

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.

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 Goerdt, 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

other nominations.

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

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

<u>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.)</u>

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 issued 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 was 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.

<u>Adjourn</u>

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



PRELIMINARY PLAT APPLICATION

Applicant Name: Advantage Development Inc. Address: 760 Liberty Way North Liberty IΑ 52317 Street or PO Box Zip Code Email: Chad@acbiowa.com Phone: 319-665-2997 Signature: **Additional Contact** Name: Ron Amelon Email: r.amelon@mmsconsultants.net Phone: 319-351-8282 **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): <u>0490-13-08-151-007-0</u> <u>& 0490</u>-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 52240 Street or PO Box # Zip Code ${\it Email: \underline{r.ame} lon@mmsconsultants.net}$ Phone: 319-351-8282

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. A Parcels of land proposed to be dedicated or reserved for schools, parks, playgrounds or other public, semipublic 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 \square A proposal to turn over 5% of useable subdivided land or its value to the City of West Branch for park development. N/A \(\simega \) A list of all variances from zoning and subdivision regulations that are being requested.

<u>Process:</u> 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 2 nd 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

land contains 23.28 Acres, and is subject to easements and restrictions of record.

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, 232.95 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°22'29"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 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°02'25"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°19'36"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 72+13; Thence

S89°35'43"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 N68°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

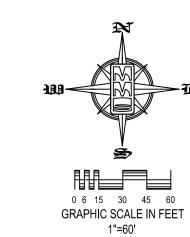
DEVELOPMENT CHARACTERISTICS: BUILDING CHARACTERISTICS

GREEN SPACE

DUPLEXES 22 TOWNHOMES 56 UNITS 2 I 2-PLEX BUILDINGS
TOTAL RESIDENTIAL UNITS

COMMERCIAL SPACE 23,643 SF 14,103 SF 35,295 SF 15,587 SF INDEPENDENT LIVING STORAGE UNITS TOTAL SITE AREA 23.28 ACRES

11.11 ACRES (48%)



WEST BRANCH PROPERTY EXHIBIT WEST BRANCH, CEDAR COUNTY, IOWA



23.28 AC.

LAND PLANNERS LAND SURVEYORS LANDSCAPE ARCHITECTS **ENVIRONMENTAL SPECIALISTS** 1917 S. GILBERT ST. IOWA CITY, IOWA 52240 (319) 351-8282 www.mmsconsultants.net

WEST BRANCH PROPERTY EXHIBIT

PARKSIDE HILLS

CEDAR COUNTY STATE OF IOWA

6992-287



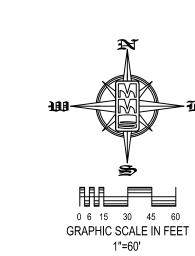
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DEVELOPMENT CHARACTERISTICS: BUILDING CHARACTERISTICS:

DUPLEXES 22 TOWNHOMES 56 UNITS 2 I 2-PLEX BUILDINGS
TOTAL RESIDENTIAL UNITS

COMMERCIAL SPACE 23,643 SF 14,103 SF 35,295 SF 15,587 SF INDEPENDENT LIVING STORAGE UNITS TOTAL SITE AREA 23.28 ACRES GREEN SPACE 11.11 ACRES (48%)



WEST BRANCH PROPERTY EXHIBIT WEST BRANCH, CEDAR COUNTY, IOWA



23.28 AC.

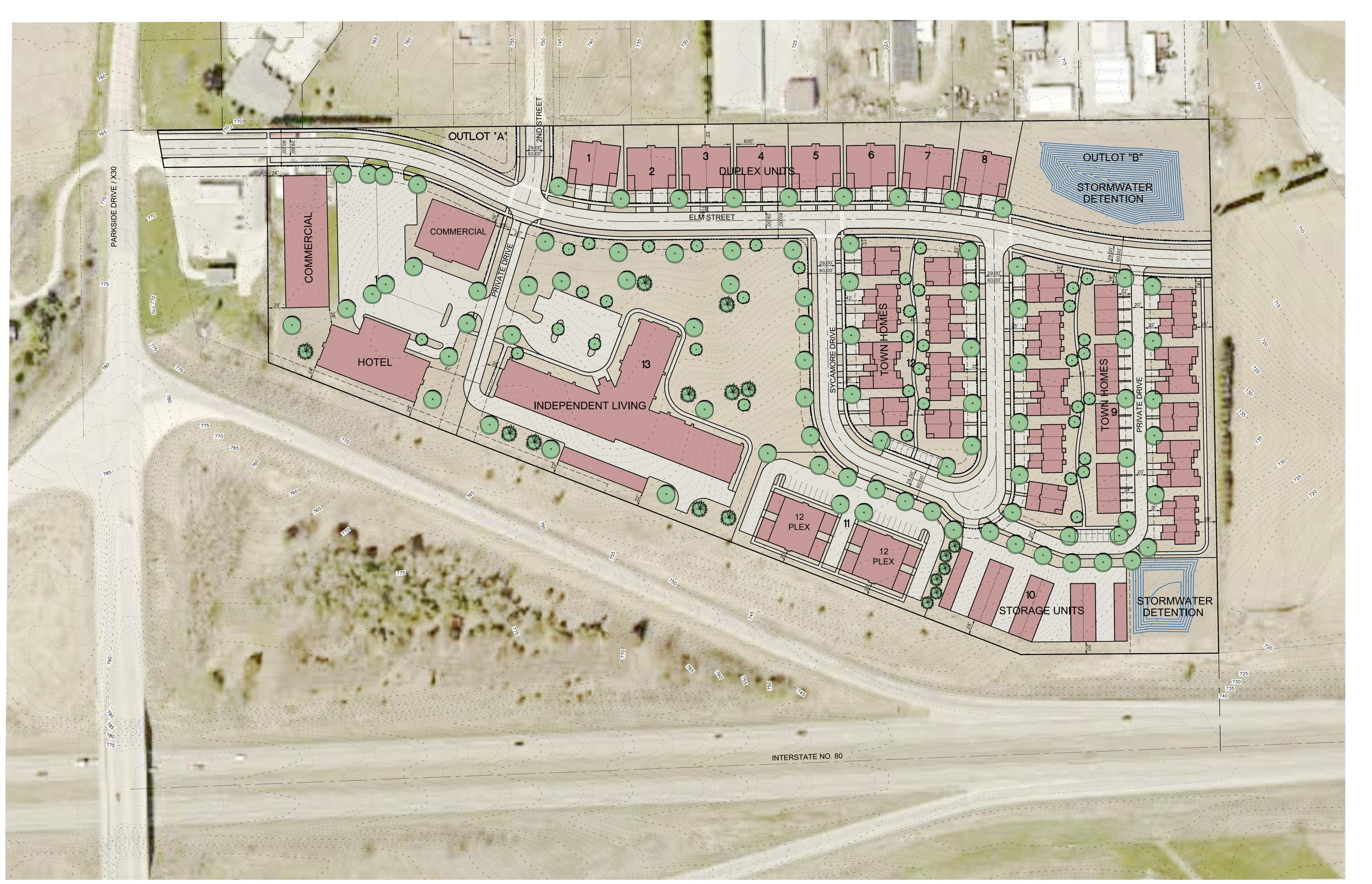
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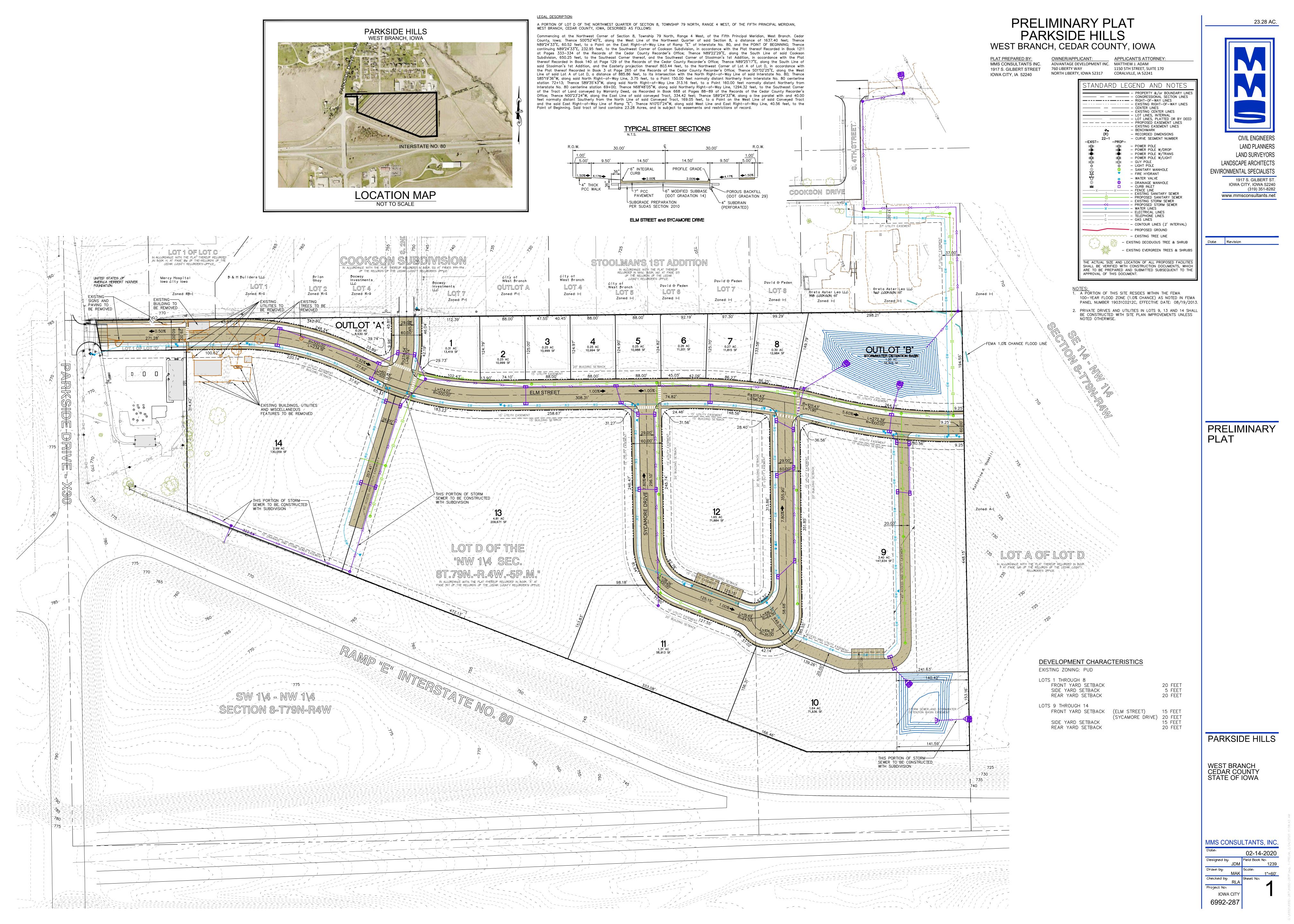
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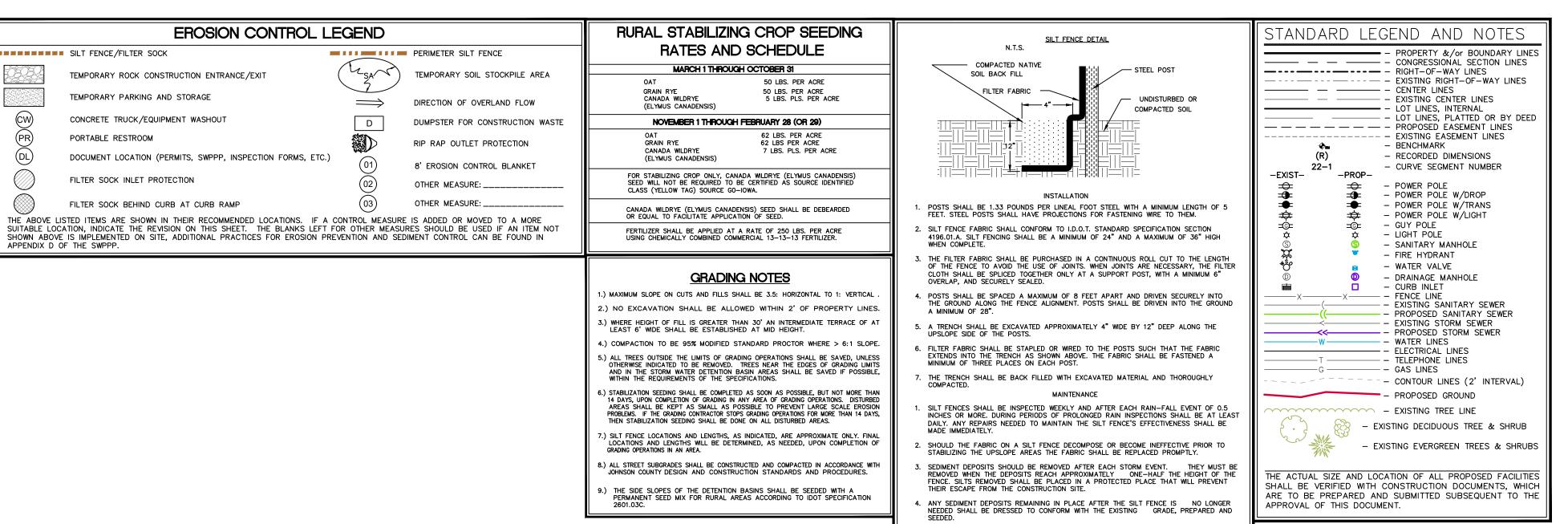
PARKSIDE HILLS

CEDAR COUNTY STATE OF IOWA

6992-287









WEST BRANCH, CEDAR COUNTY, IOWA

APPLICANT'S ATTORNEY: PLAT PREPARED BY: OWNER/APPLICANT: MMS CONSULTANTS INC. ADVANTAGE DEVELOPMENT INC. MATTHEW J. ADAM 1150 5TH STREET, SUITE 170 760 LIBERTY WAY 1917 S. GILBERT STREET NORTH LIBERTY, IOWA 52317 CORALVILLE, IA 52241 IOWA CITY, IA 52240

23.28 AC.

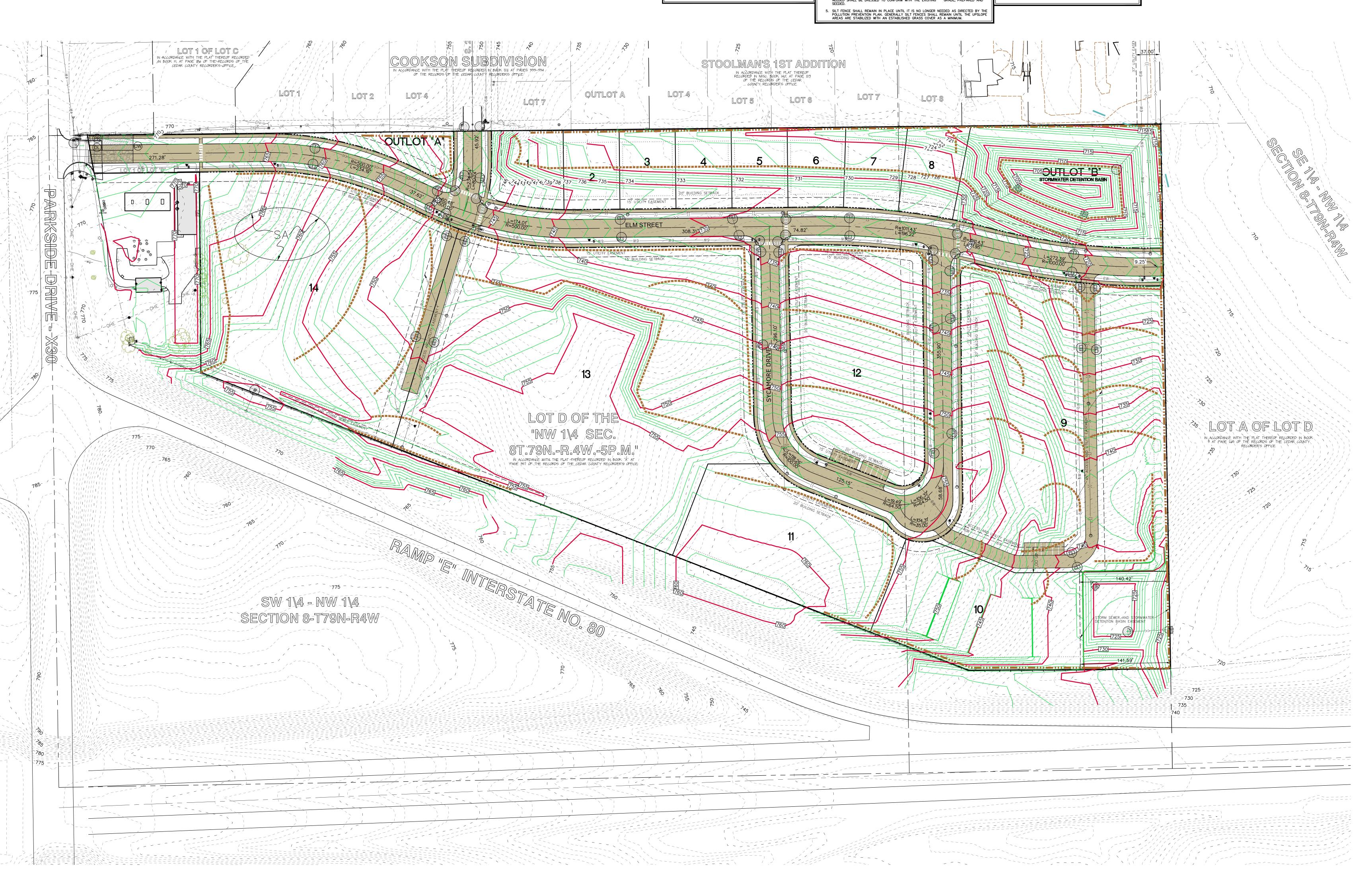
CIVIL ENGINEERS LAND PLANNERS LAND SURVEYORS LANDSCAPE ARCHITECTS **ENVIRONMENTAL SPECIALISTS** 1917 S. GILBERT ST IOWA CITY, IOWA 52240 (319) 351-8282 www.mmsconsultants.net

GRADING AND EROSION CONTROL PLAN AND SWPPP

PARKSIDE HILLS

WEST BRANCH CEDAR COUNTY STATE OF IOWA

MMS CONSULTANTS, INC 02-14-2020 Project No: IOWA CITY 6992-287



PARKSIDE HILLS

Preliminary Drainage Calculations

Brian J. Cummings February 12, 2020

MMS CONSULTANTS, INC

PROFESSION	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.
RONALD L. AMELON 14201 14201	RONALD L AMELON, P.E. lowa Lic. No. 14201 My license renewal date is December 31, 20
AMELON 14201 14201 10WA	Pages or sheets covered by this seal:
SEAL	

PARKSIDE HILLS

6992-287

PRELIMINARY DRAINAGE CALCULATIONS

West Branch, Iowa February 12, 2020

I. <u>INTRODUCTION</u>

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

WOv = (P*Rv*A)/12 = (1.25*0.533*19.38)/12 = 1.076 acre-feet = 46,857 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

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Area to the South Basin = 3.01 acres
The % impervious is 53.65%.
Rv = 0.05 + 0.009*53.65 = 0.533
WOv = (P*Rv*A)/12 = (1.25*0.533*3.01)/12 = 0.167 acre-feet = 7,278 cubic feet.
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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 cfs + 39.29 cfs = 63.56 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 cfs + 5.57 cfs + 15.88 cfs = 55.45 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 12.41cfs. 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.

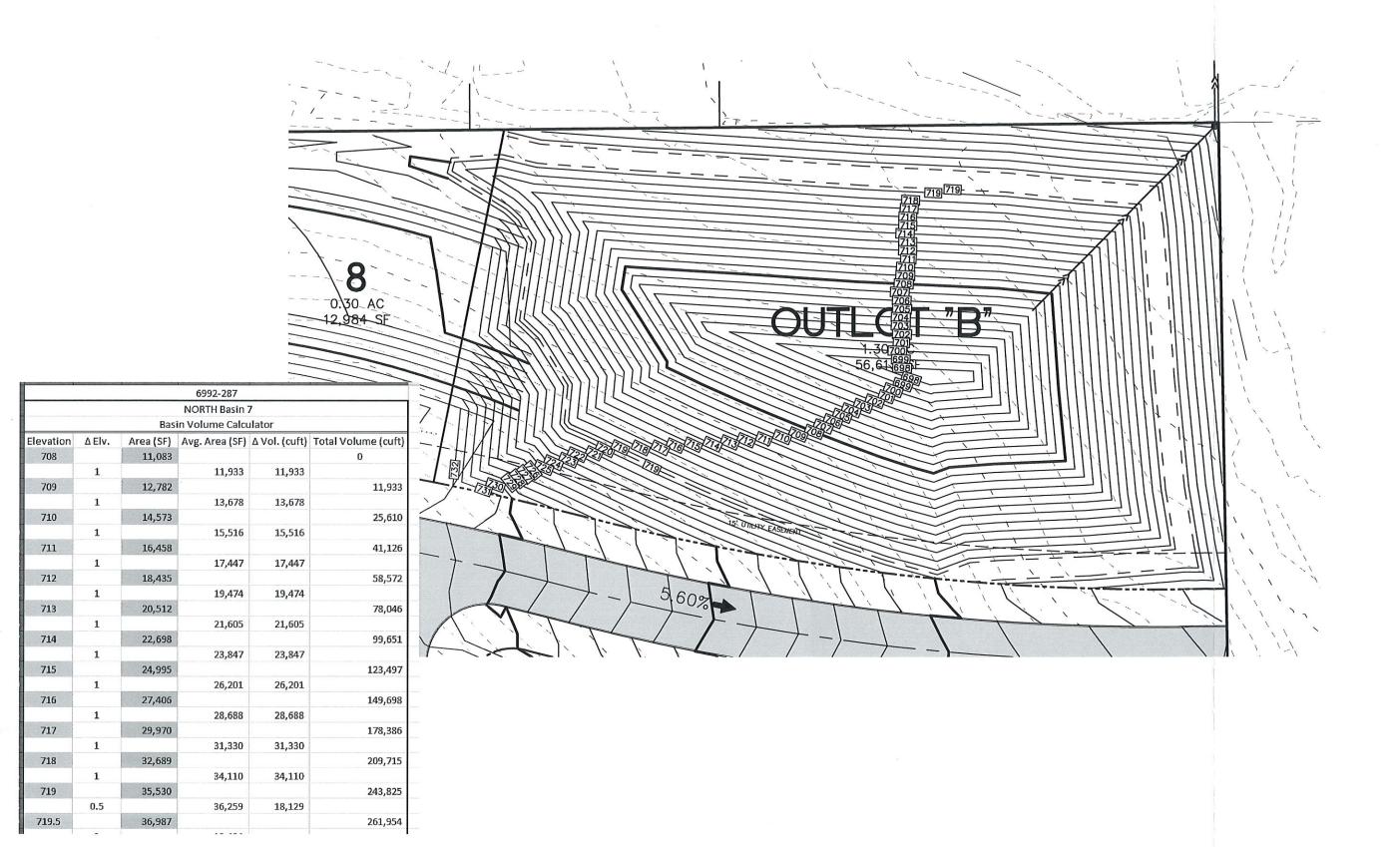
The emergency spillway for the north basin is at elevation 719.00 and is 160 feet in width. The top of the dam is at elevation 719.50. Routing the 100 year storm event through the north basin without an active outlet structure produces a peak flow of 106.79cfs at an elevation of 719.41ft. This is 0.09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



6992-287

NORTH Posin 7							
NORTH Basin 7 Basin Volume Calculator							
Elevation	Δ Elv.	Area (SF)			Total Volume (cuft)		
neutromera escriptora esperante conse	Δ EIV.	PROCESSOR AND	Avg. Area (SF)	A voi. (cuit)			
708	_	11,083			0		
	1		11,933	11,933			
709		12,782			11,933		
	1		13,678	13,678			
710		14,573			25,610		
2004 35 2 12 13 13 10 10 10 10 10 10 10 10 10 10 10 10 10	1	EL-MANAGEMENT CONSTRUCTION CONS	15,516	15,516			
711		16,458	,	,	41,126		
	1		17,447	17,447	,_,		
712	-	18,435	π,,,,,,,	17,-1-17	58,572		
712	1	10,433	10 474	10 474	30,372		
	1		19,474	19,474	70.045		
713		20,512			78,046		
	1	F-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1	21,605	21,605			
714		22,698			99,651		
	1.		23,847	23,847			
715		24,995			123,497		
and and the state of the state	1	\$1-00-000000000000000000000000000000000	26,201	26,201	·		
716		27,406	,	•	149,698		
	1		28,688	28,688	113,030		
717	_	29,970	20,000	20,000	178,386		
717	1	29,970	24 220	24 220	1/0,300		
=	1		31,330	31,330	222 747		
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		
with the standard and above to with post particular groups and and an extension of the standard groups and an extension of the	0		18,494	•••	·		
			,		261,954		
	0		_	_	201,554		
	U		-	_	264 054		
					261,954		
3	0		-	_ _			
		-			261,954		

Pond Report

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

Wednesday, 02 / 12 / 2020

Pond No. 9 - NORTH BASIN 7

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining 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

