City of Tonganoxie
Planning Commission Agenda

May 2, 2024
7:00 Regular Meeting, City Council Chambers, 303 Bury Street, Tonganoxie, KS 66086
There may be an audio recording of the meeting which will be utilized to prepare meeting minutes and the meeting may be broadcast on the City of Tonganoxie YouTube Channel

Members: Monica Gee - Patti Bitler - John Kirk – Howie Brewington - Amanda Horner - Brianna Irvin -Kirsten Moreland

Open Regular Meeting – 7:00 p.m.

I. Call to Order

II. Approval of Minutes – Regular meeting dated February 1, 2024

III. Old Business

IV. Ex Parte Communication

V. New Business

a) Consider Approval of Amended Special Use Permit for Tongie Tykes Daycare, LLC located at 707 E. 4th Street, Tonganoxie, Kansas 66086

b) Consider Approval of Site Plan for Polished and Decorative Concrete located at 1201 State Avenue, Tonganoxie, Kansas 66086

c) Swearing in Planning Commission Members Monica Gee and Brianna Irvin

VI. General Information

a) Home Builder's Association Reports

VII. Adjourn

TONGANOXIE PLANNING COMMISSION
Meeting Minutes
February 1, 2024 7:00 p.m.
303 S. Bury Street

CALL TO ORDER

- Chair Monica Gee opened the meeting at 7:00 p.m.

Roll Call: Planning Commission members present were Chair Monica Gee, Vice Chair Patti Bitler, Kirsten Moreland, John Kirk, Howie Brewington and Brianna Irvin were present. Amanda Horner was absent. Assistant City Manager Dan Porter, City Attorney Anna Krstulic, Municipal Court Clerk Lindsay Huntington, and City Planner Chris Brewster were also present. City Manager George Brajkovic was present via phone.

1. APPROVAL OF PC MINUTES – December 7, 2023

- **Ms. Moreland made a motion to approve the minutes from the December 7, 2023 Commission meeting.**
- **Ms. Bitler seconded the motion.**
- **Vote of all ayes, motion carried.**

2. OLD BUSINESS

a) Public Hearing: Application to Rezone Wren Estates property generally located at Washington and East Streets, Tonganoxie, KS 66086 from R-R and R-SF to R-SF

- Mr. Brewster with Multistudio delivered the staff report for the project.

b) Consideration of Application to Rezone Wren Estates property generally located at Washington and East Streets, Tonganoxie, KS 66086 from R-R and R-SF to R-SF

- Mr. Brewster with Multistudio delivered the staff report for the project.
- Mr. Mark Breuer, 14920 W 107th Street, Lenexa, Kansas with Schlagel and Associates presented on behalf of the applicant for the project.
- Ms. Moreland expressed concerns regarding one exit for the street and safety concerns.
- **Ms. Bitler made a motion to rezone Wren Estates property generally located at Washington and East Streets from Rural Residential to Rural Single Family.**
- **Mr. Brewington seconded the motion.**
- **Roll call vote – All ayes, motion passed.**

c) Public Hearing: Preliminary Plat for Wren Estates generally located at Washington and East Streets, Tonganoxie, KS 66086

- **No Members from the public addressed the Planning Commission during the public hearing.**
- **Ms. Gee closed the public hearing.**

d) Consideration of Preliminary Plat for Wren Estates generally located at Washington and East Streets, Tonganoxie, KS 66086

- **Mr. Brewington made a motion to approve the Preliminary Plat for Wren Estates subject to the staff conditions and recommendations.**
- **Ms. Bitler seconded the motion.**
- **Roll call vote was 5-1 (No's – Moreland). Motion passed.**

DRAFT

3. EX PARTE COMMUNICATION

4. NEW BUSINESS

a) Swearing in Brianna Irvin to Planning Commissioner position previously held by Angela Schultz

- Ms. Huntington swore in newly appointed Commissioner Brianna Irvin.

b) Consider Recommendation of Approval of Revised Final Plat for Stone Creek Addition No. 10

- Mr. Brewster with Multistudio delivered the staff report for the revised final plat for Stone Creek Addition No. 10. Mr. Brewster stated they recommend approval with all the same conditions of the final plat that was approved in November.
  - **Mr. Kirk made a motion to approve the Final Plat for Stone Creek Edition number 10 with staff recommendations.**
  - **Ms. Bitler seconded the motion.**
  - **Roll call vote – All ayes, motion passed.**

c) Consider Approval of Revised Site Plan for Wilson Glass

- Mr. Brewster with Multistudio delivered the staff report for the revised Site Plan for Wilson Glass. Mr. Brewster recommending approval of the revised Site Plan subject to the same conditions and added condition that at permitting the building official can look closer to the specifications for the driveway connection.
  - **Ms. Bitler made a motion to approve the revised Site Plan for Wilson Glass with staff recommendations.**
  - **Ms. Moreland seconded the motion.**
  - **Roll call vote – All ayes, motion passed.**

d) Downtown Study RFP Evaluation Update

- Mr. Porter delivered a presentation to update the Commissioners on the project. The presentation included details on the two RFP respondents received from Houseal Lavigne and Multistudio.
- Planning Commissioners discussed respondents and evaluation scoring for each.
  - **Ms. Bitler made a motion to recommend to the City Council the use of Multistudio for the Downtown Study project.**
  - **Mr. Kirk seconded the motion.**
  - **Roll call vote – All ayes, motion passed.**

5. GENERAL INFORMATION

a) Home Builder's Association Reports

6. ADJOURN

- **Ms. Moreland made a motion to adjourn the meeting.**
- **Ms. Bitler seconded the motion.**
- **Vote of all ayes, motion carried.**
- **Meeting adjourned at 8:07p.m.**

Respectfully submitted,

Lindsay Huntington

Lindsay Huntington, Planning Clerk

DRAFT

SPECIAL USE PERMIT APPLICATION

Filing Fee Required

In Accordance with Section 22-013, of the City of Tonganoxie's Zoning Ordinances, an application is hereby made for a Special Use Permit:

Date application filed: 3-19-24 Permit No.: _____

Applicant: Heather R Smith

Address: 19912 Mitchel Rd City: Tonganoxie State KS Zip 66086

Telephone #: _____ (Home) 913-845-9091 (Work)

913-238-1719 (Cell) smith042704@gmail.com (E-mail Address)

Property Owner(s): Richard Olson Phone 913-634-7050

Address: 205 US-24 City: Tonganoxie State KS Zip 66086

Name of business proposed: Kidz Kare LLC

Address of business: 707 E 4th St, tong KS 66086

Description of business: Daycare → 5yrs to 13 yrs

Hours of operation: 6-6 Days: Mon Tue Wed Thu Fri Sat Sun

# of employee's 2 Family members? NO Live on site? NO

If business is to be operated by someone other than the applicant or owner, give name and address:

N/A

Briefly describe the present use and character of the property:

Be New Youth Ctr → currently runs afterschool program

Briefly describe the requested/proposed use of the property for daycare before + after school for 5yrs to 13yrs old in school season, Full Time during summer. It would be for 23 kids.

Briefly describe what effect the requested use will have on the property and the surrounding area:

the effect shall remain the same as currently. When parents drop off kids, it will be quick, because they are older. We will help provide care to after school children for the community

Heather Smith 3-19-24

Applicant Signature Signature

Richard Olson 3-28-24

Property Owner Signature if different from applicant

AFFIDAVIT

CITY OF TONGANOXIE
COUNTY OF LEAVENWORTH
STATE OF KANSAS

WE, Richard L Olson AND _____
(Print)
AND _____ AND _____
(Print)
being duly sworn, depose and say that we are the owners of said property involved in this petition and that the foregoing signatures, statements, and answers herein contained in the information herewith submitted are in all respects true and correct to the best of our knowledge and belief.

Signed and entered this 21 day of March, 2024

Richard L Olson _____

_____ _____

Subscribed and sworn to before me on this 21st day of March, 2024

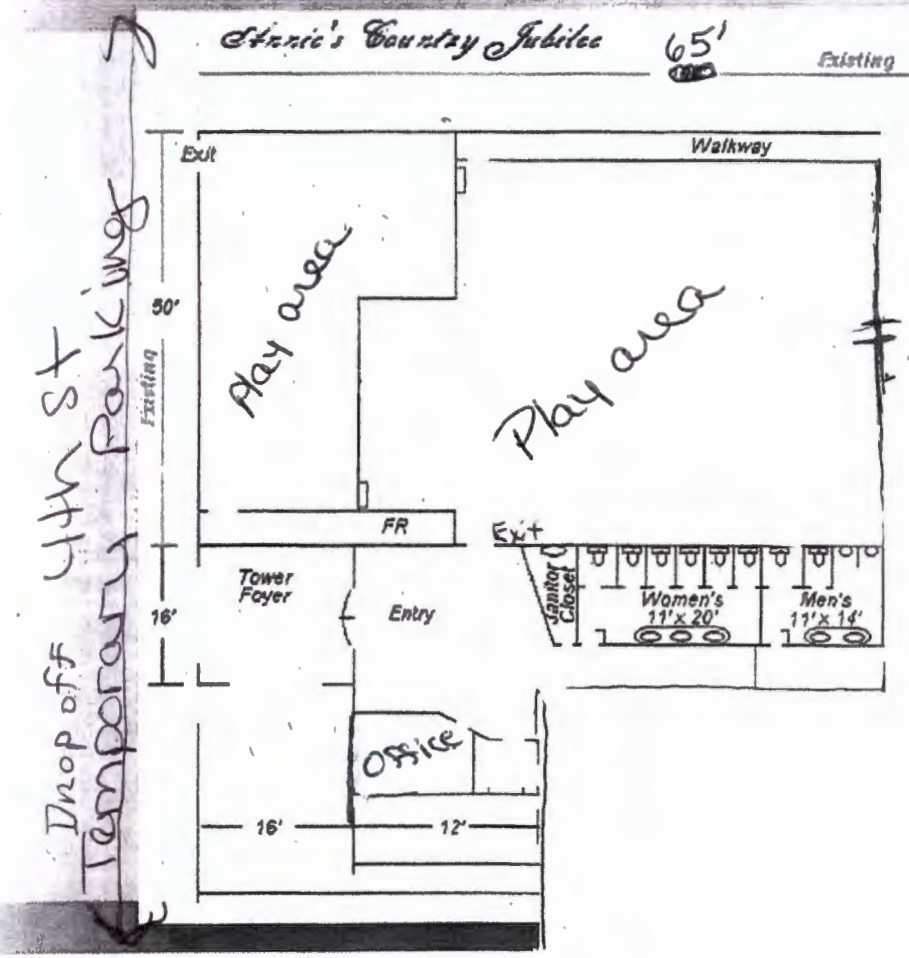
Notary Public in and for the County of Leavenworth, Kansas

Stacy L Bradley

NOTARY PUBLIC - State of Kansas
STACY L. BRADLEY
My Appt. Expires 6/8/27

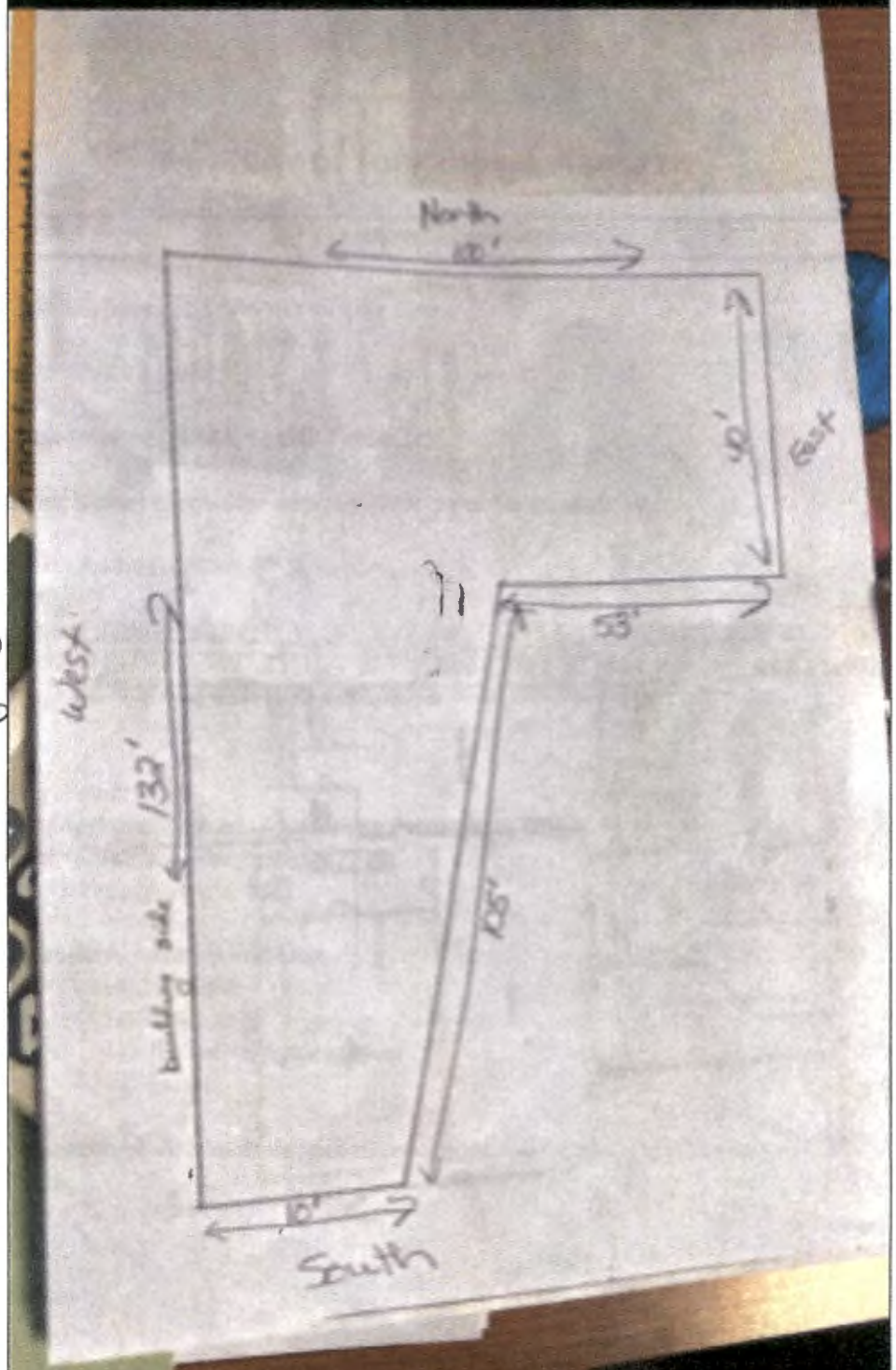
My Commission Expires: 6/8/27

The Building and our P



license #
#80688

PlAY AREA
EAST Side of Building



40 x 100 = 4000
+ 132 - 40 = 92
92 x 10 = 920

Sq ft = 4920

Kansas Department of Health and Environment

Renewed License

Child Care Center
Renewed License No. 0080688-007

Licensee: Tongie Tykes LLC

Facility: Tongie Tykes LLC

Located at: 305 S Main St
Tonganoxie, KS 66086

09/30/2024

In the county of: Leavenworth

Having complied with the laws and regulations of the State of Kansas governing Child Care Centers, Tongie Tykes LLC is hereby authorized to care for a maximum of 61 children grouped as follows:

