



## **PLANNING & ZONING COMMISSION**

Regular Meeting Agenda  
CITY OF PARKVILLE, MISSOURI  
Tuesday, February 8, 2022 5:30 PM  
City Hall Board Room

*In light of the COVID-19 pandemic, and given the nature of the items to be considered at this particular meeting, the members of the Planning and Zoning Commission will meet via telephone or video conference. Members of the public interested in this meeting are encouraged to listen in on the meeting via the following telephone number and access code – (312) 626 6799, Meeting ID: 857 6489 6146, Password: 692667 rather than appear at City Hall (note: occupancy will be limited).*

*In addition, rather than appearing at City Hall to provide input at the meeting on action agenda items, members of the public may submit written testimony to the City Clerk in advance by noon on the day of the meeting and the testimony will be to be provided to the Planning and Zoning Commission and presented at the meeting and made part of the official record.*

### **1. Call to Order**

### **2. Roll Call**

### **3. General Business**

- A. Approval of the February 8, 2022, regular meeting agenda.
- B. Approve the minutes for the January 11, 2022, regular meeting

### **4. Unfinished Business**

### **5. Public Hearing**

### **6. Regular Business**

- A. Application for Major Site Plan for Dairy Queen, a drive-through restaurant generally located south of Highway 45 and approx. 250 feet west of Highway 9 in Parkville, MO 64152.
- B. Application for Major Site Plan for Attic Storage, a self-storage facility generally located south of Highway 45 and approx. 1,000 feet west of Interstate 435 in Parkville, MO 64152.

### **7. Other Business**

- A. Upcoming meetings & dates of importance:
  - Board of Aldermen Meetings: Tuesday, February 15 and March 1, 2022 at 7:00 p.m.
  - Board of Zoning Adjustments Meeting: Tuesday, February 22 at 5:30 p.m.

Posted Date & Time: February 4, 2022 3:00 PM By: BS

- Planning & Zoning Commission Regular Meeting: Tuesday, March 8 at 5:30 p.m.

## **8. Adjournment**

**Minutes of the  
Planning & Zoning Commission Regular Meeting  
City of Parkville, Missouri  
Tuesday, January 11, 2022 5:30 PM  
City Hall Board Room**

*In light of the COVID-19 pandemic, and given the nature of the items to be considered at this particular meeting, the members of the Planning and Zoning Commission will meet via telephone or video conference. Members of the public interested in this meeting are encouraged to listen in on the meeting via the following telephone number and access code – (312) 626 6799, Meeting ID: 886 4896 2927, Password: 888327 rather than appear at City Hall (note: occupancy will be limited).*

*In addition, rather than appearing at City Hall to provide input at the meeting on action agenda items, members of the public may submit written testimony to the City Clerk in advance by noon on the day of the meeting and the testimony will be provided to the Planning and Zoning Commission and presented at the meeting and made part of the official record.*  
City Hall Board Room

**1. Call to Order**

Vice-Chair Wright called the meeting to order at 05:33 PM.

**2. Roll Call**

*Commissioners Present:*

Michael Lee  
Barbara Wassmer  
John Delich  
R. Douglas Krtek  
Walt Lane  
Allyson Berberich  
Kathy Leibrand  
Michael Wright

Absent:

Dean Katerndahl

A quorum of the Commission was present.

*Staff Present:*

Stephen Lachky, Community Development Director  
Brad Stanton, Planner  
Alysen Abel, Public Works Director

**3. General Business**

A. Approval of the January 11, 2022, regular meeting agenda.

**ACTION:** R. Douglas Krtek moved to approve the agenda, Kathy Leibrand seconded.

Motion Passed: 8-0.

**AYES:** Michael Lee, Michael Wright, Barbara Wassmer, John Delich, R. Douglas Krtek, Walt Lane, Allyson Berberich, Kathy Leibrand

**NOES:** None

**ABSTAIN:** None

- B. Approve the minutes for the December 14, 2021, regular meeting.

**ACTION:** Michael Lee moved to approve the minutes, R. Douglas Krtek seconded. Motion Passed: 8-0.

**AYES:** Michael Lee, Michael Wright, Barbara Wassmer, John Delich, R. Douglas Krtek, Walt Lane, Allyson Berberich, Kathy Leibrand

**NOES:** None

**ABSTAIN:** None

#### **4. Unfinished Business**

#### **5. Public Hearing**

#### **6. Regular Business**

- A. Application for Subdivision – Preliminary Plat for Sanctuary At Riss Lake, a residential development consisting of 19 lots for duplexes and 4 tracts of open space on 16.18 acres (more or less), generally located at the southeast corner of the intersection of MO-Hwy 9 and Lakeview Dr. in Parkville, MO 64152.

##### **STAFF ANALYSIS & SUMMARY**

Stephen Lachky, Director of Community Development, provided an overview of the project. He noted that 4 condominium buildings were originally proposed last year. The current proposal for preliminary plat is 19 duplex lots or 38 units. This proposal meets the R-4 zoning allowed uses. The current proposal only has one point of access off of Lakeview Dr.

##### **DEVELOPER'S PRESENTATION**

Don Julian, applicant, and Judd Claussen, Phelps Engineering, presented the project. Mr. Julian stated that they are proposing 38 dwelling units. They are projecting \$650,000+ units that will be a part of the Riss Lake homes association. Mr. Claussen stated that a portion of the water line will need to be relocated. They allowed for a 100' stream setback at the southeast of the site. The applicant is providing a tract along 9 Highway to provide a buffer. Tract D is to be dedicated to the City and includes the waterfall and weir for the Parkville Nature Sanctuary. The access point is proposed to be widened with a median to allow for emergency access should half of the access be blocked. The grading plan noted some retaining walls necessary to preserve trees and existing grades. Stormwater is proposed to be handled through native vegetation preservation and enhanced conveyance swales.

##### **QUESTIONS & CLARIFICATIONS**

Commissioner Krtek asked about fire protection requirements. Mr. Claussen responded that



due to having >30 lots, they required 2 points of access. This was achieved via widening the access point off of Lakeview Dr. Commissioner Krtek inquired about the sidewalks only proposed on one side of the street. Mr. Claussen responded that one side of sidewalks was traditional. He noted that sidewalk was proposed to be connected to Tract C for a future trail connection. Mr. Julian stated that many streets in Riss Lake with cul-de-sacs only have sidewalks on one side of the street. He also stated that not having sidewalk allows more flexibility in topography. Commissioner Delich had questions regarding the topography. Mr. Claussen noted that many lots throughout the plat had walk out basements. He also demonstrated the proposed retaining walls to preserve additional vegetation. Commissioner Delich asked about Tract D. Mr. Claussen responded that it was required as open space dedication and that it currently contains Nature Sanctuary amenities so it made sense to donate to the City. Commissioner Krtek asked if this area would be on grinder pumps. Mr. Claussen responded affirmatively. Vice Chair Wright asked about the heights of the retaining walls. Mr. Claussen responded that the walls were proposed to be 10 foot on the south side and 8 foot on the north side. Vice-Chair Wright asked about gating the community. Mr. Julian stated that it would not be gated because it wasn't feasible. Mr. Claussen stated that subdivision signage was proposed along Lakeview Dr. Mr. Lachky stated that subdivision signage was regulated by Chapter 409 of the Municipal Code. Vice-Chair Wright asked about the building layouts on the lot with respect to the driveways and garages. Mr. Julian responded that there are opportunities to provide diversity of front facades. Commissioner Lee asked about impacts to the dam regarding structural integrity. Mr. Claussen stated they would be required to provide an engineering report to Missouri Department of Natural Resources prior to any construction. Mr. Lachky stated the City will need to receive a letter of support from MoDNR prior to construction. Commissioner Krtek asked about continued oversight of the dam. Mr. Julian responded that the permit is renewed every 2 years with review by the State.

## **PUBLIC HEARING**

Andrew Barchers expressed concerns with impacts to the dam. He asked whether the HOA would be responsible for impacts to the dam. Mr. Julian stated that the City would be responsible for the infrastructure once it was in the ground. Alysén Abel, Director of Public Works, stated that the stormwater management plan would be reviewed through the standard procedures.

## **MOTION**

**ACTION:** Allyson Berberich moved to approve the preliminary plat, Michael Lee seconded. Motion Passed: 8-0.

**AYES:** Michael Lee, Michael Wright, Barbara Wassmer, John Delich, R. Douglas Krtek, Walt Lane, Allyson Berberich, Kathy Leibrand

**NOES:** None

**ABSTAIN:** None

- B. Application for Subdivision – Final Plat for Sanctuary At Riss Lake, a residential development consisting of 19 lots for duplexes and 4 tracts of open space on 16.18 acres (more or less), generally located at the southeast corner of the intersection of MO-Hwy 9 and Lakeview Dr. in Parkville, MO 64152.

**ACTION:** Allyson Berberich moved to approve the final plat, Kathy Leibrand seconded. Motion Passed: 8-0.

**AYES:** Michael Lee, Michael Wright, Barbara Wassmer, John Delich, R. Douglas Krtek, Walt Lane, Allyson Berberich, Kathy Leibrand  
**NOES:** None  
**ABSTAIN:** None

## 7. Other Business

### A. Upcoming meetings & dates of importance:

- Board of Aldermen Meetings: Tuesday, January 18, 2022 and February 1, 2022 at 7:00 p.m.
- Board of Zoning Adjustments Meeting: Tuesday, January 25, 2022 at 5:30 p.m.
- Planning & Zoning Commission Regular Meeting: Tuesday, February 8, 2022 at 5:30 p.m.

## 8. Adjournment

Vice-Chair Wright called further discussion. Seeing none, he called for a motion to adjourn.

**ACTION:** John Delich moved to adjourn, Barbara Wassmer seconded. Motion Passed: 8-0.

**AYES:** Michael Lee, Michael Wright, Barbara Wassmer, John Delich, R. Douglas Krtek, Walt Lane, Allyson Berberich, Kathy Leibrand

**NOES:** None

**ABSTAIN:** None

Meeting adjourned at 6:51 p.m.

Submitted by:

\_\_\_\_\_  
Stephen Lachky, AICP  
Community Development Director

\_\_\_\_\_  
Date

\_\_\_\_\_  
Brad Stanton  
Planner

\_\_\_\_\_  
Date



## Staff Analysis

|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>Agenda Item:</u>          | 6.A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <u>Proposal:</u>             | Application for Major Site Plan for Dairy Queen, a drive-through restaurant generally located south of Highway 45 and approx. 250 feet west of Highway 9 in Parkville, MO 64152.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <u>Staff Recommendation:</u> | Approval (with conditions)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <u>Case No:</u>              | PZ 2022-01                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <u>Applicant:</u>            | Logan Hayes, Hive Design Collaborative                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <u>Owners:</u>               | Andrew Smith, Edens Smith Corp                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <u>Location:</u>             | 8803 NW Highway 45, Generally south of Highway 45 and approx. 250 feet west of Highway 9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <u>Zoning:</u>               | "B2" General Business District                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <u>Parcel #s:</u>            | Platte County parcel no. 20-7.0-26-100-002-003.000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <u>Exhibits:</u>             | <ul style="list-style-type: none"><li>A. This Staff Analysis</li><li>B. Application for Major Site Plan</li><li>C. Subject Property Area Map</li><li>D. Final Development Plans for Dairy Queen (prepared by SM Engineering; dated January 3, 2022; revised January 24, 2022)</li><li>E. Project Narrative (Submitted by Applicant)</li><li>F. Stormwater Management Plan (prepared by SM Engineering; dated January 6, 2022)</li><li>G. Additional exhibits as may be presented during the meeting</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                    |
| <u>By Reference:</u>         | <ul style="list-style-type: none"><li>A. Parkville Municipal Code, Title IV – Development Code in its entirety (<a href="https://www.ecode360.com/PA3395-DIV-05">https://www.ecode360.com/PA3395-DIV-05</a>)<ul style="list-style-type: none"><li>1. Chapter 404 Subdivision Regulations</li><li>2. Section 405.010 Zoning Districts Established</li><li>3. Section 405.020 Districts &amp; Uses</li><li>4. Section 405.030 Standards Applicable to All Districts</li><li>5. Appendix B. Great Trees for the Kansas City Region</li></ul></li><li>B. Parkville Master Plan (<a href="http://parkvillemo.gov/government/city-plans-studies/master-plan/">http://parkvillemo.gov/government/city-plans-studies/master-plan/</a>)</li><li>C. Highway 45 Corridor Plan (<a href="http://parkvillemo.gov/download/Highway45CorridorPlan.pdf">http://parkvillemo.gov/download/Highway45CorridorPlan.pdf</a>)</li></ul> |

The application proposes a major site plan for Dairy Queen, a drive-through restaurant located just west of the intersection of Highways 45 and 9. The project area is approximately 1.08 acres (more or less), is addressed as 8803 NW Highway 45, and resides within Platte County parcel no. 20-7.0-26-100-002-003.000.



The subject property was formerly a vehicle service center and now sits vacant pending demolition for the Dairy Queen project. The applicant is proposing to clear the site of the current development prior to implementing the proposed major site plan. Access currently exists to the north off of 45 Highway. MoDOT will not allow any expansion of the existing access point on 45 Highway.

## Review and Analysis

The major site plan process coordinates development projects with the public realm and with adjacent sites, and specifically demonstrates how new projects meet development and design standards of this code regarding compatible arrangement of buildings, pedestrian and vehicle access, site design, lighting and landscaping. Parkville Municipal Code, Section 403.060, Subsection B. provides criteria for how the Planning and Zoning Commission shall determine if a major site plan is appropriate. The following are staff's findings and conclusions for the major site plan (Case No. PZ 2022-01).

**1. In general, any site plan in compliance with all requirements of this code shall be approved.**

Staff concludes the site plan conforms to use allowances permitted in a "B2" General Business District. In addition, the site plan is in compliance with the City's subdivision regulations (i.e., block and lot arrangement), site and landscape design standards (i.e., planting requirements, buffer/screening requirements, outdoor lighting, and stormwater management), and access and parking regulations (i.e., access and circulation standards, required parking counts, and parking specifications).

**2. In making a determination of compliance, or for site plans accompanying any discretionary review or administrative relief, the review body shall consider whether:**

- a. The site is capable of accommodating the buildings, proposed use, access and other site design elements required by this code and will not negatively impact the function and design of rights-of-way or adjacent property.**

**"B2" Height, Area and Bulk Standards**

The subject property is currently zoned "B2" General Business District. Development standards for the "B2" General Business District are established in Section 403.030. Staff compared the proposed height, area and bulk standards to those in the "B-2" General Business District and the proposed height of 20 ft. and one story are below the "B-2" district standards for maximum building height, which are 45 ft. and 3 stories.

**"B2" Use Standards**

The proposed *Restaurant – Drive-through* use is allowed by right in the "B2" General Business District. *Restaurant – Drive-through* uses are "a food and beverage retail use where a portion of a facility relates to dispensing products or services to patrons who remain in vehicles; may include a window, driving lane, outside menu boards, and other interior or exterior features and equipment dedicated for this purpose."

**Access**

There is currently one point of existing access off of Missouri Hwy 45, a right-in, right-out access drive approximately 430 ft. to the west of the signalized intersection of Highways 45 and 9. The major site plan proposes utilizing this existing access drive to serve the development. Exhibit D contains AutoTURN movements for a Pierce Velocity fire truck (110 ft. ladder), showing the proposed layout can service fire emergency access. MoDOT is unwilling to allow expansion or movement of the existing access point due to the proximity to the existing traffic signal. The applicant is also proposing a connection to the south through the parking lot between the Mid-Continent Public Library and the Taylor Animal Hospital of Parkville. Staff is

supportive of this additional access to provide further connectivity to the Parkville Commons development to the south.

#### **Parking Requirements**

Section 408.030 requires twelve (12) parking spaces for every 1000 sq. ft. of building plus one (1) space for every employee. The applicant has exceeded this requirement of 29 spaces, providing a total of 32 parking spaces. Additionally, drive-through uses are required 5 car-lengths of stacking spaces for the drive-through service area. The applicant has met this requirement. A bicycle rack has been provided to meet the 2 stall bicycle parking requirement.

#### **Parking Layout Design**

The parking stall dimensions detailed on the major site plan (see Exhibit D) are 60 degree angled stalls measuring 19.5 ft. length by 9 ft. width, with an aisle width of 16 ft. This meets the parking layout design requirements of Table 408-10: Parking Dimensions.

#### **Signage**

The applicant has not indicated the location of any freestanding signage. **All proposed signage will require approval of an Application for Sign Permit in accordance with the City's "BP" Business Park District signage standards for size, height and area allowance as listed on Table 409-2: Sign Allowances.**

#### **Outdoor Lighting**

The applicant has included photometric site lighting plan (see Exhibit D). The outdoor light fixtures meet the mounting, height, shielding, and design and performance criteria per Section 407.040 Outdoor Lighting of the City's Title IV – Development Code.

- b. The design and arrangement of buildings and open spaces is consistent with good planning, landscape design and site engineering principles and practices.**

#### **Building Location**

The building is arranged on the property to provide enough space for one-way traffic through the site and ample stacking spaces for a drive-through restaurant use.

#### **Landscape Design**

The applicant has submitted a landscape plan that meets the requirements of Section 407.020. Due to existing conditions along Highway 45, the required street trees have been dispersed throughout the site, per Staff's suggestion.

#### **Stormwater Management**

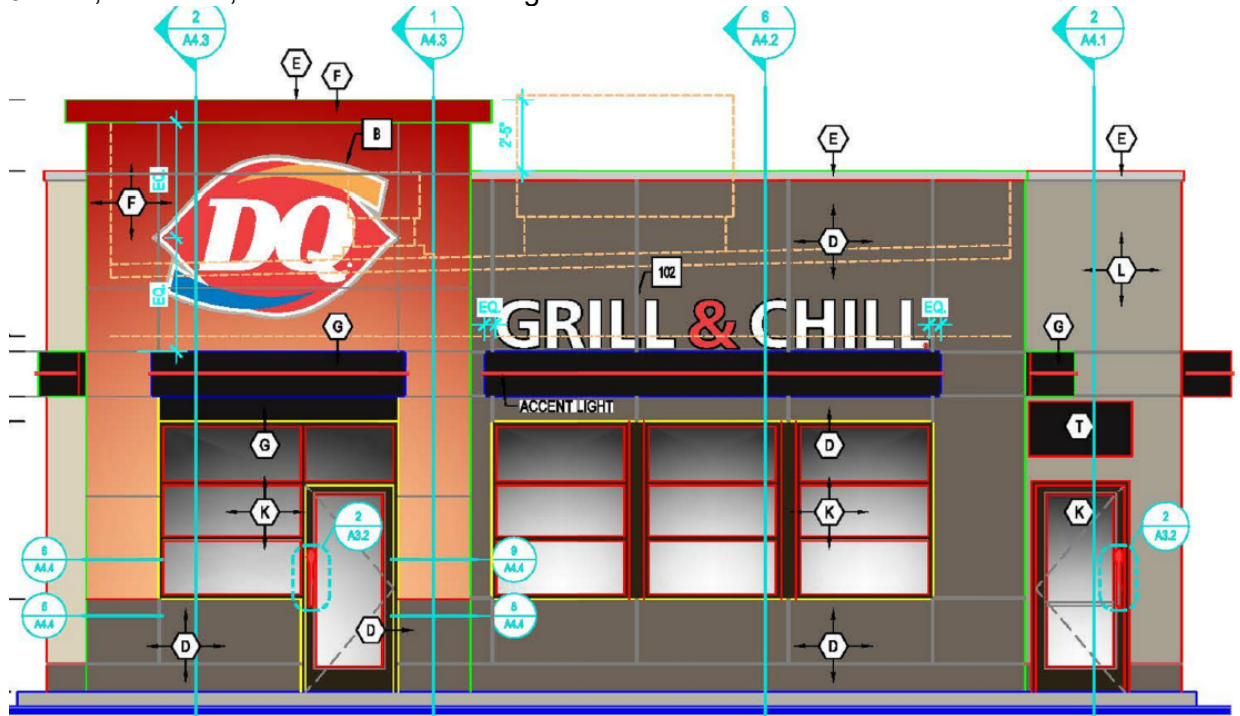
Per our Development Code requirements, the Public Works Department can require a Stormwater Management Analysis study be submitted for review and approval. The Applicant has provided a Stormwater Management Plan that has been reviewed by City Staff.

- c. The architecture and building design uses quality materials and the style is appropriate for the context considering the proportion, massing, and scale of different elements of the building.**

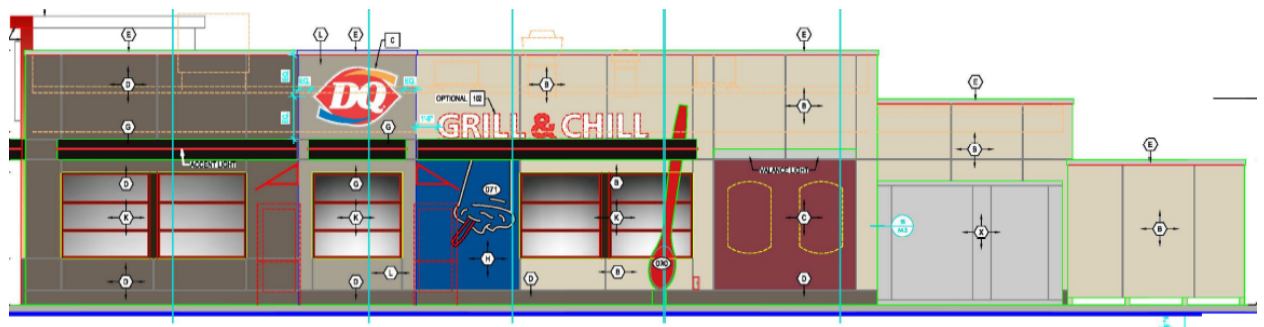


### **Architectural Design, Materials and Style**

The architectural design of the proposed restaurant is similar to other Dairy Queen branded restaurants in the Kansas City Metro area. The exterior is proposed to be generally neutral-colored EIFS product with Dairy Queen branded accents throughout all four (4) facades. This design is consistent with the existing Jimmy John's, Valvoline, and Minit Mart buildings in the corridor.



View from 45 Highway (Submitted by Applicant)



View from West (Submitted by Applicant)

### **Proportion, Massing and Scale**

In terms of proportion, massing and scale, the proposed 2,407 sq. ft. restaurant building is appropriate considering the context of the subject property and allowances per the "B2" General Business District.

- d. The overall design is compatible to the context considering the location and relationships of other buildings, open spaces, natural features or site design elements.

**Location Compatibility**

The subject property lies in an area of the Highway 45 corridor that is highly developed and includes many corporate-branded buildings. Buildings similar in design to the proposed Dairy Queen exist throughout the area.

**Open Spaces and Natural Features**

The subject property and the surrounding area are highly developed with few natural features. The submitted landscape plan provides detailing for the natural areas of the site.

- e. Whether any additional site-specific conditions are necessary to meet the intent of the zoning district or the intent and design objectives of any of the applicable development standards.**

As detailed in the in the review criteria above, the final development plan will meet all of the applicable "B2" requirements of the Development Code.

- 3. The application meets the criteria for all other reviews needed to build the project as proposed.**

Staff finds the application able to meet the criteria for all other reviews needed to build the project.

- 4. The recommendations of professional staff**

Staff recommends approval of the application as presented, with the conditions noted below.

**Staff Conclusion and Recommendation**

Staff concludes that the proposed major site plan: Conforms to the applicable requirements of the Development Code, including those of the "B2" General Business District; the site is capable of accommodating the buildings, proposed use, access and other site elements required by the Development Code and will not negatively impact the function and design of rights-of-way or adjacent property; the design and arrangement of buildings and open spaces is consistent with good planning and site engineering principles and practices; the architecture and building uses quality materials and the style is appropriate for the context considering the proportion, massing, and scale of different elements of the building; the overall design is compatible to the context considering the location and relationships of other buildings, open spaces, natural features or site design elements; the application meets the criteria for all other reviews needed to build the project as proposed; and can meet the recommendations of professional staff. Staff recommends approval of the major site plan for Dairy Queen, subject to the following conditions:

1. Approval is based on the representations of the drawings presented as part of this application and does not waive any requirement or development standard contained within the Municipal Code.
2. All signage requires an approved Sign Permit.
3. Any other conditions the Planning and Zoning Commission determines are necessary.

It should be noted that the recommendation contained in this report is made without knowledge of facts, comments or any additional information which may be presented during the meeting. For that reason, the conclusions herein are subject to change as a result of evaluating additional information; additionally, staff reserves the right to modify or confirm the conclusions and recommendations herein based on consideration of any additional information that may be presented.



**Necessary Action**

Following consideration of the Application for Major Site Plan, supporting information, associated exhibits, factors discussed above and any testimony presented during the meeting, the Planning and Zoning Commission should recommend approval (with or without conditions), denial, or postpone the application for further consideration. If approved subject to conditions, the conditions should be noted for the record. Unless postponed, the Planning and Zoning Commission's action will serve as the final action.

Note: Approval of a major site plan and fulfillment of staff conditions shall authorize the applicant to apply for a building permit and other applicable permits. The Community Development Director may approve minor amendments to approved major site plan without the refiling of a new application, but in no event shall the Director approve any change that does not qualify for an administrative adjustment, or any change that is different from any condition of approval of the major site plan. An approved major site plan shall expire and be of no further effect if an application for building permit for one or more buildings shown on the site plan is not filed within two years of approval. The Planning and Zoning Commission may grant an extension for up to one additional year.

*End of Memorandum*

|                         |                   |
|-------------------------|-------------------|
| <u>/s/ Brad Stanton</u> | <u>08-04-2021</u> |
| Brad Stanton            | Date              |
| Planner                 |                   |



Application #: \_\_\_\_\_  
Date Submitted: \_\_\_\_\_  
Public Hearing: \_\_\_\_\_  
Date Approved: \_\_\_\_\_

CITY OF PARKVILLE • 8880 Clark Avenue • Parkville, MO 64152 • (816) 741-7676 • FAX (816) 741-0013

## Application for Major Site Plan

Pre-application meeting required per Parkville Municipal Code, Title IV, Section 403.010, Subsection C.

### 1. Applicant/Contact Information

#### Applicant(s)

Name: Logan Hayes  
Company: Hive Design Collaborative  
Address: 1617 Walnut St.  
City, State: Kansas City, MO  
Phone: (816) 581-6363 Fax: \_\_\_\_\_  
E-mail: ogan ve o

#### Engineer/Surveyor(s) preparing plans & legal desc.

Name: Sam Malinowsky  
Company: SM Engineering  
Address: 5507 High Meadow Circle  
City, State: Manhattan, KS  
Phone: (785) 385-9747 Fax: \_\_\_\_\_  
E-mail: smcivilengr@gmail.com

#### Owner(s), if different from applicant

Name: ANDREW SMITH  
Company: EDENSMITH CORP  
Address: 1824 NW 93<sup>rd</sup> Terrace  
City, State: JC, MO 64155  
Phone: 7178554823 Fax: \_\_\_\_\_  
E-mail: EDENSMITHCORP@YAHOO.COM

#### Contact Person, if different from applicant

Name: \_\_\_\_\_  
Company: \_\_\_\_\_  
Address: \_\_\_\_\_  
City, State: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_  
E-mail: \_\_\_\_\_

We, the undersigned, do hereby authorize the submittal of this application and associated documents and certify that all information contained therein is true and correct. We acknowledge that development in the City of Parkville is subject to the Municipal Code of the City of Parkville. We do hereby agree to abide by and comply with the above-mentioned codes, and further understand that any violations from the provisions of such or from the conditions as stated herein shall constitute cause for fines, punishments and revocation of approvals as applicable.

Applicant's Signature (Required) \_\_\_\_\_

Date: 1/5/22

Property Owner's Signature (Required) \_\_\_\_\_

Date: 1/4/22

### 2. Property Information

Zoning district: "B-2" General Business District

Property address and general location: 8803 NW Highway MO-45

Legal description (may be attached): \_\_\_\_\_

Description of proposed use(s): \_\_\_\_\_

Gross acreage of lot: 1.06

Net acreage of lot: \_\_\_\_\_

Open space acreage: \_\_\_\_\_

Lot coverage: 33,016 S.F.

Is proposal an alteration to an existing building or new construction? ☐ alteration ☒ new construction

**3. Factors affecting the project**Are any public improvements required for this project? No

Explain (may be attached):

**Attach a narrative addressing:**

1. *How the site is capable of accommodating the buildings, proposed use, access and other site design elements required by this code and will not negatively impact the function and design of rights-of-way or adjacent property.*
2. *How the design and arrangement of buildings and open spaces is consistent with good planning, landscape design and site engineering principles and practices.*
3. *How the architecture and building design uses quality materials and the style is appropriate for the context considering the proportion, massing, and scale of different elements of the building.*
4. *How the overall design is compatible to the context considering the location and relationships of other buildings, open spaces, natural features or site design elements.*
5. *Whether any additional site-specific conditions are necessary to meet the intent of the zoning district or the intent and design objectives of any of the applicable development standards.*
6. *Any other information relevant to the application.*

**4. Checklist of required submittals**

- ☐ Completed application, including site plan with all required details and supporting data.
- ☐ Nonrefundable application fee of \$300.00.
- ☐ Five (5) copies 24" x 36" size, or larger sets, and one (1) electronic set (PDF format) of the site plan and elevations for staff and service providers to review.
- ☒ Authorization signature of the applicant and owner of record of the property.
- ☐ If subject to covenants and/or deed restrictions, signed approval of the association/entity enforcing such.

**For Office Use Only**Application accepted as complete by: \_\_\_\_\_  
Name/Title \_\_\_\_\_ Date \_\_\_\_\_

Application fee payment: Check # \_\_\_\_\_ Amount \$ \_\_\_\_\_

Final reimbursable costs paid (if applicable). Date of Action: \_\_\_\_\_

**Planning Commission Action:** ☐ Approved ☐ Approved with Conditions ☐ Denied Date of Action: \_\_\_\_\_

Conditions if any: \_\_\_\_\_

**Board of Aldermen Action:** ☐ Approved ☐ Approved with Conditions ☐ Denied Date of Action: \_\_\_\_\_

Conditions if any: \_\_\_\_\_

## 5. Major Site Plan checklist for staff review

### 1. Basic Information

- a. Name of the development
- b. Name, address, contact information of person or firm that prepared the plan
- c. Date plan was prepared, including any revision dates
- d. Graphic, engineering scale
- e. North arrow
- f. Vicinity map identifying boundaries and location of property in relation to City

### 2. Development Summary Table | *Provided on site plan in chart format*

- a. Existing zoning and proposed zoning if applicable
- b. Total land area in square feet and acres
- c. Proposed use or uses of each building and/or structure
- d. Height above grade of buildings and structures and number of stories of each building and/or structure
- e. Gross floor area per floor and total for each building/structure
- f. Residential buildings shall also include residential building type and total number of dwelling units. Residential development shall identify gross and net density
- g. Building coverage and floor area ratio
- h. Ratio of required number of parking spaces for each use and amount of proposed parking spaces

### 3. Plan Drawing

- a. Property lines and lot dimensions
- b. Proposed building footprint with lines
- c. Building(s) with dimensions and distance to property lines
- d. Cross-sections of the site detailing the height of buildings/structures, distances, and relationship to existing topography, and if applicable, proposed topography
- e. Existing and proposed rights-of-way improvements (curb/gutter/sidewalk/driveways, etc.) and easements
- f. All radii, acres, points of tangency, central angles and lengths of curves
- g. Existing and proposed topography, with major contour lines at intervals of 10 feet, and minor contour lines at an interval of 2 feet
- h. Indication of FEMA Special Flood Hazard Areas (SFHA) if applicable
- i. Location and identification of any proposed and any existing site features to be retained, including detention areas, retaining walls, existing mature trees, and other pertinent site features
- j. Identification of proposed or existing use or uses within each building, building entrances and exits, docks or other service entrances, utility entrances and screening to them, trash enclosures if applicable, outdoor storage and sales areas, and other paved areas.
- k. Architectural renderings of the completed project be provided, including elevations of each side of each structure and delineation of building materials.

### 4. Parking and Circulation

- a. Location and dimensions of the widths of existing or proposed private vehicular access into the property from perimeter streets and location of existing or approved accesses on properties adjacent or opposite the property
- b. Location of proposed or existing parking spaces, aisles, and drives with setback dimensions from proposed streets right-of-way and adjacent property lines; typical width and length of parking spaces; number of parking spaces per row; and width of parking and drive aisles
- c. Illustration of AutoTURN vehicular movements for emergency vehicle access to development, specifically a Pierce Velocity fire truck (duel axle type w/ 110 ft. ladder; vehicle specifications are 43.3 ft. length X 8 ft. width)
- d. Location of proposed trash enclosures if applicable
- e. Identification of all public and private existing and proposed sidewalks, trails, bicycle facilities, and/or open space areas (Tracts A, B, C, etc.)
- f. Indication of compliance with access and parking standards per City Code ([Chapter 408](#))

## 5. Landscaping and Screening

- a. A plan for landscaping design and screening in conformance with City Code ([Section 407.020](#) and [407.030](#))
- b. A lighting plan in conformance with City Code ([Section 407.040](#))
- c. A stormwater management plan in conformance with City Code ([Section 407.050](#))
- d. A landscape schedule showing compliance with City Code ([Chapter 407](#))

## 6. Other Requirements

- a. All survey monuments and benchmarks, together with their description
- b. Show windows and entrances
- c. Label all materials
- d. Show canopies and awnings if proposed
- e. Information regarding signage if proposed, in compliance with City Code ([Chapter 409](#))

**Note:** Submissions of major site plans to the Planning and Zoning Commission that do not conform to the above checklist may, at the discretion of the Planning and Zoning Commission, be subject to delay until unfulfilled items are complied with.



# FINAL DEVELOPMENT PLANS

## FOR

# DAIRY QUEEN

8803 NW 45 HIGHWAY  
PARKVILLE, MO

UTILITIES INVOLVED

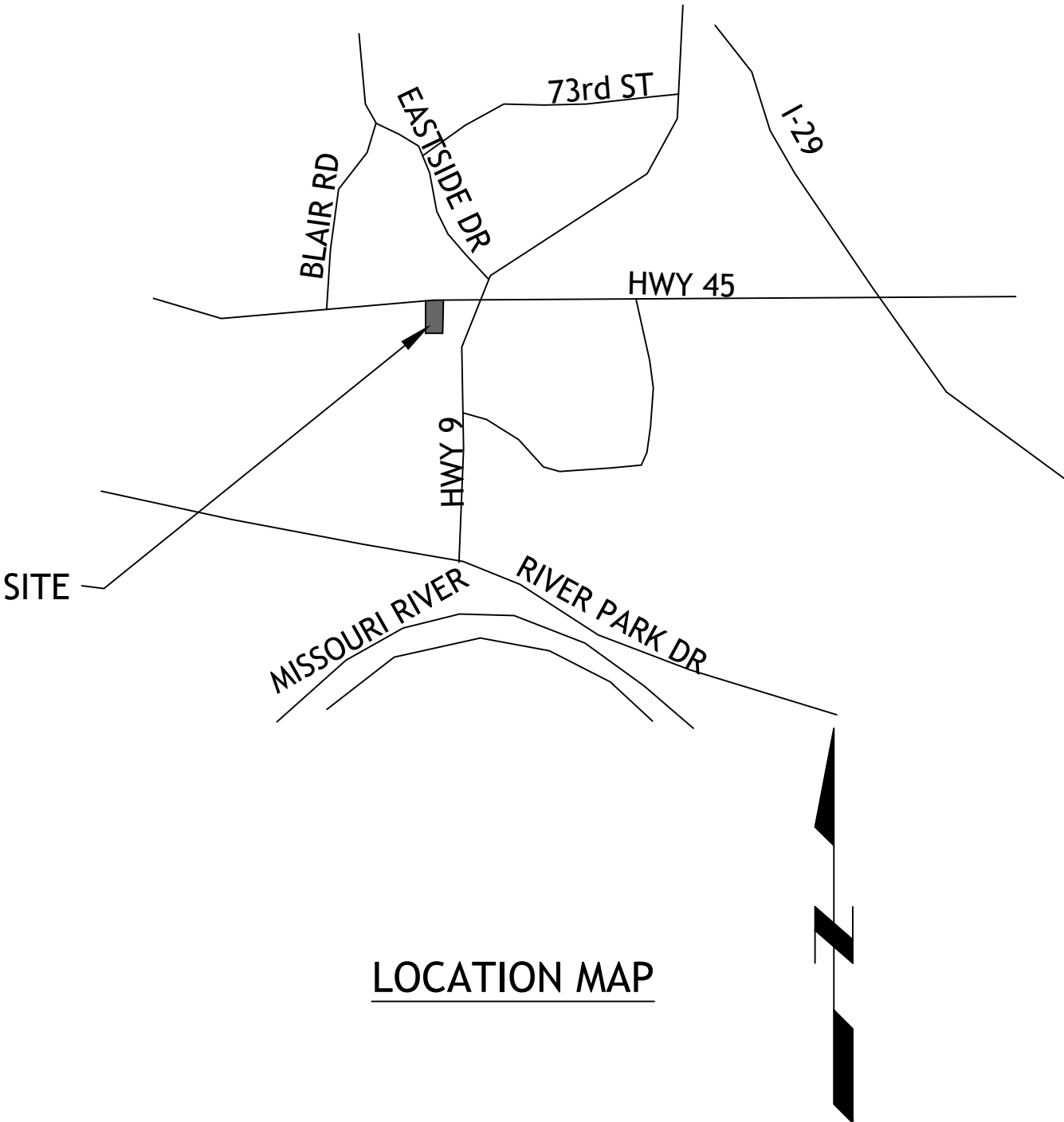
Sanitary Sewer  
City of Parkville  
8880 Clark Ave.  
Parkville, MO 64152  
816-935-2777  
northhillseng@gmail.com

Water Service  
Missouri American Water  
10550 FF Highway  
Parkville, MO 64152  
816-741-2992  
businessdevelopment@amwater.com

Natural Gas  
Spire  
75000 East 35 th Terrace  
Kansas City, MO 64129  
816-472-3434  
Beverly.Passantino@spireenergy.com

Electric  
Evergy  
8326 N. Platte Purchase Drive  
Kansas City, MO 64118  
816-471-5275  
custserv@evergy.com

Telecommunications  
AT&T  
800-464-7928



LOCATION MAP

UTILITY STATEMENT:  
THE UNDERGROUND UTILITIES SHOWN HEREON ARE FROM FIELD SURVEY INFORMATION OF ONE-CALL LOCATED UTILITIES, FIELD SURVEY INFORMATION OF ABOVE GROUND OBSERVABLE EVIDENCE, AND/OR THE SCALING AND PLOTTING OF EXISTING UTILITY MAPS AND DRAWINGS AVAILABLE TO THE SURVEYOR AT THE TIME OF SURVEY. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. FURTHERMORE, THE SURVEYOR DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES BY EXCAVATION UNLESS OTHERWISE NOTED ON THIS SURVEY.  
SAFETY NOTICE TO CONTRACTOR  
IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICE, THE CONTRACTOR WILL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.

WARRANTY/DISCLAIMER  
THE DESIGNS REPRESENTED IN THESE PLANS ARE IN ACCORDANCE WITH ESTABLISHED PRACTICES OF CIVIL ENGINEERING FOR THE DESIGN FUNCTIONS AND USES INTENDED BY THE OWNER AT THIS TIME. HOWEVER, NEITHER SM ENGINEERING NOR ITS PERSONNEL CAN OR DO WARRANTY THESE DESIGNS OR PLANS AS CONSTRUCTED, EXCEPT IN THE SPECIFIC CASES WHERE SM ENGINEERING PERSONNEL INSPECT AND CONTROL THE PHYSICAL CONSTRUCTION ON A CONTEMPORARY BASIS AT THE SITE.

CAUTION- NOTICE TO CONTRACTOR  
THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH PROPOSED IMPROVEMENTS SHOWN ON THE PLANS. THE CONTRACTOR SHALL EXPOSE EXISTING UTILITIES AT LOCATIONS OF POSSIBLE CONFLICTS PRIOR TO ANY CONSTRUCTION.

LEGAL DESCRIPTION:  
A TRACT OF LAND IN THE NORTHEAST QUARTER OF SECTION 26, TOWNSHIP 51, RANGE 34, PARKVILLE, PLATTE COUNTY, MISSOURI, BEING BOUNDED AND DESCRIBED AS FOLLOWS:  
BEGINNING AT A POINT ON THE NORTH LINE OF THE NORTHEAST QUARTER OF SECTION 26, SAID POINT BEING 1223.80 FEET EAST AS MEASURED ALONG SAID NORTH LINE FROM THE NORTHWEST CORNER OF THE NORTHEAST QUARTER OF SAID SECTION 26; THENCE SOUTH 1 DEGREE 22 MINUTES 17 SECONDS WEST, 77.15 FEET TO A POINT ON THE SOUTHERLY RIGHT OF WAY LINE OF MISSOURI STATE HIGHWAY ROUTE NO. 45, AS NOW LOCATED, SAID POINT BEING THE TRUE POINT OF BEGINNING OF THE TRACT TO BE HEREIN DESCRIBED; THENCE SOUTH 89 DEGREES 09 MINUTES 00 SECONDS EAST ALONG SAID SOUTHERLY RIGHT OF WAY LINE, 150.00 FEET; THENCE SOUTH 1 DEGREE 16 MINUTES 12 SECONDS WEST, 280.00 FEET; THENCE NORTH 89 DEGREES 09 MINUTES 00 SECONDS WEST, 150.50 FEET; THENCE NORTH 1 DEGREE 22 MINUTES 17 SECONDS EAST, 280.00 FEET TO THE TRUE POINT OF BEGINNING, EXCEPT THE NORTH 60.00 FEET OF THE SAID DESCRIBED TRACT, SUBJECT TO THAT PART, IF ANY, IN STREETS, ROADWAYS, HIGHWAYS OR OTHER PUBLIC RIGHTS-OF-WAY.  
AND EXCEPT THAT PART CONVEYED TO THE STATE OF MISSOURI, ACTING BY AND THROUGH THE MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION BY QUITCLAIM DEED RECORDED 12/18/1998 AS DOCUMENT NO. 22636 IN BOOK 897 AT PAGE 62.

SURVEYOR

J & J SURVEYING  
6500 NW TOWER DR., SUITE 102  
PLATTE WOODS, MO 64151  
PHONE (816)741-1017  
FAX (816)741-1018

ENGINEER

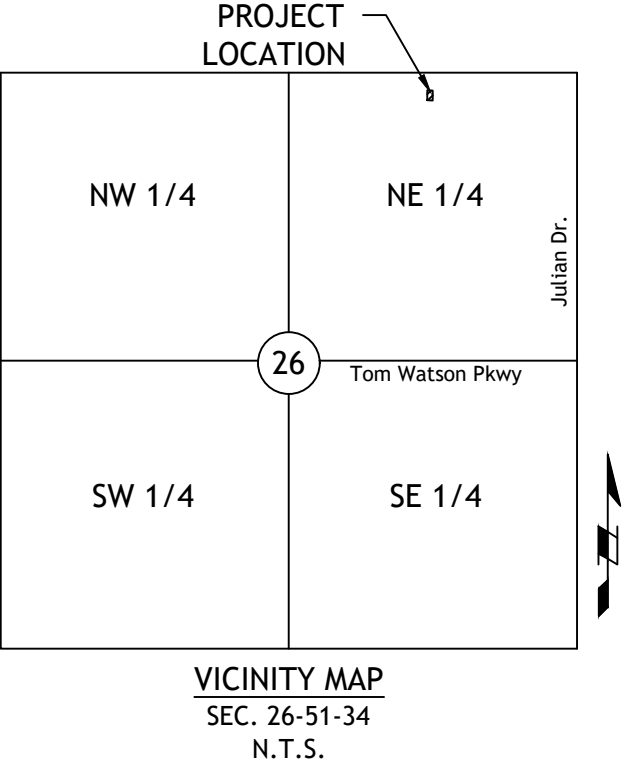
SM ENGINEERING  
5507 HIGH MEADOW CIRCLE  
MANHATTAN KANSAS, 66503  
SMCIVILENGR@GMAIL.COM  
785.341.9747



SAMUEL D. MALINOWSKY  
PROFESSIONAL ENGINEER

INDEX OF SHEETS

- C-1 COVER SHEET
- C-2 EXISTING CONDITIONS
- C-3 DEMOLITION PLAN
- C-4 SITE PLAN
- C-5 UTILITY PLAN
- C-6 GRADING PLAN / STORM LINE A & B  
PLAN AND PROFILE
- C-7 EROSION CONTROL PLAN
- C-8 EROSION CONTROL DETAILS
- C-9 DETAILS
- C-10 DETAILS
- C-11 LANDSCAPE PLAN
- C-12 EMERGENCY VEHICLE ACCESS



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5507 High Meadow Circle  
Manhattan Kansas, 66503  
smcivilengr@gmail.com  
785.341.9747

Drawings and/or Specifications are original proprietary work and property of the Engineer and intended specifically for this project. Use of items contained herein without consent of the Engineer is prohibited. Drawings illustrate best information available to the Engineer. Field verification of actual elements, conditions, and dimensions is required.

Revisions  
1-8-22 PER CLIENT  
1-20-22 CITY COMMENTS  
1-24-22 PER CLIENT

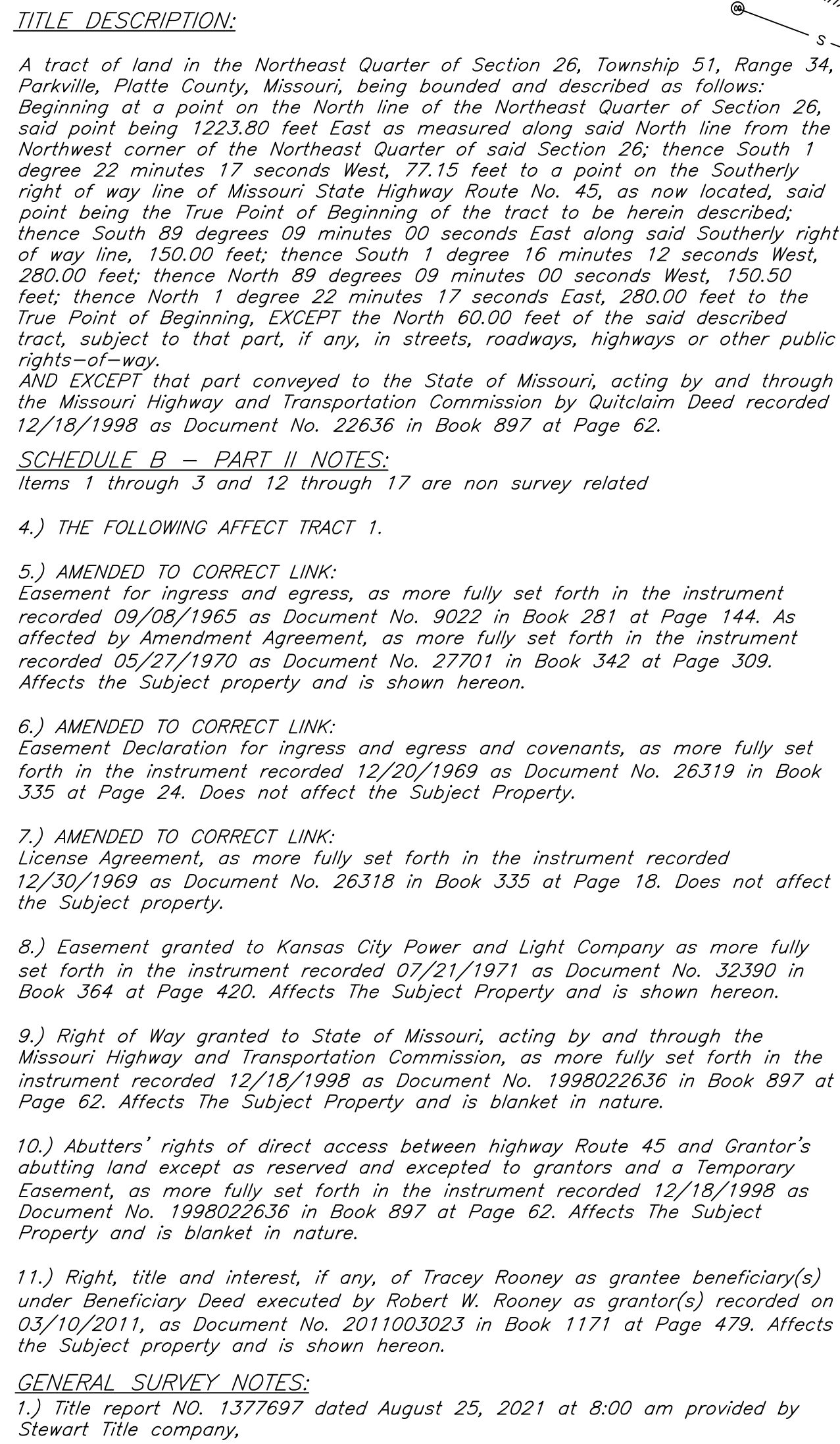
DAIRY QUEEN

8803 NW 45 HIGHWAY  
PARKVILLE, MO

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C1.0  
Civil  
COVER SHEET  
permit  
3 JANUARY 2022



VICINITY MAP  
 SEC. 26-51-34  
 N.T.S.



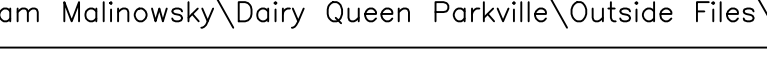
BENCHMARK:

STATION PL 18-3: Located 167' South of NW 64TH Street and 26' West of Chatham Ave.

ELEVATION = 955.71

PROPERTY LOCATION:  
8803 NW 45 highway  
Parkville, Platte County  
Missouri 64152

Location: C:\DESIGN\Sam Malinowsky\Dairsty Queen Parkview\Outside Files\21.306-ALTA-REV1 to client.dwg- Dec 14, 2021-9:25pm



6500 NW TOWER DR., SUITE 102 • PLATTE WOODS, MO 64151  
PHONE (816)741-1017 • FAX (816)741-1018

12-6-21  
Date

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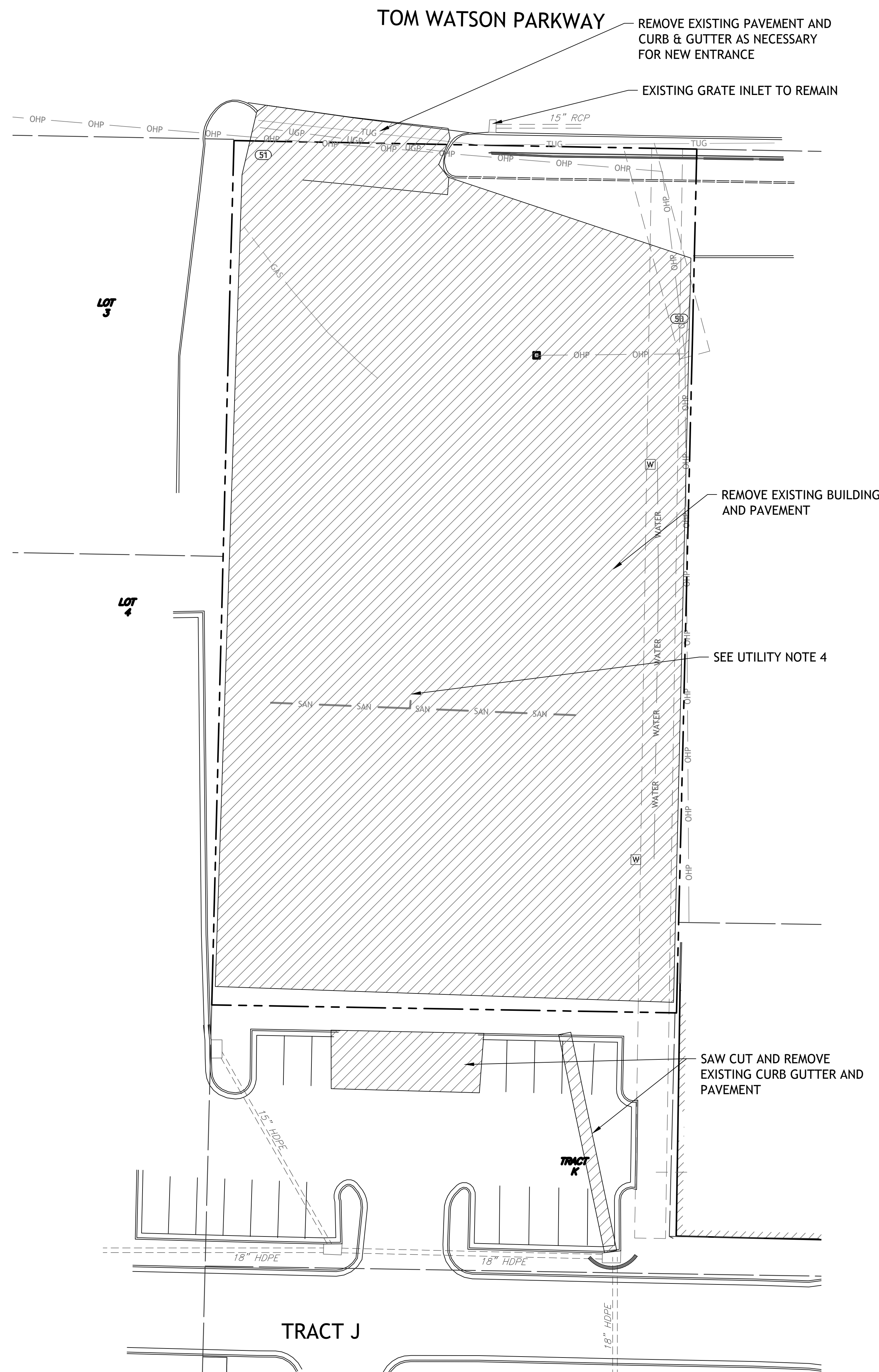
John B. Young PLS-2006016647

CERTIFICATION:

To Stewart Title company, Edens Smith, Inc. d/b/a, Dairy Queen franchising its successors and assigns,:

This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2021 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes items 1, 2, 3, 4, 5, 7a, 7b1, 8, 10, and 11 of Table A thereof. The field work was completed on the 7th day of September, 2021.





- SITE DEMOLITION NOTES**
1. ALL ONSITE STRUCTURES, LIGHT POLE BASES, STORM SEWER, PAVEMENT, CURB AND GUTTER AND ALL SITE IMPROVEMENTS SHALL BE REMOVED UNLESS SPECIFICALLY NOTED TO REMAIN IN ACCORDANCE WITH THE SPECIFICATIONS OF THE CITY OF PEABODY AND STATE REGULATIONS
  2. CONTRACTOR RESPONSIBLE FOR VERIFYING THAT ALL UTILITIES HAVE BEEN DISCONNECTED PER THE INDIVIDUAL UTILITY COMPANY'S CRITERIA. ALL UTILITY PIPES TO BE ABANDONED SHALL BE PLUGGED PER STATE REGULATIONS
  3. ALL ONSITE DEMOLISHED MATERIAL SHALL BE REMOVED AND DISPOSED OF PER STATE AND LOCAL REQUIREMENTS.
  4. ALL FOUNDATIONS WITHIN BUILDING PAD LIMITS TO BE REMOVED IN THEIR ENTIRETY. ANY FOUNDATIONS OUTSIDE THE BUILDING PAD LIMITS TO BE REMOVED TO A MINIMUM DEPTH OF 2' BELOW FINISHED GROUND.
- UTILITY NOTES**
1. CONTRACTOR TO COORDINATE WITH ENERGY COMPANY FOR TERMINATION OF SERVICE AND REMOVAL OF EXISTING LINE AND METER
  2. CONTRACTOR TO COORDINATE WITH POWER COMPANY ON REMOVING EXISTING OVERHEAD LINE AND PROVIDING UNDERGROUND POWER TO NEW TRANSFORMER.
  3. CONTRACTOR TO REMOVE EXISTING WATER SERVICE CONNECTIONS PER CITY REQUIREMENTS.
  4. APPROXIMATE LOCATION OF EXISTING SANITARY SEWER SERVICE CONNECTION. CONTRACTOR TO PROVIDE TEMPORARY CAP AND REUSE FOR NEW BUILDING

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**SME**  
5507 High Meadow Circle  
Manhattan Kansas, 66503  
smcivilengr@gmail.com  
785.341.9747

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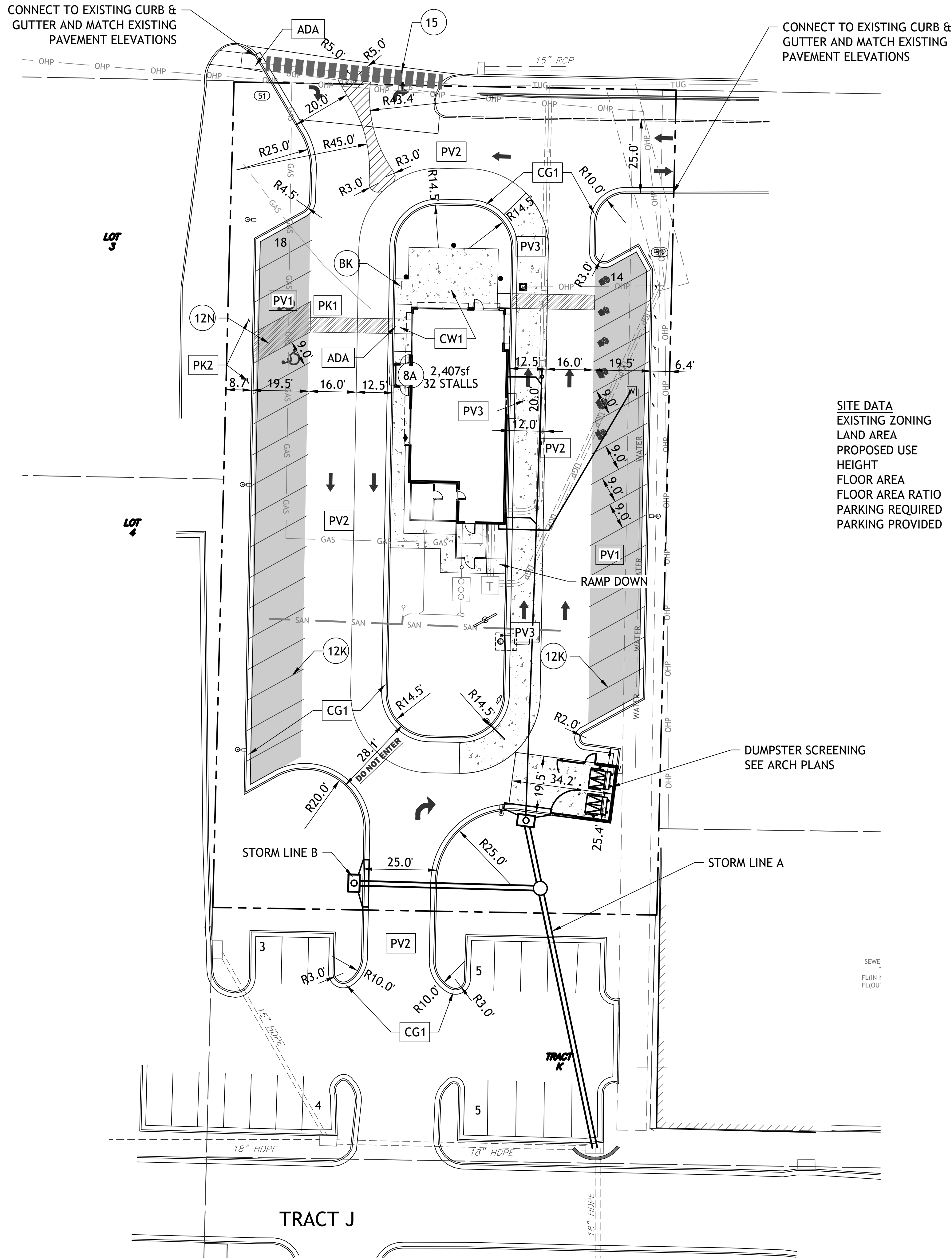
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Civil  
DEMOLITION PLAN  
permit  
3 JANUARY 2022

1"=20'  
0 10' 20'

Page 20 of 129



TOM WATSON PARKWAY



SITE DATA  
EXISTING ZONING B-2  
LAND AREA 41,817sf / 0.96ac  
PROPOSED USE RESTAURANT  
HEIGHT 20'  
FLOOR AREA 2,407sf  
FLOOR AREA RATIO 5.1%  
PARKING REQUIRED 12/1000 = 29  
PARKING PROVIDED 32

CONSTRUCTION NOTES:

1. COORDINATE START-UP AND ALL CONSTRUCTION ACTIVITIES WITH OWNER.
2. CONSTRUCTION METHODS AND MATERIALS NOT SPECIFIED IN THESE PLANS ARE TO MEET OR EXCEED THE STANDARD SPECIFICATIONS.
3. ALL CONSTRUCTION WORK AND UTILITY WORK OUTSIDE OF PROPERTY BOUNDARIES SHALL BE PERFORMED IN COOPERATION WITH AND IN ACCORDANCE WITH REGULATIONS OF THE AUTHORITIES CONCERNED.
4. PUBLIC CONVENIENCE AND SAFETY: THE CONTRACTOR SHALL CONDUCT THE WORK IN A MANNER THAT WILL INSURE, AS FAR AS PRACTICABLE, THE LEAST OBSTRUCTION TO TRAFFIC, AND SHALL PROVIDE FOR T1-1E CONVENIENCE AND SAFETY OF THE GENERAL PUBLIC AND RESIDENTS ALONG AND ADJACENT TO HIGHWAYS IN THE CONSTRUCTION AREA.
5. ALL DIMENSIONS SHOWN ARE TO THE BACK OF CURB UNLESS OTHERWISE NOTED.
6. ACCESSIBLE STALLS SHOWN WITH A "VAN" SHALL BE 16'-0" MIN. AND SHALL HAVE A SIGN DESIGNATING "VAN-ACCESSIBLE". SEE DETAIL102.