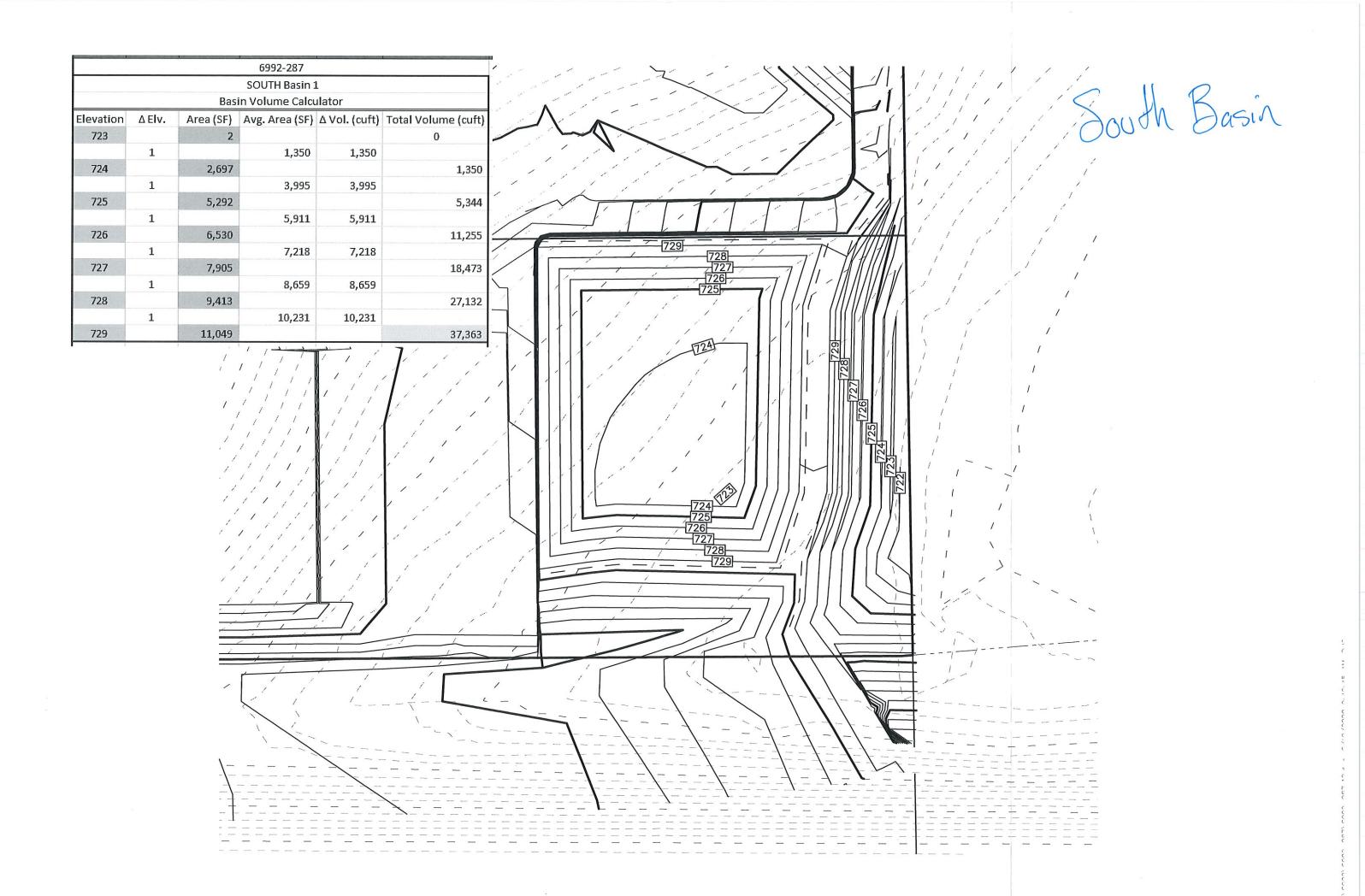
Weir Structures

	[A]	[B]	[C]	[PrfRsr]		[A]	[B]	[C]	[D]
Rise (in)	= 21.00	4.00	12.00	0.00	Crest Len (ft)	= 0.00	0.00	0.00	0.00
Span (in)	= 21.00	4.00	60.00	0.00	Crest El. (ft)	= 0.00	0.00	0.00	0.00
No. Barrels	= 1	1	4	0	Weir Coeff.	= 2.60	3.33	3.33	3.33
Invert El. (ft)	= 707.80	708.00	712.70	0.00	Weir Type	= Broad			
Length (ft)	= 100.00	0.00	0.00	0.00	Multi-Stage	= No	No	No	No
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	Exfil.(in/hr)	= 0.000 (by	Wet area)	
Multi-Stage	= n/a	Yes	Yes	No	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	Storage	Elevation	Clv A	Clv B	CIv C	PrfRsr	Wr A	Wr B	Wr C	Wr D	Exfil	User	Total
ft	cuft	ft	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs
0.00	0	708.00	0.00	0.00	0.00								0.000
1.00	11,921	709.00	0.40 oc	0.38 ic	0.00	***							0.384
2.00	25,588	710.00	0.57 oc	0.56 ic	0.00								0.559
3.00	41,092	711.00	0.72 oc	0.69 ic	0.00	***							0.692
4.00	58,527	712.00	0.81 oc	0.81 ic	0.00								0.805
5.00	77,990	713.00	11.84 oc	0.66 ic	11.19 ic			****					11.84
6.00	99,583	714.00	23.72 oc	0.10 ic	23.62 ic					***			23.72
7.00	123,418	715.00	26.20 oc	0.11 ic	26.09 ic				~~~				26.20
8.00	149,607	716.00	28.46 oc	0.12 ic	28.32 ic								28.45
9.00	178,282	717.00	30.56 oc	0.13 ic	30.42 ic								30.55
10.00	209,599	718.00	32.52 oc	0.14 ic	32.37 ic								32.51
11.00	243,695	719.00	34.37 oc	0.15 ic	34.21 ic	***							34.36
11.50	261,821	719.50	35.26 oc	0.15 ic	35.10 ic								35.25



6992-287

	SOUTH Basin 1								
		Bas	in Volume Calcu	lator					
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	en von vonge tuttingen in des der einderfende villig (f. 1856/1814).	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. Begining 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

Weir Structures

	[A]	[B]	[C]	[PrfRsr]		[A]	[B]	[C]	[D]
Rise (in)	= 6.00	2.00	0.00	0.00	Crest Len (ft)	= 6.28	0.00	0.00	0.00
Span (in)	= 6.00	2.00	0.00	0.00	Crest El. (ft)	= 725.70	0.00	0.00	0.00
No. Barrels	= 1	1	0	0	Weir Coeff.	= 3.33	3.33	3.33	3.33
Invert El. (ft)	= 721.90	723.00	0.00	0.00	Weir Type	= 1			
Length (ft)	= 60.00	0.00	0.00	0.00	Multi-Stage	= Yes	No	No	No
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	Exfil.(in/hr)	= 0.000 (by	Wet area)	
Multi-Stage	= n/a	Yes	No	No	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	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	723.00	0.00	0.00	***		0.00						0.000
1.00	924	724.00	0.69 oc	0.10 ic			0.00			Maria	***	***	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 Basily Alea (H2) Elevation 757 758 1,377 3,540 760 7,447 762 13,824 764 766 23,009 768 34,506 770

APPENDIX B



Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

2/5/2020 Page 1 of 4

Natural Resources Conservation Service

MAP LEGEND

Area of Interest (AOI) Soil Rating Polygons Soil Rating Points Soil Rating Lines Area of Interest (AOI) O S റ B/D B U 0 B/D S B/D Ø Š Not rated or not available Not rated or not available 0/0 Water Features Background Transportation # 圃 72 Rails Aerial Photography Streams and Canals S O D Local Roads **US Routes** Interstate Highways Not rated or not available Major Roads

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, lowa 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	С	4.4	15.9%
120B	Tama silty clay loam, 2 to 5 percent slopes	С	0.1	0.2%
120C2	Tama silty clay loam, 5 to 9 percent slopes, eroded	С	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	С	8.9	32.3%
Totals for Area of Inter	rest		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.

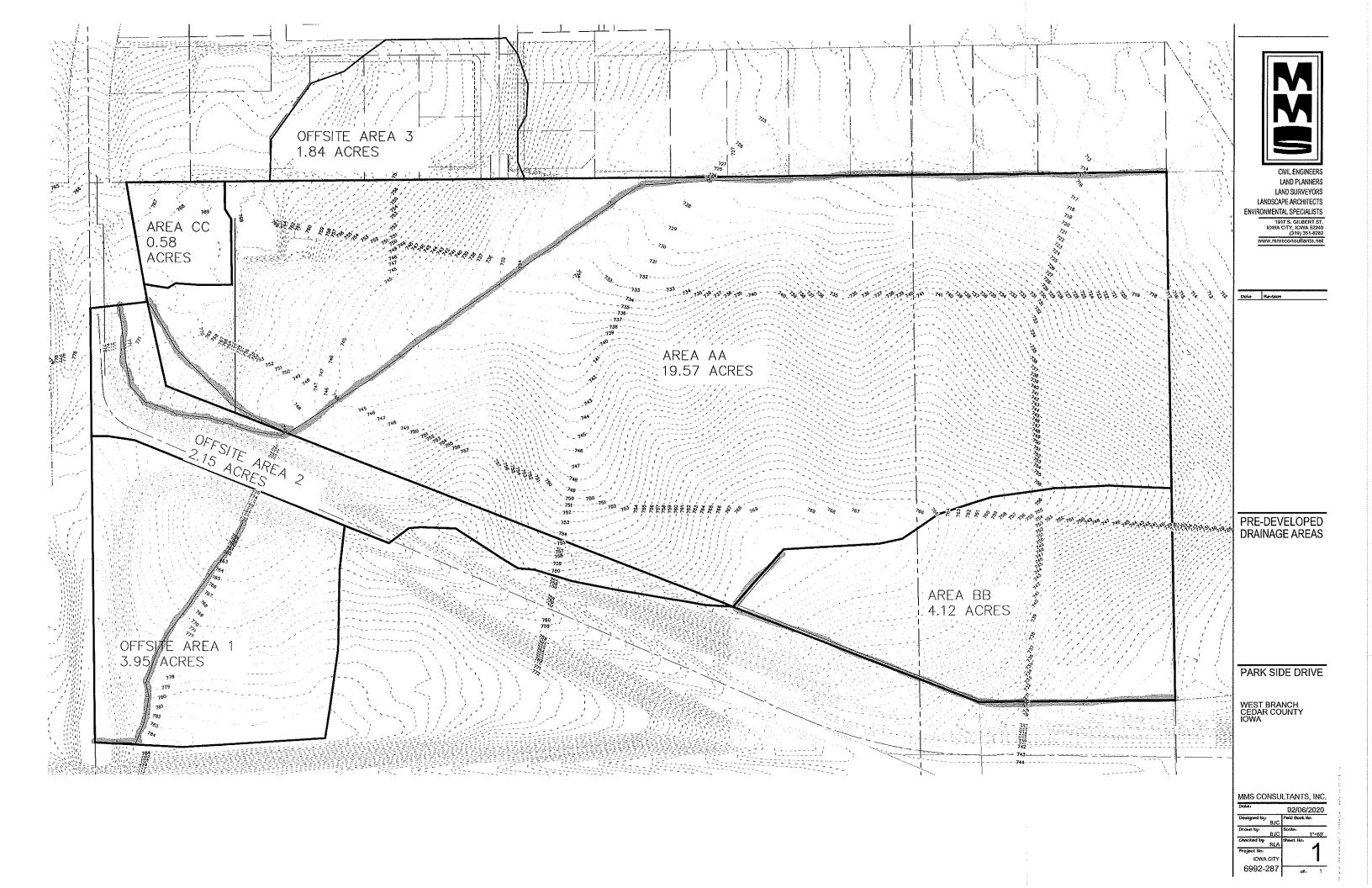
If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

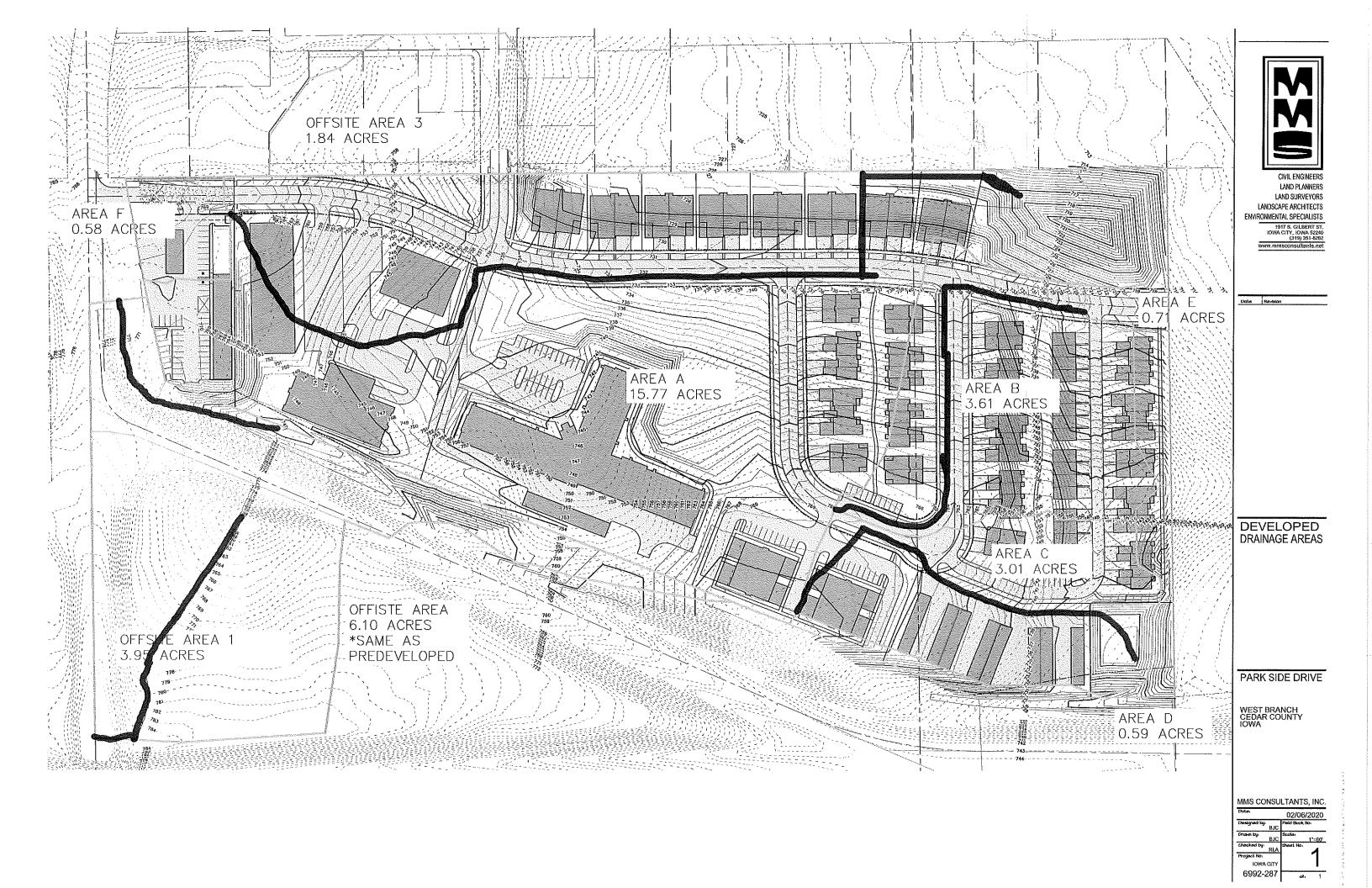
Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher





Experts in Planning and	Development Since 1975. 476 (fax) 1917 S. Gilbert, Iowa City 52240 mmsconsultants.net	PREPARED BY:
SUBJECT: De	veloped Curve number	PAGE OF
Impervious		Soil Group C 275 SF
To dal Avec	$1 = 1017775 \\ + 40418$ $1057693 SF$	
Total In	pervious = 5674248F	CN = 98
Open Space	e = 490 769 SF	CN = 74
CD Develop	ed = (490269) (741) + (567 1057693) (741) + (1057	424)98
	COV pev = 34.3 +	52.57 = 86.87

APPENDIX C

Developed Area to North Basin

Water Quality Volume Caluculation

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

$$R_v = 0.05 + 0.009 * I$$

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)

$$R_v$$
= 0.53285
 WQ_v = 1.07569 ac-ft
 WQ_v = 46,857 ft³

Calculate the adjusted CN for storms under two inches.

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

where

P= rainfall (inches)

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

$$2.\left(\frac{16,857}{74.3600}\right) = 1.08 \text{ ess max} \quad \frac{717-711}{58,527-41,092} = \frac{717-X}{58,527-416,857}$$

Davelopel Aren to South Basin

Water Quality Volume Caluculation

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

$$R_v = 0.05 + 0.009 * I$$

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)

$$R_{v}$$
= 0.53285
 WQ_{v} = 0.16707 ac-ft
 WQ_{v} = 7,278 ft³

Calculate the adjusted CN for storms under two inches.

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

where

P= rainfall (inches)

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

Store irelanse over ellers

Q Elv.

726.00-775.00 _776-X 10,746-4846 10,746-7278

APPENDIX D

	MMS Consultants. Inc. Experts in Planning and Development Since 1975. (319) 351-8282 (319) 351-8476 (fax) 1917 S. Gilbert, Iowa City 52240 mmsconsultants.net PROJECT: SUBJECT: NAME PROJECT: OTH Gasin Agriculture 123,090 Co3+ Cu3- Cu3-	DATE:
C	Pt elu. 716-715 = 716- 127,595-103677 127,595	- 123090 - 812'
Sa	with Basin CPJ $ \mathcal{L} = 15,611 \text{ cost } \text{ det. 3} $ Max $\text{CPV} = \text$	2. 0181 = .36Ze8=
(2PV elv. 727-726 727 17,951-10,746 17,93 Vepv = 726.	

This spreadsheet determines the capacity of a perforated riser pipe.

Riser diameter	INLET CONTROL Q=CA(2GH)^0.5
6 inches	WHERE: H= HEAD MEA C= G=
	WHERE: H= HEAD MEASURED FROM CENTROID OF PIPE AT INLET C= 0.6 G= 32.2

			725.50	725	724.50	724	723.50	723	Elevation (ft)				Row Spacing	Number of columns	Riser diameter Hole diameter
MON#	#NUM!	#NUM!	0.1246	0.1114	0.0965	0.0788	0.0557	0.0000	Holes, cfs	Row of	(Q) Bottom	0		dumns	÷ Ψ
#NUM!	#NUM!	#NUM!	0.1114	0.0965	0.0788	0.0557	0.0000		Holes, cfs	Row of	(Q) Next	0.5	ത	12	0.5
#NUM!	#NUM!	#NUM!	0.0965	0.0788	0.0557	0.0000			Holes, cfs	Row of	(Q) Next	.	6 inches		6 inches 0.5 inches
#NUM!	#NUM!	#NUM!	0.0788	0.0557	0.0000				Holes, cfs	Row of	(Q) Next	1.5			Hole Area (sf)
#NUM!	#NUM!	#NUM!	0.0557	0.0000					Holes, cfs	Row of	(Q) Next	2			
#NUM!	#NUM!	#NUM!	0.0000						Holes, cfs	Row of	(Q) Next	2.5			0.00136354
#NUM!	#NUM!	#NUM!							Holes, cfs	Row of	(Q) Next	ယ			
#NUM!	#NUM!	#NUM!	0.4670	0.3424	0.2310	0.1345	0.0557	0.0000	Total (cfs)						

APPENDIX E

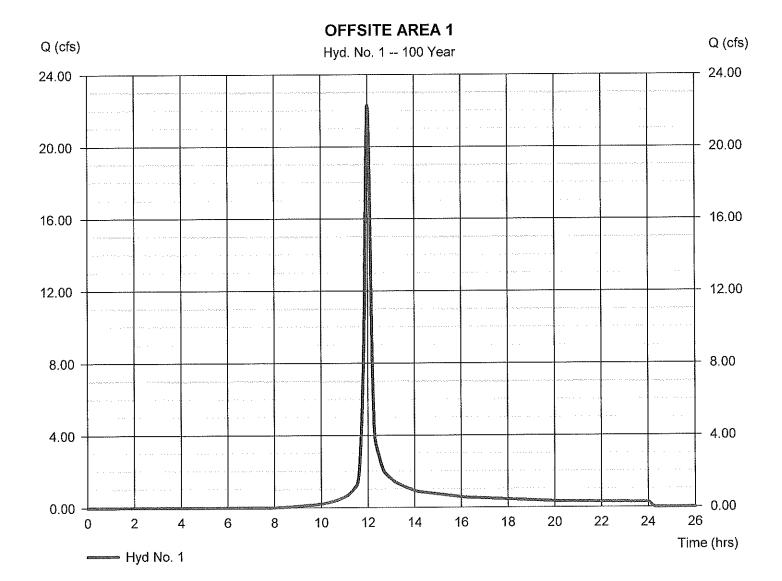
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

Wednesday, 02 / 5 / 2020

Hyd. No. 1

OFFSITE AREA 1

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



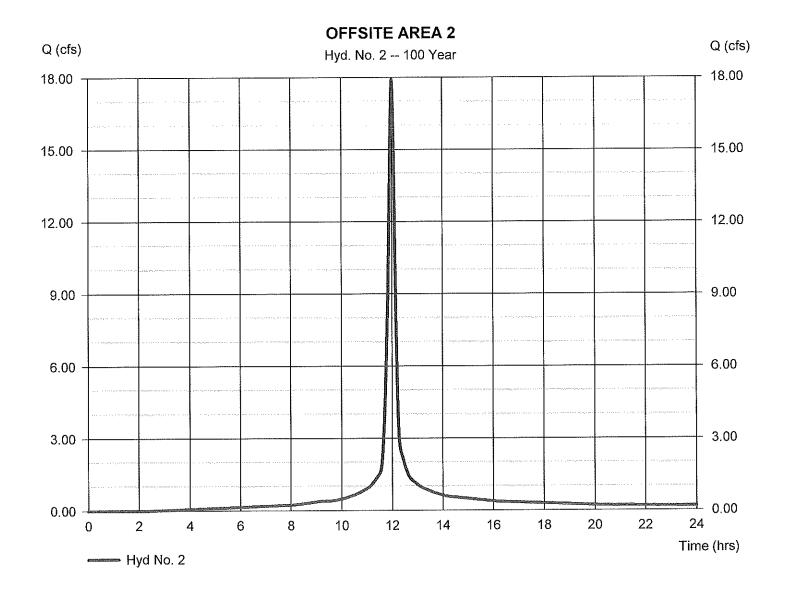
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

Wednesday, 02 / 5 / 2020

Hyd. No. 2

OFFSITE AREA 2

Peak discharge = 17.92 cfs= SCS Runoff Hydrograph type Time to peak = 12.00 hrsStorm frequency = 100 yrsHyd. volume = 50.480 cuft= 2 min Time interval = 2.150 acCurve number = 92 Drainage area Hydraulic length $= 402 \, \text{ft}$ Basin Slope = 5.4 % $= 11.60 \, \text{min}$ Time of conc. (Tc) = TR55 Tc method Distribution = Type II = 7.22 inTotal precip. = 484 Storm duration = 24 hrs Shape factor



TR55 Tc Worksheet

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

Hyd. No. 2OFFSITE AREA 2

<u>Description</u>	A		<u>B</u>		<u>C</u>		<u>Totals</u>
Sheet Flow Manning's n-value Flow length (ft) Two-year 24-hr precip. (in) Land slope (%)	= 0.130 = 100.0 = 3.01 = 1.40		0.011 0.0 0.00 0.00		0.011 0.0 0.00 0.00		
Travel Time (min)	= 10.39	+	0.00	+	0.00	==	10.39
Shallow Concentrated Flow Flow length (ft) Watercourse slope (%) Surface description Average velocity (ft/s)	= 301.90 = 6.62 = Unpave =4.15	d	0.00 0.00 Paved 0.00		0.00 0.00 Paved 0.00		
Travel Time (min)	= 1.21	+	0.00	+	0.00		1.21
Channel Flow X sectional flow area (sqft) Wetted perimeter (ft) Channel slope (%) Manning's n-value Velocity (ft/s)	= 0.00 = 0.00 = 0.00 = 0.015 =0.00		0.00 0.00 0.00 0.015 0.00		0.00 0.00 0.00 0.015		
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

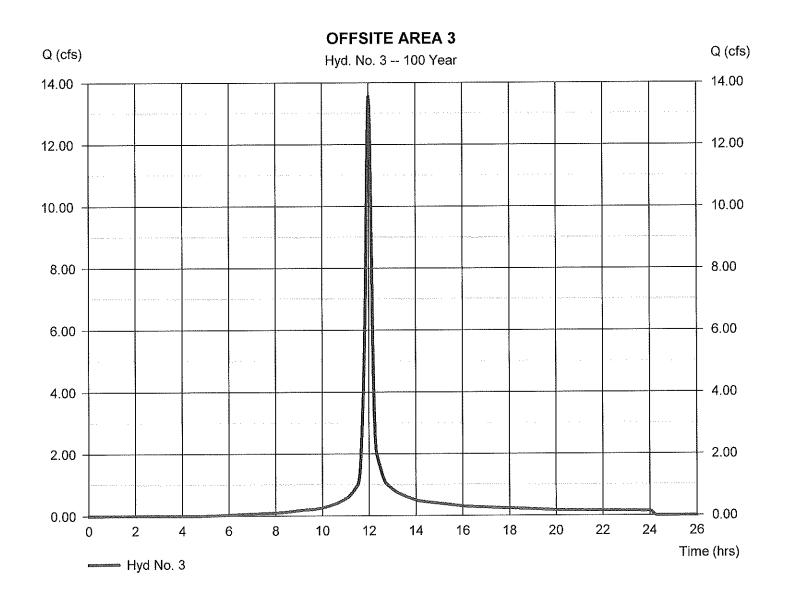
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

Wednesday, 02 / 5 / 2020

Hyd. No. 3

OFFSITE AREA 3

= 13.56 cfs= SCS Runoff Peak discharge Hydrograph type $= 12.00 \, hrs$ Time to peak Storm frequency = 100 yrs= 36,063 cuft Hyd. volume Time interval = 2 min = 1.840 acCurve number = 83Drainage area Hydraulic length = 400 ftBasin Slope = 3.8 %Time of conc. (Tc) $= 10.00 \, \text{min}$ Tc method = User Distribution = Type II = 7.22 inTotal precip. Shape factor = 484 Storm duration = 24 hrs



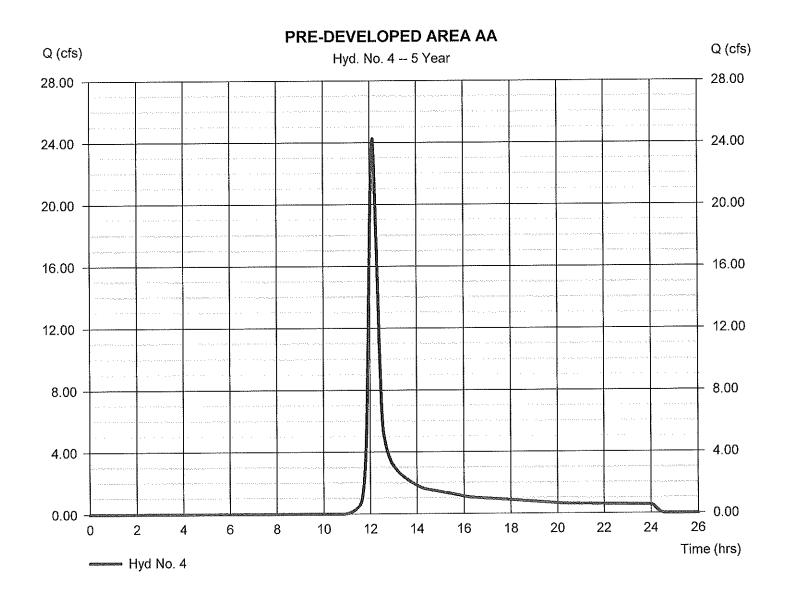
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

Wednesday, 02 / 5 / 2020

Hyd. No. 4

PRE-DEVELOPED AREA AA

= 24.27 cfsPeak discharge = SCS Runoff Hydrograph type $= 12.13 \, hrs$ Time to peak Storm frequency = 5 yrsHyd. volume = 88,644 cuft = 2 min Time interval Curve number = 71 = 19.570 acDrainage area Hydraulic length $= 1865 \, ft$ = 3.2 % Basin Slope Time of conc. (Tc) = 22.10 min Tc method = TR55= Type II Distribution = 3.75 inTotal precip. = 484 Shape factor Storm duration = 24 hrs



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>	A		<u>B</u>		<u>C</u>		<u>Totals</u>
Sheet Flow Manning's n-value Flow length (ft) Two-year 24-hr precip. (in) Land slope (%)	= 0.240 = 100.0 = 3.01 = 3.40		0.011 0.0 0.00 0.00		0.011 0.0 0.00 0.00		
Travel Time (min)	= 11.90	+	0.00	+	0.00	=	11.90
Shallow Concentrated Flow Flow length (ft) Watercourse slope (%) Surface description Average velocity (ft/s)	= 1765.50 = 3.17 = Unpaved =2.87	ł	0.00 0.00 Paved 0.00		0.00 0.00 Paved 0.00		
Travel Time (min)	= 10.24	+	0.00	+	0.00		10.24
Channel Flow X sectional flow area (sqft) Wetted perimeter (ft) Channel slope (%) Manning's n-value Velocity (ft/s)	= 0.00 = 0.00 = 0.00 = 0.015 =0.00		0.00 0.00 0.00 0.015		0.00 0.00 0.00 0.015		
					0.00		
Flow length (ft)	({0})0.0		0.0		0.00		
Flow length (ft) Travel Time (min)	({0})0.0 = 0.00	+	0.0 0.00	+		=	0.00

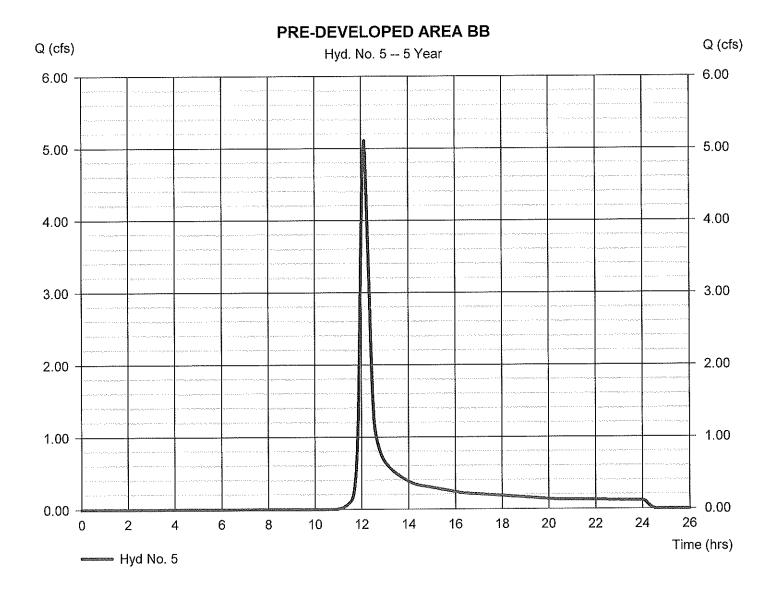
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