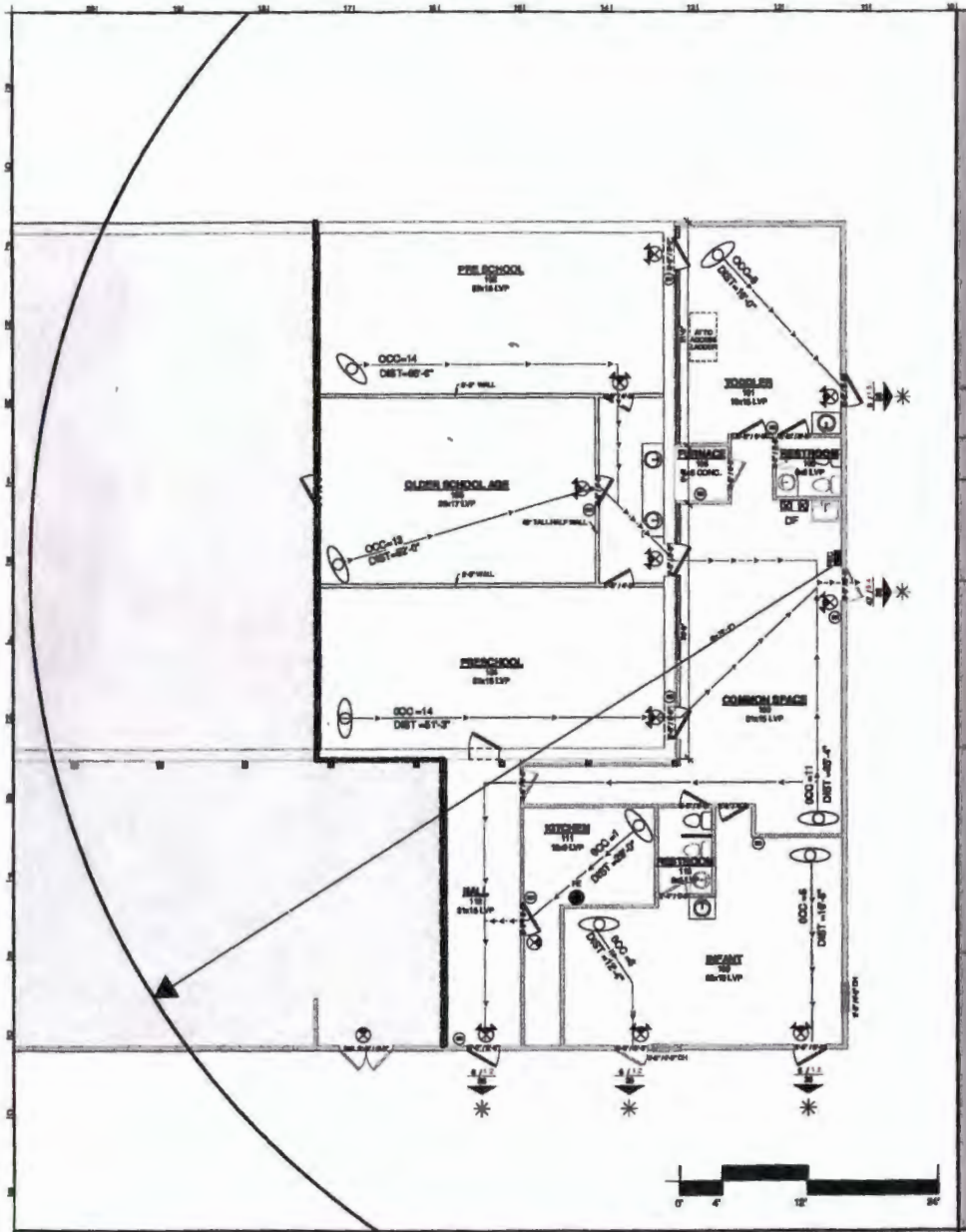
Room 101	6 children two weeks to 6 years of age (maximum of 3 infants); OR
	5 children, 12 months (if walking alone) to 2 1/2 years of age; OR
	7 children, 2 to 3 years of age;
Room 102	12 children, 2 1/2 years of age to school age; OR
	12 children, kindergarten enrollees to 12 years of age;
Room 103	11 children, 2 1/2 years of age to school age; OR
	11 kindergarten enrollees to 12 years of age;
Room 104	12 children, 2 1/2 years of age to school age; OR
	12 kindergarten enrollees to 12 years of age;
Room 105	9 children, 2 weeks to 12 months of age; OR
	8 children two weeks to 6 years of age (maximum of 4 infants);
Room 109	10 children, 12 months (if walking alone) to 2 1/2 years of age; OR
	10 children, 2 to 3 years of age.

This License is effective 10/01/2023 and remains in effect until the expiration date noted by the above sticker unless invalidated by a change of owner, operator, location or it is administratively closed.

** Local codes and ordinances may prescribe other requirements for the legal operation of this facility.

Janet Stanek

Janet Stanek, Secretary
Kansas Department of Health and Environment



CODE PLANS A10

PROJECT

PROJECT DESCRIPTION

PROJECT NAME AND LOCATION:
NEW YOUTH CENTER
501 E. 4TH ST, TONGANOXIE,
KANSAS 66054, TONGANOXIE, KS
P: (913) 694-7030

AUTHORITIES HAVING JURISDICTION:
CITY OF TONGANOXIE
BUILDING CODES
555 E 4th St,
Tonganoxie, KS 66086
P: (913) 845-9500

RESPONSIBLE FIRE SERVICE
CITY OF TONGANOXIE FIRE DEPARTMENT
555 E. FOURTH ST
TONGANOXIE, KS 66086
P: (913) 845-9464

PROJECT DESCRIPTION

CODE LIFE SAFETY PLAN FOR AN EXISTING BUILDING WILL INCORPORATE A SPACE FOR DAY CARE FOR CHILDREN BETWEEN 6 INFANTS (3 YEARS OLD) AND 12 TODDLERS SCHOOL AGE.

APPLICABLE CODES

2018 INTERNATIONAL BUILDING CODE
2018 INTERNATIONAL EXISTING BUILDING CODE
2018 INTERNATIONAL PLUMBING CODE
2018 INTERNATIONAL MECHANICAL CODE
2018 INTERNATIONAL FUEL GAS CODE
2011 NATIONAL ELECTRICAL CODE – NFPA 70
2018 INTERNATIONAL ENERGY CONSERVATION CODE
2018 INTERNATIONAL SWIMMING POOL AND SPA CODE
2018 INTERNATIONAL PROPERTY MAINTENANCE CODE
2018 INTERNATIONAL FIRE CODE
2009 ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES (CODIFIES A117.1
2018 NFPA 101 LIFE SAFETY CODE
CHAPTER 52 KANSAS ADMINISTRATIVE REGULATIONS

*AND ALL OTHER NATIONAL AND LOCAL CODES APPLICABLE TO THIS PROJECT

3 OCCUPANCY USE AND CLASSIFICATION

SECTION 310 — EDUCATIONAL GROUP E

4 SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY

NOT APPLICABLE

5 GENERAL BUILDING LIMITS AND AREAS

ALLOWED AREA / STORIES / HEIGHT (SBT A)
EDUCATIONAL GROUP E — 9000 SF / 1 STORIES / 40 FT

ACTUAL AREA / STORIES / HEIGHT (SBT A)
EDUCATIONAL GROUP E — 5000.00 SF / 1 STORIES / 22 FT

6 TYPE OF CONSTRUCTION

TBD1 STRUCTURAL FIRE RATINGS
STRUCTURAL FRAME (INCL. COLUMNS, GIRDERS, AND TRUSSES) 0HR
BEARING WALLS
EXTERIOR 0HR
INTERIOR 0HR
NONBEARING WALLS AND PARTITIONS
EXTERIOR 0HR
INTERIOR 0HR
FLOOR CONSTRUCTION (INCL. SUPPORTING BEAMS AND JOISTS) 0HR
ROOF CONSTRUCTION (INCL. SUPPORTING BEAMS AND JOISTS) 0HR

TYPE 1B

7 FIRE AND SMOKE PROTECTION FEATURES

704	EXTERIOR WALLS	NOT APPLICABLE
705	FIRE WALLS	NOT APPLICABLE
706	FIRE BARRIERS	NOT APPLICABLE
707	SHAFT ENCLOSURES	NOT APPLICABLE
708	FIRE PARTITIONS	NOT APPLICABLE
709	SMOKE BARRIERS	NOT APPLICABLE
710	SMOKE PARTITIONS	NOT APPLICABLE
711	HORIZONTAL ASSEMBLIES	NOT APPLICABLE
712	VERTICAL OPENINGS	NOT APPLICABLE
713	SHAFT ENCLOSURES	NOT APPLICABLE
714	PENETRATIONS	NOT APPLICABLE
715	FIRE RESISTANT JOINTS	NOT APPLICABLE
716	OPENING PROTECTIVE	NOT APPLICABLE
717	DUCTS AND AIR TRANSFER OPENINGS	NOT APPLICABLE
718	CONCEALED SPACES	NOT APPLICABLE
719	FIRE-RESISTANCE REQUIREMENTS FOR PLASTER	NOT APPLICABLE
720	THERMAL AND SOUNDINSULATING MATERIAL	NOT APPLICABLE
721	PROTECTING FIRE RESISTANCE	NOT APPLICABLE
722	CALCULATED FIRE RESISTANCE	NOT APPLICABLE

8 EGRESS FEATURES
TABLE 1005.2

OCCUPANCY GROUP E NOT SPRINKLERED
EXIT ENCLOSURES/PASSAGEWAYS A
CORRIDORS B
ROOMS AND ENCLOSED SPACES C

9 FIRE PROTECTION SYSTEMS

902	FIRE PUMP & PIPER ROOM	
903	AUTOMATIC SPRINKLER SYSTEM	
904	ALTERNATE AUTOMATIC FIRE-EXTINGUISHER SYSTEMS	
905	STANDPIPE SYSTEM	
906	PORTABLE FIRE EXTINGUISHERS - MAX TRAVEL DIST. 75 FT.	REQUIRED
907	FIRE ALARM AND DETECTION SYSTEMS	NOT REQUIRED
908	EMERGENCY ALARM SYSTEMS	NOT REQUIRED
909	SMOKE CONTROL SYSTEMS	NOT REQUIRED
910	SMOKE AND HEAT VENTS	NOT REQUIRED
911	FIRE COMMAND CENTER	NOT REQUIRED
912	FIRE DEPARTMENT CONNECTIONS	NOT REQUIRED
913	FIRE PUMPS	NOT REQUIRED
914	EMERGENCY RESPONDER SAFETY FEATURES	NOT REQUIRED
916	EMERGENCY RESPONDER RADIO COVERAGE	NOT REQUIRED

10 CHAPTER 10 – MEANS OF EGRESS

OCCUPANT LOAD – TABLE 1004.5

RM NAME	RM#	AREA (SF)	OCCUPANCY-FUNCTION-FACTOR	OCC. LOAD
COMMON SPACE	103	600	VOCATIONAL ROOM - 50 NET	11
TODDLER	101	355	DAYCARE AREA - 35 NET	9
SCHOOL AGE	102	480	DAYCARE AREA - 35 NET	14
OLDER SCHOOL AGE	105	445	DAYCARE AREA - 35 NET	13
PRE SCHOOL	104	480	DAYCARE AREA - 35 NET	14
INFANT	109	410	DAYCARE AREA - 35 NET	12
KITCHEN	111	165	KITCHEN - 200 GROSS	1
			TOTAL OCCUPANT LOAD OF BUILDING	75

SECTION 1005
EXIT AND EXIT ACCESS DOORWAYS

ASSEMBLY GROUP B: ASSEMBLY GROUP E
NUMBER OF EXITS REQUIRED 2
NUMBER OF EXITS PROVIDED: 3

SECTION 1008
EMERGENCY ELIMINATION REQUIRED/PROVIDED
ILLUMINATION EMERGENCY POWER REQUIRED/PROVIDED

SECTION 1013
EXIT SIGNS
REQUIRED/PROVIDED

SECTION 1017
EXIT ACCESS TRAVEL DISTANCE
EDUCATIONAL GROUP E 200 FT.
SPRINKLER

29 CHAPTER 29 – PLUMBING

WATER CLOSET REQUIREMENTS (TABLE 2902.1)

CLASSIFICATION	FACTOR	OCC. LOAD	REQUIRED	PROVIDED
EDUCATION	1:25 or (1:50)	75	3	3
		TOTAL	3	3

LAVATORY FIXTURE REQUIREMENTS (TABLE 2902.1)

CLASSIFICATION	FACTOR	OCC. LOAD	REQUIRED	PROVIDED
EDUCATION	1:40 or (1:80)	75	2	4
		TOTAL	2	4

DRINKING FOUNTAIN FIXTURE REQUIREMENTS (TABLE 2902.1)

CLASSIFICATION	FACTOR	OCC. LOAD	REQUIRED	PROVIDED
EDUCATION	1:500	75	1	1
		TOTAL	1	1

OTHER FIXTURE REQUIREMENTS (TABLE 2902.1)