NOTE:

1. CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATIONS AND DIMENSIONS OF ENTRANCE, SLOPED PAVING, EXIT PORCHES, RAMPS, TRUCK DOCKS. PRECISE BUILDING DIMENSIONS AND EXACT BUILDING UTILITY ENTRANCE LOCATIONS.
2. THESE PLANS HAVE NOT BEEN VERIFIED WITH FINAL ARCHITECTURAL CONTRACT DRAWINGS. CONTRACTOR SHALL VERIFY AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES. CONTRACTOR IS FULLY RESPONSIBLE FOR REVIEW AND COORDINATION OF ALL DRAWINGS AND CONTRACTOR DOCUMENTS.
3. ALL DIMENSIONS ARE TO BACK OF CURB UNLESS NOTED OTHERWISE
4. ALL DIMENSIONS ARE PERPENDICULAR TO PROPERTY LINE.
5. ACTUAL SIGN LOCATIONS TO BE COORDINATED WITH CONSTRUCTION MANAGER.

- SEE DETAIL SHEET FOR THE FOLLOWING DETAILS:
- PK-1 96" ACCESSIBLE & VAN ACCESSIBLE SPACE STRIPING
  - PK-2 ACCESSIBLE SIGN
  - SG-1 BOLLARD DETAIL
  - CG-1 TYPE B CURB AND GUTTER
  - CW1 CURB WALK AT BUILDING
  - CW2 CONCRETE SIDEWALK
  - CWS CONCRETE WHEEL STOP
  - PV1 LIGHT DUTY ASPHALT
  - PV2 HEAVY DUTY ASPHALT
  - PV3 CONCRETE PAVEMENT
  - SW1 SIDEWALK RAMP
  - ADA HANDICAP RAMP

NOTES:

- 8A DOOR (SEE ARCH. PLANS)
- 12K YELLOW PARKING LOT STRIPING (SHERWIN-WILLIAMS TM 2160 LEAD FREE OR APPROVED EQUAL)
- 12N 4" YELLOW STRIPES 3'-0" O.C.
- 510 CLEAN-OUT (SEE GRADING PLAN)
- 15 INSTALL MARKINGS 4" WHITE OUTSIDE LINE WITH 24" WHITE STRIPES 5' O.C.
- BK INSTALL 1 U-SHAPED BIKE RACK FOR 2 BIKE PARKING (BENSON OUTDOORS MODEL CBBR-ZUR-BK OF APPROVED EQUAL)

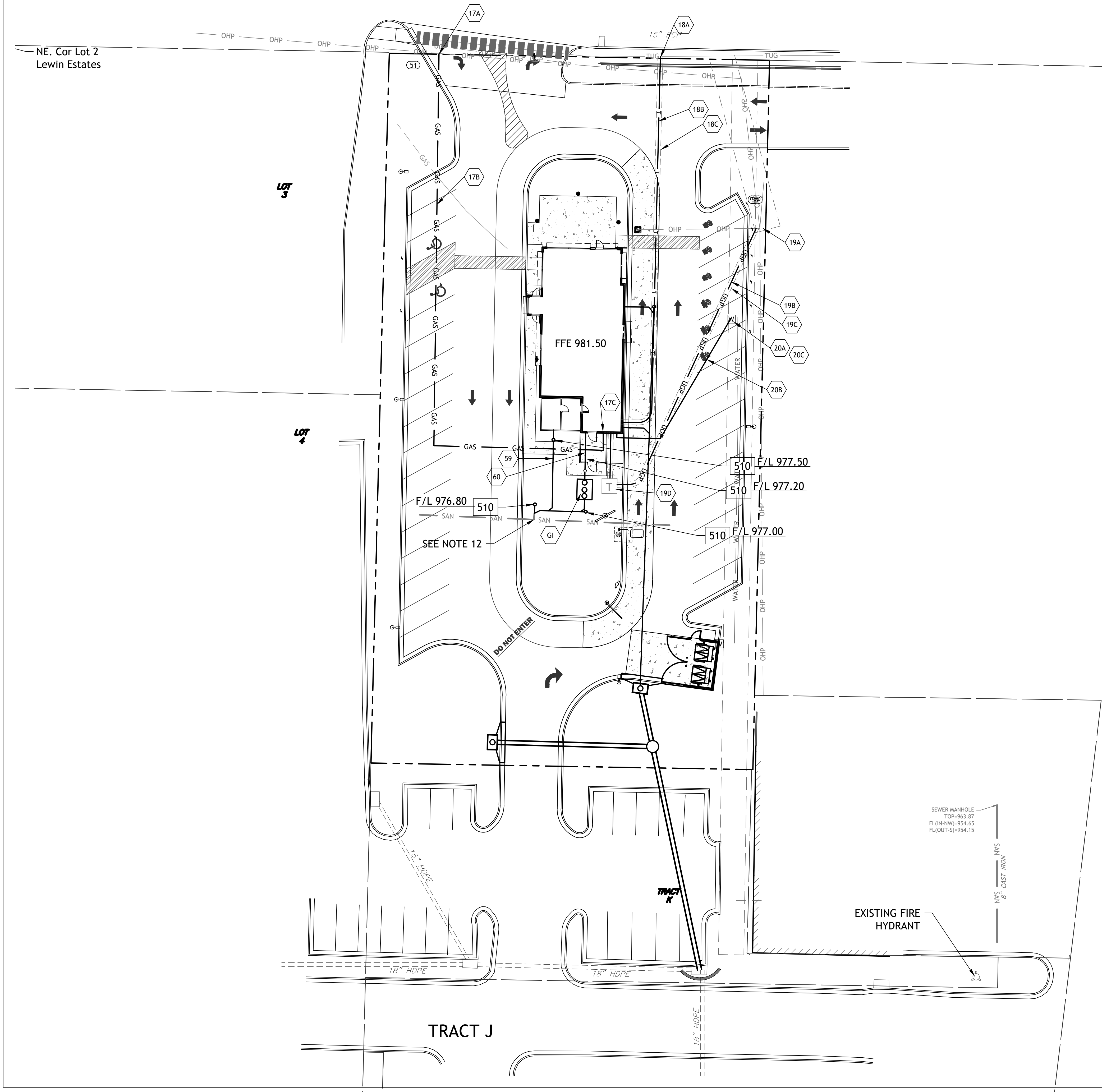


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DAIRY QUEEN  
8803 NW 45 HIGHWAY  
PARKVILLE, MO



TOM WATSON PARKWAY



**UTILITY STATEMENT:**  
THE UNDERGROUND UTILITIES SHOWN HEREON ARE FROM FIELD SURVEY INFORMATION OF ONE-CALL LOCATED UTILITIES, FIELD SURVEY INFORMATION OF ABOVE GROUND OBSERVABLE EVIDENCE, AND/OR THE SCALING AND PLOTTING OF EXISTING UTILITY MAPS AND DRAWINGS AVAILABLE TO THE SURVEYOR AT THE TIME OF SURVEY. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. FURTHERMORE, THE SURVEYOR DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES BY EXCAVATION UNLESS OTHERWISE NOTED ON THIS SURVEY.

**NOTE:**  
1. CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATIONS AND DIMENSIONS OF ENTRANCE, SLOPED PAVING, EXIT PORCHES, RAMPS, TRUCK DOCKS, PRECISE BUILDING DIMENSIONS AND EXACT BUILDING UTILITY ENTRANCE LOCATIONS.  
2. THESE PLANS HAVE NOT BEEN VERIFIED WITH FINAL ARCHITECTURAL CONTRACT DRAWINGS. CONTRACTOR SHALL VERIFY AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES. CONTRACTOR IS FULLY RESPONSIBLE FOR REVIEW AND COORDINATION OF ALL DRAWINGS AND CONTRACTOR DOCUMENTS.

- LEGEND**
- T — TELEPHONE
  - OHP — OVERHEAD POWER
  - SAN — SANITARY SEWER
  - UGP — UNDERGROUND POWER
  - WATER — WATER
  - W/L — WATERLINE
  - GAS — GAS LINE
  - TC — TELEPHONE CABLE
  - 918 — ELEVATION CONTOUR
  - CONCRETE PAVEMENT

- DETAILS**
- MS1 TRENCH AND BEDDING DETAILS
  - SS2 CLEAN-OUT (2-WAY)
  - 510 CLEANOUT

- NOTES**
- 17A POINT OF CONNECTION - GAS SERVICE
  - 17B GAS SERVICE (BY GAS COMPANY)
  - 17C GAS METER
  - 18A POINT OF CONNECTION - TELEPHONE SERVICE - COORDINATE WITH TELEPHONE COMPANY
  - 18B UNDERGROUND TELEPHONE SERVICE PER LOCAL TELEPHONE COMPANY
  - 18C 2-2" CONDUIT INSTALLED BY CONTRACTOR - TELEPHONE SERVICE
  - 19A POINT OF CONNECTION - ELECTRICAL SERVICE POLE MOUNTED TRANSFORMER WITH UNDERGROUND SERVICE TO BUILDING
  - 19B ELECTRIC SERVICE BY POWER COMPANY
  - 19C 4" CONDUIT INSTALLED BY CONTRACTOR - ELECTRIC SERVICE
  - 19D TRANSFORMER PAD BY CONTRACTOR PER EVERGY DETAIL AND SPECIFICATIONS
  - 20A POINT OF CONNECTION - WATER SERVICE
  - 20B 1.5" WATER LINE INSTALLED BY CONTRACTOR (SEE NOTE 11)
  - 20C 1.5" WATER METER
  - 59 4" SANITARY SEWER SERVICE LINE
  - 60 4" GREASE LINE
  - GI GREASE INTERCEPTOR (1500gal)

- UTILITY NOTES:**
- CONSTRUCTION SHALL NOT START ON ANY PUBLIC WATER OR SANITARY SEWER SYSTEM UNTIL WRITTEN APPROVAL OR PERMITS HAVE BEEN RECEIVED FROM THE PUBLIC WORKS DIRECTOR.
  - ALL UTILITY AND STORM SEWER TRENCHES CONSTRUCTED UNDER AREAS THAT RECEIVE PAVING SHALL BE BACKFILLED TO 18 INCHES ABOVE THE TOP OF THE PIPE WITH SELECT GRANULAR MATERIAL PLACED ON EIGHT-INCH LIFTS, AND COMPACTED TO 95% STANDARD PROCTOR DENSITY.
  - CONTRACTOR SHALL NOT OPEN, TURN OFF, INTERFERE WITH, OR ATTACH ANY PIPE OR HOSE TO OR TAP ANY WATER MAIN BELONGING TO THE CITY UNLESS DULY AUTHORIZED TO DO SO BY THE CITY. ANY ADVERSE CONSEQUENCE OF ANY SCHEDULED OR UNSCHEDULED DISRUPTIONS OF SERVICE TO THE PUBLIC ARE TO BE THE LIABILITY OF THE CONTRACTOR. SM ENGINEERING AND OWNER ARE TO BE HELD HARMLESS.
  - PRIOR TO COVERING WORK, DISINFECTION AND PRESSURE TESTING OF WATERLINES SHALL BE PERFORMED BY OWNER AND WITNESSED BY WATER DEPARTMENT. A MINIMUM OF 24 HOURS NOTICE TO WATER DEPARTMENT REQUIRED. PRIVATE FLUSHING PER 2010 NPPA 24, AND SUBMITTAL OF 2010 NPPA 24 CONTRACTORS & STATEMENT OF UNDERGROUND PIPING FORM.
  - ALL WATER AND SANITARY SEWER SYSTEMS THAT ARE TO BE PUBLIC LINES SHALL BE CONSTRUCTED IN ACCORDANCE WITH SPECIFICATIONS PREVIOUSLY APPROVED BY THE CITY OF WEBB CITY AND THE STATE OF MISSOURI AND SHALL BE INSPECTED BY THE CITY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ASSURE THAT THIS INSPECTION OCCURS.
  - LOCATIONS SHOWN FOR PROPOSED WATER LINES ARE APPROXIMATE. VARIATIONS MAY BE MADE, WITH APPROVAL OF THE ENGINEER, TO AVOID CONFLICTS.
  - CONTRACTOR TO INSTALL TRACING TAPE ALONG ALL NON-METALLIC WATER MAINS AND SERVICE LINES PER SPECIFICATIONS.
  - CONTRACTOR SHALL EXPOSE EXISTING UTILITIES AT LOCATIONS OF POSSIBLE CONFLICT AND POINTS OF CONNECTION PRIOR TO ANY CONSTRUCTION OF NEW UTILITIES.
  - WATER LINES SHALL HAVE A MINIMUM COVER OF 42 INCHES. ALL VALVES ON MAINS AND FIRE HYDRANT LEADS SHALL BE WITH VALVE BOX ASSEMBLIES. THE SIZE OF VALVE BOX ASSEMBLY TO BE INSTALLED IS DETERMINED BY THE TYPE AND SIZE OF VALVE. VALVE BOX CAPS SHALL HAVE THE WORD "WATER".
  - A MINIMUM HORIZONTAL DISTANCE OF 10 FEET SHALL BE MAINTAINED BETWEEN PARALLEL WATER AND SANITARY SEWER LINES. WHEN IT IS NECESSARY FOR ANY WATER LINE TO CROSS A SANITARY SEWER LINE, THE SEWER LINE SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE AT LEAST 10 FEET EITHER SIDE OF THE WATER LINE UNLESS THE WATER LINE IS AT LEAST 2 FEET CLEAR DISTANCE ABOVE THE SANITARY SEWER LINE.
  - INSTALL 2" TYPE "K" COPPER FROM THE MAIN TO THE METER AND EITHER TYPE "K" OR POLYETHYLENE PLASTIC TUBING (PE 3608) FROM METER TO STOP AND WASTE VALVE INSIDE BUILDING.
  - CONNECT TO EXISTING SANITARY SEWER SERVICE CONNECTION. CONTRACTOR TO EXPOSE AND VERIFY ELEVATION OF EXISTING MAIN.

SM Engineering  
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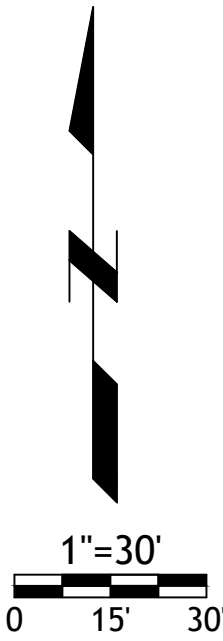
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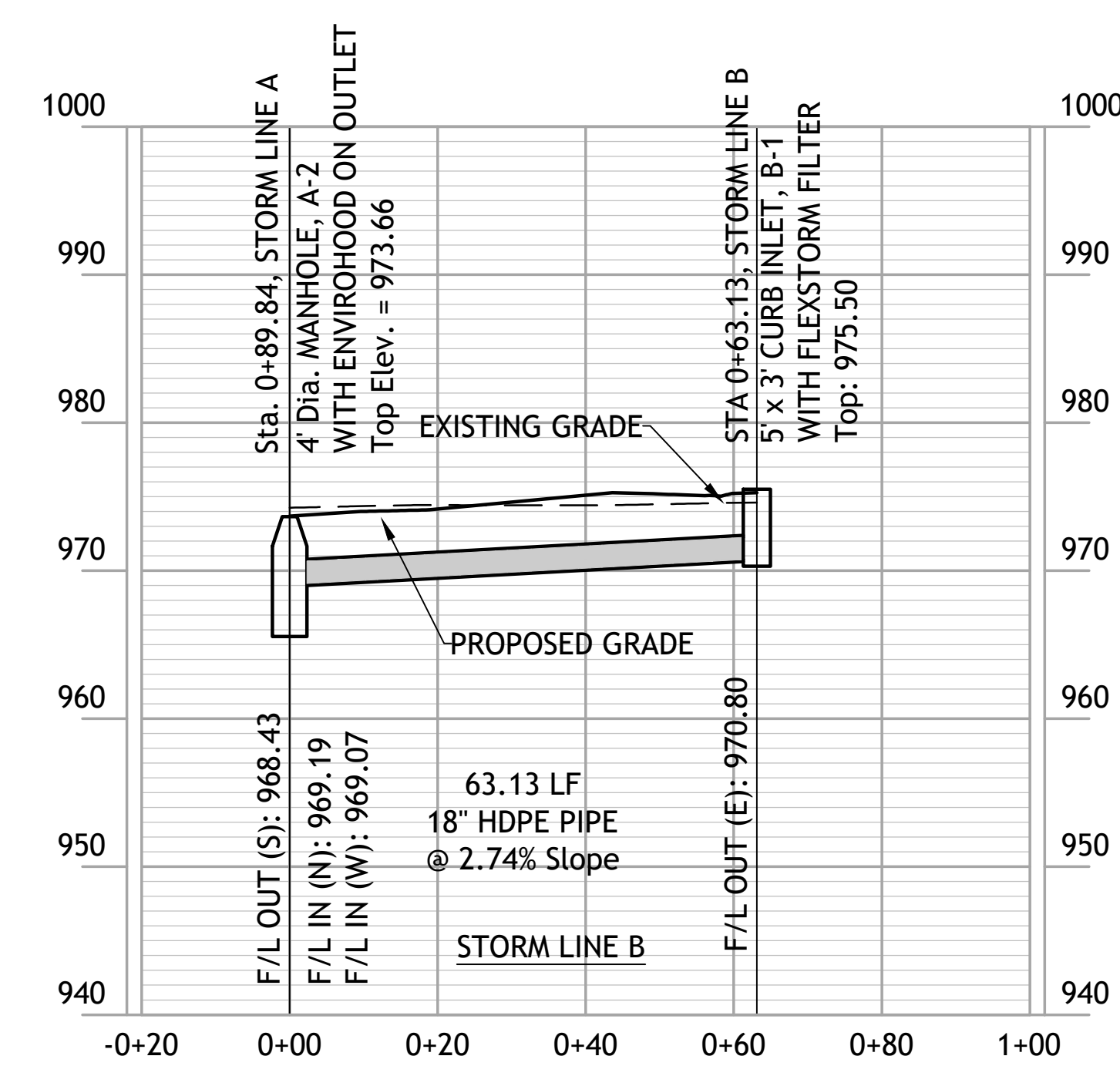
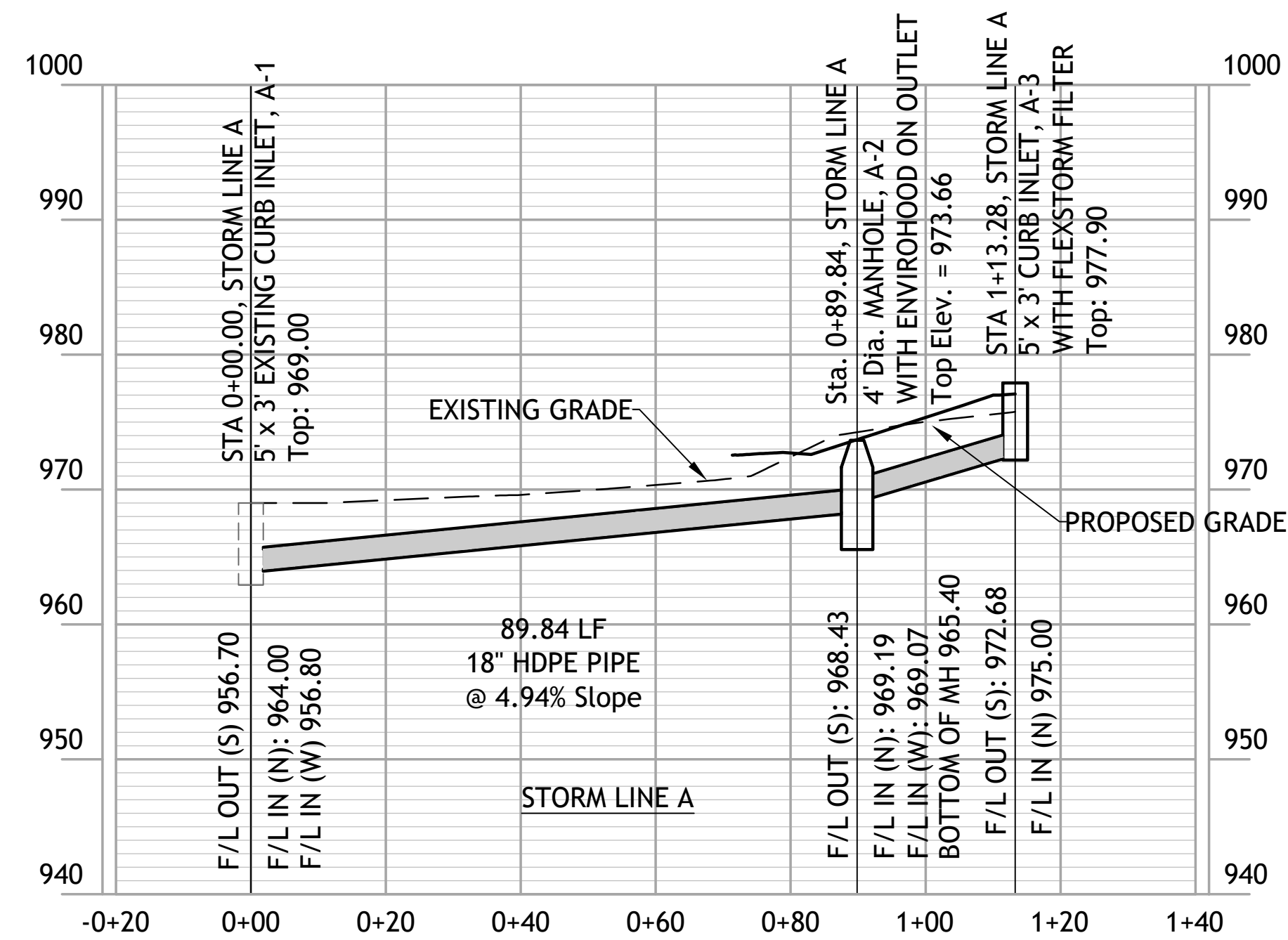
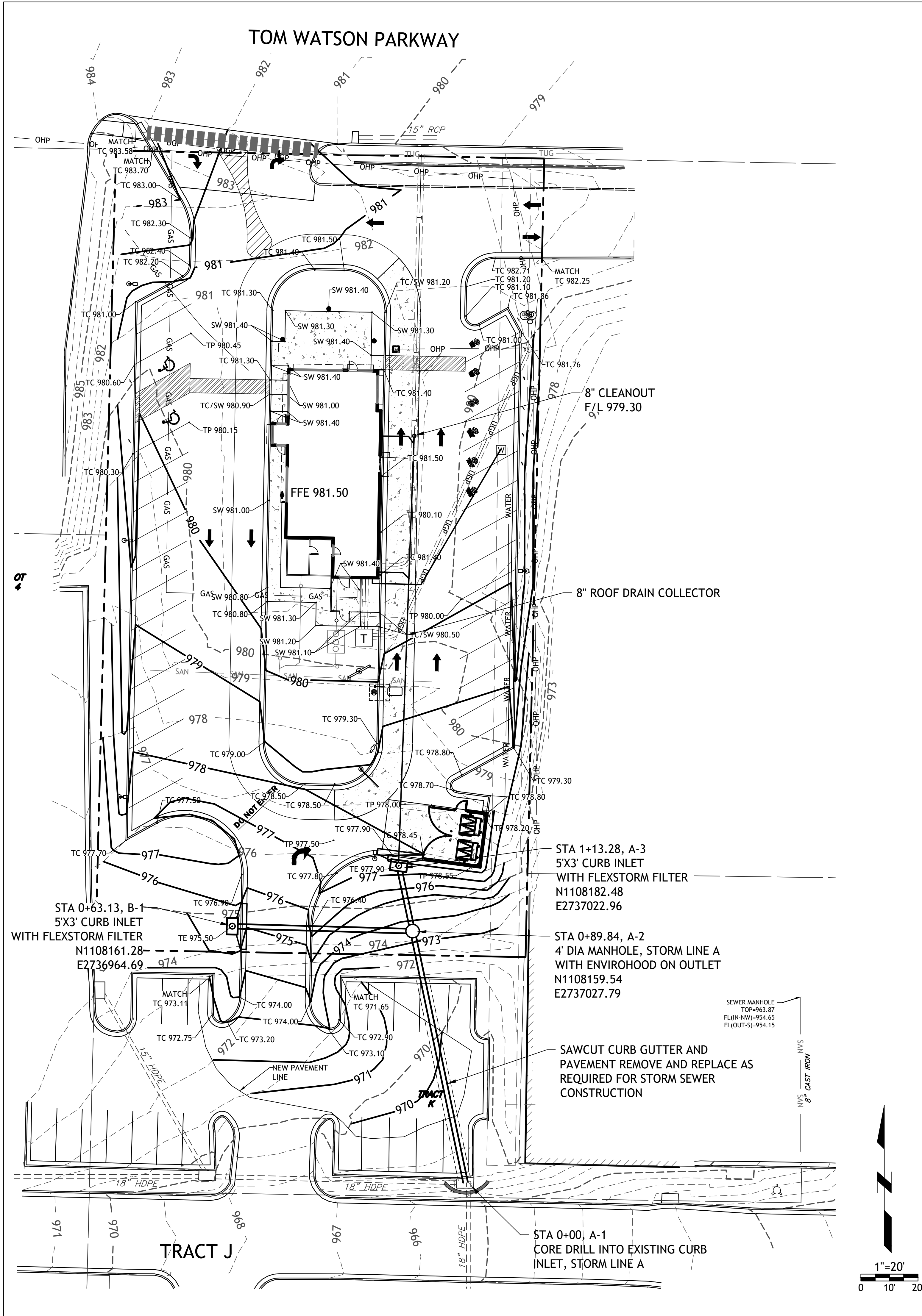
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DAIRY QUEEN  
8803 NW 45 HIGHWAY  
PARKVILLE, MO

sheet  
**C5.0**  
Civil  
UTILITY PLAN  
permit  
3 JANUARY 2022







- GRADING NOTES:**
- EARTHWORK UNDER THE BUILDING SHALL COMPLY WITH THE PROJECT ARCHITECTURAL PLANS. OTHER FILL MATERIAL SHALL BE MADE IN LIFTS NOT TO EXCEED EIGHT INCHES DEPTH COMPACTED TO 95% STANDARD PROCTOR DENSITY. FILL MATERIAL MAY INCLUDE ROCK FROM ON-SITE EXCAVATION IF CAREFULLY PLACED SO THAT LARGE STONES ARE WELL DISTRIBUTED AND VOIDS ARE COMPLETELY FILLED WITH SMALLER STONES, EARTH, SAND OR GRAVEL TO FURNISH A SOLID EMBANKMENT. NO ROCK LARGER THAN THREE INCHES IN ANY DIMENSION NOR ANY SHALE SHALL BE PLACED IN THE TOP 12 INCHES OF EMBANKMENT.
  - AREAS THAT ARE TO BE CUT TO SUBGRADE LEVELS SHALL BE PROOF ROLLED WITH A MODERATELY HEAVY LOADED DUMP TRUCK OR SIMILAR APPROVED CONSTRUCTION EQUIPMENT TO DETECT UNSUITABLE SOIL CONDITIONS.
  - IN ALL AREAS OF EXCAVATION, IF UNSUITABLE SOIL CONDITIONS ARE ENCOUNTERED, A QUALIFIED GEOTECHNICAL ENGINEER SHALL RECOMMEND TO THE OWNER THE METHODS OF UNDERCUTTING AND REPLACEMENT OF PROPERLY COMPACTED, APPROVED FILL MATERIAL. ALL PROOF ROLLING AND UNDERCUTTING SHOULD BE PERFORMED DURING A PERIOD OF DRY WEATHER.
  - CONTRACTOR SHALL USE SILT FENCE OR OTHER MEANS OF CONTROLLING EROSION ALONG THE EDGE OF THE PROPERTY OR OTHER BOTTOM OF SLOPE LOCATIONS.
  - CONTRACTOR IS TO REMOVE AND DISPOSE OF ALL DEBRIS, RUBBISH AND OTHER MATERIALS RESULTING FROM PREVIOUS AND CURRENT DEMOLITION OPERATIONS.
  - THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO AVOID PROPERTY DAMAGE TO ADJACENT PROPERTIES DURING THE CONSTRUCTION PHASES OF THIS PROJECT. THE CONTRACTOR WILL BE HELD SOLELY RESPONSIBLE FOR ANY DAMAGES TO THE ADJACENT PROPERTIES OCCURRING DURING THE CONSTRUCTION PHASES OF THIS PROJECT.
  - IT IS NOT THE DUTY OF THE ENGINEER OR THE OWNER TO REVIEW THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES, IN, ON OR NEAR THE CONSTRUCTION SITE AT ANY TIME DURING CONSTRUCTION.
  - THE SITEWORK FOR THIS PROJECT SHALL MEET OR EXCEED STANDARD SITEWORK SPECIFICATIONS.
  - PIPE LENGTHS ARE CENTER TO CENTER OF STRUCTURE OR TO END OF END SECTIONS.
  - HANDICAP STALLS SHALL MEET ADA REQUIREMENTS AND SHALL NOT EXCEED 2% SLOPE IN ANY DIRECTION AT THE BUILDING ENTRY AND ACCESSIBLE PARKING STALLS. SLOPES EXCEEDING 2.0% WILL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
  - CONTRACTOR TO ADJUST DEPTHS OF EXISTING SERVICE LINES AS NECESSARY
  - ALL CONSTRUCTION TRAFFIC, TEMPORARY TRAFFIC CONTROL DEVICES AND PAVEMENT MARKINGS SHALL CONFORM TO REQUIREMENTS OF THE LATEST MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

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Revisions

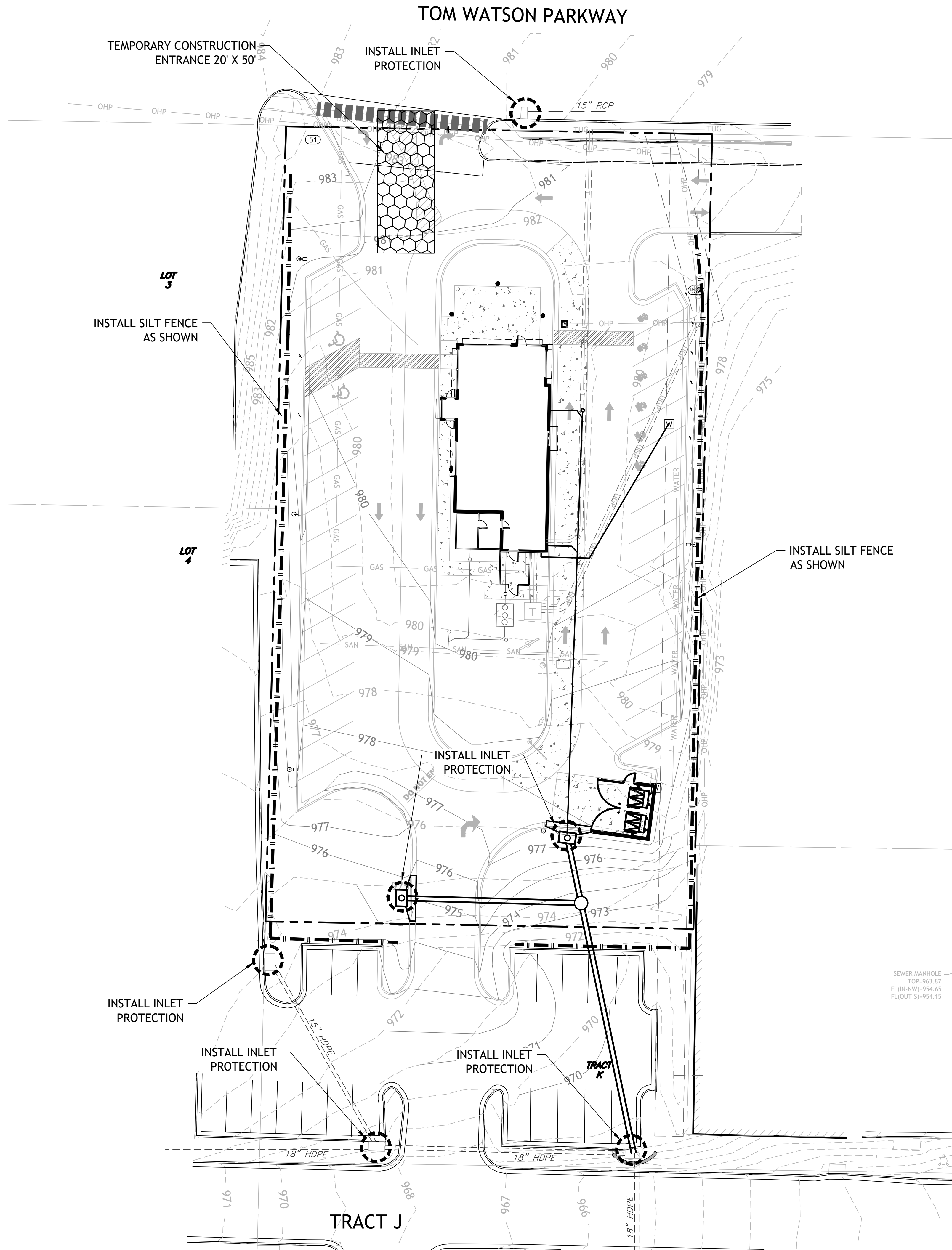
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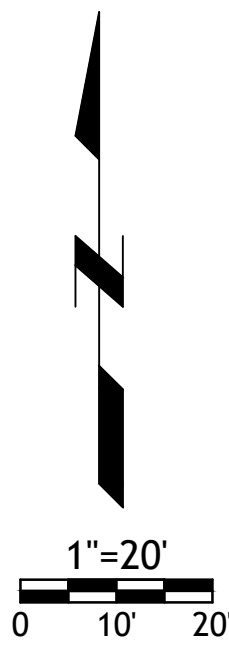
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- GENERAL NOTES:
1. PROPERTY LINE IS LIMITS OF CONSTRUCTION EXCEPT AS SHOWN.
  2. THE CONTRACTOR SHALL INSTALL EROSION CONTROL MEASURES AS SHOWN ON THE DRAWINGS PRIOR TO BEGINNING EARTHWORK OPERATIONS.
  3. THE CONTRACTOR SHALL MAINTAIN ALL SILT CONTROL MEASURES DURING CONSTRUCTION.
  4. ALL SILT SHALL REMAIN ON SITE AND SURROUNDING STREETS SHALL BE KEPT CLEAR OF ALL MUD AND DEBRIS.
  5. A SEDIMENTATION BARRIER IS TO BE INSTALLED AS SHOWN.
  6. ACCUMULATED SEDIMENT SHALL BE REMOVED AND THE SEDIMENTATION BARRIERS MAINTAINED AS NEEDED TO PREVENT SEDIMENTATION BYPASS OF THE BARRIER.
  7. SLOPES ARE TO BE LEFT IN A ROUGH CONDITION DURING GRADING.
  8. CURB INLET SEDIMENTATION BARRIERS ARE TO BE INSTALLED AROUND INLETS AND WEIRS WHERE SEDIMENTATION IS A CONCERN. INLET BARRIERS SHALL BE EITHER BLOCK AND GRAVEL, OR SECURED STRAW BALES, OR SILT FENCE.
  9. SEDIMENT IS TO BE REMOVED FROM STORM WATER DRAINAGE SYSTEMS.
  10. RIPRAP IS TO BE INSTALLED AT AREAS OF CONCENTRATED FLOW (I.E. CULVERT OUTLETS).
  11. CONTRACTOR IS RESPONSIBLE FOR INSTALLING ANY ADDITIONAL EROSION CONTROL AS HE/SHE DEEMS NECESSARY.
  12. THE CONTRACTOR SHALL PROVIDE ALL MATERIALS, TOOLS, EQUIPMENT AND LABOR AS NECESSARY TO INSTALL AND MAINTAIN ADEQUATE EROSION AND SILTATION CONTROLS REQUIRED TO PREVENT SOIL EROSION FROM LEAVING THE PROJECT SITE. IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO ENSURE THAT METHODS UTILIZED ARE ADEQUATE AND COMPLY WITH REQUIREMENTS OF THE SPECIFICATIONS AND GOVERNMENTAL AGENCIES HAVING JURISDICTION OVER THE WORK.
  13. TEMPORARY SEDIMENT FENCE/STRAW BALES TO REMAIN UNTIL ADEQUATE VEGETATION IS ESTABLISHED.
  14. MUD AND DEBRIS SHALL BE CLEANED UP AT THE CONCLUSION OF EACH WORKING DAY, OR AFTER EACH RAINFALL IF SILT IS PRESENT.
  15. INSPECTION, MAINTENANCE AND REPAIR OF EROSION CONTROL DEVICES SHALL BE ON GOING THROUGHOUT THE LIFE OF BUILDING CONSTRUCTION TO KEEP THE DEVICES IN OPERABLE CONDITION AT ALL TIMES. ADDITIONAL MEASURES SHALL BE INSTALLED AS REQUIRED BY ACTUAL FIELD CONDITIONS AND/OR GOVERNING INSPECTION AGENCIES.
  16. INSTALL CONSTRUCTION ENTRANCE AT ANY POINT WHERE TRAFFIC WILL BE ENTERING OR LEAVING THE SITE AND AS SHOWN ON PLANS.
  17. AT COMPLETION OF SITE GRADING AND OTHER RELATED CONSTRUCTION ACTIVITIES, ALL DISTURBED AREAS WITHIN THE PROJECT SITE SHALL BE SEEDED, SODDED, OR LANDSCAPED AS SHOWN ON THE LANDSCAPE PLAN WITHIN 14 DAYS.
  18. TOPSOIL IS TO BE PLACED IN AREAS UNSUITABLE FOR VEGETATIVE GROWTH.
  19. STRIP TOPSOIL PRIOR TO EXCAVATION, STOCKPILE AND SPREAD ONTO DISKED SUBGRADE (4" MIN) A THICKNESS OF 4 INCHES.
  20. ROCK LINING (RIPRAP) SHALL BE DURABLE STONE CONTAINING A COMBINED TOTAL OF NOT MORE THAN 10 PERCENT OF EARTH, SAND, SHALE AND NON-DURABLE ROCK. AT LEAST 60 PERCENT OF THE MASS SHALL BE OF PIECES HAVING A MINIMUM WEIGHT OF 150 POUNDS OR MORE PER CUBIC FOOT.
  21. THE CONTRACTOR SHALL HAVE THE RESPONSIBILITY FOR RESOLVING COMPLAINTS IN THE EVENT THAT COMPLAINTS OR DAMAGE CLAIMS ARE FILED DUE TO DAMAGES OCCURRING ADJACENT TO OR DOWNSTREAM FROM PROPERTY BY SEDIMENT RESULTING FROM EROSION ON THE PROJECT SITE.
  22. GOOD HOUSEKEEPING PRACTICES SHALL BE MAINTAINED ON SITE TO KEEP SOLID WASTE FROM ENTRY INTO WATERS.
  23. ALL FUELING FACILITIES PRESENT ON SITE SHALL ADHERE TO APPLICABLE FEDERAL AND STATE REQUIREMENTS CONCERNING UNDERGROUND STORAGE, ABOVE GROUND STORAGE AND DISPENSERS, INCLUDING SPILL PREVENTION, CONTROL AND COUNTER MEASURES.
  24. EROSION CONTROL IS TO BE PLACED IN PHASING AS CONSTRUCTION PROGRESSES.
  25. MINIMAL WASHING OF CONCRETE EQUIPMENT ALLOWED, CHUTE ETC. CONCRETE WASHOUT OF THE DRUM IS NOT ALLOWED. ANY PIT/WASHOUT AREA NEEDS TO BE MAINTAINED IN A NON-DISCHARGING MANNER AND ANY WASTE RESIDUE WILL NEED TO BE CLEANED OUT AND REMOVED AT THE END OF PROJECT.
  26. EROSION CONTROL SEDIMENT FENCE TO BE INSTALLED 1'-0" BEHIND CURB & GUTTER UPON COMPLETION OF BACKFILL OF CURB IN ALL AREAS WHERE SLOPES FROM LOT DRAIN TOWARDS CURB. UPON COMPLETION OF FINAL GRADING THE TOES OF ALL EMBANKMENTS IN EXCESS OF TWO FEET IN HEIGHT WILL HAVE EROSION CONTROL SEDIMENT FENCE INSTALLED.

- LEGEND
- SILT FENCE
  - INLET PROTECTION
  - TEMPORARY CONSTRUCTION ENTRANCE



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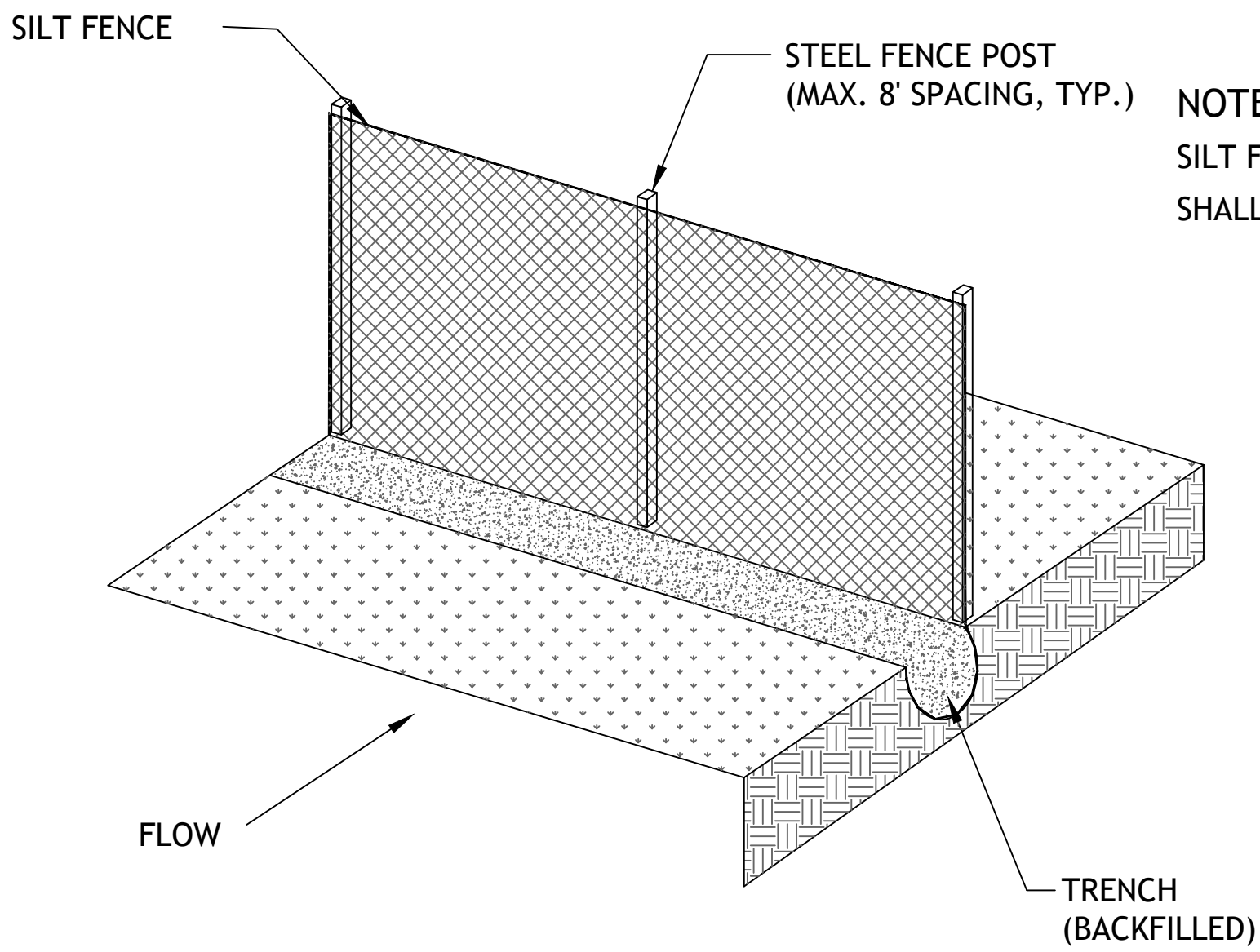


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### CONSTRUCTION SPECIFICATIONS

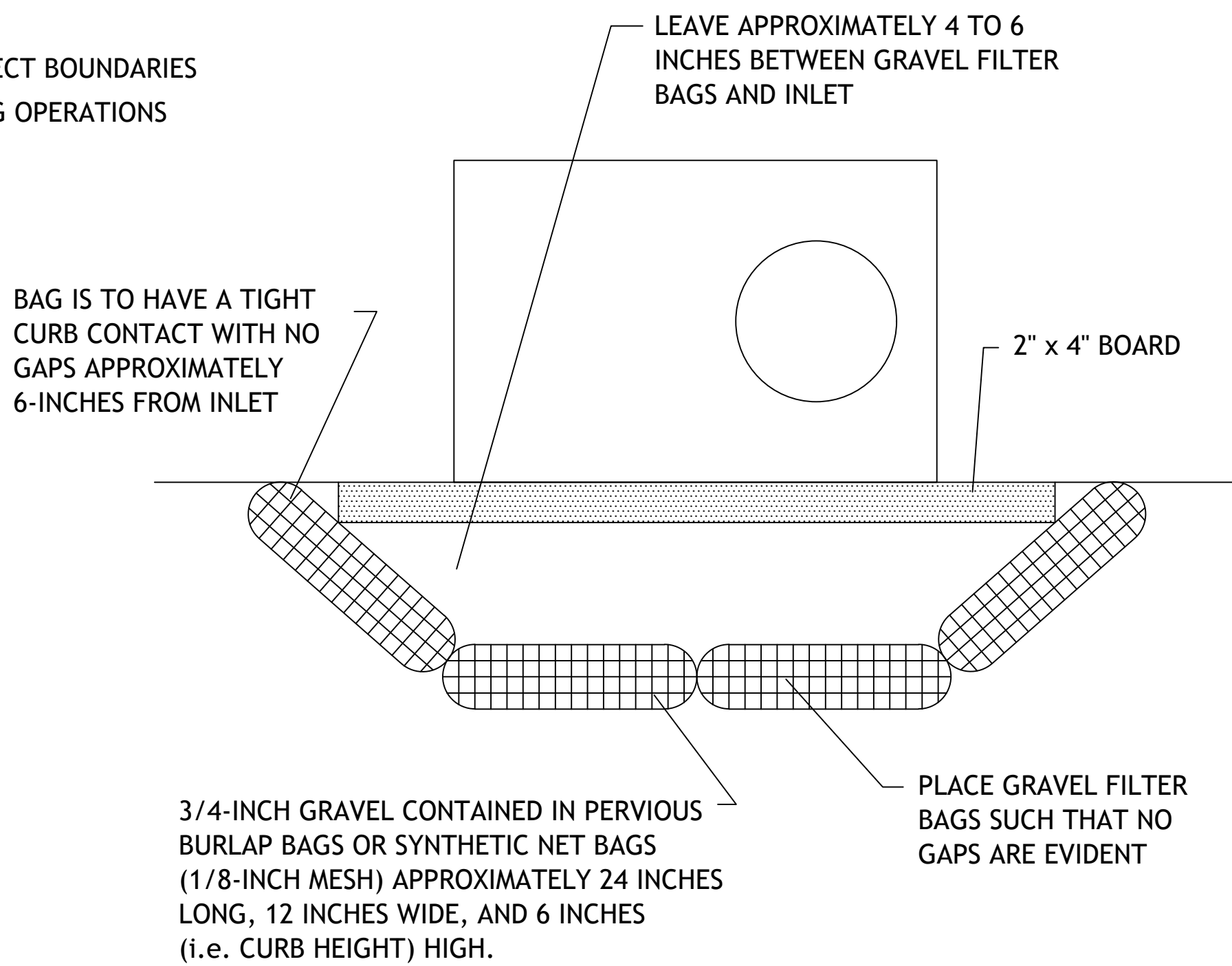
1. Steel posts which support the silt fence shall be installed on a slight angle toward the anticipated runoff source.
2. Silt Fence shall be trenched in with a spade or mechanical trencher so that the downslope face of the trench is flat and perpendicular to the line of flow.
3. The trench should be a minimum of 6" deep and 3-4" wide to allow for the silt fence to be laid in the ground and backfilled.
4. Silt Fence should be securely fastened to each steel, support post or to woven wire which is in turn attached to the steel fence posts.
5. Inspection shall be frequent and repair or replacement shall be made promptly as needed.
6. Silt Fence shall be removed when it has served its usefulness so as not to block or impede storm flow or drainage.
7. Sediment trapped by this practice shall be uniformly distributed on the source area prior to topsoiling.
8. The Erosion Control shown shall be Silt Fence. Additional Erosion Control provided by contractor may be Straw Bale Dike.

### SILT FENCE (Not to Scale)

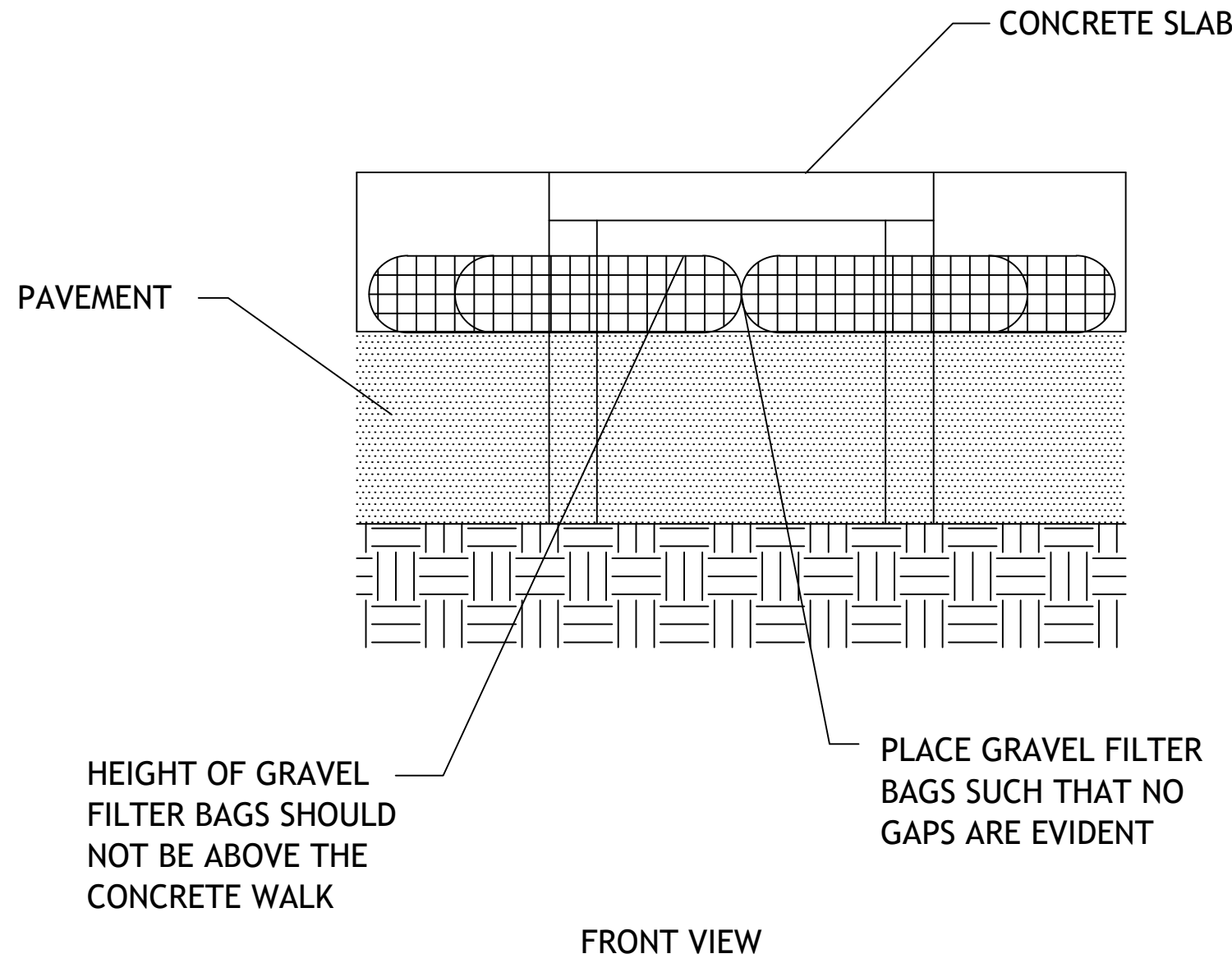
#### EROSION CONTROL NOTES:

1. The contractor shall provide all materials, tools, equipment and labor as necessary to install and maintain adequate erosion control to prevent soil from leaving the project site. It shall be the contractor's responsibility to insure that the methods utilized comply with the requirements of the governmental agencies having jurisdiction over the work.
2. The contractor shall control the grading operation so that the site is well drained at all times and shall schedule the work to minimize the erosion of material by the use of staked straw bales and other acceptable methods to protect the abutting properties, streets, and all utilities.
3. Erosion control devices shall remain in place for the duration of the project.
4. The contractor shall seed/mulch and or sod all areas disturbed during the construction activities.

### SILT FENCE DETAIL

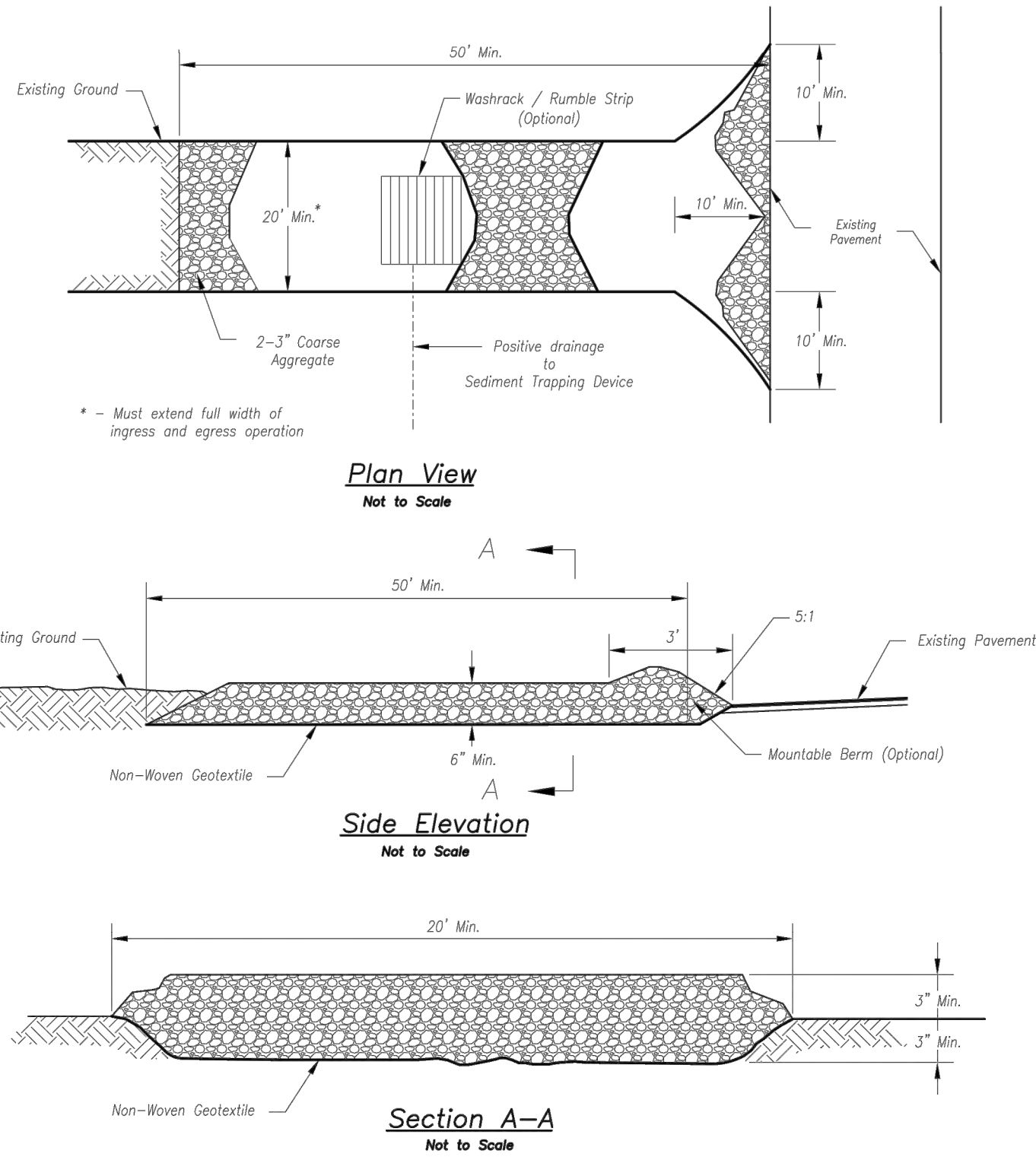


### TOP VIEW GRAVEL FILTER BAGS (Typical At Every Inlet) (Not to Scale)



NOTE:  
AFTER CONSTRUCTION OF INLETS, FILTER BAGS SHALL BE PLACED AROUND PROPOSED INLETS.

### GRAVEL FILTER BAG



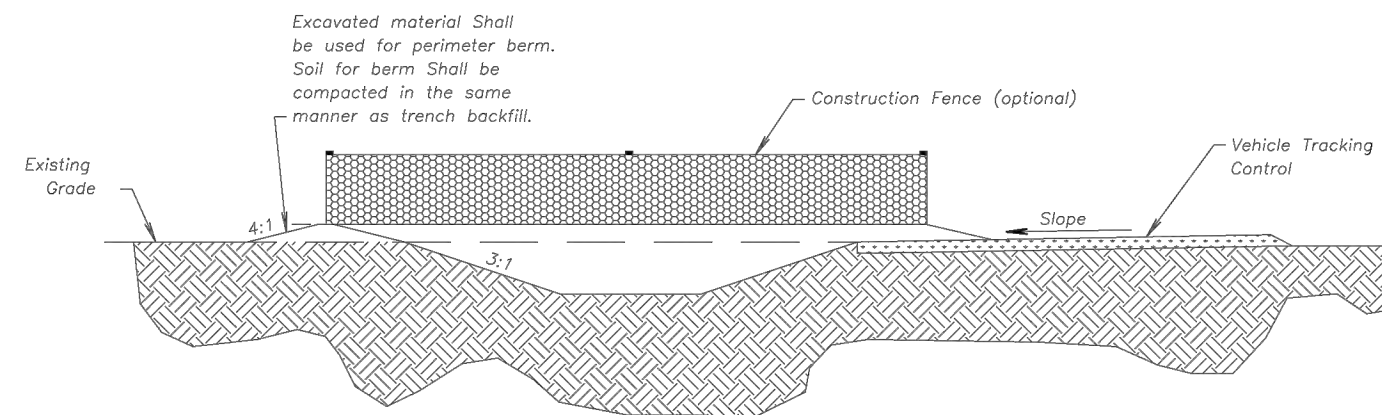
#### Notes for Construction Entrance:

1. Avoid locating on steep slopes, at curves on public roads, or downhill of disturbed area.
2. Remove all vegetation and other unsuitable material from the foundation area, grade, and crown for positive drainage.
3. If slope towards the public road exceeds 2%, construct a 6- to 8-inch high ridge with 3H:1V side slopes across the foundation approximately 15 feet from the edge of the public road to divert runoff from it.
4. Install pipe under the entrance if needed to maintain drainage ditches along public roads.
5. Place stone to dimensions and grade as shown on plans. Leave surface sloped for drainage.
6. Divert all surface runoff and drainage from the entrance to a sediment control device.
7. If conditions warrant, place geotextile fabric on the graded foundation to improve stability.

#### Maintenance for Construction Entrance:

1. Reshape entrance as needed to maintain function and integrity of installation. Top dress with clean aggregate as needed.

### CONSTRUCTION ENTRANCE



#### Notes for Concrete Washout:

1. Concrete washout areas shall be installed prior to any concrete placement on site.
2. Concrete washout area shall include a flat subsurface pit sized relative to the amount of concrete to be placed on site. The slopes leading out of the subsurface pit shall be 3:1. The vehicle tracking pad shall be sloped towards the concrete washout area.
3. Vehicle tracking control is required at the access point to all concrete washout areas.
4. Signs shall be placed at the construction site entrance, washout area and elsewhere as necessary to clearly indicate the location(s) of the concrete washout area(s) to operators of concrete truck and pump rigs.
5. A one-piece impervious liner may be required along the bottom and sides of the subsurface pit in sandy or gravelly soils.

#### Maintenance for Concrete Washout:

1. Concrete washout materials shall be removed once the materials have filled the washout to approximately 75% full.
2. Concrete washout areas shall be enlarged as necessary to maintain capacity for wasted concrete.
3. Concrete washout water, wasted pieces of concrete and all other debris in the subsurface pit shall be transported from the job site in a water-tight container and disposed of properly.
4. Concrete washout areas shall remain in place until all concrete for the project is placed.
5. When concrete washout areas are removed, excavations shall be filled with suitable compacted backfill and topsoil, any disturbed areas associated with the installation, maintenance, and/or removal of the concrete washout areas shall be stabilized.

### CONCRETE WASHOUT

| AMERICAN PUBLIC WORKS ASSOCIATION                                                     |                                                             |
|---------------------------------------------------------------------------------------|-------------------------------------------------------------|
|  | KANSAS CITY<br>METRO CHAPTER                                |
| CONSTRUCTION ENTRANCE<br>AND CONCRETE WASHOUT                                         | STANDARD DRAWING<br>NUMBER ESC-01<br>ADOPTED:<br>10/24/2016 |

Construction Entrance modified from 2015 Overland Park Standard Details for Erosion and Sediment Control; Concrete Washout modified from 2009 City of Great Bend Standard Drawings.





