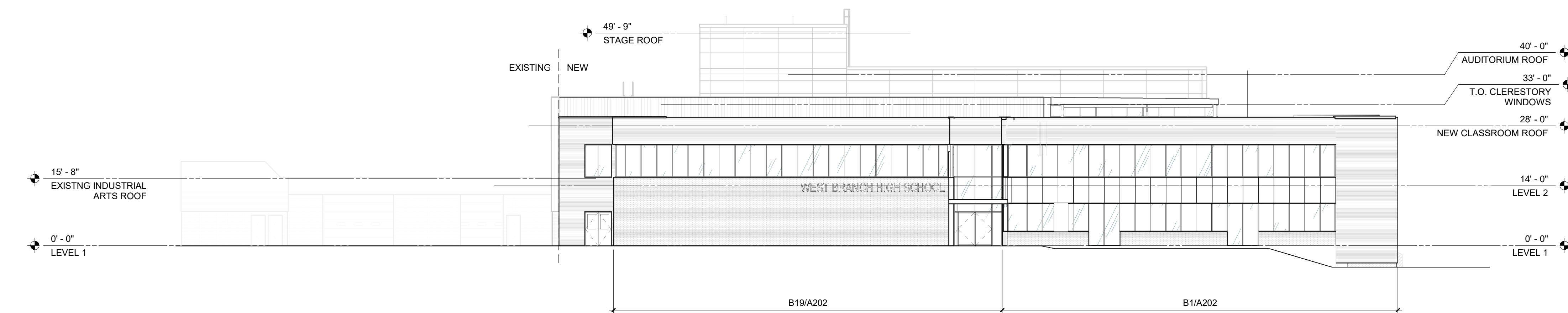
03/18/20

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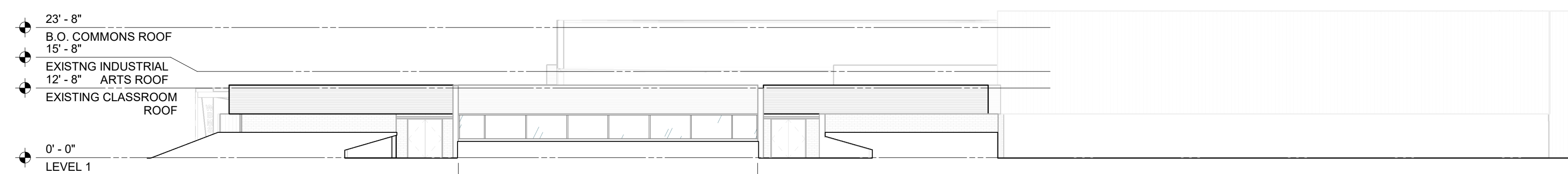
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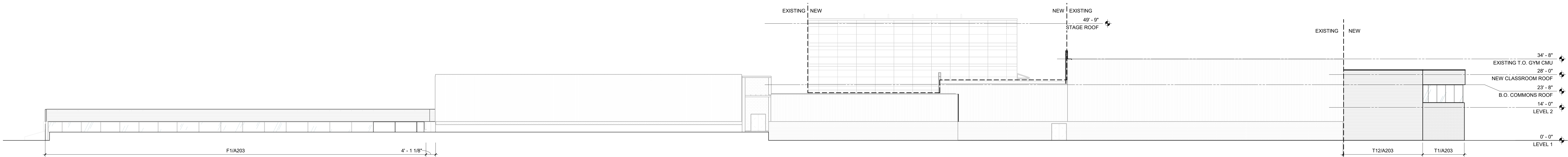
U1 COMPOSITE - EXTERIOR NORTH ELEVATION
1/16" = 1'-0"



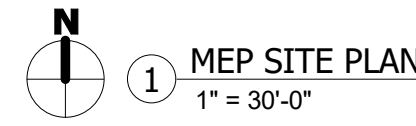
N1 COMPOSITE - EXTERIOR EAST ELEVATION
1/16" = 1'-0"



N17 COMPOSITE - EXTERIOR WEST ELEVATION
1/16" = 1'-0"



G1 COMPOSITE - EXTERIOR SOUTH ELEVATION
1/16" = 1'-0"



ORDINANCE NO. 776

AN ORDINANCE AMENDING CHAPTER 165 “ZONING REGULATIONS.”

WHEREAS, the Planning & Zoning Commission of the City of West Branch, Iowa, believes that the clarification of certain sections in the Zoning Code will lead to a clearer understanding of the Code’s requirements; and

WHEREAS, the Planning & Zoning Commission of the City of West Branch, Iowa, believes that a more uniform and consistent wording in the language contained within certain sections in the Zoning Code will aide in making the Zoning Code more navigable and lead to more consistent interpretation of the requirements; and

WHEREAS, the Planning & Zoning Commission recommends to the City Council of the City of West Branch, adoption of these amendment recommendations in the Zoning code; and

WHEREAS, the City Council of the City of West Branch, Iowa has reviewed these recommendations and concurs with the Planning & Zoning Commission.

NOW, THEREFORE, BE IT ORDAINED:

1. BE IT ENACTED by the City Council of West Branch, Iowa, that Chapter 165 “ZONING REGULATIONS” of the Code of West Branch, Iowa is hereby amended by revising the following subsections to Chapter 165:

165.12 CORNER LOTS.

165.12 – Amend by adding number 4:

4. Corner lots with a frontage ratio of not more than 2:3, the narrowest frontage shall be considered the front yard to determine the required rear yard set-back. Corner lots with a lot frontage ratio of greater than 2:3, either frontage can be considered the front yard to determine the required rear yard set-back.

Passed and approved this 4th day of May, 2020.

First Reading: April 6, 2020
Second Reading: April 20, 2020
Third Reading: May 4, 2020

Roger Laughlin, Mayor

Attest: _

Redmond Jones II, City Administrator/Clerk