	REQUIRED	PROVIDED
SERVICE SINK	1	1

CODE LEGEND

LEGEND

FIRE EXTINGUISHER — FE
FIRE EXTINGUISHER CABINET — FEC
EGRESS DOOR — OCC. LOAD / REQUIRED WIDTH / ACTUAL WIDTH
EXIT TO GRADE
COMBINATION CEILING-HUNG, ILLUMINATED EXIT SIGN & EMERGENCY LIGHT (BLACK SHOWING LIGHT DIRECTION)
COMBINATION WALL-MOUNTED, ILLUMINATED EXIT SIGN & EMERGENCY LIGHT (BLACK SHOWING LIGHT DIRECTION)
EGRESS ROUTE
SMOKE DETECTOR
1 HOUR WALL SEPARATION PARTITIONS BETWEEN ROOMS AT CORRIDORS AND GENERAL CODE W001 or UL Des U305 or U314

ARGOR DESIGN
JESSICA ROHRS
PLATTE CITY, MO
816.811.0000

SPE ENGINEER
MD ENGINEERS
1 1000 W 75TH STREET
SHAWNEE, KS 66214
913.631.2020

LONNIE J. SHANKS
LICENSED
5013
KANSAS
ARCHITECT
04/11/2022

CORNERSTONE FAMILY WORSHIP

CODE LIFE SAFETY PLAN

NO.	ISSUE/REVISION	DATE
	PLAN REVIEW	04/11/2022

CODE REVIEW

CR100

Property Map

Doc #: 2018R01890
STACY R. DRISCOLL
REGISTER OF DEEDS
LEAVENWORTH COUNTY, KANSAS
RECORDED ON:
03/13/2018 3:54:22 PM
RECORDING FEE: 38.00
PAGES: 2

KANSAS SECURED TITLE, INC
PO BOX 803
TONGANXOIE, KS 66086

TX0001867

QUIT CLAIM DEED

Midamerican Investments, L.L.C., a limited liability company existing under the laws of the State of Kansas, and its principal place of business in the State of Kansas,

convey and quitclaim(s) to

Cornerstone Family Worship of Tonganoxie, INC.

all the following REAL ESTATE in the County of LEAVENWORTH, and the State of Kansas, to-wit:

707 E 4th

TRACT I:
A PARCEL OF LAND CONSISTING OF PARTS OF LOTS 6, 7, 8, 9, 10 & 11, BLOCK 9 OF THE ORIGINAL PLAT OF TONGANOXIE, MORE FULLY DESCRIBED AS FOLLOWS: COMMENCING AT THE CENTER OF SECTION 9, TOWNSHIP 11 SOUTH, RANGE 21 EAST; THENCE SOUTH 89°53' WEST 180 FEET; THENCE NORTH 25 FEET TO THE SOUTHWEST CORNER OF BLOCK 9 AND TO THE POINT OF BEGINNING OF THIS TRACT; THENCE NORTH 147.10 FEET; THENCE NORTH 89°53' EAST 104.37 FEET; THENCE SOUTH 10°14' WEST 149.48 FEET; THENCE SOUTH 89°53' WEST, 77.81 FEET TO THE POINT OF BEGINNING, LESS ANY PART TAKEN OR USED FOR ROAD PURPOSES, IN LEAVENWORTH COUNTY, KANSAS.

305 S Main?

TRACT II:
A TRACT OF LAND IN BLOCK 9, TOWN OF TONGANOXIE, CITY OF TONGANOXIE, DESCRIBED MORE SPECIFICALLY AS FOLLOWS: COMMENCING AT THE SOUTHWEST CORNER OF LOT 5, WHICH IS ALSO THE POINT OF BEGINNING OF THIS TRACT; THENCE NORTH 89°53' EAST 105.00 FEET ALONG THE SOUTH LINE OF LOT 5; THENCE NORTH 15.00 FEET; THENCE NORTH 89°53' EAST 75.00 FEET TO THE EAST LINE OF BLOCK 9; THENCE NORTH 35.00 FEET ALONG THE EAST LINE OF BLOCK 9; THENCE SOUTH 89°53' WEST 180.00 FEET ALONG THE NORTH LINE OF LOT 4; THENCE SOUTH 50.00 FEET TO THE POINT OF BEGINNING OF THIS TRACT, IN LEAVENWORTH COUNTY, KANSAS.

for the sum of one dollar and other good and valuable consideration.

Pursuant to K S A 79-1437 a real estate validation questionnaire is not required due in exception No. 12

EXCEPT AND SUBJECT TO: Easements, restrictions and assessments of record, and all the taxes and assessments that may be levied, imposed or become payable hereafter.

Dated this 13 day of March, 2018.

Midamerican Investments, L.L.C., a Kansas limited liability company By First State Bank & Trust, Managing Member

By:

Damon L. New
Senior Vice President of First State Bank & Trust

State of Kansas, County of LEAVENWORTH §

The foregoing instrument was acknowledged before me this 13 day of March, 2018 by **Damon L. New, Senior Vice President of First State Bank & Trust, Managing Member of Midamerican Investments, L.L.C., a Kansas limited liability company.**

LORI WILSON
Notary Public - State of Kansas
My Appt. Expires 6/7/2020

Notary Public

My appointment expires: 6/7/2020

CORNERSTONE FAMILY WORSHIP

Mar 25, 2024

To Whom It May Concern:

This is to confirm that Richard Olson is an authorized agent of the Cornerstone Family Worship church.

Sincerely,

Ron Swaim
Senior Pastor

State of Kansas County of Leavenworth. In witness whereof, I hereunto set my hand and official seal. Witnessing or Attesting a Signature: Signed (or attested) before me this 26 day of March, 2024 by Ron Swaim Sandra Coffman Notary Public.

My commission expires: 10-12-26

Sandra Coffman

SANDRA COFFMAN
Notary Public - State of Kansas
My Appt. Expires 10-12-26

City of Tonganoxie, Kansas

PLANNING STAFF REPORT

Case#: 2024-003P –Renewal and Expansion Special Use Permit for Day Care

Date of Report: April 25, 2024

Application: **Special Use Permit - Renewal**
Date of Application: 3/28/2024 (via e-mail)
Date of Meeting: 5/2/2024

Action: *A special use permit requires the Planning Commission to evaluate facts and weigh evidence, and based on balancing the factors and criteria in the zoning ordinance against the facts and evidence, make a recommendation to the City Council.*

Applicant Name: Heather Smith, Kidz Kare LLC

Property Owner Name: Cornerstone Family Worship of Tonganoxie Inc., Richard Olson

Subject Property:
Address: 707 E. 4th Street
Property Size: ???
Zoning: *HBD*
Legal Description: TONGE-NOXIE, PLAT OF , BLOCK 9 , PT LTS 6-11;BEG SW COR LT 11, N147.1',E104.37',SLY149.48', W77.81' TO POB Plat Book/Page 1B /80 Lot Width: 147.1 Lot Depth: 104.3 Deed Book/Page 0879/0054 0694/1072 0606/0653

Surrounding Property – Zoning and Use:
West: HBD (retail and storage)
South: HBD (vacant building)
East: I-LT (industrial / storage lot)
North: I-LT (park)

Staff Recommendation: Approval, subject to conditions.

I. SUMMARY:

This application proposes to extend and amend a daycare use of an existing building. Tonganoxie Tykes (Heather Smith) was granted a special use permit for a daycare business at 707 E. 4th Street in June 2022 (Ordinance 1504). The initial application was for up to 49 kids and utilized the rear portion of the building. The other portions of the building were used for a variety of community-related services, including a worship centers and a community center for youth through other tenants of the building. The initial application was approved conditioned on a proposed parking / drop off plan, conditions for outside play areas, and other licensing requirements.

This application is up for renewal in June (a two-year initial permit), and the operation is changing and expanding. The applicant is proposing to take over more of the facility to incorporate a youth after-school care program – essentially taking in some of the other activities that were occurring accessory to the permitted use of the site and other tenants. The proposal is to conduct daycare and before / after school care for children aged 5 to 13 years, and full time during the summer. The hours of operation would remain 6 AM to 6 PM. This proposal would extend the current use for up to 49 day care children to include an additional 23 before / afterschool children, and expand the activities of this specific business into the full building. These additional activities are similar to what was occurring for this building and site, although not operated by the applicant.

II ANALYSIS – SPECIAL USE PERMIT FOR DAYCARE IN HBD DISTRICT

The application indicates that the proposed uses expand from the rear of the buildings occupy the rear half of the existing building (approximately the back 50 feet) to include the entire building, and be divided into infant, toddler, pre-school, and older school age rooms, and include a common space.

The Tonganoxie Zoning Ordinance has the following specific requirements for Licensed Daycares, Group Daycares, and Child Care Centers**.** (These do not supersede any State requirements that may apply.) [22-030.C.]

1. The property must have a minimum lot area of 6,000 square feet and a minimum lot width of 65 feet.

   The lot is approximately 13,000 square feet and has 72 feet of frontage on 4th Street. As a corner lot, it also has approximately 150 feet of frontage on South Main Street. The parking area addressed as 305 S. Main Street adds approximately an additional 50 feet of frontage on South Main and an additional 8, 800 square feet.

2. In any residential zoning, side setbacks must be at least 100% greater than the minimum side setback required in the district except where the interior side yard is attached to another residential unit.

   Not applicable, as this property is in the HBD district. Further, the HBD district is intended for small-scale, mixed-use retail, entertainment and services. The historic development patterns have no minimum lot requirement, and no setbacks to promote the compact walkable pattern of downtown.

3. At least 75 square feet of outdoor play space must be provided on the lot for each child using the space at a given time. The total outdoor space shall accommodate not less than one-half of the licensed capacity, or shall include a minimum of 750 square feet, whichever is greater.

The prior application was conditioned on a plan for outdoor play space and the rear northeast portion of the lot was fenced for this purpose. This application does not propose any changes to the site or this area, but includes the addition of 23 before/afterschool children. Incorporating the 49 prior day care children, at this capacity the zoning ordinance would require 2,700 square feet of outside play area. The area fenced as part of the 2022 plan is over 3,000 square feet and the site is also immediately adjacent to a City Park (Gallagher Park) that is approximately 14,810 square feet.

4. All open play areas must be completely enclosed with a fence (chain link, wood, or vinyl) at least 4 feet in height and in good repair.

The northeast portion of the lot and play area was fenced as part of the 2022 application.

5. The Council may impose additional requirements such as (but not limited to),
   - Limitations on the number of children
   - Additional fence requirements or setbacks
   - Hours of Operation
   - Other requirements that may affect the neighborhood or the health and safety of the children being cared for.

The application states that up to 49 children may be accommodated and the hours of operation will be from 6AM to 6PM for daycare, and an additional 23 children for before / afterschool cares. State license requirements with respect to the building, employees and other operational features will likely control the number of children. According to the zoning standards (and contingent on a determination of the outside space requirements) the site may accommodate more than proposed in the application. Additionally, the functions being incorporated under this special use permit were already occurring independent of this application and accessory to an otherwise permitted use in the remaining portion of the building. The HBD district is intended to have activity in a wide range of times, so hours of operation are not as great of a concern as in neighborhoods. Therefore, for the purposes of the SUP approvals and limits, staff does not recommend any additional conditions, provided nothing in the SUP would supersede any operational limits required through the State licensure.

Parking requirements are established in Section 20 of the Tonganoxie zoning ordinance and have the following regarding the HBD district and daycares:

"In the Historic Business District (HBD), for the purposes of minimizing disruptive curb cuts and driveways, and to encourage the consolidation of parking space in appropriate locations, accessory off- street parking is not required unless determined necessary by the Planning Commission with approval of a site plan." [20-111.W];

Daycares (Licensed Daycares), Group Daycares, **Child Care Centers**, and non-accessory use Preschools.	Net floor area of facility is greater than 2500 square feet.	8 spaces for the first 2,500 square feet, plus 1 space for every additional 5,000 square feet, plus 1 space for each provider on duty at any one time.

[20-011.X]

The zoning ordinance has a default that all parking spaces must be on site, but allows parking to within 200' of the site to be included in a Special Use Permit. In addition, planning and urban

design policies for unique context of the HBD district promotes maximizing on-street parking along the site and on adjacent blocks as a shared resource so that sites and buildings can continue to be built in the historic, compact and walkable development pattern.

At this rate the proposed the entire building used for daycare would require 12 parking spaces, (8 spaces for the initial 2,250 square feet; 2 additional spaces for additional building square feet; and 2 additional employee spaces – application indicates 2 employees

The existing parking area north of the building is unimproved surface and does not indicate parking spaces. However, due to the scale of the area it could accommodate approximately 16 parking spaces. There is no on-street parking permitted on South Main Street, but the front of the building has 3 designated on-street spaces on 4th Street and there is additional on-street parking in the vicinity. [Note: the unimproved nature of the parking is a nonconforming situation. The ordinance requires conformance with the city requirement to pave parking areas if there are any structural changes or a use of the property is abandoned.] Additionally, parking on Main Street on the side of the building is possible, and all on-street parking could be impacted by pending plans for downtown Tonganoxie.

In general, parking is to be waived in the HBD district to account for the more compact, walkable pattern, and to acknowledge that a mix of productive, vibrant uses in close proximity is the priority rather than ensuring that each site has plentiful (and often redundant) parking. Despite this, the nature of the daycare use will require some drop-off and parking for practical purposes. The site can accommodate close to the required amount of parking were this not in the HBD district (discounting the unimproved aspect of the parking, and discount parking for the other portion of the building as a youth center.) The prior approvals recommended that the applicant submit a parking and drop off management plan, and that staff monitor operations to determine if any issues occur and address them through proper parking and operational management (i.e. the site has sufficient capacity for this context if managed properly). No apparent issues with parking, drop off , and pick up have occurred and the proposed addition of before /after school care under this permit should not impact that situation since it was already occurring.

The applicant should continue with the current strategy, staff should continue to monitor parking and circulation (vehicles and pedestrians) in this area – both for this particular site and use and in the context of the downtown plan, and address any issues and concerns with operation and management strategies first, prior to requiring any specific parking and drop-off facilities be constructed.