Wednesday, 02 / 5 / 2020

Hyd. No. 5

PRE-DEVELOPED AREA BB

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



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>	A		<u>B</u>		<u>C</u>		<u>Totals</u>
Sheet Flow Manning's n-value Flow length (ft) Two-year 24-hr precip. (in) Land slope (%)	= 0.240 = 100.0 = 3.01 = 1.30		0.011 0.0 0.00 0.00		0.011 0.0 0.00 0.00		4 4 6
Travel Time (min)	= 17.48	+	0.00	+	0.00	=	17.48
Shallow Concentrated Flow Flow length (ft) Watercourse slope (%) Surface description Average velocity (ft/s)	= 744.30 = 6.50 = Unpaved =4.11	d	0.00 0.00 Paved 0.00		0.00 0.00 Paved 0.00		
Travel Time (min)	= 3.02	+	0.00	+	0.00	=	3.02
Channel Flow X sectional flow area (sqft) Wetted perimeter (ft) Channel slope (%) Manning's n-value Velocity (ft/s)	= 0.00 = 0.00 = 0.00 = 0.015 =0.00		0.00 0.00 0.00 0.015 0.00		0.00 0.00 0.00 0.015		
Flow length (ft)	({0})0.0		0.0		0.0		
Travel Time (min)	= 0.00	+	0.00	+	0.00	, mar	0.00
Total Travel Time, Tc				******			20.50 min

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Thursday, 02 / 6 / 2020

Hyd. No. 7 A

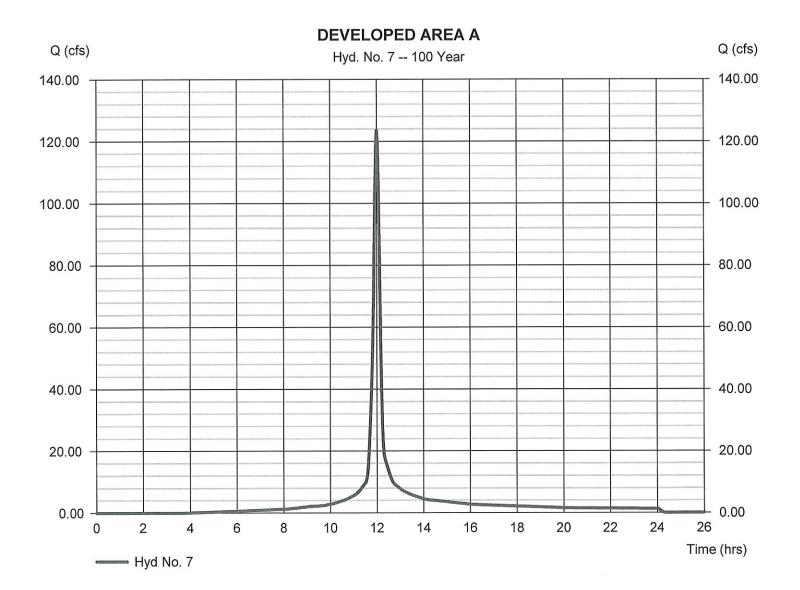
DEVELOPED AREA A

Hydrograph type = SCS Runoff Storm frequency = 100 yrsTime interval = 2 min Drainage area = 15.770 acBasin Slope = 0.0 %Tc method = User Total precip. = 7.22 inStorm duration = 24 hrs

Peak discharge = 123.60 cfs
Time to peak = 12.00 hrs
Hyd. volume = 335,356 cuft
Curve number = 86.9
Hydraulic length = 0 ft
Time of conc. (Tc) = 10.00 min
Distribution = Type II

Shape factor

= 484



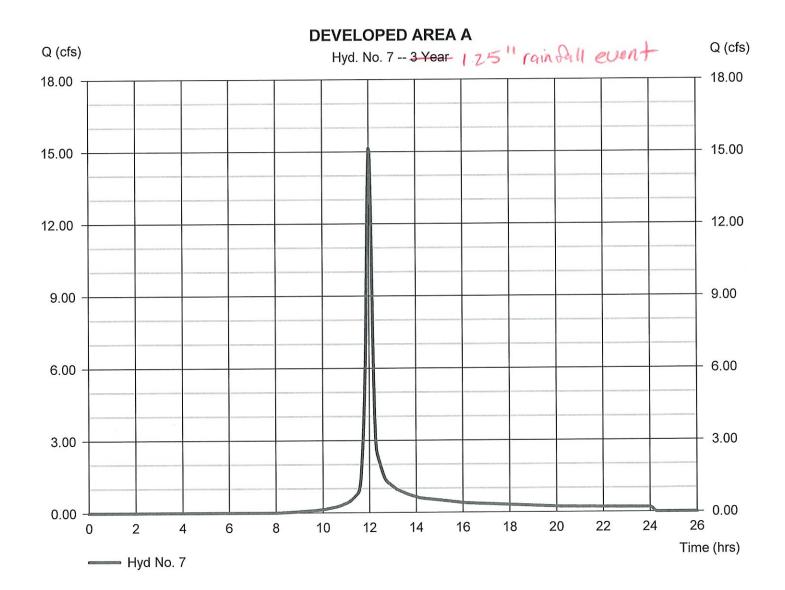
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

Tuesday, 02 / 11 / 2020

Hyd. No. 7 🦰

DEVELOPED AREA A

= 15.14 cfsPeak discharge = SCS Runoff Hydrograph type = 3 yrs 1.75" event Time to peak = 12.00 hrsStorm frequency Hyd. volume = 39,244 cuft = 2 min Time interval Curve number = 93.2Drainage area = 15.770 acBasin Slope Hydraulic length = 0 ft= 0.0 %Time of conc. (Tc) $= 10.00 \, \text{min}$ Tc method = User Distribution = Type II Total precip. = 1.25 in= 484 Shape factor = 24 hrs Storm duration



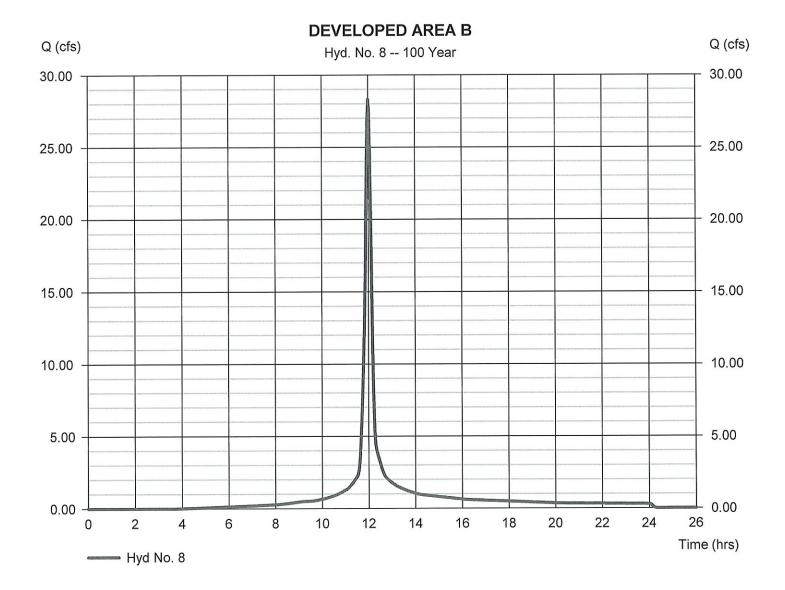
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

Thursday, 02 / 6 / 2020

Hyd. No. 8 A

DEVELOPED AREA B

Peak discharge = 28.29 cfs= SCS Runoff Hydrograph type Time to peak = 12.00 hrsStorm frequency = 100 yrsTime interval = 2 min Hyd. volume = 76,768 cuft = 3.610 acCurve number = 86.9Drainage area Hydraulic length = 0 ftBasin Slope = 0.0 %Time of conc. (Tc) = 10.00 min Tc method = User = Type II Distribution Total precip. = 7.22 inShape factor = 484 Storm duration = 24 hrs



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

Tuesday, 02 / 11 / 2020

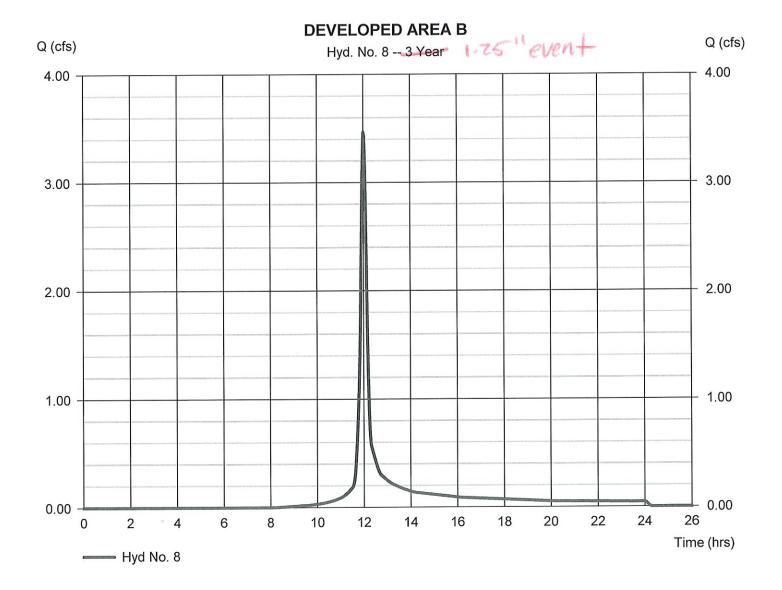
Hyd. No. 8 🦰

DEVELOPED AREA B

= SCS Runoff Hydrograph type = 3-yrs 1.25" /annoall Storm frequency = 2 min Time interval = 3.610 acDrainage area = 0.0 %Basin Slope Tc method = User Total precip. = 1.25 inStorm duration = 24 hrs

Peak discharge = 3.465 cfs
Time to peak = 12.00 hrs
Hyd. volume = 8,984 cuft
Curve number = 93.2
Hydraulic length = 0 ft
Time of conc. (Tc) = 10.00 min

Distribution = Type II
Shape factor = 484



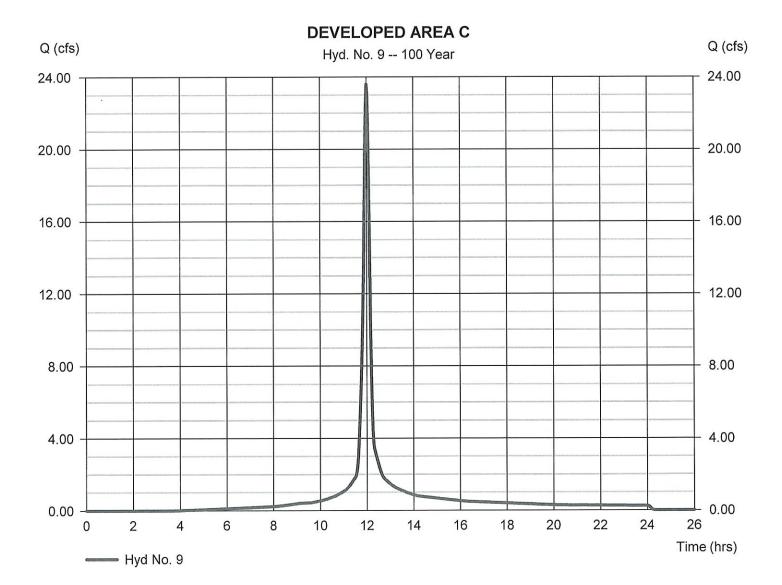
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Thursday, 02 / 6 / 2020

Hyd. No. 9 A

DEVELOPED AREA C

Peak discharge = 23.59 cfs= SCS Runoff Hydrograph type Time to peak = 12.00 hrsStorm frequency = 100 yrsTime interval = 2 min Hyd. volume = 64,009 cuft= 3.010 acCurve number = 86.9Drainage area Hydraulic length = 0 ftBasin Slope = 0.0 %Time of conc. (Tc) Tc method $= 10.00 \, \text{min}$ = User = Type II Distribution Total precip. = 7.22 inShape factor = 484 Storm duration = 24 hrs



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

Tuesday, 02 / 11 / 2020

Hyd. No. 9

DEVELOPED AREA C

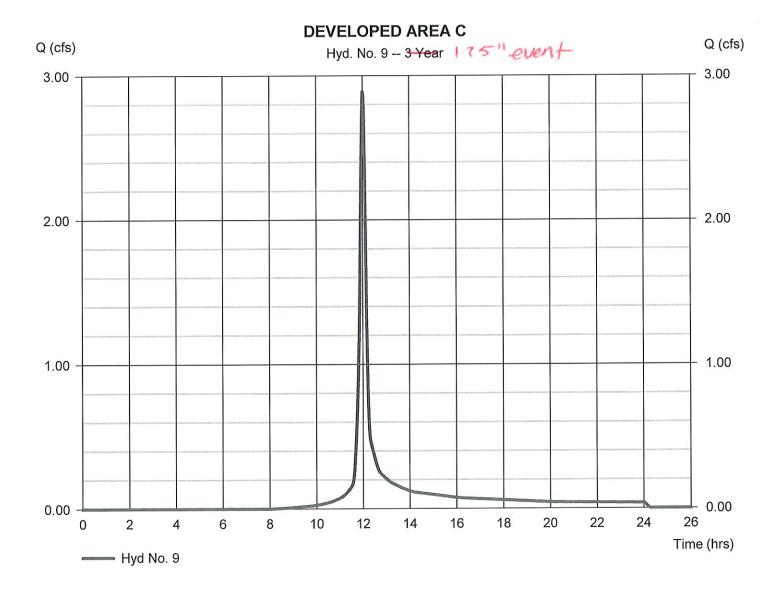
Hydrograph type
Storm frequency
Time interval
Drainage area
Basin Slope
Tc method
Total precip.
Storm duration

= SCS Runoff
= 3 yrs
1.75

= 2 min
= 3.010 ac
= 0.0 %
= User
= 1.25 in
= 24 hrs

Peak discharge = 2.889 cfs
Time to peak = 12.00 hrs
Hyd. volume = 7,490 cuft
Curve number = 93.2
Hydraulic length = 0 ft

Time of conc. (Tc) = 10.00 min
Distribution = Type II
Shape factor = 484



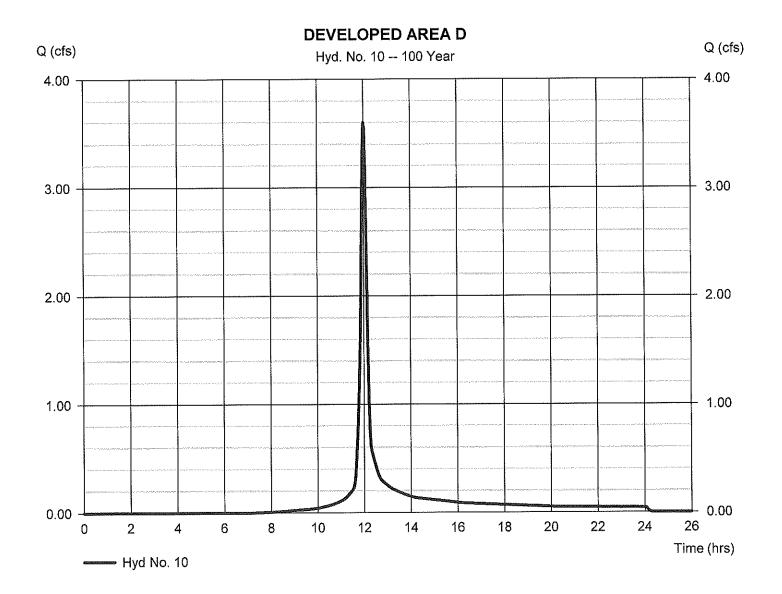
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

Thursday, 02 / 6 / 2020

Hyd. No. 10

DEVELOPED AREA D

= SCS Runoff Peak discharge = 3.600 cfsHydrograph type Time to peak = 12.00 hrsStorm frequency = 100 yrsHyd. volume = 9.352 cuftTime interval = 2 min Curve number = 74 = 0.590 acDrainage area Hydraulic length = 0 ftBasin Slope = 0.0 % Time of conc. (Tc) $= 10.00 \, \text{min}$ = User Tc method Distribution = Type II = 7.22 inTotal precip. Shape factor = 484 Storm duration = 24 hrs



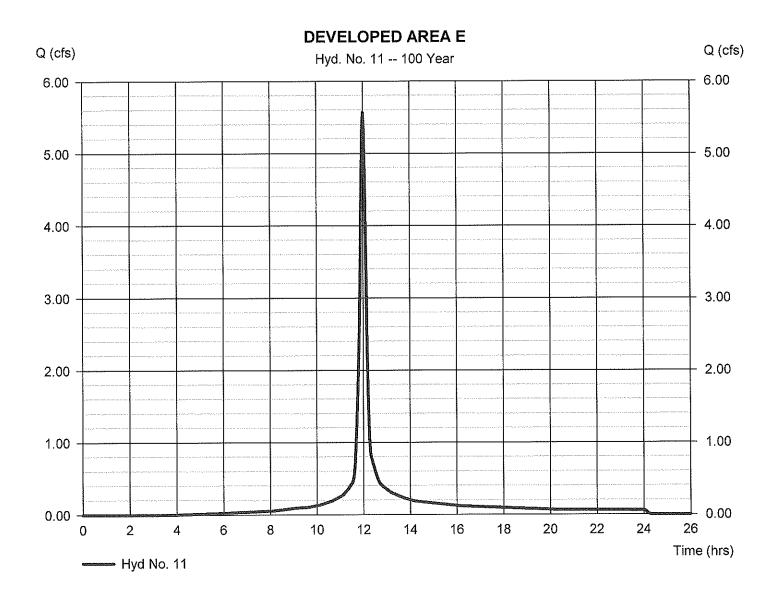
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

Thursday, 02 / 6 / 2020

Hyd. No. 11

DEVELOPED AREA E

= 5.565 cfsHydrograph type = SCS Runoff Peak discharge = 12.00 hrsStorm frequency = 100 yrsTime to peak Hyd. volume = 15,098 cuft= 2 min Time interval Curve number = 86.9= 0.710 acDrainage area Hydraulic length = 0 ftBasin Slope = 0.0 %Tc method Time of conc. (Tc) $= 10.00 \, \text{min}$ = User Total precip. = 7.22 inDistribution = Type II Shape factor = 484 Storm duration = 24 hrs



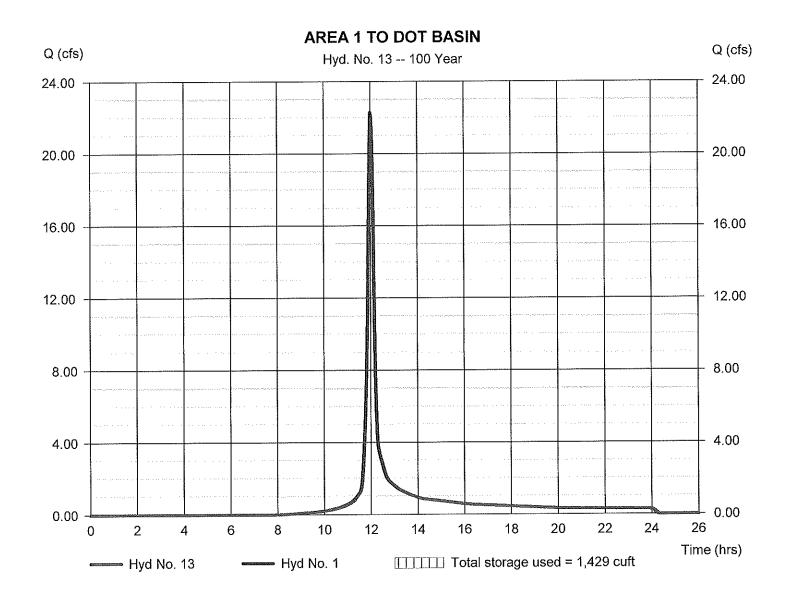
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Wednesday, 02 / 5 / 2020

Hyd. No. 13

AREA 1 TO DOT BASIN

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



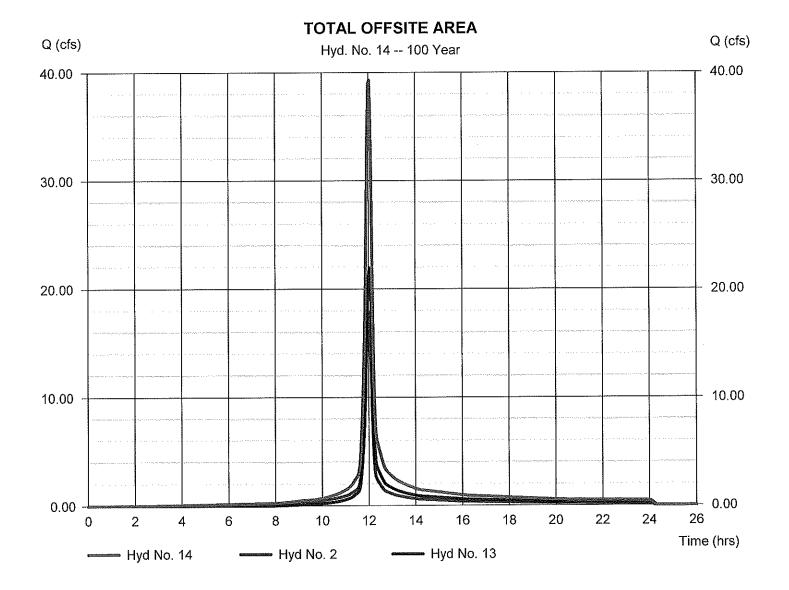
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

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



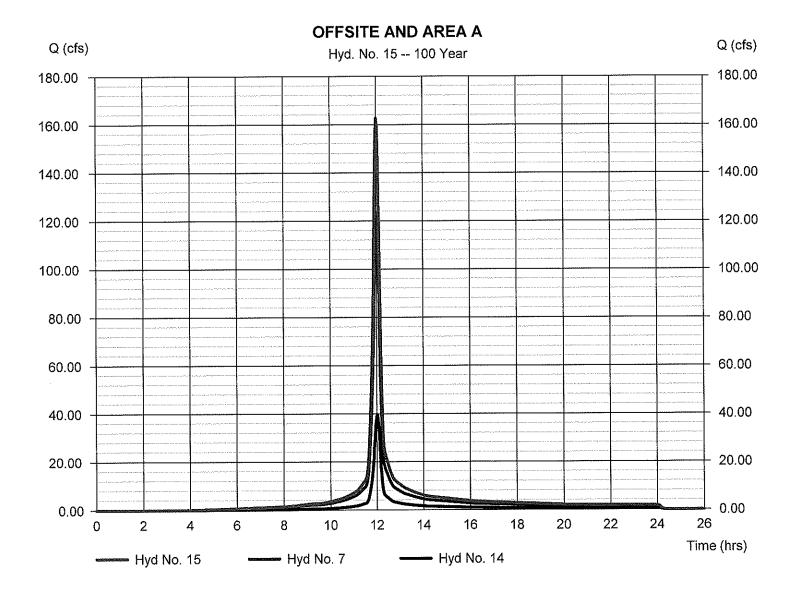
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

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



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

Thursday, 02 / 6 / 2020

Hyd. No. 16

AREA B 5YR

Inflow hydrograph

Hydrograph type = Diversion1 Storm frequency Time interval

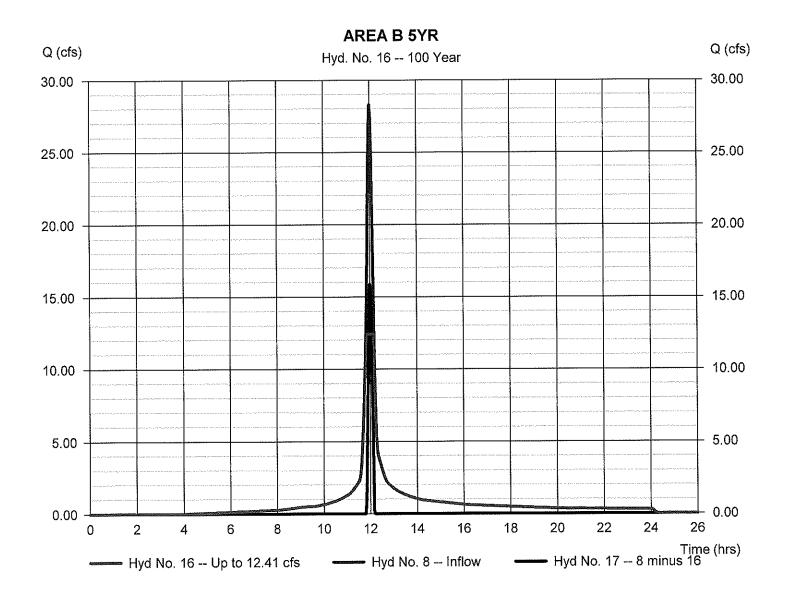
= 100 yrs= 2 min

= 8 - DEVELOPED AREA B

Diversion method = Constant Q Peak discharge = 12.41 cfsTime to peak = 11.83 hrsHyd. volume = 65,561 cuft

2nd diverted hyd. = 17

Constant Q = 12.41 cfs



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 Storm frequency Time interval

Inflow hydrograph

Diversion method

= Diversion2 = 100 yrs

= 2 min

= 8 - DEVELOPED AREA B = Constant Q Peak discharge

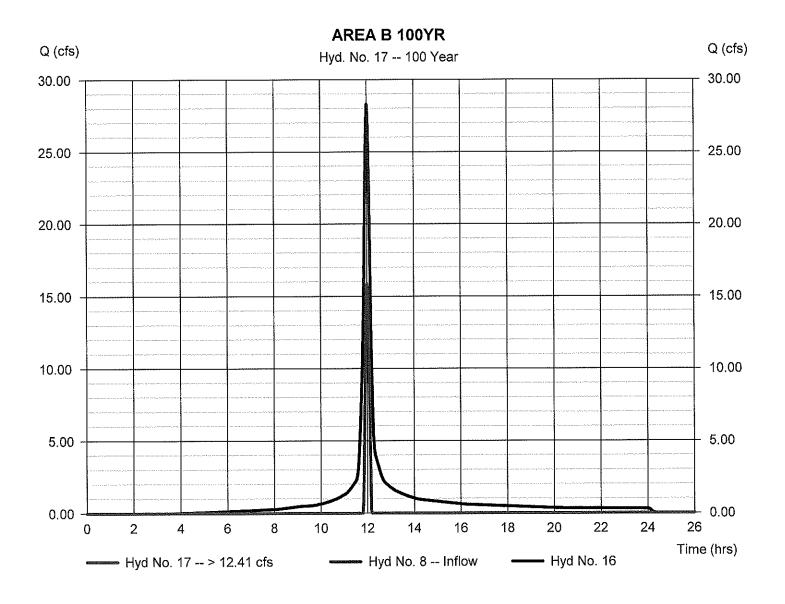
= 15.88 cfs

Time to peak Hyd. volume

= 12.00 hrs = 11,207 cuft

2nd diverted hyd. = 16

Constant Q = 12.41 cfs



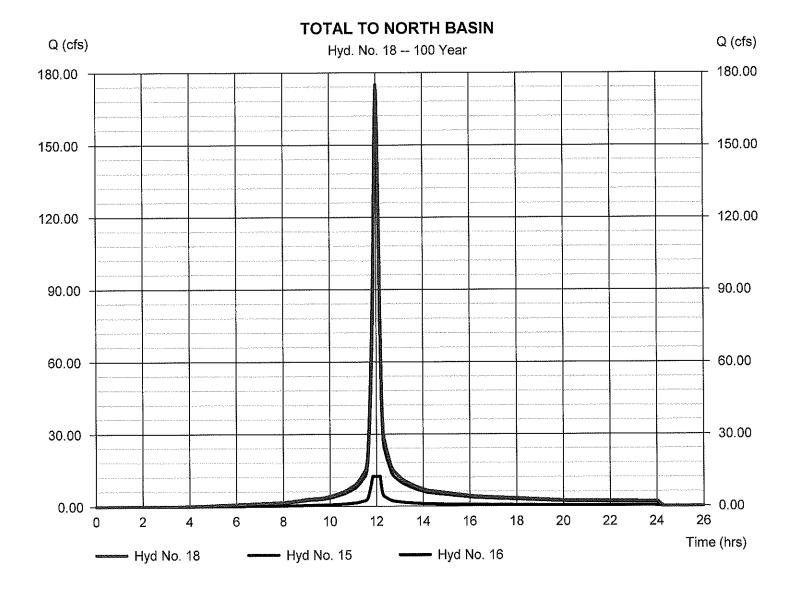
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Thursday, 02 / 6 / 2020