- ## TRENCH AND BEDDING DETAILS





4" TRAFFIC YELLOW TYP.

VARIES 4' MIN.

8.0' MIN.

5.0' MIN.

8.0' MIN.

SEE DIMENSION PLAN

90°

PER ADA

VARIES SEE DIMENSION PLAN

STANDARD 90° SPACE SEE DIMENSION PLAN FOR WIDTH OF DIMENSION

2.0' TYP.

ALL DIMENSIONS SHOWN ARE MINIMUM. SEE DIMENSION PLAN FOR WIDTH OF STALLS AND BUFFER ZONES.

Diagram illustrating the required dimensions for a van space, including a 4" traffic yellow TYP. zone, a variable zone (VARIES 4' MIN.), an 8.0' MIN. zone, an 8.0' MIN. BUFFER ZONE, and a 90° angle. The diagram also shows a 2.0' TYP. dimension and a 90° angle. The total width is labeled as VARIES SEE DIMENSION PLAN. The diagram is titled ALWAYS PUT BUFFER ZONE ON THE RIGHT HAND SIDE OF VAN SPACE.

## 90° ACCESSIBLE & VAN ACCESSIBLE SPACE STRIPING

PK1



Technical drawing illustrating the installation of a guard post.

**Plan View (Top):**

- Shows the intersection of a **BUILDING** corner and a **GUARD POST**.
- Dimensions: **2'-0"** from the building face to the post centerline in both directions.

**Section View (Bottom):**

- 6" DIA. STANDARD STEEL PIPE**: The vertical post.
- FILL WITH CONCRETE**: The interior of the pipe is filled with concrete.
- PAVEMENT OR FINISHED GRADE**: The surface level.
- ONE WRAP OF 30# ROOFING FELT**: Applied to the base of the pipe.
- BASE**: The layer below the roofing felt.
- CONCRETE**: The foundation material.
- Dimensions**:
  - 4'-0"**: Height of the pipe above grade.
  - 10"**: Total height of the pipe assembly above grade.
  - 3'-6"**: Depth of the concrete foundation.
  - 6"**: Thickness of the base layer.
  - 1'-6"**: Width of the concrete foundation at the base.

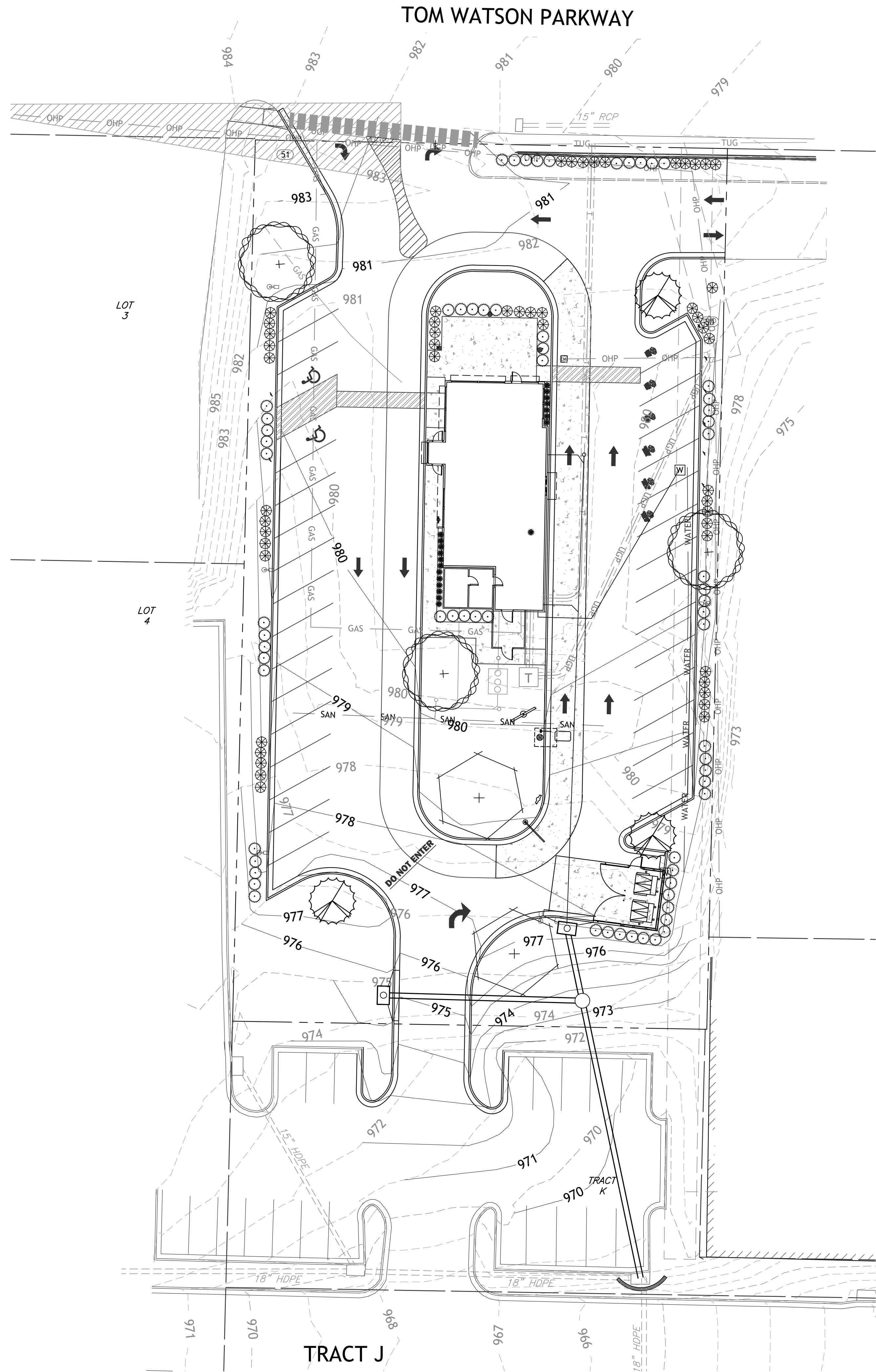
**NOTE: ALL PIPE SHALL BE PAINTED TRAFFIC YELLOW.**

## BOLLARD DETAIL

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LANDSCAPE NOTES

CONTRACTOR REQUIRED TO LOCATE ALL UTILITIES BEFORE INSTALLATION TO BEGIN.

Contractor shall verify all landscape material quantities and shall report any discrepancies to the Landscape Architect prior to installation.

No plant material substitutions are allowed without Landscape Architect or Owners approval.

Contractor shall guarantee all landscape work and plant material for a period of one year from date of acceptance of the work by the Owner. Any plant material which dies during the one year guarantee period shall be replaced by the contractor during normal planting seasons.

Contractor shall be responsible for maintenance of the plants until completion of the job and acceptance by the Owner.

Successful landscape contractor shall be responsible for design that complies with minimum irrigation requirements, and installation of an irrigation system. Irrigation system to be approved by the owner before starting any installation.

All plant material shall be specimen quality stock as determined in the "American Standards For Nursery Stock" published by The American Association of Nurseryman, free of plant diseases and pest, of typical growth of the species and having a healthy, normal root system.

Sizes indicated on the plant list are the minimum, acceptable size. In no case will sizes less than specified be accepted.

All shrub beds within lawn areas to receive a manicured edge.

All shrub beds shall be mulched with 3" of shredded cedar mulch.

All disturbed areas shall be sodded and fertilized with a Turf-Type-Tall Fescue seed blend, unless otherwise noted.

LANDSCAPE DATA

HWY 45 150'  
REQUIRED  
SHADE TREE / 40'

4

PROVIDED

PROPOSED SHADE TREES

1 (OVERHEAD POWER LINES)

PARKING LOT (32 STALLS)

1 SHADE TREE / 25 STALLS

1

1 ORNAMENTAL / 10 STALLS

3

1 SHRUB / 10' OF FRONTAGE

15

1 SHRUB / 10' EAST SIDE

28

1 SHRUB / 10' WEST SIDE

28

PROVIDED

SHADE TREE 1

ORNAMENTAL 3

SHRUBS FRONTAGE

19

SHRUBS EAST

30

SHRUBS WEST

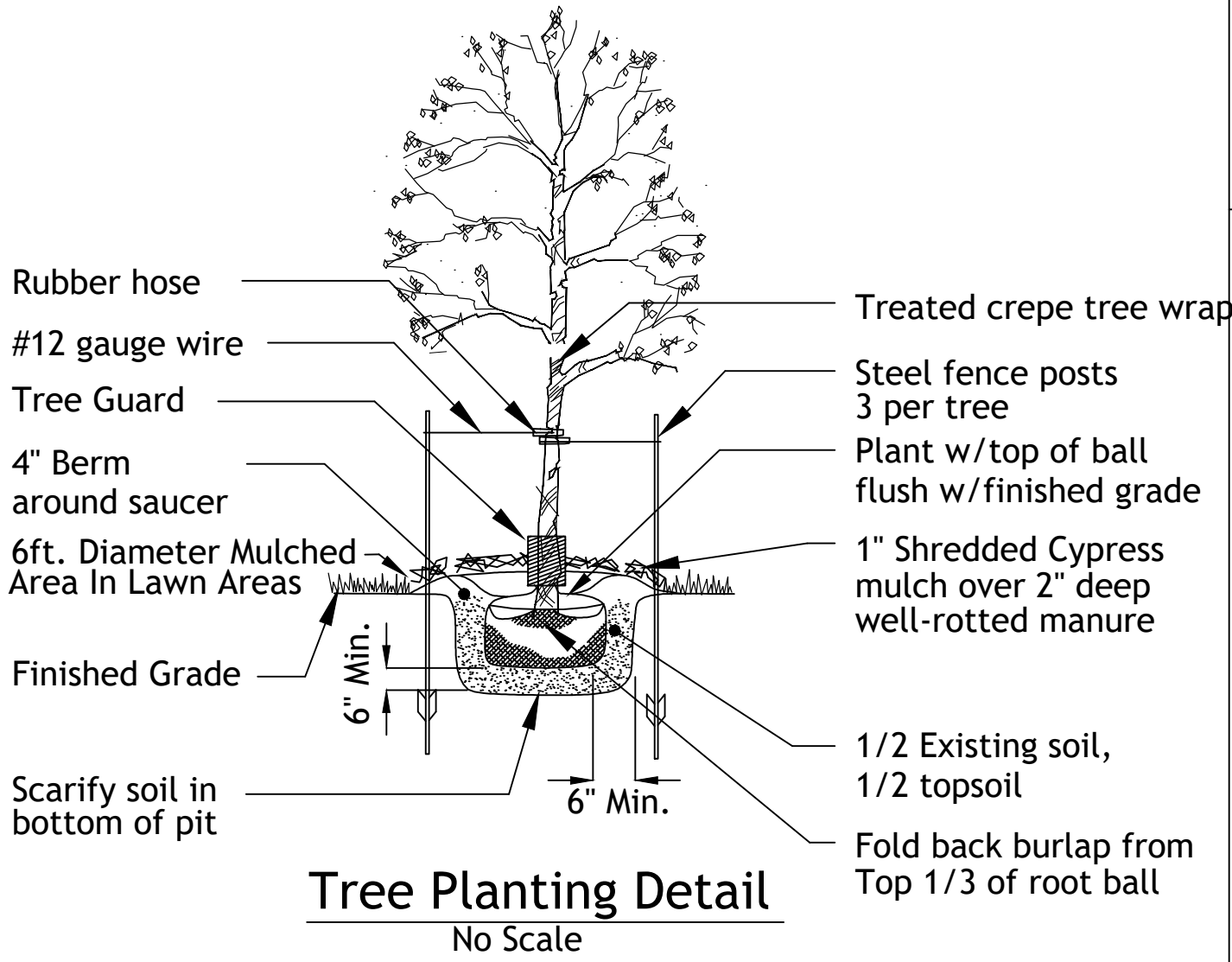
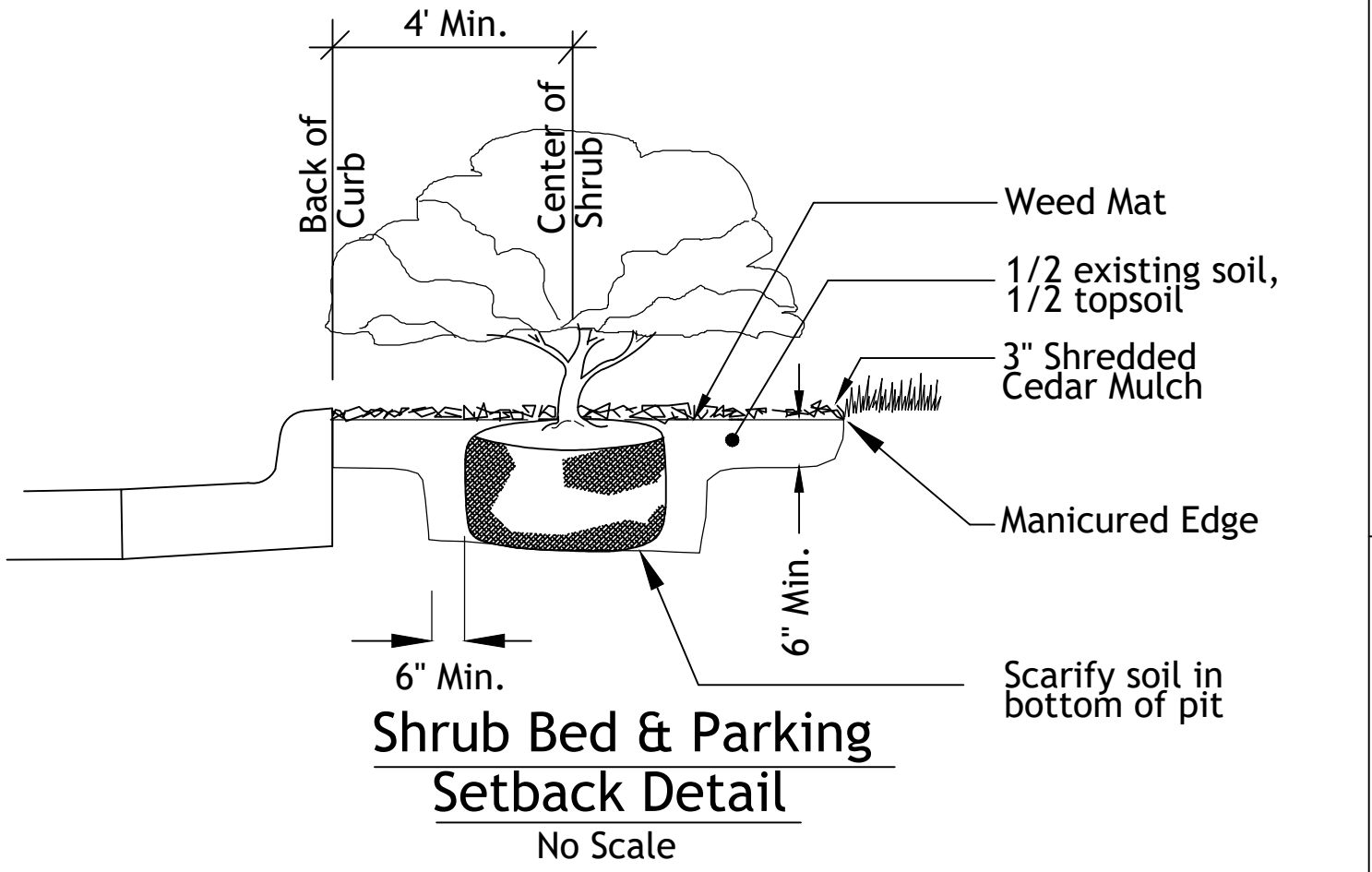
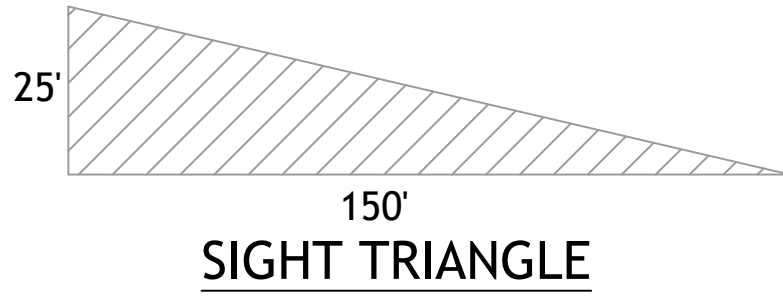
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Tree List

| Symbol | Quantity | Common Name                     | Botanical Name                  | Size       | Condition | Spacing  |
|--------|----------|---------------------------------|---------------------------------|------------|-----------|----------|
|        | 3        | October Glory Maple             | Acer Rubrum 'October Glory'     | 2" cal     | BB        | As Shown |
|        | 2        | Skyline Honeylocust (Thornless) | Gleditsia Triacanthos 'Skyline' | 2" cal     | BB        | As Shown |
|        | 3        | Prairiefire Crabapple           | Malus Sp. 'Priariefire'         | 1 1/2" cal | BB        | As Shown |

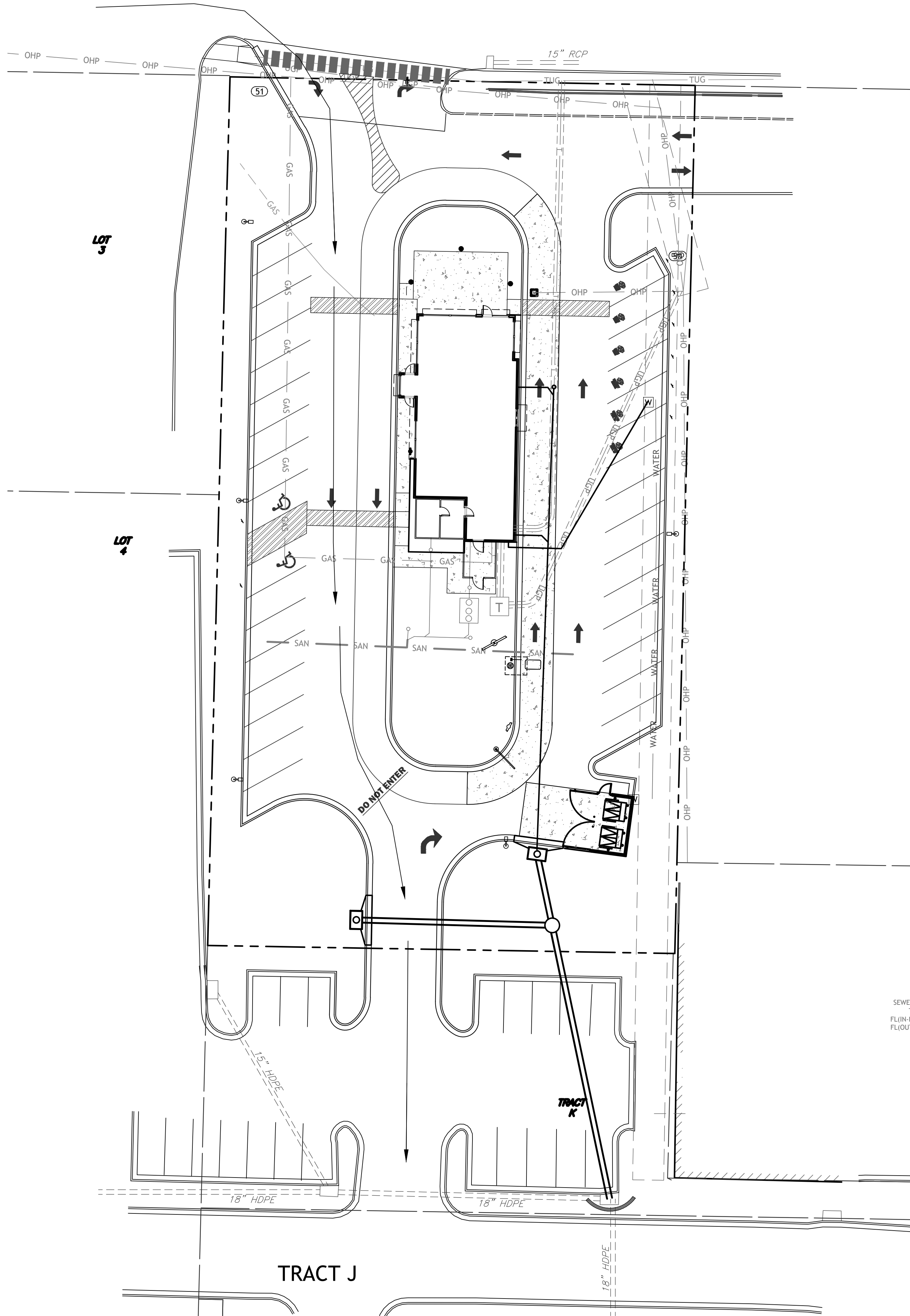
Shrub List

| Symbol | Quantity | Common Name           | Botanical Name                           | Size       | Condition | Spacing |
|--------|----------|-----------------------|------------------------------------------|------------|-----------|---------|
|        | 20       | Feather Reed Grass    | Calamagrostis Acutiflora 'Karl Foerster' | 18"-24"sp. | Cont.     | 2'      |
|        | 76       | Seagreen Juniper      | Juniperus Chinensis 'Seagreen'           | 18"-24"sp. | Cont.     | 4'      |
|        | 50       | Dwarf Winged Euonymus | Euonymus Alatus 'Compactus'              | 18"-24"sp. | Cont.     | 4'      |





TOM WATSON PARKWAY



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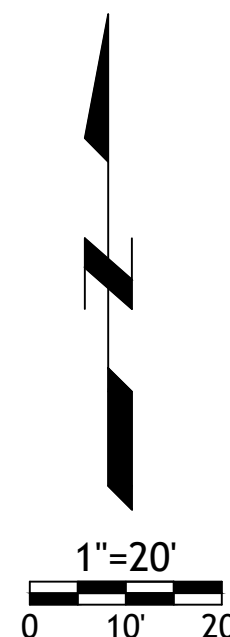
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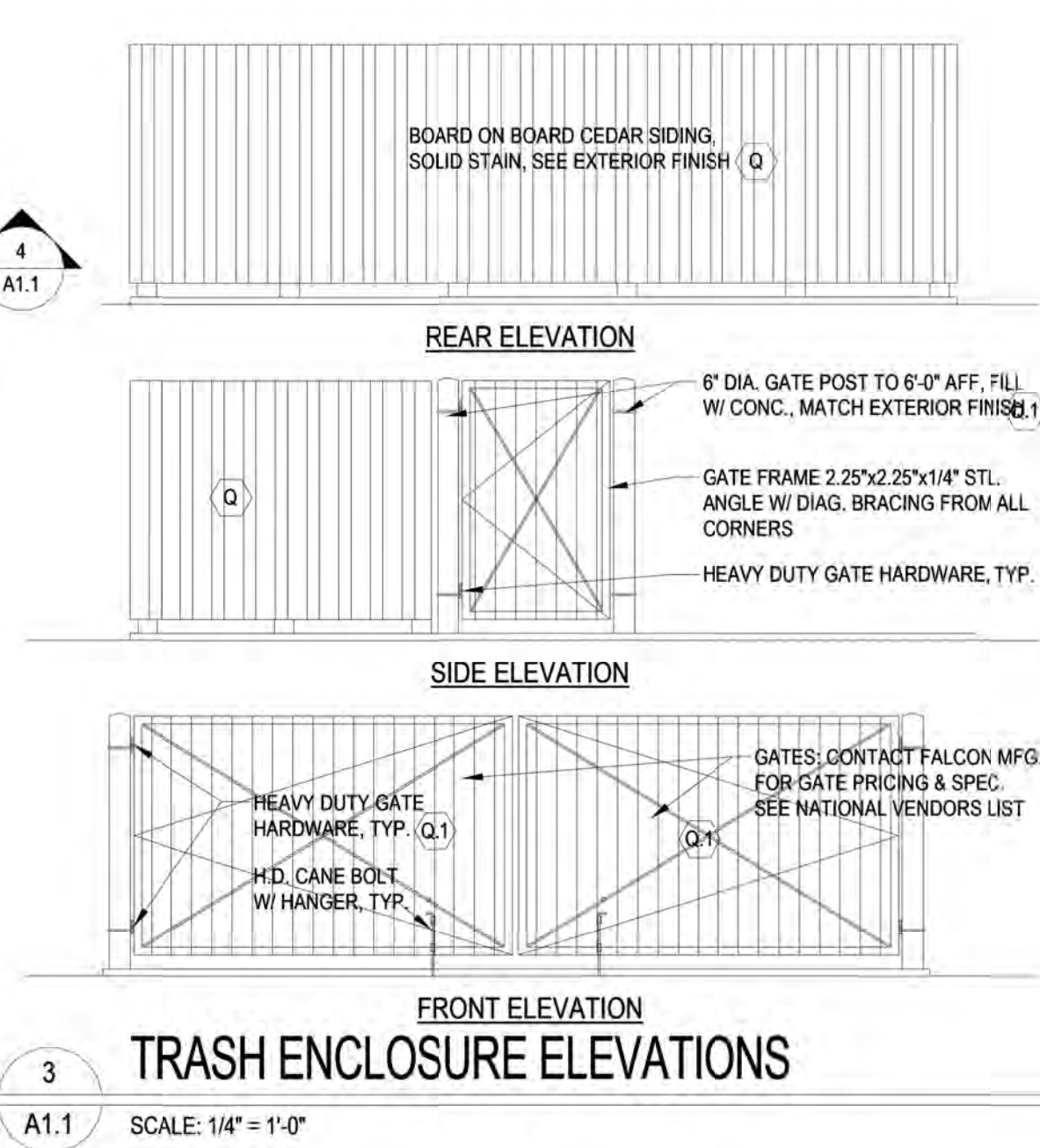
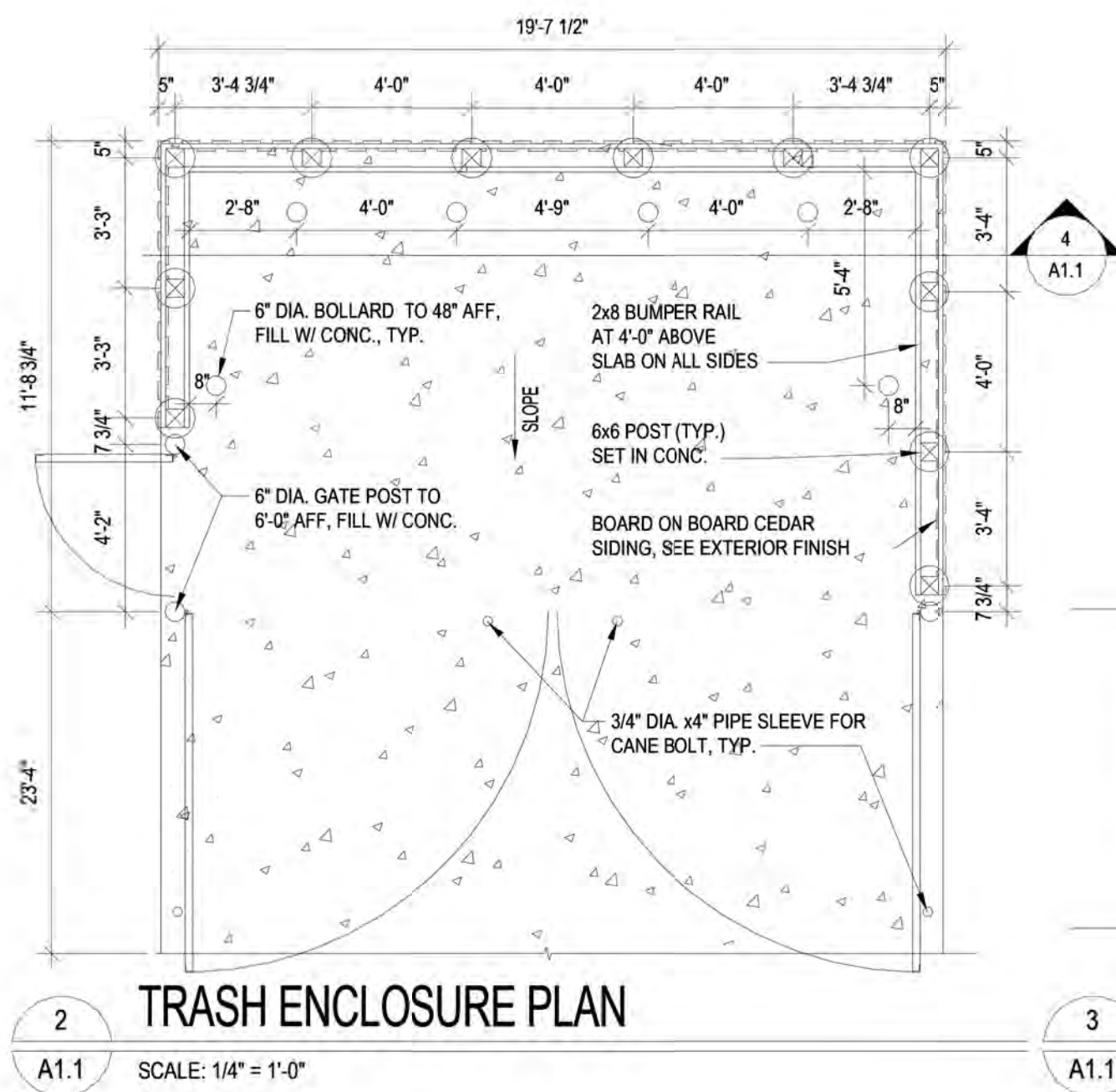
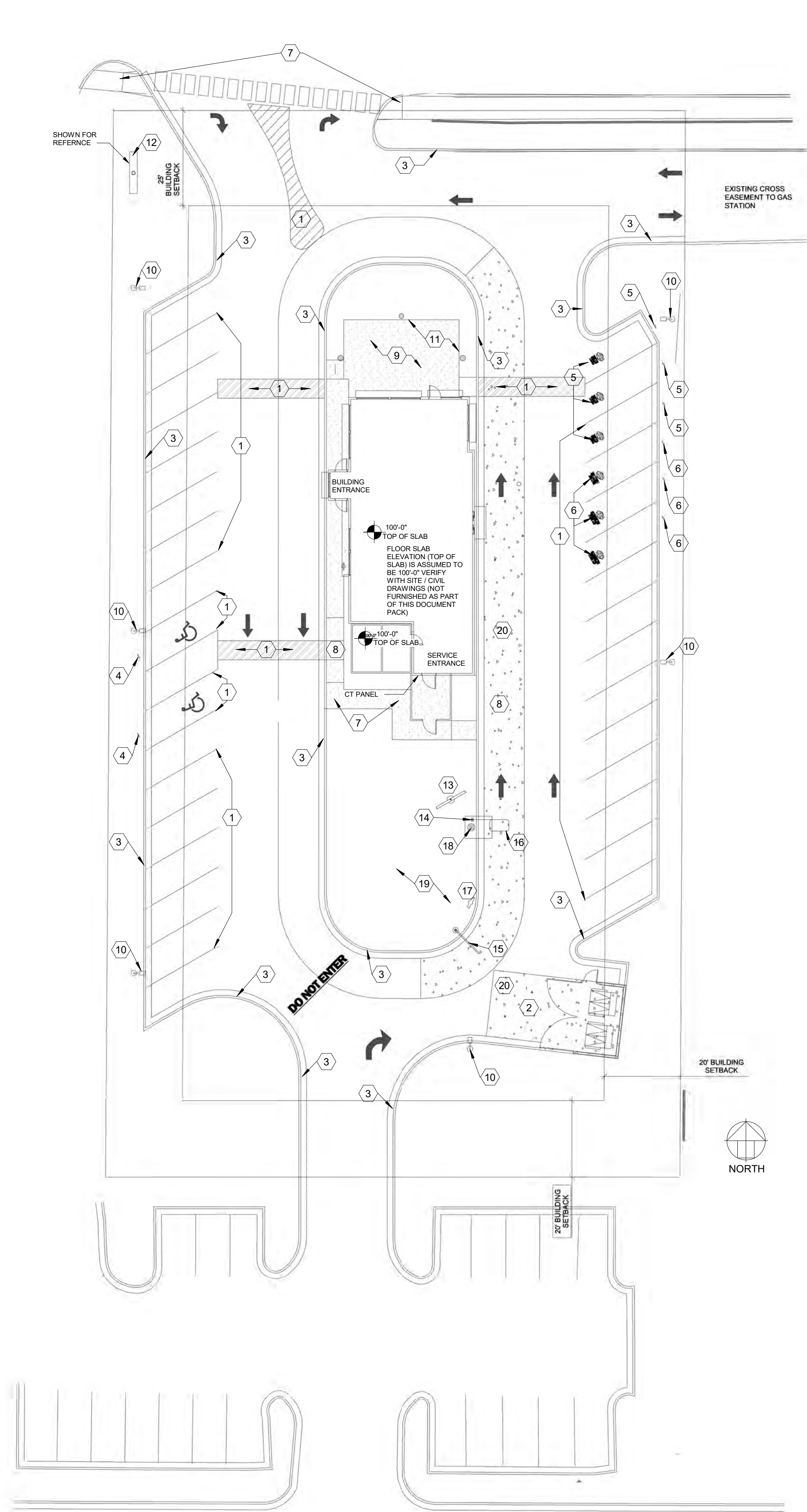
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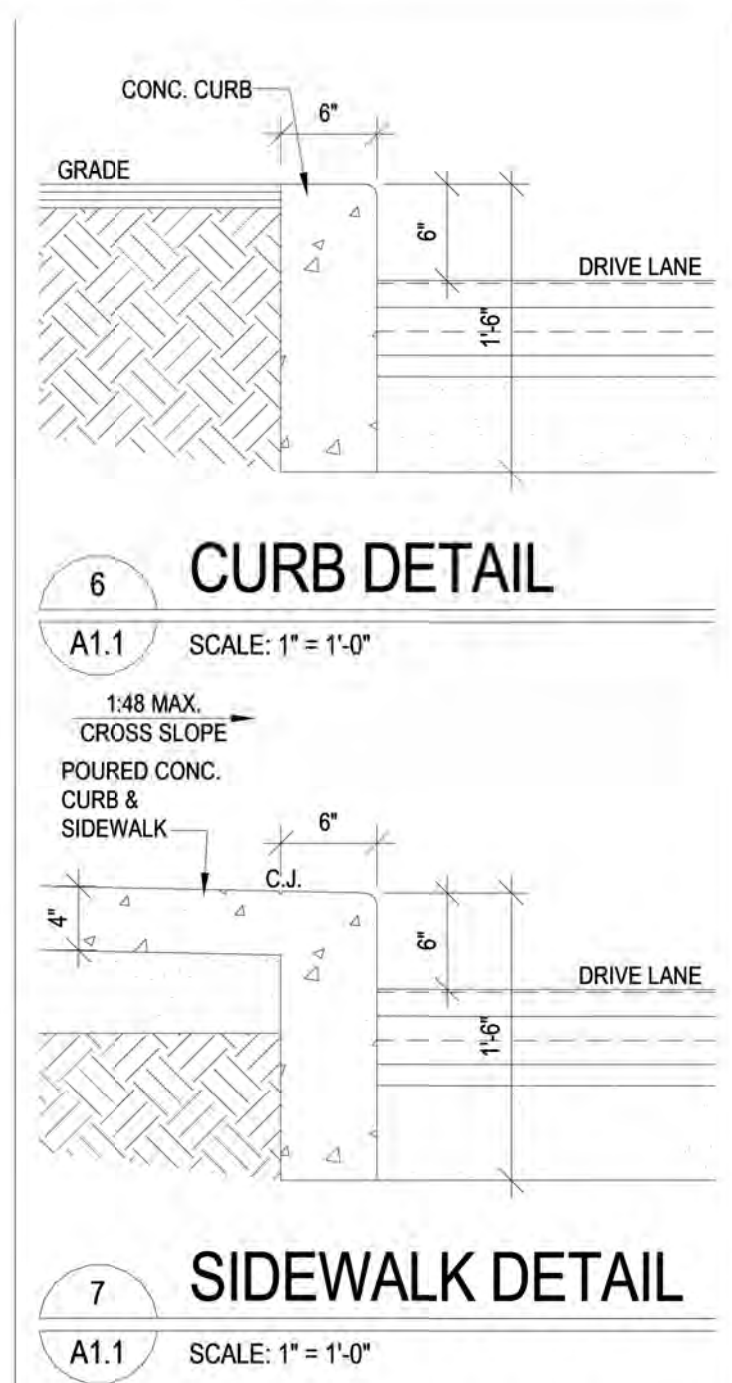
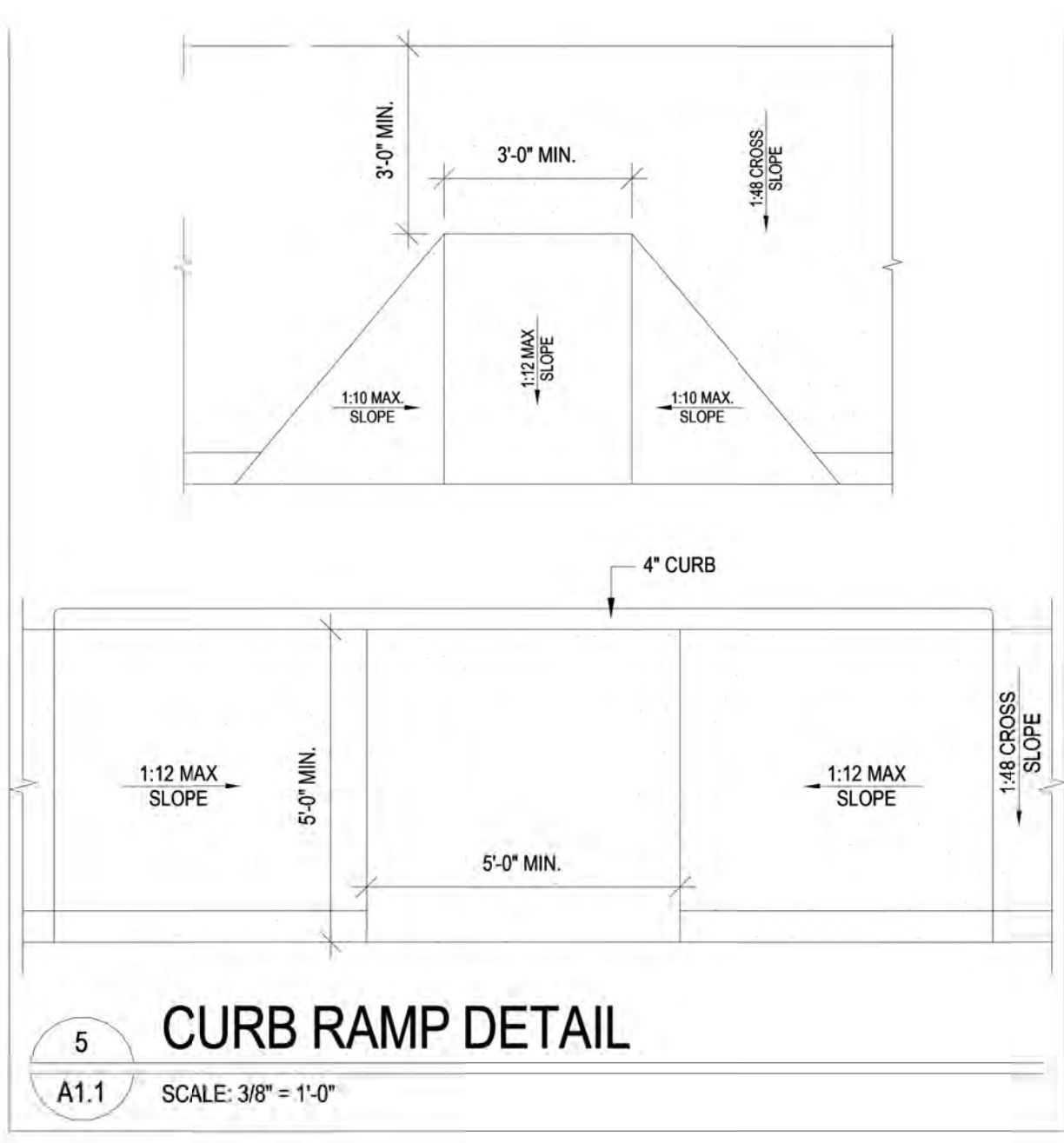
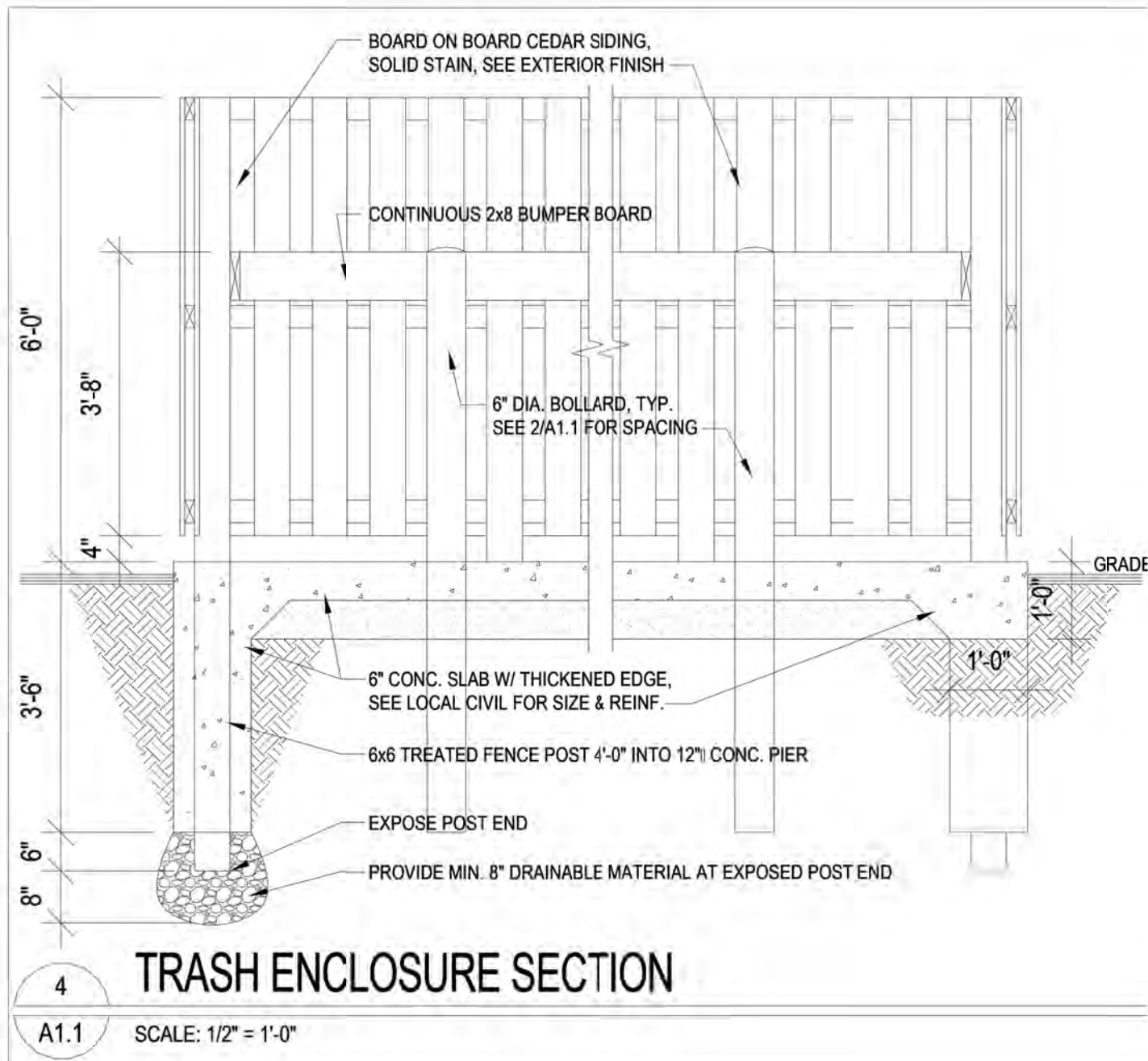
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- SITE PLAN NOTES**
- IT IS THE INTENT OF THIS DRAWING TO PROVIDE INFORMATION RELATING TO SITE DESIGN ELEMENTS WHICH ARE TO BE INCORPORATED INTO THE FINAL SITE DESIGN. REFER TO DRAWINGS PREPARED BY THE CIVIL ENGINEER AND LANDSCAPE ARCHITECT FOR FINAL SITE DEVELOPMENT INFORMATION.
- PARKING LOT STRIPING COLOR TO BE "HIGHWAY WHITE" OR "SAFETY YELLOW". HANDICAPPED STALL PICTOGRAM COLOR AS PER LOCAL CODE. VERIFY. SEE SPECIFICATIONS.
  - TRASH ENCLOSURE SEE: 2/A1.1 THRU 4/A1.1
  - CONCRETE CURBING BLDG. PERIMETER: VERTICAL CURB. SEE DETAIL 6/A1.1 & 7/A1.1
  - ACCESSIBLE PARKING SIGNAGE. SEE DETAIL 6/A1.2
  - MOBILE ORDER PARKING SIGNAGE. SEE DETAIL 6/A1.2 & PAVING STENCIL
  - DT PULL AHEAD PARKING SIGNAGE. SEE DETAIL 6/A1.2 & PAVING STENCIL
  - CONCRETE SIDEWALK
  - CURB RAMP SEE DETAIL 6/A1.1 OR BITUMINOUS TO BE SLOPED A MAXIMUM OF 2% TO CONCRETE WALK. DETAIL 5/A1.1
  - CONCRETE PATIO: BROOM FINISHED CONCRETE WITH TOOLED JOINTS @ 8'-0" EA. WAY TYPICAL. SLOPE AWAY FROM BUILDING 1/8" PER FOOT. ALTERNATIVE PATIO: STAMPED/COLORLED CONCRETE. SEE ADD PROJECT MANUAL FOR SPECIFICATION.
  - LIGHT POLE. SEE DETAIL 9/A1.2 AND ELECTRICAL SITE PLAN
  - PATIO RAILING. SEE DETAIL 5/A1.2
  - MONUMENT SIGN BY OTHERS.
  - MENU BOARD SEE: 11/A1.2 & SHEET A3.3
  - SPEAKER SEE DETAIL 12/A1.2
  - CLEARANCE SIGN
  - LOOP INDUCTION SYSTEM SEE 1/A1.2 OR 3/A1.2
  - OPTIONAL PREVIEW BOARD. SEE DETAIL 14/A1.2 & SHEET A3.3
  - OPTIONAL CANOPY AT DRIVE-THRU SPEAKER SEE 15/A1.3
  - LANDSCAPING TO BE BY GENERAL CONTRACTOR PER LANDSCAPE ARCHITECT'S PLAN
  - 6" CONCRETE DYED BLACK



DAIRY QUEEN GRILL & CHILL

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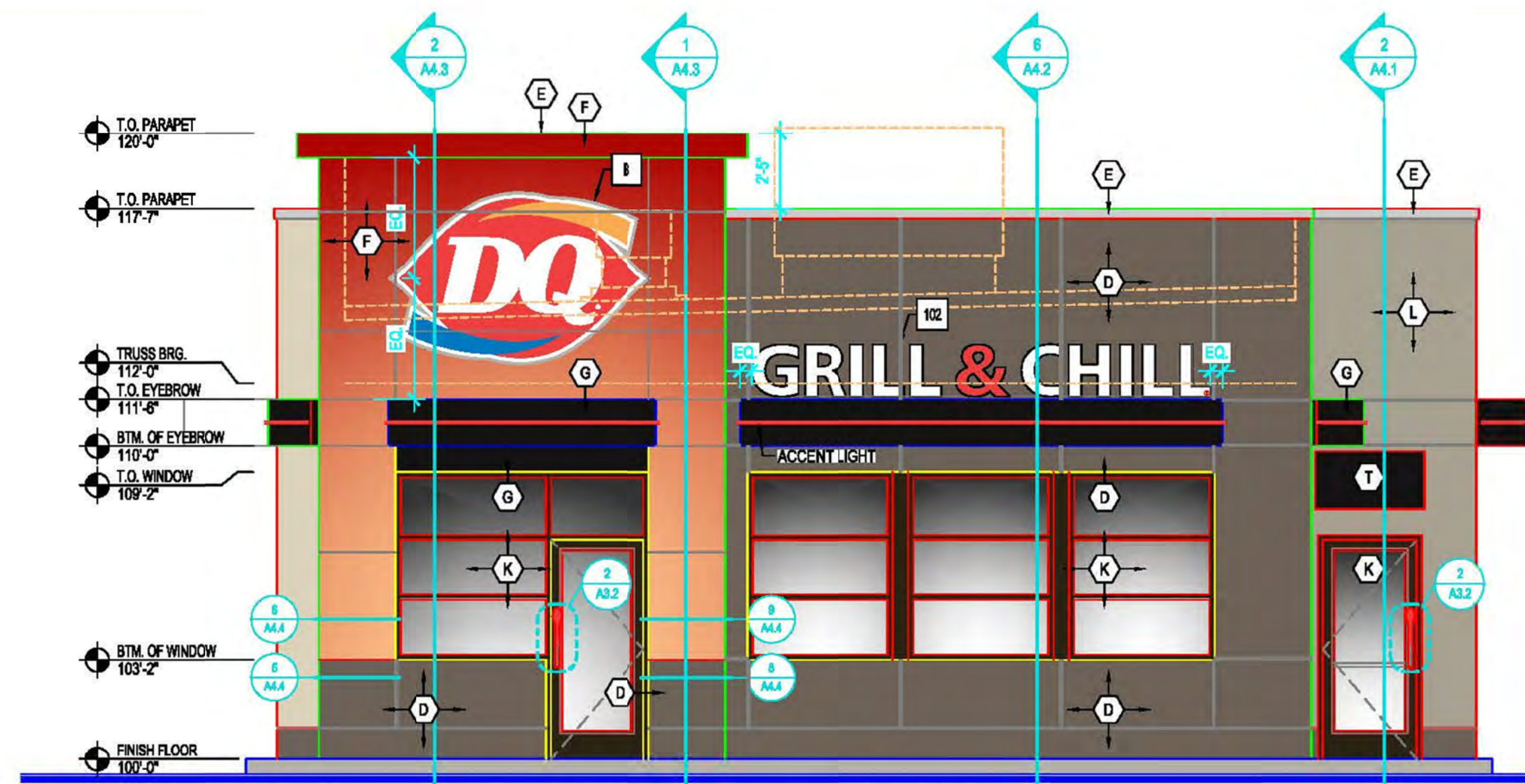
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| date                        | 1.27.2022 |             |
| issued for CORPORATE REVIEW |           |             |
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SITE

A1.1

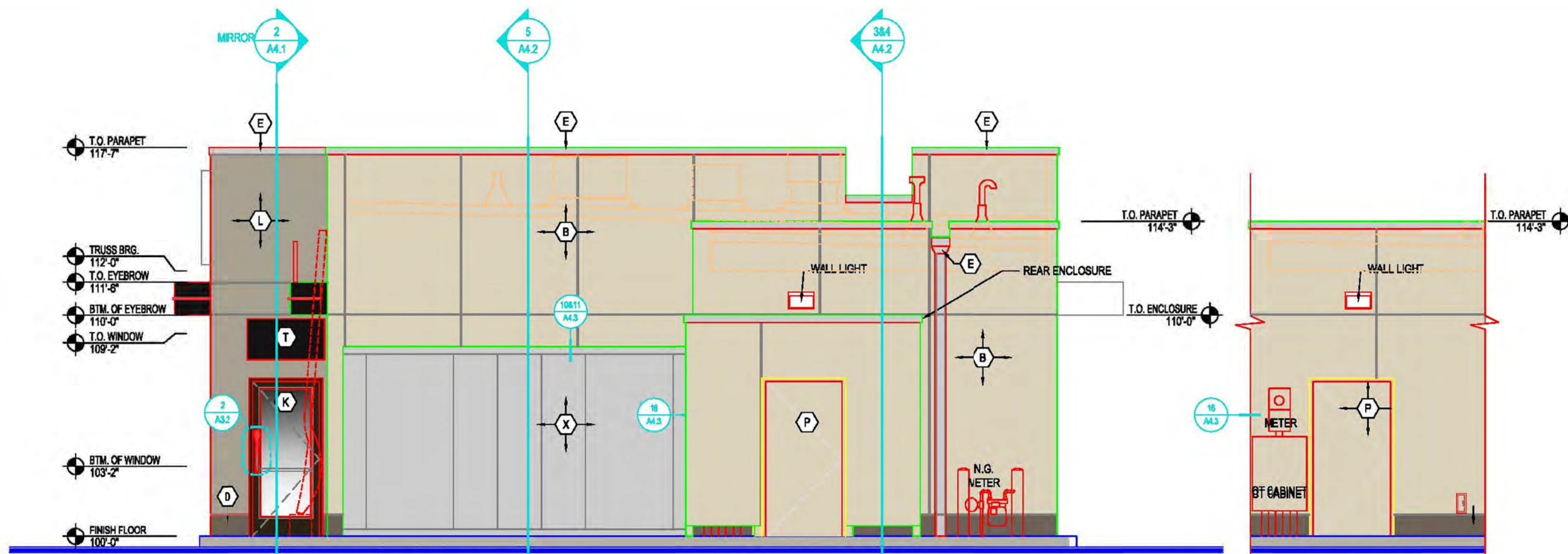




1 FRONT ELEVATION

A3.1 SCALE: 1/4" = 1'-0"

NOTE: THE DQ RED SPOON HANDLES HAVE SPECIAL INSTALLATION REQUIREMENTS. ALUM. STOREFRONT MFG. MUST COORD. LOCK & HANDLE, LOCATION & HEIGHTS



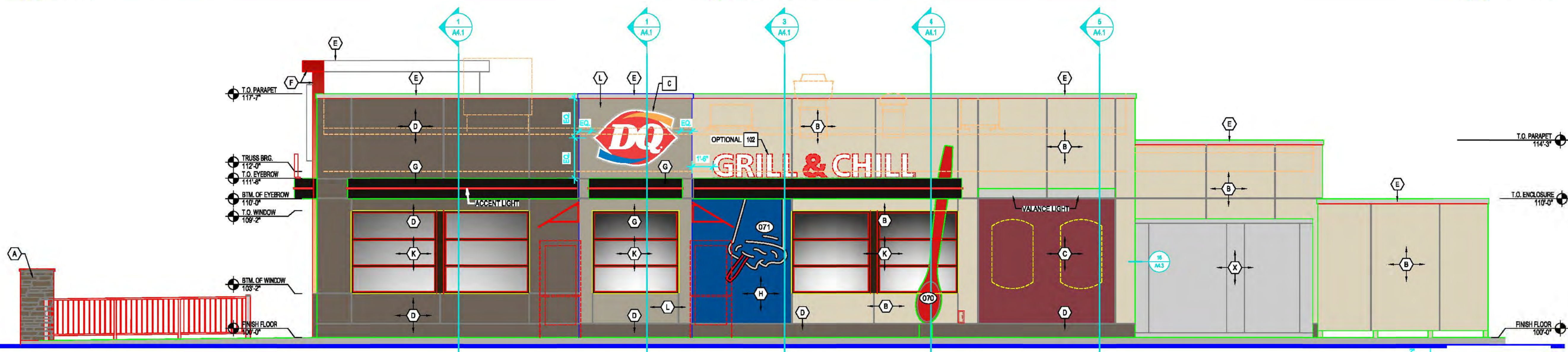
2 REAR ELEVATION

A3.1 SCALE: 1/4" = 1'-0"

NOTE: THE DQ RED SPOON HANDLES HAVE SPECIAL INSTALLATION REQUIREMENTS. ALUM. STOREFRONT MFG. MUST COORD. LOCK & HANDLE, LOCATION & HEIGHTS

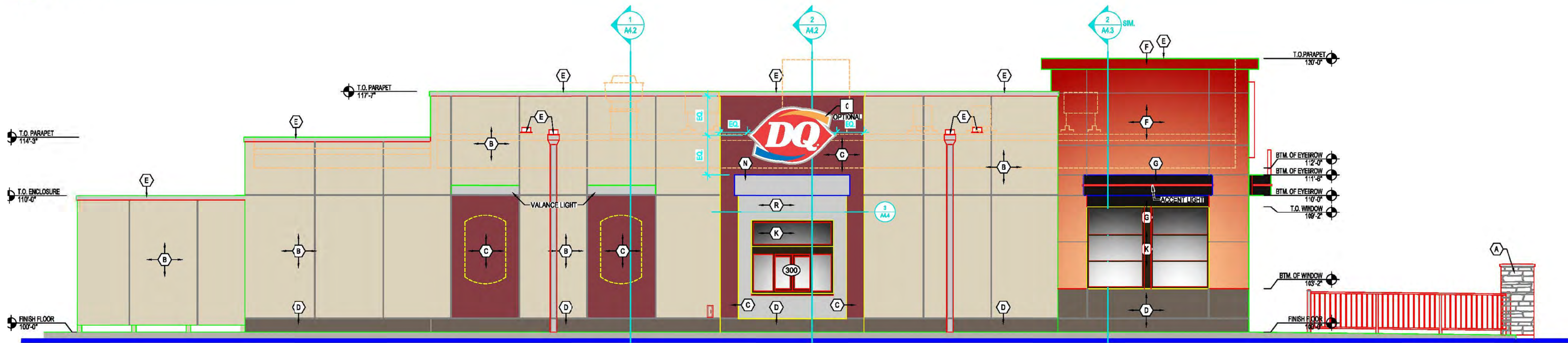
5 PARTIAL REAR ELEV.

A3.1 SCALE: 1/4" = 1'-0"



3 ENTRANCE ELEVATION

A3.1 SCALE: 1/4" = 1'-0"



4 DRIVE-THRU ELEVATION

A3.1 SCALE: 1/4" = 1'-0"



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ELEVATIONS

sheet number

A3.1





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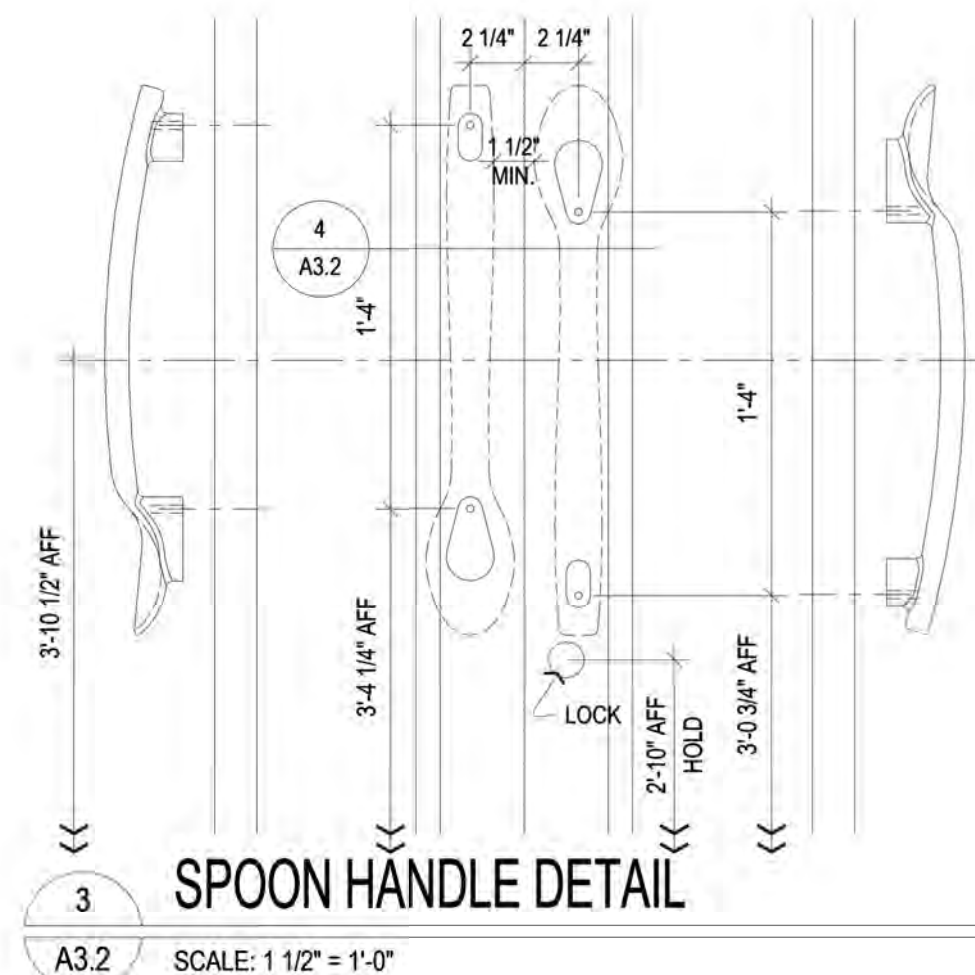
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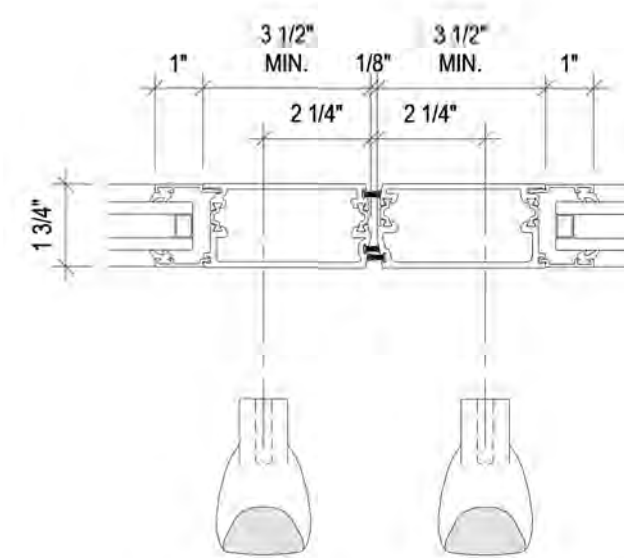
A3.2



1 PATIO FRONT ELEVATION  
A3.2 SCALE: 1/4" = 1'-0"



3 SPOON HANDLE DETAIL  
A3.2 SCALE: 1 1/2" = 1'-0"



4 SPOON HANDLE DETAIL  
A3.2 SCALE: 3" = 1'-0"

EXTERIOR ELEVATION KEYNOTES:

NOTE: THIS IS A PROTOTYPICAL SCHEDULE, ALL FINISHES MAY NOT BE USED.