The Tonganoxie Zoning Ordinance also has the following general criteria to be considered for all special use permits. [22-011]

A. The location and size of the proposed use in relation to the site and to adjacent sites and uses of property, and the nature and intensity of operations proposed thereon.

The application is a reuse of an existing building within the Historic Business District (HBD). The HBD is intended for "small-scale retail, entertainment, municipal and personal service uses that meet the regular needs of the City," and to promote the original character and integrity of the district. Adjacent uses reflect this mixed-use character.

B. Accessibility of the property to police, fire, and refuse collection and other municipal services; adequacy of ingress and egress to and within the site; traffic flow and control; and the adequacy of off-street parking and loading areas.

The subject property has good access for public safety and other municipal services along the abutting streets. As analyzed above with the parking requirements, the site can take advantage of the downtown context and corner location, giving options for drop off and pick up from a variety of directions.

C. Utilities and services, including water, sewer, drainage, gas and electricity, with particular reference to location, availability, capacity and compatibility.

The site is an infill location with access to existing utilities. Connection to utilities will be reviewed through the building permits, and it is anticipated there will be no or nominal impact to utility services in the area by the daycare use.

D. The location, nature and height of structures, walls, fences, and other improvements; their relation to adjacent property and uses; and the need for buffering or screening.

The application is proposed reuse of an existing building within the Historic Business District, and no new improvements are included in the application.

E. The adequacy of required yard and open space requirements and sign provisions.

The application is proposed reuse of an existing building within the Historic Business District, and it meets the standards of that district. (Note: the day care use does have an additional open space requirement addressed above.)

F. The general compatibility with adjacent properties, other properties in the district, and the general safety, health and comfort and general welfare of the community and surrounding neighborhood.

Daycare / Child Care Centers are generally compatible in business districts. The Historic Business District is a unique district in the City and specifically is concerned with (a) preserving the small-scale, compact and walkable patterns of downtown; (b) encourage a mix of uses that add vibrancy to the heart of the city; and (c) promoting long-term investments in buildings and uses that serve these goals. The use of this site for a daycare is consistent with these goals, particularly since the proposed building maintains the small-scale, compact pattern of the HBD district. The proposed uses have been occuring (under the prior permit and related accessory uses) without any issues.

III. EFFECT OF DECISION

- The Planning Commission decision is a recommendation to Governing Body for Special Use Permits; final approval of the City Council is required. Following the consideration of any additional input from the applicant, City Staff, or the public, and based on the application and testimony at the hearing, the Planning Commission may take one of the following actions.
  - Recommend approval of the application.
  - Recommend approval of the application, subject to conditions;
  - Recommend denial of the application, or
  - Continue the application to another date for further consideration and additional information. If continued to a specific date, time and location, no new notice will be required.
- The City Council considers the application at the next meeting after 14 days.

- The City Council may adopt the Planning Commission's recommendation by a majority; it may modify or override the Planning Commission's recommendation by a 2/3 vote of the membership of the governing body.
- If a valid protest petition is filed with the City of Tonganoxie City Clerk within 14 days from the conclusion of the Planning Commission hearing, the City Council must approve the application by a ¾ majority of the governing body.

IV. RECOMMENDATION.

Planning Staff recommends approval of the renewal and expansion of the Special Use Permit subject to the following condition:

1. The applicant continue with the current parking and drop-off management strategy, staff should continue to monitor parking and circulation (vehicles and pedestrians) in this area – both for this particular site and use and in the context of the downtown plan. Prior to any requirements to construct additional parking or vehicle circulations facilities the following strategies should be considered:
   a. How timing and typical vehicle counts a peak times affect any issues.
   b. Whether drop off issues could be addressed internal to the site, all on-street, or a combination.
   c. How operational and staffing scenarios can improve drop off or avoid any issues
   d. Whether remote parking in the vicinity of downtown and/or other modes of parking are expected.
2. The per child open space requirement of the zoning ordinance is considered sufficient due to existing fenced play area, the downtown context, and the abutting public park. Note this would not waive any requirement for outside play areas required by KDHE, and the SUP would still remain subject to any requirements for state licensure. If open space is constructed on site, it shall require an amended site plan and meet all City standards for landscape and open space design.
3. The applicant submits final KDHE permit to the City, prior to any business license or certificate of occupancy in the building.
4. The applicant shall obtain a fire inspection on an annual basis concurrently with the annual renewal of a City Business License for the day care center.
5. The operation is limited to up to 75 children (approximately 50 in day care and 25 in before/afterschool care, plus full-time summer programs), and operating hours between 6AM and 6PM, unless further limited by state license requirements.
6. The permit is valid for a period of five years from the date of approval by the City Council.
7. The building is subject to all building permit and Fire Department inspections necessary for buildings generally, and necessary for daycare facilities and state licenses – specifically exit signs, commercial rated fire extinguishers, compliance of all electrical fixtures or other emergency exit conditions and procedures.

Chris Brewster
Contract City Planner

SITE PLAN REVIEW APPLICATION
City of Tonganoxie, Kansa

Please complete all of the following information (type or print):

Project Name: POLISHED & DECORATIVE CONCRETE

Project Address/Location: 1201 STATE AVE

Description: X New Construction ____ Addition ____ Exterior Remodel ____ Tenant Finish

Other: _____

Send Review Comments To:

Contact Person: MARK BREUER, PE

Company Name: SCHLAGEL

Address: [redacted]

City, State Zip: [redacted]

Phone Number: [redacted] Fax Number: N/A

Owner/Developer (If different from above):

Contact Person: TOM STEAN

Company: CROOKHAM CONSTRUCTION

Address: [redacted]

City, State Zip: [redacted]

Phone Number: [redacted] Fax Number: N/A

- ☑ Site Plan--buildings, walls, fences, exterior equipment, refuse disposal
- ☑ Landscape plan w/schedule
- ☑ Drainage calculations for City Engineer
- ☑ Elevations showing materials, colors, textures, etc.

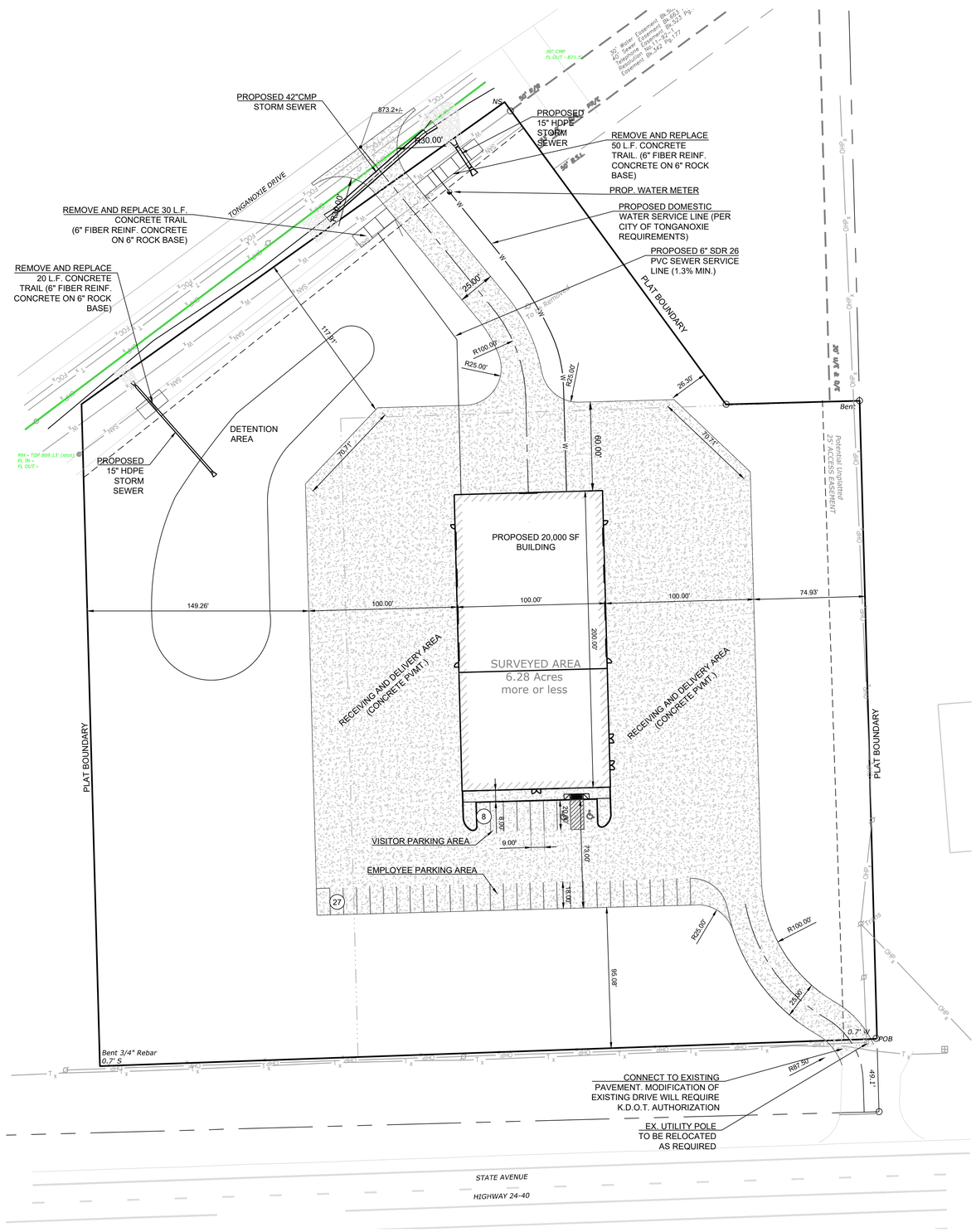
Date Submitted: _____ Fee Paid: _____ Received by _____

***It is the responsibility of the Applicant to read and comply with all of the regulations contained in the Site Review Ordinance. Applicant should anticipate a minimum 2 week review period by City staff. Any revisions required will require additional review time.**

LEGEND:

A/E	-	ACCESS EASEMENT
BC	-	BACK OF CURB
B/B	-	BACK TO BACK
BM	-	BENCHMARK
BL or B.L.	-	BUILDING LINE
CO	-	CLEANOUT
TJB	-	TELEPHONE JUNCTION BOX
C&G	-	CURB AND GUTTER
D/E	-	DRAINAGE EASEMENT
E/E	-	ELECTRICAL EASEMENT
EL	-	ELEVATION
FL	-	FLOW LINE
G/E	-	GAS LINE EASEMENT
HDPE	-	HIGH-DENSITY POLYETHYLENE
L/E	-	LANDSCAPE EASEMENT
MSFE	-	MINIMUM SERVICEABLE FLOOR ELEVATION
PVC	-	POLYVINYL CHLORIDE
P/L	-	PROPERTY LINE
PUB/E	-	PUBLIC EASEMENT
RCP	-	REINFORCED CONCRETE PIPE
ROW or R/W	-	RIGHT-OF-WAY
S/E	-	SANITARY SEWER EASEMENT
SL	-	SERVICE LINE
S/W	-	SIDEWALK
TE	-	TOP ELEVATION
U/E	-	UTILITY EASEMENT
WSE	-	WATER SURFACE ELEVATION
W/E	-	WATERLINE EASEMENT

ASPHALT PAVEMENT - EXISTING
ASPHALT PAVEMENT - PROPOSED
CONCRETE PAVEMENT - EXISTING
ASPHALT PAVEMENT - EXISTING
CONCRETE PAVEMENT - EXISTING
CONCRETE PAVEMENT- PROPOSED
CURB & GUTTER
CURB & GUTTER - EXISTING
TREELINE
EXISTING LOT AND R/W LINES
EXISTING PLAT LINES
P/L — PROPERTY LINES
ROW — RIGHT-OF-WAY
SANITARY SEWER MAIN
SANITARY SEWER MAIN - EXIST.
STO — STORM SEWER
STORM SEWER - EXISTING
$CATV_X$ — CABLE TV - EXISTING
FOC_X — FIBER OPTIC CABLE - EXISTING
T_X — TELEPHONE LINE - EXIST.
E_X — ELECTRIC LINE - EXISTING
OHP_X — OVERHEAD POWER LINE - EXIST.
UGE_X — UNDERGROUND ELECTRIC - EX.
G_X — GAS LINE - EXISTING
W_X — WATERLINE - EXISTING
LIGHT - EXISTING
EXISTING MANHOLE
CO — CLEANOUT
EXISTING SANITARY MANHOLE
PROPOSED SANITARY MANHOLE
AI — EXISTING AREA INLET
CI — EXISTING CURB INLET
GI — EXISTING GRATE INLET
JB — EXISTING JUNCTION BOX
D — EXISTING STORM MANHOLE



GENERAL NOTES:

1. The Engineer and/or it's representatives can not or will not provide a warranty, expressed or implied, for the construction of the designs presented in these plans. It is recommended that third party observation be provided by a qualified firm to provide continuous construction observation of the proposed improvements.
2. All construction shall conform to the City Technical Specifications and Design Criteria, State Road and Bridge Specifications, American Public Work Association (APWA) (Kansas City Chapter) Specifications and/or the Project Specifications as applicable. Contractor shall notify the Engineer of any discrepancies between the standard specifications and the Project Specification and Contract Documents.
3. Contractor is responsible for verifying quantities prior to bidding, as well as becoming familiar with and satisfying himself as to the general, local and site conditions that may effect cost, progress, and performance of work.
4. Contractor shall promptly give engineer written notice of all conflicts, errors, ambiguities or discrepancies that the contractor discovers in the bidding documents and confirm that the written resolution thereof by the engineer is acceptable to contractor.
5. Contractor is responsible for the jobsite safety of the project and the safety of the public and shall adhere to all federal, state and local safety regulations.
6. Contractor is responsible for coordinating construction activities with other contractors concurrently working onsite. Contractor shall coordinate all subcontractor activities, and shall be the sole contact for the owner.
7. Contractor shall secure all required permits insurance requirements and bonding prior to construction. Insurance certificates shall name Owner and Engineer as additional insured.
8. Water for use on site must be purchased from the local water utility having jurisdiction, and shall be purchased per their requirements.
9. All traffic control required in conjunction with the proposed construction shall be in conformance with the Manual of Uniform Traffic Control Devices (MUTCD) and shall be a subsidiary obligation of the contract.
10. Contractor is responsible for the coordination of all material testing required for their work. This includes scheduling of tests, coordinating and providing access to sample locations, and satisfying all test result reporting requirements.