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



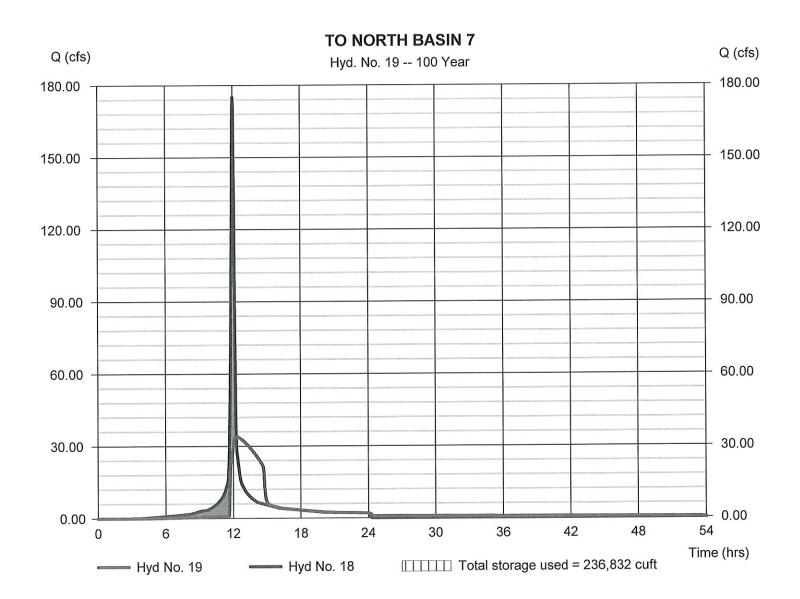
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

Wednesday, 02 / 12 / 2020

Hyd. No. 19 🙏

TO NORTH BASIN 7

Peak discharge = 34.00 cfsHydrograph type = Reservoir = 12.27 hrsTime to peak Storm frequency = 100 yrsHyd. volume = 509,035 cuftTime interval = 2 min = 18 - TOTAL TO NORTH BASMax. Elevation = 718.80 ftInflow hyd. No. Max. Storage = 236,832 cuft = NORTH BASIN 7 Reservoir name



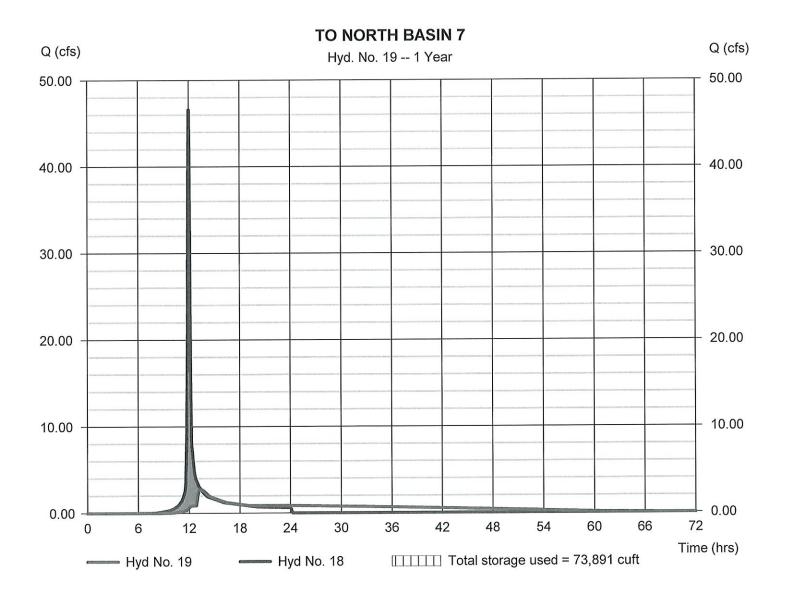
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

Wednesday, 02 / 12 / 2020

Hyd. No. 19 🦰

TO NORTH BASIN 7

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



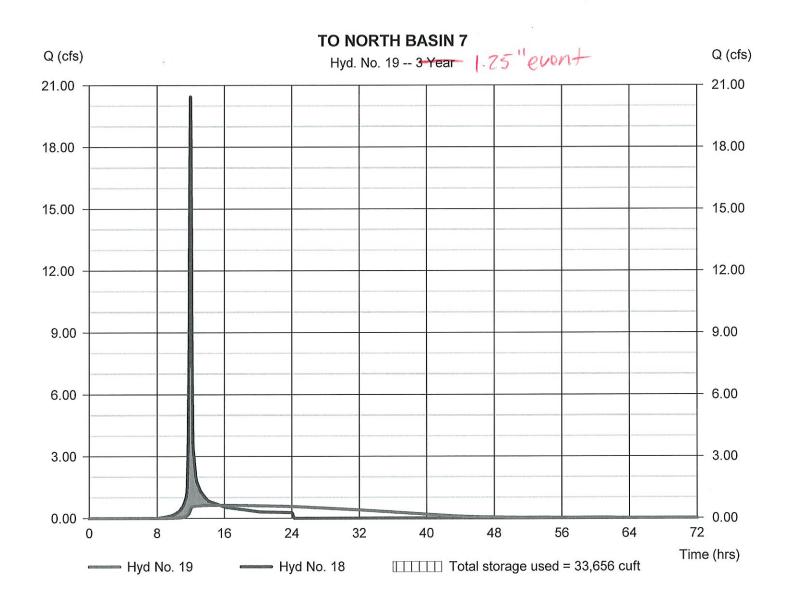
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

Wednesday, 02 / 12 / 2020

Hyd. No. 19 Ć

TO NORTH BASIN 7

= 0.632 cfsHydrograph type = Reservoir Peak discharge = 3 yrs 1.25 "evert Time to peak $= 15.53 \, hrs$ Storm frequency Time interval = 2 min Hyd. volume = 53,581 cuft= 18 - TOTAL TO NORTH BASMax. Elevation = 710.52 ftInflow hyd. No. Reservoir name = NORTH BASIN 7 Max. Storage = 33,656 cuft



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

Thursday, 02 / 13 / 2020

Hyd. No. 19



Over N. BASIN EMR

Hydrograph type

= Reservoir

Peak discharge

= 106.79 cfs

Storm frequency Time interval

= 100 yrs= 2 min

Time to peak Hyd. volume

= 12.13 hrs= 265,507 cuft

Inflow hyd. No.

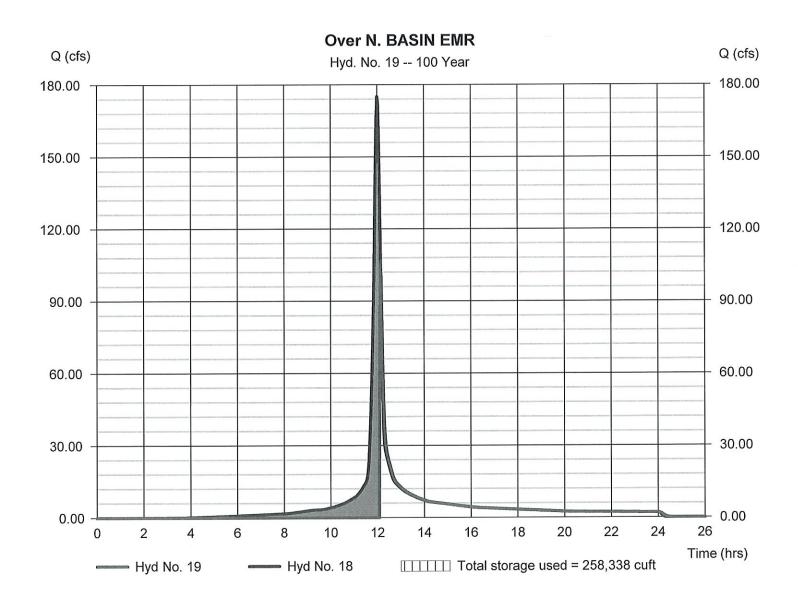
= 18 - TOTAL TO NORTH BASMax. Elevation

 $= 719.41 \, \text{ft}$

Reservoir name

= NORTH BASIN EMR SpillwayMax. Storage

= 258,338 cuft



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. Begining 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

Weir Structures

	[A]	[B]	[C]	[PrfRsr]		[A]	[B]	[C]	[D]
Rise (in)	Inactive	Inactive	Inactive	0.00	Crest Len (ft)	= 160.00	0.00	0.00	0.00
Span (in)	= 21.00	4.00	60.00	0.00	Crest El. (ft)	= 719.00	0.00	0.00	0.00
No. Barrels	= 1	1	4	0	Weir Coeff.	= 2.60	3.33	3.33	3.33
Invert El. (ft)	= 707.80	708.00	712.70	0.00	Weir Type	= Broad			
Length (ft)	= 100.00	0.00	0.00	0.00	Multi-Stage	= No	No	No	No
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	Exfil.(in/hr)	= 0.000 (by	Wet area)	
Multi-Stage	= n/a	Yes	Yes	No	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	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			W.W.			0.000
4.00	58,527	712.00	0.00	0.00	0.00		0.00					mm=	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	m m ==	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

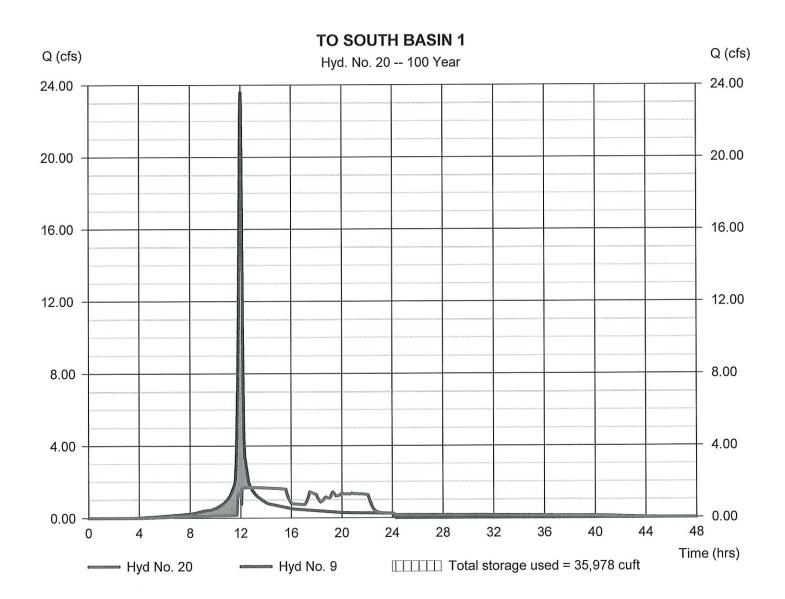
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

Wednesday, 02 / 12 / 2020

Hyd. No. 20 Å

TO SOUTH BASIN 1

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



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 Storm frequency Time interval

Inflow hyd. No.

Reservoir name

= Reservoir

= 1 yrs = 2 min

= 9 - DEVELOPED AREA C

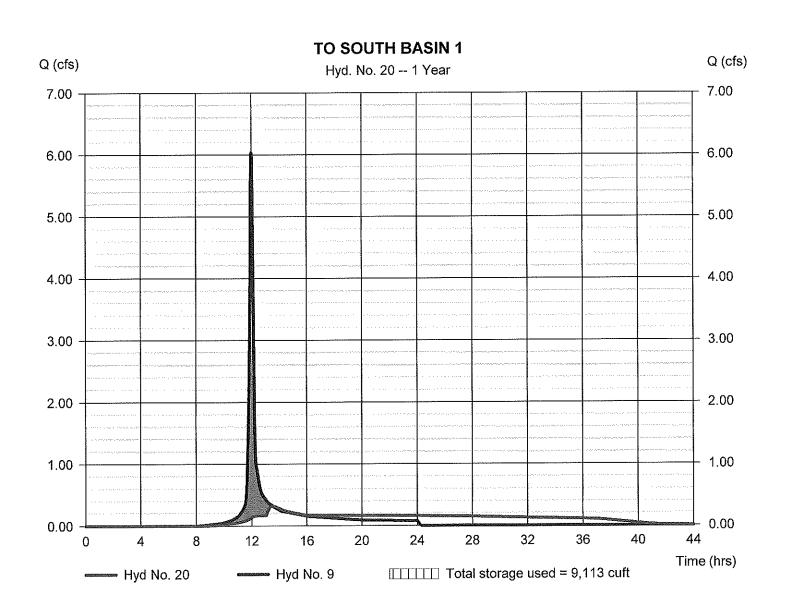
= SOUTH BASIN 1

Peak discharge

= 0.321 cfs

Time to peak = 13.53 hrs Hyd. volume = 15,635 cuft

Max. Elevation = 725.72 ft Max. Storage = 9,113 cuft



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

Wednesday, 02 / 12 / 2020

= 4,092 cuft

Hyd. No. 20

TO SOUTH BASIN 1

Hydrograph type Storm frequency Time interval Inflow hyd. No.

Reservoir name

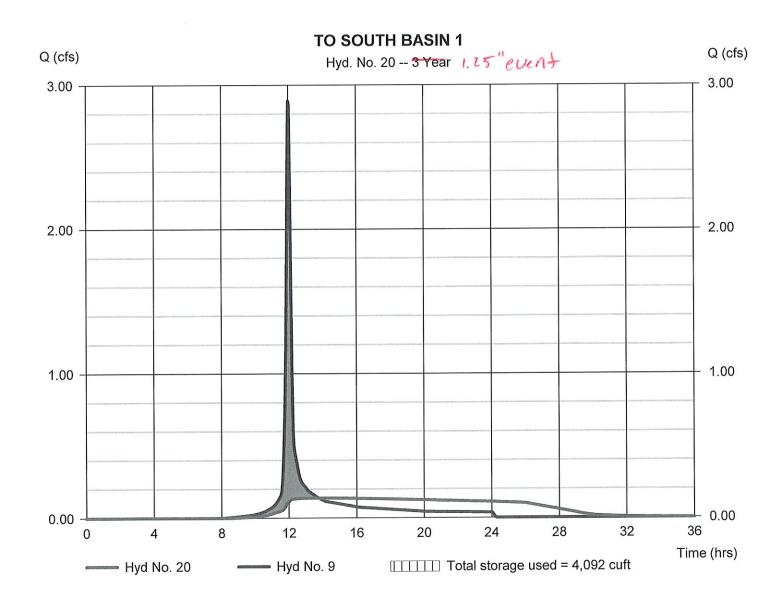
= Reservoir = 3 yrs 1.25" event

= 2 min

= 9 - DEVELOPED AREA C = SOUTH BASIN 1

Peak discharge = 0.138 cfsTime to peak $= 13.77 \, hrs$ Hyd. volume = 7,484 cuft Max. Elevation $= 724.81 \, \text{ft}$

Max. Storage



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

Thursday, 02 / 13 / 2020

Hyd. No. 20



S. BASIN EMR

Hydrograph type Storm frequency Time interval Inflow hyd. No. Reservoir name

= Reservoir = 100 yrs

= 2 min

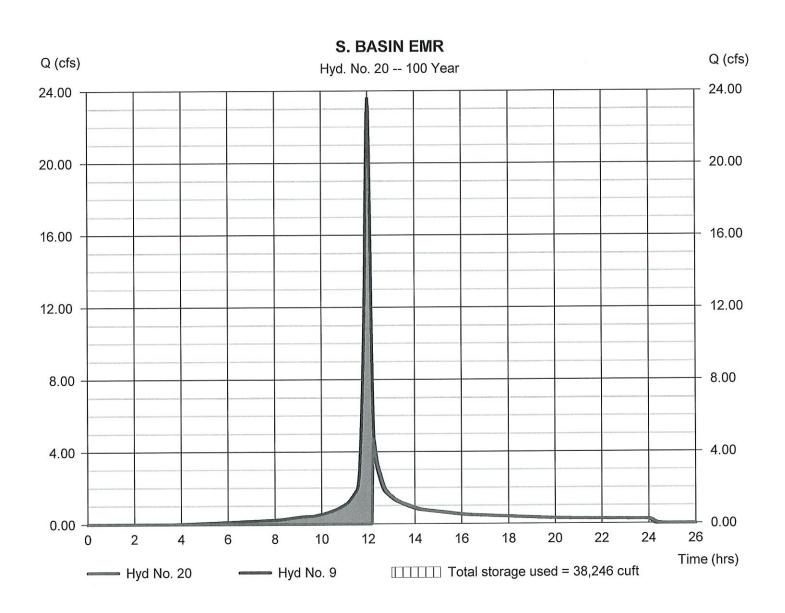
= 9 - DEVELOPED AREA C

Peak discharge Time to peak Hyd. volume

= 4.702 cfs $= 12.27 \, hrs$ = 27,191 cuft

Max. Elevation = SOUTH BASIN EMR SpillwayMax. Storage

= 729.13 ft= 38,246 cuft



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. Begining 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

Weir Structures

	[A]	[B]	[C]	[PrfRsr]		[A]	[B]	[C]	[D]
Rise (in)	Inactive	Inactive	0.00	0.00	Crest Len (ft)	Inactive	40.00	0.00	0.00
Span (in)	= 6.00	2.00	0.00	0.00	Crest El. (ft)	= 725.70	729.00	0.00	0.00
No. Barrels	= 1	1	0	0	Weir Coeff.	= 3.33	2.60	3.33	3.33
Invert El. (ft)	= 721.90	723.00	0.00	0.00	Weir Type	= 1	Broad	***	
Length (ft)	= 60.00	0.00	0.00	0.00	Multi-Stage	= Yes	No	No	No
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	Exfil.(in/hr)	= 0.000 (by	Wet area)		
Multi-Stage	≔ n/a	Yes	No	No	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	CIv 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	L-a				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

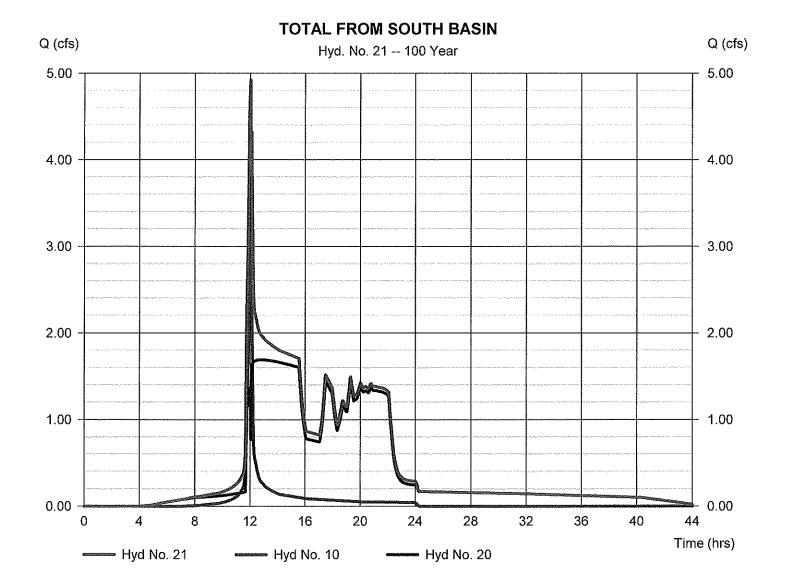
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

Wednesday, 02 / 12 / 2020

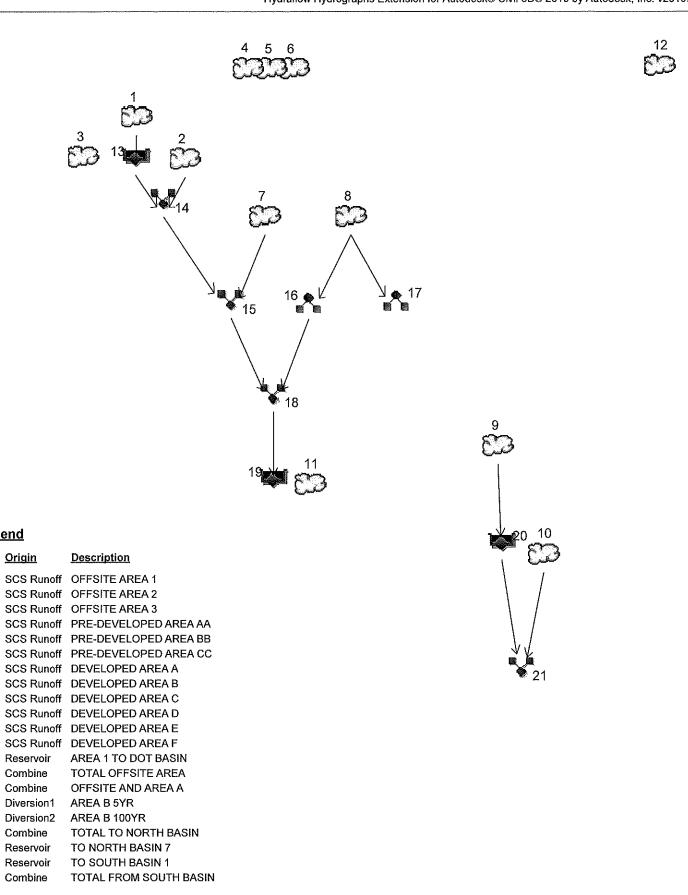
Hyd. No. 21

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

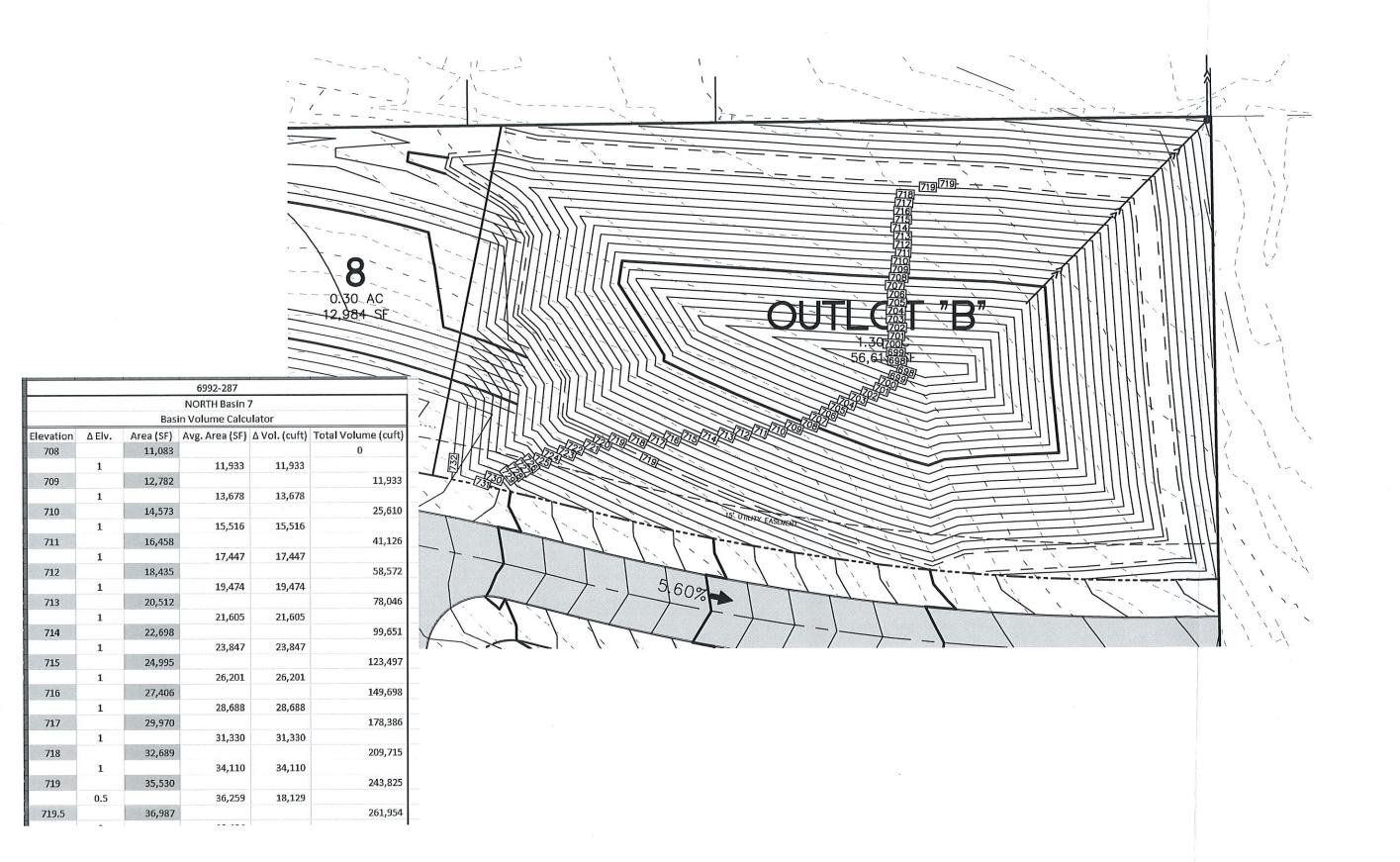


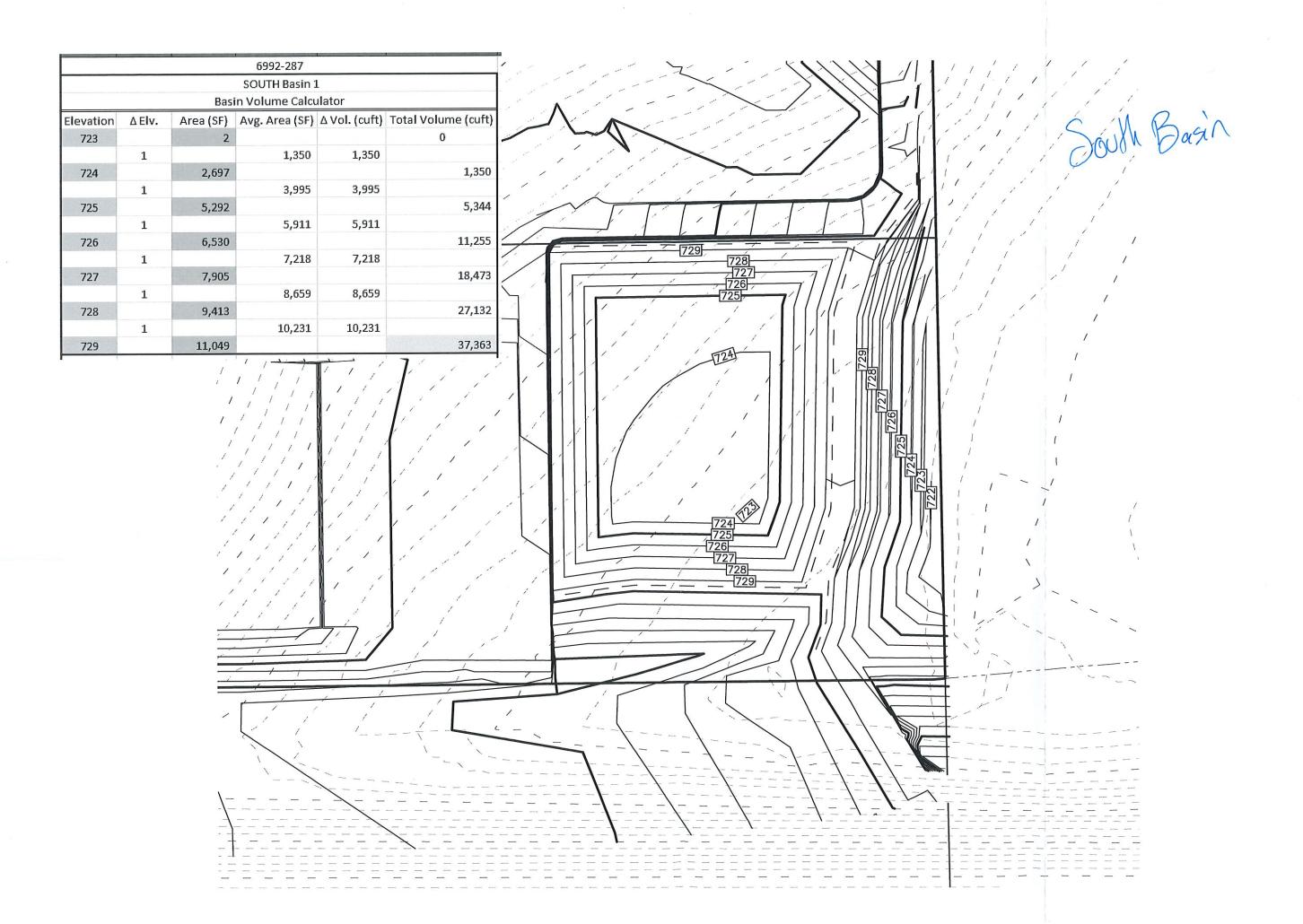
Watershed Model Schematic Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