- A. STONE:**  
MFR: BORA STONE PRODUCTS LLC  
STYLE: PRO-1718 LEDESTONE, IVY STACK  
COLOR: PLATINUM  
NOTE: CAPSTONE: ELDO-RADO STONE - CHISELED EDGE COLUMN CAP, COLOR: SMOKE
- B. EFS (LIGHT):**  
MFR: STO CORPORATION  
COLOR: N19-0021 (MATCHES BENJAMIN MOORE, TEMPORAL SPIRIT 965)  
FINISH: 1300 STOUT (1.00 FINE SAND)  
NOTE: PROVIDE HIGH IMPACT EFS FROM GRADE TO 3'-0" A.F.F.
- C. EFS (RED):**  
MFR: STO CORPORATION  
COLOR: N19-0022 (MATCHES BENJAMIN MOORE, CALIENTE AF-299)  
FINISH: 1300 STOUT (1.00 FINE SAND)  
NOTE: PROVIDE HIGH IMPACT EFS FROM GRADE TO 3'-0" A.F.F.
- D. EFS (DARK):**  
MFR: STO CORPORATION  
COLOR: N19-0023 (MATCHES BENJAMIN MOORE, DEEP CREEK 1477)  
FINISH: 1300 STOUT (1.00 FINE SAND)  
NOTE: PROVIDE HIGH IMPACT EFS FROM GRADE TO 3'-0" A.F.F.
- E. COPING & SCUPPERS:**  
MFR: FIRESTONE UNA-CLAD  
MATERIAL: 24 GA. STEEL  
COLOR: SILVER METALLIC  
FINISH: KYMAR 100  
VENDOR: ARCHITECTURAL METALS, SEE NATIONAL VENDORS LIST
- F. METAL PANEL:**  
MFR: ALPOLIC  
STYLE: 4MM  
COLOR: SHIMMER DOTS MARCON GOLD  
NOTE: MUST BE INSTALLED HORIZONTALLY. REFERENCE ARROWS ON BACK OF PANEL MUST BE ALIGNED IN THE SAME DIRECTION.  
VENDOR: ARCHITECTURAL METALS, SEE NATIONAL VENDORS LIST
- G. METAL EYEBROW, OUTRIGGERS, & FLASHINGS:**  
MFR: FIRESTONE UNA-CLAD  
MATERIAL: 24 GA. ALUMINUM  
COLOR: EXTRA DARK BRONZE  
FINISH: SATIN  
VENDOR: ARCHITECTURAL METALS, SEE NATIONAL VENDORS LIST
- H. EFS (BLUE):**  
MFR: STO CORPORATION  
COLOR: N19-0024 (MATCHES BENJAMIN MOORE, BIG COUNTRY BLUE #2065-30)  
FINISH: 1300 STOUT (1.00 FINE SAND)  
NOTE: PROVIDE HIGH IMPACT EFS FROM GRADE TO 3'-0" A.F.F.
- I. STOREFRONT:**  
STYLE: 2x4 1/2"  
FINISH: DARK BRONZE  
GLAZING: CLEAR, 1" INSULATED, LOW E
- J. EFS (MEDIUM):**  
MFR: STO CORPORATION  
COLOR: N19-0025 (MATCHES BENJAMIN MOORE, WILLOW CREEK #1468)  
FINISH: 310 STO (FINE SAND)  
NOTE: PROVIDE HIGH IMPACT EFS FROM GRADE TO 3'-0" A.F.F.
- K. CORRUGATED METAL:**  
MFR: METAL SALES MANUFACTURING CORPORATION  
MATERIAL: 18" CORRUGATED 24 GA. STEEL  
COLOR: ACRYLIC COATED GALVALUME  
VENDOR: ARCHITECTURAL METALS, SEE NATIONAL VENDORS LIST
- L. METAL EYEBROW, OUTRIGGERS, & FLASHINGS:**  
MFR: FIRESTONE UNA-CLAD  
MATERIAL: 24 GA. ALUMINUM  
COLOR: CLEAR ANODIZED  
FINISH: SATIN  
VENDOR: ARCHITECTURAL METALS, SEE NATIONAL VENDORS LIST
- M. PAINT:**  
MFR: BENJAMIN MOORE  
COLOR: TEMPORAL SPIRIT 965  
PRODUCT: AURA EXTERIOR PAINT, EGG SHELL LOW LUSTRE #634  
PRIMER: FIRST COAT - AURA EXTERIOR PAINT
- N. TRASH ENCLOSURE SOLID COLOR STAIN:**  
MFR: BENJAMIN MOORE  
COLOR: COBBLESTONE PATH 1606  
PRODUCT: ARBORCRAFT WATERBORNE SOLID DECK & SIDING STAIN #640  
PRIMER: SELF PRIMING ON MOST SURFACES (SEE TECH. DATA SHEET FOR DETAILS)
- O. WALK-IN COOLER/FREEZER:**  
MFR: KOLPAK  
COLOR: FACTORY FINISH  
VENDOR: WASSERSTROM  
NOTE: SEE EQUIPMENT SCHEDULE FOR DETAILS
- P. TRASH ENCLOSURE PAINT:**  
MFR: BENJAMIN MOORE  
COLOR: DEEP CREEK 1477  
PRODUCT: AURA EXTERIOR PAINT, EGG SHELL LOW LUSTRE #634  
PRIMER: FIRST COAT - AURA EXTERIOR PAINT
- Q. METAL PANEL:**  
MFR: ALPOLIC  
STYLE: 3MM  
COLOR: TIBX SILVER  
NOTE: MUST BE INSTALLED HORIZONTALLY. REFERENCE ARROWS ON BACK OF PANEL MUST BE ALIGNED IN THE SAME DIRECTION.  
VENDOR: ARCHITECTURAL METALS, SEE NATIONAL VENDORS LIST
- R. AWNINGS:**  
MFR: SUNBRELLA  
COLOR: CHARCOAL TWEEED 6007-000  
VENDOR: SIGN SOURCE
- S. PERGOLA SOLID COLOR STAIN:**  
MFR: BENJAMIN MOORE  
COLOR: COBBLESTONE PATH 1606  
PRODUCT: ARBORCRAFT WATERBORNE SOLID DECK & SIDING STAIN #640  
PRIMER: SELF PRIMING ON MOST SURFACES (SEE TECH. DATA SHEET FOR DETAILS)
- T. WALKING COOLER/FREEZER:**  
MFR: KOLPAK  
COLOR: FACTORY FINISH  
VENDOR: WASSERSTROM  
NOTE: SEE EQUIPMENT SCHEDULE FOR DETAILS

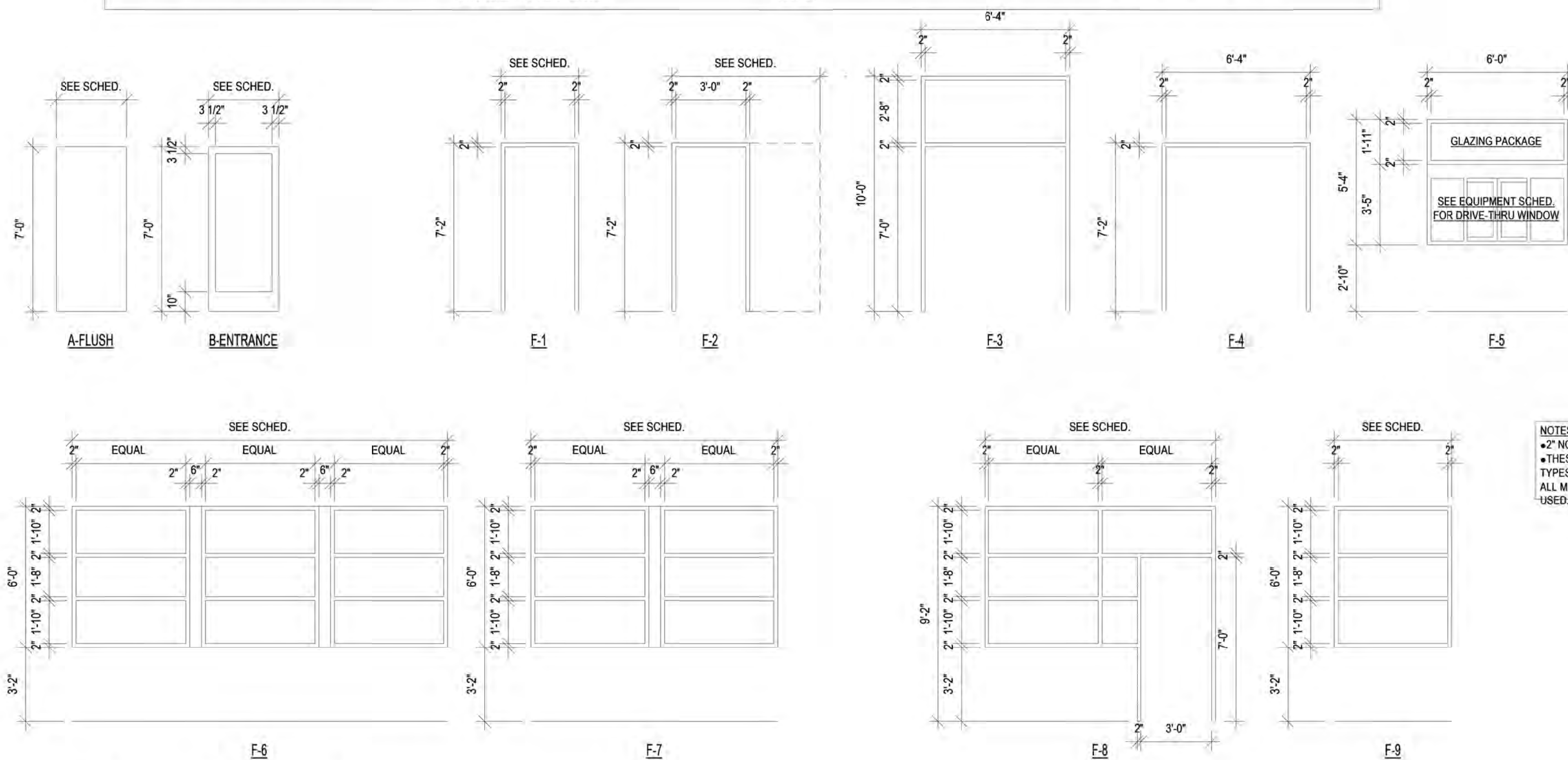
OPENING SCHEDULE NATIONAL ACCOUNT DOOR AND FRAME SUPPLIER (PLAM, WOOD AND H.M.) COOK & BOARDMAN, SEE NATIONAL VENDORS LIST

| OPNG. NO. | OPENING LOCATION | SIZE                       | FRAME TYPE | MATERIAL | FINISH | DOOR TYPE | MATERIAL | FINISH | FIRE RATING | HARDWARE GROUP | NOTES:                                                |
|-----------|------------------|----------------------------|------------|----------|--------|-----------|----------|--------|-------------|----------------|-------------------------------------------------------|
| 100A      | VESTIBULE (EXT.) | 3'-4" x 7'-2" x 4'-1 1/2"  | F-1        | ALUM.    | DK BRZ | B         | ALUM.    | DK BRZ | -           | E3             | SEE 303.2 & 4A3.2 FOR DOOR HANDLE INSTALLATION        |
| 100B      | VESTIBULE (EXT.) | 3'-4" x 7'-2" x 4'-1 1/2"  | F-1        | ALUM.    | DK BRZ | B         | ALUM.    | DK BRZ | -           | E3             | SEE 303.2 & 4A3.2 FOR DOOR HANDLE INSTALLATION        |
| 100C      | VESTIBULE (INT.) | 6'-4" x 7'-2" x 4'-1 1/2"  | F-4        | ALUM.    | DK BRZ | B         | ALUM.    | DK BRZ | -           | E2             | MOUNT BOTTOM OF DOOR FRAME LEVEL W/ TOP OF FLOOR TILE |
| 100D      | VESTIBULE WINDOW | 6'-4" x 6'-0" x 4'-1 1/2"  | F-9        | ALUM.    | DK BRZ | -         | -        | -      | -           | -              | -                                                     |
| 101A      | DINING ROOM      | 12'-2" x 6'-0" x 4'-1 1/2" | F-7        | ALUM.    | DK BRZ | -         | -        | -      | -           | -              | -                                                     |
| 101B      | DINING ROOM      | 12'-2" x 6'-0" x 4'-1 1/2" | F-7        | ALUM.    | DK BRZ | -         | -        | -      | -           | -              | -                                                     |
| 101C      | DINING ROOM      | 12'-2" x 6'-0" x 4'-1 1/2" | F-6        | ALUM.    | DK BRZ | -         | -        | -      | -           | -              | -                                                     |
| 101D      | TO PATIO         | 8'-2" x 8'-2" x 4'-1 1/2"  | F-8        | ALUM.    | DK BRZ | B         | ALUM.    | DK BRZ | -           | E3             | SEE 303.2 & 4A3.2 FOR DOOR HANDLE INSTALLATION        |
| 101E      | DINING ROOM      | 9'-0" x 6'-0" x 4'-1 1/2"  | F-7        | ALUM.    | DK BRZ | -         | -        | -      | -           | -              | -                                                     |
| 102       | RESTROOM         | 3'-4" x 7'-2" x 5'-3 3/4"  | F-1        | HM       | PNT    | A         | PC       | -      | -           | R1             | UNDERCUT BY 1" - PLAM: FORMICA PLATINUM 902-58        |
| 103       | RESTROOM         | 3'-4" x 7'-2" x 5'-3 3/4"  | F-1        | HM       | PNT    | A         | PC       | -      | -           | R1             | UNDERCUT BY 1" - PLAM: FORMICA PLATINUM 902-58        |
| 105       | DRIVE THRU       | 6'-0" x 5'-4" x 4'-1 1/2"  | F-6        | ALUM.    | DK BRZ | -         | -        | -      | -           | -              | -                                                     |
| 109       | OFFICE           | 3'-4" x 7'-2" x 5'-3 3/4"  | F-1        | HM       | PNT    | A         | PC       | -      | -           | O2             | UNDERCUT BY 1" - PLAM: FORMICA PLATINUM 902-58        |
| 111       | SERVICE          | 3'-10" x 7'-2" x 5'-3 3/4" | F-1        | HM       | PNT    | A         | HM       | -      | -           | S1             | -                                                     |

- NOTES:**
- PARTICLE CORE DOORS: SIZE AS PER PLAN AND SCHEDULE. ALL EDGES/SURFACES TO BE COVERED WITH PLASTIC LAMINATE.
  - USLOW METAL DOORS: SIZE AS PER PLAN AND SCHEDULE. (NOT ROLLED LEVEL 2 MODEL 3) STEEL TO BE 18 GA., INTERIOR TO BE FOAM INSULATION, WITH INTEGRAL REINFORCEMENT FOR CLOSURE, AND PANIC HARDWARE.
  - GLAZING (TYPICAL AT ALL): CLEAR, 1" INSULATED, LOW E.
- ALUM. = ALUMINUM  
HM = HOLLOW METAL  
PC = PARTICLE CORE  
DK BRZ = ANODIZED ALUMINUM STATUTORY DARK BRONZE FINISH  
CLR = ANODIZED ALUMINUM CLEAR FINISH  
PNT = SEE INTERIOR ELEVATIONS AND FINISH SCHEDULE FOR COLOR

HARDWARE GROUPS NATIONAL ACCOUNT DOOR AND FRAME SUPPLIER (PLAM, WOOD AND H.M.) COOK & BOARDMAN, SEE NATIONAL VENDORS LIST NOTE: THIS IS A PROTOTYPICAL SCHEDULE, ALL GROUPS MAY NOT BE USED.

- GROUP #01: TYPICAL EXTERIOR VESTIBULE DOORS**
- CLOSER: HAGER MFG., MODEL #8200, ALM.
  - HINGES: HAGER MFG., EC081199, US220, WITH NON-REMOVABLE PINS, 4.5"x4.5", (4) HINGES PER LEAF.
  - KEYED CYLINDERS: HAGER MFG., 3902 MORTISE CYLINDER, US260, PROVIDE (2) KEYS PER DOOR, ALL CYLINDERS KEYS ALIKE (MOUNTED AT 34" AFF, COORDINATE W/ SPOON HANDLE).
  - MORTISE DEADLOCK: HAGER MFG., 3800, US260.
  - SPOON HANDLE: PROVIDED & INSTALLED BY ALUM. STOREFRONT CONTRACTOR, AVAILABLE FROM HUC, SEE ADD. NATIONAL VENDORS LIST.
  - PUSH BAR: HAGER MFG., 1305, 320.
  - SWEEP: HAGER MFG., 8015, MIL ALUM. FINISH, SIZED TO FIT DOOR.
  - THRESHOLD: HAGER MFG., 412 S, MIL ALUM. FINISH, SIZED TO FIT DOOR OPENING WIDTH.
  - WEATHERSTRIPPING: HAGER MFG., 8915, MIL ALUM. FINISH, SIZED TO FIT DOOR.
- GROUP #02: TYPICAL OFFICE DOOR**
- CLOSER: HAGER MFG., MODEL #8200, ALM.
  - HINGES: HAGER MFG., EC081199, US260, WITH NON-REMOVABLE PINS, 4.5"x4.5", (3) HINGES PER LEAF.
  - KICK PLATE: HAGER MFG., 1905 - 34"W X 19"H, INSTALLED ON PUSH SIDE.
  - CONVEX DOOR STOP: HAGER MFG., #232W, US320.
  - OCCUPANCY INDICATOR: HAGER MFG., 3016, US260.
  - PUSH PLATE: HAGER MFG., 305, 4"x16", CUT OUT FOR OCCUPANCY INDICATOR.
  - PULL HANDLE: HAGER MFG., 105S, 4"x16", US260, CUT OUT FOR OCCUPANCY INDICATOR.
  - FOOT OPERATED DOOR PULL: HAGER MFG., 190F, 320.
  - DOOR SILENCERS: HAGER MFG., 3070.
- GROUP #03: TYPICAL EXTERIOR PATIO/DECK/SCREEN DOOR**
- CLOSER: HAGER MFG., MODEL #8200, ALM.
  - HINGES: HAGER MFG., EC081199, US220, WITH NON-REMOVABLE PINS, 4.5"x4.5", (4) HINGES PER LEAF.
  - KEYED CYLINDERS: HAGER MFG., 3902 MORTISE CYLINDER, US260, PROVIDE (2) KEYS PER DOOR, ALL CYLINDERS KEYS ALIKE (MOUNTED AT 34" AFF, COORDINATE W/ SPOON HANDLE).
  - MORTISE DEADLOCK: HAGER MFG., 3800, US260.
  - SPOON HANDLE: PROVIDED & INSTALLED BY ALUM. STOREFRONT CONTRACTOR, AVAILABLE FROM HUC, SEE ADD. NATIONAL VENDORS LIST.
  - PUSH BAR: HAGER MFG., 1305, 320.
  - SWEEP: HAGER MFG., 8015, MIL ALUM. FINISH, SIZED TO FIT DOOR.
  - THRESHOLD: HAGER MFG., 412 S, MIL ALUM. FINISH, SIZED TO FIT DOOR OPENING WIDTH.
  - WEATHERSTRIPPING: HAGER MFG., 8915, MIL ALUM. FINISH, SIZED TO FIT DOOR.
- GROUP #04: TYPICAL OFFICE POCKET DOOR**
- R.M. POCKET DOOR FRAME: KARPEN STEEL CUP#0003.
  - BACK TO BACK PULL: HAGER 211 10" 320.
  - POCKET DOOR TRACK & HARDWARE: HAGER MFG., 9678-F2.
  - SLIDING DOOR MORTISE LOCK: HAGER MFG., 3800, US260.
  - DOOR STOP: HAGER MFG., 246F.
  - DOOR SILENCERS: HAGER MFG., 3070.
- GROUP #05: TYPICAL RESTROOM DOOR**
- CLOSER: HAGER MFG., MODEL #8200, ALM.
  - HINGES: HAGER MFG., EC081199, US260, WITH NON-REMOVABLE PINS, 4.5"x4.5", (3) HINGES PER LEAF.
  - KICK PLATE: HAGER MFG., 1905 - 34"W X 19"H, INSTALLED ON PUSH SIDE.
  - CONVEX DOOR STOP: HAGER MFG., #232W, US320.
  - PUSH PLATE: HAGER MFG., 305, 4"x16", INSTALLED ON PUSH SIDE.
  - PULL HANDLE: HAGER MFG., 105F, 4"x16", US260.
  - FOOT OPERATED DOOR PULL: HAGER MFG., 190F, US320.
  - DOOR SILENCERS: HAGER MFG., 3070.

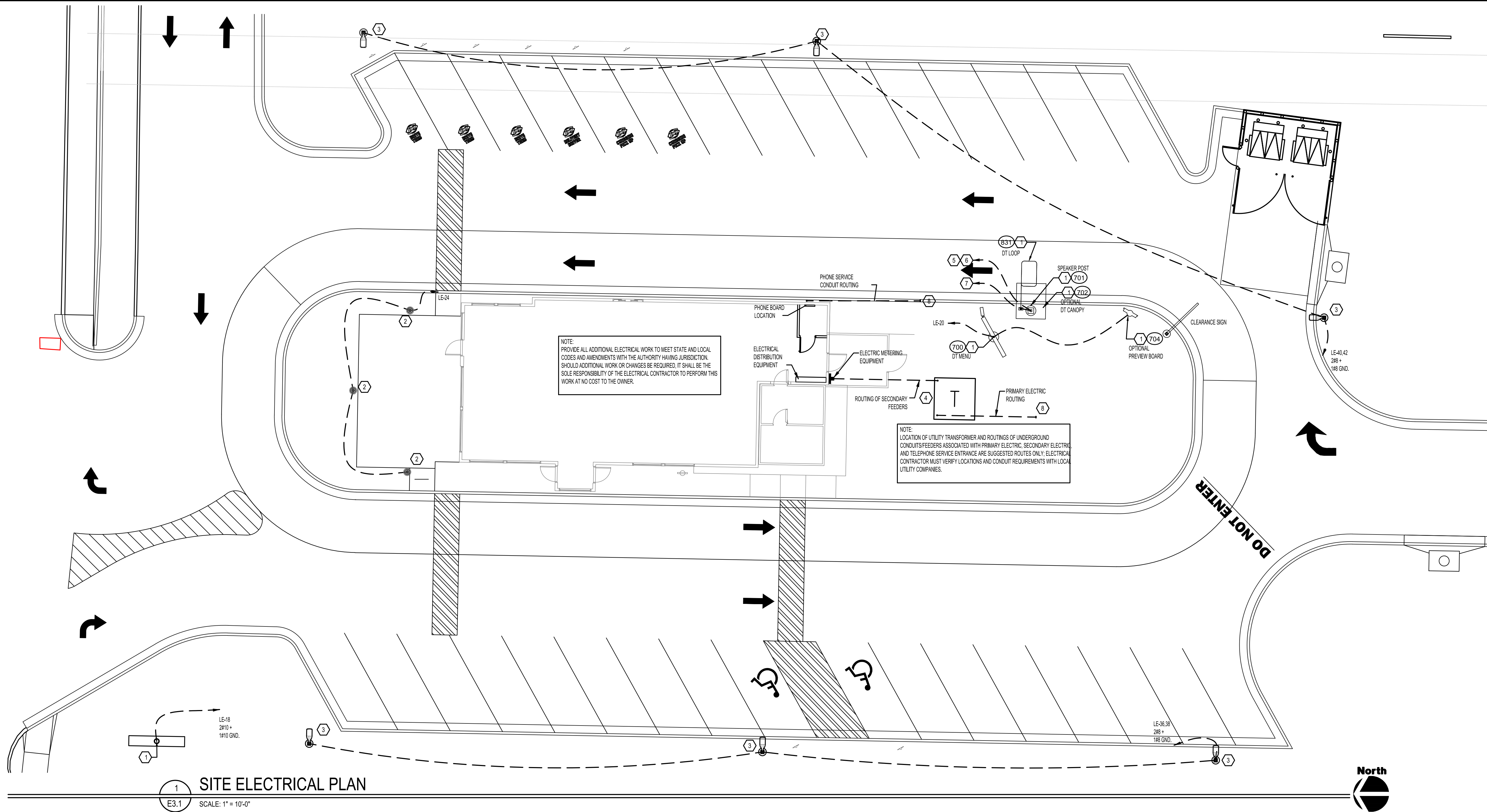


- NOTES:**
- 2" NOMINAL FRAME SIZE SHOWN.
  - THESE ARE PROTOTYPICAL FRAME TYPES AND HARDWARE GROUPS, NOT ALL MAY BE USED.

4 DOOR & FRAME TYPES  
A3.2 SCALE: 1/4" = 1'-0"

NOTE: THIS IS A PROTOTYPICAL ELEVATIONS, ALL FRAMES MAY NOT BE USED.





1 SITE ELECTRICAL PLAN  
E3.1 SCALE: 1" = 10'-0"

| GENERAL NOTES |                                                                                                                                                                        |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.            | ALL UNDERGROUND CONDUIT SHALL BE 1" SCHEDULE 40. ALL WIRE SHALL BE #10 THIN COPPER UNLESS NOTED OTHERWISE.                                                             |
| 2.            | PROVIDE GROUND WIRE OF EQUAL SIZE TO HOT AND NEUTRAL CONDUCTORS IN ALL CONDUITS.                                                                                       |
| KEY NOTES     |                                                                                                                                                                        |
| 1             | SEE ARCHITECTURAL PLANS REGARDING THE INSTALLATION OF SIGNS, MENU BOARDS, AND LOOP INDUCTION SYSTEMS. FIELD VERIFY ALL REQUIREMENTS BEFORE ROUGH-IN.                   |
| 2             | DECORATIVE PATIO LIGHTING. SEE LIGHTING FIXTURE SCHEDULE.                                                                                                              |
| 3             | PARKING LOT LIGHTING - SEE E2 LIGHTING FIXTURE SCHEDULE AND ARCHITECTURAL PLANS DETAIL 9/1.2. POLE BASES AND MOUNTING.                                                 |
| 4             | PROPOSED LOCATION OF TRANSFORMER. VERIFY ALL REQUIREMENTS WITH UTILITY COMPANY BEFORE BIDDING.                                                                         |
| 5             | 1/2" PVC CONDUIT WITH SPEAKER WIRE (LOW VOLTAGE) FROM REMOTE SPEAKER TO J-BOX UNDER CASH REGISTER COUNTER AT DRIVE THRU WINDOW.                                        |
| 6             | 1/2" PVC CONDUIT WITH LOOP INDUCTION WIRE (LOW VOLTAGE) FROM LOOP TO MENU BD. (FOR ABOVE GROUND CONNECTION) TO J-BOX UNDER CASH REGISTER COUNTER AT DRIVE THRU WINDOW. |
| 7             | PROVIDE CONDUIT AND POWER FROM DRIVE THRU CANOPY TO ELECTRICAL PANEL. VERIFY REQUIREMENTS WITH MANUFACTURER.                                                           |
| 8             | COORDINATE REQUIREMENTS AND ROUTING/TERMINATION POINTS OF PRIMARY ELECTRIC CONDUITS AND TELEPHONE SERVICE CONDUITS WITH LOCAL UTILITY COMPANIES.                       |



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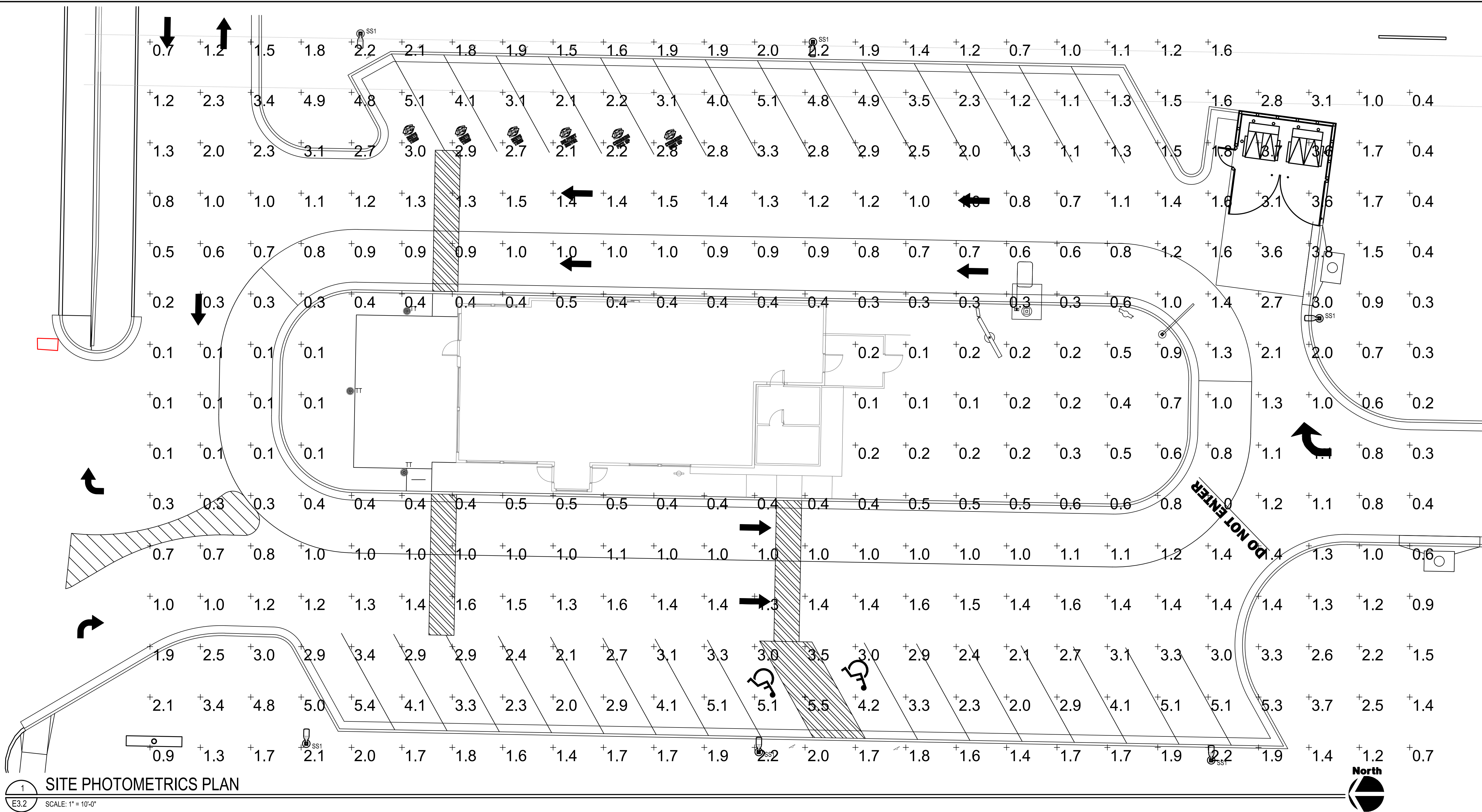
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SITE  
ELECTRICAL  
PLAN

sheet number

E3.1





1 SITE PHOTOMETRICS PLAN

E3.2 SCALE: 1" = 10'-0"

| LIGHTING SCHEDULE: |      |                  |                    |                                                                    |        |            |         |       |
|--------------------|------|------------------|--------------------|--------------------------------------------------------------------|--------|------------|---------|-------|
| PLAN SYM.          | QTY. | LOCATION         | FIXTURE MFGR.      | FIXTURE CATALOG NUMBER                                             | LUMENS | LIGHT LOSS | WATTAGE | NOTES |
| NN                 | 1    | OUTDOOR SECURITY | KEENE              | LP7-7                                                              | -      | -          | -       | -     |
| SS1                | 6    | PARKING LOT      | VISIONARE LIGHTING | VMK-H-T3-64LC-7-8KJUNV-HM-BZ<br>POLE: SNTS-4S-11-25-128C-136-S1-BZ | 15592  | 0.95       | 145.1   | 1     |
| TT                 | 3    | PATIO            | HINKLEY LIGHTING   | REEF-1951-HE, ON 7'-0" POST                                        | -      | -          | -       | -     |

VERIFY LIGHTING FIXTURE'S OPTICAL SYSTEM QUALIFIES AS "IES FULL CUTOFF" TO RESTRICT LIGHT TRESPASS, GLARE AND LIGHT POLLUTION.

| GENERAL NOTES |                                                                                                                                                                        |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.            | ALL UNDERGROUND CONDUIT SHALL BE 1" SCHEDULE 40. ALL WIRE SHALL BE #10 THINW GROUND COPPER UNLESS NOTED OTHERWISE.                                                     |
| 2.            | PROVIDE GROUND WIRE OF EQUAL SIZE TO HOT AND NEUTRAL CONDUCTORS IN ALL CONDUITS.                                                                                       |
| KEY NOTES     |                                                                                                                                                                        |
| 1.            | SEE ARCHITECTURAL PLANS REGARDING THE INSTALLATION OF SIGNS, MENU BOARDS, AND LOOP INDUCTION SYSTEMS. FIELD VERIFY ALL REQUIREMENTS BEFORE ROUGH-IN.                   |
| 2.            | DECORATIVE PATIO LIGHTING, SEE LIGHTING FIXTURE SCHEDULE.                                                                                                              |
| 3.            | PARKING LOT LIGHTING - SEE E2 LIGHTING FIXTURE SCHEDULE AND ARCHITECTURAL PLANS DETAIL 9/41.2, POLE BASES AND MOUNTING.                                                |
| 4.            | PROPOSED LOCATION OF TRANSFORMER, VERIFY ALL REQUIREMENTS WITH UTILITY COMPANY BEFORE BIDDING.                                                                         |
| 5.            | 1/2" PVC CONDUIT WITH SPEAKER WIRE (LOW VOLTAGE) FROM REMOTE SPEAKER TO J-BOX UNDER CASH REGISTER COUNTER AT DRIVE THRU WINDOW.                                        |
| 6.            | 1/2" PVC CONDUIT WITH LOOP INDUCTION WIRE (LOW VOLTAGE) FROM LOOP TO MENU BD. (FOR ABOVE GROUND CONNECTION) TO J-BOX UNDER CASH REGISTER COUNTER AT DRIVE THRU WINDOW. |
| 7.            | PROVIDE CONDUIT AND POWER FROM DRIVE THRU CANOPY TO ELECTRICAL PANEL, VERIFY REQUIREMENTS WITH MANUFACTURER.                                                           |
| 8.            | COORDINATE REQUIREMENTS AND ROUTING/TERMINATION POINTS OF PRIMARY ELECTRIC CONDUITS AND TELEPHONE SERVICE CONDUITS WITH LOCAL UTILITY COMPANIES.                       |



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SITE  
PHOTOMETRIC  
PLAN

sheet number

E3.2

## **Dairy Queen Major Site Plan Narrative**

1. How the site is capable of accommodating the buildings, proposed use, access and other site design elements required by this code and will not negatively impact the function and design of rights-of-way or adjacent property.

This site will be redesigned to accommodate a local restaurant with a drive-thru as permitted in accordance with the B2-zoning and does not require any special permit. Parking stalls will be included in compliance with Section 408-030 of Parkville Municipal Code and Dairy Queen requirements. Site signage will be located at minimum 10 ft. from all right-of way and set back lines per code.

2. How the design and arrangement of buildings and open spaces is consistent with good planning, landscape design and site engineering principles and practices.

The proposed exterior design of this restaurant complies with city architectural design requirements and is consistent with the design language of the neighboring buildings such as Valvoline and Jimmy Johns. The arrangement of this site provides easy access for traffic to enter/exit from NW 64<sup>th</sup> Street, and the building orientation facilitates drive thru passage. The proposed landscape design complies with building interior parking lot, and buffer planting requirements per Section 408.050 and table 407-2 of the Municipal Code. The entry on NW 64<sup>th</sup> Street will remain a right in-right out to comply with current traffic patterns at the site.

3. How the architecture and building design uses quality materials and the style is appropriate for the context considering the proportion, massing, and scale of different elements of the building.

The color finishes on each facade are consistent with at least one color from each neighboring building on the block. The front of the building will be set back far enough to be closely aligned with Valvoline building (visually). The overall height of the building and raised parapet is consistent with the standards of the neighboring buildings and city requirements.

4. How the overall design is compatible to the context considering the location and relationships of other buildings, open spaces, natural features, or site design elements.

A second driveway will be included to accommodate the adjacent Mid-Content Public library which will facilitate vehicular access between both sites. The east and west parking spaces will match the parking orientation on the east side of the Valvoline. The proposed landscape design will also be consistent with the landscaping of the surrounding sites, per code requirements. In similarity to the neighboring Jimmy Johns, this building will also contain an outdoor patio which makes the restaurant a stronger alternative for future customers.

5. Whether any additional site-specific conditions are necessary to meet the intent of the zoning district or the intent and design objectives of any of the applicable development standards.

There are no special zoning or rezoning requirements for this proposed site. Parking and trash enclosure will require landscape buffering in accordance with Parkville, MO city ordinance 408.050 and 407.030 respectively.



# Stormwater Management Plan

Proposed Dairy Queen Restaurant  
8803 NW 45 Highway  
Parkville, MO

January 6, 2022  
Revised January 26, 2022

Prepared By:  
SM Engineering  
5507 High Meadow Circle  
Manhattan, KS



---

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816-581-6363

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**Appendix A** – Survey,  
Grading Plan  
Existing Conditions Drainage Map  
Soil Survey

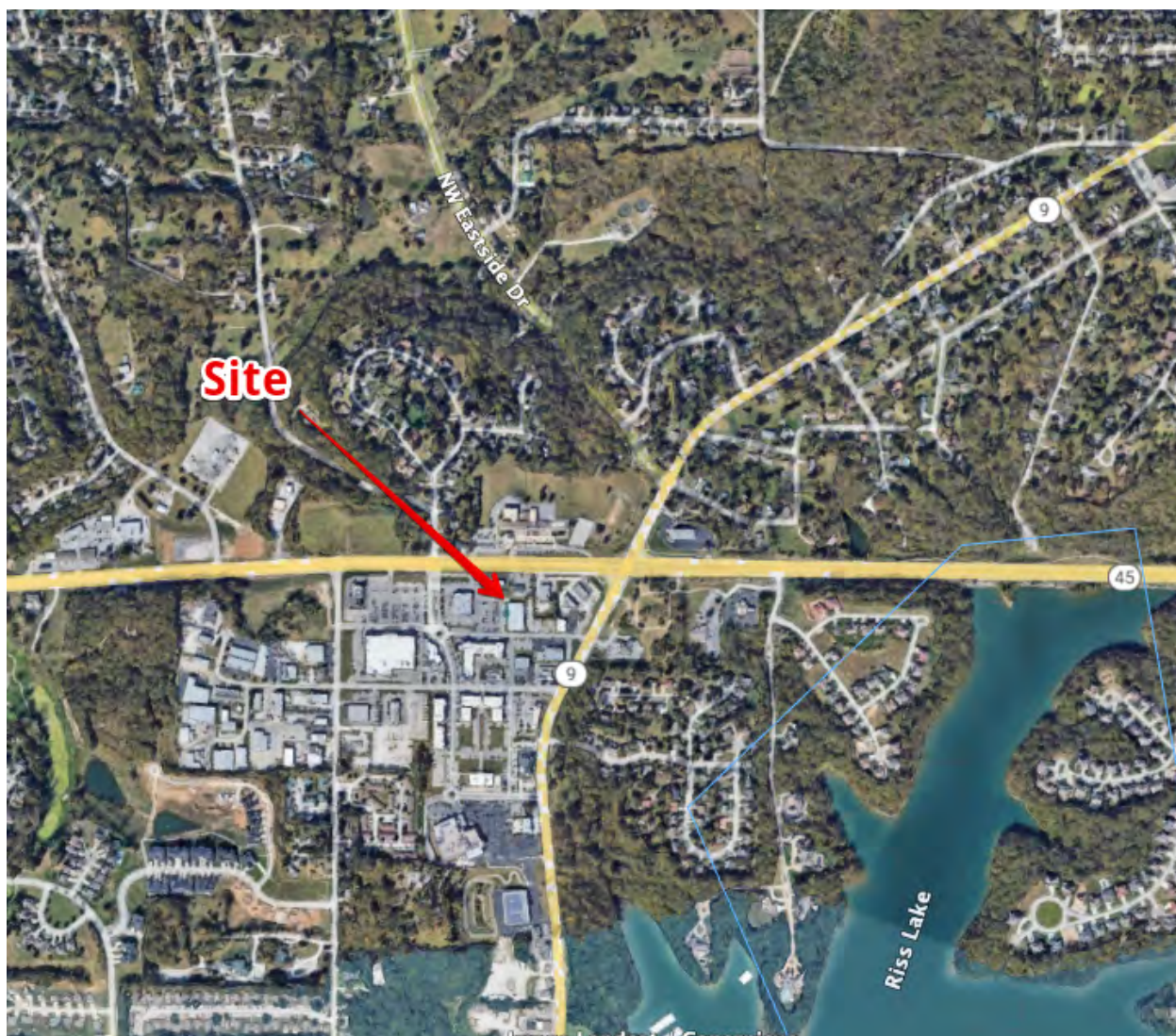
**Appendix B** – MARC Worksheet 1A  
MARC Worksheet 2  
Water Quality Drainage Map  
Envirohood Detail  
Treatment Train Calculations

**Appendix C** – Storm Sewer Calculations  
Storm Sewer Drainage Map  
Hydrology Studio Runoff Printouts



## INTRODUCTION

This Stormwater Management Plan has been prepared for the proposed development of a Dairy Queen Restaurant located at 8803 NW 45 Highway in Parkville, MO. The total site area analyzed is 0.96 acres. The site is currently occupied by an auto repair facility. The site location is shown in Figure 1 below.



**Figure 1: Site Location Map**

The purpose of the study is to analyze the effects the project will have on the local drainage patterns and to determine measures necessary to prevent negative impacts downstream. In

addition, best management practices (BMPs) will be designed to address stormwater quality for the site.

## **DRAINAGE AND BMP ANALYSIS METHODS AND CALCULATIONS**

Stormwater quantity was addressed per Section 5600 (Storm Drainage Systems & Facilities) of the Kansas City Metro Chapter, APWA, Standard Specifications and Design Criteria. The Mid-America Regional Council Manual of Best Management Practices for Stormwater Quality, October 2012 (MARC Manual) was used for BMP design calculations.

## **EXISTING DRAINAGE**

The drainage area considered is 0.96 acres in size and is currently occupied by a 4,500 SF auto repair facility and associated parking area. The site predominantly drains from north to south via overland flow. The drainage leaves the site and flows on to an existing offsite parking area and into 2 existing curb inlets. An existing conditions drainage map is included in Appendix A. The site is part of the Knox-Urban Land complex with a hydraulic soil group C. The topographic survey along with the NRCS soil survey is included in Appendix A.

## **PROPOSED DRAINAGE PLAN**

The development plan calls for construction of a 2,400 SF Dairy Queen restaurant with drive thru service and associated parking. As part of the plan there will be access provided to the south through the existing parking lot. On site storm drainage will be captured in 2 curb inlets that will be constructed at the south end of the development. These inlets will collect the runoff and direct it to the storm sewer system in the access drive to the south. The proposed grading plan is included in Appendix A.

## **STORMWATER QUANTITY**

The existing site is comprised of 0.60 Ac. total of building and impervious parking area with the balance being grass. With a total site area of 0.96 Ac. the site is currently 62.5% impervious. After construction the site will be comprised of 0.64 Ac. of building and impervious parking area. Again, given a total site area of 0.96 Ac. this equates to 66.7% of impervious area. This is an increase of 4.2% impervious area over the existing.

The city of Parkville has adopted the KC Metropolitan Chapter of the American Public Works Association Section 5600, Storm Drainage Systems & Facilities. Per section 5601.3.A.3, if the site is less than 2 acres in size and the increase in impervious area is less than 10% then the development is excepted from the APWA requirements. As such no stormwater quantity measures need to be provided.



## **STORMWATER TREATMENT**

Improvements to the property will increase impervious surface area, thus proposed improvements will require stormwater quality treatments to be installed. The 2012 MARC BMP Manual was utilized to determine the required Level of Service (LOS).

In order to determine the required level of service "Worksheet 1A: Required Level Of Service For Developed Site" from the Marc Manual was completed. A minimum level of service of 3.9 was calculated. "Worksheet 2, Mitigation Package" was also completed. The proposed improvements will provide a level of service of 3.9. Both worksheets are included in Appendix B.

In order to arrive at the required LOS of 3.9 two treatment methods were utilized. The methods utilized are curb inlet filters and an Envirohood. The two proposed curb inlets will both have inlet filters installed. Included in Appendix B is a drainage map showing the areas draining to the proposed inlets. The curb inlets outlet to a manhole prior to accessing the public system. The manhole will have an Envirohood installed on the outlet. A detail of the Envirohood is included in Appendix B.

To arrive at the proposed level of service a combined value rating of 6 was used for the 2 treatment methods which were utilized as a treatment train. Methods utilized in Section 4.2.2 of the MARC manual were used to determine the level of service associated with the treatment train. A summary of the treatment train calculations are included in Appendix B

## **ON SITE STORM DRAINAGE**

The proposed on-site storm drainage system has been designed to handle the 100 year storm event and consists of 2 proposed curb inlets located at the south end of the development that will capture the on site surface drainage. The runoff from the roof will be captured in an underground conduit and routed to structure A3. The on-site system will be ultimately routed to an existing curb inlet in the access drive south of the site. The calculations for the on-site system along with a drainage map are included in Appendix C.

A discussion needs to be had regarding the ability of the downstream system to handle the additional runoff and any potential adverse impacts to the existing system. Using the Hydrology Studios software the runoff to the existing curb inlet was calculated. As indicated on the existing drainage map there is currently 0.70 acres draining to the inlet in the southeast corner of the parking lot south of the site. After development there will 0.78 acres draining to the inlet either from the on-site system or via overland flow. Below is summary of the existing and proposed flows to the subject inlet. The Hydrology Studio printouts are included in Appendix C.

|          | 2 Year Event (cfs) | 10 Year Event (cfs) | 100 Year Event (cfs) |
|----------|--------------------|---------------------|----------------------|
| Existing | 2.66               | 3.91                | 6.14                 |
| Proposed | 3.62               | 5.32                | 8.35                 |

As shown in the chart above there will be an increase in the runoff to the existing curb inlet. This is in big part due to 0.26 acres of impervious area currently draining east to the adjacent service station. As a result of this development we will be directing our runoff to the public system.

The increased runoff will actually cause minimal impact to the existing storm sewer system. A standard curb inlet captures between 60% and 70% of the flow. We have designed our system to make this substantially more efficient but during high flows will still not be 100% efficient. Most of the bypass flow from inlet A3 will flow to B1 with any flow bypassing B1 draining via overland flow to the subject curb inlet or out the drive entrance into the access street. If we assume an 80% curb inlet efficiency, then the above proposed flows are only slightly greater than the existing. Most of the bypass flow will ultimately drain to the existing curb inlet, however, the time of travel for the flow will be longer. This will in essence spread out the peak flow causing minimal increase in the existing flow and minimal impact to the downstream public storm sewer system.

## CONCLUSION

The proposed Dairy Queen development will increase the impervious area on the site. However, the increase is only 4.2% thus not requiring any water quantity measures, per APWA criteria. Per the MARC manual stormwater quality measures are required to be implemented which, per the above discussion, are being implemented. If constructed as proposed, stormwater quantity and quality, will be addressed per the APWA and the MARC manual.



# Appendix A

- Survey
- Grading Plan
- Existing Conditions Drainage Map
- Soil Survey



*PROJECT LOCATION*

*NW 1/4*

*NE 1/4*

*SW 1/4*

*SE 1/4*

*26*

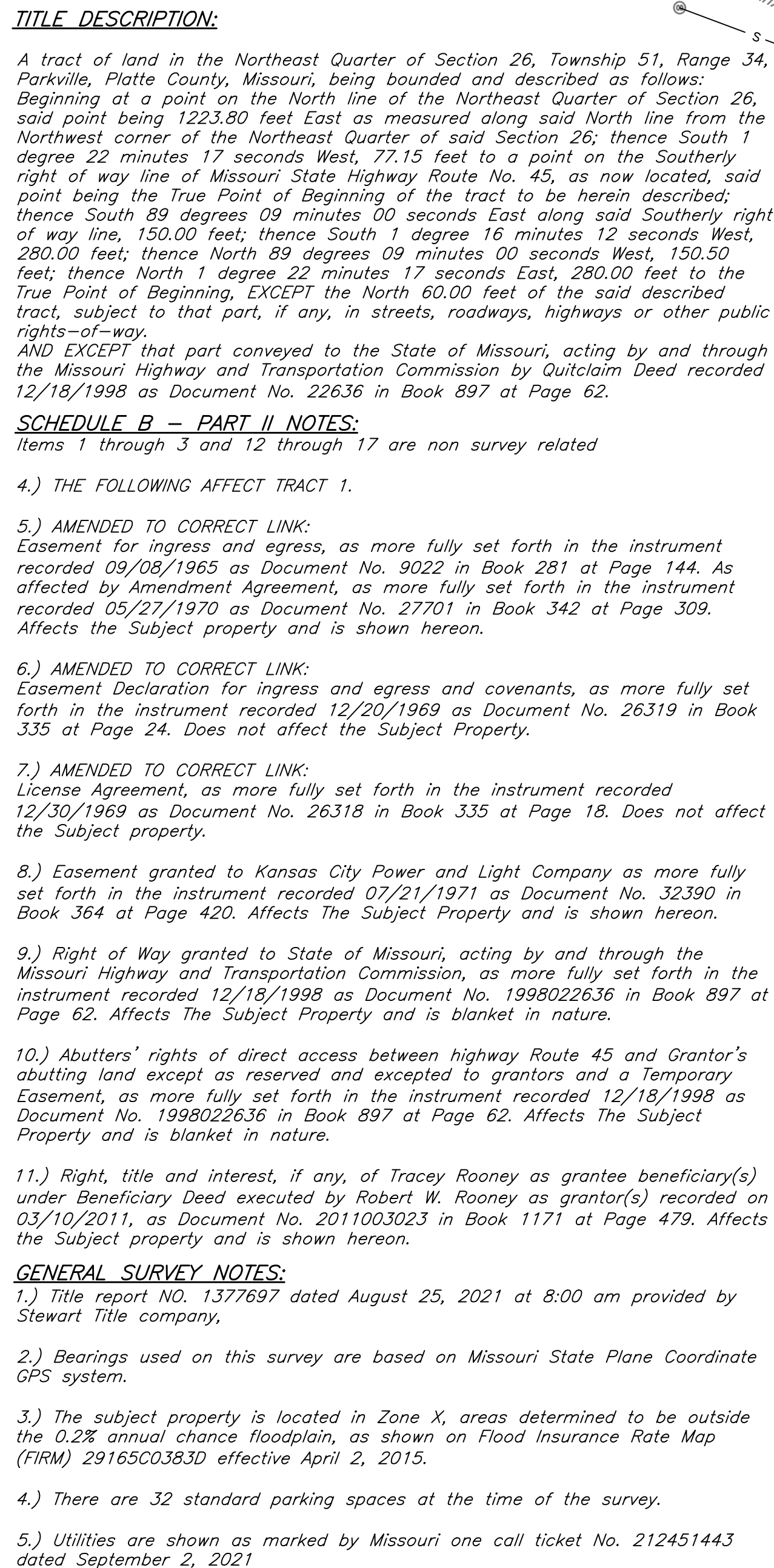
*Tom Watson Pkwy*

*Julian Dr.*

*VICINITY MAP*

*SEC. 26-51-34*

*N.T.S.*



**BENCHMARK:**

STATION PL 18-3: Located 167' South of NW 64TH Street and  
26' West of Chatham Ave.

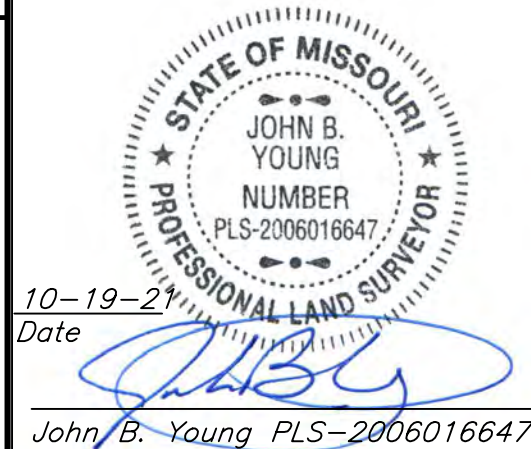
ELEVATION = 955.71

**CLIENT:**  
Windfield Real Estate  
Andrew Danner  
5775 NW 64th Ter. Ste. 203  
Kansas City, Mo 64151  
(816)612-5191

PROPERTY LOCATION:  
8803 NW 45 highway  
Parkville, Platte County  
Missouri 64152

[illegible]

Location: S:\21.306 - 8803 NW 45 Hwy\DRAWINGS\21.306-ALTA-REV1.dwg-Oct 19, 2021-8:11am



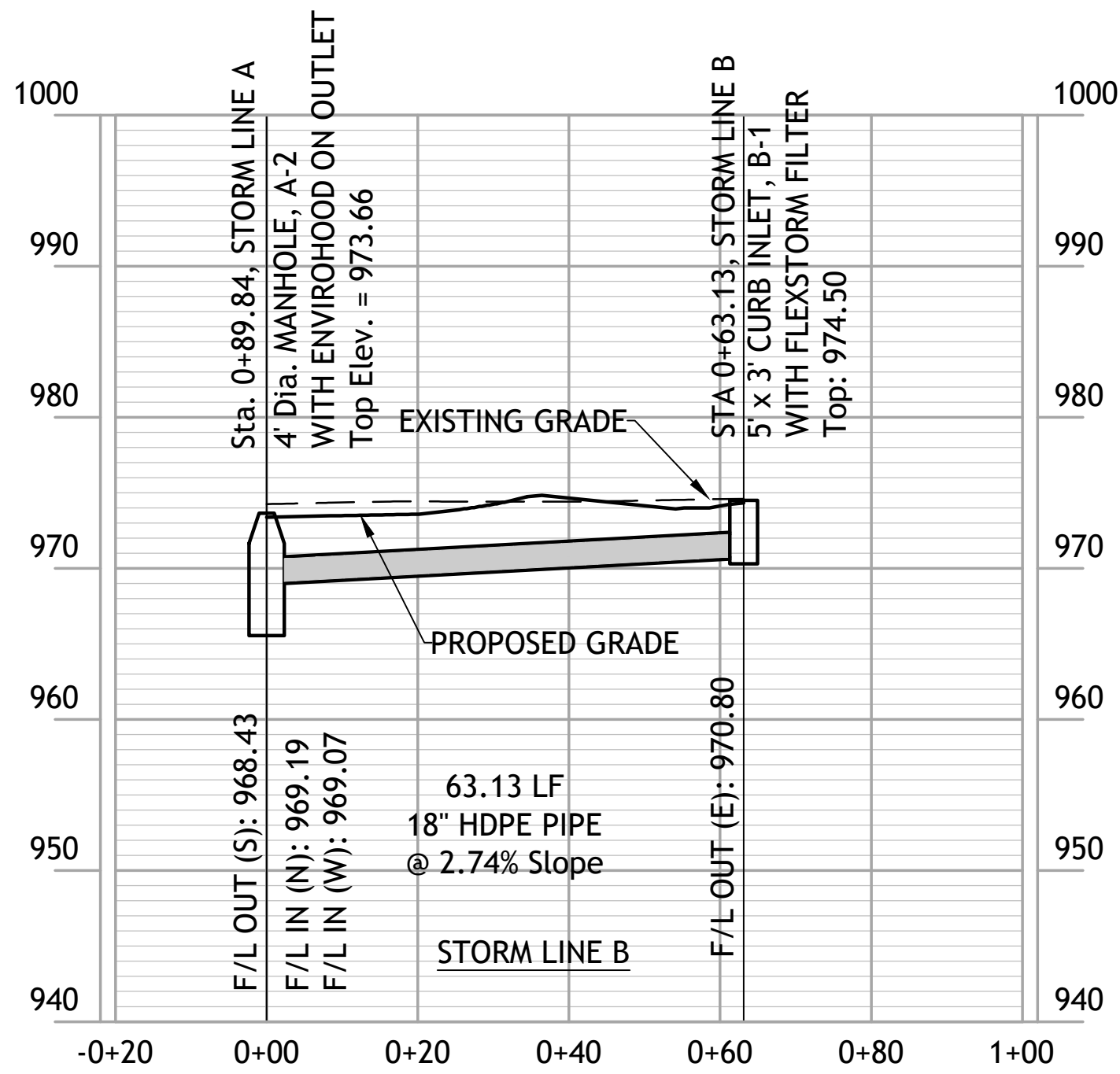
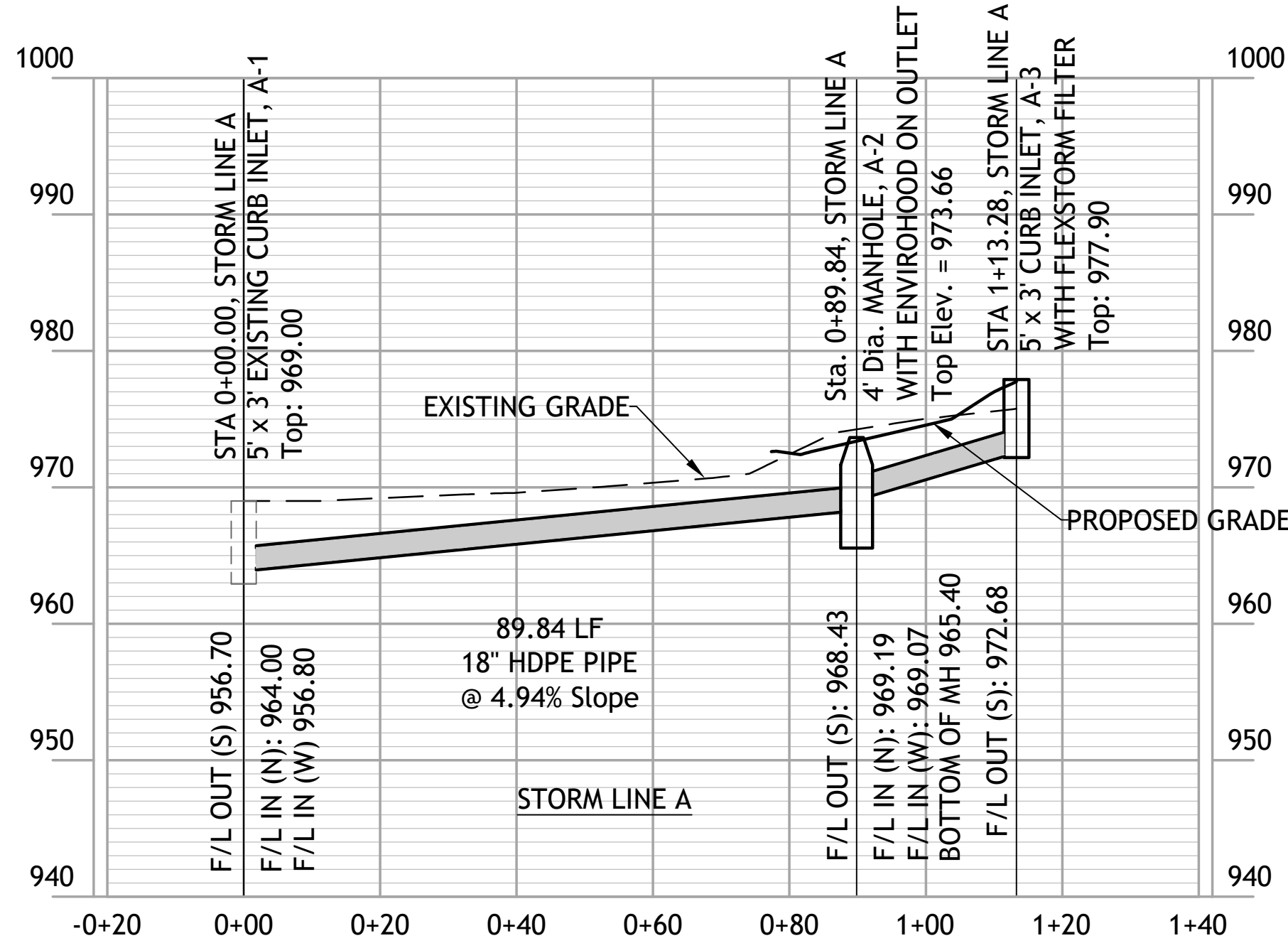
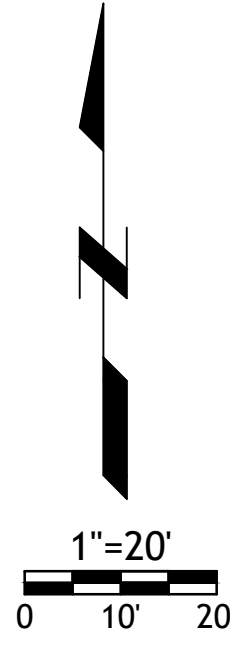
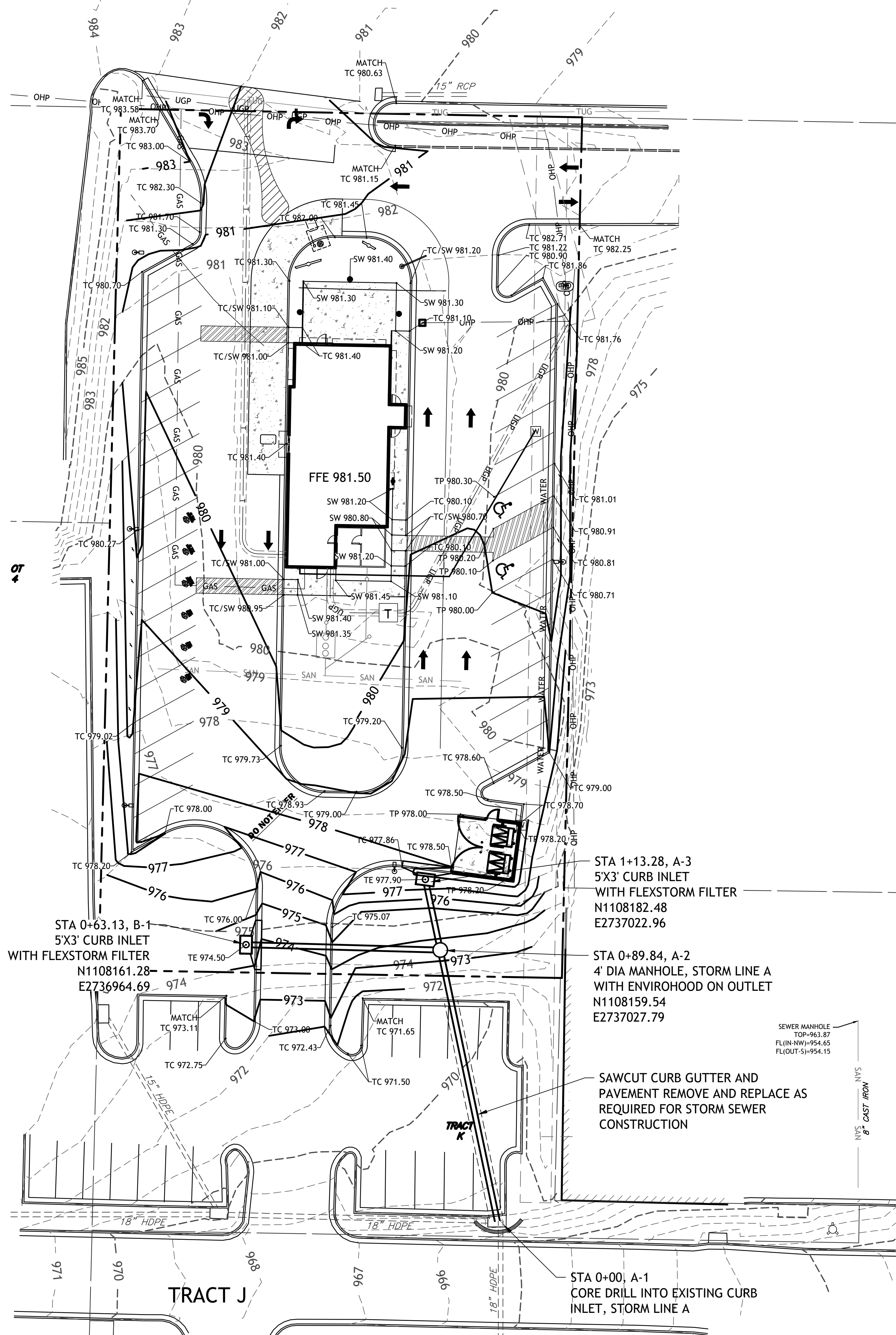
CERTIFICATION:

To Stewart Title company, Edens Smith, Inc. d/b/a, Dairy Queen  
franchising its successors and assigns.:

*This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2021 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes Items 1, 2, 3, 4, 5, 7a, 7b1, 8, 10, and 11 of Table A thereof. The field work was completed on the 7th day of September, 2021.*



TOM WATSON PARKWAY



- GRADING NOTES:**
- EARTHWORK UNDER THE BUILDING SHALL COMPLY WITH THE PROJECT ARCHITECTURAL PLANS. OTHER FILL MATERIAL SHALL BE MADE IN LIFTS NOT TO EXCEED EIGHT INCHES DEPTH COMPACTED TO 95% STANDARD PROCTOR DENSITY. FILL MATERIAL MAY INCLUDE ROCK FROM ON-SITE EXCAVATION IF CAREFULLY PLACED SO THAT LARGE STONES ARE WELL DISTRIBUTED AND VOIDS ARE COMPLETELY FILLED WITH SMALLER STONES, EARTH, SAND OR GRAVEL TO FURNISH A SOLID EMBANKMENT. NO ROCK LARGER THAN THREE INCHES IN ANY DIMENSION NOR ANY SHALE SHALL BE PLACED IN THE TOP 12 INCHES OF EMBANKMENT.
  - AREAS THAT ARE TO BE CUT TO SUBGRADE LEVELS SHALL BE PROOF ROLLED WITH A MODERATELY HEAVY LOADED DUMP TRUCK OR SIMILAR APPROVED CONSTRUCTION EQUIPMENT TO DETECT UNSUITABLE SOIL CONDITIONS.
  - IN ALL AREAS OF EXCAVATION, IF UNSUITABLE SOIL CONDITIONS ARE ENCOUNTERED, A QUALIFIED GEOTECHNICAL ENGINEER SHALL RECOMMEND TO THE OWNER THE METHODS OF UNDERCUTTING AND REPLACEMENT OF PROPERLY COMPACTED, APPROVED FILL MATERIAL. ALL PROOF ROLLING AND UNDERCUTTING SHOULD BE PERFORMED DURING A PERIOD OF DRY WEATHER.
  - CONTRACTOR SHALL USE SILT FENCE OR OTHER MEANS OF CONTROLLING EROSION ALONG THE EDGE OF THE PROPERTY OR OTHER BOTTOM OF SLOPE LOCATIONS.
  - CONTRACTOR IS TO REMOVE AND DISPOSE OF ALL DEBRIS, RUBBISH AND OTHER MATERIALS RESULTING FROM PREVIOUS AND CURRENT DEMOLITION OPERATIONS.
  - THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO AVOID PROPERTY DAMAGE TO ADJACENT PROPERTIES DURING THE CONSTRUCTION PHASES OF THIS PROJECT. THE CONTRACTOR WILL BE HELD SOLELY RESPONSIBLE FOR ANY DAMAGES TO THE ADJACENT PROPERTIES OCCURRING DURING THE CONSTRUCTION PHASES OF THIS PROJECT.
  - IT IS NOT THE DUTY OF THE ENGINEER OR THE OWNER TO REVIEW THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES, IN, ON OR NEAR THE CONSTRUCTION SITE AT ANY TIME DURING CONSTRUCTION.
  - THE SITEWORK FOR THIS PROJECT SHALL MEET OR EXCEED STANDARD SITEWORK SPECIFICATIONS.
  - PIPE LENGTHS ARE CENTER TO CENTER OF STRUCTURE OR TO END OF END SECTIONS.
  - HANDICAP STALLS SHALL MEET ADA REQUIREMENTS AND SHALL NOT EXCEED 2% SLOPE IN ANY DIRECTION AT THE BUILDING ENTRY AND ACCESSIBLE PARKING STALLS. SLOPES EXCEEDING 2.0% WILL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
  - CONTRACTOR TO ADJUST DEPTHS OF EXISTING SERVICE LINES AS NECESSARY
  - ALL CONSTRUCTION TRAFFIC, TEMPORARY TRAFFIC CONTROL DEVICES AND PAVEMENT MARKINGS SHALL CONFORM TO REQUIREMENTS OF THE LATEST MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

SM Engineering  
5507 High Meadow Circle  
Manhattan Kansas, 66503  
smcivilengr@gmail.com  
785.341.9747

Drawings and/or Specifications are original proprietary work and property of the Engineer and intended specifically for this project. Use of items contained herein without consent of the Engineer is prohibited. Drawings illustrate best information available to the Engineer. Field verification of actual elements, conditions, and dimensions is required.