UTILITIES:

1. Existing utilities have been shown to the greatest extent possible based upon information provided to the Engineer. The contractor is responsible for contacting the respective utility companies and field locating utilities prior to construction and identifying any potential conflicts. All conflicts shall immediately be brought to the attention of the Engineer.
2. The contractor shall be responsible for coordinating any required utility relocations. Utilities damaged through the negligence of the contractor shall be repaired at the contractor's expense.
3. Contractor shall verify flow-lines and structure tops prior to construction, and shall notify Engineer of any discrepancies. Provide shop drawings for all precast and manufactured utility structures for review by the Engineer prior to construction of the structures.
4. Utility Separation: Waterlines shall have a minimum of 10 feet horizontal and 2 feet vertical separation from all sanitary sewer lines, manholes, and sanitary sewer service laterals, as measured from edge to edge. If minimum separations can not be obtained, concrete encasement of the sanitary line shall be required 10 feet in each direction of the conflict.
5. Payment for trenching, backfilling, pipe embedment, flowable fill, backfill materials, clean up, seeding, sodding and any other items necessary for the construction of the utility line shall be included in the contract price for the utility installation.
6. The Contractor shall be responsible for contacting respective utility companies 48-hours in advance for the inspection of any proposed utility main extension or service line or service connection to any existing main.
7. Trench spoils shall be neatly placed onsite adjacent to the trench, and compacted to prevent saturation and excess sediment runoff. Unsuitable materials, excess rock and shale, asphalt, concrete, trees, brush etc. shall be properly disposed of offsite. Materials may be wasted onsite at the direction of the Owner or his appointed representative.
8. All excavation is considered unclassified, unless noted otherwise. Unclassified excavation for utility trenching is subsidiary to the unit price provided for the pipe. Any quantity provided for rock excavation is estimated based on the best information provided to the Project Engineer. The Engineer has the authority to identify and define the physical characteristics to determine the classification. Unit price quantities for rock excavation will be paid at a trench width of the nominal pipe diameter of the installed main plus 18 inches. Contractor is required to dispose of excess rock from their trenches by disposing it in areas as specified by the Project Engineer.

Site Information:

Owner: PURE GRIT, LLC
General Contractor:
CROOKHAM CONSTRUCTION, LLC
Tom Stean
PO Box 339
Tonganoxie, KS
913-369-3341

Address: 1201 State Avenue
Lot Area: 6.28 Ac. (Boundary and Topographic Survey prepared by Herring Surveying)

Proposed Building Floor Area: 20,000 S.F.
Proposed Concrete Paving Area: 90,100 S.F.

Current Zoning: Moderate Industrial District

Current Use: Vacant
Proposed Use: Office/Shop for Polished and Decorative Concrete

Proposed Parking: 35 Stalls (2 handicap-accessible stalls)

TONGANOXIE DRIVE ACCESS NOTE: THE APPLICANT WISHES TO PURSUE OBTAINING A BUILDING PERMIT WITH THE CONTINGENCY THAT THE DRIVEWAY CONNECTION TO TONGANOXIE DRIVE BE REMOVED IF NOT PERMITTED BY THE COUNTY.

SCALE: 1" = 40'

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(913) 492-5158 • Fax: (913) 492-8400
WWW.SCHLAGELASSOCIATES.COM

PREPARED BY:

MARK ALLEN BREUER LICENSED 20320 04.19.2024 KANSAS PROFESSIONAL ENGINEER

SCHLAGEL & ASSOCIATES, P.A.

POLISHED AND DECORATIVE CONCRETE
SITE PLANS
1201 STATE AVENUE TONGANOXIE, KANSAS

REVISION DATE	DESCRIPTION
1 2.9.2024	STATE SUBMITTAL
2 3.8.2024	CITY SUBMITTAL
3 4.19.2024	CITY COMMENTS
4	
5	
6	
7	
8	
9	

DRAWN BY: SCH
CHECKED BY: MAB
DATE PREPARED: 02.09.2024
PROJ. NUMBER: 24-032

GENERAL LAYOUT

SHEET
C100

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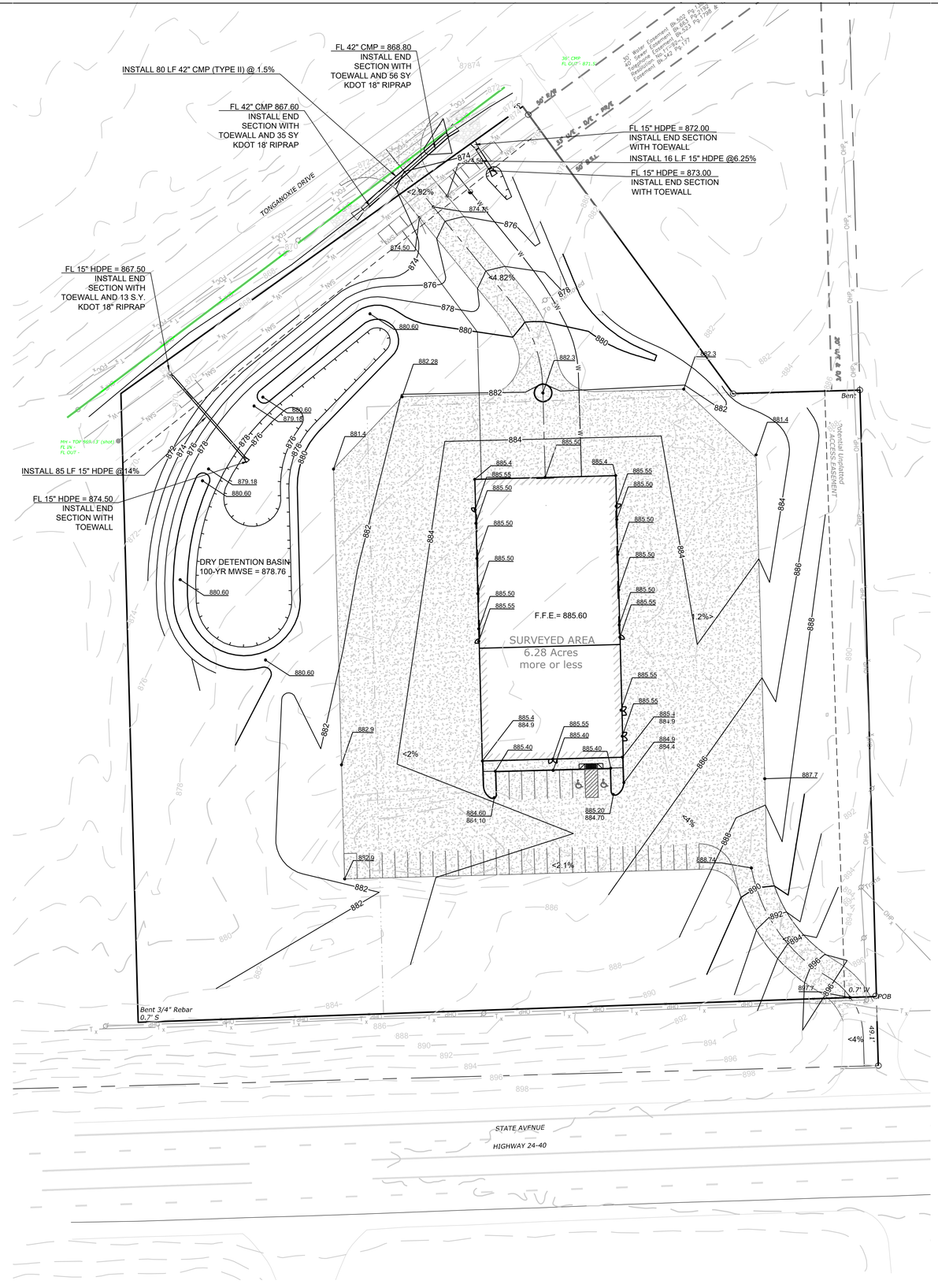
EARTHWORK:

1. All earthwork shall conform to the Geotechnical Report prepared for this specific project. It is recommended that a Geotechnical Engineer observe and document all earthwork activities.
2. Contours have been shown at 1-foot or 2-foot intervals, as indicated. Grading shall consist of completing the earthwork required to bring the physical ground elevations of the existing site to the finished grade (or sub-grade) elevations provided on the plans as spot grades, contours or others means as indicated on the plans.
3. The existing site topography depicted on the plans by contouring has been established by aerial photography and field verified by g.p.s. observation near 2-6-2013.The contour elevations provided may not be exact ground elevations, but rather interpretations of such. Accuracy shall be considered to be such that not more than 10 percent of spot elevation checks shall be in error by more than one-half the contour interval provided, as defined by the National Map Accuracy Standards. Any quantities provided for earthwork volumes are established using this topography contour accuracy, and therefore the inherent accuracy of any earthwork quantity is assumed from the topography accuracy.
4. Proposed contours are to approximate finished grade.
5. Unless otherwise noted, payment for earthwork shall include backfilling of the curb and gutter, sidewalk and further manipulation of utility trench spoils. The site shall be left in a mowable condition and positive drainage maintained throughout.
6. Unless otherwise noted, all earthwork is considered Unclassified. No additional compensation will be provided for rock or shale excavation, unless specifically stated otherwise.
7. Prior to earthwork activities, pre-disturbance erosion and sediment control devices shall be in place per the Storm Water Pollution Prevention plan and/or the Erosion and Sediment Control Plan prepared for this site.
8. All topsoil shall be stripped from all areas to be graded and stockpiled adjacent to the site at an area specified by the project owner or his appointed representative. Vegetation, trash, trees, brush, tree roots and limbs, rock fragments greater then 6-inches and other deleterious materials shall be removed and properly disposed of offsite or as directed by the owner or his appointed representative.
9. Unless otherwise specified in the Geotechnical Report, all fills shall be placed in maximum 6-inch lifts and compacted to 95-percent of maximum density as defined using a modified proctor test.
10. Subgrade for pavements shall be proof-rolled prior to paving operations utilizing a fully loaded tandem axle dump truck. All areas exhibiting excessive pumping and heaving shall be removed, filled and compacted with suitable materials and retested until acceptable results are achieved and final approval has been obtained from the Geotechnical Engineer.
11. Subgrade for building pads shall include a minimum of 18-inches of Low Volume Change (LVC) material, or as identified in the site specific Geotechnical Report.
12. Fill materials shall be per Geotechnical Report and shall not include organic matter, debris or topsoil. All fills placed on slopes greater than 6:1 shall be benched.
13. The Contractor shall be responsible for redistributing the topsoil over proposed turf and landscaped areas to a minimum depth of 6-inches below final grade.
14. All areas shall be graded for positive drainage. Unless noted otherwise the following grades shall apply:
    a. Turf Areas – 2.5% Minimum, 4H:1V Maximum
    b. Paved Areas – 1.2% Minimum, 5% Maximum
15. A.D.A. parking stalls shall not be sloped greater then 2% in any direction and constructed per A.D.A. requirements.
16. All disturbed areas shall be fertilized, seeded and mulched immediately after earthwork activities have ceased. Seeding shall be per the Erosion and Sediment Control Plan and/or Landscape Plan. If not specified seeding shall be per APWA Section 2400, latest edition. Unless otherwise noted, seeding shall be subsidiary to the contract price for earthwork and grading activities.
17. All disturbed areas in the right-of-way shall be sodded, per city requirements.
18. Underdrains are recommended for all paved areas adjacent to irrigated turf and landscaped beds.
19. Contractor shall adhere to the reporting requirements outlined in the Storm Water Pollution Prevention Plan (SWPPP) prepared for this project. Erosion and Sediment control devices shall be properly maintained and kept clean of silt and debris and in good working order. Additional erosion and sediment control measures shall be installed as required.



0 40' 80'
SCALE: 1" = 40'

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Kansas State Certificates of Authority
#E-296 #LA-29 #LS-54

PREPARED BY:

MARK ALLEN BREUER LICENSED 20323 04.19.2024 KANSAS PROFESSIONAL ENGINEER

SCHLAGEL & ASSOCIATES, P.A.