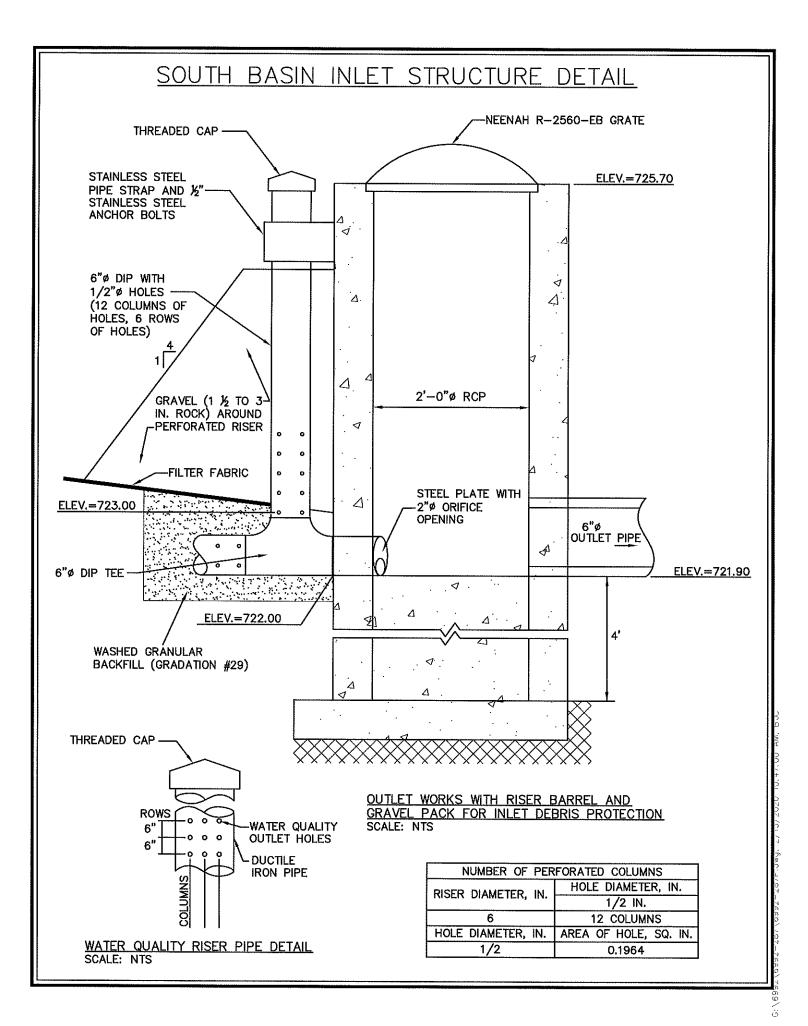


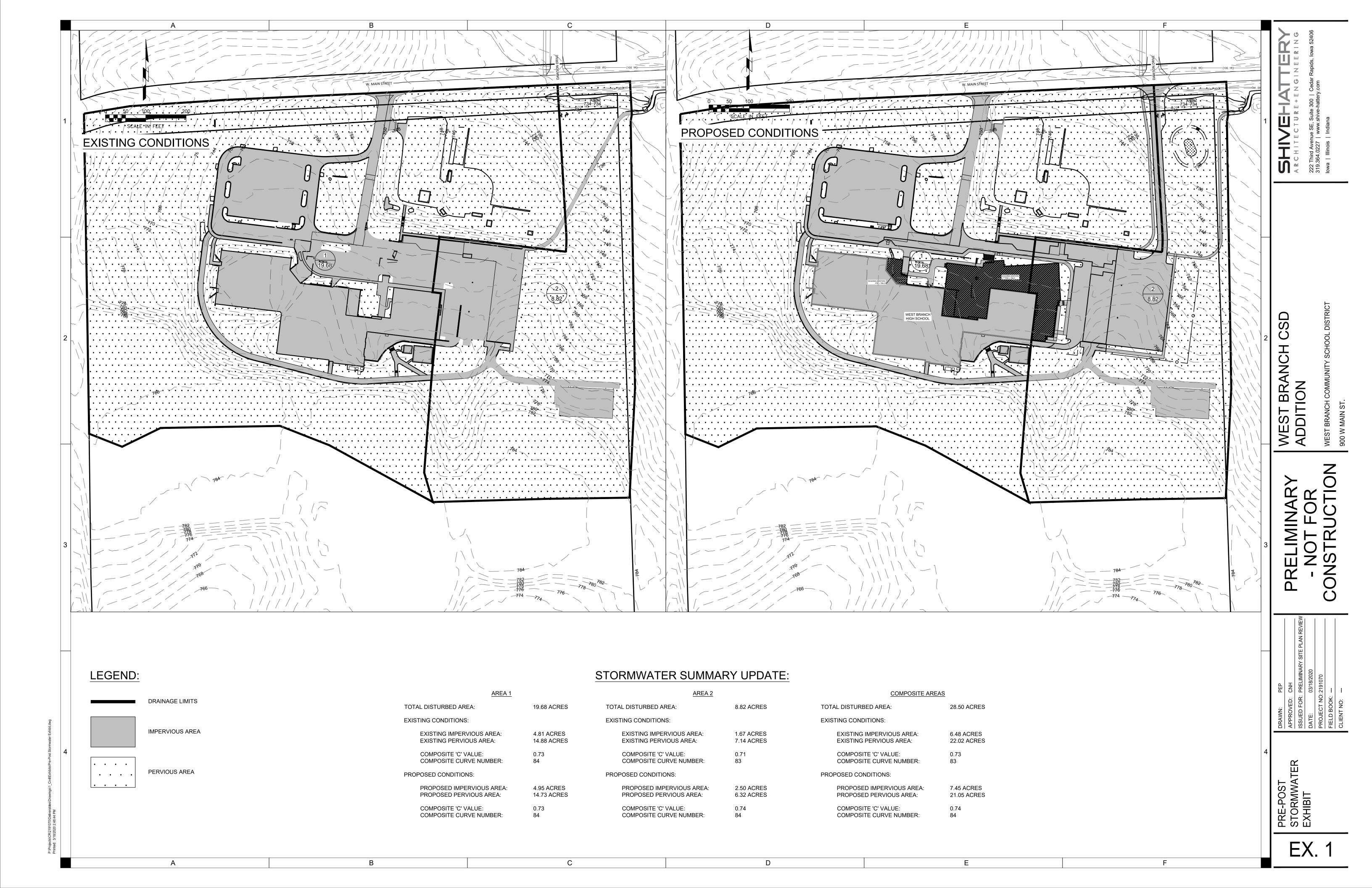
Legend Hyd. Origin

APPENDIX F









GENERAL NOTES

OF THE PROJECT.

ALL CONSTRUCTION PUBLIC OR PRIVATE SHALL BE IN ACCORDANCE WITH IOWA STATEWIDE URBAN DESIGN AND SPECIFICATIONS (SUDAS),

UNLESS OTHERWISE NOTED ON THE DRAWINGS. ALL DIMENSION ARE TO BACK OF CURB UNLESS OTHERWISE NOTED.

THE LOCATIONS OF UTILITY MAINS, STRUCTURES, AND SERVICE CONNECTIONS PLOTTED ON THIS DRAWING ARE APPROXIMATE ONLY AND WERE OBTAINED FROM RECORDS MADE AVAILABLE TO SHIVE-HATTERY, INC. THERE MAY BE OTHER EXISTING UTILITY MAINS, STRUCTURES AND SERVICE CONNECTIONS NOT KNOWN TO SHIVE-HATTERY, INC. AND NOT SHOWN ON THIS DRAWING. THE VERIFICATION OF EXISTENCE OF, AND THE DETERMINATION OF THE EXACT LOCATION OF, UTILITY MAINS, STRUCTURES AND SERVICE CONNECTIONS SHALL BE THE RESPONSIBILITY OF THE CONSTRUCTION CONTRACTOR(S).

NOTIFY UTILITY COMPANIES WHOSE FACILITIES ARE SHOWN ON THE PLANS OR KNOWN TO BE WITHIN CONSTRUCTION LIMITS OF THE

SCHEDULE PRIOR TO EACH STAGE OF CONSTRUCTION. NOTIFY THE APPROPRIATE PRIVATE UTILITY A MINIMUM OF 48 HOURS PRIOR TO BEGINNING CONSTRUCTION ON ANY FACILITIES OWNED OR OPERATED BY THAT UTILITY. PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS. COORDINATES. ELEVATIONS, AND UTILITIES AT CRITICAL

LOCATIONS TO VERIFY EXACT HORIZONTAL AND VERTICAL LOCATIONS. IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES SO THE 13. CONFLICT MAY BE RESOLVED. ALL UTILITY CONNECTIONS TO EXISTING LINES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE RULES AND REGULATIONS AND TO THE

SATISFACTION OF THE APPLICABLE UTILITY OWNER(S). IOWA CODE 480, UNDERGROUND FACILITIES INFORMATION, REQUIRES VERBAL NOTICE TO IOWA ONE-CALL 1-800-292-8989, NOT LESS THAN 48

HOURS BEFORE EXCAVATING, EXCLUDING WEEKENDS AND HOLIDAYS. NOTIFY THE APPROPRIATE GOVERNING AUTHORITY 48-72 HOURS PRIOR TO BEGINNING CONSTRUCTION WITHIN PUBLIC RIGHT-OF-WAY. THE CITY OF WEST BRANCH SHALL BE THE PUBLIC AGENCY RESPONSIBLE FOR INSPECTION DURING CONSTRUCTION OF THE PUBLIC PORTIONS

CONTRACTOR SHALL COORDINATE WITH PRIVATE UTILITIES REGARDING RELOCATION, ADJUSTMENT, OR TEMPORARY SUPPORT OF THEIR FACILITIES.

THE MEANS OF THE WORK AND THE SAFETY OF THE CONTRACTOR'S EMPLOYEES ARE SOLELY THE RESPONSIBILITY OF THE CONTRACTOR. NO WORK SHALL BE PERFORMED BEYOND THE PROJECT LIMITS WITHOUT PRIOR AUTHORIZATION FROM THE OWNER'S REPRESENTATIVE. A PRE-CONSTRUCTION MEETING SHALL BE HELD FOLLOWING ISSUANCE OF THE NOTICE TO PROCEED BUT PRIOR TO COMMENCING WORK THE SAFE AND ORDERLY PASSAGE OF TRAFFIC AND PEDESTRIANS SHALL BE PROVIDED WHERE CONSTRUCTION OPERATIONS ABUT PUBLIC 18.

THROUGH-FARES AND ADJACENT PROPERTY. ALL AREAS DISTURBED BY THE GENERAL CONTRACTOR OR SUB-CONTRACTORS SHALL BE RETURNED TO THE ORIGINAL CONDITION OR BETTER. EXCEPT WHERE PROPOSED CONSTRUCTION IS INDICATED ON THE PLANS.

CONTRACTOR SHALL PROVIDE TRAFFIC AND PEDESTRIAN CONTROL MEASURES (SIGNS, BARRICADES, FLAGGERS, ETC.) IN COMPLIANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) LATEST EDITION. ALL CONSTRUCTION STAKING, SCHEDULING, AND PAYMENT IS THE RESPONSIBILITY OF THE CONTRACTOR.

PROTECT ALL EXISTING FEATURES (INCLUDING BUT NOT LIMITED TO WALLS, TREES, LANDSCAPING, DRIVEWAYS, SIDEWALKS, CURBS, PAVEMENT, UTILITIES, ETC.) NOT SPECIFICALLY NOTED FOR REMOVAL. FEATURES NOT DESIGNATED FOR REMOVAL THAT ARE DAMAGED OR REMOVED BY THE CONTRACTOR SHALL BE REPLACED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE ON THE SITE THROUGHOUT CONSTRUCTION. ANY DAMAGE CAUSED BY A FAILURE TO

MAINTAIN POSITIVE DRAINAGE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE CONTRACTOR SHALL ADJUST ALL VALVES, MANHOLES, CASTINGS, GAS VENTS, ETC., TO MATCH THE NEW SURFACE. ADJUSTMENT SHALL BE COORDINATED WITH THE UTILITY COMPANIES AND THE COST FOR ALL ADJUSTMENTS SHALL BE INCIDENTAL TO THE CONSTRUCTION. AT NO ADDITIONAL COST TO THE OWNER, REPAIR ANY DAMAGE TO SAID STRUCTURES AND APPURTENANCES THAT OCCUR DURING CONSTRUCTION. CONTRACTOR SHALL REFER TO BUILDING PLANS FOR BUILDING DIMENSIONS, STOOP SIZES AND LOCATIONS, AND BUILDING UTILITY ENTRANCE LOCATIONS AND ELEVATIONS.

SITE CLEAN-UP SHALL BE PERFORMED ON A DAILY BASIS. SIDEWALKS, PARKING LOTS, ROADWAYS, ETC. SHALL BE KEPT CLEAN AT ALL

KEEP ADJACENT PUBLIC STREETS AND IMPROVED LAND FREE FROM SOIL AND DEBRIS GENERATED BY THE PROJECT

CONTROL DUST FROM ALL WORK AND STAGING AREAS. ALL OPEN EXCAVATIONS SHALL BE PROTECTED IN ACCORDANCE WITH REGULATORY REQUIREMENTS.

REPLACE ANY PROPERTY MONUMENTS REMOVED OR DESTROYED BY CONSTRUCTION. MONUMENTS SHALL BE SET BY A LAND SURVEYOR REGISTERED TO PRACTICE IN THE STATE OF IOWA

CONSTRUCTION ACTIVITIES ARE TO BE LIMITED TO THE EXISTING RIGHT-OF-WAY, TEMPORARY CONSTRUCTION EASEMENTS, OR LIMITS OF THE PROJECT AS INDICATED ON THE PLANS. IF ADDITIONAL AREAS ARE NEEDED FOR STAGING, STORAGE, ETC., IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN WRITTEN PERMISSION FROM THE PROPERTY OWNER(S). COPIES OF THE AGREEMENTS SHALL BE SUBMITTED TO 3. 「HE OWNER'S REPRESENTATIVE PRIOR TO THE USE OF PROPERT` ALL INSPECTIONS REQUIRED FOR PUBLIC OR PRIVATE IMPROVEMENTS SHALL BE FACILITATED BY THE OWNER

REPAIR OR REPLACE EXISTING FACILITIES (CURBS, PAVEMENT, UTILITIES, ETC.) TO REMAIN, AT NO ADDITIONAL EXPENSE TO THE OWNER. IT IS INTENDED THAT ALL COSTS OF MATERIALS, EQUIPMENT, TOOLS, LABOR, AND INCIDENTALS BE PAID FOR UNDER THE ITEMS LISTED ON THE BIDDER'S PROPOSAL. BEFORE SUBMITTING A BID ON THIS PROJECT, THE CONTRACTOR SHALL EXAMINE ALL DRAWINGS, SPECIFICATIONS, SPECIAL PROVISIONS, AND THE JOB SITE. IF ANY DISCREPANCIES OR DELETIONS OCCUR IN THE CONTRACT DOCUMENTS,

THE CONTRACTOR SHALL REPORT SAME TO THE GENERAL CONTRACTOR AND SHIVE-HATTERY, INC. IN WRITING AND OBTAIN WRITTEN CLARIFICATION AND/OR INSTRUCTIONS ON HOW TO PROCEED. WORK WHICH DOES NOT CONFORM TO THE REQUIREMENTS OF THE CONTRACT WILL BE CONSIDERED UNACCEPTABLE. UNACCEPTABLE WORK, WHETHER THE RESULT OF POOR WORKMANSHIP, USE OF DEFECTIVE MATERIALS, DAMAGE THROUGH CARELESSNESS OR ANY OTHER CAUSE, FOUND TO EXIST PRIOR TO THE FINAL ACCEPTANCE OF THE WORK, SHALL BE REMOVED AND REPLACED IN AN ACCEPTABLE MANNER, AS REQUIRED BY SHIVE-HATTERY, INC. AT THE CONTRACTOR'S EXPENSE. WORK DONE CONTRARY TO THE INSTRUCTIONS OF SHIVE-HATTERY, INC., WORK DONE BEYOND THE LINES SHOWN ON THE PLANS, OR ANY EXTRA WORK DONE WITHOUT AUTHORITY WILL NOT

BE PAID FOR. A LIMITED NUMBER OF SUBSURFACE INVESTIGATIONS HAVE BEEN CONDUCTED ON THE SITE AND CAN BE FOUND IN THE GEOTECHNICAL ENGINEERING REPORT PREPARED BY TERRACON PROJECT NUMBER 06205005. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ASCERTAIN SUBSURFACE INFORMATION THAT MAY AFFECT COSTS. IF ADVERSE SUBSURFACE CONDITIONS ARE ENCOUNTERED, THE CONTRACTOR SHALL NOTIFY THE OWNER REPRESENTATIVE IMMEDIATELY. THE CONTRACTOR SHALL VISIT THE SITE AND ACQUAINT HIM/HERSELF WITH ALL EXISTING CONDITIONS PRIOR TO BIDDING/CONSTRUCTION. POTENTIAL CONTRACTORS MAY MAKE A SUBSURFACE INVESTIGATION TO SATISFY THEMSELVES AS TO SITE AND SUBSURFACE CONDITIONS. ANY INVESTIGATION SHALL BE CLEARED THROUGH THE OWNER PRIOR TO TRENCH, EXCAVATION AND BACKFILL NOTES COMMENCEMENT. A JOINT UTILITY MEETING AND LOCATE WILL BE REQUIRED PRIOR TO ANY EXCAVATION OPERATIONS.

SITE PREPARATION NOTES

DESIRABLE TO BE INCORPORATED INTO THE WORK INVOLVED ON THIS PROJECT. NO PAYMENT FOR OVERHAUL WILL BE ALLOWED FOR MATERIAL HAULED TO THESE SITES. NO MATERIAL SHALL BE PLACED WITHIN THE EASEMENTS, UNLESS SPECIFICALLY STATED IN THE PLANS 5. OR APPROVED BY THE ENGINEER. DISPOSAL SITES MUST BE APPROVED BY THE ENGINEER. CONTRACTOR SHALL APPLY NECESSARY MOISTURE TO THE CONSTRUCTION AREA AND TEMPORARY HAUL ROADS TO PREVENT THE SPREAD OF DUST. OFF-SITE DISPOSAL SHALL BE IN ACCORDANCE WITH THE APPLICABLE GOVERNMENTAL REGULATIONS. WHERE A SECTION OF PAVEMENT, CURB AND GUTTER, OR SIDEWALK IS CUT OR OTHERWISE DAMAGED BY THE CONTRACTOR, THE ENTIRE

SECTION SHALL BE REMOVED AND REPLACED. PAVEMENT, CURBS, GUTTERS, AND SIDEWALKS SHALL BE REMOVED A MINIMUM OF TWO FEET BEYOND THE EDGE OF THE TRENCH CUT AND TO THE NEAREST JOINT. DOUBLE SAWCUT EDGES OF PAVEMENT FULL DEPTH PRIOR TO REMOVAL TO PREVENT DAMAGE TO ADJACENT SLABS AND FIXTURES.

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROTECT ALL TREES AND SHRUBS IN PROJECT AREA FROM DAMAGE DUE TO CONSTRUCTION ACTIVITY UNLESS SHOWN ON THE PLANS OR DIRECTED BY THE OWNER'S REPRESENTATIVE. REMOVAL AND DISPOSAL OF EXISTING TREES AND SHRUBS WITHIN CONSTRUCTION LIMITS SHALL BE INCIDENTAL TO THE GRADING PORTION OF THE PROJECT. STUMPS ARE TO BE GROUND TO TWO FEET BELOW FINISHED GRADE. TREES THAT QUALIFY FOR ENDANGERED BAT

HABITAT ARE TO BE FELLED BETWEEN OCTOBER 1ST AND MARCH 31ST ALL FENCES WHICH ARE IMPACTED BY THIS PROJECT ARE TO BE REMOVED AND REPLACED TO AN EQUAL OR BETTER CONDITION. SALVAGED 5 MATERIALS MAY BE USED UPON APPROVAL OF THE OWNER'S REPRESENTATIVE. FENCES SHALL NOT BE REMOVED UNTIL PROPERTY OWNER HAS BEEN NOTIFIED. TEMPORARY FENCING MAY BE REQUIRED OVERNIGHT DURING CONSTRUCTION AND SHOULD BE INCIDENTAL TO THE PROJECT.

CONTRACTOR SHALL OBTAIN ALL NECESSARY DEMOLITION PERMITS AND COORDINATE ALL DEMOLITION WORK WITH THE MUNICIPALITY AND OWNERS REPRESENTATIVE TO ENSURE PROTECTION AND MAINTENANCE OF EXISTING SITE FEATURES NOT NOTED FOR REMOVAL. ALL EROSION AND SEDIMENTATION CONTROL MEASURES AND DEVICES SHALL BE INSTALLED AND FUNCTIONAL BEFORE THE SITE IS OTHERWISE DISTURBED. THEY SHALL BE KEPT OPERATIONAL AND MAINTAINED CONTINUOUSLY THROUGHOUT THE PERIOD OF LAND DISTURBANCE UNTIL PERMANENT SITE STABILIZATION HAS BEEN ACHIEVED (SEE STORMWATER POLLUTION PREVENTION PLAN FOR ADDITIONAL INFORMATION AND DETAILS).

THE PURPOSE OF THIS DRAWING IS TO CONVEY THE OVERALL SCOPE OF DEMOLITION WORK AND IT IS NOT INTENDED TO COVER ALL DETAILS OR SPECIFICATIONS REQUIRED TO COMPLY WITH GENERALLY ACCEPTED DEMOLITION PRACTICES. CONTRACTOR SHALL THOROUGHLY FAMILIARIZE THEMSELVES WITH THE SITE, SCOPE OF WORK, AND ALL EXISTING CONDITIONS AT THE JOB SITE PRIOR TO BIDDING AND COMMENCING THE WORK. THE DEMOLITION CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR MEANS, METHODS, TECHNIQUES, OR PROCEDURES USED TO COMPLETE THE WORK IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS AND IS LIABLE FOR THE SAFETY OF

THE PUBLIC AND CONTRACTOR'S EMPLOYEES DURING THE COURSE OF THE PROJECT. THE DEMOLITION PLAN IS INTENDED TO SHOW REMOVAL OF KNOWN SITE FEATURES AND UTILITIES AS SHOWN ON THE SURVEY PROVIDED TO THE ENGINEER FOR DESIGN. THERE MAY BE OTHER SITE FEATURES, UTILITIES, STRUCTURES, AND MISCELLANEOUS ITEMS BOTH BURIED AND 12. ABOVE GROUND THAT ARE WITHIN THE LIMITS OF WORK THAT MAY REQUIRE REMOVAL FOR THE PROPOSED SITE IMPROVEMENTS BUT THAT ARE NOT SHOWN HEREIN. THE CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL OF SUCH ITEMS AT NO ADDITIONAL COST TO THE OWNER. CONTRACTOR SHALL CONTACT THE RESPECTIVE UTILITY COMPANIES PRIOR TO COMMENCING ANY SITE DEMOLITION OPERATIONS TO

COORDINATE DISCONNECTION AND REMOVAL OF EXISTING UTILITIES WITHIN THE PROPOSED AREA OF WORK. CONTRACTOR SHALL COORDINATE ANY SHUT DOWNS OF EXISTING ROADWAYS AND UTILITIES WITH THE NECESSARY GOVERNING **AUTHORITIES**

ALL EXISTING BUILDINGS, FOUNDATIONS, CONCRETE OR ASPHALT PAVEMENT OR WALKS, CURB AND GUTTER, AND MISCELLANEOUS STRUCTURES (INCLUDING, BUT NOT LIMITED TO FENCES, POLES, YARD LIGHTS, ELECTRICAL PANELS, WHEEL STOPS, AND MISCELLANEOUS DEBRIS) NOTED TO BE REMOVED SHALL BE DEMOLISHED, REMOVED FROM THE SITE, AND LEGALLY DISPOSED OF BY THE CONTRACTOR. — 14. VOIDS LEFT BY ANY ITEM REMOVED UNDER ANY PROPOSED BUILDINGS, PAVEMENTS, OR WALKS OR WITHIN 24 INCHES THEREOF SHALL BE BACKFILLED IN ACCORDANCE WITH SUDAS SPECIFICATION AND THE PROJECT SPECIFICATIONS AND GEOTECHNICAL ENGINEERING REPORT AS SOON AS DEMOLITION WORK HAS BEEN COMPLETED, FINAL GRADE OF BACKFILL IN DEMOLITION AREAS SHALL BE COMPACTED PER SUDAS SPECIFICATIONS AND THE GEOTECHNICAL ENGINEERING REPORT TO PRESENT A NEAT, WELL DRAINED APPEARANCE, AND TO

CONTRACTOR SHALL UTILIZE CARE WHEN WORKING NEAR EXISTING UTILITIES TO REMAIN. ANY DAMAGE TO EXISTING UTILITIES NOT NOTED TO BE REMOVED SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE AND TO THE SATISFACTION OF THE OWNER AND/OR ENGINEER. 17. ALL FIRE ACCESS LANES WITHIN THE PROJECT AREA SHALL REMAIN IN SERVICE, CLEAN OF DEBRIS, AND ACCESSIBLE FOR USE BY EMERGENCY VEHICLES.

THE AREA OF THE PROPOSED CONSTRUCTION SHALL BE REMOVED FROM THE SITE AND DISPOSED OF BY THE CONTRACTOR. ALL

PREVENT WATER FROM DRAINING UNNECESSARILY ONTO ADJACENT PROPERTIES. CONTRACTOR SHALL PROVIDE TEMPORARY DIVERSION

ABANDONED SEWER LINES SHALL BE PLUGGED AT BOTH ENDS WITH A MINIMUM OF TWO (2) FEET LONG NON-SHRINK CONCRETE MORTAR PLUGS UNLESS OTHERWISE NOTED. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IF A FIELD OR DRAIN TILE IS ENCOUNTERED AND SHALL INDICATE THE METHOD OF RESOLVING THE CONFLICT. THE ENGINEER SHALL APPROVE THE PROPOSED METHOD. A RECORD OF THE LOCATION OF ALL FIELD TILE OR DRAIN PIPE ENCOUNTERED SHALL BE KEPT BY THE CONTRACTOR AND TURNED OVER TO THE OWNER AND/OR ENGINEER UPON COMPLETION

ALL EXISTING SANITARY SEWERS, STORM SEWERS, WATER MAINS OR IRRIGATION LINES AND APPURTENANCES NOTED FOR REMOVAL WITHIN 7.