Revisions

DAIRY QUEEN  
8803 NW 45 HIGHWAY  
PARKVILLE, MO

sheet  
C6.0  
Civil  
GRADING PLAN  
STORM LINE A  
PLAN & PROFILE  
3 JANUARY 2022



PROJECT LOCATION

NW 1/4

NE 1/4

Julian Dr.

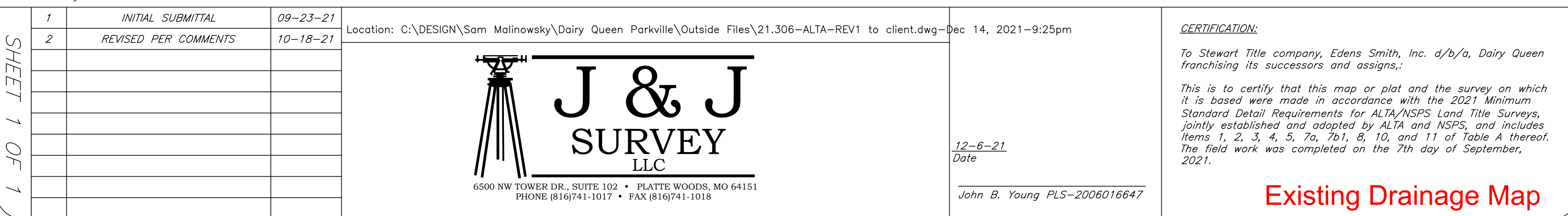
26

Tom Watson Pkwy

SW 1/4

SE 1/4

VICINITY MAP  
SEC. 26-51-34  
N.T.S.







United States  
Department of  
Agriculture

**NRCS**

Natural  
Resources  
Conservation  
Service

A product of the National  
Cooperative Soil Survey,  
a joint effort of the United  
States Department of  
Agriculture and other  
Federal agencies, State  
agencies including the  
Agricultural Experiment  
Stations, and local  
participants

# Custom Soil Resource Report for **Platte County, Missouri**

**Parkville DQ**





# Preface

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Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist ([http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2\\_053951](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951)).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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# How Soil Surveys Are Made

---

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil



scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

## Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

# Soil Map

---

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.



# Custom Soil Resource Report Soil Map



## MAP LEGEND

### Area of Interest (AOI)

 Area of Interest (AOI)

### Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

### Special Point Features

 Blowout

 Borrow Pit

 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot

 Sinkhole

 Slide or Slip

 Sodic Spot

 Spoil Area

 Stony Spot

 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

### Water Features

 Streams and Canals

### Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

### Background

 Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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: Platte County, Missouri  
Survey Area Data: Version 22, Sep 7, 2021

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

Date(s) aerial images were photographed: Jul 17, 2019—Sep 25, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Map Unit Legend

| Map Unit Symbol                    | Map Unit Name                                    | Acres in AOI | Percent of AOI |
|------------------------------------|--------------------------------------------------|--------------|----------------|
| 10064                              | Knox-Urban land complex, 14 to 20 percent slopes | 0.5          | 61.5%          |
| 10066                              | Knox-Urban land complex, 5 to 9 percent slopes   | 0.3          | 38.5%          |
| <b>Totals for Area of Interest</b> |                                                  | <b>0.8</b>   | <b>100.0%</b>  |

## Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,



onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

## Platte County, Missouri

### 10064—Knox-Urban land complex, 14 to 20 percent slopes

#### Map Unit Setting

*National map unit symbol:* 2qkyv  
*Elevation:* 700 to 1,000 feet  
*Mean annual precipitation:* 33 to 41 inches  
*Mean annual air temperature:* 50 to 55 degrees F  
*Frost-free period:* 177 to 220 days  
*Farmland classification:* Not prime farmland

#### Map Unit Composition

*Knox and similar soils:* 70 percent  
*Urban land:* 25 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Knox

##### Setting

*Landform:* Hillslopes  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Loess

##### Typical profile

*Ap - 0 to 6 inches:* silt loam  
*Bt - 6 to 46 inches:* silty clay loam  
*C - 46 to 80 inches:* silt loam

##### Properties and qualities

*Slope:* 14 to 20 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Runoff class:* High  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.57 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)  
*Available water supply, 0 to 60 inches:* High (about 11.9 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 6e  
*Hydrologic Soil Group:* C  
*Ecological site:* F107BY004MO - Deep Loess Protected Backslope Woodland,  
R107BY003MO - Deep Loess Exposed Backslope Savanna  
*Other vegetative classification:* Mixed/Transitional (Mixed Native Vegetation)  
*Hydric soil rating:* No

## Description of Urban Land

### Setting

*Landform:* Hillslopes

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Side slope

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 8

*Hydric soil rating:* No

## 10066—Knox-Urban land complex, 5 to 9 percent slopes

### Map Unit Setting

*National map unit symbol:* 2qkyx

*Elevation:* 700 to 1,000 feet

*Mean annual precipitation:* 33 to 41 inches

*Mean annual air temperature:* 50 to 55 degrees F

*Frost-free period:* 177 to 220 days

*Farmland classification:* Farmland of statewide importance

### Map Unit Composition

*Knox and similar soils:* 65 percent

*Urban land:* 35 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

## Description of Knox

### Setting

*Landform:* Ridges

*Landform position (two-dimensional):* Summit

*Landform position (three-dimensional):* Crest

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Loess

### Typical profile

*Ap - 0 to 6 inches:* silt loam

*Bt - 6 to 46 inches:* silty clay loam

*C - 46 to 80 inches:* silt loam

### Properties and qualities

*Slope:* 5 to 9 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Well drained

*Runoff class:* High

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.57 in/hr)

*Depth to water table:* More than 80 inches



## Custom Soil Resource Report

*Frequency of flooding:* None

*Frequency of ponding:* None

*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

*Available water supply, 0 to 60 inches:* High (about 11.9 inches)

### **Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3e

*Hydrologic Soil Group:* C

*Ecological site:* R107BY002MO - Deep Loess Upland Prairie

*Other vegetative classification:* Mixed/Transitional (Mixed Native Vegetation)

*Hydric soil rating:* No

### **Description of Urban Land**

#### **Setting**

*Landform:* Ridges

*Landform position (two-dimensional):* Summit

*Landform position (three-dimensional):* Crest

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 8

*Hydric soil rating:* No

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- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>

## Custom Soil Resource Report

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# Appendix B

- MARC Worksheet 1A
- MARC Worksheet 2
- Water Quality Drainage Map
- Envirohood Detail
- Treatment Train Calculations

**WORKSHEET 1A: REQUIRED LEVEL OF SERVICE - DEVELOPED SITE**

Project:

By:

Date:

Location:

Checked:

Date:

**1. Required Treatment Area****A. Total Area Disturbed by Redevelopment Activity (ac.)**

| Disturbed Area Description | Acres |
|----------------------------|-------|
| The entire site            | 0.96  |
|                            |       |
|                            |       |
|                            |       |
| "1A" Total:                | 0.96  |

**B. Existing Impervious Area Inside Disturbed Area (ac.)**

| Existing Impervious Area Description | Acres |
|--------------------------------------|-------|
| Pavement                             | 0.50  |
| Building                             | 0.10  |
|                                      |       |
|                                      |       |
| "1B" Total:                          | 0.60  |

**C. Required Treatment Area (ac.)**

"1A" Total Less "1B" Total      "1C" **0.36**

**2. Percent Impervious in Postdevelopment Condition and Level of Service (LS)****A. Total Postdevelopment Impervious Area Inside Disturbed Area (ac.)**

| Postdevelopment Impervious Area Description | Acres |
|---------------------------------------------|-------|
| Pavement                                    | 0.59  |
| Building                                    | 0.05  |
|                                             |       |
|                                             |       |
| "2A" Total:                                 | 0.64  |

**B. Existing Impervious Area Inside Disturbed Area (ac.)**

"1B" Total: **0.60**

**C. Net Increase in Impervious Area (ac.)**

"2A" Total Less "1B" Total      "2C" **0.04**

**D. Percent Impervious**

Net Increase in Impervious Area / Required Treatment Area

"2C"/"1C" x 100      **11** (Round to Integer)

**E. Level of Service**

Use Percent Impervious to Enter Table 4.3

LS = **3.9**

**3. Minimum Required Total Value Rating of BMP Package**

Total Value Rating = LS x Required Treatment Area

VR = **3.7**

---

**WORKSHEET 2: DEVELOP MITIGATION PACKAGE(S) THAT MEET THE REQUIRED LS**

Project:  
Location:  
Sheet \_\_ of \_\_

By: \_\_\_\_\_ Date: \_\_\_\_\_  
Checked: \_\_\_\_\_ Date: \_\_\_\_\_

**1. Required LS (New Development, Wksht 1) or Total VR (Redevelopment, Wksht 1A):****3.9**

Note: Various BMPs may alter CN of proposed development, and LS; recalculate both if applicable.

**2. Proposed BMP Option Package No. \_\_\_\_**

| Cover/BMP Description                  | Treatment Area | VR from Table 4.4 or 4.6 <sup>1</sup> | Product of VR x Area |
|----------------------------------------|----------------|---------------------------------------|----------------------|
| See Drainage Map                       | 0.65           | 6                                     | 3.9                  |
| Portion of site not draining to inlets | 0.31           | 0                                     | 0                    |
|                                        |                |                                       |                      |
|                                        |                |                                       |                      |
|                                        |                |                                       |                      |
|                                        |                |                                       |                      |
| <b>Total<sup>2</sup>:</b>              | <b>0.96</b>    | <b>Total:</b>                         | <b>3.9</b>           |
|                                        |                | <b>*Weighted VR:</b>                  | <b>3.7</b>           |

= total product/total a

<sup>1</sup> VR calculated for final BMP only in Treatment Train.

<sup>2</sup> Total treatment area cannot exceed 100 percent of the actual site area.

\* Blank In Redevelopment

**Meets required LS (Yes/No)?**

**Yes**

(If No, or if additional options are being tested, proceed below.)

**3. Proposed BMP Option Package No. \_\_\_\_**

| Cover/BMP Description     | Treatment Area | VR from Table 4.4 or 4.6 <sup>1</sup> | Product of VR x Area |
|---------------------------|----------------|---------------------------------------|----------------------|
|                           |                |                                       |                      |
|                           |                |                                       |                      |
|                           |                |                                       |                      |
|                           |                |                                       |                      |
|                           |                |                                       |                      |
|                           |                |                                       |                      |
| <b>Total<sup>2</sup>:</b> |                | <b>Total:</b>                         |                      |
|                           |                | <b>*Weighted VR:</b>                  |                      |

= total product/total a

<sup>1</sup> VR calculated for final BMP only in Treatment Train.

<sup>2</sup> Total treatment area cannot exceed 100 percent of the actual site area.

\* Blank In Redevelopment

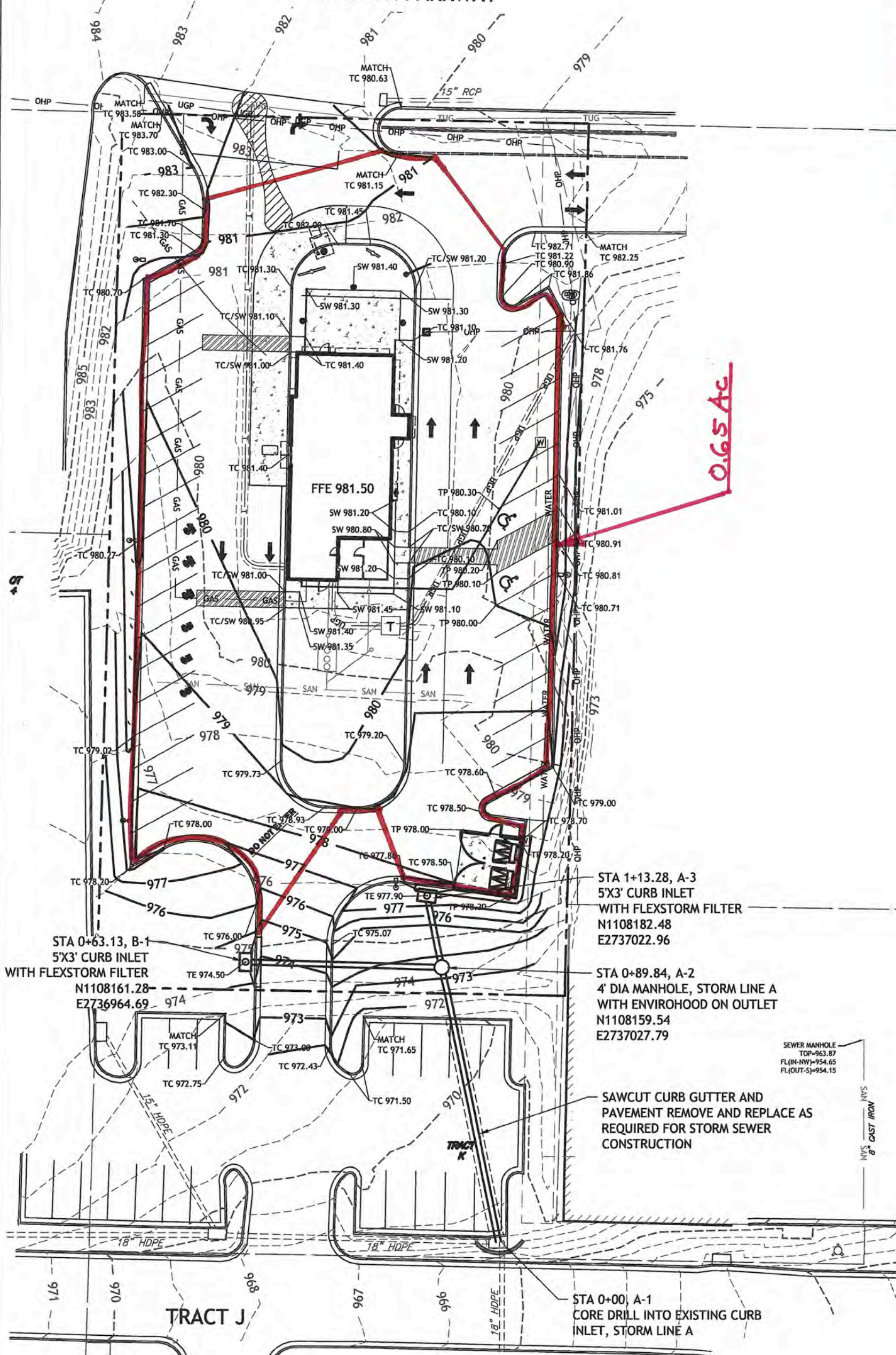
**Meets required LS (Yes/No)?**

(If No, or if additional options are being tested, move to next sheet.)



# TOM WATSON PARKWAY

Water Quality  
Drainage Map



0.65 Ac

STA 1+13.28, A-3  
5'X3' CURB INLET  
WITH FLEXSTORM FILTER  
N1108182.48  
E2737022.96

STA 0+89.84, A-2  
4' DIA MANHOLE, STORM LINE A  
WITH ENVIROHOOD ON OUTLET  
N1108159.54  
E2737027.79

SEWER MANHOLE  
TOP=963.87  
FL(IN-NW)=954.65  
FL(OUT-S)=954.15

SAWCUT CURB GUTTER AND  
PAVEMENT REMOVE AND REPLACE AS  
REQUIRED FOR STORM SEWER  
CONSTRUCTION

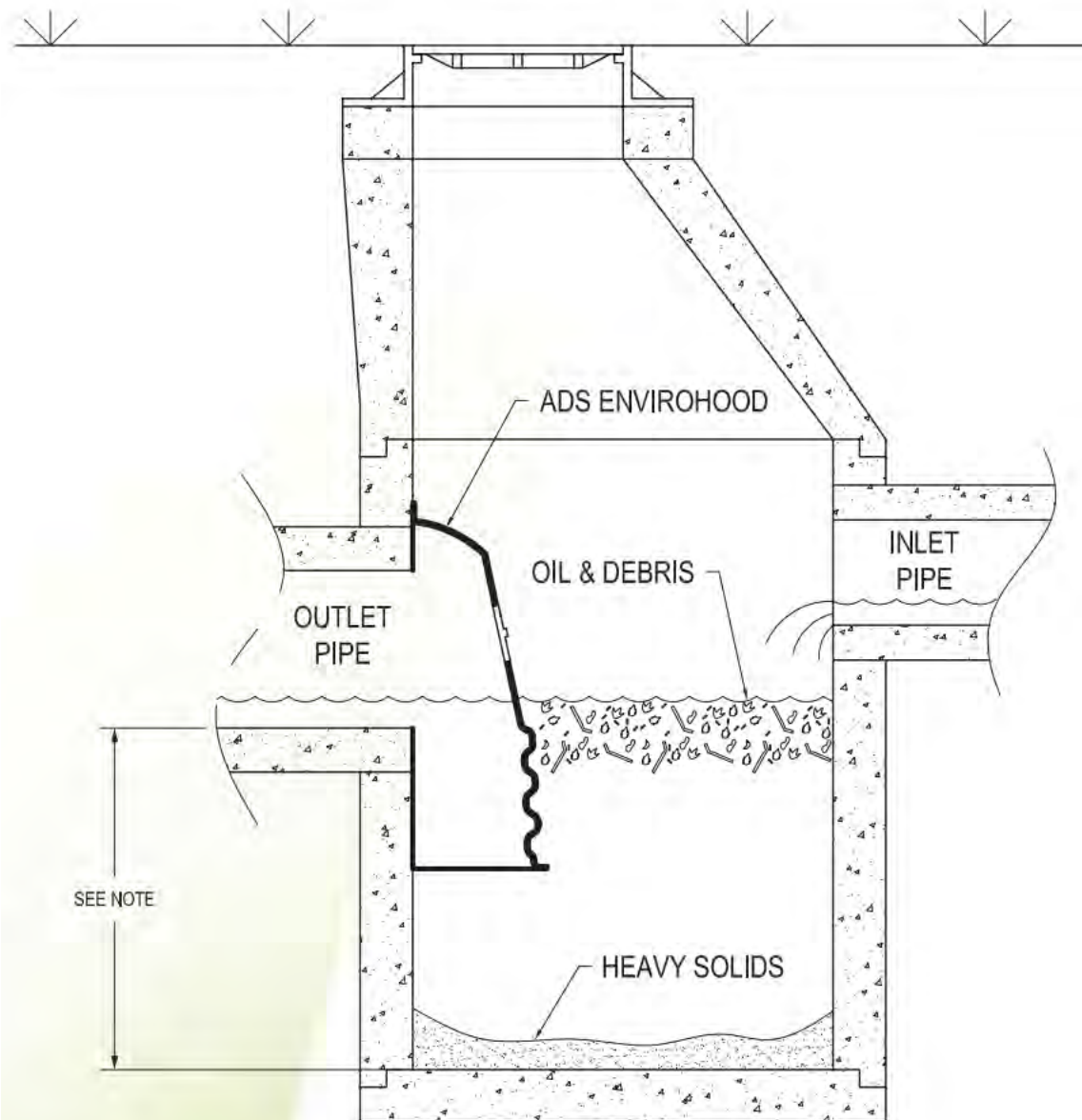
STA 0+00, A-1  
CORE DRILL INTO EXISTING CURB  
INLET, STORM LINE A

8" CAST IRON



1"=20'  
0 10' 20'





**NOTE:** SUMP DEPTH OF 36" MIN. FOR 12" OR SMALLER DIAM. OUTLET. FOR 15" AND LARGER OUTETS USE 2.5-3X OUTLET DIAM.

### TYPICAL INSTALLATION

## Envirohood Detail

### Treatment Train LOS Calculation

$$\text{Treatment train LOS} = \text{VR1} + \text{VR2} = (\text{A1} + \text{A2}) + (\text{B1} + \text{B2}) + \text{C2} + (\text{D1} + \text{D2})$$

Where;

VR1 = Value rating for curb inlet insert

VR2 = Value rating for snout (*Envirohood* is the snout manufactured by ADS)

A = VR for Water Quality

B = VR for Volume Reduction

C = VR for Temperature Reduction

D = VR for Oils/Floatables Reduction

#### From Table 4.4 for curb inlet insert

$$\text{A1} = 3$$

$$\text{B1} = 0$$

$$\text{C1} = 0$$

$$\text{D1} = 1$$

#### From Table 4.5 for *Envirohood*

$$\text{A2} = 1 \text{ (Slight reduction in TSS)}$$

$$\text{B2} = 0$$

$$\text{C2} = 0$$

$$\text{D2} = 2 \text{ (Significant capture or reduction of oils/floatables)}$$

$$\text{VR1} + \text{VR2} = (3+1) + (0+0) + 0 + (1+2) ; \text{D1} + \text{D2} \text{ cannot exceed } 2$$

$$\text{VR1} + \text{VR2} = 4 + 0 + 0 + 2 = 6$$



# Appendix C

- Storm Sewer Calculations
- Storm Sewer Drainage Map
- Hydrology Studio Runoff Printouts

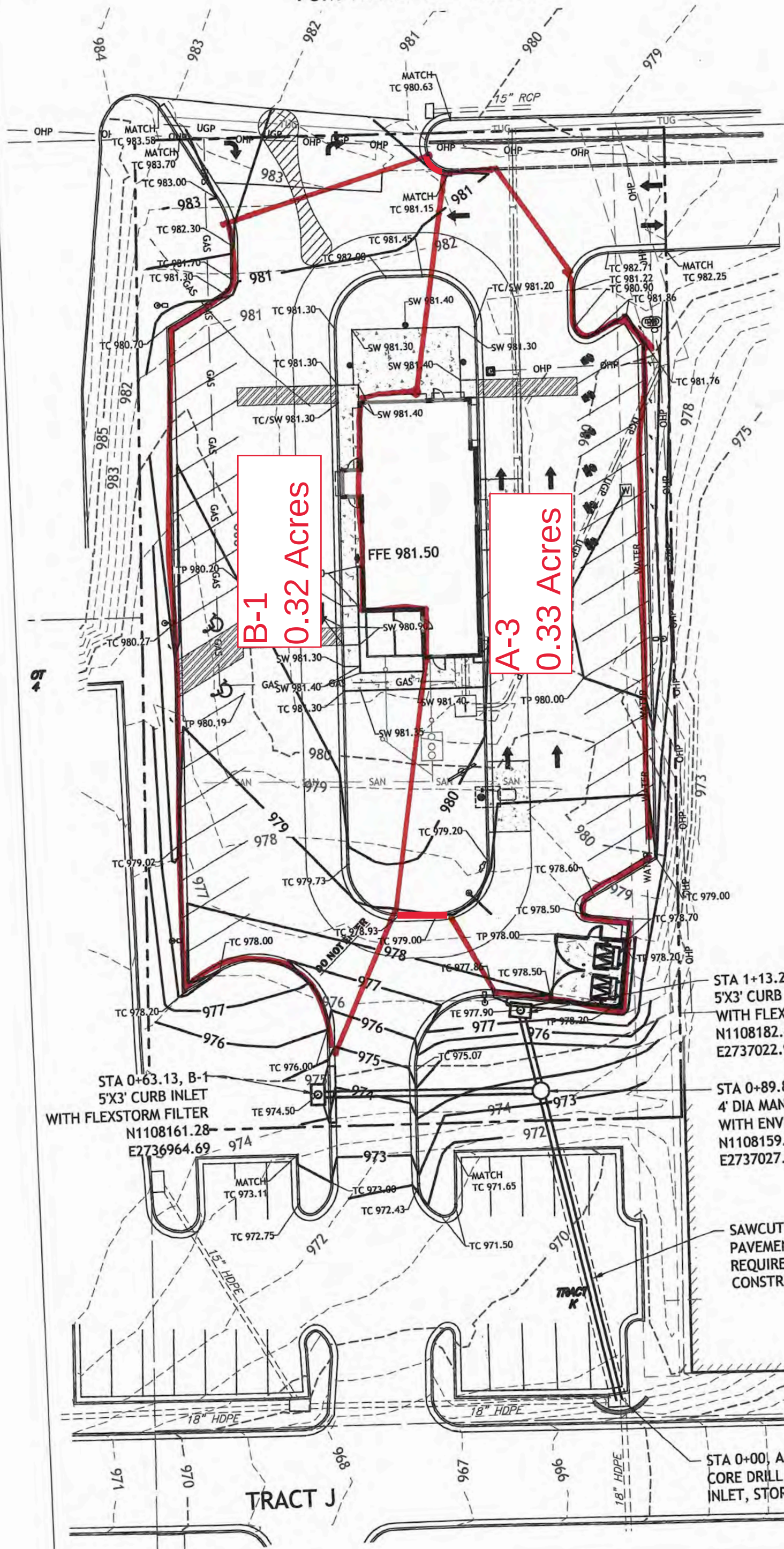
Parkville DQ 100 Year Storm Sewer Calculations

| Line No. | Line ID | Area ID | Line Length | Drain Area | Runoff Coeff | Incr CxA | Tc Syste | i Syst  | Total Runof | Flow Rate | Line Size | n-value Pipe | Vel Ave | Capac. Full | Invert Dn | Invert Up | Line Slope | HGL Dn | HGL Up | Grnd/Rim Elev Up |
|----------|---------|---------|-------------|------------|--------------|----------|----------|---------|-------------|-----------|-----------|--------------|---------|-------------|-----------|-----------|------------|--------|--------|------------------|
|          |         |         | (ft)        | (ac)       | (C)          |          | (min)    | (in/hr) | (cfs)       | (cfs)     | (in)      |              | (ft/s)  | (cfs)       | (ft)      | (ft)      | (ft/ft)    | (ft)   | (ft)   | (ft)             |
|          |         |         |             |            |              |          |          |         |             |           |           |              |         |             |           |           |            |        |        |                  |
| 1        | A2-A1   |         | 90.00       | 0.000      | 0.00         | 0.00     | 5.1      | 12.74   | 7.04        | 7.04      | 18        | 0.012        | 8.19    | 25.24       | 964.00    | 968.43    | 0.0492     | 964.59 | 969.44 | 973.20           |
| 2        | B1-A2   | B1      | 63.00       | 0.320      | 0.85         | 0.27     | 5.0      | 12.90   | 3.51        | 3.51      | 18        | 0.012        | 5.62    | 18.85       | 969.07    | 970.80    | 0.0275     | 969.56 | 971.52 | 974.00           |
| 3        | A3-A2   | A3      | 24.00       | 0.330      | 0.85         | 0.28     | 5.0      | 12.90   | 3.62        | 3.62      | 18        | 0.012        | 7.53    | 43.38       | 969.19    | 972.68    | 0.1454     | 969.56 | 973.41 | 977.40           |

100 Year Storm Sewer Calculations



Storm Sewer  
Drainage Map



STA 0+63.13, B-1  
5'X3' CURB INLET  
WITH FLEXSTORM FILTER  
N1108161.28  
E2736964.69

STA 1+13.28, A-3  
5'X3' CURB INLET  
WITH FLEXSTORM FILTER  
N1108182.48  
E2737022.96

STA 0+89.84, A-2  
4' DIA MANHOLE, STORM LINE A  
WITH ENVIROHOOD ON OUTLET  
N1108159.54  
E2737027.79

SAWCUT CURB GUTTER AND  
PAVEMENT REMOVE AND REPLAC  
REQUIRED FOR STORM SEWER  
CONSTRUCTION

STA 0+00, A-1  
CORE DRILL INTO EXISTING CURB  
INLET, STORM LINE A



# Hydrograph Report

Project Name: Parkville DQ

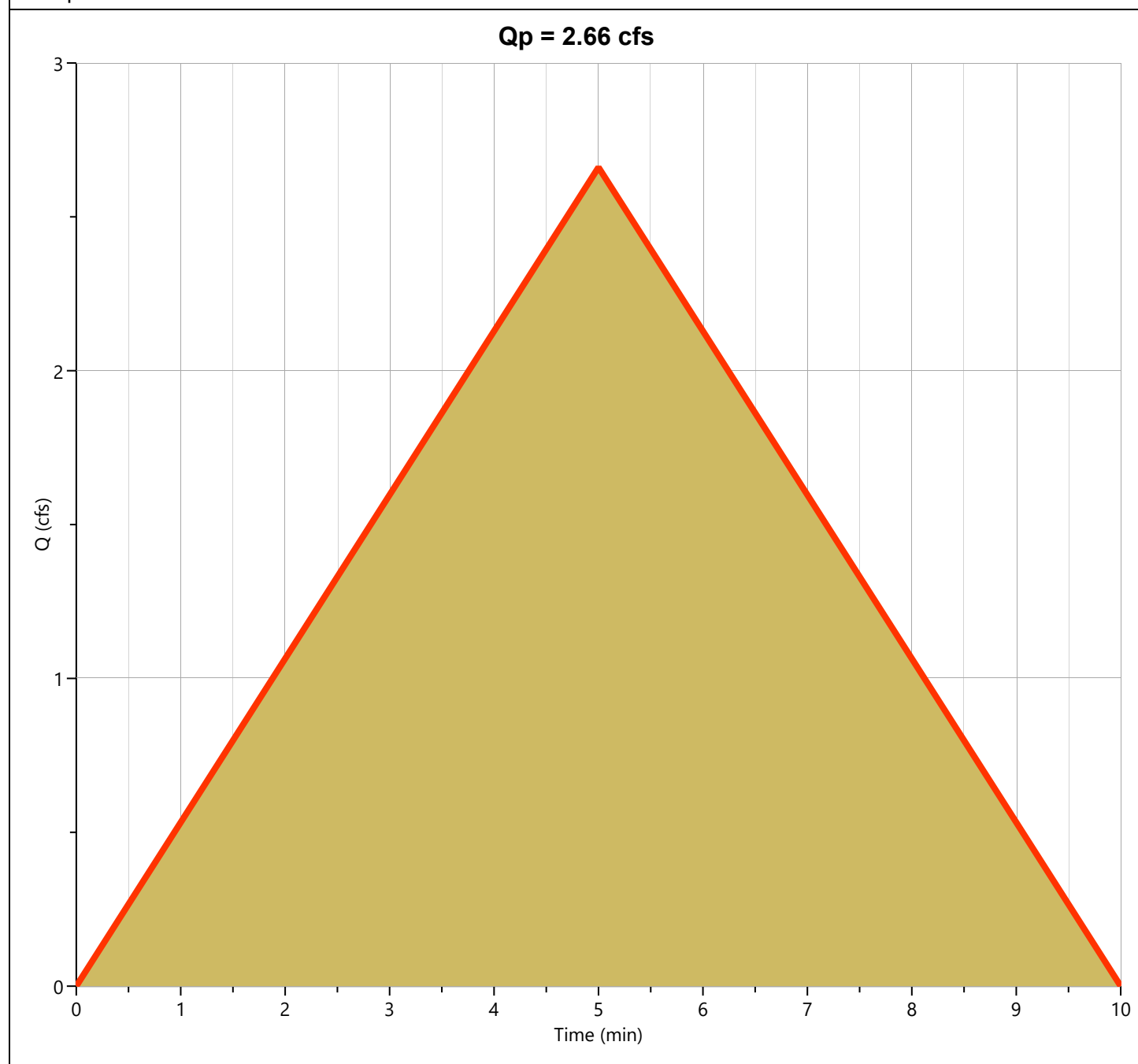
Hydrology Studio v 3.0.0.20

01-25-2022

## Existing To S. Inlet

## Hyd. No. 1

|                    |                        |                      |              |
|--------------------|------------------------|----------------------|--------------|
| Hydrograph Type    | = Rational             | Peak Flow            | = 2.661 cfs  |
| Storm Frequency    | = 2-yr                 | Time to Peak         | = 5 min      |
| Time Interval      | = 1 min                | Runoff Volume        | = 798 cuft   |
| Drainage Area      | = 0.7 ac               | Runoff Coeff.        | = 0.68       |
| Tc Method          | = User                 | Time of Conc. (Tc)   | = 5.0 min    |
| IDF Curve          | = Platte County MO.idf | Intensity            | = 5.59 in/hr |
| Freq. Corr. Factor | = 1.00                 | Asc/Rec Limb Factors | = 1/1        |



# Hydrograph Report

Project Name: Parkville DQ

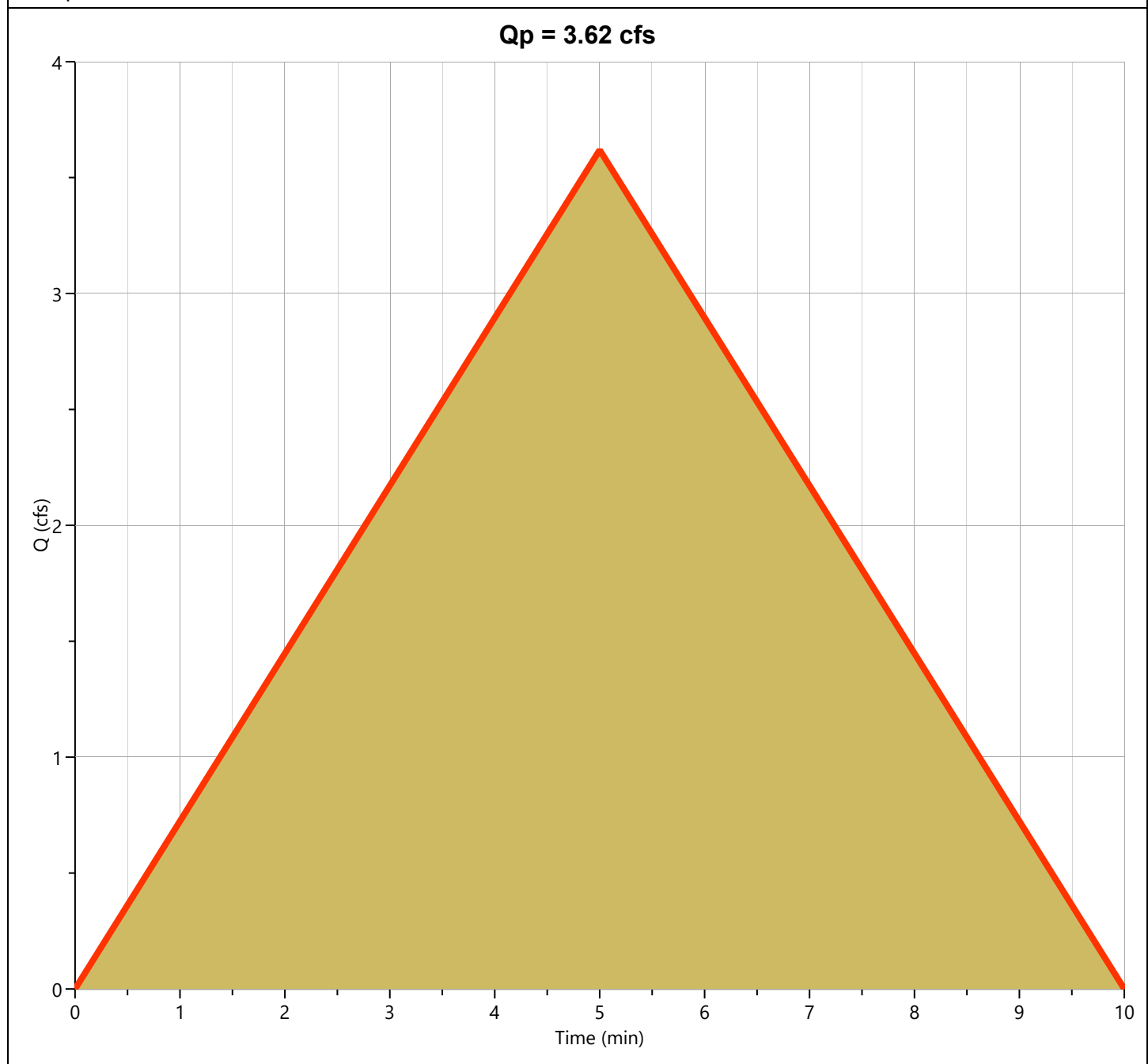
Hydrology Studio v 3.0.0.20

01-25-2022

## Prop To S. Inlet

## Hyd. No. 2

|                    |                        |                      |              |
|--------------------|------------------------|----------------------|--------------|
| Hydrograph Type    | = Rational             | Peak Flow            | = 3.619 cfs  |
| Storm Frequency    | = 2-yr                 | Time to Peak         | = 5 min      |
| Time Interval      | = 1 min                | Runoff Volume        | = 1,086 cuft |
| Drainage Area      | = 0.78 ac              | Runoff Coeff.        | = 0.83       |
| Tc Method          | = User                 | Time of Conc. (Tc)   | = 5.0 min    |
| IDF Curve          | = Platte County MO.idf | Intensity            | = 5.59 in/hr |
| Freq. Corr. Factor | = 1.00                 | Asc/Rec Limb Factors | = 1/1        |



# Design Storm Report

Custom Storm filename: Platte CO MO.cds

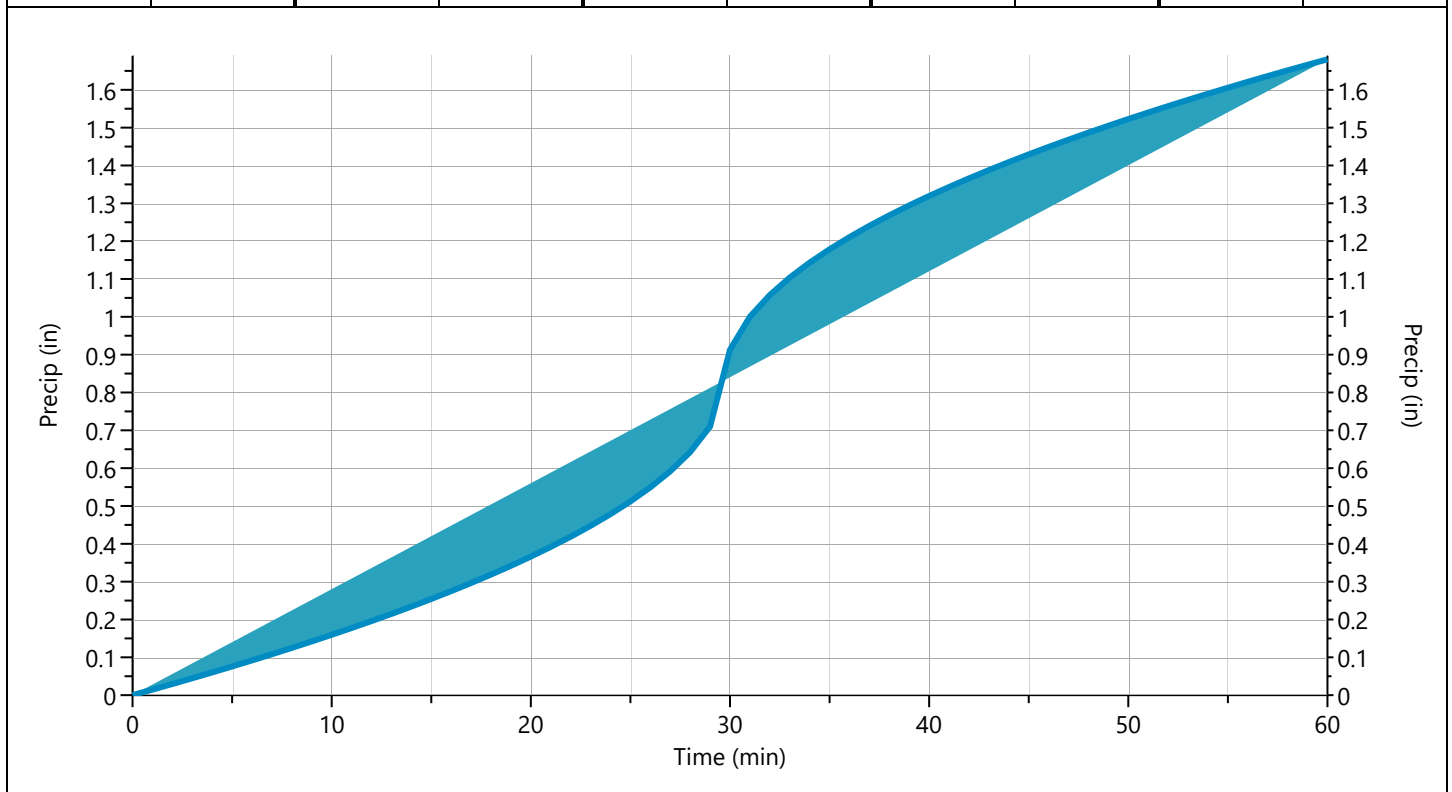
Hydrology Studio v 3.0.0.20

01-25-2022

## Storm Distribution: IDF Based - Synthetic

| Storm Duration | Total Rainfall Volume (in) |        |      |      |       |       |       |        |  |
|----------------|----------------------------|--------|------|------|-------|-------|-------|--------|--|
|                | 1-yr                       | ✓ 2-yr | 3-yr | 5-yr | 10-yr | 25-yr | 50-yr | 100-yr |  |
| 1 hrs          | 1.42                       | 1.68   | 0    | 2.11 | 2.49  | 3.02  | 3.46  | 3.92   |  |

| Incremental Rainfall Distribution, 2-yr |             |            |             |            |             |            |             |            |             |
|-----------------------------------------|-------------|------------|-------------|------------|-------------|------------|-------------|------------|-------------|
| Time (min)                              | Precip (in) | Time (min) | Precip (in) | Time (min) | Precip (in) | Time (min) | Precip (in) | Time (min) | Precip (in) |
| 1                                       | 0.014642    | 12         | 0.018394    | 23         | 0.028750    | 34         | 0.039562    | 45         | 0.020390    |
| 2                                       | 0.014890    | 13         | 0.018903    | 24         | 0.030891    | 35         | 0.035281    | 46         | 0.019753    |
| 3                                       | 0.015152    | 14         | 0.019457    | 25         | 0.033612    | 36         | 0.032164    | 47         | 0.019174    |
| 4                                       | 0.015429    | 15         | 0.020064    | 26         | 0.037234    | 37         | 0.029762    | 48         | 0.018643    |
| 5                                       | 0.015721    | 16         | 0.020733    | 27         | 0.042405    | 38         | 0.027837    | 49         | 0.018156    |
| 6                                       | 0.016032    | 17         | 0.021476    | 28         | 0.050698    | 39         | 0.026250    | 50         | 0.017705    |
| 7                                       | 0.016362    | 18         | 0.022307    | 29         | 0.067595    | 40         | 0.024911    | 51         | 0.017287    |
| 8                                       | 0.016713    | 19         | 0.023245    | 30         | 0.202913    | 41         | 0.023761    | 52         | 0.016898    |
| 9                                       | 0.017089    | 20         | 0.024315    | 31         | 0.087322    | 42         | 0.022761    | 53         | 0.016534    |
| 10                                      | 0.017492    | 21         | 0.025553    | 32         | 0.057306    | 43         | 0.021879    | 54         | 0.016194    |
| 11                                      | 0.017926    | 22         | 0.027008    | 33         | 0.045986    | 44         | 0.021094    | 55         | 0.015874    |





# Hydrograph Report

Project Name: Parkville DQ

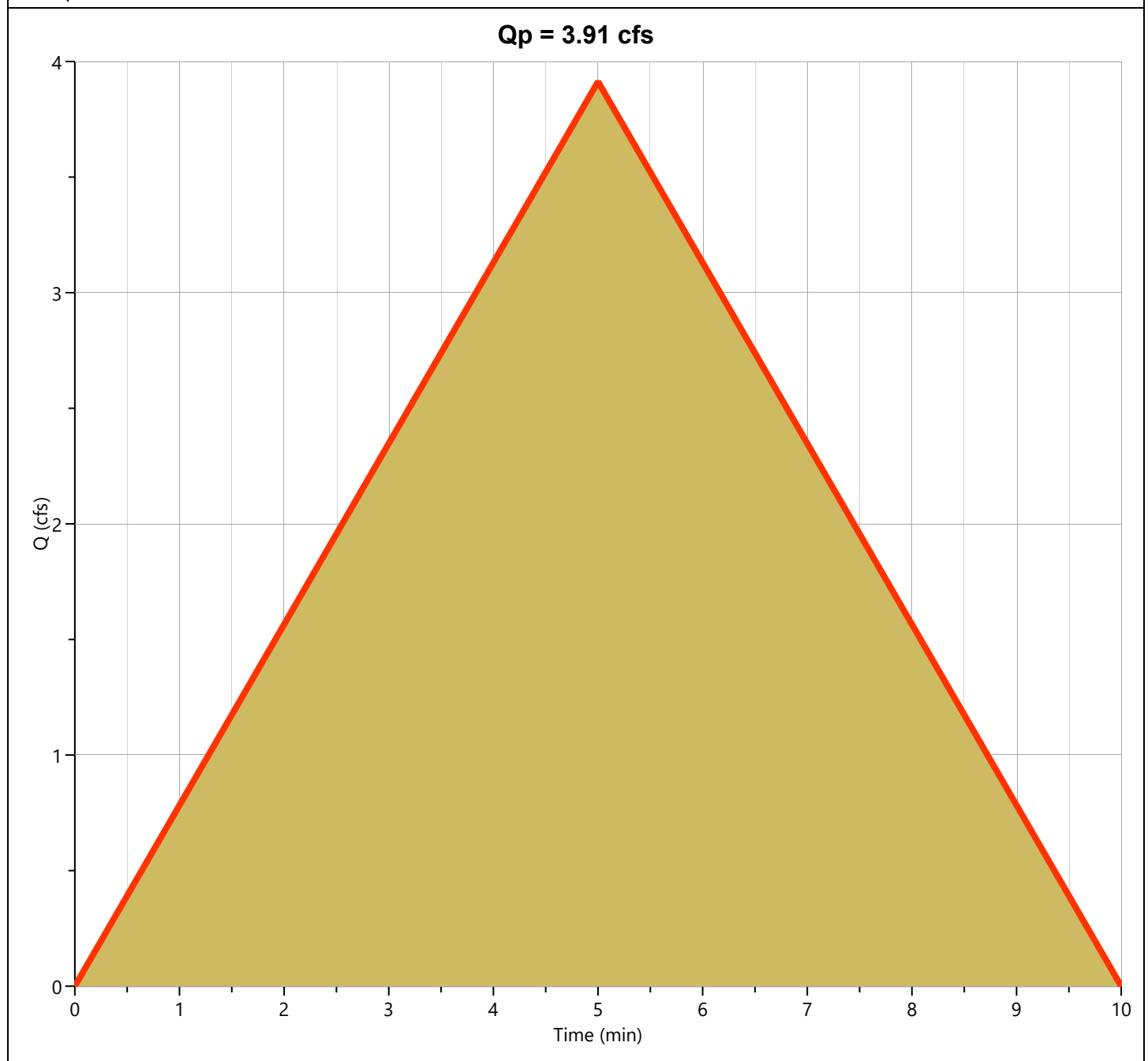
Hydrology Studio v 3.0.0.20

01-25-2022

## Existing To S. Inlet

## Hyd. No. 1

|                    |                        |                      |              |
|--------------------|------------------------|----------------------|--------------|
| Hydrograph Type    | = Rational             | Peak Flow            | = 3.913 cfs  |
| Storm Frequency    | = 10-yr                | Time to Peak         | = 5 min      |
| Time Interval      | = 1 min                | Runoff Volume        | = 1,174 cuft |
| Drainage Area      | = 0.7 ac               | Runoff Coeff.        | = 0.68       |
| Tc Method          | = User                 | Time of Conc. (Tc)   | = 5.0 min    |
| IDF Curve          | = Platte County MO.idf | Intensity            | = 8.22 in/hr |
| Freq. Corr. Factor | = 1.00                 | Asc/Rec Limb Factors | = 1/1        |



# Hydrograph Report

Project Name: Parkville DQ

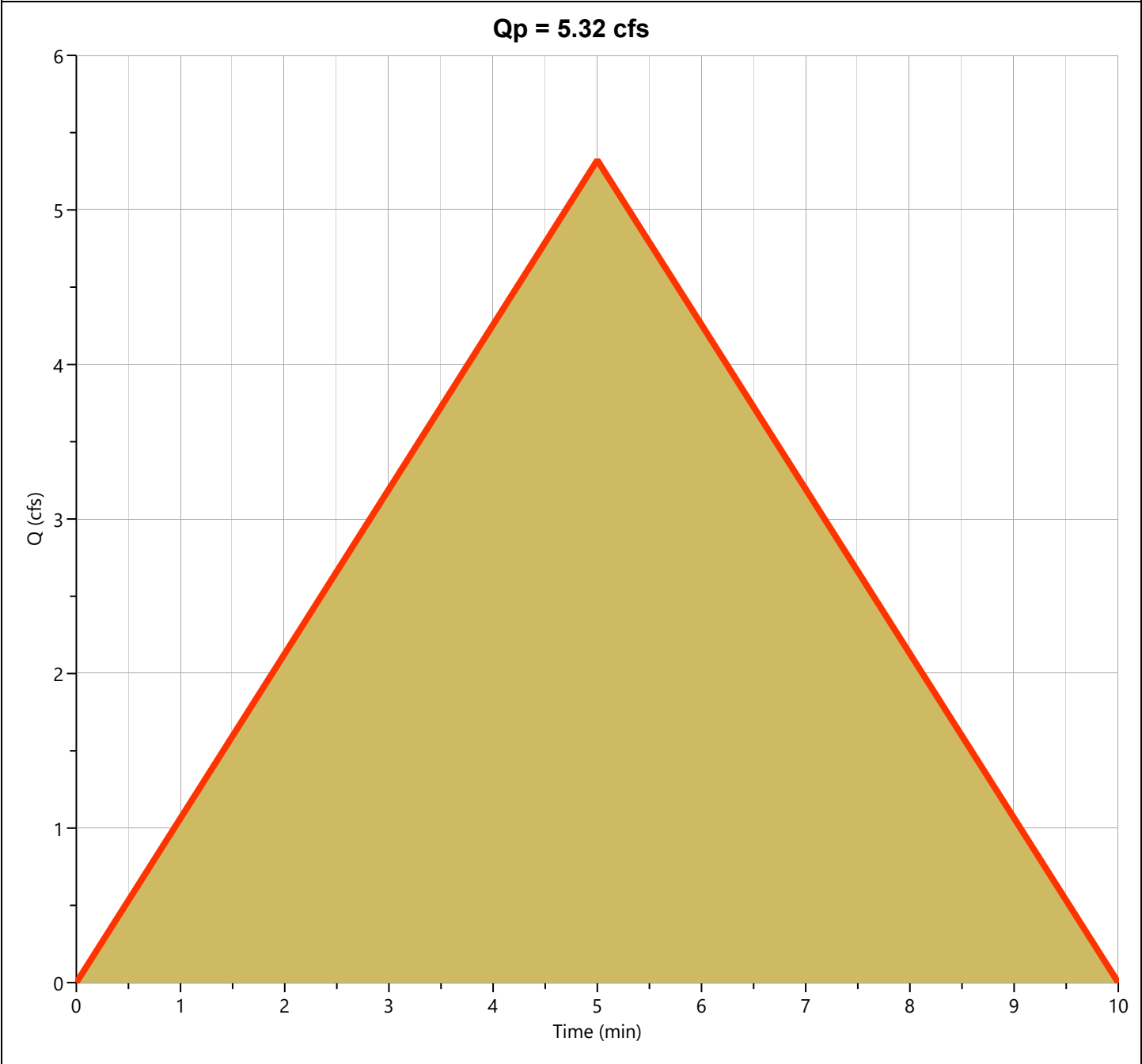
Hydrology Studio v 3.0.0.20

01-25-2022

## Prop To S. Inlet

## Hyd. No. 2

|                    |                        |                      |              |
|--------------------|------------------------|----------------------|--------------|
| Hydrograph Type    | = Rational             | Peak Flow            | = 5.322 cfs  |
| Storm Frequency    | = 10-yr                | Time to Peak         | = 5 min      |
| Time Interval      | = 1 min                | Runoff Volume        | = 1,596 cuft |
| Drainage Area      | = 0.78 ac              | Runoff Coeff.        | = 0.83       |
| Tc Method          | = User                 | Time of Conc. (Tc)   | = 5.0 min    |
| IDF Curve          | = Platte County MO.idf | Intensity            | = 8.22 in/hr |
| Freq. Corr. Factor | = 1.00                 | Asc/Rec Limb Factors | = 1/1        |