POLISHED AND DECORATIVE CONCRETE SITE PLANS

1201 STATE AVENUE TONGANOXIE, KANSAS

REVISION DATE	DESCRIPTION
2.9.2024	STATE SUBMITTAL
3.8.2024	CITY SUBMITTAL
4.19.2024	CITY COMMENTS

DRAWN BY:	SCH
CHECKED BY:	MAB
DATE PREPARED:	02.09.2024
PROJ. NUMBER:	24-032

GRADING PLAN

SHEET
C200

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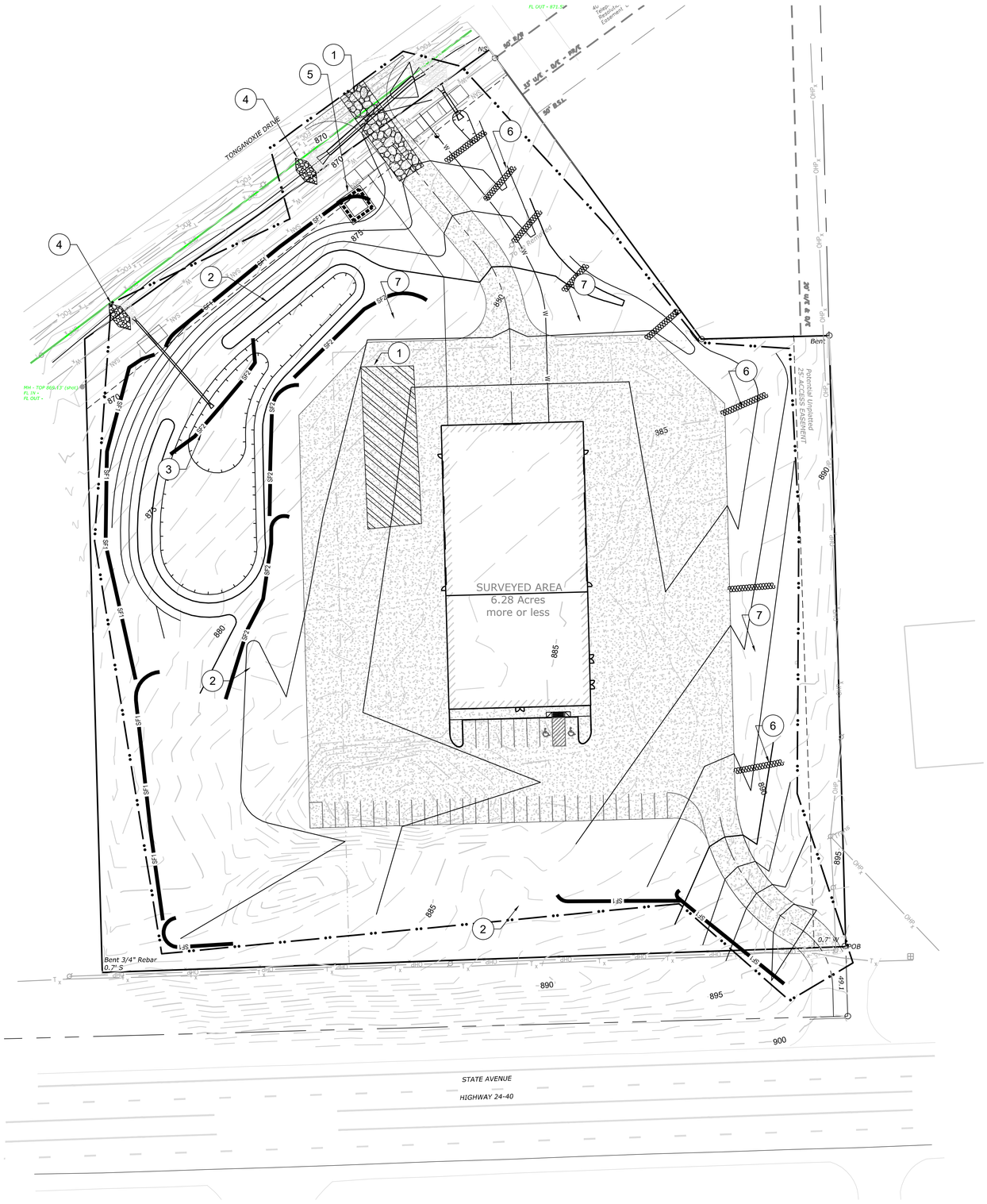

DISTURBED AREA = 5.7 A.C.

SITE SPECIFIC NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION.
2. THERE ARE NO WETLANDS, NATURAL OR ARTIFICIAL WATER STORAGE DETENTION AREAS IN THE PROJECT AREA.
3. NO PART OF THE PROJECT LIES WITHIN THE 100 YEAR FLOOD PLAIN.
4. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE IMPLEMENTED ACCORDING TO THE BMP STAGING CHART.
5. ADDITIONAL EROSION CONTROL MAY BE REQUIRED BY THE CITY ENGINEER AT ANY TIME EXISTING MEASURES ARE FOUND TO BE INEFFECTIVE OR PROBLEMATIC AREAS ARE NOTED IN THE FIELD.
6. STABILIZATION OF DISTURBED AREAS MUST, AT A MINIMUM, BE INITIATED IMMEDIATELY WHENEVER ANY CLEARING, GRADING, EXCAVATING, OR OTHER SOIL DISTURBING ACTIVITIES HAVE PERMANENTLY CEASED ON ANY PORTION OF THE SITE, OR TEMPORARILY CEASED ON ANY PORTION OF THE SITE AND WILL NOT RESUME FOR A PERIOD EXCEEDING 14 CALENDAR DAYS. THE DISTURBED AREAS SHALL BE PROTECTED FROM EROSION BY STABILIZING THE AREA WITH MULCH OR OTHER SIMILARLY EFFECTIVE SOIL STABILIZING BMPS. INITIAL STABILIZATION ACTIVITIES MUST BE COMPLETED WITHIN 14 DAYS AFTER SOIL DISTURBING ACTIVITIES CEASE.
7. ALL PERIMETER SILT FENCE, EARTH DIKES, SEDIMENT BASINS, AND ROCK CONSTRUCTION ENTRANCES WILL BE INSTALLED BEFORE GRADING OPERATIONS BEGIN.
8. SILT FENCE AND EARTH DIKES THAT ARE PLACED BEFORE GRADING BEGINS WILL BE MAINTAINED BY THE GRADING CONTRACTOR.

LEGEND

- TEMPORARY STORAGE AREA FOR EXCESS MATERIAL
- TEMP. CONSTRUCTION ENTRANCE AND STAGING AREA
- CONCRETE WASHOUT AREA
- SILT FOAM DIKE - STAKED & INSTALL PER MFR'S RECOMMENDATIONS
- ROCK DITCH CHECK
- GRAVEL CURB INLET SEDIMENT TRAP
- SILT SOCK / ROCK SOCK / SOCK WATTLE
- (1) BMP PLAN REF. NO.
- SF1 — SILT FENCE (PRIOR TO LAND DISTURBANCE)
- SF2 — SILT FENCE (DURING CONSTRUCTION)
- X — CONSTRUCTION FENCE
- LIMITS OF DISTURBANCE
- 965 — EXISTING CONTOURS
- 965 — PROPOSED CONTOURS

EROSION AND SEDIMENT CONTROL STAGING CHART

PROJECT STAGE	BMP PLAN REF. NO	BMP DESCRIPTION	REMOVE AFTER STAGE	NOTES:
A - PRIOR TO LAND DISTURBANCE	1	CONSTRUCTION ENTRANCE & STAGING AREA	D	MAINTAIN, REPAIR, OR REPLACE AS NECESSARY
	2	SILT FENCE (PRIOR TO LAND DISTURBANCE)	E	PLACE WHERE INDICATED, REPAIR OR REPLACE AS NECESSARY AND REMOVE ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED
B - MASS GRADING	3	SILT FENCE (DURING CONSTRUCTION)	E	PLACE WHERE INDICATED, REPAIR OR REPLACE AS NECESSARY AND REMOVE ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED
	4	ROCK DITCH CHECK	E	PLACE WHERE INDICATED AS SOON AS SWALE IS ESTABLISHED, REPAIR OR REPLACE AS NECESSARY
C - UTILITY CONSTRUCTION	5	CONCRETE WASHOUT AREA	E	MAINTAIN, REPAIR, OR REPLACE AS NECESSARY
D - AFTER PAVING OPERATIONS	6	STRAW WATTLE	E	PLACE WHERE INDICATED, REPAIR OR REPLACE AS NECESSARY AND REMOVE ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED
	7	SEEDING AND MULCHING	E	ALL DISTURBED AREAS AFTER 14 DAYS OF CONSTRUCTION INACTIVITY
E - UNTIL CLOSURE OF LAND DISTURBANCE PERMIT				ADDITIONAL SEDIMENT AND EROSION CONTROL MEASURES MAY BE REQUIRED ANY TIME CURRENT MEASURES ARE FOUND TO BE INEFFECTIVE.

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ENGINEERS PLANNERS SURVEYORS LANDSCAPE ARCHITECTS
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(913) 492-5158 • Fax: (913) 492-8400
WWW.SCHLAGELASSOCIATES.COM

PREPARED BY:

MARK ALLEN BREUER LICENSED 20329 04.19.2024 KANSAS PROFESSIONAL ENGINEER

SCHLAGEL & ASSOCIATES, P.A.

POLISHED AND DECORATIVE CONCRETE SITE PLANS

1201 STATE AVENUE TONGANOXIE, KANSAS

REVISION DATE	DESCRIPTION
2.9.2024	STATE SUBMITTAL
3.8.2024	CITY SUBMITTAL
4.19.2024	CITY COMMENTS

DRAWN BY: #####
CHECKED BY: MAB
DATE PREPARED: 02.09.2024
PROJ. NUMBER: 24-032

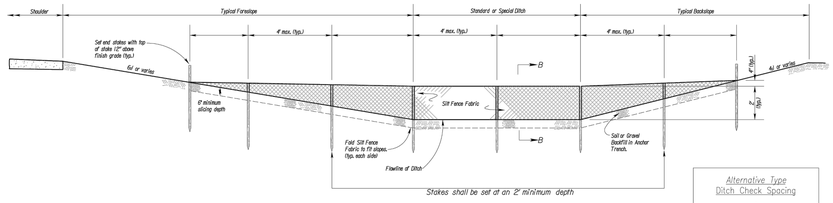
EROSION AND SEDIMENT CONTROL PLAN

SHEET
C300

I:\PROJECTS\2024\24-032\3.0 Design\3.0 DWG Plans\4.0 SDP\24-032 EROSION CONTROL.dwg, C300 ERO, 1:1

Notes for Silt Fence Ditch Check:

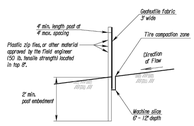
1. Stakes shall be 4" (min.) long and one of the following materials:
   a. Hardwood – 1 ¾" x 1 ¾";
   b. Southern Pine (No. 2) – 2 ¾" x 2 ¾";
   c. Steel U, T, L, or C Section – .95 lbs. per 1'-0";
   d. Synthetic – same strength as wood stakes.
2. Cross pieces shall be of same material as stakes.
3. Attach fence fabric securely on 6" centers (max.).
4. Use of high flow material is acceptable.
5. Refer to plan sheets to estimate the length of silt fence required.
6. Use support fencing when tributary area is greater than 2.4 acres or when ditch gradient is greater than 2 percent.
7. Silt fence sliced in to a 6" minimum depth.
8. Elevation at tie in points shall be a minimum of 4" higher than the center.



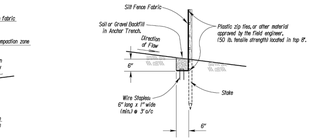
Stakes shall be set at an 2' minimum depth

TYPICAL ELEVATION

Alternative Type Ditch Check Spacing	
Ditch Centerline Slope (%)	Spacing Interval (Feet)
1.0	200
2.0	100
3.0	65
4.0	50
5.0	40
6.0	33
Note: Use this spacing for all except Rock Ditch Checks.	

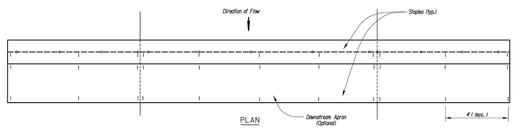


SECTION B-B

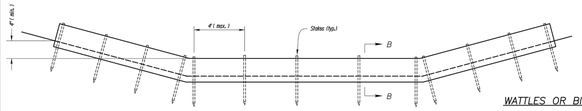


SILT FENCE DITCH CHECK

NO SCALE



PLAN



TYPICAL ELEVATION

WATTLES OR BIODEGRADABLE LOG DITCH CHECKS

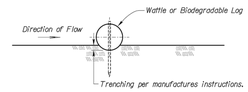
OR Filter Sock Ditch Check

NO SCALE

Modified from Kansas Department of Transportation Standard Details for Erosion Control and Sediment Control.

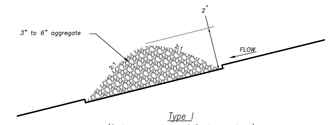
Notes for Wattles and Biodegradable Log Ditch Check:

1. Use as many biodegradable log sections as necessary to ensure water does not flow around end of ditch check.
2. Overlap sections a minimum of 18"
3. Stakes shall be per manufacturer's instructions. Length of stakes shall be a minimum of 2 times the diameter of the log or 24" minimum.
4. Use Erosion Control (Class 1) (Type C) as the downstream apron when directed by the Engineer.
5. Use 9" diameter logs when used with Erosion Control (Class 2) (Key Type) channel lining. Smaller diameter logs may be used with Erosion Control (Class 2) (Key Type) channel lining as directed by the Engineer.

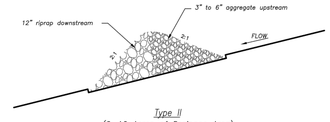


SECTION B - B

AMERICAN PUBLIC WORKS ASSOCIATION
Kansas City Metro Chapter
KANSAS CITY METRO CHAPTER
SILT FENCE AND WATTLE/ BIODEGRADABLE LOG DITCH CHECKS
STANDARD DRAWING NUMBER ESC-09
ADOPTED: 10/24/2016



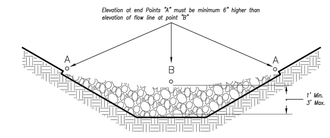
Type I
(2 Acres or less of Drainage Area)
Not to Scale



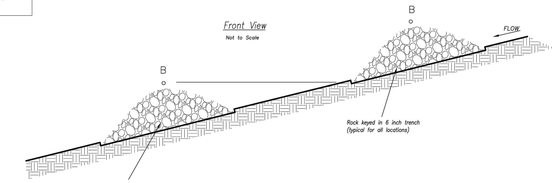
Type II
(2-10 Acres of Drainage Area)
Not to Scale

ROCK DITCH CHECK

Temporary Rock Ditch Check Spacing	
Ditch Centerline Slope (%)	Spacing Interval (Feet)
5.0	60
6.0	50
7.0	43
8.0	36
9.0	33
10.0	29
Note: Use this spacing only for Rock Ditch Checks.	



Front View
Not to Scale



Spacing Between Check Dams (all types)
Not to Scale

Notes:

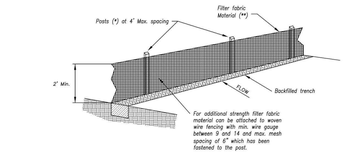
1. Rock check dams shall be used only for drainage areas less that 10 acres unless approved by the City Engineer.
2. Use rock checks only in situations where the ditch slope exceeds 6%.

Maintenance:

1. Remove and dispose of sediment deposits when the deposit approaches ½ the height of the ditch check.
2. Replace and reshape as necessary to maintain function and integrity of installation.