OF THE PROJECT AND ACCURATELY SHOWN ON THE RECORD DRAWINGS. EXISTING FIELD TILE LINES ENCOUNTERED IN THIS PROJECT SHALL BE REPAIRED BY THE CONTRACTOR IN ONE OF THE FOLLOWING WAYS: CONNECT TILE TO THE NEAREST STORM SEWER.

SWALES OR OTHER MEANS OF MAINTAINING ADEQUATE SITE DRAINAGE.

DAYLIGHT TO FINISHED GROUND. REPAIR TILE AND MAINTAIN SERVICE. 19.3.

GRADING NOTES

REPRESENTATIVE. STRIP EXISTING VEGETATION WITHIN THE PROJECT LIMITS AND AREAS TO RECEIVE FILL. HAUL OFF SITE BY CONTRACTOR.

STRIP EXISTING TOPSOIL WITHIN THE PROJECT LIMITS AND AREAS TO RECEIVE FILL. STOCKPILE TOPSOIL FOR REUSE. EXCESS TOPSOIL MAY 7. BE STOCKPILED ON SITE AT A LOCATION APPROVED BY THE OWNER'S REPRESENTATIVE.

NO ROCK EXCAVATION IS ANTICIPATED ON THIS PROJECT, SHOULD ROCK BE ENCOUNTERED DURING CONSTRUCTION, NOTIFY THE OWNER'S

PROOFROLL ALL FILL AREAS TO IDENTIFY SOFT OR DISTURBED AREAS IN THE SUBGRADE. ALL UNSUITABLE MATERIAL IDENTIFIED SHALL BE

REMOVED AND REPLACED WITH STRUCTURAL FILL AND RECOMPACTED TO 95% STANDARD PROCTOR DENSITY. PROOFROLL WITH 25 TON MINIMUM GROSS VEHICLE WEIGHT. REMOVE AND RECOMPACT AREAS OF SUBGRADE WHICH ARE SOFT OR UNSTABLE TO MEET SPECIFIED LIMITS FOR DENSITY AND MOISTURE

CONTENT. PAVED AREAS TO BE COMPACTED TO 95%. SCARIFY AND RECOMPACT THE TOP 12 INCHES OF SUBGRADE IN ALL CUT AREAS AFTER ROUGH GRADING IS COMPLETED. COMPACT THE ENTIRE PAVING SUBGRADE TO 95% STANDARD PROCTOR DRY DENSITY TO WITHIN 12 INCHES OF FINAL SUBGRADE. THE FINAL 12 INCHES OF FILL TO BE COMPACTED TO 95% STANDARD PROCTOR DRY DENSITY (ASTM D698).

DO NOT PLACE, SPREAD, OR COMPACT ANY FILL MATERIAL DURING UNFAVORABLE WEATHER CONDITIONS AND DO NOT RESUME COMPACTION OPERATIONS UNTIL MOISTURE CONTENT AND DENSITY OF IN-PLACE FILL MATERIAL ARE WITHIN SPECIFIED LIMITS. PLACE FILL MATERIAL IN 8 INCH MAXIMUM LIFTS AND COMPACTED TO 95% STANDARD PROCTOR DENSITY IN PAVED AREAS AND 98% STANDARD PROCTOR DENSITY FOR BUILDING PAD. FILL MATERIAL SHALL BE FREE FROM ORGANIC MATTER, DEBRIS, AND OTHER

PROVIDE WASTE AREAS OR DISPOSAL SITES FOR EXCESS MATERIAL (EXCAVATED MATERIAL OR BROKEN CONCRETE) WHICH IS NOT

ALL WATER MAIN CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE NOTES IN THE PLANS AND THE STANDARDS, SPECIFICATIONS, CODES AND ORDINANCES OF THE LOCAL GOVERNING AUTHORITIES. IN CASE OF CONFLICT, THE MORE STRINGENT CODE SHALL TAKE PRECEDENCE. WATER PIPE AND STRUCTURES SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH SUDAS DIVISION 5.

WATER PIPE BEDDING SHALL BE PER SW-104 CLASS P-1, UNLESS NOTED OTHERWISE ON THE PLANS OR DIRECTED BY THE LOCAL

DELETERIOUS SUBSTANCES. IT SHALL CONTAIN NO ROCKS OR LUMPS OF 6 INCHES IN GREATEST DIMENSION AND NOT MORE THAN 15% OF

FILL PLACED WITHIN THE BUILDING AREA AND IN AREAS TO BE PAVED SHOULD CONSIST OF APPROVED MATERIALS WHICH ARE FREE OF

ORGANIC MATTER AND DEBRIS. THE FILL SHOULD BE PLACED AND COMPACTED IN LIFTS OF 8 INCHES OR LESS IN LOOSE THICKNESS. THE

HIGHER DEGREE OF FILL COMPACTION BELOW FLOORINGS IN THE BUILDING AREAS SHOULD EXTEND LATERALLY BEYOND THE EXTERIOR

MAINTAIN OPTIMUM MOISTURE CONTENT OF FILL MATERIALS TO ATTAIN REQUIRED COMPACTION DENSITY. REFER TO THE GEOTECHNICAL

ALL DISTURBED AREAS NOT PAVED OR HARD SURFACE ON THE SITE SHALL RECEIVE MINIMUM 6 INCHES OF TOPSOIL. SCARIFY AREAS TO

GRADING TOLERANCES: GRADE AREAS ADJACENT TO BUILDING LINES AND DRAIN AWAY FROM STRUCTURES TO PREVENT PONDING. FINISH

RECEIVE TOPSOIL TO A DEPTH OF 3 INCHES. REMOVE ALL STONES, WOOD AND OTHER DEBRIS LARGER THAN 2 INCHES FROM AREAS TO

CONTRACTOR SHALL CAREFULLY PRESERVE ALL SITE BENCHMARKS AND REFERENCE POINTS DURING CONSTRUCTION OPERATIONS.

MAXIMUM CROSS SLOPES AND LONGITUDINAL SLOPES FOR ALL CONCRETE SIDEWALKS AND ADA ACCESSIBLE ROUTES SHALL NOT EXCEED

MAXIMUM GRADE DIFFERENCE BETWEEN PAVEMENT SURFACES AND ADJACENT CONCRETE SIDEWALKS FOR THE ACCESSIBLE ROUTE TO

ALL ADA ACCESSIBLE EXTERIOR DOORWAY LOCATIONS REQUIRE AN EXTERIOR LANDING THAT IS A MINIMUM OF FIVE (5) FEET IN LENGTH

ALL UNSUITABLE OR EXCESS MATERIAL SHALL BE DISPOSED OF LEGALLY OFFSITE OR AS DIRECTED BY THE PROJECT REPRESENTATIVE IN

EXCAVATION SHORING SHALL BE DONE AS NECESSARY FOR THE PROTECTION OF THE WORK AND FOR THE SAFETY OF PERSONNEL.

ALL TESTING, INSPECTION AND SUPERVISION OF SOIL QUALITY, UNSUITABLE SOIL REMOVAL AND ITS REPLACEMENT AND OTHER SOILS

PLANS. CONTRACTOR SHALL PROVIDE UNIFORM SLOPES BETWEEN NEW AND EXISTING GRADES AND AVOID ANY RIDGES AND/OR

ALL EXISTING AND PROPOSED TOP OF RIM ELEVATIONS FOR STORM, SANITARY, WATER AND OTHER UTILITY STRUCTURES SHALL BE

MONITORING WELLS ARE DAMAGED DURING THE PROJECT. THEY MUST BE REPAIRED BY A STATE CERTIFIED WELL CONTRACTOR.

28. FINISH CONTOURS AND SPOT ELEVATIONS SHOWN ARE TO TOP OF PAVEMENT OR TO TOP OF TOPSOIL, UNLESS OTHERWISE NOTED.

CONTRACTOR SHALL PROVIDE SMOOTH VERTICAL CURVES THROUGH THE HIGH AND LOW POINTS INDICATED BY SPOT ELEVATIONS ON THE

THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ALL EXISTING UTILITIES DAMAGED DURING CONSTRUCTION. IF GROUNDWATER

VERIFY THE ELEVATION OF POSSIBLE CONFLICTING UTILITIES PRIOR TO CONSTRUCTING PROPOSED WATER MAINS, SANITARY SEWERS,

SITEWORK UTILITY CONTRACTOR TO EXTEND ALL PIPING TO WITHIN 5 FEET OF BUILDING AND CAPPED FOR CONNECTION BY BUILDING

UTILITY CONTRACTOR UNLESS OTHERWISE INDICATED. COORDINATE ALL INVERT ELEVATIONS AND PIPING LOCATIONS WITH BUILDING

POINTS OF CONNECTION PRIOR TO COMMENCING ANY UNDERGROUND CONSTRUCTION. CONTRACTOR SHALL NOTIFY THE OWNER AND

CONTRACTOR SHALL EXCAVATE AND VERIFY IN FIELD ALL EXISTING UTILITY LOCATIONS, SIZES, CONDITIONS AND ELEVATIONS AT PROPOSED

ADJUSTMENTS TO EXISTING UTILITY STRUCTURE MANHOLE RIM ELEVATIONS REQUIRE BARREL SECTIONS TO BE REMOVED AND REPLACED

AS NEEDED TO ADJUST TO THE PROPOSED ELEVATION. ONLY 12 INCHES OF RISERS WILL BE ALLOWED. ALL MANHOLE CASTINGS EXTENDING

ALL PROPOSED CONNECTIONS TO EXISTING UTILITY STRUCTURES OR PIPING SHALL BE IN ACCORDANCE WITH THE APPLICABLE GOVERNING

CONTRACTOR SHALL CONTINUOUSLY MAINTAIN ALL EXISTING SEWER SYSTEMS DURING CONSTRUCTION OPERATIONS AS NECESSARY TO

THE CONTRACTOR WILL MAINTAIN A RECORD DRAWING SET WITH WITNESS DIMENSIONS TO ALL CONNECTIONS. THESE DRAWINGS WILL BE

THE CONTRACTOR SHALL MAKE PROVISIONS TO HANDLE WATER ENCOUNTERED DURING CONSTRUCTION. THE CONTRACTOR SHALL OBTAIN

CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE TO ALL STORM DRAINAGE STRUCTURES. AREAS OF SURFACE PONDING SHALL BE

COHESIVE SOILS WITHIN -2% TO +3% OF OPTIMUM MOISTURE CONTENT. FOR GRANULAR MATERIAL, THE ACCEPTABLE RANGE IS -3% TO +3%

EDGES OF PERIMETER FOOTINGS AT LEAST 8 INCHES OUTSIDE OF BUILDING PERIMETER. REFERENCE GEOTECHNICAL REPORT AND

ENGINEERING REPORT FOR OPTIMUM MOISTURE CONTENT RANGES FOR FILL MATERIALS. PLACE FILL MATERIAL OF LOW PLASTICITY

THE ROCKS OR LUMPS SHALL BE LARGER THAN 2-1/2 INCHES IN GREATEST DIMENSION.

SURFACES FREE FROM IRREGULAR SURFACE CHANGES, AND AS FOLLOWS

CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER.

THE BUILDING SHALL NOT EXCEED 1/4 INCH VERTICAL OR 1/2 INCH WHEN BEVELED.

SHORING SHALL BE IN ACCORDANCE WITH ALL O.S.H.A AND LOCAL REGULATIONS.

ALL SEWERS AND DRAINS SHALL FOLLOW DIVISION 4 SUDAS SPECIFICATION SECTIONS

RELATED OPERATIONS SHALL BE THE RESPONSIBILITY OF THE OWNER.

ADJUSTED TO MEET FINISHED GRADE WITHIN THE PROJECT LIMITS.

CONTRACTOR TO COORDINATE FRANCHISE UTILITIES.

AUTHORITY REQUIREMENTS AND SPECIFICATIONS.

PREVENT SILT OR DEBRIS ACCUMULATION.

MUNICIPALITY.

SEE STRUCTURAL PLANS FOR FOUNDATION DRAIN DESIGN.

SUBMITTED TO THE ENGINEER PRIOR TO FINAL ACCEPTANCE.

UNPAVED AREAS NEAR BUILDINGS, PARKING AREAS AND SIDEWALKS: +/- 0.10 FEET

GRADING SURFACES OF FILL UNDER BUILDING SLAB +0.04 FEET TO -0.10 FEET

UNPAVED AREAS AWAY FROM BUILDINGS, PARKING AREAS AND SIDEWALKS: +/-0.15 FEET

MAXIMUM SLOPES WITHIN THE ADA ACCESSIBLE PARKING AREAS SHALL NOT EXCEED 2% IN ANY DIRECTION

ALL PROPOSED GRADING, PAVEMENT, APRONS, CURBS, WALKS, ETC. SHALL MATCH EXISTING GRADES FLUSH.

STORM SEWERS. ETC. ANY CONFLICTS MUST IMMEDIATELY BE BROUGHT TO THE ENGINEER'S ATTENTION

ENGINEER OF ANY DISCREPANCIES OR CONFLICTS PRIOR TO PROCEEDING WITH CONSTRUCTION.

INTO PAVEMENT SHALL MATCH PAVEMENT ELEVATIONS WITH ADDITIONAL ADJUSTMENTS AS NECESSARY.

TRENCH, EXCAVATION AND BACKFILL SHALL SHALL FOLLOW DIVISION 3 SUDAS SPECIFICATION SECTIONS

RCP STORM SEWER PIPE BEDDING SHALL BE SW-102 CLASS R-2, UNLESS NOTED OTHERWISE ON THE PLANS.

SANITARY SERVICE PIPE BEDDING SHALL BE SW-103 CLASS F-3, UNLESS NOTED OTHERWISE ON THE PLANS

HDPE AND PVC STORM SEWER PIPE BEDDING SHALL BE SW-103 CLASS F-2, UNLESS NOTED OTHERWISE ON THE PLANS.

APPROVAL FROM THE OWNER'S REPRESENTATIVE OF THE PROPOSED METHOD OF DEWATERING.

ALL WATER VALVES EXTENDING THROUGH PAVEMENT SHALL BE INSTALLED WITH SLIDE TYPE VALVE BOXES AND SHALL MEET SUDAS SPECIFICATION SECTION 5020 ALL PROPOSED WATER SHALL FOLLOW PROPOSED GRADES WITH 5 FEET OF COVER, TYP. UNLESS OTHERWISE SPECIFIED ON PLANS. WATER MAIN SHALL BE POLYVINYL CHLORIDE (PVC) PIPE IN ACCORDANCE WITH AMERICAN WATER WORKS ASSOCIATION (AWWA) STANDARD

C900 DR18 WITH PUSH-ON JOINTS CONFORMING TO ASTM C900, UNLESS OTHERWISE NOTED. A WATERTIGHT PLUG SHALL BE PLACED IN THE END OF THE WATER MAIN PIPE AT THE END OF EACH CONSTRUCTION DAY. UPON COMPLETION OF THE WATERMAIN CONSTRUCTION, ALL WATER MAIN SHALL BE TESTED IN ACCORDANCE WITH THE FOLLOWING MINIMUM STANDARDS: HYDROSTATIC PRESSURE AND LEAKAGE TESTS IN ACCORDANCE WITH LOCAL REQUIREMENTS AND SPECIFICATIONS AND SHALL BE

WITNESSED BY THE LOCAL GOVERNING AUTHORITY. DISINFECTION IN ACCORDANCE WITH LOCAL REQUIREMENTS AND THE METHODS STATED IN AWWA STANDARD C651 AND WITNESSED 7.2. BY THE LOCAL GOVERNING AUTHORITY. WATER SERVICE LINES 2 INCHES IN DIAMETER OR SMALLER SHALL BE TYPE 'K' COPPER TUBING CONFORMING TO ASTM B88-14. NO COUPLINGS SHALL BE PERMITTED BETWEEN THE CORPORATION AND CURB STOPS OR BETWEEN THE CURB STOP AND THE BUILDING

SERVICE BOXES SHALL BE OF SUFFICIENT LENGTH TO PERMIT THE TOP TO BE INSTALLED FLUSH WITH THE FINISHED GRADE. EACH SERVICE BOX SHALL BE PROVIDED WITH A CAP WITH THE WORD "WATER" CAST IN THE TOP. PRESSURE CONNECTIONS TO THE EXISTING WATER MAIN SHALL BE CONSTRUCTED IN ACCORDANCE WITH SUDAS DIVISION 5 SPECIFICATIONS AND SHALL INCLUDE THE INSTALLATION OF A FULL STAINLESS STEEL TAPPING SLEEVE AND VALVE. TEMPORARY CONNECTIONS FOR CONSTRUCTION PURPOSES TO NEWLY INSTALLED OR EXISTING WATER MAINS SHALL BE MADE AND

METERED IN ACCORDANCE WITH LOCAL REQUIREMENTS. BENDS, TEES, AND CROSSES ON 4 INCH AND GREATER WATER LINES SHALL BE PROVIDED WITH THRUST BLOCKING OR RESTRAINED JOINTS PER SUDAS DIVISION 5 AND SUDAS CHAPTER 4.

DELETERIOUS SUBSTANCES.

STRUCTURAL ENGINEER FOUNDATION DESIGN.

RECEIVE TOPSOIL. DO NOT COMPACT TOPSOIL.

SUBGRADE SURFACES: +/- 0.15 FEET

WITH A SLOPE NOT EXCEEDING 2% IN ANY DIRECTION.

TOPSOIL CAN BE USED FOR FINAL GRADING.

OF OPTIMUM MOISTURE CONTENT.

2% AND 5%, RESPECTIVELY.

THE FIELD.

DEPRESSIONS.

UTILITY NOTES

14.4.

STORM SEWER PIPE AND STRUCTURES SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH SUDAS DIVISIONS 4 AND 6. ALL STORM SEWER CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE NOTES IN THE PLANS AND THE STANDARDS SPECIFICATIONS, CODES, AND ORDINANCES OF THE LOCAL GOVERNING AUTHORITIES. IN CASE OF CONFLICT, THE MORE STRINGENT CODE SHALL TAKE PRECEDENCE.

RCP STORM SEWER PIPE SHALL BE REINFORCED CONCRETE PIPE, CLASS III, PER ASTM C76. ALL RCP STORM SEWERS 36 INCH DIAMETER AND SMALLER SHALL HAVE TONGUE AND GROOVE JOINTS WRAPPED WITH ENGINEERING FABRIC. WHERE CROSSING WATER LINES, A RUBBER O-RING OR PROFILE GASKET COMPLYING WITH ASTM C443 IS REQUIRED. ALL RCP STORM SEWER SHALL BE MARKED WITH THE DATE OF MANUFACTURE AND ASTM CLASS. AND SHALL BE MANUFACTURED BY AN IDOT CERTIFIED FACILITY.. NO LIFT HOLES ARE ALLOWED IN RCP STORM SEWERS. THE MINIMUM WALL THICKNESS FOR ALL RCP STORM SEWER SHALL BE B-WALL (AS DEFINED IN ASTM C76 AND ASTM C655). HDPE STORM SEWER PIPE SHALL BE TYPE S CORRUGATED EXTERIOR AND SMOOTH INTERIOR HIGH DENSITY POLYETHYLENE PIPE PER AASHTO M294 WITH WATERTIGHT JOINTS CONFORMING TO ASTM D3212.

PVC STORM SEWER PIPE SHALL BE POLYVINYL CHLORIDE SDR 35 PIPE PER ASTM D3034 WITH WATERTIGHT JOINTS CONFORMING TO ASTM D3212, UNLESS OTHERWISE NOTED. REQUIRED STORM STRUCTURE RIM ADJUSTMENTS SHALL BE MADE WITH ADJUSTING RINGS NOT TO EXCEED A MAXIMUM OF TWELVE (12) INCHES IN OVERALL HEIGHT. JOINTING MATERIAL SHALL BE USED ON ALL JOINTS BETWEEN THE ELEMENTS PER SUDAS DIVISION 6.

CONTRACTOR SHALL CONNECT ALL DRAINS INTO STORM INTAKES. SUBDRAINS SHALL BE CAPPED INSIDE INTAKE WHERE SUBDRAIN IS

SANITARY SEWER NOTES

DRAINING AWAY.

ALL SANITARY SEWER CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE NOTES IN THE PLANS AND THE STANDARDS, SPECIFICATIONS, CODES AND ORDINANCES OF THE LOCAL GOVERNING AUTHORITIES. IN CASE OF CONFLICT, THE MORE STRINGENT CODE SHALL TAKE PRECEDENCE.

ALL SANITARY SEWER PIPE AND STRUCTURES SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH SUDAS DIVISION 4 AND 6. ALL SANITARY SEWER PIPE SHALL BE POLYVINYL CHLORIDE (PVC) C900, SDR 35 PIPE PER ASTM D3034 WITH WATERTIGHT JOINTS CONFORMING TO ASTM D3212, UNLESS OTHERWISE NOTED. WHERE SANITARY SEWER PIPE IS NOTED AS PVC C900, THE PIPE SHALL BE IN ACCORDANCE WITH AMERICAN WATER WORKS ASSOCIATION (AWWA) C900 WITH WATERTIGHT, PRESSURE RATED JOINTS CONFORMING TO ASTM D3139. ALL SANITARY CLEANOUTS SHALL FOLLOW SUDAS SPECIFICATION SW-203.

SANITARY SEWER CONSTRUCTION SHALL COMMENCE AT THE EXISTING MANHOLE(S) AND/OR CONNECTION POINT(S) INDICATED ON THE

A WATERTIGHT PLUG SHALL BE INSTALLED AND LEFT IN PLACE AT THE POINT OF COMMENCEMENT UNTIL THE REMAINDER OF THE PROPOSED SEWERS HAVE BEEN CONSTRUCTED, PROPERLY TESTED AND DEEMED READY FOR FINAL ACCEPTANCE. SANITARY SEWER MANHOLES SHALL BE PRECAST CONCRETE AND SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH THE DETAILS IN THE PLANS. A FLEXIBLE TYPE JOINT SHALL BE FURNISHED AT POINTS OF ENTRY INTO AND EXITING FROM MANHOLE STRUCTURES. THIS FLEXIBLE JOINT

MAY CONSIST OF A SLEEVE OF HIGH QUALITY SYNTHETIC RUBBER WITH A SUBSTANTIAL SERRATED FLANGE WHICH IS CAST DIRECTLY INTO THE WALL OF THE MANHOLE BASE TO FORM A WATERTIGHT SEAL AND PROTRUDES OUTSIDE OF THE MANHOLE WALL TO CONNECT WITH THE PIPE ENTERING/EXITING THE MANHOLE. WHEN THIS TYPE OF FLEXIBLE JOINT IS USED, THE SLEEVE SHALL SLIP OVER THE END OF THE PIPE ADJACENT TO THE MANHOLE BASE AND SHALL BE SECURED BY MEANS OF A STAINLESS STEEL STRAP CLAMP EQUIPPED WITH A DRAW BOLT AND NUT.

REQUIRED SANITARY STRUCTURE RIM ADJUSTMENTS SHALL BE MADE WITH ADJUSTING RINGS NOT TO EXCEED A MAXIMUM OF TWELVE (12) INCHES IN OVERALL HEIGHT. JOINTING MATERIAL SHALL BE USED ON ALL JOINTS BETWEEN THE ELEMENTS PER SUDAS DIVISION 6. WHEN CONNECTING TO AN EXISTING SEWER MAIN BY MEANS OTHER THAN AN EXISTING WYE, TEE, OR MANHOLE, THE FOLLOWING METHOD

SHALL BE USED: CIRCULAR SAW-CUT OF SEWER MAIN BY PROPER TOOLS ('SEWER-TAP' MACHINE OR SIMILAR) AND PROPER INSTALLATION OF HUB-WYE SADDLE OR HUB-TEE SADDLE.

1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 27 | 28 | 29

FILLS PLACED BELOW LAWN AREAS SHALL BE COMPACTED TO 90% OF MATERIALS MAXIMUM STANDARD PROCTOR DRY DENSITY (ASTM D698). PAVEMENT GENERAL NOTES

FILL MATERIAL OBTAINED FROM OFF-SITE SOURCES SHALL BE SOIL OR SOIL AND ROCK MIXTURE FREE FROM ORGANIC MATTER AND OTHER

ALL SLOPES IN PAVEMENT SHALL BE UNIFORM TO AVOID PONDING

ALL DIMENSIONS TO BACK-OF-CURB UNLESS NOTED OTHERWISE. REMOVE AND REPLACE OR RESTORE ALL STREET SIGNS, PAVEMENT MARKINGS, SIDEWALK LAMPS, SIDEWALKS, STEPS, LANDSCAPE STRUCTURES, CURB AND GUTTER, STREETS, DRIVES, AND ALL OTHER SURFACE STRUCTURES REMOVED OR OTHERWISE DAMAGED DURING

THE COURSE OF THE WORK. SIDEWALKS SHALL BE REMOVED AND REPLACED TO NEAREST JOINT BEYOND CONSTRUCTION AREA. COMPACT SUBGRADE BENEATH PAVEMENTS IN ACCORDANCE WITH GRADING NOTES. MODIFIED SUBBASE FOR PAVEMENTS SHALL MEET THE LIMITS OF GRADUATION NO.14 IOWA DOT STANDARD SPECIFICATION FOR HIGHWAY

AND BRIDGE CONSTRUCTION SECTION 4123. ALL SIDEWALKS SHALL BE CONSTRUCTED PER SUDAS SECTION 7030.

ALL PCC PAVEMENT SHALL BE PROTECTED ACCORDING TO SUDAS SECTION 7010-3.04

PAINT PARKING STRIPING AND SIDEWALK CURBS TRAFFIC PER OWNER DIRECTION AND LOCAL CODES WHERE SHOWN ON PLANS. MINIMUM CURING TIME FOR PAVING SHALL BE 7 DAYS. PAINT ADA SYMBOLS AND STRIPING PER LOCAL CODES WHERE SHOWN ON PLANS.

PAVEMENT MARKINGS SHALL BE FAST DRY TRAFFIC LANE MARKING PAINT CONFORMING TO IOWA DOT STANDARD SPECIFICATION FOR HIGHWAY AND BRIDGE CONSTRUCTION, LATEST EDITION, SECTION 4183.03. IF REQUIRED, REFLECTORIZED SPHERES FOR TRAFFIC PAINT SHALL MEET THE REQUIREMENTS OF IOWA DOT STANDARD SPECIFICATION FOR HIGHWAY AND BRIDGE CONSTRUCTION, LATEST EDITION, SECTION 4182.

PAINTING SHALL NOT BEGIN UNTIL PAVEMENT SURFACE HAS BEEN POWER BROOMED AND HAND SWEPT AS NECESSARY TO REMOVE LOOSE MATERIALS AND DIRT; AND NOT BEFORE ADEQUATE CURING TIME HAS BEEN OBTAINED ON THE PAVEMENT APPLY PAINT AT MANUFACTURER'S RECOMMENDED RATES IN TWO SEPARATE COATS FOR ALL PAVEMENT MARKINGS. ALL STRIPES ARE 4

INCHES WIDE UNLESS OTHERWISE INDICATED. ADA SYMBOLS SHALL CONFORM TO APPLICABLE ADA REGULATIONS.

PCC PAVEMENT NOTES

CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS WITH 6-1/2 PERCENT± 1/2% AIR ENTERTAINMENT AND LIMESTONE AGGREGATE 1-1/2 INCH MAXIMUM SIZE. PROVIDE CONTROL JOINTS 14' O/C MAXIMUM (7" PAVEMENT) OR 12' O/C MAXIMUM (6" PAVEMENT) UNLESS NOTED OTHERWISE. INSTALL TYPE "KD" OR TYPE "LD" JOINTS AT 14' O/C MAXIMUM (7" PAVEMENT) OR 12' O/C MAXIMUM (6" PAVEMENT) UNLESS NOTED OTHERWISE. MATERIALS AND CONSTRUCTION FOR PORTLAND CEMENT CONCRETE PAVEMENTS SHALL MEET THE REQUIREMENT OF IOWA DOT STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, LATEST REVISION, SECTION 2301 THE PARAGRAPHS FOR MEASUREMENT AND PAYMENT SHALL NOT APPLY.