# Design Storm Report

Custom Storm filename: Platte CO MO.cds

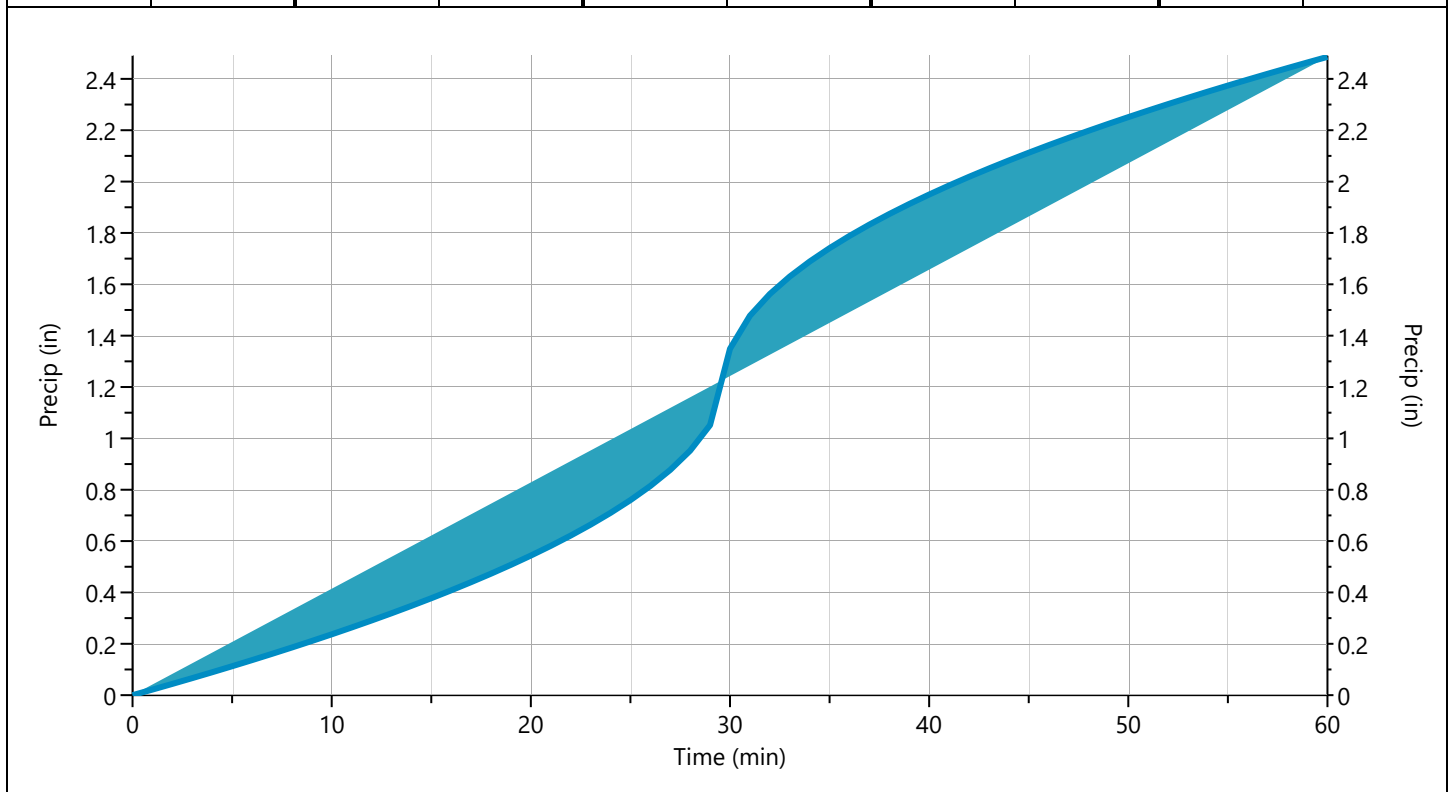
Hydrology Studio v 3.0.0.20

01-25-2022

## Storm Distribution: IDF Based - Synthetic

| Storm Duration | Total Rainfall Volume (in) |      |      |      |         |       |       |        |  |
|----------------|----------------------------|------|------|------|---------|-------|-------|--------|--|
|                | 1-yr                       | 2-yr | 3-yr | 5-yr | ✓ 10-yr | 25-yr | 50-yr | 100-yr |  |
| 1 hrs          | 1.42                       | 1.68 | 0    | 2.11 | 2.49    | 3.02  | 3.46  | 3.92   |  |

| Incremental Rainfall Distribution, 10-yr |             |            |             |            |             |            |             |            |             |
|------------------------------------------|-------------|------------|-------------|------------|-------------|------------|-------------|------------|-------------|
| Time (min)                               | Precip (in) | Time (min) | Precip (in) | Time (min) | Precip (in) | Time (min) | Precip (in) | Time (min) | Precip (in) |
| 1                                        | 0.021751    | 12         | 0.027295    | 23         | 0.042571    | 34         | 0.058491    | 45         | 0.030241    |
| 2                                        | 0.022118    | 13         | 0.028046    | 24         | 0.045726    | 35         | 0.052190    | 46         | 0.029302    |
| 3                                        | 0.022505    | 14         | 0.028864    | 25         | 0.049733    | 36         | 0.047600    | 47         | 0.028446    |
| 4                                        | 0.022914    | 15         | 0.029760    | 26         | 0.055065    | 37         | 0.044062    | 48         | 0.027663    |
| 5                                        | 0.023346    | 16         | 0.030748    | 27         | 0.062673    | 38         | 0.041226    | 49         | 0.026943    |
| 6                                        | 0.023805    | 17         | 0.031844    | 28         | 0.074865    | 39         | 0.038885    | 50         | 0.026277    |
| 7                                        | 0.024292    | 18         | 0.033070    | 29         | 0.099680    | 40         | 0.036911    | 51         | 0.025660    |
| 8                                        | 0.024812    | 19         | 0.034454    | 30         | 0.297270    | 41         | 0.035216    | 52         | 0.025085    |
| 9                                        | 0.025367    | 20         | 0.036033    | 31         | 0.128611    | 42         | 0.033740    | 53         | 0.024548    |
| 10                                       | 0.025963    | 21         | 0.037859    | 32         | 0.084574    | 43         | 0.032439    | 54         | 0.024045    |
| 11                                       | 0.026603    | 22         | 0.040003    | 33         | 0.067939    | 44         | 0.031281    | 55         | 0.023572    |





# Hydrograph Report

Project Name: Parkville DQ

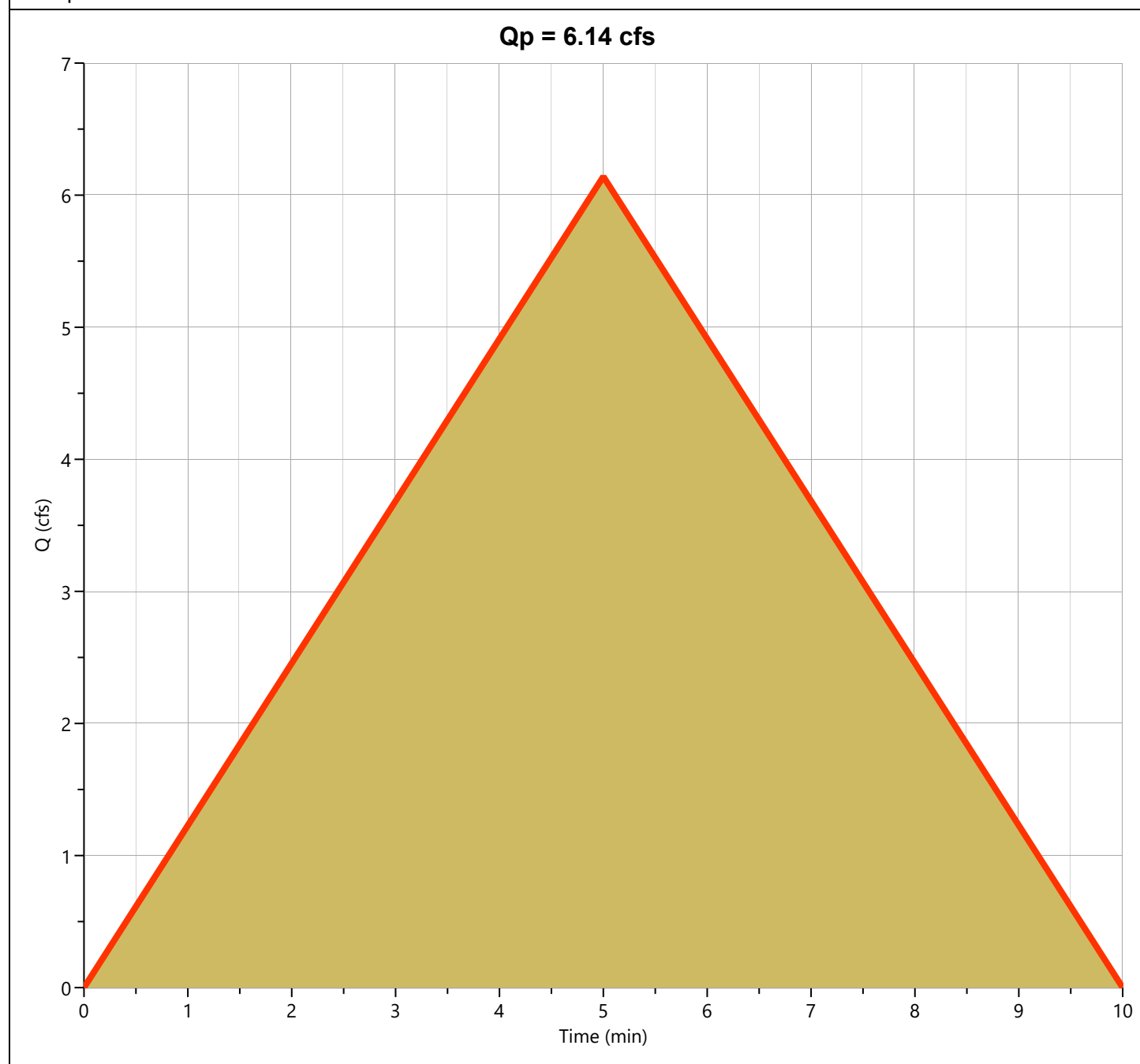
Hydrology Studio v 3.0.0.20

01-25-2022

## Existing To S. Inlet

## Hyd. No. 1

|                    |                        |                      |               |
|--------------------|------------------------|----------------------|---------------|
| Hydrograph Type    | = Rational             | Peak Flow            | = 6.140 cfs   |
| Storm Frequency    | = 100-yr               | Time to Peak         | = 5 min       |
| Time Interval      | = 1 min                | Runoff Volume        | = 1,842 cuft  |
| Drainage Area      | = 0.7 ac               | Runoff Coeff.        | = 0.68        |
| Tc Method          | = User                 | Time of Conc. (Tc)   | = 5.0 min     |
| IDF Curve          | = Platte County MO.idf | Intensity            | = 12.90 in/hr |
| Freq. Corr. Factor | = 1.00                 | Asc/Rec Limb Factors | = 1/1         |



# Hydrograph Report

Project Name: Parkville DQ

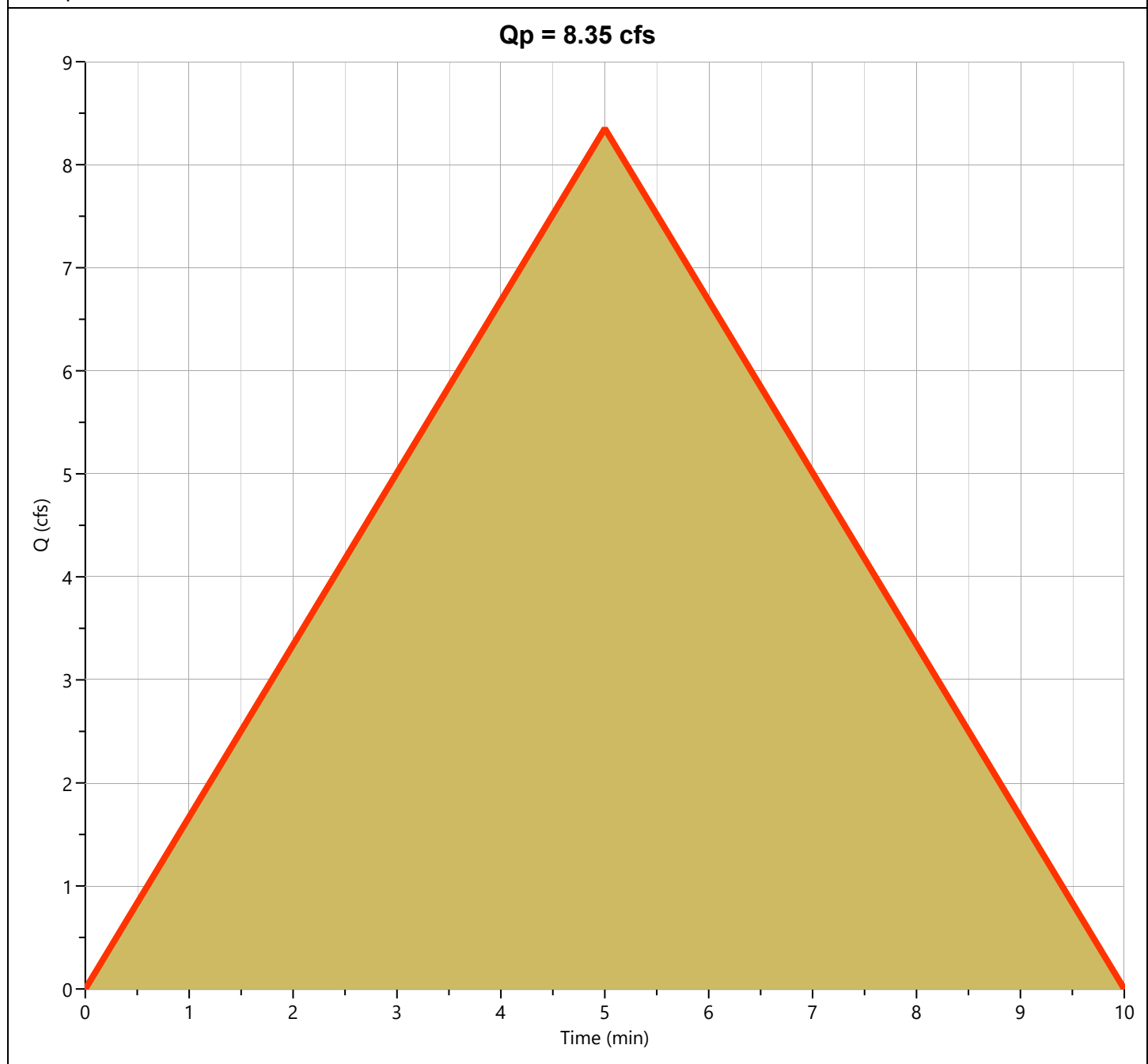
Hydrology Studio v 3.0.0.20

01-25-2022

## Prop To S. Inlet

## Hyd. No. 2

|                    |                        |                      |               |
|--------------------|------------------------|----------------------|---------------|
| Hydrograph Type    | = Rational             | Peak Flow            | = 8.351 cfs   |
| Storm Frequency    | = 100-yr               | Time to Peak         | = 5 min       |
| Time Interval      | = 1 min                | Runoff Volume        | = 2,505 cuft  |
| Drainage Area      | = 0.78 ac              | Runoff Coeff.        | = 0.83        |
| Tc Method          | = User                 | Time of Conc. (Tc)   | = 5.0 min     |
| IDF Curve          | = Platte County MO.idf | Intensity            | = 12.90 in/hr |
| Freq. Corr. Factor | = 1.00                 | Asc/Rec Limb Factors | = 1/1         |



# Design Storm Report

Custom Storm filename: Platte CO MO.cds

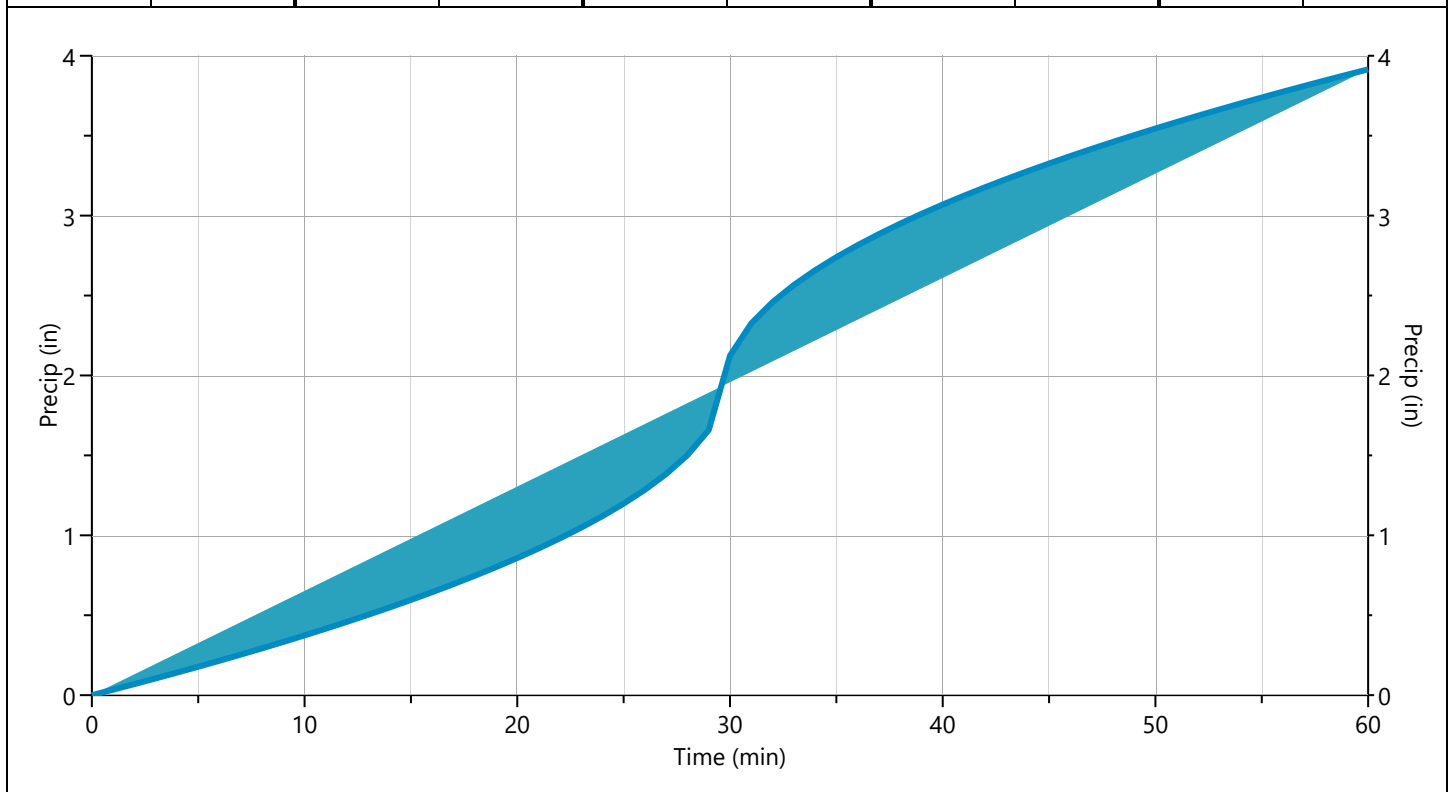
Hydrology Studio v 3.0.0.20

01-25-2022

## Storm Distribution: IDF Based - Synthetic

| Storm Duration | Total Rainfall Volume (in) |      |      |      |       |       |       |          |
|----------------|----------------------------|------|------|------|-------|-------|-------|----------|
|                | 1-yr                       | 2-yr | 3-yr | 5-yr | 10-yr | 25-yr | 50-yr | ✓ 100-yr |
| 1 hrs          | 1.42                       | 1.68 | 0    | 2.11 | 2.49  | 3.02  | 3.46  | 3.92     |

| Incremental Rainfall Distribution, 100-yr |             |            |             |            |             |            |             |            |             |
|-------------------------------------------|-------------|------------|-------------|------------|-------------|------------|-------------|------------|-------------|
| Time (min)                                | Precip (in) | Time (min) | Precip (in) | Time (min) | Precip (in) | Time (min) | Precip (in) | Time (min) | Precip (in) |
| 1                                         | 0.034356    | 12         | 0.043083    | 23         | 0.067103    | 34         | 0.092108    | 45         | 0.047718    |
| 2                                         | 0.034934    | 13         | 0.044264    | 24         | 0.072060    | 35         | 0.082214    | 46         | 0.046240    |
| 3                                         | 0.035543    | 14         | 0.045551    | 25         | 0.078355    | 36         | 0.075005    | 47         | 0.044894    |
| 4                                         | 0.036187    | 15         | 0.046961    | 26         | 0.086729    | 37         | 0.069446    | 48         | 0.043662    |
| 5                                         | 0.036868    | 16         | 0.048515    | 27         | 0.098672    | 38         | 0.064989    | 49         | 0.042528    |
| 6                                         | 0.037590    | 17         | 0.050239    | 28         | 0.117804    | 39         | 0.061311    | 50         | 0.041481    |
| 7                                         | 0.038357    | 18         | 0.052167    | 29         | 0.156712    | 40         | 0.058207    | 51         | 0.040509    |
| 8                                         | 0.039175    | 19         | 0.054343    | 30         | 0.465415    | 41         | 0.055542    | 52         | 0.039604    |
| 9                                         | 0.040049    | 20         | 0.056826    | 31         | 0.202038    | 42         | 0.053221    | 53         | 0.038759    |
| 10                                        | 0.040986    | 21         | 0.059697    | 32         | 0.133031    | 43         | 0.051175    | 54         | 0.037967    |
| 11                                        | 0.041994    | 22         | 0.063067    | 33         | 0.106937    | 44         | 0.049354    | 55         | 0.037223    |



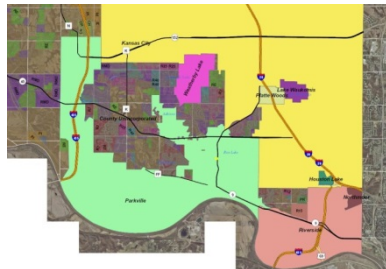




## Staff Analysis

|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>Agenda Item:</u>          | 6.B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <u>Proposal:</u>             | Application for Major Site Plan for Attic Storage, a self-storage facility generally located south of Highway 45 and approx. 1,000 feet west of Interstate 435 in Parkville, MO 64152.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <u>Staff Recommendation:</u> | Approval (with conditions)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <u>Case No:</u>              | PZ 2022-02                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <u>Applicant:</u>            | Rogers Strickland, ER Properties LLC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <u>Owners:</u>               | Parkville Development VV3, LLC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <u>Location:</u>             | South of Highway 45 and approximately 1,000 feet west of Interstate 435                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <u>Zoning:</u>               | "BP" Business Park District                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <u>Parcel #s:</u>            | Platte County parcel no. 20-4.0-19-000-000-019.000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <u>Exhibits:</u>             | <ul style="list-style-type: none"><li>A. This Staff Analysis</li><li>B. Application for Major Site Plan</li><li>C. Subject Property Area Map</li><li>D. Attic Storage 45 Hwy Major Site Plan (prepared by Milburn Civil Engineering, LLC; dated January 6, 2022; revised January 28, 2022)</li><li>E. Project Narrative (Submitted by the Applicant)</li><li>F. Preliminary Stormwater Management Study for Attic Storage (prepared by Milburn Civil Engineering, LLC; dated January 7, 2022)</li><li>G. Additional exhibits as may be presented during the meeting</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <u>By Reference:</u>         | <ul style="list-style-type: none"><li>A. Parkville Municipal Code, Title IV – Development Code in its entirety (<a href="https://www.ecode360.com/PA3395-DIV-05">https://www.ecode360.com/PA3395-DIV-05</a>)<ul style="list-style-type: none"><li>1. Section 403.040 Master Planned Development</li><li>2. Chapter 404 Subdivision Regulations</li><li>3. Section 405.010 Zoning Districts Established</li><li>4. Section 405.020 Districts &amp; Uses</li><li>5. Section 405.030 Standards Applicable to All Districts</li><li>6. Section 406.030 Business Park District - BP</li><li>7. Appendix B. Great Trees for the Kansas City Region</li></ul></li><li>B. Parkville Master Plan (<a href="http://parkvillemo.gov/government/city-plans-studies/master-plan/">http://parkvillemo.gov/government/city-plans-studies/master-plan/</a>)</li><li>C. Highway 45 Corridor Plan (<a href="http://parkvillemo.gov/download/Highway45CorridorPlan.pdf">http://parkvillemo.gov/download/Highway45CorridorPlan.pdf</a>)</li><li>D. Ordinance Nos. 2353 (Rezoning) and 2526 (Final Plat)</li></ul> |

The application proposes a major site plan for Attic Storage, a self-storage facility along the southwest quadrant of the intersection of Highway 45 and Interstate 435 in Parkville, MO. The project area is approximately 3.48 acres (more or less) and resides within Platte County parcel no. 20-4.0-19-000-000-019.000, platted as Vertical Ventures III, Lot 3.



### Legend

### Subject Property Area



### Exhibit C: Subject Property Area Map

On August 21, 2007, the Parkville Board of Aldermen approved Ordinance No. 2353 which rezoned the subject property from County "AG" Agriculture to Parkville City "BP" Business Park

Zoning. On January 19, 2010, the Parkville Board of Aldermen approved Ordinance No. 2526 which platted the subject property as Lot 3 of Vertical Ventures III, 1<sup>st</sup> Plat. To date this property remains undeveloped, with the exception of an existing access drive and parking area off of Missouri Hwy 45 for access to the Platte County Regional Sewer District infrastructure to the east.

### **Review and Analysis**

The major site plan process coordinates development projects with the public realm and with adjacent sites, and specifically demonstrates how new projects meet development and design standards of this code regarding compatible arrangement of buildings, pedestrian and vehicle access, site design, lighting and landscaping. Parkville Municipal Code, Section 403.060, Subsection B. provides criteria for how the Planning and Zoning Commission shall determine if a major site plan is appropriate. The following are staff's findings and conclusions for the major site plan (Case No. PZ 2022-02).

**1. In general, any site plan in compliance with all requirements of this code shall be approved.**

Staff concludes the site plan conforms to use allowances permitted in a "BP" Business Park District. In addition, the site plan is in compliance with the City's subdivision regulations (i.e., block and lot arrangement), site and landscape design standards (i.e., planting requirements, buffer/screening requirements, outdoor lighting, and stormwater management), and access and parking regulations (i.e., access and circulation standards, required parking counts, and parking specifications); with the exceptions noted in the review criteria below.

**2. In making a determination of compliance, or for site plans accompanying any discretionary review or administrative relief, the review body shall consider whether:**

- a. The site is capable of accommodating the buildings, proposed use, access and other site design elements required by this code and will not negatively impact the function and design of rights-of-way or adjacent property.**

**"BP" Height, Area and Bulk Standards**

The subject property is currently zoned "BP" Business Park District. Development standards for the "BP" Business Park District are established in Section 406.030. The subject property area (3.48 acres, more or less) is large enough and capable of accommodating the two proposed two-story buildings, 62,888 sq. ft. and 38,380 sq. ft. Nevertheless, staff compared the proposed height, area and bulk standards to those in the "BP" Business Park District. The proposed height of 25 ft. and two stories are below the district standards for maximum building height, which are 45 ft. and 3 stories.

**"BP" Use Standards**

The subject property remains vacant and undeveloped with the exception of an existing access drive and parking area off of Missouri Hwy 45. The proposed *Storage and Warehousing – Indoor, Limited* use is currently permitted in the "BP" Business Park District. *Storage and Warehousing – Indoor, Limited* uses are facilities for the storage of consumer products or small-scale commercial products where only ordinance traffic and little or no truck traffic occurs.

### **Access**

There is currently one point of existing access off of Highway 45, a right-in, right-out access drive approximately 750 ft. to the west of the westernmost on-ramp to Interstate 435. An existing center median along Highway 45 prevents left turning movements from westbound traffic. The major site plan proposes utilizing this existing access drive to serve the development. Exhibit D contains AutoTURN movements for a Pierce Velocity fire truck (110 ft. ladder), showing the proposed layout can service fire emergency access.

### **Parking Requirements**

Section 408.030 does not provide parking requirements for indoor storage uses. Other municipalities in the Kansas City Metro area and industrial guides on parking requirements have used 1 parking space per 100 sq. ft. of office area. Staff feels that this requirement is reasonable. This project would require a minimum of 4 parking spaces and the applicant has provided 6 parking spaces including an ADA space. Bicycle parking is not required.

### **Parking Layout Design**

The parking stall dimensions detailed on the major site plan (see Exhibit D) are 18.5 ft. length by 9 ft. width, with a minimum aisle width of 24 ft. While the parking aisle width is 2 ft. narrower than listed in the specifications on Table 408-10: Parking Dimensions, staff is comfortable with the dimensions. The proposed dimensions are the same, if not greater, than parking layout specifications in other commercially-zoned developments throughout Parkville including the Parkville Commons retail shopping center (e.g., Parkville City Hall), YMCA, Parkville Athletic Complex, English Landing Center, Park University campus, Village At The National commercial office building (10812 NW Highway 45), and Graden Elementary School (8804 MO-45 Highway).

### **Signage**

The applicant has not indicated the location of any freestanding signage. **All proposed signage will require approval of an Application for Sign Permit in accordance with the City's "BP" Business Park District signage standards for size, height and area allowance as listed on Table 409-2: Sign Allowances.**

### **Outdoor Lighting**

The applicant has included photometric site lighting plan (see Exhibit D). The proposed wall-mounted fixtures meet the mounting, height, shielding, and design and performance criteria per Section 407.040 Outdoor Lighting of the City's Title IV – Development Code.

- b. The design and arrangement of buildings and open spaces is consistent with good planning, landscape design and site engineering principles and practices.**

### **Building Location**

The proposed building locations allow for vehicle and truck access throughout the site as demonstrated by the provided AutoTURN truck movements (see Exhibit D).



### **Landscape Design**

A landscape plan was submitted by the Applicant that fulfills the landscaping requirements of Section 407.020.

### **Stormwater Management**

Per our Development Code requirements, the Public Works Department can require a Stormwater Management Analysis study be submitted for review and approval. As requested by Alysén Abel, the City's Public Works Director, the applicant has completed and submitted a stormwater management analysis/study (see Exhibit F). This study contains an assessment outlining the stormwater management needs for the site, detailing the proposed stormwater management infrastructure and rationale for why it's being used. City staff has reviewed the preliminary stormwater management study and issued comments to the applicant for revision. **Staff has not yet received the necessary revisions, which will be required prior to any construction permits being issued.**

- c. **The architecture and building design uses quality materials and the style is appropriate for the context considering the proportion, massing, and scale of different elements of the building.**

### **Architectural Design, Materials and Style**

The proposed self-storage buildings are designed with gray insulated metal panels with gray, white, and red metal accent trim. An aluminum and glass storefront identifies the office area of the building. This building is compatible with existing nearby buildings including Gladwin Machinery and Capitol Electric. Red accents are used throughout the development to provide visual interest.

### **Proportion, Massing and Scale**

In terms of proportion, massing and scale, the proposed 62,888 sq. ft. and 38,380 sq. ft. buildings are appropriate considering the context of the subject property and allowances per the "BP" Business Park District.

- d. **The overall design is compatible to the context considering the location and relationships of other buildings, open spaces, natural features or site design elements.**

### **Location Compatibility**

The southwest quadrant of the intersection of Interstate 435 and Highway 45 has many existing uses of similar character to the proposed development. Gladwin Machinery to the west, Capitol Electric to the south, and infrastructure uses such as communication towers, an Evergy electrical substation, and a PCRSD sewer infrastructure site are all compatible with the proposed indoor self-storage use.

### **Open Spaces and Natural Features**

The applicant has submitted a grading plan showing the planned contours of the project (Exhibit D). Existing slopes have been preserved around the edges of the site. Additionally, stormwater improvements will be made to the site to prevent excessive erosion.

- e. **Whether any additional site-specific conditions are necessary to meet the intent of the zoning district or the intent and design objectives of any of the applicable development standards.**

As detailed in the in the review criteria above, the major site plan will meet all of the applicable “BP” requirements of the Development Code, with the exception of flexibility needed for the parking layout design dimensions.

3. **The application meets the criteria for all other reviews needed to build the project as proposed.**

As noted in review criteria 2.B above, a condition of approval will be the Public Works Department’s review and approval of the revised Stormwater Management Study.

4. **The recommendations of professional staff**

As detailed in the review criteria above, staff finds that the site plan conforms to the “BP” Business Park District and that the site is in compliance with the “BP” Business Park District’s height, area and bulk standards, outdoor lighting standards, and access and parking regulations (i.e., access and circulation standards, required parking counts, and parking specifications) with the exception for the Title IV – Development Code’s parking requirements as noted in review criteria 2.A above.

#### **Staff Conclusion and Recommendation**

Staff concludes that with the exceptions noted above, the proposed major site plan: Conforms to the applicable requirements of the Development Code, including those of the “BP” Business Park District; the site is capable of accommodating the buildings, proposed use, access and other site elements required by the Development Code and will not negatively impact the function and design of rights-of-way or adjacent property; the design and arrangement of buildings and open spaces is consistent with good planning and site engineering principles and practices; the architecture and building uses quality materials and the style is appropriate for the context considering the proportion, massing, and scale of different elements of the building; the overall design is compatible to the context considering the location and relationships of other buildings, open spaces, natural features or site design elements; the application meets the criteria for all other reviews needed to build the project as proposed, with the exception of those listed in review criteria 3 and 4 above; and can meet the recommendations of professional staff. Staff recommends approval of the major site plan for Attic Storage, subject to the following conditions:

1. Approval is based on the representations of the drawings presented as part of this application and does not waive any requirement or development standard contained within the Municipal Code.
2. Prior to the issuance of any construction permits, a revised preliminary stormwater management study must be submitted by the Applicant and approved by Public Works.
3. All signage requires an approved Sign Permit.
4. Any other conditions the Planning and Zoning Commission determines are necessary.

It should be noted that the recommendation contained in this report is made without knowledge of facts, comments or any additional information which may be presented during the meeting. For that reason, the conclusions herein are subject to change as a result of evaluating additional information; additionally, staff reserves the right to modify or confirm the conclusions and recommendations herein based on consideration of any additional information that may be presented.

**Necessary Action**

Following consideration of the Application for Major Site Plan, supporting information, associated exhibits, factors discussed above and any testimony presented during the meeting, the Planning and Zoning Commission should recommend approval (with or without conditions), denial, or postpone the application for further consideration. If approved subject to conditions, the conditions should be noted for the record. Unless postponed, the Planning and Zoning Commission's action will serve as the final action.

Note: Approval of a major site plan and fulfillment of staff conditions shall authorize the applicant to apply for a building permit and other applicable permits. The Community Development Director may approve minor amendments to approved major site plan without the refiling of a new application, but in no event shall the Director approve any change that does not qualify for an administrative adjustment, or any change that is different from any condition of approval of the major site plan. An approved major site plan shall expire and be of no further effect if an application for building permit for one or more buildings shown on the site plan is not filed within two years of approval. The Planning and Zoning Commission may grant an extension for up to one additional year.

*End of Memorandum*

|                         |                   |
|-------------------------|-------------------|
| <u>/s/ Brad Stanton</u> | <u>02-04-2022</u> |
| Brad Stanton            | Date              |
| Planner                 |                   |



Application #: \_\_\_\_\_  
Date Submitted: \_\_\_\_\_  
Public Hearing: \_\_\_\_\_  
Date Approved: \_\_\_\_\_

CITY OF PARKVILLE • 8880 Clark Avenue • Parkville, MO 64152 • (816) 741-7676 • FAX (816) 741-0013

## Application for Major Site Plan

Pre-application meeting required per Parkville Municipal Code, Title IV, Section 403.010, Subsection C.

### 1. Applicant/Contact Information

#### Applicant(s)

Name: Rogers Strickland  
Company: ER Properties LLC  
Address: 720 S Roger Road Suite B  
City, State: Olathe, KS  
Phone: (913) 764-7000 Fax: \_\_\_\_\_  
E-mail: Rogers@stricklandconstruction.com

#### Engineer/Surveyor(s) preparing plans & legal desc.

Name: Matthew Raveill  
Company: Milburn Civil Engineering  
Address: 33135 W. 83rd Street  
City, State: De Soto, KS  
Phone: (913) 583-0367 Fax: \_\_\_\_\_  
E-mail: matt@milburnce.com

#### Owner(s), if different from applicant

Name: Same as Applicant Ronan Murce  
Company: Parkville Dwyer VLS, LLC  
Address: 7601 W. John Anders  
City, State: KC MO 64152  
Phone: 8166169016 Fax: \_\_\_\_\_  
E-mail: \_\_\_\_\_

#### Contact Person, if different from applicant

Name: Matthew Raveill  
Company: Milburn Civil Engineering  
Address: 33135 W. 83rd Street  
City, State: De Soto, KS  
Phone: (913) 583-0367 Fax: \_\_\_\_\_  
E-mail: matt@milburnce.com

We, the undersigned, do hereby authorize the submittal of this application and associated documents and certify that all information contained therein is true and correct. We acknowledge that development in the City of Parkville is subject to the Municipal Code of the City of Parkville. We do hereby agree to abide by and comply with the above-mentioned codes, and further understand that any violations from the provisions of such or from the conditions as stated herein shall constitute cause for fines, punishments and revocation of approvals as applicable.

Applicant's Signature (Required)

Date: 1/6/2022

Property Owner's Signature (Required)

Date: 1/6/2022

### 2. Property Information

Zoning district: Business Park District and Light Industrial District

Property address and general location: Southwest corner of I-435 and 45 HWY

Legal description (may be attached): Lot 3, Vertical Ventures III, First Plat and  
Lot 3, CELB First plat

Description of proposed use(s): Two multi-story self storage buildings on main lot with storm water  
management on adjacent lot.

Gross acreage of lot: 3.48 Acres

Net acreage of lot: 3.48 Acres

Open space acreage: 1.48 Acres

Lot coverage: 0.33

Is proposal an alteration to an existing building or new construction? ☐ alteration ☒ new construction

Last modified January 2020



**3. Factors affecting the project**Are any public improvements required for this project? No

Explain (may be attached): \_\_\_\_\_

**Attach a narrative addressing:**

1. *How the site is capable of accommodating the buildings, proposed use, access and other site design elements required by this code and will not negatively impact the function and design of rights-of-way or adjacent property.*
2. *How the design and arrangement of buildings and open spaces is consistent with good planning, landscape design and site engineering principles and practices.*
3. *How the architecture and building design uses quality materials and the style is appropriate for the context considering the proportion, massing, and scale of different elements of the building.*
4. *How the overall design is compatible to the context considering the location and relationships of other buildings, open spaces, natural features or site design elements.*
5. *Whether any additional site-specific conditions are necessary to meet the intent of the zoning district or the intent and design objectives of any of the applicable development standards.*
6. *Any other information relevant to the application.*

**4. Checklist of required submittals**

- ☒ Completed application, including site plan with all required details and supporting data.
- ☒ Nonrefundable application fee of \$300.00.
- ☒ Five (5) copies 24" x 36" size, or larger sets, and one (1) electronic set (PDF format) of the site plan and elevations for staff and service providers to review.
- ☒ Authorization signature of the applicant and owner of record of the property.
- ☒ If subject to covenants and/or deed restrictions, signed approval of the association/entity enforcing such.

**For Office Use Only**Application accepted as complete by: \_\_\_\_\_  
Name/Title \_\_\_\_\_ Date \_\_\_\_\_

Application fee payment: Check # \_\_\_\_\_ Amount \$ \_\_\_\_\_

Final reimbursable costs paid (if applicable). Date of Action: \_\_\_\_\_

Planning Commission Action: ☐ Approved ☐ Approved with Conditions ☐ Denied Date of Action: \_\_\_\_\_

Conditions if any: \_\_\_\_\_

Board of Aldermen Action: ☐ Approved ☐ Approved with Conditions ☐ Denied Date of Action: \_\_\_\_\_

Conditions if any: \_\_\_\_\_

## 5. Major Site Plan checklist for staff review

### 1. Basic Information

- Name of the development
- Name, address, contact information of person or firm that prepared the plan
- Date plan was prepared, including any revision dates
- Graphic, engineering scale
- North arrow
- Vicinity map identifying boundaries and location of property in relation to City

### 2. Development Summary Table | *Provided on site plan in chart format*

- Existing zoning and proposed zoning if applicable
- Total land area in square feet and acres
- Proposed use or uses of each building and/or structure
- Height above grade of buildings and structures and number of stories of each building and/or structure
- Gross floor area per floor and total for each building/structure
- Residential buildings shall also include residential building type and total number of dwelling units. Residential development shall identify gross and net density
- Building coverage and floor area ratio
- Ratio of required number of parking spaces for each use and amount of proposed parking spaces

### 3. Plan Drawing

- Property lines and lot dimensions
- Proposed building footprint with lines
- Building(s) with dimensions and distance to property lines
- Cross-sections of the site detailing the height of buildings/structures, distances, and relationship to existing topography, and if applicable, proposed topography
- Existing and proposed rights-of-way improvements (curb/gutter/sidewalk/driveways, etc.) and easements
- All radii, acres, points of tangency, central angles and lengths of curves
- Existing and proposed topography, with major contour lines at intervals of 10 feet, and minor contour lines at an interval of 2 feet
- Indication of FEMA Special Flood Hazard Areas (SFHA) if applicable
- Location and identification of any proposed and any existing site features to be retained, including detention areas, retaining walls, existing mature trees, and other pertinent site features
- Identification of proposed or existing use or uses within each building, building entrances and exits, docks or other service entrances, utility entrances and screening to them, trash enclosures if applicable, outdoor storage and sales areas, and other paved areas.
- Architectural renderings of the completed project be provided, including elevations of each side of each structure and delineation of building materials.

### 4. Parking and Circulation

- Location and dimensions of the widths of existing or proposed private vehicular access into the property from perimeter streets and location of existing or approved accesses on properties adjacent or opposite the property
- Location of proposed or existing parking spaces, aisles, and drives with setback dimensions from proposed streets right-of-way and adjacent property lines; typical width and length of parking spaces; number of parking spaces per row; and width of parking and drive aisles
- Illustration of AutoTURN vehicular movements for emergency vehicle access to development, specifically a Pierce Velocity fire truck (duel axle type w/ 110 ft. ladder; vehicle specifications are 43.3 ft. length X 8 ft. width)
- Location of proposed trash enclosures if applicable
- Identification of all public and private existing and proposed sidewalks, trails, bicycle facilities, and/or open space areas (Tracts A, B, C, etc.)
- Indication of compliance with access and parking standards per City Code (Chapter 408)

**5. Landscaping and Screening**

- a. A plan for landscaping design and screening in conformance with City Code (Section 407.020 and 407.030)
- b. A lighting plan in conformance with City Code (Section 407.040)
- c. A stormwater management plan in conformance with City Code (Section 407.050)
- d. A landscape schedule showing compliance with City Code (Chapter 407)

**6. Other Requirements**

- a. All survey monuments and benchmarks, together with their description
- b. Show windows and entrances
- c. Label all materials
- d. Show canopies and awnings if proposed
- e. Information regarding signage if proposed, in compliance with City Code (Chapter 409)

**Note:** Submissions of major site plans to the Planning and Zoning Commission that do not conform to the above checklist may, at the discretion of the Planning and Zoning Commission, be subject to delay until unfulfilled items are complied with.



UTILITIES

ELECTRIC  
EVERGY  
8325 N. PLATTE  
PURCHASE DRIVE  
KANSAS CITY, MO  
64118  
(816) 471-5275

NATURAL GAS  
SPIRE  
7500 EAST 35TH  
TERRACE  
KANSAS CITY, MO  
64129  
(816) 756-5252

STORM & SANITARY  
SEWER  
PARKVILLE SEWER  
DEPARTMENT  
8800 CLARK AVENUE  
PARKVILLE, MO 64125  
(816) 741-7676  
SEWER EMERGENCY  
(816) 215-5690

PLATTE COUNTY  
REGIONAL SEWER  
DISTRICT  
414 STATE ROUTE 273  
TRACY, MO 64079  
(816) 858-2052

WATER  
CPWSD#1  
PO BOX 5  
WALDRON, MO 64092  
(816) 891-3467

CABLE/COMMUNICATIONS  
AT&T  
500 EAST 8TH STREET,  
ROOM 690  
KANSAS CITY, MO  
64106

SPECTRUM  
550 WESTPORT ROAD  
KANSAS CITY, MO  
64111  
866-874-2389

DEVELOPER/OWNER

ER PROPERTIES, LLC  
RODERS STRICKLAND  
720 S ROGER ROAD SUITE B  
OLATHE, KS  
913-764-7000  
ROGERS@STRICKLANDCONSTRUCTION.COM

CIVIL ENGINEER

MILBURN CIVIL ENGINEERING, LLC  
33135 W 83RD STREET  
DE SOTO, KS 66018

100-YEAR FLOODPLAIN

FIRM PANEL NUMBER: 29165C0360D  
FIRM EFFECTIVE DATE: 4/2/2015  
ZONE X

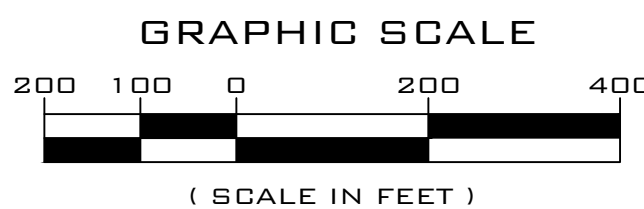
PROJECT CONTROL PONTS

SEMI-PERMANENT MONUMENTATION:  
CHISELED CROSS AT ALL CORNERS MARKED "✱"  
1/2" IRON BAR WITH PLASTIC CAP STAMPED 'LS-2007000089' SET AT ALL CORNERS MARKED "●"  
PERMANENT MONUMENTATION"  
5/8" IRON BAR WITH ALUMINUM CAP STAMPED 'LS-2007000089' SET AT ALL CORNERS MARKED "▲"

ATTIC STORAGE 45 HWY  
MAJOR SITE PLAN  
SW CORNER OF I-435 AND 45 HWY  
PARKVILLE, MISSOURI



LOCATION MAP



INDEX OF SHEETS

|       |                            |
|-------|----------------------------|
| C-100 | COVER SHEET                |
| C-101 | SITE PLAN                  |
| C-102 | GRADING PLAN               |
| L1    | LANDSCAPE PLAN             |
| E001  | SITE PHOTOMETRIC PLAN      |
| A1.0  | UNIT MIX PLAN - BUILDING A |
| A1.1  | UNIT MIX PLAN - BUILDING B |
| A2.0  | ELEVATIONS                 |
| A2.1  | ELEVATIONS                 |
| A2.3  | ELEVATIONS                 |
| A7.0  | PERSPECTIVES               |

ADJACENT PROPERTY OWNERS

- ①—PARKVILLE DEVELOPMENT 140 LLC  
7607 NW JOHN ANDERS RD  
KANSAS CITY, MO 64152-4813  
LAND USE - COMMERCIAL  
ZONING - PLANNED GENERAL BUSINESS (B-2)
- ②—KOSMIDES FAMILY TRUST  
919 FOOTHILL BLVD  
LA VERNE, CA 91750-3235  
LAND USE - COMMERCIAL  
ZONING - PLANNED GENERAL BUSINESS PARK (B-2)
- ③—HOAMBRECKER PROPERTIES II LLC  
2900 NE BROOKTREE LN SITE 100  
GLADSTONE, MO 64119-1862  
LAND USE - COMMERCIAL  
ZONING - PLANNED GENERAL BUSINESS (B-2)
- ④—FAB CENTRAL STATES LLC  
5170 MIN ST  
MINNEAPOLIS, MN 55421-0000  
LAND USE - MANUFACTURING  
ZONING - BUSINESS PARK (BP)
- ⑤—FAB CENTRAL STATES LLC  
16203 NW MO-45 HWY  
LAND USE - MANUFACTURING  
ZONING - BUSINESS PARK (BP)
- ⑥—CAPITAL ELECTRIC  
LAND USE - UTILITY  
ZONING - LIGHT INDUSTRIAL (I-2)
- ⑦—CITY OF PARKVILLE & PLATTE COUNTY REGIONAL SEWER DISTRICT  
414 HWY 273  
TRACY, MO 64079-0000  
LAND USE - UTILITY  
ZONING - BUSINESS PARK (BP)
- ⑧—PARKVILLE SOD LLC  
15815 NW MO-45 HWY  
LAND USE - RESIDENTIAL  
ZONING - COUNTRY ZONING

PROPOERTY DESCRIPTION

LOT 3, VERTICAL VENTURES III, FIRST PLAT (3.48 ACRES)

AND

LOT 3, CELB FIRST PLAT (4.07 ACRES)



Know what's below.  
Call before you dig.

Milburn Civil Engineering, LLC

MILBURN CIVIL ENGINEERING, LLC  
33135 W 83RD ST  
DE SOTO, KS 66018  
913-583-0367



ATTIC STORAGE 45 HWY

PRELIMINARY SITE PLAN

16000 HWY 45  
PARKVILLE, MISSOURI 64152

DATE 01/06/2021  
DESIGNED BY MJR/SWT  
CHECKED BY

| REVISIONS | REVISIONS |
|-----------|-----------|
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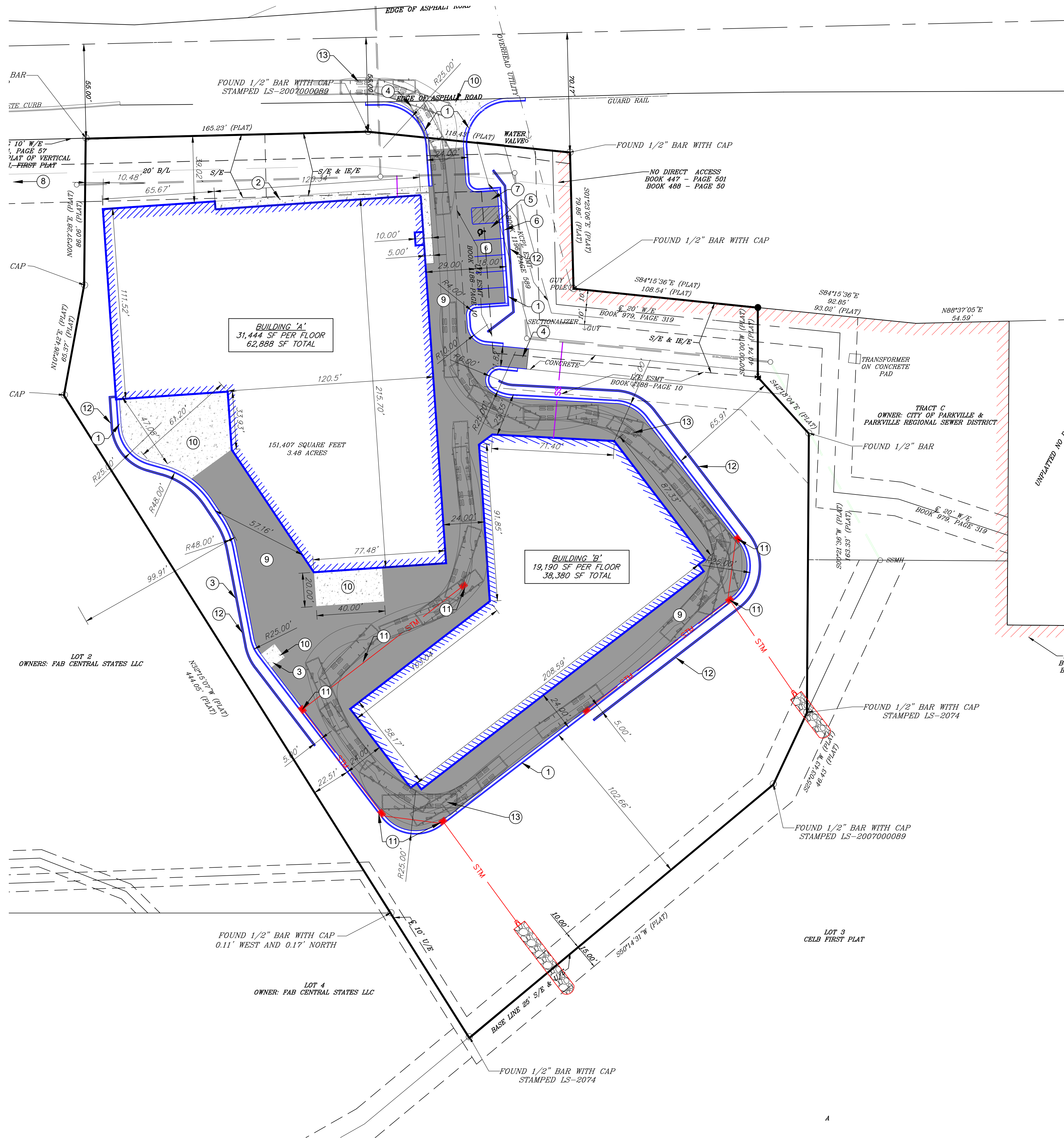
COVER SHEET

C-100

PRELIMINARY-NOT FOR CONSTRUCTION



Jun 28, 2022 - 10:12am - USER: mrovel  
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### SITE PLAN NOTES

- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ACQUIRE ALL CITY, COUNTY, AND STATE PERMITS REQUIRED FOR THE CONSTRUCTION OF THIS PROJECT.
- CONTRACTOR IS TO REMOVE AND DISPOSE OF ALL DEBRIS, RUBBISH AND OTHER MATERIALS RESULTING FROM CONSTRUCTION ACTIVITIES. DISPOSAL WILL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND/OR FEDERAL REGULATIONS GOVERNING SUCH OPERATIONS.
- THE GENERAL CONTRACTOR WILL BE HELD SOLELY RESPONSIBLE FOR AND SHALL TAKE ALL PRECAUTIONS NECESSARY TO AVOID PROPERTY DAMAGE TO ADJACENT PROPERTIES DURING THE CONSTRUCTION PHASES OF THIS PROJECT.
- WARRANTY/DISCLAIMER: THE DESIGNS REPRESENTED IN THESE PLANS ARE IN ACCORDANCE WITH ESTABLISHED PRACTICES OF CIVIL ENGINEERING FOR THE DESIGN FUNCTIONS AND USES INTENDED BY THE OWNER AT THIS TIME. HOWEVER, NEITHER THE ENGINEER NOR ITS PERSONNEL CAN OR DO CERTIFY THESE DESIGNS OR PLANS AS CONSTRUCTED EXCEPT IN THE SPECIFIC CASES WHERE THE ENGINEER OBSERVES AND CONTROLS THE PHYSICAL CONSTRUCTION ON A CONTINUAL BASIS AT THE SITE.
- SAFETY NOTICE TO CONTRACTOR: IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. ANY CONSTRUCTION OBSERVATION BY THE ENGINEER OF THE CONTRACTOR'S PERFORMANCE IS NOT INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES, IN, ON OR NEAR THE CONSTRUCTION SITE.
- THESE DOCUMENTS, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, ARE INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THESE DOCUMENTS WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY MILBURN CIVIL ENGINEERING, LLC SHALL BE WITHOUT LIABILITY TO MILBURN CIVIL ENGINEERING, LLC.
- UTILITY INFORMATION SHOWN ON THESE PLANS WAS TAKEN FROM UTILITY MAPS PROVIDED TO THIS ENGINEER BY VARIOUS UTILITY COMPANIES, AND LOCATES PROVIDED BY VARIOUS UTILITY LOCATING COMPANIES. EVERY EFFORT WAS MADE TO HAVE ANY AND ALL ACTIVE UTILITIES LOCATED. THIS ENGINEER DOES NOT WARRANT OR GUARANTEE THE LOCATION OR SIZE OF ANY UNDERGROUND UTILITY SHOWN HEREON. THIS ENGINEER DOES NOT WARRANT OR GUARANTEE THAT ALL UTILITY LINES, CABLES, PIPES, OR WIRES (ACTIVE OR INACTIVE) ARE SHOWN ON THIS SURVEY.
- ALL CONSTRUCTION SHALL CONFORM TO THE CITY OF DE SOTO MUNICIPAL CODE IN EFFECT ON THE CITY'S APPROVAL DATE SHOWN ON THESE PLANS AND INCORPORATED HEREIN BY REFERENCE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE RESTORATION OF CONSTRUCTION ACCESS PATHS AND FOR DAMAGED IMPROVEMENTS SUCH AS CURBS, SIDEWALKS, DAMAGED IMPROVEMENTS SHALL BE REPAIRED IN CONFORMANCE WITH THE LATEST STANDARDS OF THE GOVERNING AUTHORITY AND TO THE OWNERS SATISFACTION.
- CONTRACTOR TO SCHEDULE & COORDINATE ALL WORK WITH OWNER AND MAINTAIN ACCESS TO ALL BUILDINGS AND AREAS OF THE PROPERTY.
- ALL DIMENSIONS ARE BACK OF CURB UNLESS OTHERWISE NOTED.
- ALL MECHANICAL EQUIPMENT SHALL BE SCREENED IF VISIBLE FROM THE R/W. MECHANICAL EQUIPMENT LOCATIONS ARE STILL BEING DETERMINED AT THE TIME OF THIS PLAN.

### SITE PLAN KEY NOTES

- PROPOSED 2' CONCRETE CURB AND GUTTER
- PROPOSED 4" THICK CONCRETE SIDEWALK - 5' WIDTH
- PROPOSED 6 CU YD TRASH ENCLOSURE
- PROPOSED CONCRETE DRIVE APPROACH
- PROPOSED ADA ACCESSIBLE PARKING STALL
- PROPOSED ADA PARKING SIGN.
- TYPICAL 8.5'X18' PARKING STALLS
- EXISTING FIRE HYDANT ~500ft
- PROPOSED STANDARD DUTY ASPHALT PAVEMENT SECTION.
- PROPOSED HEAVY DUTY CONCRETE PAVEMENT SECTION.
- PROPOSED STORM SEWER INLET
- PROPOSED RETAINING WALL
- 43.3 FT X 8 FT PIERCE FIRE TRUCK TURNING TEMPLATE

### PROPOSED PAVEMENT LEGEND

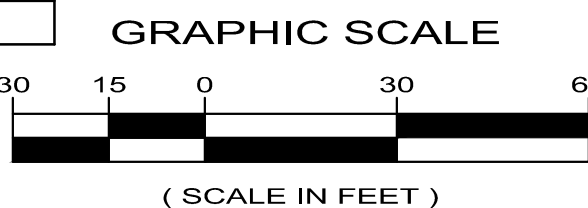
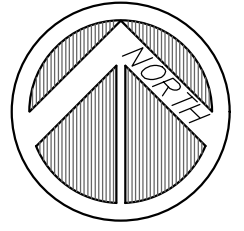
- 4" CONCRETE PAVEMENT - SIDEWALKS
- STANDARD DUTY ASPHALT PAVEMENT COMMERCIAL PARKING
- HEAVY DUTY CONCRETE PAVEMENT
- PARKING STALL COUNT 8.5'X18' TYPICAL STALL DIMENSION

### SITE SETBACK REQUIREMENTS - SECTION 406.030

|  | FRONT | 20 ft | min |
|--|-------|-------|-----|
|  | REAR  | 10 ft | min |
|  | SIDE  | 10 ft | min |

| DEVELOPMENT SUMMARY TABLE |                          |            |                                |
|---------------------------|--------------------------|------------|--------------------------------|
| ZONING                    | LOT 3 (MAIN DEVELOPMENT) |            | LOT 3 (STORM WATER MANAGEMENT) |
| EXISTING                  | BUSINESS PARK DISTRICT   |            | LIGHT INDUSTRIAL DISTRICT      |
| PROPOSED                  | BUSINESS PARK DISTRICT   |            | LIGHT INDUSTRIAL DISTRICT      |
| TOTAL LAND AREA           | 3.48 ACRES               |            | 4.07 ACRES                     |
| BUILDING USAGE            | SELF STORAGE             |            | N/A                            |
|                           |                          |            |                                |
|                           | BUILDING A               | BUILDING B |                                |
| BUILDING HEIGHT           | 25 FEET                  | 24 FEET    |                                |
| NUMBER OF STORIES         | 2 STORY                  | 2 STORY    |                                |
| FLOOR AREA                | 31,444 SF                | 19,190 SF  |                                |
| TOTAL BUILDING AREA       | 62,888 SF                | 38,380 SF  |                                |
| BUILDING COVERAGE         | 0.33                     |            |                                |
| FLOOR AREA RATIO          | 0.33                     |            |                                |
|                           |                          |            |                                |
| PARKING REQUIREMENT       | MINIMUM RATE             | REQUIRED   | PROVIDED                       |
| BP- SELF STORAGE          | 1/100 SF OFFICE SPACE*   | 4          | 6                              |

\* PARKVILLE DOES NOT HAVE A MINIMUM PARKING REQUIREMENT FOR SELF STORAGE FACILITIES IN THE CITY CODE. A TYPICAL MINIMUM RATE OF 1/100 SF OF OFFICE SPACE HAS BEEN USED AT OTHER LOCATIONS IN THE KANSAS CITY AREA.