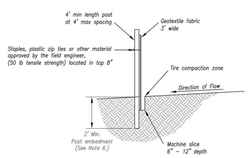
Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

AMERICAN PUBLIC WORKS ASSOCIATION
Kansas City Metro Chapter
KANSAS CITY METRO CHAPTER
ROCK DITCH CHECKS
STANDARD DRAWING NUMBER ESC-10
ADOPTED: 10/24/2016



(*) POSTS
- MIN. LENGTH 4'
- HARDWOOD 1 ¾" x 1 ¾"
- NO.2 SOUTHERN PINE 2 ¾" x 2 ¾"
- STEEL 1.33 LB/FT

(**) – Geotextile Fabric shall meet the requirements of AASHTO M288



Notes:

1. In order to contain water, the ends of the silt fence must be turned uphill (Figure A).
2. Long perimeter runs of silt fence must be limited to 100'. Runs should be broken up into several smaller segments to minimize water concentrations (Figure A).
3. Long slopes should be broken up with intermediate rows of silt fence to slow runoff velocities.
4. Attach fabric to upstream side of post.
5. Install posts a minimum of 2' into the ground.
6. Trenching will only be allowed for small or difficult installation, where slicing machine cannot be reasonably used.

Maintenance:

1. Remove and dispose of sediment deposits when the deposit approaches ½ the height of silt fence.
2. Repair as necessary to maintain function and structure.

SILT FENCE DETAILS

Not to Scale

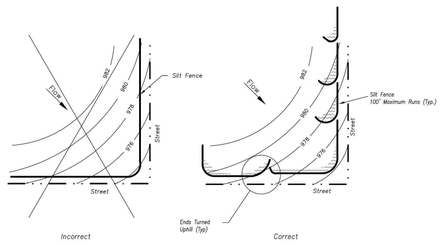
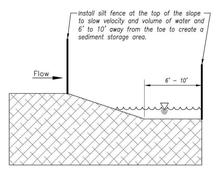
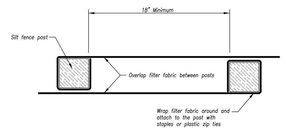


Figure A

SILT FENCE LAYOUT

Not to Scale



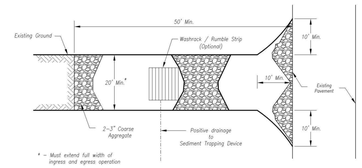


JOINING FENCE SECTIONS

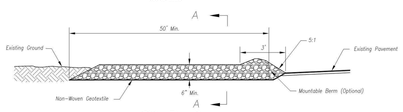
Not to Scale

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

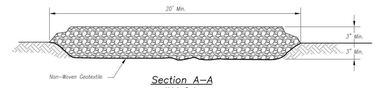
AMERICAN PUBLIC WORKS ASSOCIATION
Kansas City Metro Chapter
KANSAS CITY METRO CHAPTER
SILT FENCE
STANDARD DRAWING NUMBER ESC-03
ADOPTED: 10/24/2016



Plan View
Not to Scale



Side Elevation
Not to Scale



Section A-A
Not to Scale

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.

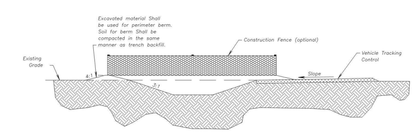
CONSTRUCTION ENTRANCE

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 washout area 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

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.

AMERICAN PUBLIC WORKS ASSOCIATION
Kansas City Metro Chapter
KANSAS CITY METRO CHAPTER
CONSTRUCTION ENTRANCE AND CONCRETE WASHOUT
STANDARD DRAWING NUMBER ESC-01
ADOPTED: 10/24/2016

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POLISHED AND DECORATIVE CONCRETE SITE PLANS

1201 STATE AVENUE TONGANOXIE, KANSAS

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1 2.9.2024	STATE SUBMITTAL
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3 4.19.2024	CITY COMMENTS
4	
5	
6	
7	
8	

DRAWN BY: SCH
CHECKED BY: MAB
DATE PREPARED: 02.09.2024
PROJ. NUMBER: 24-092

EROSION CONTROL DETAILS

SHEET C301

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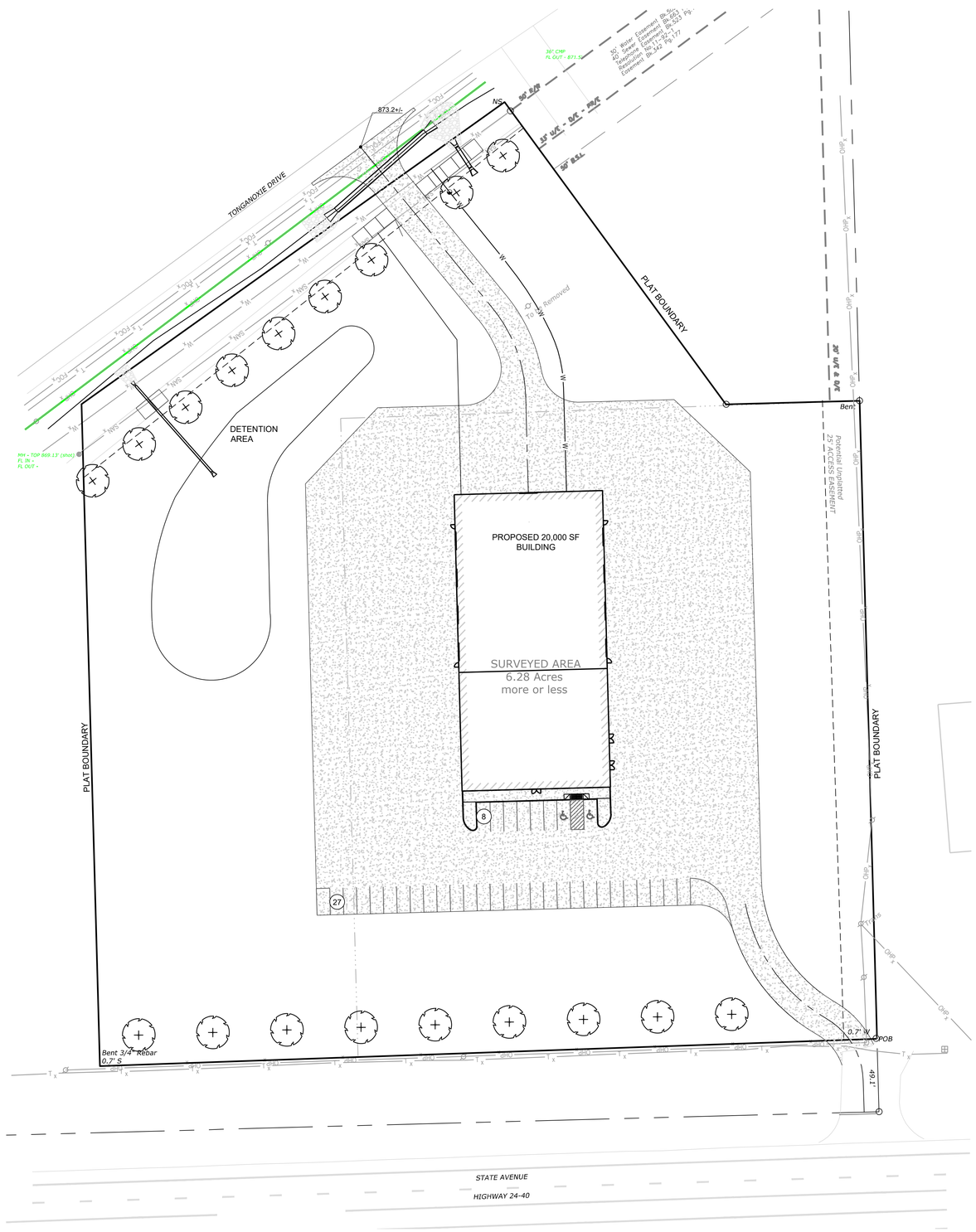
LEGEND:

A/E	-	ACCESS EASEMENT
BC	-	BACK OF CURB
B/B	-	BACK TO BACK
BM	-	BENCHMARK
BL or B.L.	-	BUILDING LINE
CO	-	CLEANOUT
TJB	-	TELEPHONE JUNCTION BOX
C&G	-	CURB AND GUTTER
D/E	-	DRAINAGE EASEMENT
E/E	-	ELECTRICAL EASEMENT
EL	-	ELEVATION
FL	-	FLOW LINE
G/E	-	GAS LINE EASEMENT
HDPE	-	HIGH-DENSITY POLYETHYLENE
L/E	-	LANDSCAPE EASEMENT
MSFE	-	MINIMUM SERVICEABLE FLOOR ELEVATION
PVC	-	POLYVINYL CHLORIDE
P/L	-	PROPERTY LINE
PUB/E	-	PUBLIC EASEMENT
RCP	-	REINFORCED CONCRETE PIPE
ROW or R/W	-	RIGHT-OF-WAY
S/E	-	SANITARY SEWER EASEMENT
SL	-	SERVICE LINE
S/W	-	SIDEWALK
TE	-	TOP ELEVATION
U/E	-	UTILITY EASEMENT
WSE	-	WATER SURFACE ELEVATION
W/E	-	WATERLINE EASEMENT

ASPHALT PAVEMENT - EXISTING
ASPHALT PAVEMENT - PROPOSED
CONCRETE PAVEMENT - EXISTING
ASPHALT PAVEMENT - EXISTING
CONCRETE SIDEWALK - EXISTING
CONCRETE SIDEWALK - PROPOSED
CURB & GUTTER
CURB & GUTTER - EXISTING
TREELINE
EXISTING LOT AND R/W LINES
EXISTING PLAT LINES
P/L — PROPERTY LINES
ROW — RIGHT-OF-WAY
SANITARY SEWER MAIN
SANITARY SEWER MAIN - EXIST.
STO — STORM SEWER
STORM SEWER - EXISTING
$CATV_X$ — CABLE TV - EXISTING
FOC_X — FIBER OPTIC CABLE - EXISTING
T_X — TELEPHONE LINE - EXIST.
E_X — ELECTRIC LINE - EXISTING
OHP_X — OVERHEAD POWER LINE - EXIST.
UGE_X — UNDERGROUND ELECTRIC - EX.
G_X — GAS LINE - EXISTING
W_X — WATERLINE - EXISTING
LIGHT - EXISTING
EXISTING MANHOLE
CO — CLEANOUT
EXISTING SANITARY MANHOLE
PROPOSED SANITARY MANHOLE
AI — EXISTING AREA INLET
CI — EXISTING CURB INLET
GI — EXISTING GRATE INLET
JB — EXISTING JUNCTION BOX
EXISTING STORM MANHOLE



SHADE TREES

QB	18 EA.	Quercus bicolor	Swamp White Oak	2.5" Cal.	B&B

0 40' 80'
SCALE: 1" = 40'

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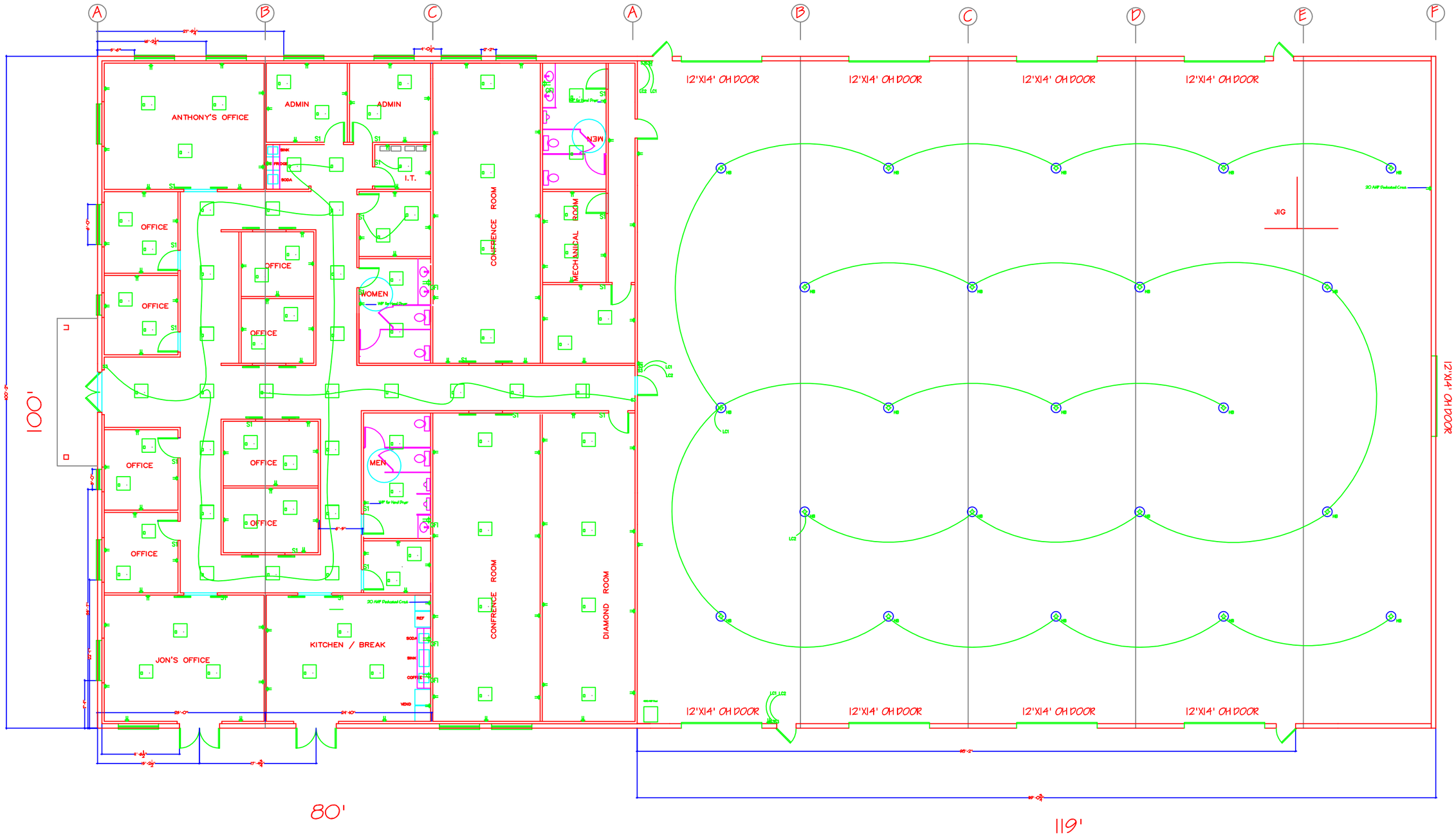
4.19.2024	CITY COMMENTS