CURBS SHALL BE CAST INTEGRAL WITH CONCRETE PAVEMENT UNLESS NOTED OTHERWISE. EDGES SHALL BE ROUNDED BUT NOT ROLLED EXCAVATED TOPSOIL SHALL BE STOCKPILED ON THE SITE IN AREAS DESIGNATED BY THE PROJECT ENGINEER UNTIL SUCH TIME THAT THIS 3. THE CONTRACTOR SHALL PROVIDE THE ENGINEER A PAVEMENT POURING DIAGRAM TO THE OWNER AND ENGINEER FOR APPROVAL PRIOR TO PAVEMENT OPERATIONS. DESIGN FILE AND ADDITIONAL PAVEMENT ELEVATIONS AT JOINTS CAN BE COORDINATED WITH ENGINEER TO FACILITATE STAKING, LAYOUT, AND DESIGNED DRAINAGE PATTERNS UPON REQUEST.

> THE CONTRACTOR SHALL PROVIDE THE ENGINEER A FINAL PAVEMENT JOINTING PLAN FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION. ALL JOINT TYPES REFERRED TO IN THE FOLLOWING NOTES OR ELSEWHERE ON THE PLANS ARE DETAILED IN IOWA SUDAS STANDARD DETAIL

WHERE ACCESS DRIVES INTERSECT EACH OTHER OR WHERE ACCESS DRIVES INTERSECT PARKING AREAS, THE JOINTING PLAN SHALL BE

PAVEMENT LONGITUDINAL JOINTS SHALL BE TYPE "KT-1" OR "L-1", TYP. PAVEMENT TRANSVERSE JOINTS SHALL BE TYPE "C", TYP. ALL JOINTS, INCLUDING "KT" OR "L" TYPE JOINTS, SHALL BE SEALED PER IOWA SUDAS STANDARD DETAIL 7010.101 DETAIL "A" AND IOWA

SUDAS STANDARD SPECIFICATION SECTION 3.02 K.

INSTALL 1 INCH EXPANSION JOINT AT ALL LOCATIONS WHERE PAVEMENT ABUTS A BUILDING, STOOP, OR BACK-OF-CURB.

CONSTRUCTED PER IOWA SUDAS STANDARD DETAIL 7010.904.

SURFACE RESTORATION

ALL DISTURBED AREAS NOT PAVED OR HARD SURFACE ON THE SITE SHALL RECEIVE 4 INCHES OF TOPSOIL. SCARIFY AREAS TO RECEIVE TOPSOIL TO A DEPTH OF 3 INCHES. REMOVE ALL STONES, WOOD, AND OTHER DEBRIS LARGER THAN 2 INCHES FROM AREAS TO RECEIVE TOPSOIL. DO NOT COMPACT TOPSOIL ALL DISTURBED AREAS SHALL BE SEEDED, FERTILIZED, AND MULCHED IN ACCORDANCE WITH SUDAS SPECIFICATION SECTION 9010. SPRING

SEEDING SHALL BE COMPLETED BETWEEN MARCH 1 AND MAY 31. FALL SEEDING SHALL BE COMPLETED BETWEEN AUGUST 10 AND SEPTEMBER 30. CONTRACTOR TO SUBMIT PROPOSED SUDAS SEED MIX, FERTILIZER, AND MULCH PRODUCTS FOR OWNER APPROVAL PRIOR TO APPLICATION.

MAINTAIN ANY SEEDED AREAS UNTIL AND ADEQUATE STAND OF GRASS HAS BEEN ESTABLISHED. RESEED ANY AREAS AS NECESSARY DURING MAINTENANCE PERIOD.

ALL SEEDED AREAS SHALL BE MULCHED WITH HYDRAULIC MULCHES PER SUDAS SPECIFICATION SECTION 9010.2.07.B.

LEGEND SURVEY PLAN MARK DESCRIPTION BENCH MARK CONTROL POINT IRON ROD - FOUND 0 IRON ROD - SET SECTION CORNER FOUND MONUMENT SET X CUT FOUND RIGHT OF WAY MARKER NAIL FOUND ◉ STATION MARKER SOIL BORING (00) RECORD BEARING/DISTANCE MEASURED BEARING/DISTANCE POB POINT OF BEGINNING POR POINT OF REFERENCE

	LEGEND				
	GENERAL SITE				
PLAN MARK	DESCRIPTION				
7/11/1/	EXISTING STRUCTURE				
•	GUARD POST/ BOLLARD				
MB	MAILBOX				
PM	PARKING METER				
	FLAGPOLE				
ب	HANDICAPPED PARKING				
	SHRUB				
\bigcirc	DECIDUOUS TREE				
Strange Strange	CONIFEROUS TREE				
-0-	SINGLE POLE SIGN				
-0-0-	DOUBLE POLE SIGN				
O	TRAFFIC SIGNAL WITH ARM				
ð	TRAFFIC SIGNAL				
•	UTILITY MARKER				
X RR	RAILROAD CROSSING SIGNAL				
\otimes	TRAFFIC MANHOLE				
x	WIRE FENCE				
	WOOD FENCE				
o	CHAINLINK FENCE				
	RAILROAD				
0 0 0	GUARD RAIL				
~~~~	TREE LINE				
<del>- 621</del>	MINOR CONTOUR				
<u> </u>	MAJOR CONTOUR				

LEGEND

UTILITY LINES

ELECTRIC - OVERHEAD

SANITARY SEWER

STORM SEWER

SANITARY FORCE MAIN

TELEPHONE - OVERHEAD

TELEPHONE - UNDERGROUND

CABLE LINE - OVERHEAD

CABLE LINE - UNDERGROUND

PROCESS/HEATING STEAM

ELECTRIC - UNDERGROUND

PROPOSED LINE TYPE

— — — —E— — ·

— FM))——— FM))—

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— — — T— — -

— — — T— — -

—-oc----

- - - - - - - -

— — —FO— ·

. ____ . . ___ .

DESCRIPTION

EXISTING LINE TYPE

— — — E— — —

___ - __ w___ - __

—— FM))———— FM))——

——ОТ——

— – – –T– – –

——oc——

 $- \, - \, - \, - \, \mathsf{C} - \, - \, -$ 

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SITE PLAN SHEET LIST

Sheet Title

Civil General Notes & Legends

2019 Existing Conditions & Topographic Survey

Existing Conditions & Demolition Plan

Site Plan

Grading & Drainage Plan

Stormwater Pollution Prevention Plan

Utility Plan

Storm Sewer Plan

Overall Site Plan

Site Plan Enlargements

Site Details

Exterior Views

Exterior Elevations - Composite

MEP Photometric Site Plan

**Sheet Number** 

C002

C101

C201

C251

C301

C302

L101

L151

L301

A200

ME006

€	FLOODLIGHT	
<b>○</b> \$	LIGHT POLE OVERHANG	
\$	LIGHT POST	
$\bigcirc \triangleleft$	SIREN POLE	
Ø	UTILITY POLE	
——)	GUY ANCHOR	
Ø\$	UTILITY POLE W/ TRANSFORMER	
<b>&gt;</b>	FIRE HYDRANT	
	FLARED END SECTION	
	UTILITY END CAP	
$\bowtie$	VALVE	
OPIV	POST INDICATOR VALVE	
C	CABLE TV PEDESTAL	
©	CLEANOUT	
J	JUNCTION BOX	
F	FIBER OPTIC BOX	
OMH	MANHOLE	
0	DRAINAGE MANHOLE	
(E)	ELECTRICAL MANHOLE	
S	SANITARY MANHOLE	
①	TELEPHONE MANHOLE	
T	TELEPHONE PEDESTAL	
V	VAULT BOX	
<b>(W)</b>	MONITORING WELL	
W	WATER MANHOLE	
⋈W	WATER IRRIGATION VALVE	
8	WATER SHUTOFF VALVE	
W	WATER METER	
НН	HANDHOLE	
S	SIGNAL BOX	
G	GAS METER	
E	ELECTRIC METER	
	TRANSFORMER	
А	AIR CONDITIONER	
	CURB INLET	
$\ominus$	INTAKE - CIRCLE	
	INTAKE - RECTANGLE	
	INTAKE - SQUARE	
$\boxtimes$	RA-3 INTAKE	
	RA-5 INTAKE	
<b></b> ■ 8 ■ 1	RA-8 INTAKE	
φ	YARD HYDRANT	
$\bowtie^{F}$		
R	GAS REGULATOR	
<b>\line{\omega}</b>	ROOF DOWNSPOUT	

<b>○</b> ‡	LIGHT POLE OVERHANG	www.opnarchitects.com
≎	LIGHT POST	All reports, plans, specifications, computer files, field data,
$\bigcirc \triangleleft$	SIREN POLE	notes and other documents and instruments prepared by OPN Architects, Inc. as instruments of service shall remain
Ø	UTILITY POLE	the property of OPN Architects, Inc. OPN Architects, Inc. shall retain all common law, statutory and other reserved rights, including the copyright thereto.
<del></del> )	GUY ANCHOR	© 2019 OPN Architects, Inc.
ØØ	UTILITY POLE W/ TRANSFORMER	© 2013 OTN Architects, inc.
þ	FIRE HYDRANT	Owner
	FLARED END SECTION	West Branch Community School District
[	UTILITY END CAP	
$\bowtie$	VALVE	1
OPIV	POST INDICATOR VALVE	1
C	CABLE TV PEDESTAL	Project
0	CLEANOUT	WEST BRANCH HIGH SCHOOL ADDITION AND RENOVATION
J	JUNCTION BOX	ADDITION AND RENOVATION
F	FIBER OPTIC BOX	1
O ^{MH}	MANHOLE	1
<u>O</u>	DRAINAGE MANHOLE	Civil Engineer
Ē	ELECTRICAL MANHOLE	Shive - Hattery
 (S)	SANITARY MANHOLE	222 Third Avenue SE, Ste. 300 Cedar Rapids, IA 52401
	TELEPHONE MANHOLE	P. 319.364.0227
	TELEPHONE PEDESTAL	Contact: Nick Hatz
	VAULT BOX	Structural Engineer
	MONITORING WELL	Raker Rhodes Engineering, LLC
	WATER MANHOLE	112 E. Washington Street, Ste. B Iowa City, IA 52240
$\overline{\mathbb{W}}^{W}$	WATER IRRIGATION VALVE	P. 319.333.7850
⊗	WATER SHUTOFF VALVE	Contact: Brad Hill
	WATER METER	Mechanical / Electrical / Plumbing / Technology Engineer
НН	HANDHOLE	Modus Engineering
s	SIGNAL BOX	118 E. College St., Ste. 200
G	GAS METER	lowa City, IA 52240 P. 319.248.4600
E	ELECTRIC METER	Contact: Tyler Luttenegger
	TRANSFORMER	Theatre Planning and Lighting Design
A	AIR CONDITIONER	Schuler Shook
	CURB INLET	219 Main Street SE, Ste. 200
	INTAKE - CIRCLE	Minneapolis, MN 55414 P. 612.802.1536
		Contact: Jody Kovalick
	INTAKE - RECTANGLE	Acoustic & Audio/Visual Design
	INTAKE - SQUARE	Threshold Acoustics, LLC
	RA-3 INTAKE	141 West Jackson Blvd, Suite 2080
	RA-5 INTAKE	Chicago, IL 60804 P. 312.386.1400
<u> </u>	RA-8 INTAKE	Contact: Brandon Cudequest
	YARD HYDRANT	-
<u></u> ⋈ ^F	FIRE DEPARTMENT VALVE	4
R	GAS REGULATOR	4
	ROOF DOWNSPOUT	

LEGEND

UTILITIES

PLAN MARK DESCRIPTION

24 1/2 S Clinton St., Suite 1

Iowa City, IA 52240

P: 319-248-5667

LEGEND				
GENERAL SITE DESIGN				
PLAN MARK	DESCRIPTION			
SEE	SPOT ELEVATION			
1%	TOP OF CURB AND GUTTER ELEVATION			
2%	SLOPE ARROW			
	FLOW ARROW			
<b>→</b>	TRAFFIC FLOW			
~~~	SILT FENCE			
	LIMITS			
<u></u>	LEFT-TURN ARROW			
2	RIGHT-TURN ARROW			
\Rightarrow	THRU ARROW			
分	LEFT/ THRU ARROW			
₩	RIGHT/ THRU ARROW			
	LEFT/ RIGHT/ THRU ARROW			

Revision Description

OPN Project No.

PRELIMINARY SITE PLAN 03/18/2020

PRELIMINARY. NOT FOR CONSTRUCTION.

UTILITY NOTE

THE LOCATIONS OF UTILITY MAINS, STRUCTURES, AND SERVICE

ONNECTIONS PLOTTED ON THIS DRAWING ARE APPROXIMATE ONLY AN

WERE OBTAINED FROM RECORDS MADE AVAILABLE TO SHIVE-HATTERY INC. THERE MAY BE OTHER EXISTING UTILITY MAINS. STRUCTURES. AND

SERVICE CONNECTIONS NOT KNOWN TO SHIVE-HATTERY, INC., AND NO

SHOWN ON THIS DRAWING.

C001

Civil General Notes & Legends

EXISTING LINETYPES

UTILITIES	
—(CHWR) ——(CHWR) ——	CX-UTIL-CHIL-RTRN
(CHWS)(CHWS)	CX-UTIL-CHIL-SPLY
	CX-UTIL-CHIL-STRC
CHILLED WATER TEXT	CX-UTIL-CHIL-TEXT
— (CD) — — (CD) — —	CX-UTIL-COMM
	CX-UTIL-COMM-STRC

COMMUNICATION TEXT CX-UTIL-COMM-TEXT CX-UTIL-ELEC-OVHD CX-UTIL-ELEC-STRC CX-UTIL-ELEC-TEXT ELECTRIC TEXT CX-UTIL-ELEC-UNDR CX-UTIL-FIBR CX-UTIL-FIBR-STRC CX-UTIL-FIBR-TEXT FIBER OPTIC TEXT CX-UTIL-GEOT CX-UTIL-GEOT-TEXT

GEOTHERMAL TEXT CX-UTIL-NGAS CX-UTIL-NGAS-STRC NATURAL GAS TEXT CX-UTIL-NGAS-TEXT CX-UTIL-SSWR CX-UTIL-SSWR-FORC —(S FM) ——(S FM) —— CX-UTIL-SSWR-STRC

— (CND) — (CND) — ___(HPS)----(HPS)----

STEAM TEXT

FIBER OPTIC TEXT — (W) — (W) —

CX-UTIL-WATR-TEXT CX-UTIL-WELL __ (WELL) -----(WELL) -----CX-UTIL-WELL-STRC CX-UTIL-WELL-TEXT WELL TEXT

SENSITIVE AREAS

CX-SENS-FLHA-100Y — 100Y ——— 100Y ——— CX-SENS-FLHA-100Y-HTCH CX-SENS-FLHA-500Y — 500Y — 500Y — CX-SENS-FLHA-500Y-HTCH CX-SENS-FLHA-FWAY — FW — FW — CX-SENS-FLHA-FWAY-HTCH CX-SENS-SLOP CX-SENS-SLOP-BUFF CX-SENS-SLOP-CRIT CX-SENS-SLOP-PROT CX-SENS-SLOP-STEE CX-SENS-WETL

CX-SENS-WETL-HTCH

CX-UTIL-SSWR-TEXT

CX-UTIL-STEM-COND

CX-UTIL-STEM-HPS

CX-UTIL-STEM-LPS

CX-UTIL-STEM-STRC

CX-UTIL-STEM-TEXT

CX-UTIL-STRM-STRC

CX-UTIL-STRM-TEXT

CX-UTIL-TRFC-TEXT

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CX-SITE-FENC-WOOD CX-SITE-FENC-TEXT CX-SITE-FL CX-SITE-FURN CX-SITE-LSCP-TEXT CX-SITE-LSCP CX-SITE-LSCP-HTCH (Y Y Y Y Y Y)CX-SITE-LSCP-TLIN CX-SITE-POND CX-SITE-POND-HTCH CX-SITE-POND-SPWY CX-SITE-ROCK CX-SITE-ROCK-HTCH CX-SITE-SIGN

CX-SITE-STEP

CX-SITE-TEXT

CX-SITE-WALL-BLCK

CX-SITE-WALL-CONC CX-SITE-WALL-ROCK CX-SITE-WALL-WOOD CX-SITE-WATR-CNTR CX-SITE-WATR-HTCH

STRUCTURES

CX-BLDG-PRCH CX-BLDG-TEXT CX-BRDG CX-BRDG-ABUT CX-BRDG-CNTR CX-BRDG-HTCH CX-BRDG-TEXT

CX-BLDG

CX-BLDG-DECK

CX-BLDG-HTCH

CX-BLDG-OVHD

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RAILROAD

CX-RAIL CX-RAIL-CNTR CX-RAIL-SIGN CX-RAIL-TEXT CX-RAIL-TRAK

NOTE: THIS SHEET IS FOR REFERENCE ONLY FOR THE EXISTING CONDITIONS AND UTILITIES LOCATED ON SITE AT THE TIME OF TOPOGRAPHIC SURVEY.

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Raker Rhodes Engineering, LLC 112 E. Washington Street, Ste. B Iowa City, IA 52240 P. 319.333.7850 Contact: Brad Hill Mechanical / Electrical / Plumbing / Technology Engineer Modus Engineering 118 E. College St., Ste. 200 Iowa City, IA 52240 P. 319.248.4600 Contact: Tyler Luttenegger Theatre Planning and Lighting Design Schuler Shook 219 Main Street SE, Ste. 200 Minneapolis, MN 55414 P. 612.802.1536 Contact: Jody Kovalick Acoustic & Audio/Visual Design Threshold Acoustics, LLC 141 West Jackson Blvd, Suite 2080 Chicago, IL 60804 P. 312.386.1400 Contact: Brandon Cudequest

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Civil Engineer

Shive - Hattery

P. 319.364.0227

Structural Engineer

Contact: Nick Hatz

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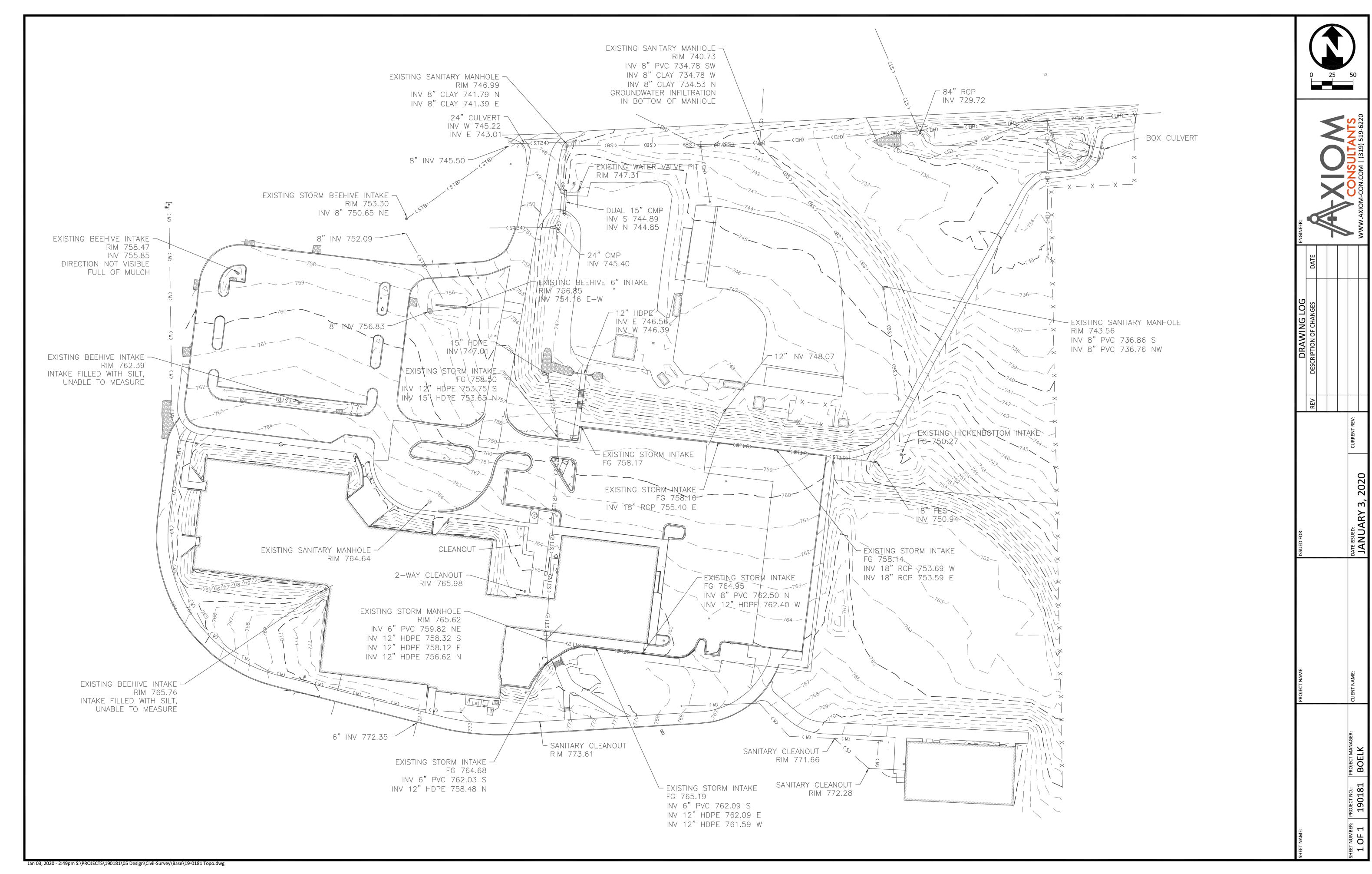
ADDITION AND RENOVATION

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Cedar Rapids, IA 52401

Iowa City, IA 52240

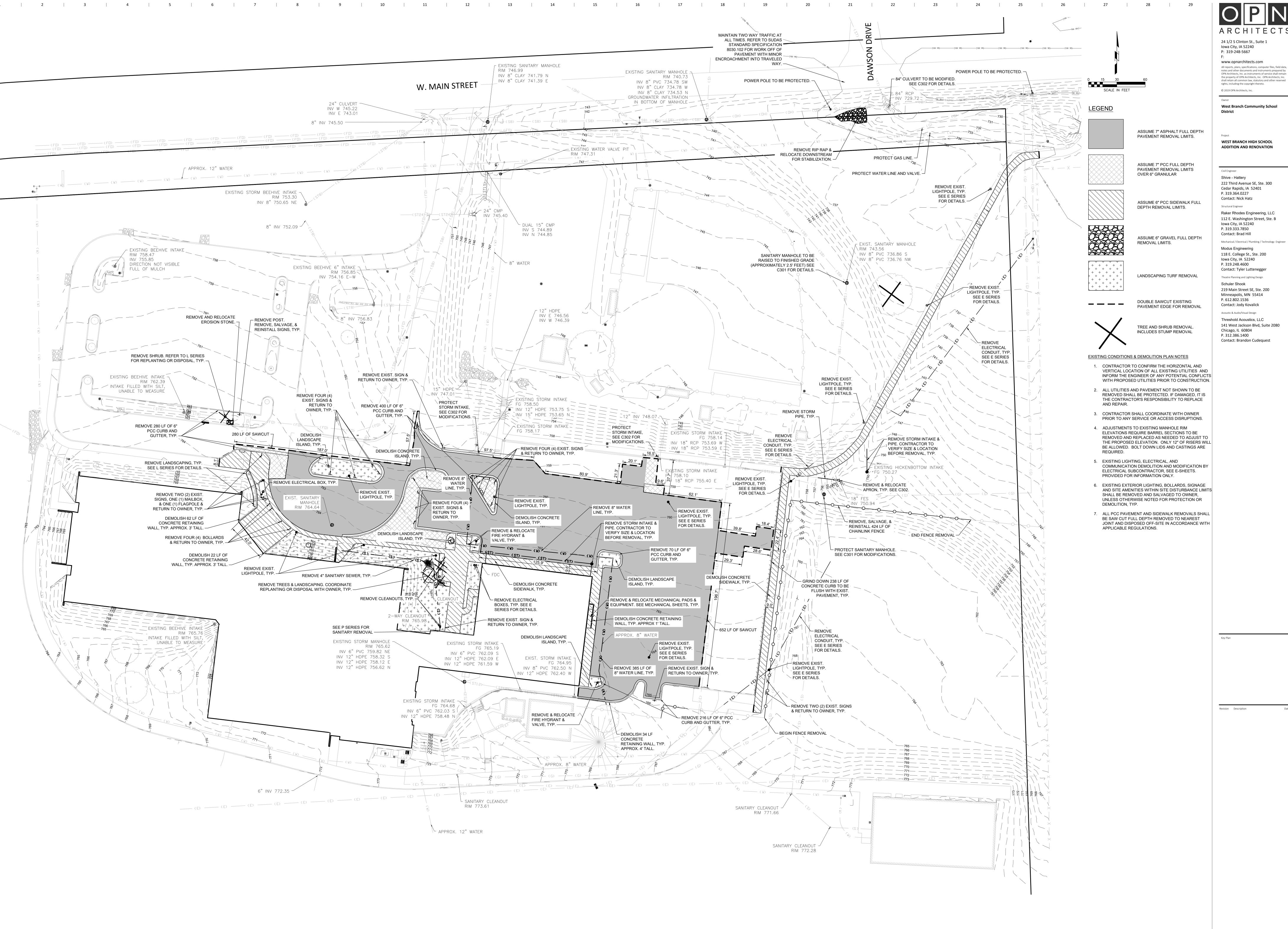
P: 319-248-5667



2019 Existing Conditions & PRELIMINARY. NOT FOR CONSTRUCTION.

Topogra

C002



OPN Project **192480**

PRELIMINARY SITE PLAN 03/18/20
REVIEW

Existing Conditions & Demolition Plan

Sheet Number CD01

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112 E. Washington Street, Ste. B

Mechanical / Electrical / Plumbing / Technology Engineer

141 West Jackson Blvd, Suite 2080

C101

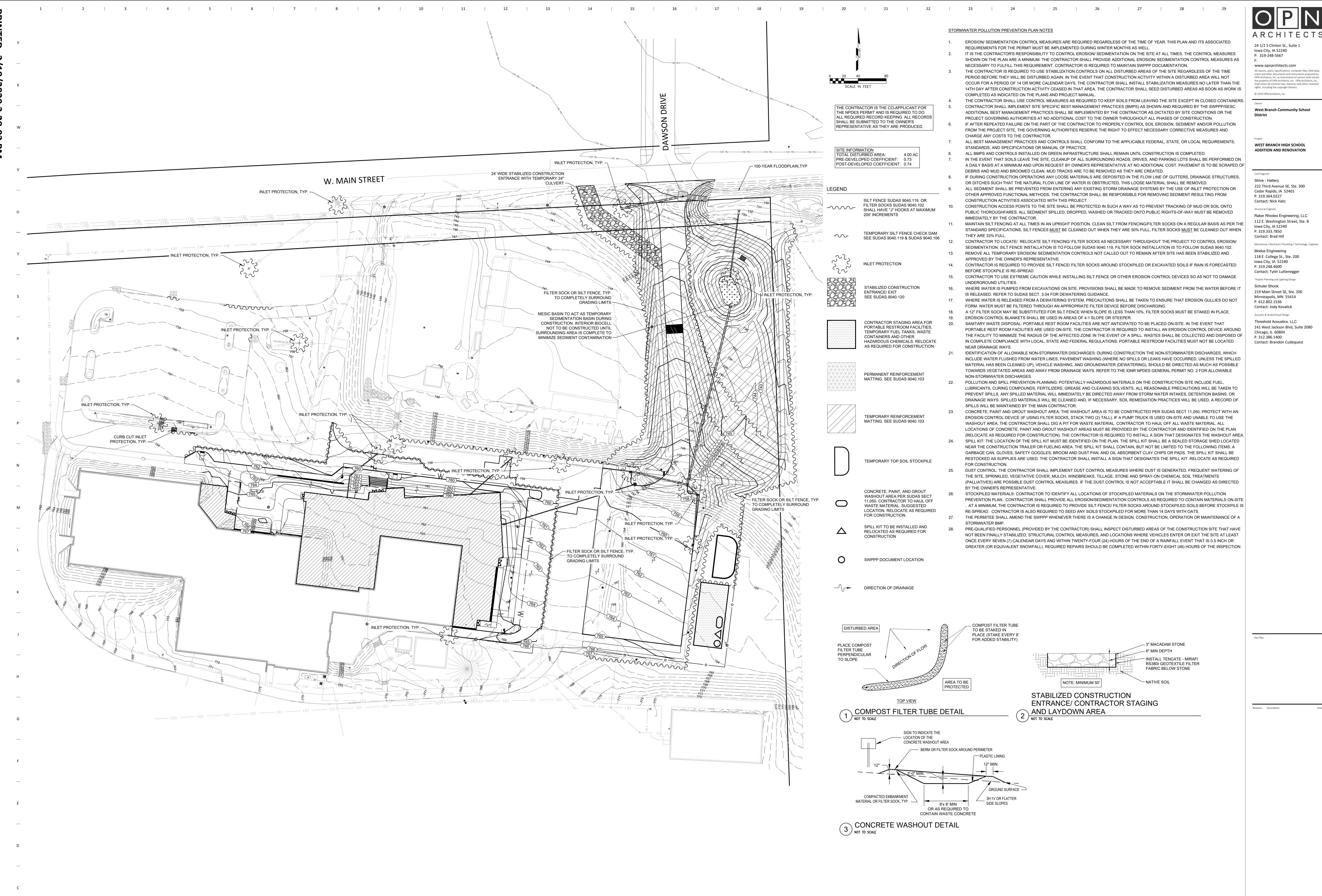
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1 MESIC BASIN BIOCELL SECTION
NOT TO SCALE

Grading & Drainage Plan

PRELIMINARY. NOT FOR CONSTRUCTION.