(SCALE IN FEET)



# ATTIC STORAGE 45 HWY

## PRELIMINARY SITE PLAN

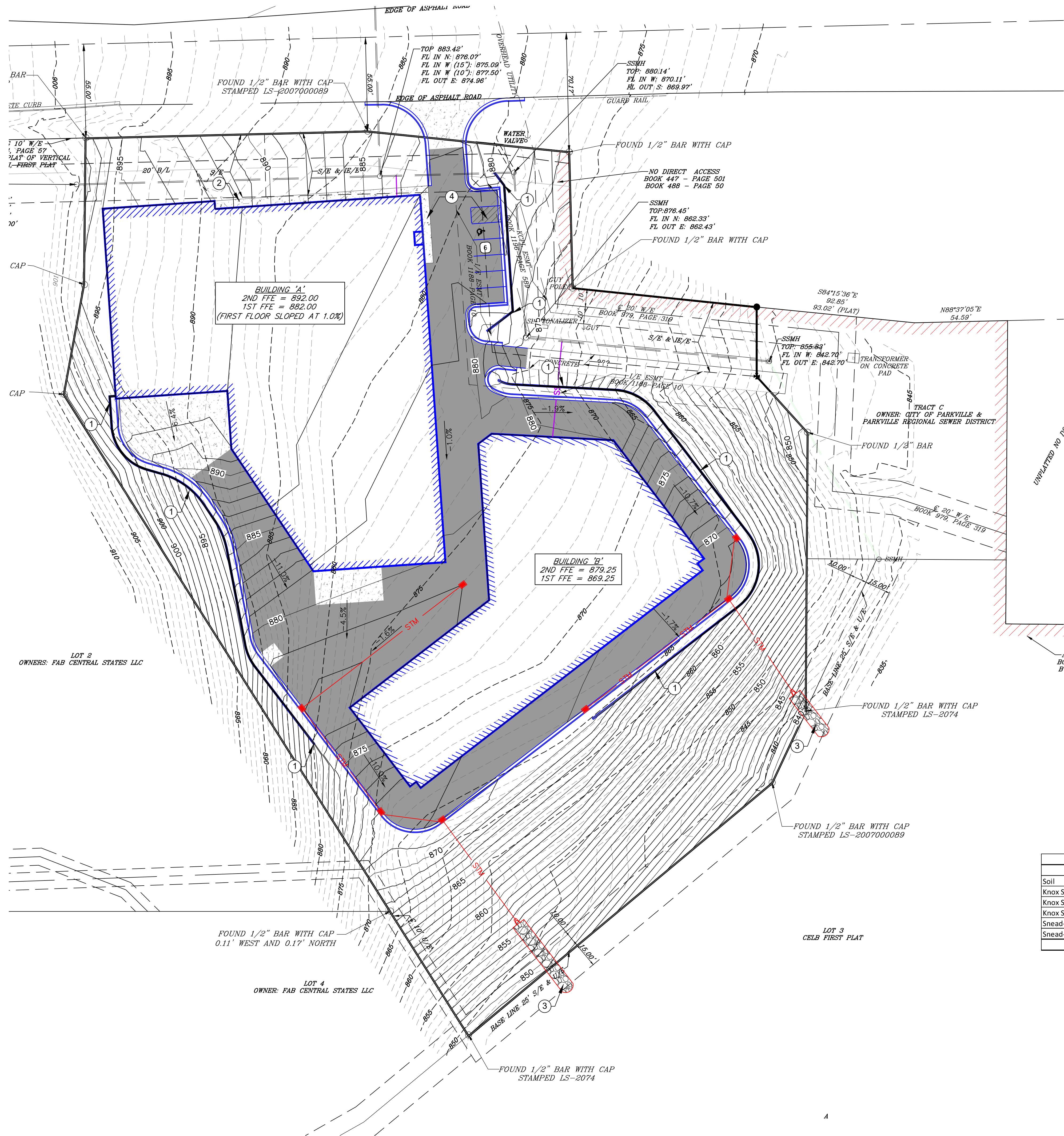
16000 HWY 45  
PARKVILLE, MISSOURI 64152

|             |            |
|-------------|------------|
| DATE        | 01/28/2022 |
| DESIGNED BY | MJR/SWT    |
| CHECKED BY  |            |
| REVISIONS   | REVISIONS  |
|             |            |
|             |            |
|             |            |
|             |            |
|             |            |

SITE PLAN



Jun 28, 2022 - 10:11am - USER: mrcavelli  
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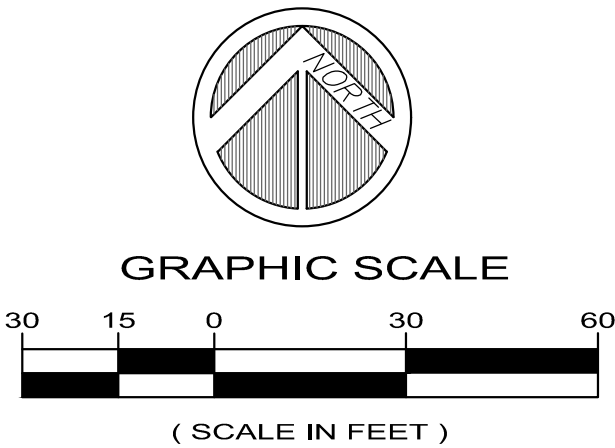


| CN calcs             |        |       |          |                  |            |           |                 |           |                  |
|----------------------|--------|-------|----------|------------------|------------|-----------|-----------------|-----------|------------------|
| Soil                 | ft^2   | acres | Existing |                  |            | Proposed  |                 |           |                  |
|                      |        |       | %        | Hydrologic Group | Cover Type | CN        | Cover Type      | %         | Hydrologic Group |
| Knox Silty Clay Loam | 120122 | 2.758 | 79.21    | B                | Open Space | 61        | Impervious Area | 56.84     | D                |
| Knox Silty Clay Loam | 16530  | 0.379 | 10.90    | B                | Gravel     | 85        | Open Space      | 28.69     | B                |
| Knox Silty Clay Loam | 1480.5 | 0.034 | 0.98     | B                | Concrete   | 98        | Concrete        | 0.98      | B                |
| Snead-Rock Outcrop   | 13347  | 0.306 | 8.80     | D                | Open Space | 80        | Open Space      | 13.38     | D                |
| Snead-Rock Outcrop   | 164.5  | 0.004 | 0.11     | D                | Concrete   | 98        | Concrete        | 0.11      | D                |
|                      |        |       |          |                  |            | Composite | 66              | Composite | 85               |

GRADING PLAN KEY NOTES

- 1 - PROPOSED RETAINING WALL
- 2 - PROPOSED STAIRS
- 3 - PROPOSED RIPRAP AT OUTLET STRUCTURE
- 4 - MAX. SLOPE OF 2% WITHIN ADA SPACE

— 969 — EXISTING CONTOUR — MINOR  
— 970 — EXISTING CONTOUR — MAJOR  
— 969 — PROPOSED CONTOUR — MINOR  
— 970 — PROPOSED CONTOUR — MAJOR



PRELIMINARY-NOT FOR CONSTRUCTION



Know what's below.  
Call before you dig.



Milburn Civil Engineering, LLC

MILBURN CIVIL ENGINEERING, LLC  
33135 W 83RD ST  
DE SOTO, KS 66018  
913-583-0367



ATTIC STORAGE 45 HWY

PRELIMINARY SITE PLAN

16000 HWY 45  
PARKVILLE, MISSOURI 64152

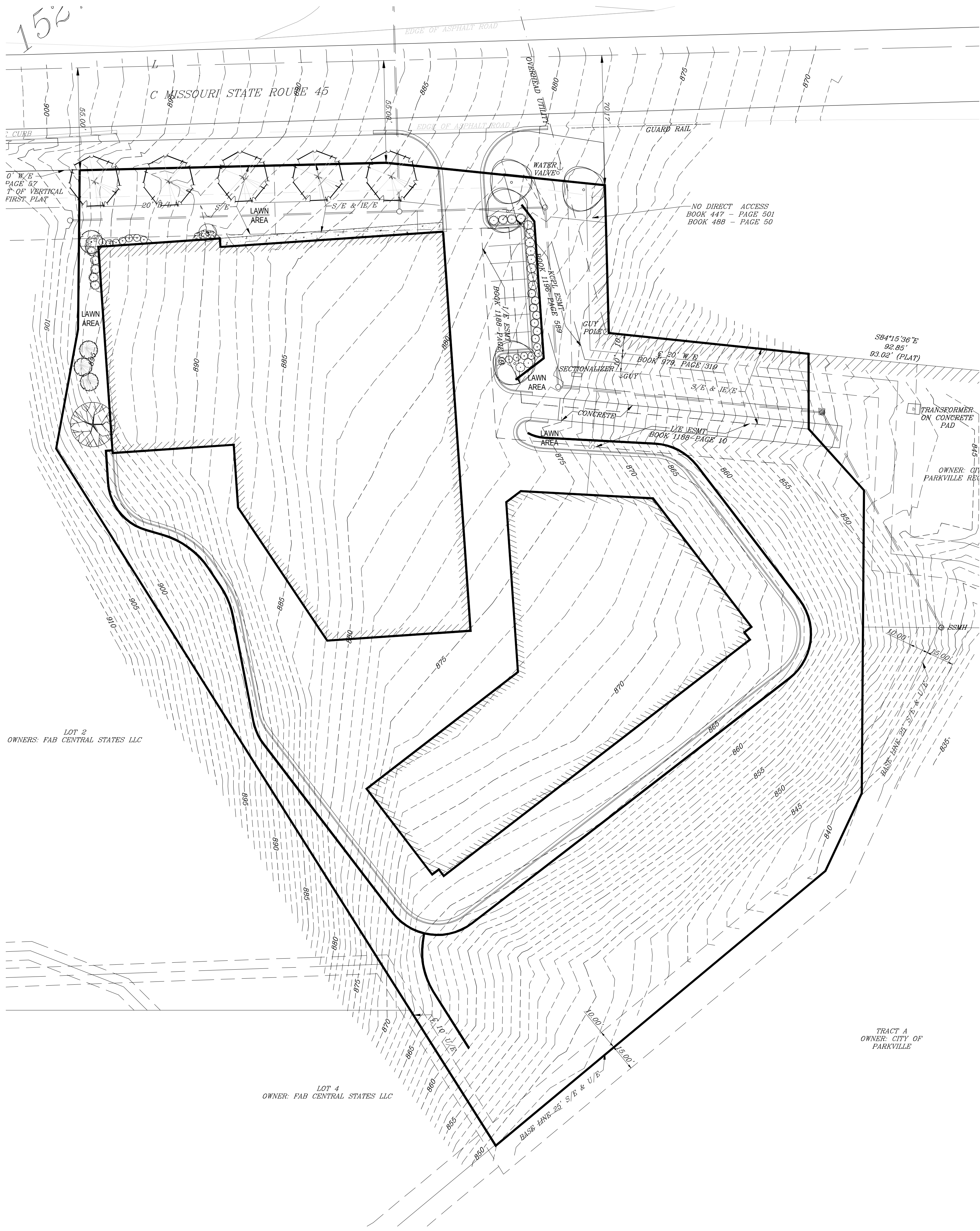
DATE: 01/28/2022  
DESIGNED BY: MJR/SWT  
CHECKED BY: ---

| REVISIONS | REVISIONS |
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GRADING PLAN

C-102





## Planting Notes

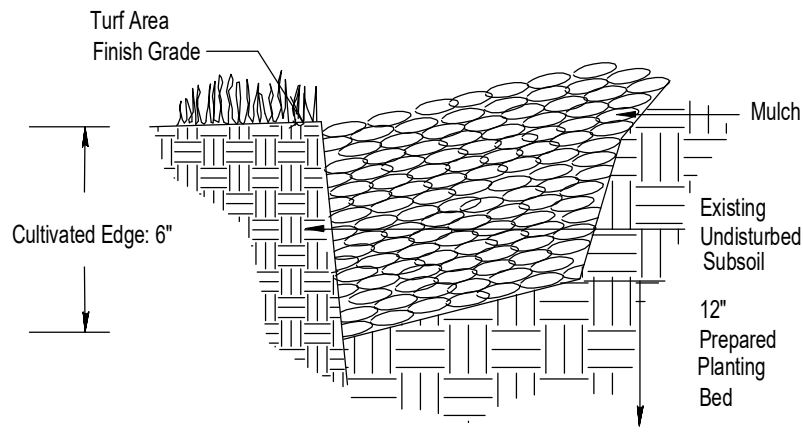
1. Location of all existing utilities needs to be done before commencing work.
2. The planting plan graphically illustrates overall plant massings. Each plant species massing shall be placed in the field to utilize the greatest coverage of ground plane. The following applies for individual plantings:
  - a. Creeping groundcover shall be a minimum of 6" from paving edge.
  - b. All trees shall be a minimum of 3' from paving edge.
  - c. All plants of the same species shall be equally spaced apart and placed for best aesthetic viewing.
3. All shrubs shall be a minimum of 2' from paved edge.
4. Mulch all planting bed areas to a minimum depth of 3". Mulch individual trees to a minimum depth of 4".
5. Note: If plants are not labeled - they are existing and shall remain.

### Materials:

1. Plant material shall be healthy, vigorous, and free of disease and insects as per AAN standards.
2. Shredded bark mulch installed at trees shall be finely chipped and shredded hardwood chips, consisting of pure wood products and free of all other foreign substances. Pine bark compost mulch installed at planting bed areas shall be free of all other foreign substances.

### Installation:

1. All planting beds shall be amended with 1 cubic yard of peat moss per 1,000 square feet. Till peat moss into soil to a 6" depth. A 10-10-10 fertilizer shall be spread over all planting areas prior to planting, at a rate of 50 pounds per 2,000 square feet.
2. After plants have been installed, all planting beds shall be treated with Dacthal pre-emergent herbicide prior to mulch application.
3. Plant pit backfill for trees and shrubs shall be 50% peat or well composted manure and 50% topsoil.
4. Plant material shall be maintained and guaranteed for a period of one year after Owner's acceptance of finished job. All dead or damaged plant material shall be replaced at Landscape Contractor's expense.
6. Landscape contractor shall maintain all plant material until final acceptance, at which point the one year guarantee begins.



## Landscape Schedule

| Symbol                       | Qty. | %   | Botanical Name                    | Common Name                           | Min.Root | Min.Size | Coliper                          | Remarks                    |
|------------------------------|------|-----|-----------------------------------|---------------------------------------|----------|----------|----------------------------------|----------------------------|
| OVERSTORY TREES              |      |     |                                   |                                       |          |          |                                  |                            |
|                              | 0    | 0   | Platanus x acerifolia             | London Plane Tree                     |          | 2"       | 6' min. clear., ground to canopy |                            |
|                              | 4    | 27  | Acer x freemanii 'Autumn Blaze'   | Autumn Blaze Maple                    |          | 2"       | 6' min. clear., ground to canopy |                            |
|                              | 1    | 1   | Quercus rubra                     | Northern Red Oak                      |          | 2"       | 6' min. clear., ground to canopy |                            |
|                              | 5    | 33  | Gleditsia triacanthos 'Skyline'   | Shodemaster Honeylocust               |          | 2"       | 6' min. clear., ground to canopy |                            |
|                              | 0    | 0   | Ulmus parvifolia                  | Lacebark Elm                          |          | 2"       | 6' min. clear., ground to canopy |                            |
|                              | 0    | 0   | Acer x truncatum 'Warrenred'      | Pacific Sunset Maple                  |          | 2"       | 6' min. clear., ground to canopy |                            |
| EVERGREEN TREES              |      |     |                                   |                                       |          |          |                                  |                            |
|                              | 3    | 20  | Juniperus chinensis 'Keteleeri'   | Keteleeri Juniper                     |          | 6' ht.   |                                  | symmetrical pyramidal form |
|                              | 0    | 0   | Juniper chinensis                 | Eastern Red Cedar                     |          | 6' ht.   |                                  | symmetrical pyramidal form |
|                              | 0    | 0   | Picea abies                       | Norway Spruce                         |          | 6' ht.   |                                  | symmetrical pyramidal form |
| ORNAMENTAL TREES             |      |     |                                   |                                       |          |          |                                  |                            |
|                              | 1    | 1   | Cercis canadensis                 | Eastern Redbud                        |          | 1.5"     |                                  |                            |
|                              | 1    | 1   | Cornus florida 'Cloud Nine'       | Cloud 9 Dogwood                       |          | 1.5"     |                                  |                            |
|                              | 15   | 100 | TOTAL TREES ON SITE               |                                       |          |          |                                  |                            |
| DECIDUOUS SHRUBS/GRASSES     |      |     |                                   |                                       |          |          |                                  |                            |
|                              | 8    |     | Festuca ovina glauca              | Dwarf Blue Fescue                     | 1 gal.   |          |                                  | Plant @ 18" O.C.           |
|                              | 7    |     | Spiraea x bumalda 'Goldflame'     | Goldflame spirea                      |          | 18" ht.  |                                  | Plant @ 3' O.C.            |
|                              | 3    |     | Hydrangea paniculata 'Quick Fire' | Little Quick Fire Hydrangea           |          | 18" ht.  |                                  | Plant @ 4' O.C.            |
|                              | 9    |     | Syringa X 'Penda'                 | Blooming Purple Lilac                 |          | 18" ht.  |                                  | Plant @ 5' O.C.            |
| EVERGREEN SHRUBS             |      |     |                                   |                                       |          |          |                                  |                            |
|                              | 10   |     | Juniperus chinensis 'Sea Green'   | Sea Green Juniper                     |          | 18" ht.  |                                  | Plant @ 4' O.C.            |
|                              | 14   |     | Juniperus chinensis 'Gold Coast'  | Gold Coast Juniper                    |          | 18" ht.  |                                  | Plant @ 4' O.C.            |
|                              | 0    |     | Juniperus chinensis 'Spartan'     | Spartan Juniper                       |          | 5' ht.   |                                  | Symmetrical pyramidal form |
| EXISTING TREES TO BE REMOVED |      |     |                                   |                                       |          |          |                                  |                            |
|                              |      |     |                                   | EXISTING TREES/SHRUBS TO BE PRESERVED |          |          |                                  |                            |
|                              |      |     |                                   |                                       |          |          |                                  |                            |

### TREE PLANTING NOTES:

- 1) DO NOT HEAVILY PRUNE THE TREE. PRUNE ONLY CROSSOVER LIMBS, CO-DOMINANT LEADERS, & BROKEN OR DEAD BRANCHES. SOME INTERIOR TWIGS & LATERAL BRANCHES MAY BE PRUNED. DO NOT REMOVE THE TERMINAL BUDS OF BRANCHES THAT EXTEND TO THE EDGE OF THE CROWN

- 2) MARK THE NORTH SIDE OF THE TREE IN THE NURSERY, AND ROTATE TREE TO FACE NORTH AT THE SITE WHENEVER POSSIBLE

- 3) SET TOP OF ROOT BALL 1-2 INCHES HIGHER THAN SURROUNDING GRADE

- 4) APPLY 4THK WOOD MULCH. DO NOT PLACE MULCH IN DIRECT CONTACT W/ TREE TRUNK

- 5) EACH TREE MUST BE PLANTED SUCH THE TRUNK FLARE IS VISIBLE AT THE TOP OF THE ROOT BALL. TREES WHERE THE FLARE IS NOT VISIBLE SHALL BE REJECTED. DO NOT COVER THE TOP OF THE ROOT BALL W/ SOIL

- 6) REMOVE ALL TWINE, ROPE, WIRE AND BURLAP FROM THE UPPER 1/3 OF ROOT BALL (REMOVE WIRE BASKETS)

- 7) PLACE ALL ROOT BALLS ON UN-EXCAVATED OR TAMPED SOIL, TYP

### STAKING REQUIREMENTS:

- 1) WIRE / CABLE SHALL BE GALV, 12-GAUGE

- 2) TIGHTEN WIRE / CABLE ONLY ENOUGH TO KEEP FROM SLIPPING. ALLOW FOR SOME TRUNK MOVEMENT. PLASTIC HOSE SHALL BE LONG ENOUGH TO ACCOMMODATE 1/2" OF GROWTH

- 3) STAKES SHALL BE 2"x2" HARDWOOD OR EQUAL

### PERENNIAL PLANTING NOTES:

- 1) APPLY 2THK BED OF MULCH ON PERENNIAL PLANT BED, DO NOT COVER PLANTS

- 2) THOROUGHLY MIX PEAT IN TOP 3-4" OF SOIL

- 3) BREAK UP EXISTING SOIL TO A DEPTH OF 24"

- 4) PROVIDE NEW TOPSOIL TO A DEPTH OF 12"

- 1) SET SHRUB AT SAME DEPTH AT WHICH IT GREW IN THE FIELD OR CONTAINER

- 2) PRUNE, THIN & SHAPE SHRUBS IN ACCORDANCE W/ STANDARD HORTICULTURAL PRACTICE

- INITIAL WATERING: WHEN BACKFILL IS 2/3 COMPLETE, WATER THOROUGHLY UNTIL NO MORE IS ABSORBED

## 3 PLANTING INSTALLATION DETAILS

SCALE: NTS

## Landscape Requirements/Calculations

One street tree is required for each 40 feet of street frontage. Requirement Met.

Foundation Plantings: Continuous shrub massing along 75% of all non-paved building frontages or any non-paved building facade facing a publicly accessible area. Any facade greater than 200 linear feet and not fronting on a street or civic and open space shall have 1 large tree per 50 linear feet, 1 small or evergreen tree per 50 linear feet and 1 shrub per 10 linear feet. Requirement Met.

Parking Lot Planting: 1 large tree for every 25 parking spaces, or 1 small or ornamental tree for every 10 parking spaces. 1 shrub for every 10 linear feet of perimeter landscape buffer, and continuous shrub massing for any perimeter within 25 feet of a street or internal access street. All other landscape buffers or internal landscape islands shall be permeable surfaces with perennial vegetative ground cover such as sod or turf grass. Alternative materials designed to infiltrate runoff may be approved as part of the stormwater management plan. All parking lot landscape materials shall be allocated in the perimeter buffers and internal islands required by Section 408.050.

| Tree Diversity           |                                                                                         |
|--------------------------|-----------------------------------------------------------------------------------------|
| Required Number of Trees | Diversity                                                                               |
| 1 to 4                   | May be all 1 species, but should be diverse from other species or genus in the vicinity |
| 5-10                     | At least 2 genus<br>No more than 50% of any 1 species                                   |
| 11-20                    | At least 3 genus; and<br>At least 5 species<br>No more than 33% of any 1 species        |
| 21-50                    | At least 3 genus; and<br>At least 5 species<br>No more than 20% of any 1 species        |

**MEIER**  
LANDSCAPE  
ARCHITECTURE  
15245 Metcalf Ave.  
Overland Park, KS 66223  
913.787.2817



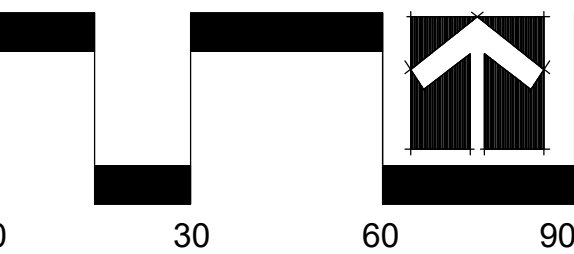
### CLIENT

Strickland Construction

### PROJECT

Attic Storage  
45 Hwy  
Parkville MO

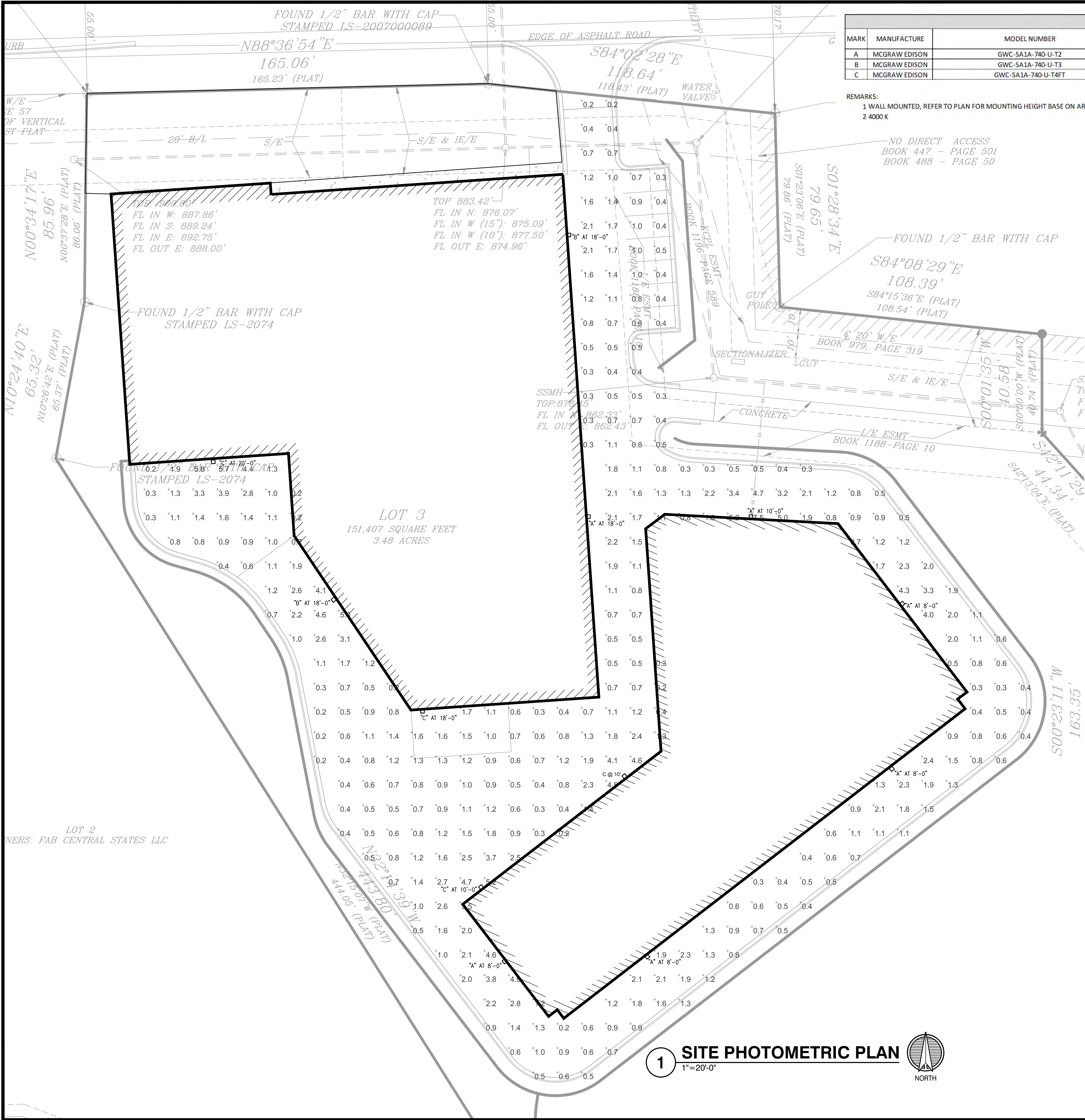
SCALE: 1"=30'



Date: 1.7.2022  
Project #: 820  
Landscape Plan

L1





| SITE LIGHT FIXTURE SCHEDULE |               |                     |          |         |      |        |       |        |     |              |          |         |
|-----------------------------|---------------|---------------------|----------|---------|------|--------|-------|--------|-----|--------------|----------|---------|
| MARK                        | MANUFACTURE   | MODEL NUMBER        | MOUNTING |         |      | FINISH | LAMPS |        |     |              |          | REMARKS |
|                             |               |                     | RECESS   | SURFACE | WALL |        | LED   | FLOUR. | HID | CODE         | QUANTITY |         |
| A                           | MCGRAW EDISON | GWC-SA1A-740-U-T2   |          |         | X    | BLACK  | X     |        |     | 4,883LUM/34W | 1        | 1,2     |
| B                           | MCGRAW EDISON | GWC-SA1A-740-U-T3   |          |         | X    | BLACK  | X     |        |     | 4,978LUM/34W | 1        | 1,2     |
| C                           | MCGRAW EDISON | GWC-SA1A-740-U-T4FT |          |         | X    | BLACK  | X     |        |     | 5,008LUM/34W | 1        | 1,2     |

REMARKS:  
1 WALL MOUNTED, REFER TO PLAN FOR MOUNTING HEIGHT BASE ON ARCHITECTURAL ELEVATIONS.  
2 4000 K

NO DIRECT ACCESS  
BOOK 447 - PAGE 501  
BOOK 488 - PAGE 50

| STATISTICS  |        |        |        |         |         |
|-------------|--------|--------|--------|---------|---------|
| Description | Avg    | Max    | Min    | Max/Min | Avg/Min |
| PARKING LOT | 1.3 fc | 7.5 fc | 0.2 fc | 37.5:1  | 6.5:1   |

|             |  |           |  |      |  |
|-------------|--|-----------|--|------|--|
| Project     |  | Catalog # |  | Type |  |
| Prepared by |  | Notes     |  | Date |  |



### McGraw-Edison

#### GWC Galleon Wall

Wall Mount Luminaire

#### Product Features



#### Product Certifications



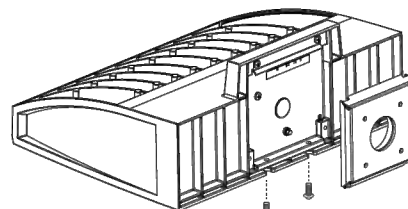
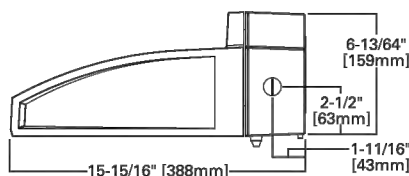
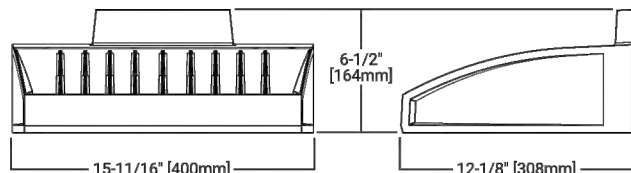
#### Connected Systems

- WaveLink
- Enlighted

#### Quick Facts

- Choice of thirteen high-efficiency, patented AccuLED Optics™
- Downward and inverted wall mounting configurations
- Eight lumen packages from 3,215 up to 17,056
- Efficacies up to 154 lumens per watt

#### Dimensional Details



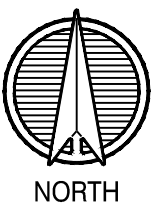
NOTE:  
1. View dimensions shown do not include mounting hardware. To confirm qualification, test all product variations are UL2 qualified.  
2. UL2 Certified for 3000K CCT and warmer only.



PS500046EN page 1  
November 30, 2021 4:25 PM

## 1 SITE PHOTOMETRIC PLAN

1"=20'-0"



PRELIMINARY-NOT FOR CONSTRUCTION



Milburn Civil Engineering, LLC

MILBURN CIVIL ENGINEERING, LLC  
33135 W 83RD ST  
DE SOTO, KS 66018  
913-583-0367

# ATTIC STORAGE 45 HWY

## PRELIMINARY SITE PLAN

PARKVILLE, MISSOURI

DATE: 11/10/2021  
DESIGN BY: KRM  
CHECKED BY: RRB

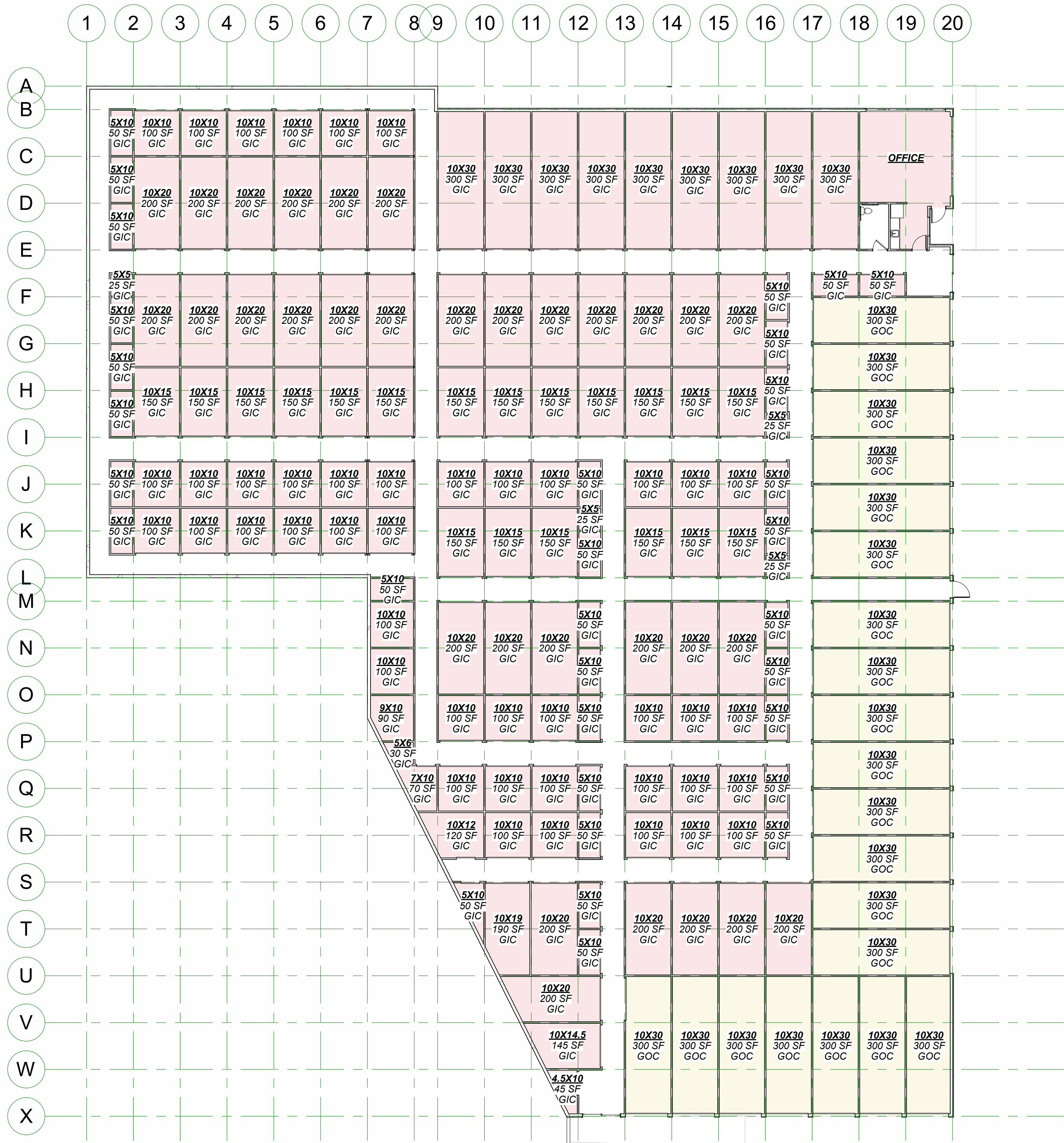
#### REVISIONS

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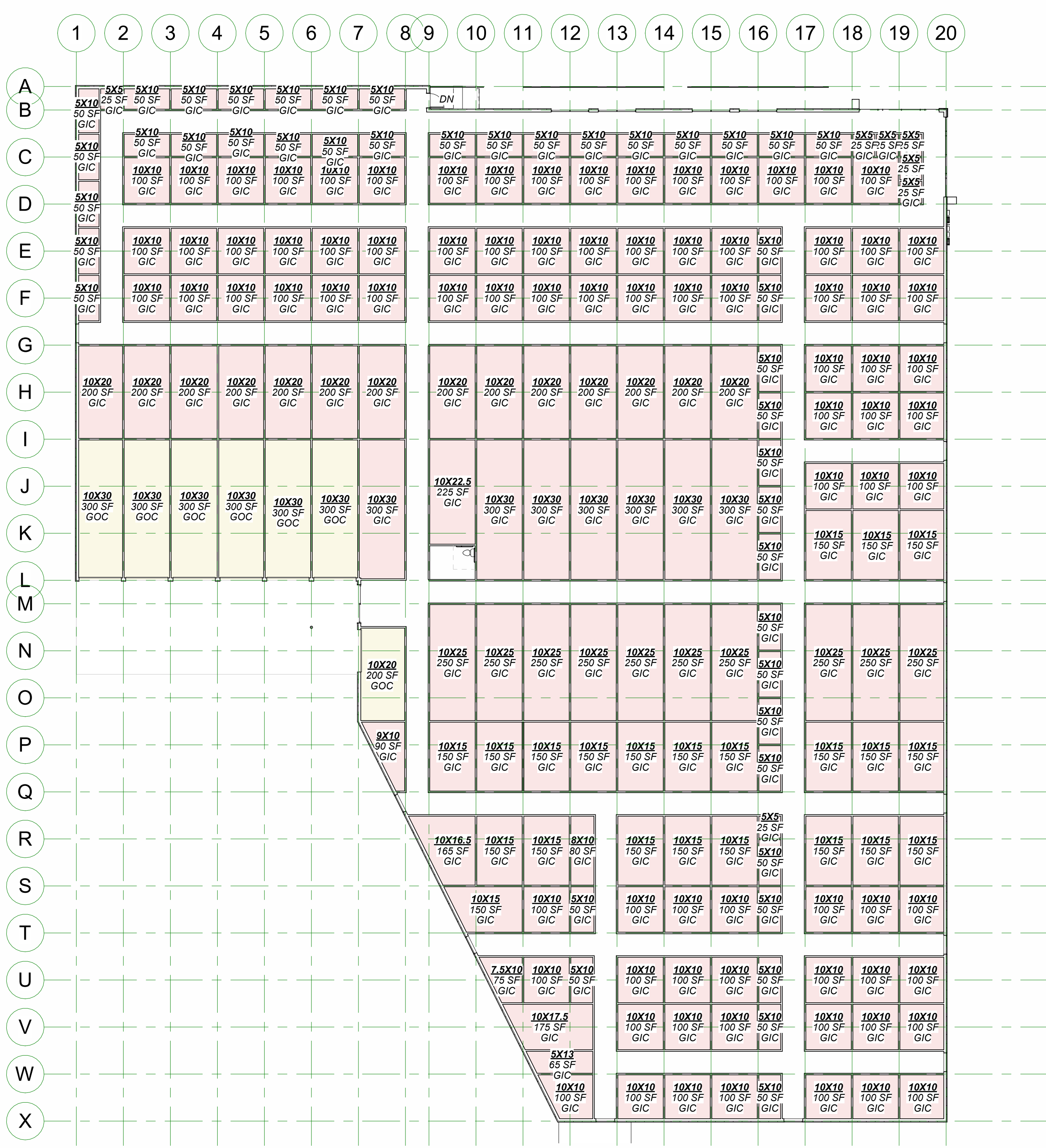
SITE PHOTOMETRIC PLAN

E001





1 BUILDING A - UNIT MIX, LOWER STORY  
1/16" = 1'-0"



2 BUILDING A - UNIT MIX, UPPER STORY  
1/16" = 1'-0"



3 NE AERIAL VIEW

ATTIC STORAGE - US-45 & I-435

Enter address here

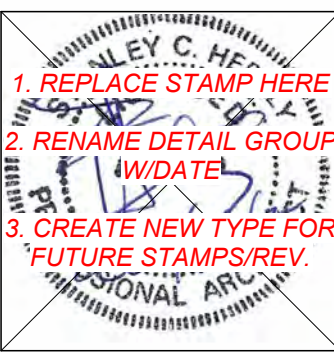
BUILDING A

BUILDING CALCULATIONS

BLDG A, 1ST STORY = 31,444 S.F.  
BLDG A, 2ND STORY = 31,444 S.F.  
BLDG A TOTAL = 62,888 S.F.

BLDG B, 1ST STORY = 19,190 S.F.  
BLDG B, 2ND STORY = 19,190 S.F.  
BLDG B TOTAL = 38,380 S.F.

TOTAL GROSS BLDG AREA =  
101,268 S.F.  
TOTAL NET STORAGE AREA =  
79,566 S.F.  
EFFECIENCY = 79,566 / 101,268 =  
78.6%



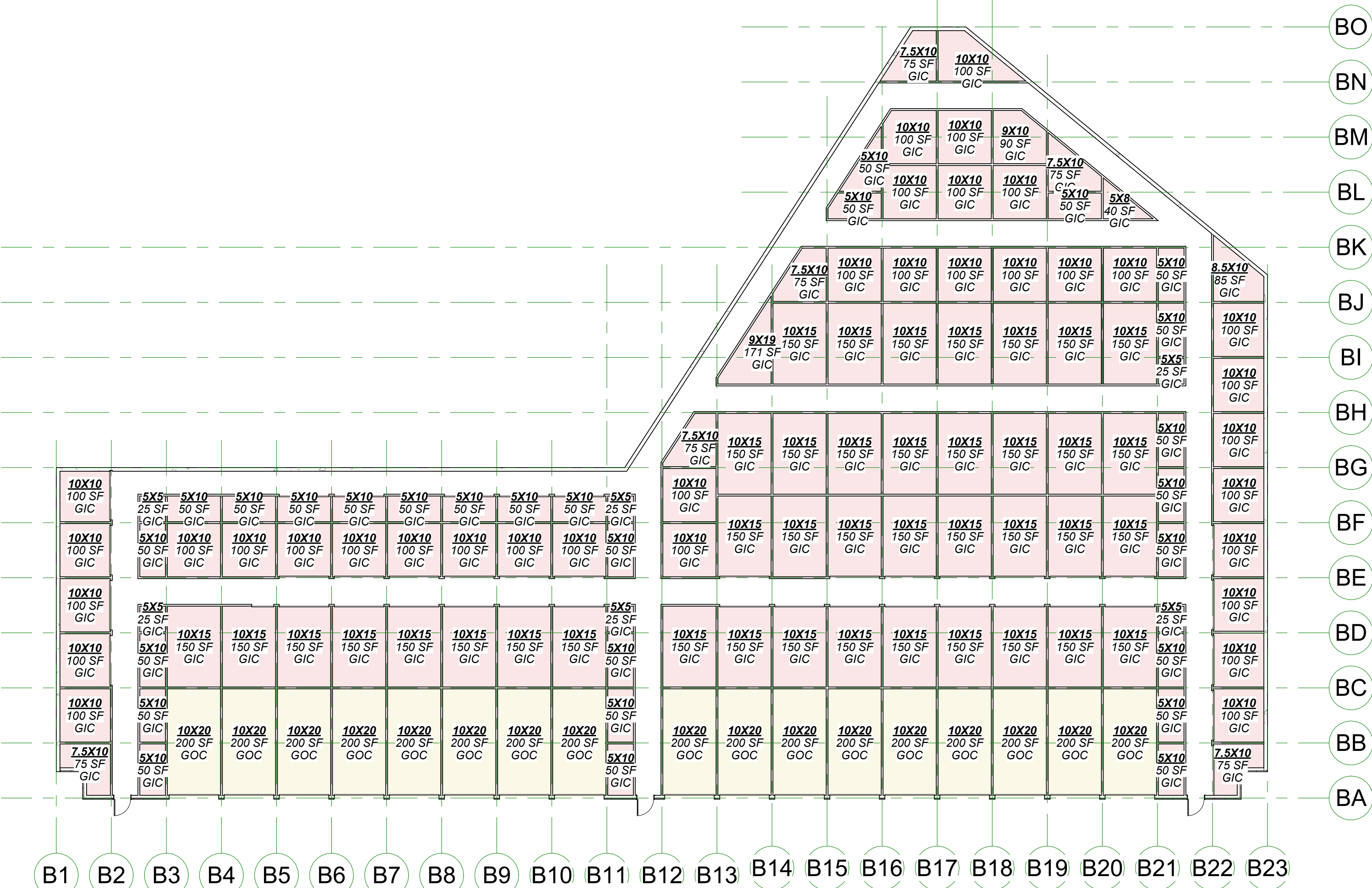
1100 Rhode Island St.  
Lawrence, Kansas 66044  
785 - 749 - 5806

UNIT MIX PLAN - 1ST  
STORY

Date: 1/4/2022  
Drawn by: WCTJ/SCH  
Checked by:  
Revisions:

A1.0





## 2 BUILDING B - UNIT MIX, LOWER STORY

| UNIT MIX - BUILDING B, UPPER STORY |       |          |           |
|------------------------------------|-------|----------|-----------|
| UNIT SIZE                          | COUNT | AREA     | UNIT TYPE |
| 4X10                               | 1     | 40 SF    | GOC       |
|                                    | 1     | 40 SF    |           |
| 5X5                                | 6     | 150 SF   | GIC       |
|                                    | 6     | 150 SF   |           |
| 5X10                               | 49    | 2450 SF  | GIC       |
|                                    | 49    | 2450 SF  |           |
| 7.5X10                             | 2     | 150 SF   | GIC       |
|                                    | 2     | 150 SF   |           |
| 9X10                               | 2     | 180 SF   | GOC       |
|                                    | 2     | 180 SF   |           |
| 10X10                              | 47    | 4700 SF  | GIC       |
|                                    | 47    | 4700 SF  |           |
| 10X12                              | 1     | 120 SF   | GIC       |
| 10X12                              | 1     | 120 SF   | GOC       |
|                                    | 2     | 240 SF   |           |
| 10X13                              | 1     | 130 SF   | GIC       |
|                                    | 1     | 130 SF   |           |
| 10X14                              | 2     | 280 SF   | GOC       |
|                                    | 2     | 280 SF   |           |
| 10X15                              | 15    | 2250 SF  | GIC       |
| 10X15                              | 1     | 150 SF   | GOC       |
|                                    | 16    | 2400 SF  |           |
| 10X18                              | 1     | 180 SF   | GOC       |
|                                    | 1     | 180 SF   |           |
| 10X19                              | 1     | 190 SF   | GOC       |
|                                    | 1     | 190 SF   |           |
| 10X20                              | 12    | 2400 SF  | GIC       |
| 10X20                              | 9     | 1800 SF  | GOC       |
|                                    | 21    | 4200 SF  |           |
| TOTAL                              | 151   | 15290 SF |           |

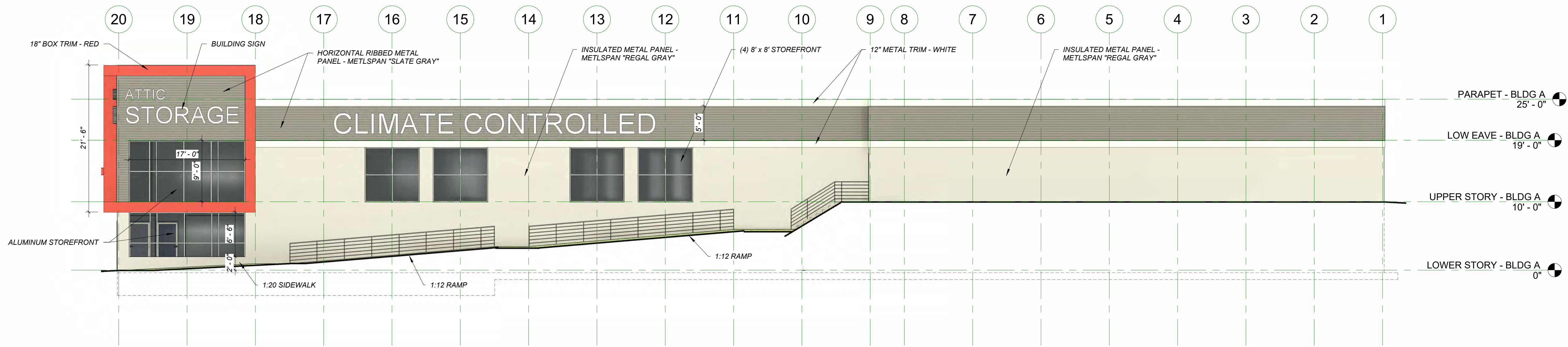
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Lawrence, Kansas 66044  
785 - 749 - 5800

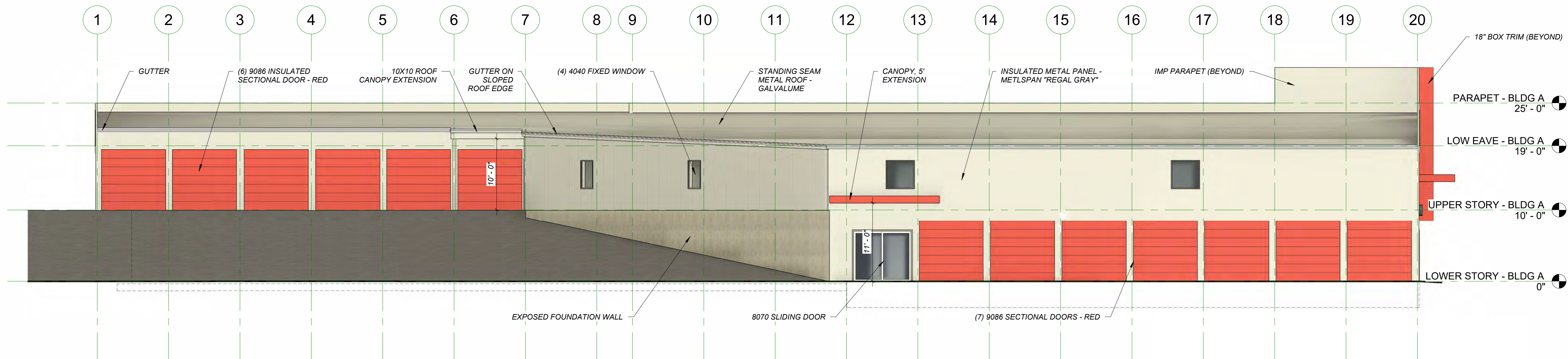
Date: 1/4/2022  
Drawn by: WCTJ  
Checked by:  
Revisions:

## A1.1





**1** BUILDING A - NORTH ELEVATION  
1/8" = 1'-0"

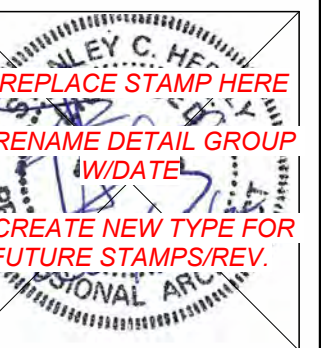


**2** BUILDING A - SOUTH ELEVATION  
1/8" = 1'-0"

BUILDING A

ATTIC STORAGE - US-45 & I-435

Enter address here



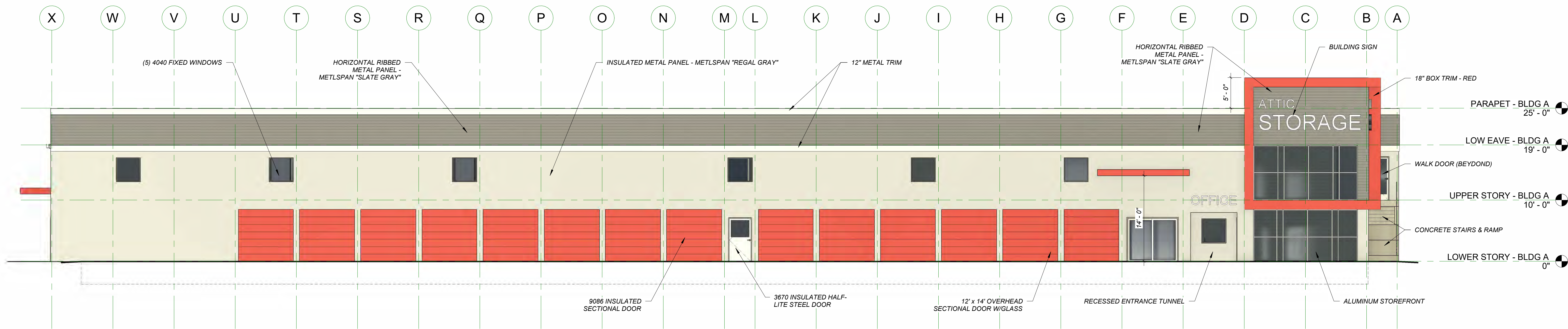
1100 Rhode Island St.  
Lawrence, Kansas 66044  
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ELEVATIONS

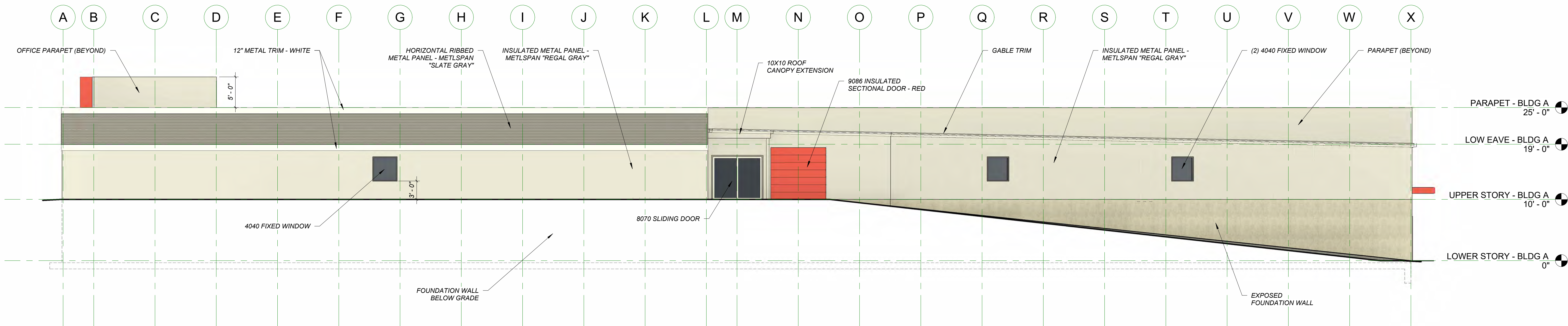
Date: 1/4/2022  
Drawn by: WCTJ  
Checked by:  
Revisions:

A2.0





1 BUILDING A - EAST ELEVATION  
1/8" = 1'-0"



2 BUILDING A - WEST ELEVATION  
1/8" = 1'-0"

BUILDING A

ATTIC STORAGE - US-45 & I-435

Enter address here

Hernly  
ASSOCIATES, Inc.  
ARCHITECTS  
PRESERVATION CONSULTANTS  
GRANT ADMINISTRATORS

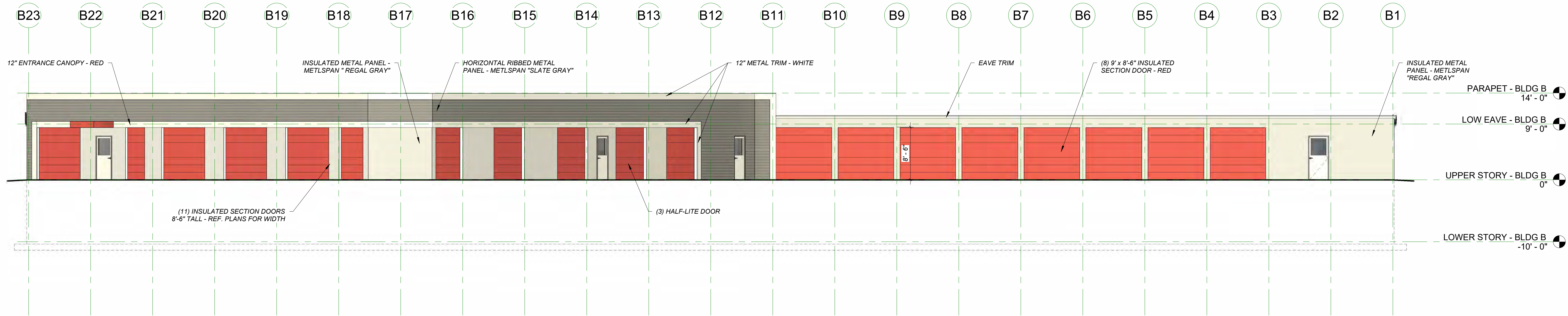
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ELEVATIONS

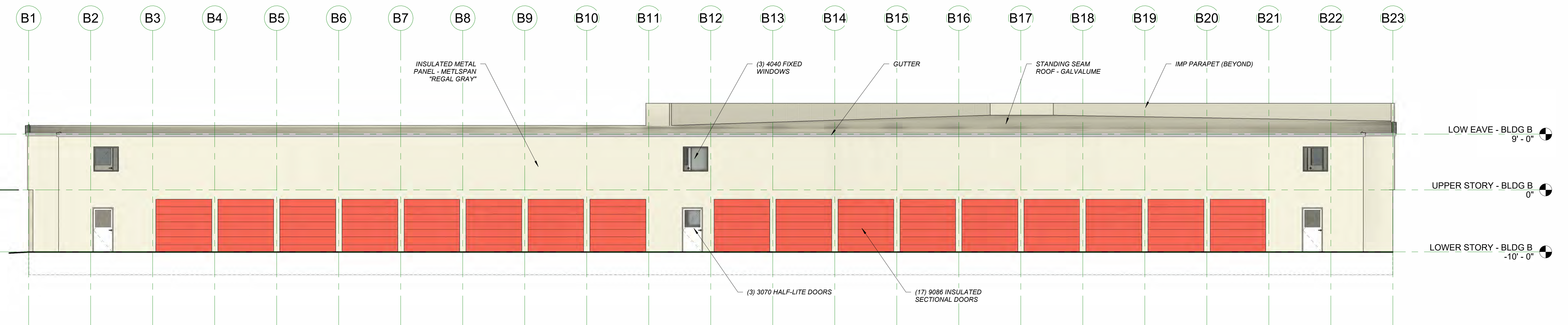
Date: 1/4/2022  
Drawn by: WCTJ  
Checked by:  
Revisions:

A2.1





1 BUILDING B - NORTH ELEVATION  
1/8" = 1'-0"



2 BUILDING B - SOUTH ELEVATION  
1/8" = 1'-0"

BUILDING B

ATTIC STORAGE - US-45 & I-435

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ARCHITECTS  
PRESERVATION CONSULTANTS  
GRANT ADMINISTRATORS

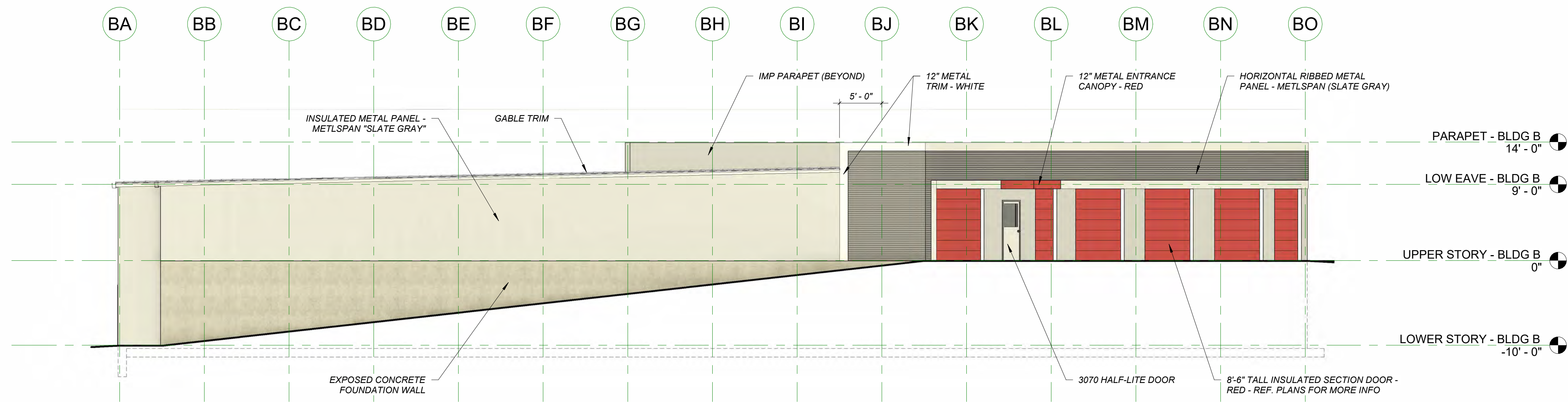
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Lawrence, Kansas 66044  
785 - 749 - 5806

ELEVATIONS

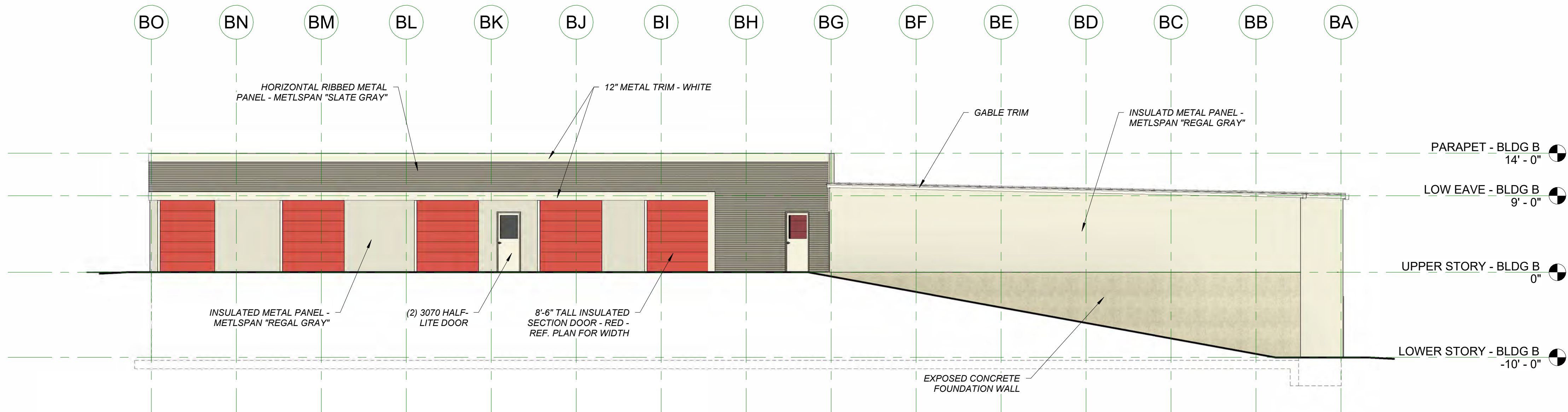
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Checked by:  
Revisions:

A2.2





**1 BUILDING B - EAST ELEVATION**  
1/8" = 1'-0"



**2 BUILDING B - WEST ELEVATION**  
1/8" = 1'-0"

BUILDING B

ATTIC STORAGE - US-45 & I-435

Enter address here

**Hernly**  
ASSOCIATES, INC.  
ARCHITECTS  
PRESERVATION CONSULTANTS  
GRANT ADMINISTRATORS

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Lawrence, Kansas 66044  
785 - 749 - 5806

ELEVATIONS

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Checked by:  
Revisions:

A2.3





1 OFFIC ENTRANCE



2 BUILDING B



3 BACK OF BUILDING A

ATTIC STORAGE - US-45 & I-435  
Enter address here



**Hernly & Associates, Inc.**  
ARCHITECTS  
PRESERVATION CONSULTANTS  
GRANT ADMINISTRATORS

1100 Rhode Island St.  
Lawrence, Kansas 66044  
785 - 749 - 5806

PERSPECTIVES

Date: 1/4/2022  
Drawn by: WCTJ  
Checked by:  
Revisions:

A7.0





Milburn Civil Engineering, LLC

33135 W 83rd Street

De Soto, KS 66018

913-530-1397

[matt@milburnce.com](mailto:matt@milburnce.com)

## **Project Narrative – Attic Storage 45 HWY**

January 7, 2022

ER Properties, LLC is proposing to develop a 3.5-acre site located near the southwest corner of I-435 and 45 HWY in Parkville, Missouri. The lot will be developed into a self-storage facility with two buildings located on the lot. The project will include a parking lot with drive aisle around both proposed buildings for access storage units accessible from the exterior. Access to the site will be from adjacent 45-HWY to the north. The site is currently zoned Business Park District which allows self-storage facilities. The site will not have to be rezoned for this project.