C201



OPN Project No. **19248000**

PRELIMINARY SITE PLAN 03/18/20
REVIEW

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West Branch Community School

WEST BRANCH HIGH SCHOOL ADDITION AND RENOVATION

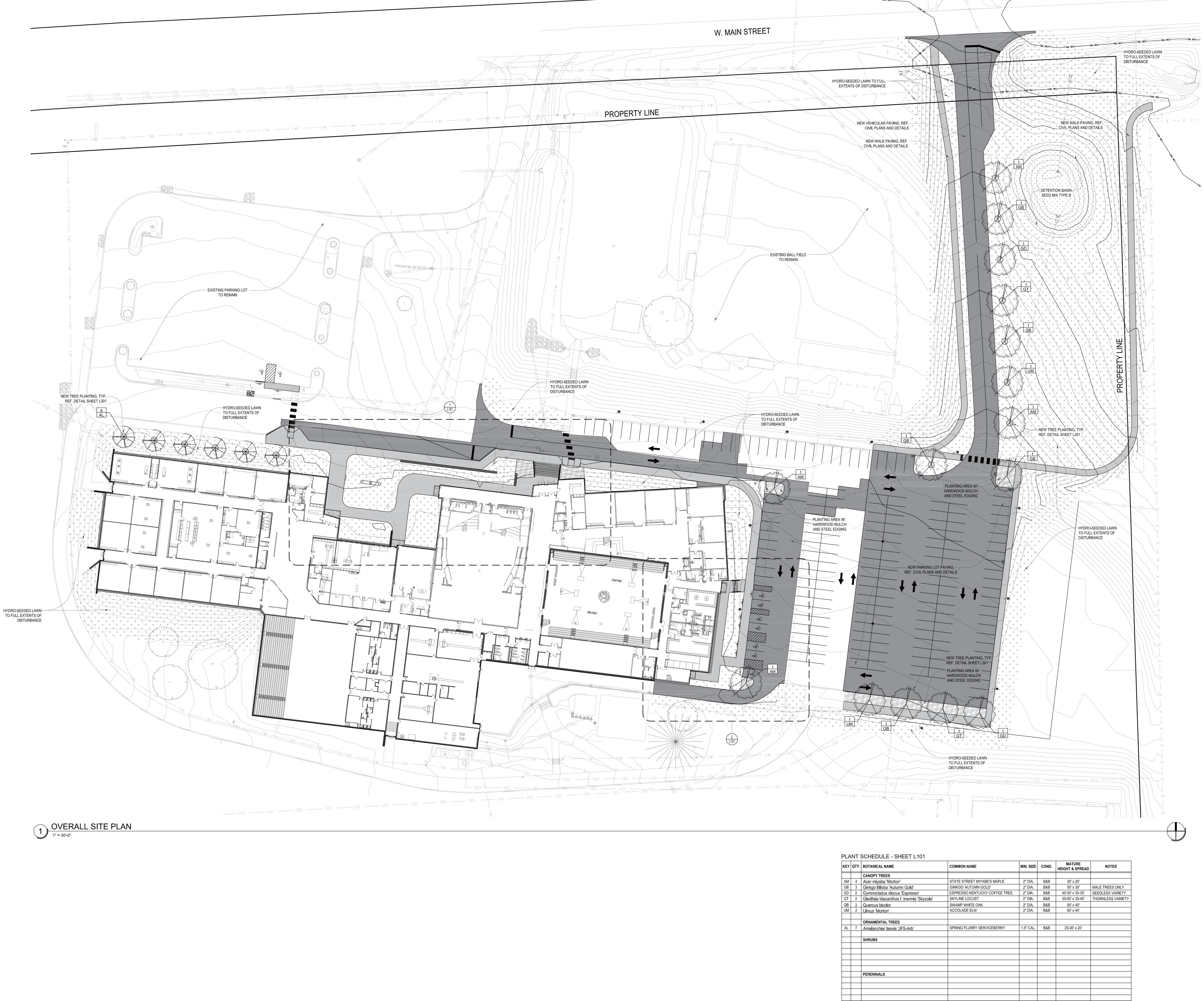
222 Third Avenue SE, Ste. 300 Cedar Rapids, IA 52401

Contact: Nick Hatz Raker Rhodes Engineering, LLC 112 E. Washington Street, Ste. B Iowa City, IA 52240 P. 319.333.7850 Contact: Brad Hill

Mechanical / Electrical / Plumbing / Technology Engineer Modus Engineering 118 E. College St., Ste. 200 Iowa City, IA 52240 P. 319.248.4600 Contact: Tyler Luttenegger Theatre Planning and Lighting Design

219 Main Street SE, Ste. 200 Minneapolis, MN 55414 P. 612.802.1536 Contact: Jody Kovalick Acoustic & Audio/Visual Design Threshold Acoustics, LLC 141 West Jackson Blvd, Suite 2080

Chicago, IL 60804 P. 312.386.1400 Contact: Brandon Cudequest



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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 IOWA ONE-CALL AND OWNER FOR UTILITY LOCATES PRIOR TO ANY WORK ON SITE. NOTIFY ARCHITECT OF ANY DISCREPANCIES BEFORE CONTINUING DEMOLITION OR NEW

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.

CONSTRUCTION.

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

MAINTENANCE PERIODS

TREES 30 DAYS SHRUBS 30 DAYS PERENNIALS 30 DAYS SEEDED AREAS: 90 DAYS WARRANTY PERIODS

1 YEAR SHRUBS PERENNIALS 1 YEAR LAWNS 6 MONTHS MAINTENANCE ACTIVITIES

LANDSCAPE MAINTENANCE INCLUDES WATERING, WEEDING, FERTILIZING, MOWING, 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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Owner **West Branch Community School**

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Contact: Nick Hatz Structural Engineer Raker Rhodes Engineering, LLC 112 E. Washington Street, Ste. B Iowa City, IA 52240 P. 319.333.7850 Contact: Brad Hill

Mechanical / Electrical / Plumbing / Technology Engineer Modus Engineering 118 E. College St., Ste. 200 Iowa City, IA 52240 P. 319.248.4600 Contact: Tyler Luttenegger Theatre Planning and Lighting Design Schuler Shook 219 Main Street SE, Ste. 200 Minneapolis, MN 55414

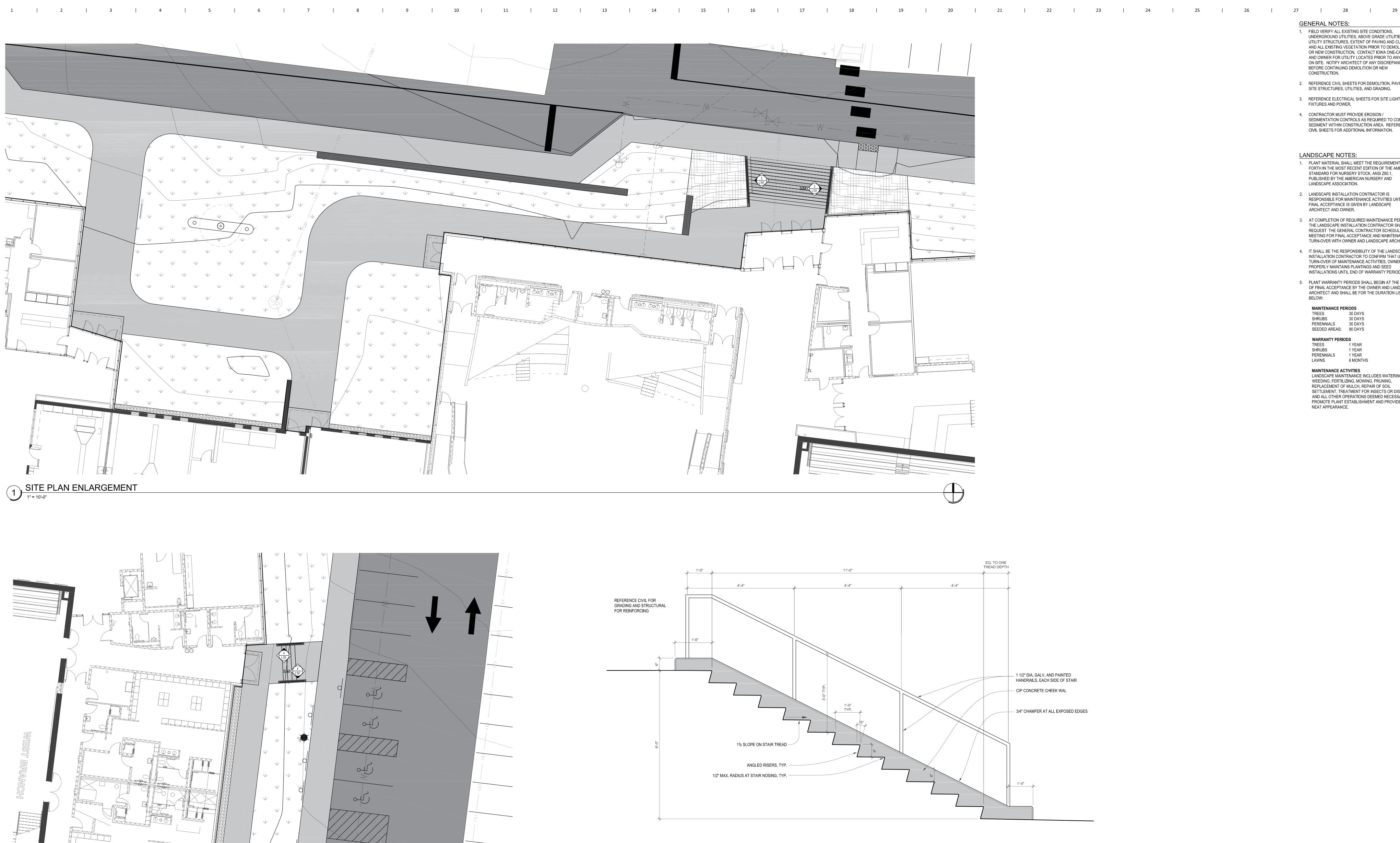
P. 612.802.1536 Contact: Jody Kovalick Acoustic & Audio/Visual Design Threshold Acoustics, LLC 141 West Jackson Blvd, Suite 2080 Chicago, IL 60804

P. 312.386.1400 Contact: Brandon Cudequest

SITE PLAN REVIEW

OVERALL SITE PLAN

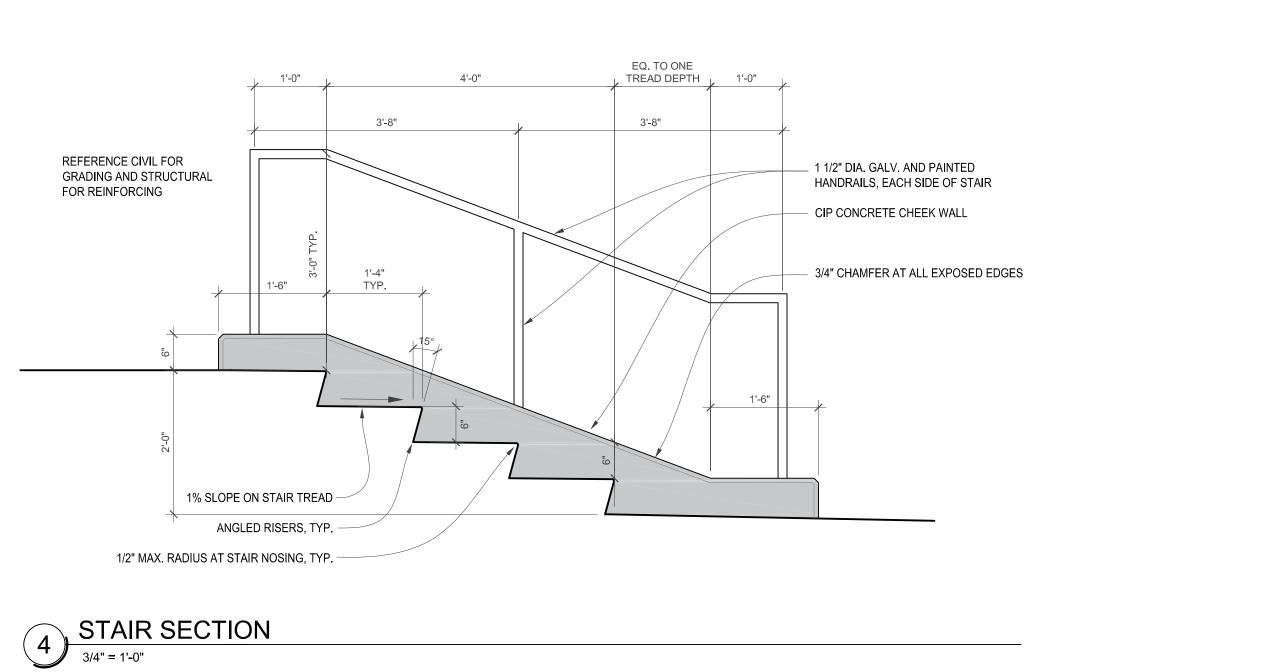
2 SITE PLAN ENLARGEMENT
1" = 10'-0"



1 1/2" DIA. GALV. AND PAINTED HANDRAILS, EACH SIDE OF STAIR CIP CONCRETE CHEEK WAL — 3/4" CHAMFER AT ALL EXPOSED EDGES

3) STAIR SECTION

3/4" = 1'-0"



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 IOWA 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

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.

30 DAYS

TURN-OVER WITH OWNER AND LANDSCAPE ARCHITECT.

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

MAINTENANCE PERIODS

SHRUBS 30 DAYS PERENNIALS 30 DAYS SEEDED AREAS: 90 DAYS WARRANTY PERIODS

TREES

1 YEAR SHRUBS 1 YEAR PERENNIALS LAWNS 6 MONTHS

> MAINTENANCE ACTIVITIES LANDSCAPE MAINTENANCE INCLUDES WATERING, WEEDING, FERTILIZING, MOWING, 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.

GENERAL NOTES:

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141 West Jackson Blvd, Suite 2080 Chicago, IL 60804 P. 312.386.1400 Contact: Brandon Cudequest

SITE PLAN REVIEW Sheet Name SITE PLAN ENLARGEMENTS

MAILBOX AND PACKAGE DROP

FLAGPOLE FOUNDATION

1/2" = 1'-0"

#) FLAGPOLE

1/4" = 1'-0"

1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 24 | 25 | 26 | 27 | 28 | 29

OPN

ARCHITECT

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lowa City, IA 52240
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Project
WEST BRANCH HIGH SCHOOL
ADDITION AND RENOVATION

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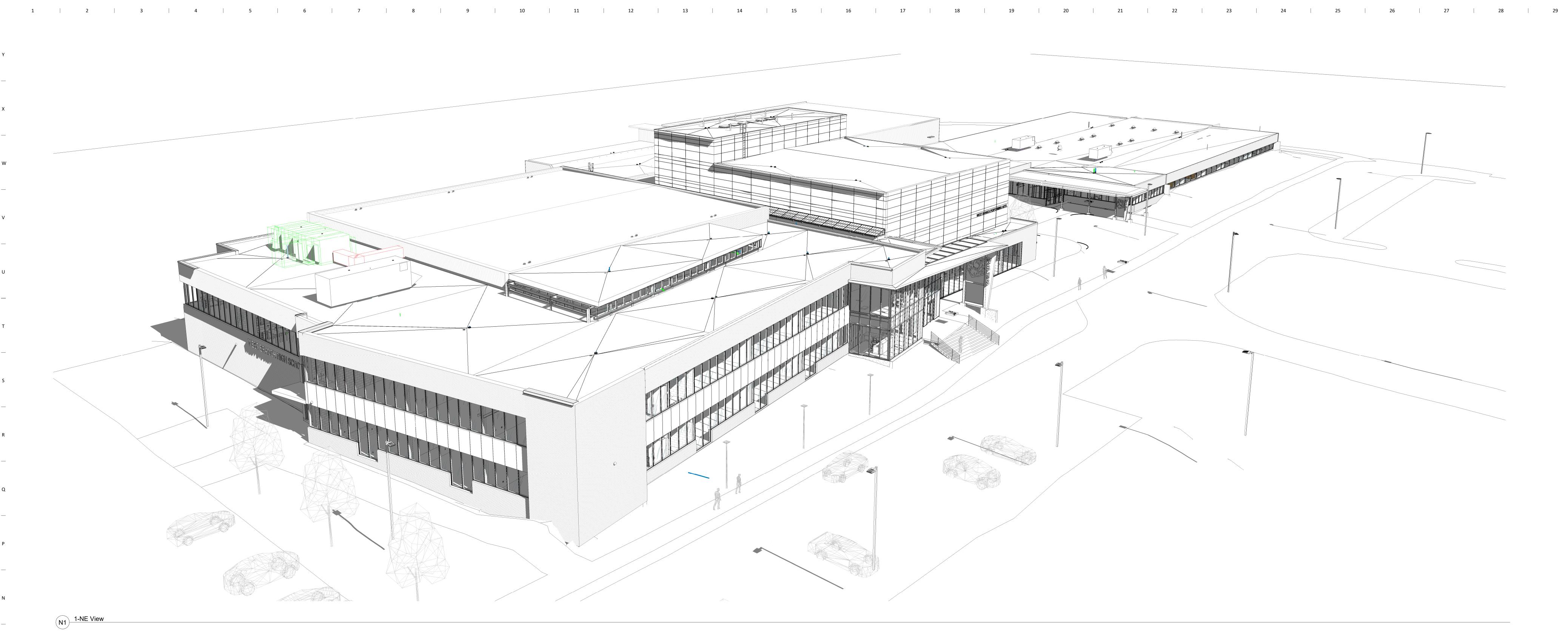
Key Plan

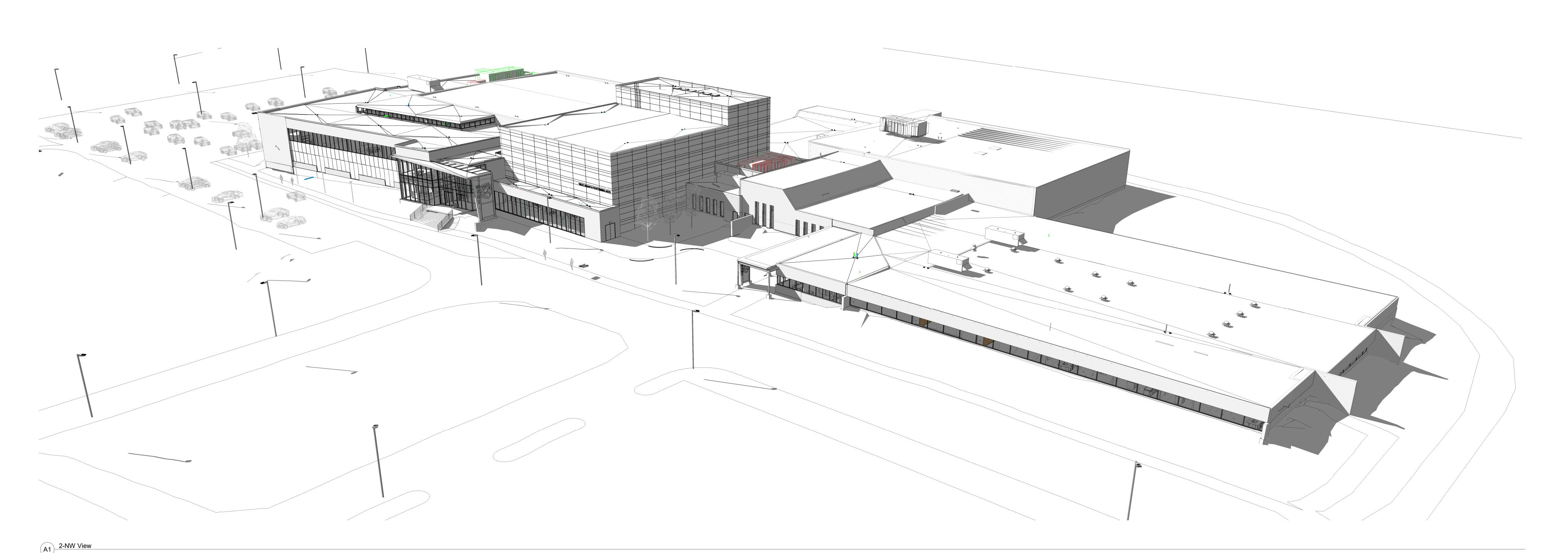
Revision Description

OPN Project No. **19248000**

: Issue Date
:LIMINARY 03/18/2
E PLAN REVIEW

SITE DETAILS





1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 23 | 24 | 25 | 26 | 27 | 28 | 29

O P N

ARCHITECTS

ARCHITEC

24 1/2 S Clinton St., Suite 1
lowa City, IA 52240

P: 319-248-5667

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West Branch Community School
District

WEST BRANCH HIGH SCHOOL ADDITION AND RENOVATION

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Contact: Brandon Cudequest

OPN Proj **19248**

PRELIMINARY 03/18,
SITE PLAN REVIEW

EXTERIOR VIEWS

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Iowa City, IA 52240 P: 319-248-5667 www.opnarchitects.com

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WEST BRANCH HIGH SCHOOL ADDITION AND RENOVATION

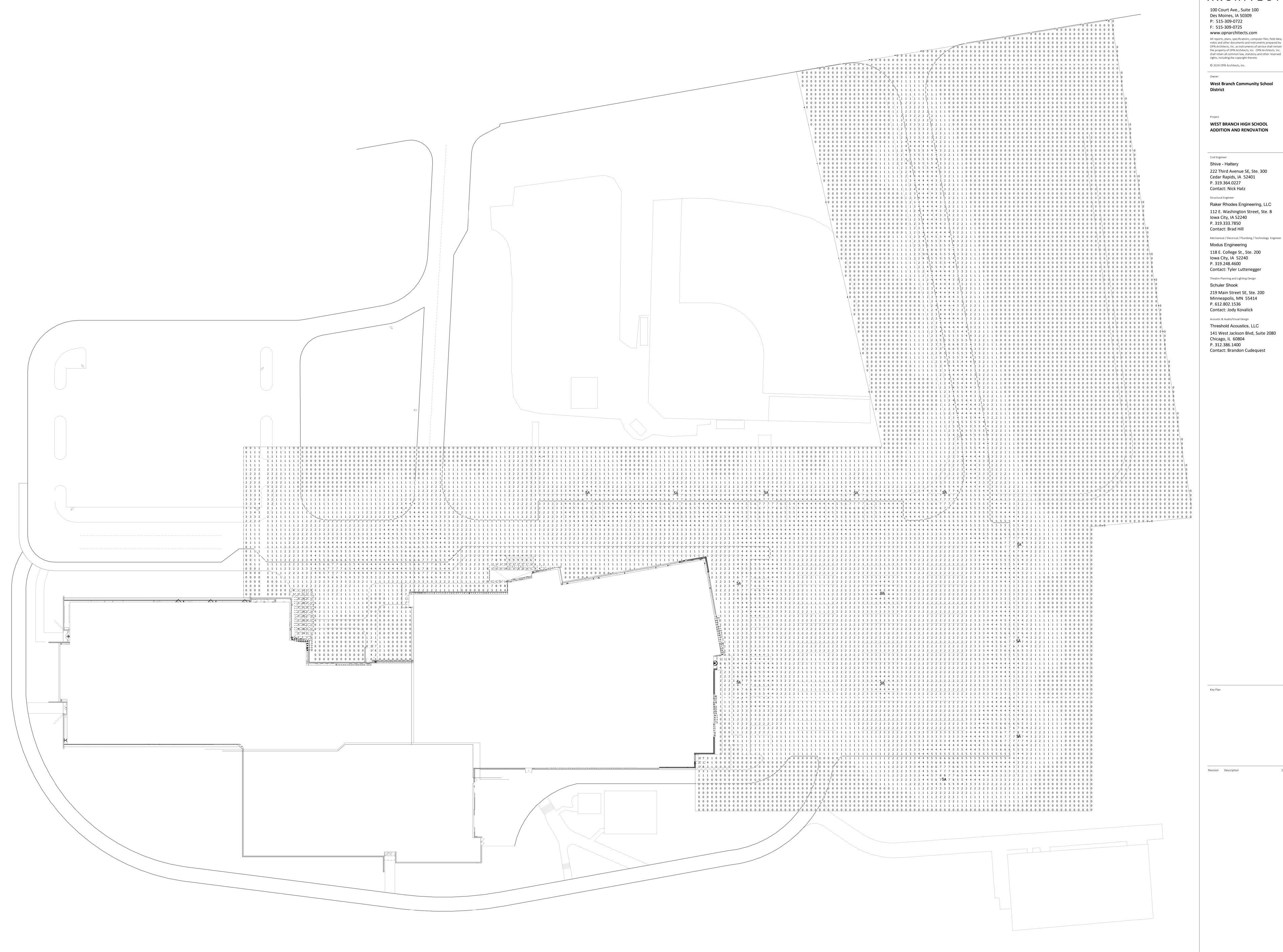
222 Third Avenue SE, Ste. 300 Cedar Rapids, IA 52401 Contact: Nick Hatz Raker Rhodes Engineering, LLC 112 E. Washington Street, Ste. B Iowa City, IA 52240 Contact: Brad Hill Mechanical / Electrical / Plumbing / Technology Engineer

Modus Engineering 118 E. College St., Ste. 200 Iowa City, IA 52240 P. 319.248.4600 Contact: Tyler Luttenegger Theatre Planning and Lighting Design 219 Main Street SE, Ste. 200 Minneapolis, MN 55414 P. 612.802.1536 Contact: Jody Kovalick Acoustic & Audio/Visual Design

SITE PLAN REVIEW

PRELIMINARY. NOT FOR CONSTRUCTION.

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ARCHITECTS

PRELIMINARY. NOT FOR CONSTRUCTION.

Sheet Issue Date

PRELIMINARY SITE PLAN 03/18,
REVIEW

Sheet Name

N umber

ME006

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.

First Reading:

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.

April 6, 2020

Second Reading:	April 20, 2020	
Third Reading:	May 4, 2020	
_	•	
		Roger Laughlin, Mayor
Attest:_		
Redmond Iones II City	Administrator/Clark	

Redmond Jones II, City Administrator/Clerk