The terrain of the site drops off from the high side on the west to the low side on the east. The proposed two-story buildings will be built into the hillside to produce access to the upper floors on the west sides of the buildings and access to the lower portions on the buildings on the east side. Fire truck access has been provided around the parking areas adjacent to the buildings. Landscaping and lighting plans have been prepared to meet the City of Parkville requirement codes. Architectural elevations and perspectives have been provided to show how the buildings will look, which includes building materials, style, color and scale of multiple building elements.

The site drains to an unnamed tributary of Brush Creek located on the east side of the property. The runoff is then conveyed by Brush Creek to the Missouri River located south of the proposed project. The developer is obtaining the adjacent lot to the southeast (4.07 acres) to provide stormwater management and BMPS. The adjacent lot will remain undisturbed. A preliminary stormwater study has been provided with this submittal.

The proposed self-storage buildings will be compatible with the adjacent existing building. Gladwin Machinery and Supply has an existing building to located to the west of the proposed development. To the east is located a sanitary lift station. Access to the lift station will be maintained through the existing parking lot and down an existing concrete drive that will remain. South of the property is currently under construction by Capital Electric.

In conclusion, the proposed development will meet the City of Parkville zoning and design codes. The site will be designed to use the existing terrain to step the buildings down to minimize the grading required for the site. Stormwater management will be provided on the adjacent undeveloped lot. The proposed buildings will be compatible with adjacent buildings in the area.

# **PRELIMINARY STORMWATER MANAGEMENT STUDY**

**FOR**

## **ATTIC STORAGE**

SW CORNER OF HWY 45 & I-435  
PARKVILLE, PLATTE COUNTY, MISSOURI

**PREPARED FOR:**

### **ER PROPERTIES LLC**

720 S ROGER ROAD SUITE B  
OLATHE, KS

**PREPARED BY:**



**Milburn Civil Engineering, LLC**

33135 W 83<sup>RD</sup> ST  
De Soto, Kansas 66018  
913-583-0367

### **REVISION LOG:**

Initial Submittal: January 7, 2022

Revised:



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### Preliminary Stormwater Management Plan

Attic Storage

Parkville, MO

|            |                                                       |                                     |
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| 1.2        | Methodology .....                                     | 3                                   |
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| 2.2        | Soil Conditions.....                                  | 4                                   |
| <b>3.0</b> | <b>AGENCY REVIEW .....</b>                            | <b>5</b>                            |
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|            | Fema Requirements .....                               | 5                                   |
|            | Missouri Department of Natural Resources.....         | <b>Error! Bookmark not defined.</b> |
| <b>4.0</b> | <b>PROPOSED STORM WATER MANAGEMENT ANALYSIS .....</b> | <b>5</b>                            |
| 4.1        | Level of Service Analysis .....                       | 5                                   |
| <b>5.0</b> | <b>SUMMARY AND RECOMMENDATIONS .....</b>              | <b>6</b>                            |

**APPENDIX A – SITE INFORMATION**

- Location Map/Current Aerial Photo
- NRCS Soil Survey
- FEMA Firmette

**APPENDIX B – DRAINAGE AREA AND ROUTING MAPS**

- Drainage Area Map
- MARC BMP Worksheet 1 & 2
- Hydraflow Hydrographs Model

## **1.0 GENERAL INFORMATION & OBJECTIVE**

ER Properties is proposing to develop a self-storage facility to be located on the southwest corner of Missouri Hwy 45 and I-435. The proposed development will consist of two, two story buildings, amounting to approximately 100,000 square feet of commercial space. The existing 3.48-acre site consists of open space in good condition, a gravel lot and a small section of paved area. On site soils are classified as HSG B and D. Calculations for curve numbers can be found in Appendix B along with existing and proposed drainage maps.

The intent of this report is to provide information pertaining to the existing and proposed watersheds, offer an analysis of detention and level of service requirements, propose detention and BMP devices and meet permitting requirements.

### **1.1 METHODOLOGY**

*Section 5600 – Storm Drainage Systems and Facilities of the Standard Specifications and Design Criteria of the Kansas City Metropolitan Chapter of the American Public Works Association, dated February 16, 2011; The Manual of Best Management Practices for Storm Water Quality, September 2012, NRCS TR-55 Urban Hydrology for Small Watersheds (1986), and City of Parkville Municipal Code, dated July 2021, were utilized in preparation of this document.* Watersheds for the analyzed areas were defined according to soil cover and tributary area. A soil survey for the project area obtained from the NRCS online portal was utilized in determining soil types on-site in correlation with field and photographic observations and can be found in Appendix A. Watershed and contributing drainage areas were determined from topographical survey of the existing conditions, aerial photography, and site inspection. Times of concentration were compiled according to *NRCS TR-55 Urban Hydrology for Small Watersheds (1986)* methodology for sheet flow, shallow concentrated flow, and channel flow. Travel times for channel flows were determined using the open channel length and velocity methodology. Hydraflow Hydrographs was used to model the pond routing conditions for SCS 24-hour Type II distributions for 1-, 10-, and 100-year storm events. The city of Parkville requires comprehensive control, based on APWA 5608. Therefore, discharge from the proposed



development is limited to 0.50 cfs/acre during the 2-yr storm, 2.0 cfs/acre during the 10-yr and 3.0 cfs/acre for the 100-yr event.

## **2.0 EXISTING, ALLOWABLE, AND PROPOSED**

**Table 1: Rainfall Depths**

| Storm Event | Rainfall Depth (in) |
|-------------|---------------------|
| 2-yr        | 3.5                 |
| 10-yr       | 5.4                 |
| 100-yr      | 7.6                 |

**Table 2: Existing, Allowable and Proposed Discharge Rates**

|                                           | 2-yr<br>(cfs) | 10-yr<br>(cfs) | 100-yr<br>(cfs) |
|-------------------------------------------|---------------|----------------|-----------------|
| Total Watershed Existing (predevelopment) | 253.47        | 516.94         | 837.26          |
| Onsite Allowable Release Rate             | 1.74          | 6.96           | 10.44           |
| Total Allowable                           | 255.21        | 523.9          | 847.7           |
| 3.0                                       |               |                |                 |
| Proposed Runoff Capital Electric          | 122.94        | 341.47         | 643.93          |
| On Site Proposed Release Rate             | 11.74         | 21.25          | 32.28           |
| Drainage Area North of HWY 45             | 44.63         | 88.05          | 140.07          |
| Total Proposed Release Rate               | 179.31        | 450.77         | 816.28          |

## **2.2 SOIL CONDITIONS**

Soil data was retrieved via a USDA NRCS Custom Soil Resource Report obtained from the Web Soil Survey online portal. The soils report is presented in Appendix A. The report indicates that the following soils are located within the analyzed drainage areas:

- **10055 – Knox Silt Loam**, 5-9 Percent Slopes; Eroded, Hydrologic Soil Group B
- **10059 – Know Silty Clay Loam**, 14-20 Percent Slopes; Severely Eroded, Hydrologic Soil Group B
- **10141 – Snead-Rock Outcrop Complex**, 14-30 Percent Slopes; Hydrologic Soil Group D

### **3.0 AGENCY REVIEW**

Permitting requirements of the following agencies were reviewed as part of the existing conditions analysis.

#### **CORPS OF ENGINEERS REVIEW**

The riverine running to the south of the site is identified as a *Waterway of the U.S.* per the USGS Topographic Map. The portion of the development will remain undisturbed and Corps of Engineer's review or permitting will not be required.

#### **FEMA REQUIREMENTS**

The existing site is located outside the 100-year floodplain per Flood Insurance Rate Map Panel No. 29165C0360D, Map Revised April 2, 2015. No FEMA permits will be required for the project.

#### **MISSOURI DEPARTMENT OF NATURAL RESOURCES**

All land disturbance activities will be permitted in accordance with the City of Parkville, Missouri requirements and specifications. National Pollution Discharge Elimination System (NPDES) and Notice of Intent (NOI) Applications will be made as necessary in compliance with local, state and federal guidelines.

### **4.0 PROPOSED STORM WATER MANAGEMENT ANALYSIS**

#### **4.1 LEVEL OF SERVICE ANALYSIS**

Level of Service analysis was completed utilizing Worksheets 1 and 2 from the Manual of Best Management Practices for Storm Water Quality, published by the Mid-America Regional Council and the American Public Works Association and are presented in Appendix B. The predevelopment curve number was determined to be 66 whereas the post development curve number was found to be 89, resulting in a required level of service of 7.7. Best Management Practice devices included preserved and established native vegetation. Worksheets 1 and 2 are included in Appendix B.

## **5.0 SUMMARY AND RECOMMENDATIONS**

The developer is obtaining the lot adjacent to the development for stormwater management. It is currently an undeveloped lot with heavy vegetation and an unnamed tributary of Brush Creek running through it. This lot will not be developed. There are currently no known issues with downstream flooding from this site. The proposed flowrates for the Capital Electric project (Final Storm Water Management Study – Capital Electric) currently under construction and that is located in the same drainage basin as this project, show a reduction in the storm water runoff for the 1-, 10- and 100-year rain events for this basin. This report shows that with the proposed self-storage development the proposed flowrates for the 1-, 10-, 100-year rain events is still below the existing release rates for the drainage basin.



## **APPENDIX A – SITE INFORMATION**

- Location Map/Current Aerial Photo
- NRCS Soil Survey
- FEMA Firmette



#### Overview



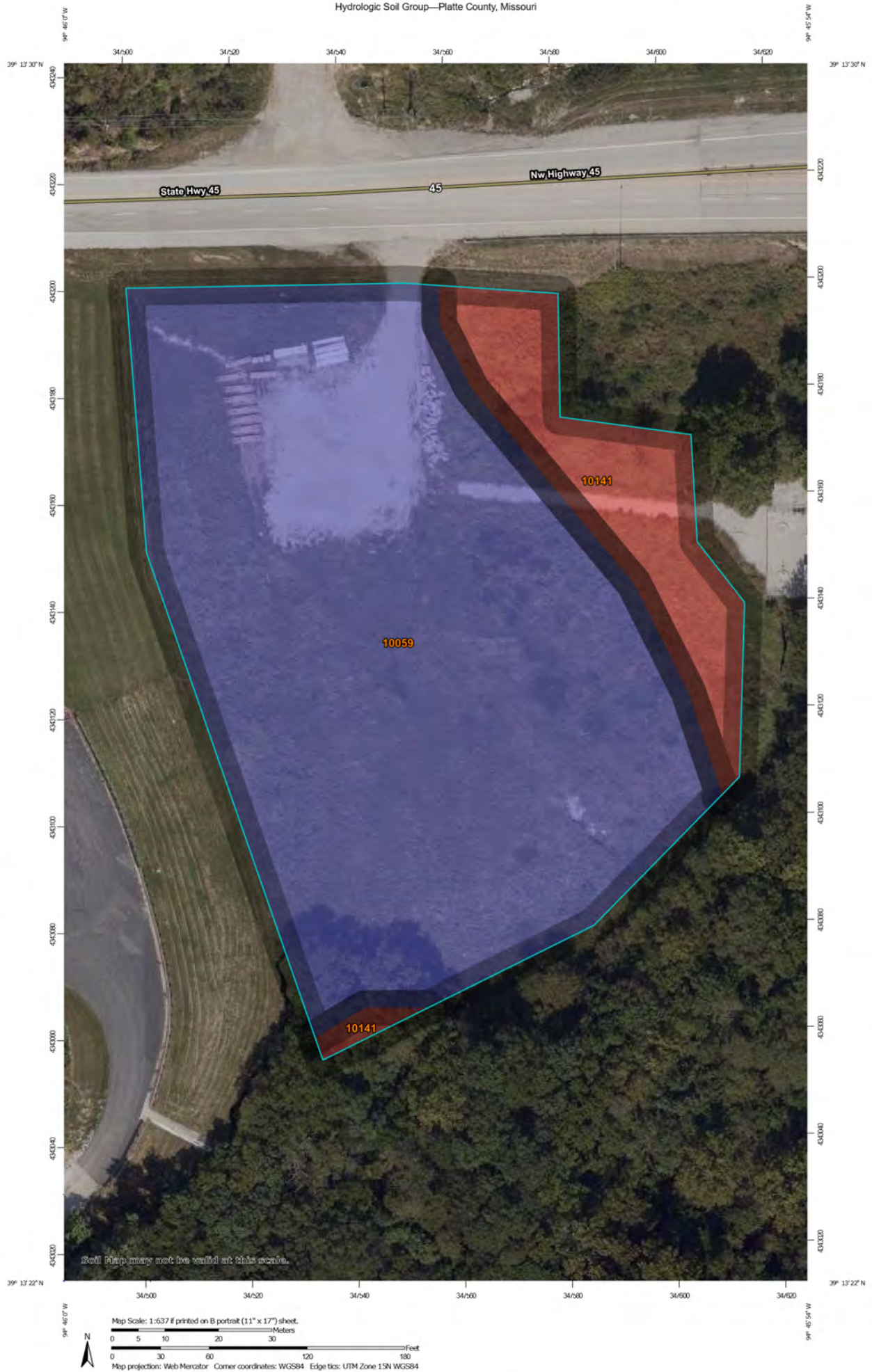
#### Legend

-  Parcels Current
- Roads**
  -  Interstate
  -  US Route
  -  State Highway
  -  County Highway
  -  Local Roads

Date created: 10/14/2021  
Last Data Uploaded: 10/14/2021 9:51:58 AM

Developed by  **Schneider**  
GEOSPATIAL



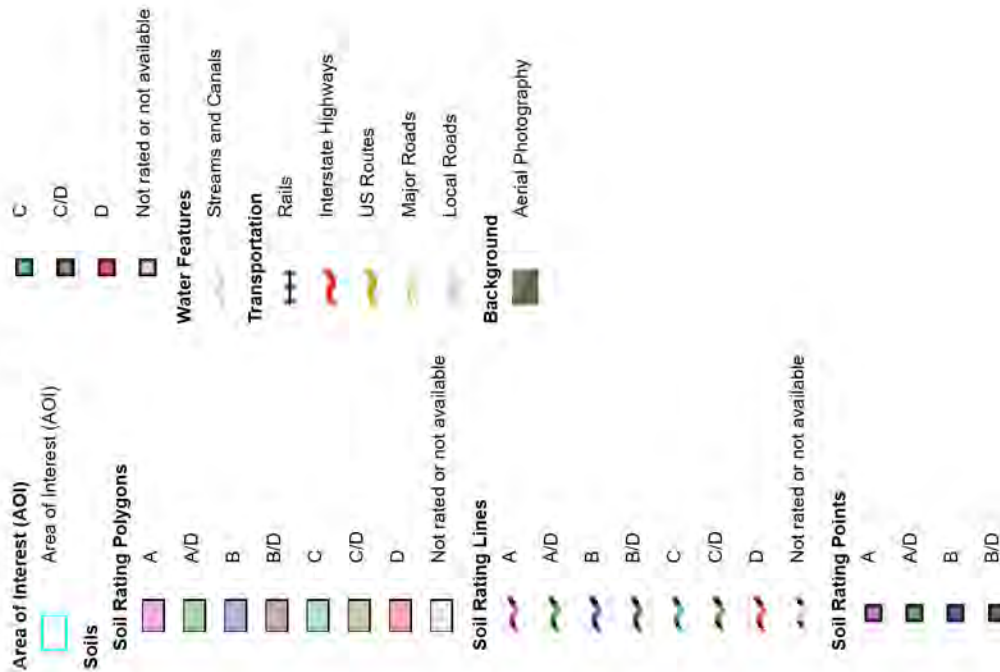


Map Scale: 1:637 if printed on B portrait (11" x 17") sheet.  
 0 5 10 20 30 Meters  
 0 30 60 120 180 Feet  
 Map projection: Web Mercator Corner coordinates: WGS84 Edge ticks: UTM Zone 15N WGS84





## MAP LEGEND



## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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: Platte County, Missouri  
Survey Area Data: Version 22, Sep 7, 2021

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

Date(s) aerial images were photographed: Jul 16, 2019—Sep 23, 2019

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 |
|------------------------------------|----------------------------------------------------------------|--------|--------------|----------------|
| 10059                              | Knox silty clay loam, 14 to 20 percent slopes, severely eroded | B      | 2.5          | 85.5%          |
| 10141                              | Snead-Rock outcrop complex, 14 to 30 percent slopes            | D      | 0.4          | 14.5%          |
| <b>Totals for Area of Interest</b> |                                                                |        | <b>2.9</b>   | <b>100.0%</b>  |

## 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*

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Condition" first groups like attribute values for the components in a map unit. For each group, percent composition is set to the sum of the percent composition of all components participating in that group. These groups now represent "conditions" rather than components. The attribute value associated with the group with the highest cumulative percent composition is returned. If more than one group shares the highest cumulative percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher group value should be returned in the case of a percent composition tie. The result returned by this aggregation method represents the dominant condition throughout the map unit only when no tie has occurred.

### *Component Percent Cutoff: None Specified*

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

### *Tie-break Rule: Higher*

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.



# National Flood Hazard Layer FIRMette



94°46'17"W 39°13'33"N



0 250 500 1,000 1,500 2,000 Feet

1:6,000

94°45'39"W 39°13'5"N

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

|                             |  |                                                                                                                                                                   |
|-----------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SPECIAL FLOOD HAZARD AREAS  |  | Without Base Flood Elevation (BFE)<br>Zone A, V, A99                                                                                                              |
|                             |  | With BFE or Depth Zone AE, AO, AH, VE, AR                                                                                                                         |
|                             |  | Regulatory Floodway                                                                                                                                               |
| OTHER AREAS OF FLOOD HAZARD |  | 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X |
|                             |  | Future Conditions 1% Annual Chance Flood Hazard Zone X                                                                                                            |
|                             |  | Area with Reduced Flood Risk due to Levee. See Notes. Zone X                                                                                                      |
|                             |  | Area with Flood Risk due to Levee Zone D                                                                                                                          |
| OTHER AREAS                 |  | NO SCREEN Area of Minimal Flood Hazard Zone X                                                                                                                     |
|                             |  | Effective LOMRs                                                                                                                                                   |
|                             |  | Area of Undetermined Flood Hazard Zone D                                                                                                                          |
| GENERAL STRUCTURES          |  | Channel, Culvert, or Storm Sewer                                                                                                                                  |
|                             |  | Levee, Dike, or Floodwall                                                                                                                                         |
| OTHER FEATURES              |  | 20.2 Cross Sections with 1% Annual Chance Water Surface Elevation                                                                                                 |
|                             |  | 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation                                                                                                 |
|                             |  | Coastal Transect                                                                                                                                                  |
|                             |  | Base Flood Elevation Line (BFE)                                                                                                                                   |
|                             |  | Limit of Study                                                                                                                                                    |
|                             |  | Jurisdiction Boundary                                                                                                                                             |
|                             |  | Coastal Transect Baseline                                                                                                                                         |
| MAP PANELS                  |  | Digital Data Available                                                                                                                                            |
|                             |  | No Digital Data Available                                                                                                                                         |
|                             |  | Unmapped                                                                                                                                                          |



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

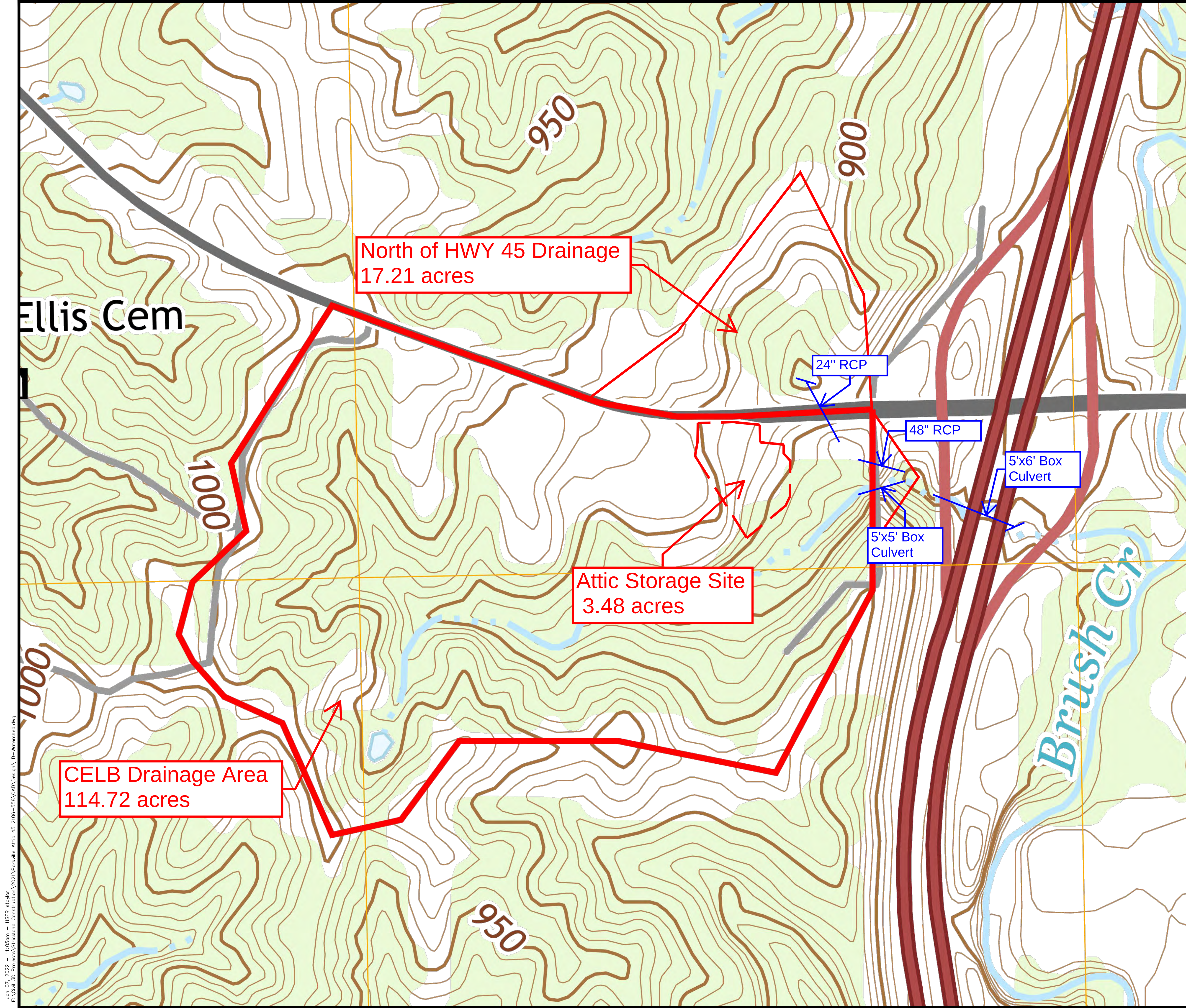
The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **1/7/2022 at 12:32 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

## **APPENDIX B – DRAINAGE AREA AND ROUTING MAPS**

- Drainage Area Map
- MARC BMP Worksheet 1 & 2
- Hydraflow Hydrographs Model





Jun 07, 2022 - 11:05am - USER: stoyor  
F:\Civil\_3D\Projects\Strickland Construction\2021\Parkville Attic 45 2108-558\CAD\Design\ D-Vetorated.dwg



  
Milburn Civil Engineering, LLC  
MILBURN CIVIL ENGINEERING, LLC  
33135 W 83RD ST  
DE SOTO, KS 66018  
913-583-0367

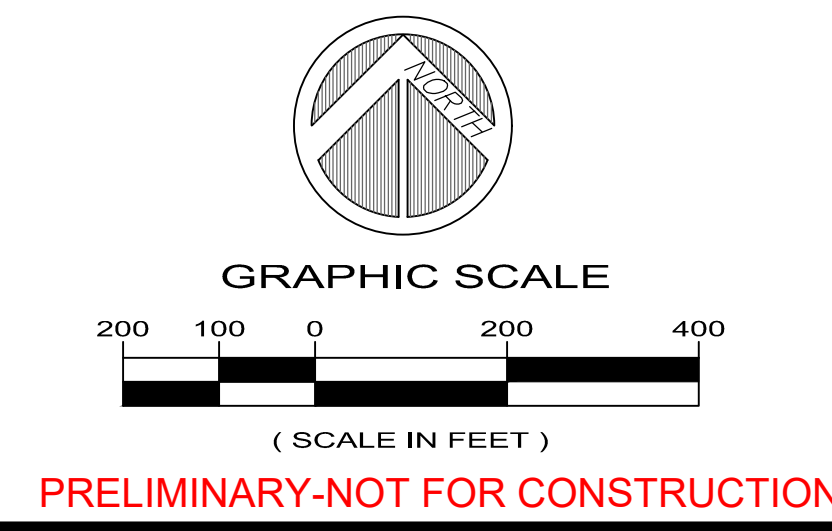
ATTIC STORAGE 45 HWY  
PRELIMINARY DRAINAGE MAP  
16000 HWY 45  
PARKVILLE, MISSOURI 64152

DATE: 01/06/2021  
DESIGNED BY: MJR/SWT  
CHECKED BY: -

| REVISIONS | REVISIONS |
|-----------|-----------|
|           |           |
|           |           |
|           |           |
|           |           |

DRAINAGE AREA

DA-1



PRELIMINARY-NOT FOR CONSTRUCTION



ENTIRE SITE

WORKSHEET 1: REQUIRED LEVEL OF SERVICE

Project: Parkville Attic Self Storage  
 Location: Hwy 45 & I-435, Parkville MO  
 Check one: Undeveloped ☒ Developed ☐

WORK BY: SWT  
 DATE: 1/7/2022

CHECKED BY:  
 DATE:

1. Runoff Curve Number

A. Predevelopment CN

| Cover Description | Soil HSG | CN | Area (ac.) | CN x Area |
|-------------------|----------|----|------------|-----------|
| OPEN SPACE (GOOD) | B        | 61 | 2.76       | 168.2     |
| GRAVEL            | B        | 85 | 0.38       | 32.2      |
| IMPERVIOUS        | -        | 98 | 0.03       | 3.3       |
| OPEN SPACE (GOOD) | D        | 80 | 0.31       | 24.5      |
| IMPERVIOUS        | -        | 98 | 0.00       | 0.4       |
| Totals:           |          |    | 3.48       | 228.7     |

Area-Weighted CN = total product/total area = 66 (round to integer)

B. Post Development CN

| Cover Description | Soil HSG <sup>1</sup> | CN | Area (ac.) | CN x Area |
|-------------------|-----------------------|----|------------|-----------|
| IMPERVIOUS        | -                     | 98 | 2.02       | 197.6     |
| OPEN SPACE (GOOD) | C                     | 74 | 1.00       | 73.9      |
| OPEN SPACE (GOOD) | D                     | 80 | 0.47       | 37.3      |
|                   |                       |    |            | 0.0       |
|                   |                       |    |            | 0.0       |
|                   |                       |    |            | 0.0       |
| Totals:           |                       |    | 3.48       | 308.8     |

<sup>1</sup> Postdevelopment CN is one HSG higher for all cover types except preserved vegetation, absent documentation showing how postdevelopment soil structure will be preserved.

Area-Weighted CN = total product/total area = 89 (round to integer)

C. Level of Service (LS) Calculation

Predevelopment CN: 66  
 Postdevelopment CN: 89  
 Difference: 23  
 LS Required (see scale at right): 7.7

Source: U.S. Department of Agriculture, Natural Resource Conservation Service. Urban Hydrology for Small Watersheds, Technical Release 55 (TR-55). 1986.

**Table 4.2**  
**LS for Previously Undeveloped Sites**

| Change in CN | LS  | Change in CN | LS  |
|--------------|-----|--------------|-----|
| 1            | 4.3 | 17           | 7.1 |
| 2            | 4.7 | 18           | 7.2 |
| 3            | 5   | 19           | 7.3 |
| 4            | 5.3 | 20           | 7.4 |
| 5            | 5.7 | 21           | 7.6 |
| 6            | 6   | 22           | 7.7 |
| 7            | 6.1 | 23           | 7.8 |
| 8            | 6.2 | 24           | 7.9 |
| 9            | 6.3 | 25           | 8   |
| 10           | 6.4 | 25+          | 8   |
| 11           | 6.5 |              |     |
| 12           | 6.6 |              |     |
| 13           | 6.7 |              |     |
| 14           | 6.8 |              |     |
| 15           | 6.9 |              |     |
| 16           | 7   |              |     |

## ENTIRE SITE

## WORKSHEET 2: DEVELOP MITIGATION PACKAGE(S) THAT MEET THE REQUIRED LS

Project: Parkville Attic Self Storage  
 Location: Hwy 45 & I-435, Parkville MO

WORK BY: SWT  
 DATE: 1/7/2022

CHECKED BY:  
 DATE:

## 1. Required LS

7.7

## 2. Proposed BMP Option Package No.

1

| STF<br>Reference<br># | Cover/BMP Description                        | Treatment<br>Area | VR from<br>Table 2 or<br>Table 3 | Area x VR<br>Total<br>Treatment<br>Area |
|-----------------------|----------------------------------------------|-------------------|----------------------------------|-----------------------------------------|
|                       | Native Vegetation (Preserved or Established) | 3.48              | 9.25                             | 9.25                                    |
|                       |                                              |                   |                                  | 0.00                                    |
|                       |                                              |                   |                                  | 0.00                                    |
|                       |                                              |                   |                                  | 0.00                                    |
|                       |                                              |                   |                                  | 0.00                                    |
|                       |                                              |                   |                                  | 0.00                                    |
|                       |                                              |                   |                                  | 0.00                                    |
|                       | Bypass (Untreated)                           | 0.00              |                                  | 0.00                                    |
| Total:                |                                              | 3.48              | LS:                              | 9.25                                    |

## MEETS REQUIRED LS (YES/NO)?

YES

## KEY

|      |                        |
|------|------------------------|
| HDS  | Hydrodynamic Separator |
| NV   | Native Vegetation      |
| VFS  | Vegetated Filter Strip |
| EDDB | Extended Dry Detention |
| EWDB | Extended Wet Detention |

NOTES: - ADDITIONAL 0.25 VR FOR SIGNAGE INCLUDED  
 - TREATMENT TRAIN VALUE RATINGS RETRIEVED  
 FROM TABLE 4.6 OR CALCULATIONS PROVIDED



# Hydrograph Report

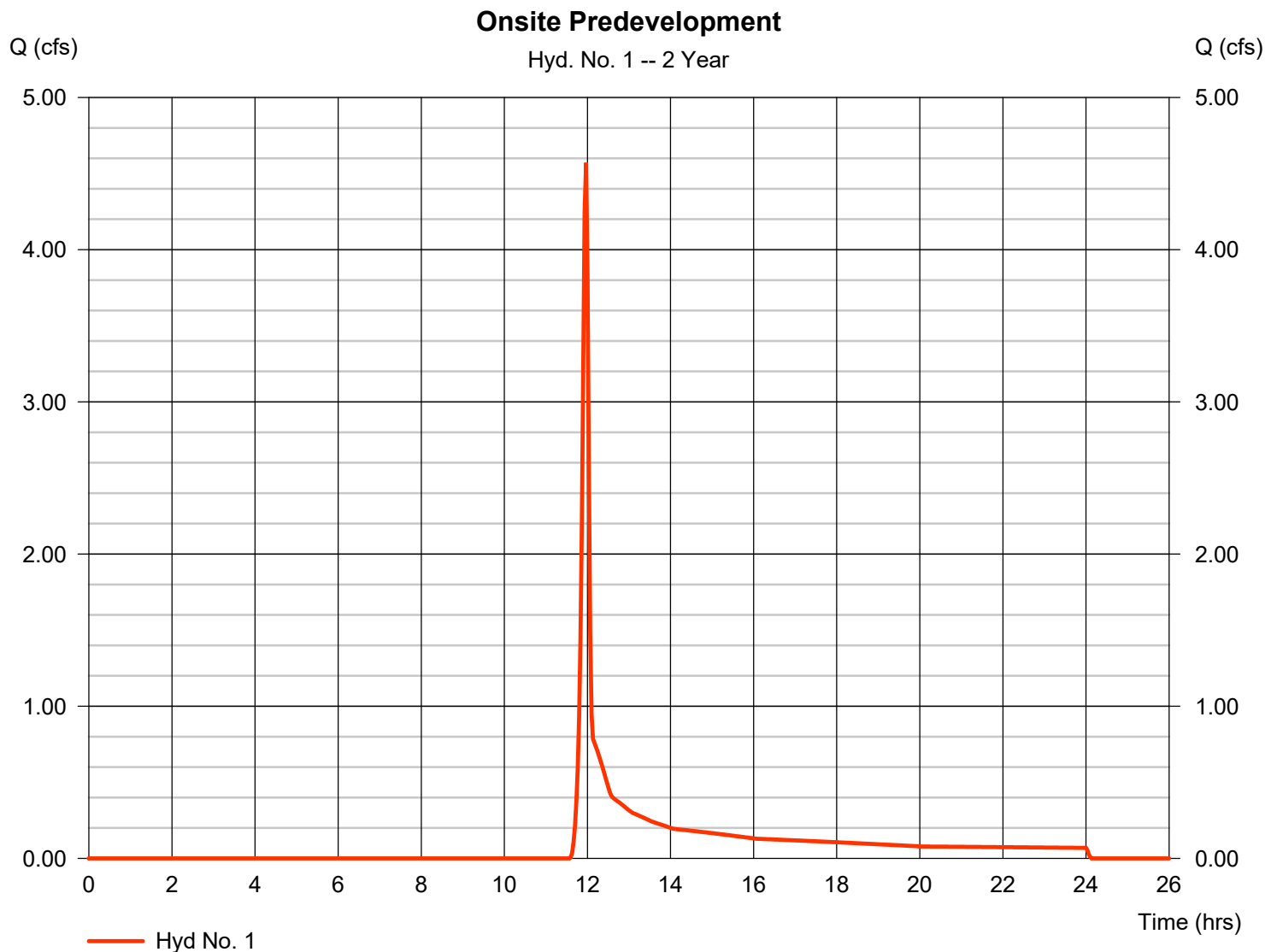
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Friday, 01 / 7 / 2022

## Hyd. No. 1

### Onsite Predevelopment

|                 |              |                    |              |
|-----------------|--------------|--------------------|--------------|
| Hydrograph type | = SCS Runoff | Peak discharge     | = 4.571 cfs  |
| Storm frequency | = 2 yrs      | Time to peak       | = 11.97 hrs  |
| Time interval   | = 2 min      | Hyd. volume        | = 9,478 cuft |
| Drainage area   | = 3.480 ac   | Curve number       | = 66         |
| Basin Slope     | = 0.0 %      | Hydraulic length   | = 0 ft       |
| Tc method       | = User       | Time of conc. (Tc) | = 5.00 min   |
| Total precip.   | = 3.50 in    | Distribution       | = Type II    |
| Storm duration  | = 24 hrs     | Shape factor       | = 484        |

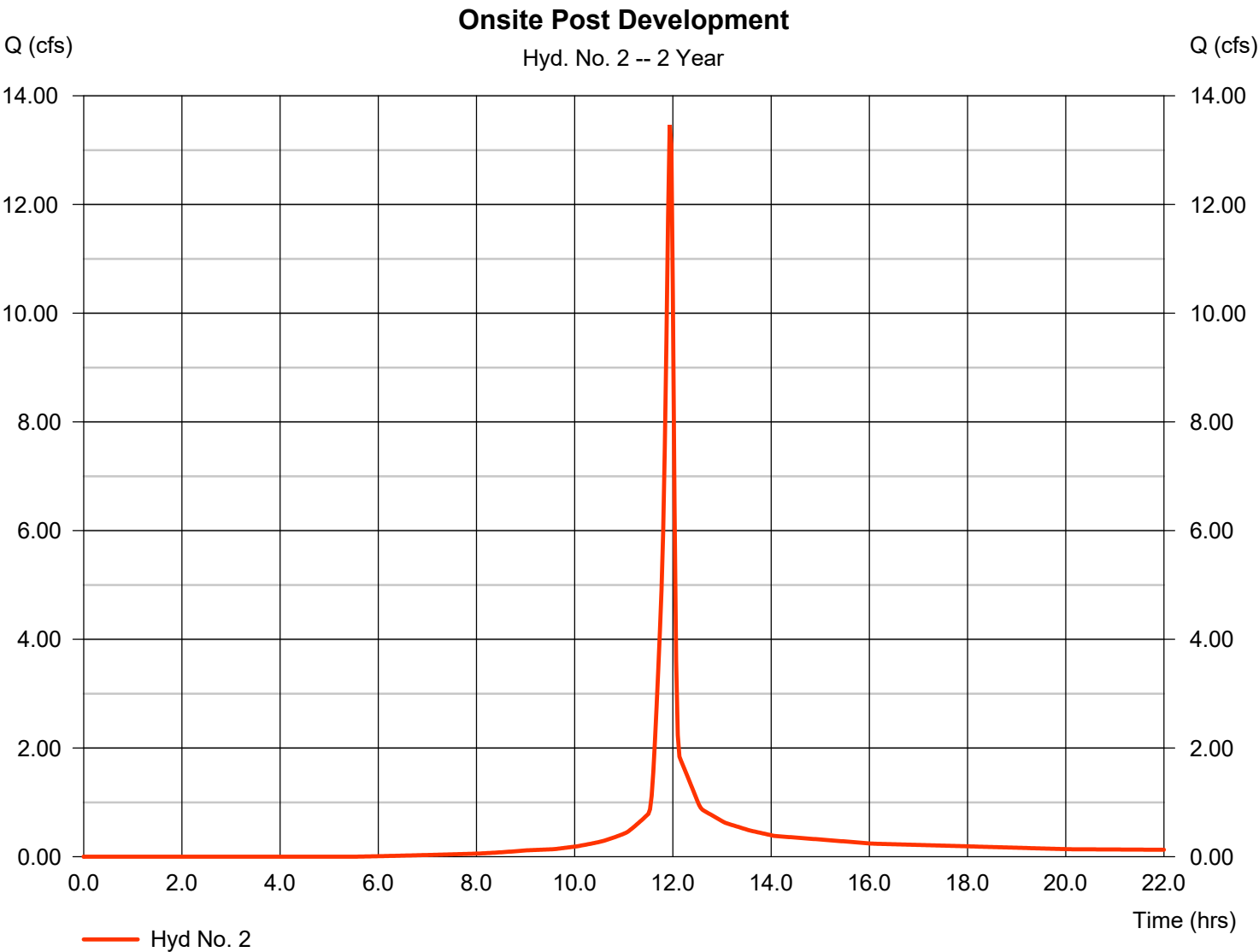


# Hydrograph Report

## Hyd. No. 2

### Onsite Post Development

|                 |   |            |                    |   |             |
|-----------------|---|------------|--------------------|---|-------------|
| Hydrograph type | = | SCS Runoff | Peak discharge     | = | 13.46 cfs   |
| Storm frequency | = | 2 yrs      | Time to peak       | = | 11.93 hrs   |
| Time interval   | = | 2 min      | Hyd. volume        | = | 27,916 cuft |
| Drainage area   | = | 3.480 ac   | Curve number       | = | 89          |
| Basin Slope     | = | 0.0 %      | Hydraulic length   | = | 0 ft        |
| Tc method       | = | User       | Time of conc. (Tc) | = | 5.00 min    |
| Total precip.   | = | 3.50 in    | Distribution       | = | Type II     |
| Storm duration  | = | 24 hrs     | Shape factor       | = | 484         |





# Hydrograph Report

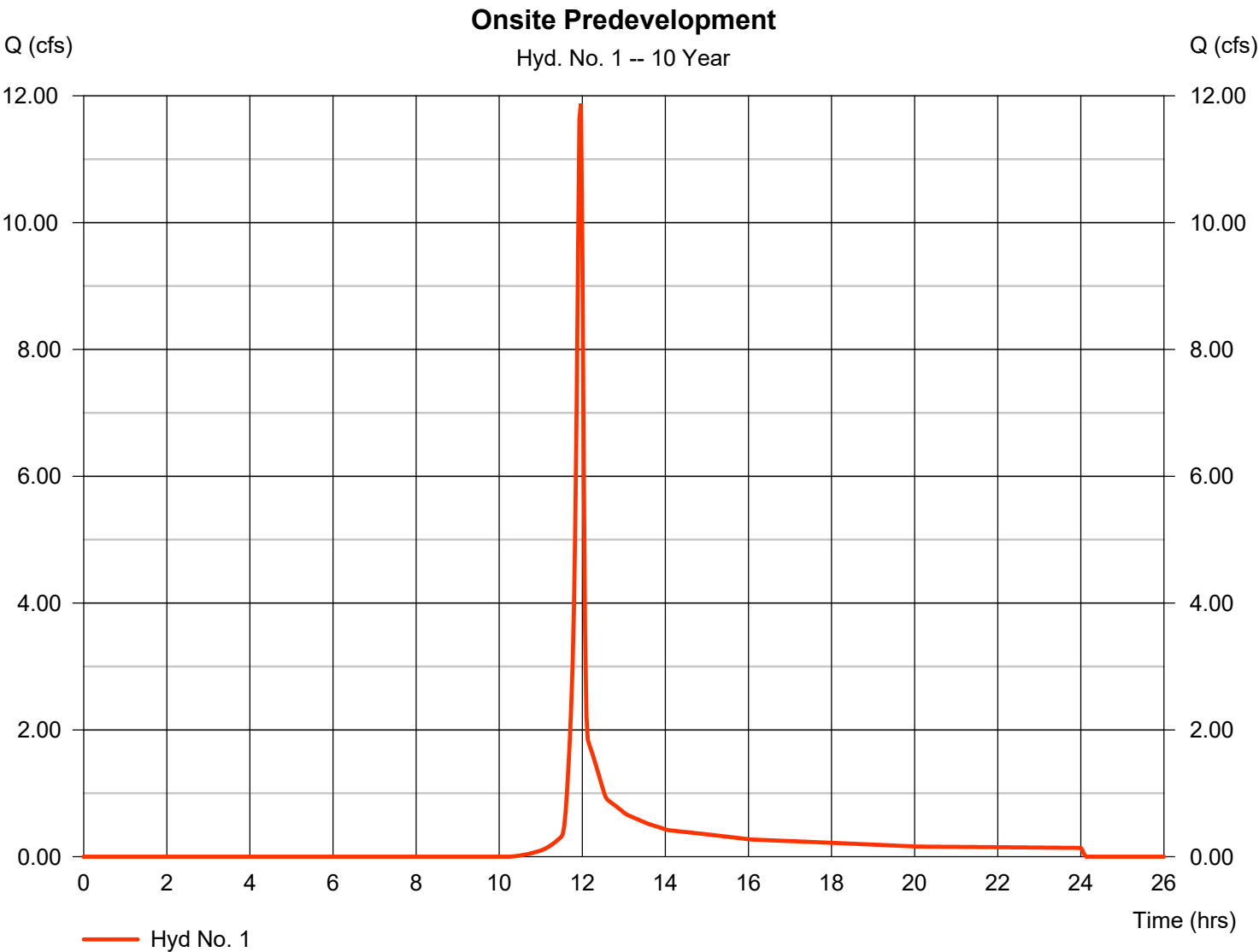
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Friday, 01 / 7 / 2022

## Hyd. No. 1

Onsite Predevelopment

|                 |   |            |                    |   |             |
|-----------------|---|------------|--------------------|---|-------------|
| Hydrograph type | = | SCS Runoff | Peak discharge     | = | 11.88 cfs   |
| Storm frequency | = | 10 yrs     | Time to peak       | = | 11.97 hrs   |
| Time interval   | = | 2 min      | Hyd. volume        | = | 23,750 cuft |
| Drainage area   | = | 3.480 ac   | Curve number       | = | 66          |
| Basin Slope     | = | 0.0 %      | Hydraulic length   | = | 0 ft        |
| Tc method       | = | User       | Time of conc. (Tc) | = | 5.00 min    |
| Total precip.   | = | 5.40 in    | Distribution       | = | Type II     |
| Storm duration  | = | 24 hrs     | Shape factor       | = | 484         |

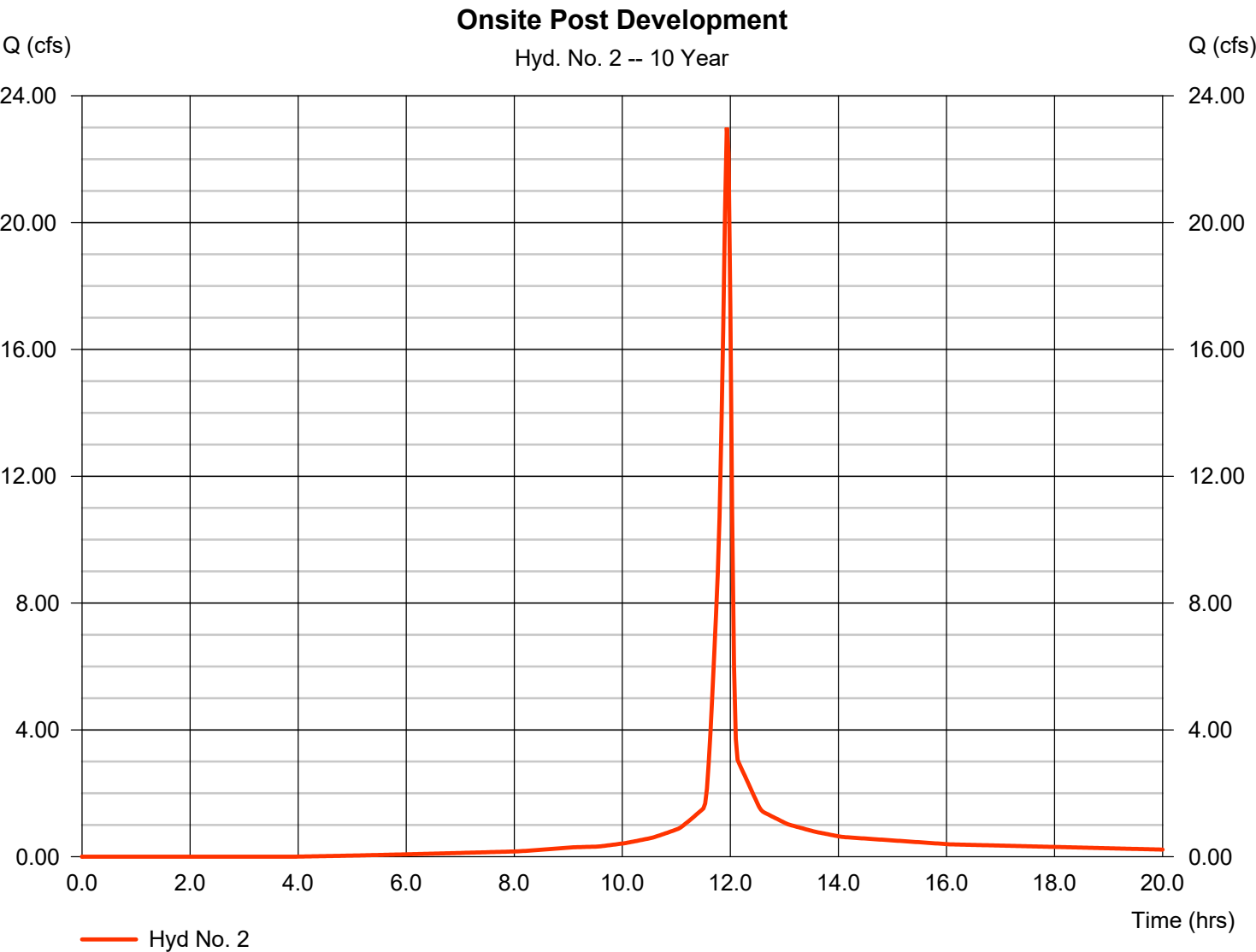


# Hydrograph Report

## Hyd. No. 2

### Onsite Post Development

|                 |   |            |                    |   |             |
|-----------------|---|------------|--------------------|---|-------------|
| Hydrograph type | = | SCS Runoff | Peak discharge     | = | 22.99 cfs   |
| Storm frequency | = | 10 yrs     | Time to peak       | = | 11.93 hrs   |
| Time interval   | = | 2 min      | Hyd. volume        | = | 49,218 cuft |
| Drainage area   | = | 3.480 ac   | Curve number       | = | 89          |
| Basin Slope     | = | 0.0 %      | Hydraulic length   | = | 0 ft        |
| Tc method       | = | User       | Time of conc. (Tc) | = | 5.00 min    |
| Total precip.   | = | 5.40 in    | Distribution       | = | Type II     |
| Storm duration  | = | 24 hrs     | Shape factor       | = | 484         |





# Hydrograph Report

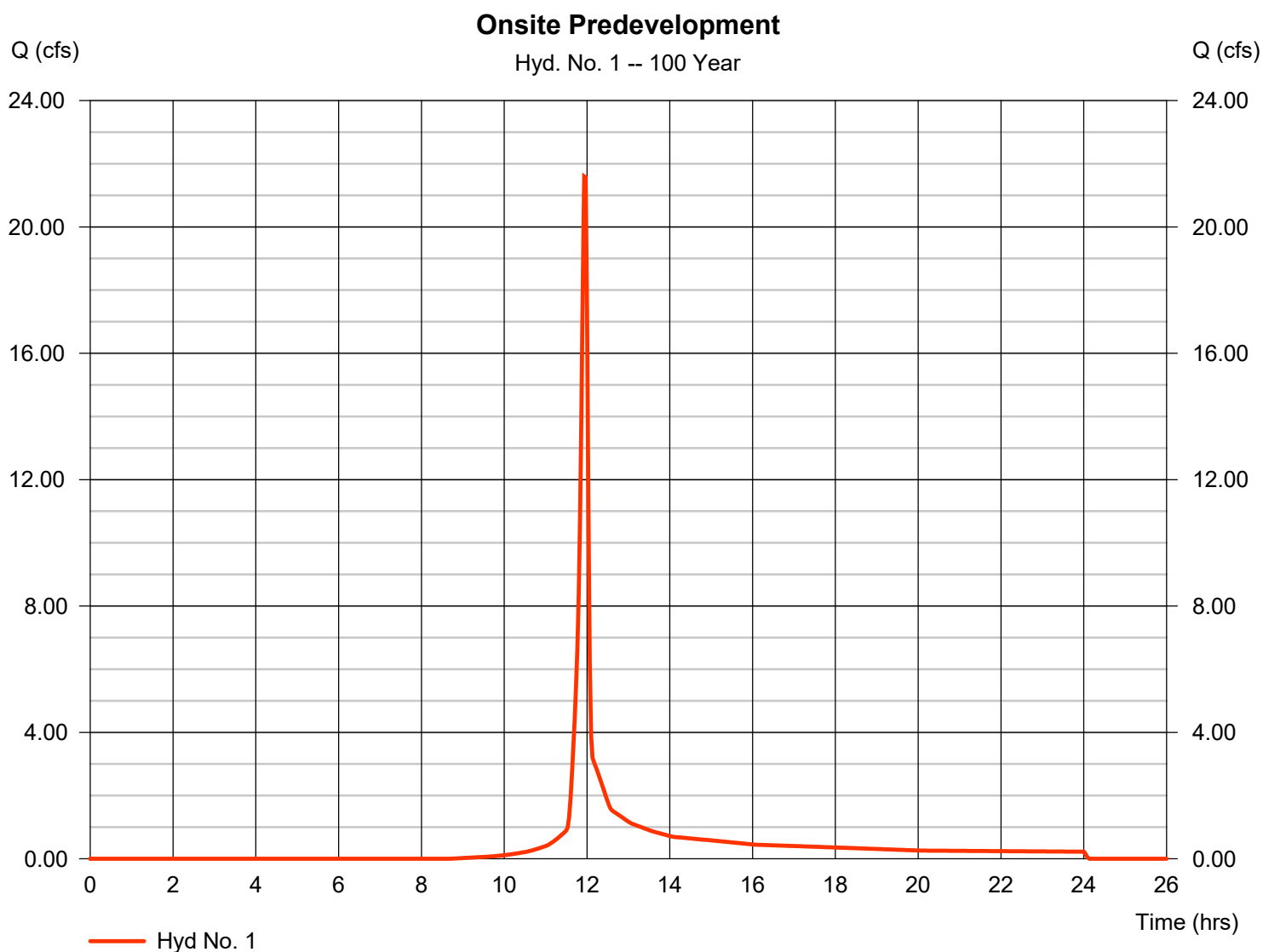
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Friday, 01 / 7 / 2022

## Hyd. No. 1

### Onsite Predevelopment

|                 |              |                    |               |
|-----------------|--------------|--------------------|---------------|
| Hydrograph type | = SCS Runoff | Peak discharge     | = 21.60 cfs   |
| Storm frequency | = 100 yrs    | Time to peak       | = 11.93 hrs   |
| Time interval   | = 2 min      | Hyd. volume        | = 43,609 cuft |
| Drainage area   | = 3.480 ac   | Curve number       | = 66          |
| Basin Slope     | = 0.0 %      | Hydraulic length   | = 0 ft        |
| Tc method       | = User       | Time of conc. (Tc) | = 5.00 min    |
| Total precip.   | = 7.60 in    | Distribution       | = Type II     |
| Storm duration  | = 24 hrs     | Shape factor       | = 484         |



# Hydrograph Report

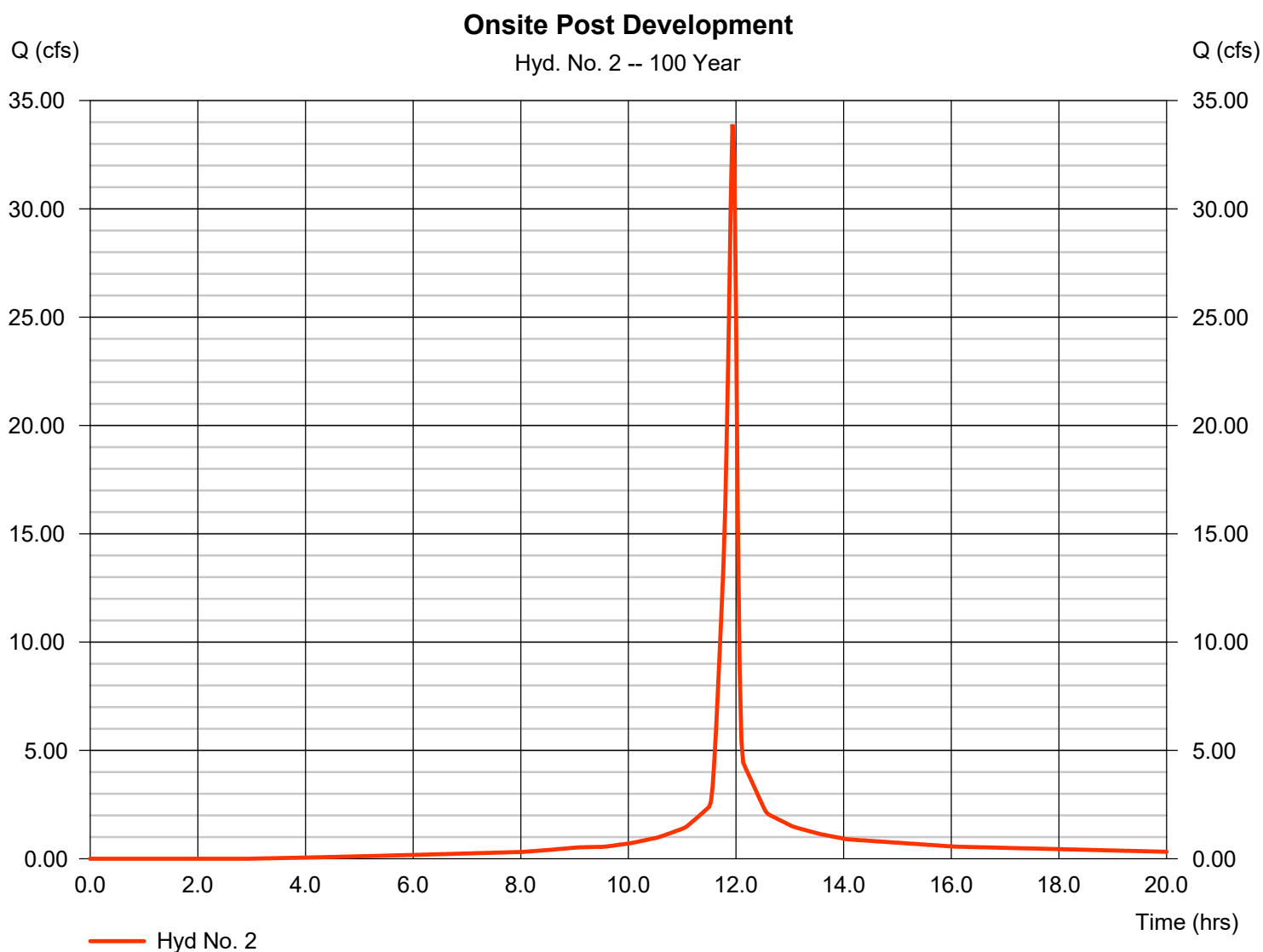
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Friday, 01 / 7 / 2022

## Hyd. No. 2

### Onsite Post Development

|                 |              |                    |               |
|-----------------|--------------|--------------------|---------------|
| Hydrograph type | = SCS Runoff | Peak discharge     | = 33.91 cfs   |
| Storm frequency | = 100 yrs    | Time to peak       | = 11.93 hrs   |
| Time interval   | = 2 min      | Hyd. volume        | = 74,547 cuft |
| Drainage area   | = 3.480 ac   | Curve number       | = 89          |
| Basin Slope     | = 0.0 %      | Hydraulic length   | = 0 ft        |
| Tc method       | = User       | Time of conc. (Tc) | = 5.00 min    |
| Total precip.   | = 7.60 in    | Distribution       | = Type II     |
| Storm duration  | = 24 hrs     | Shape factor       | = 484         |



# Hydraflow Rainfall Report

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Friday, 01 / 7 / 2022

| Return Period<br>(Yrs) | Intensity-Duration-Frequency Equation Coefficients (FHA) |         |        |       |
|------------------------|----------------------------------------------------------|---------|--------|-------|
|                        | B                                                        | D       | E      | (N/A) |
| 1                      | 0.0000                                                   | 0.0000  | 0.0000 | ----- |
| 2                      | 69.8703                                                  | 13.1000 | 0.8658 | ----- |
| 3                      | 0.0000                                                   | 0.0000  | 0.0000 | ----- |
| 5                      | 79.2597                                                  | 14.6000 | 0.8369 | ----- |
| 10                     | 88.2351                                                  | 15.5000 | 0.8279 | ----- |
| 25                     | 102.6072                                                 | 16.5000 | 0.8217 | ----- |
| 50                     | 114.8193                                                 | 17.2000 | 0.8199 | ----- |
| 100                    | 127.1596                                                 | 17.8000 | 0.8186 | ----- |

File name: SampleFHA.idf

$$\text{Intensity} = B / (T_c + D)^E$$

| Return Period<br>(Yrs) | Intensity Values (in/hr) |      |      |      |      |      |      |      |      |      |      |      |
|------------------------|--------------------------|------|------|------|------|------|------|------|------|------|------|------|
|                        | 5 min                    | 10   | 15   | 20   | 25   | 30   | 35   | 40   | 45   | 50   | 55   | 60   |
| 1                      | 0.00                     | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2                      | 5.69                     | 4.61 | 3.89 | 3.38 | 2.99 | 2.69 | 2.44 | 2.24 | 2.07 | 1.93 | 1.81 | 1.70 |
| 3                      | 0.00                     | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5                      | 6.57                     | 5.43 | 4.65 | 4.08 | 3.65 | 3.30 | 3.02 | 2.79 | 2.59 | 2.42 | 2.27 | 2.15 |
| 10                     | 7.24                     | 6.04 | 5.21 | 4.59 | 4.12 | 3.74 | 3.43 | 3.17 | 2.95 | 2.77 | 2.60 | 2.46 |
| 25                     | 8.25                     | 6.95 | 6.03 | 5.34 | 4.80 | 4.38 | 4.02 | 3.73 | 3.48 | 3.26 | 3.07 | 2.91 |
| 50                     | 9.04                     | 7.65 | 6.66 | 5.92 | 5.34 | 4.87 | 4.49 | 4.16 | 3.88 | 3.65 | 3.44 | 3.25 |
| 100                    | 9.83                     | 8.36 | 7.30 | 6.50 | 5.87 | 5.36 | 4.94 | 4.59 | 4.29 | 4.03 | 3.80 | 3.60 |

T<sub>c</sub> = time in minutes. Values may exceed 60.

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| Storm Distribution | Rainfall Precipitation Table (in) |      |      |      |       |       |       |        |
|--------------------|-----------------------------------|------|------|------|-------|-------|-------|--------|
|                    | 1-yr                              | 2-yr | 3-yr | 5-yr | 10-yr | 25-yr | 50-yr | 100-yr |
| SCS 24-hour        | 0.00                              | 3.50 | 0.00 | 4.55 | 5.40  | 6.10  | 6.80  | 7.60   |
| SCS 6-Hr           | 0.00                              | 1.80 | 0.00 | 0.00 | 2.60  | 0.00  | 0.00  | 4.00   |
| Huff-1st           | 0.00                              | 1.55 | 0.00 | 2.75 | 4.00  | 5.38  | 6.50  | 8.00   |
| Huff-2nd           | 0.00                              | 0.00 | 0.00 | 0.00 | 0.00  | 0.00  | 0.00  | 0.00   |
| Huff-3rd           | 0.00                              | 0.00 | 0.00 | 0.00 | 0.00  | 0.00  | 0.00  | 0.00   |
| Huff-4th           | 0.00                              | 0.00 | 0.00 | 0.00 | 0.00  | 0.00  | 0.00  | 0.00   |
| Huff-Indy          | 0.00                              | 0.00 | 0.00 | 0.00 | 0.00  | 0.00  | 0.00  | 0.00   |
| Custom             | 0.00                              | 1.75 | 0.00 | 2.80 | 3.90  | 5.25  | 6.00  | 7.10   |