DRAWN BY: SCH
CHECKED BY: MAB
DATE PREPARED: 02.09.2024
PROJ. NUMBER: 24-032

LANDSCAPE PLAN

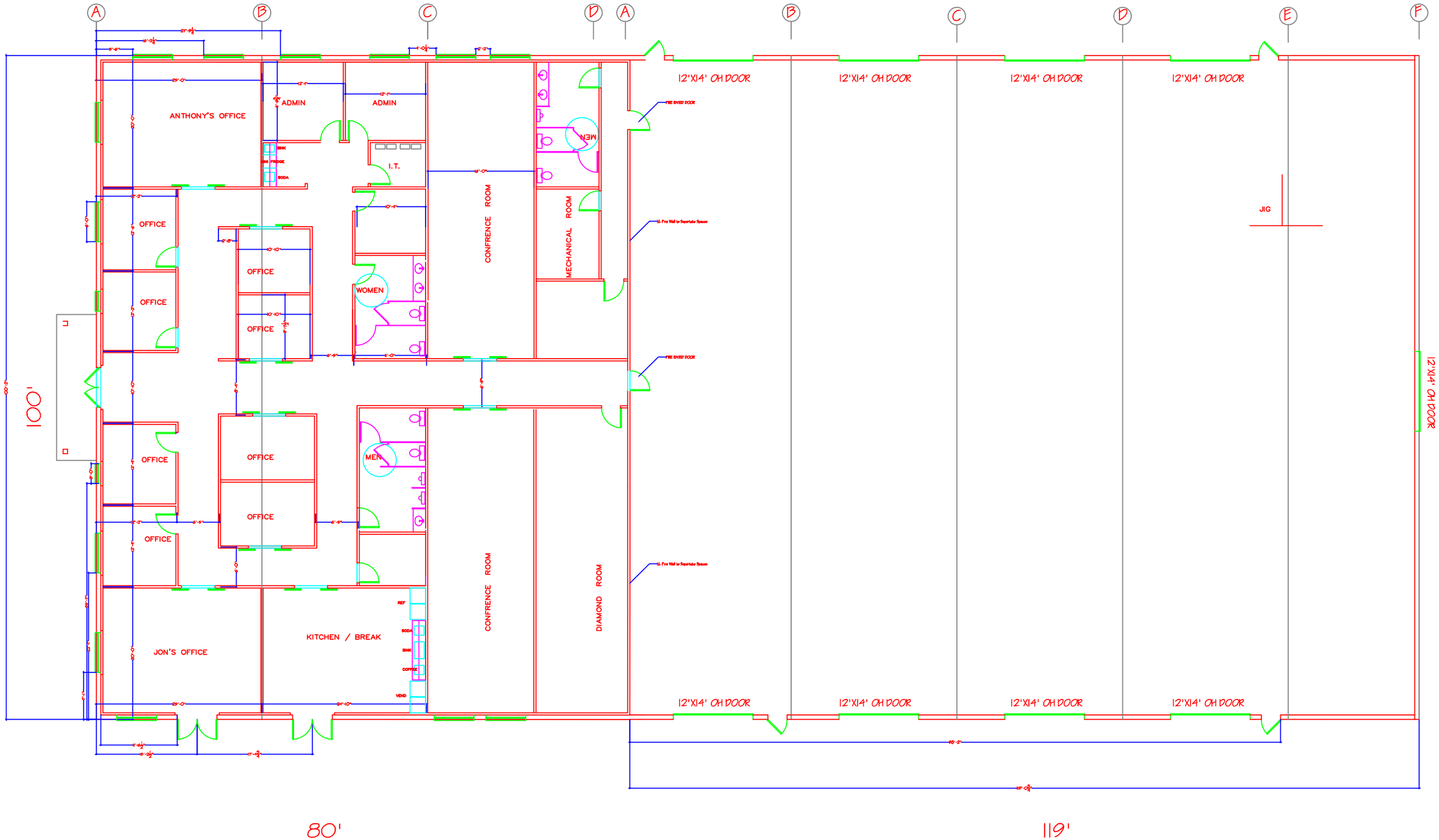
SHEET
L100

I:\PROJECTS\2024\24-032\3.0 Design\3.0 DWG Plans\4.0 SDP\24-032 SDP_LP.dwg, LANDSCAPE PLAN, 1:1



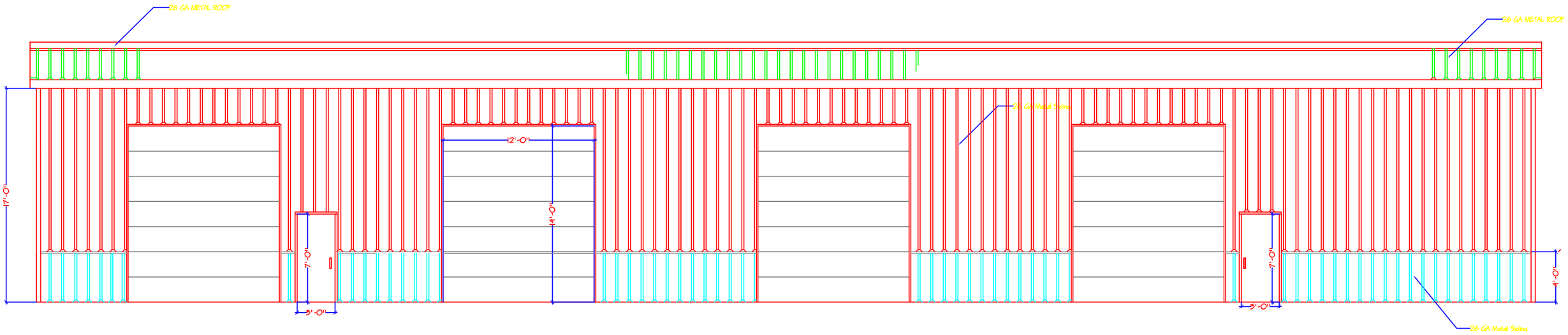
ELECTRICAL PLAN

10/25/23

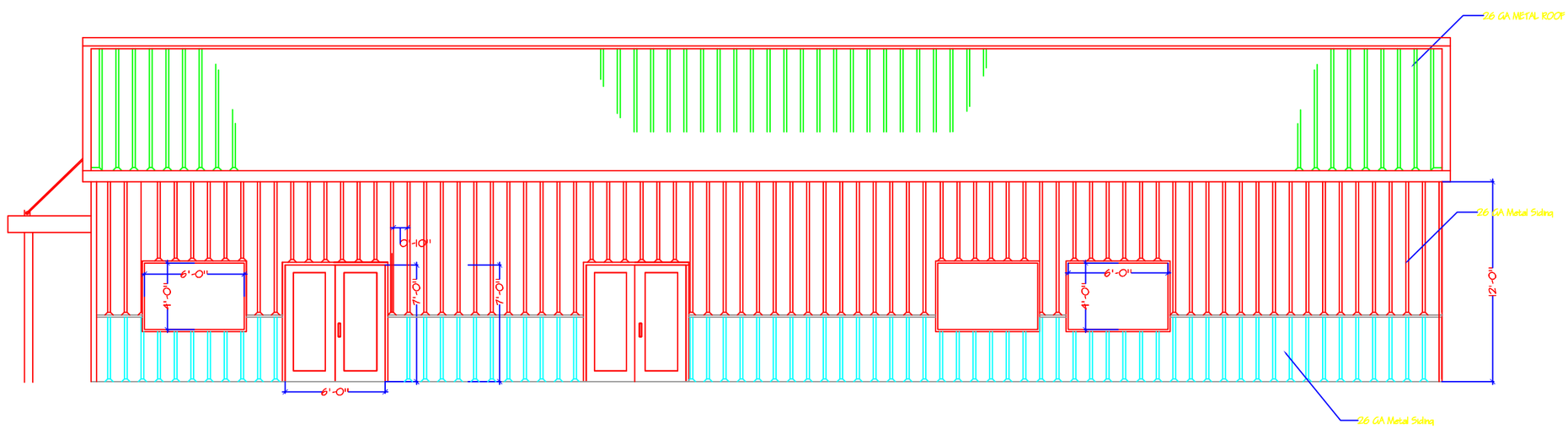


FLOOR PLAN

10/25/23

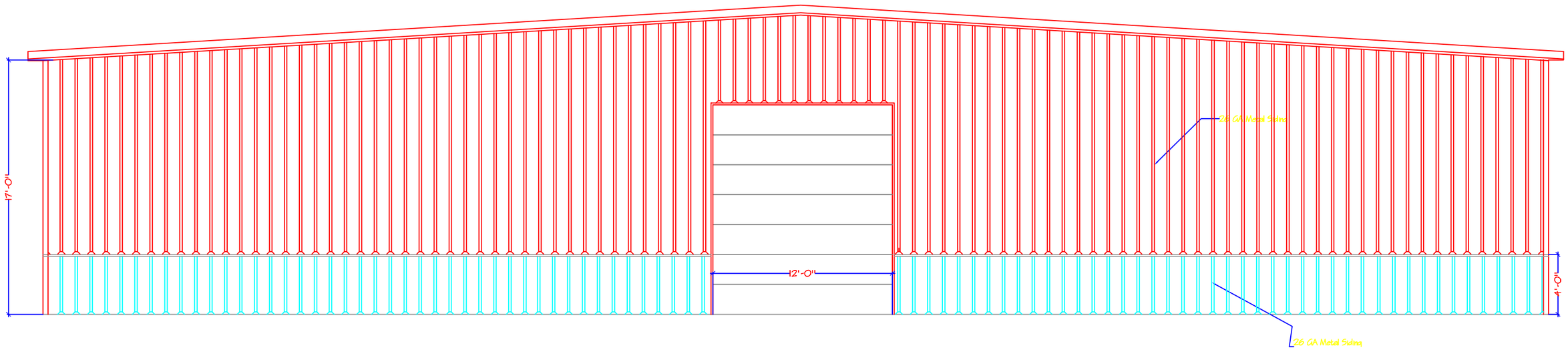


EAST FACADE WAREHOUSE

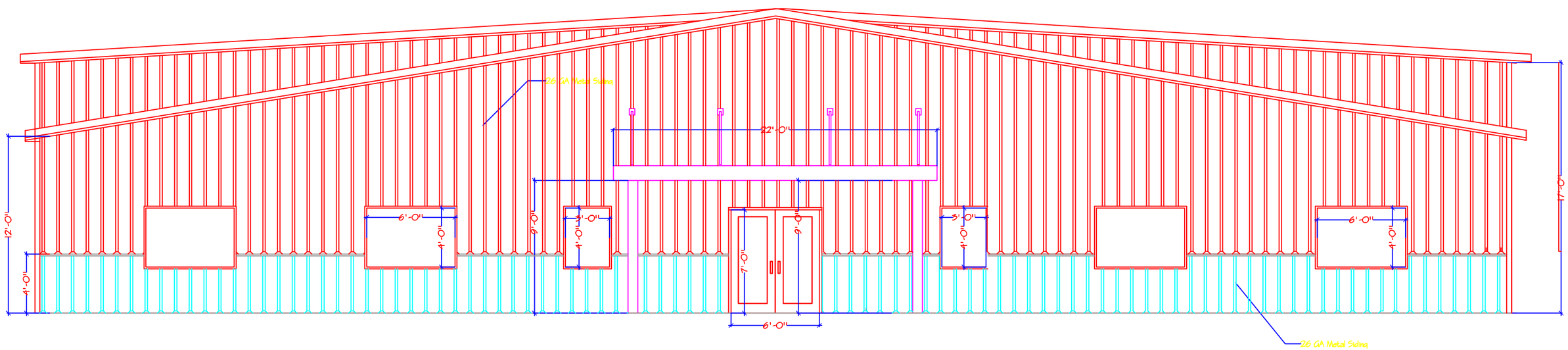


EAST FACADE OFFICE

10/25/23

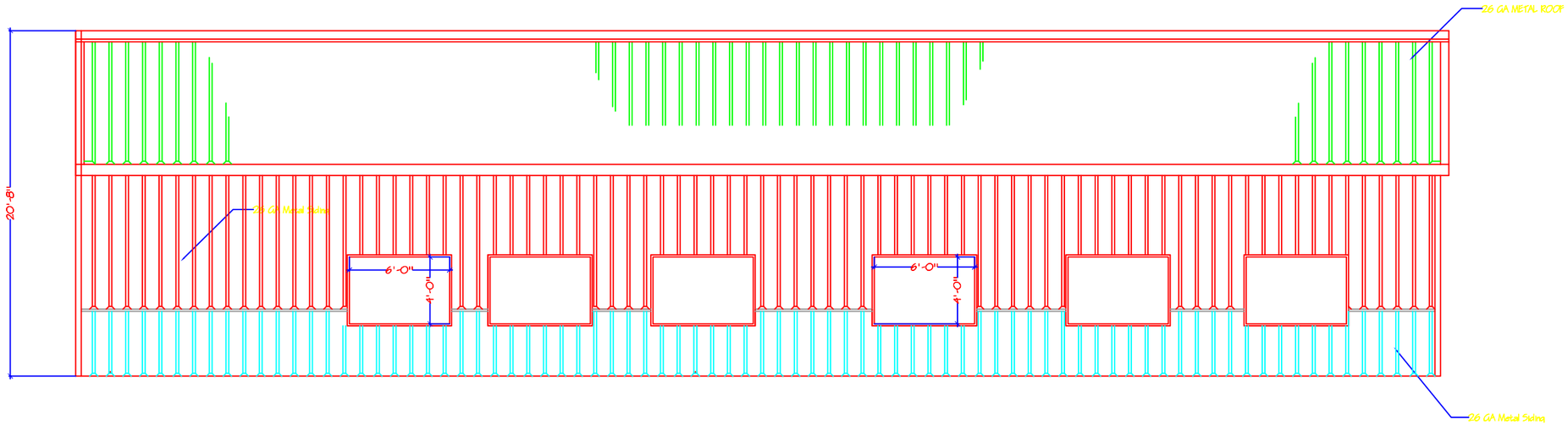


NORTH FACADE WAREHOUSE

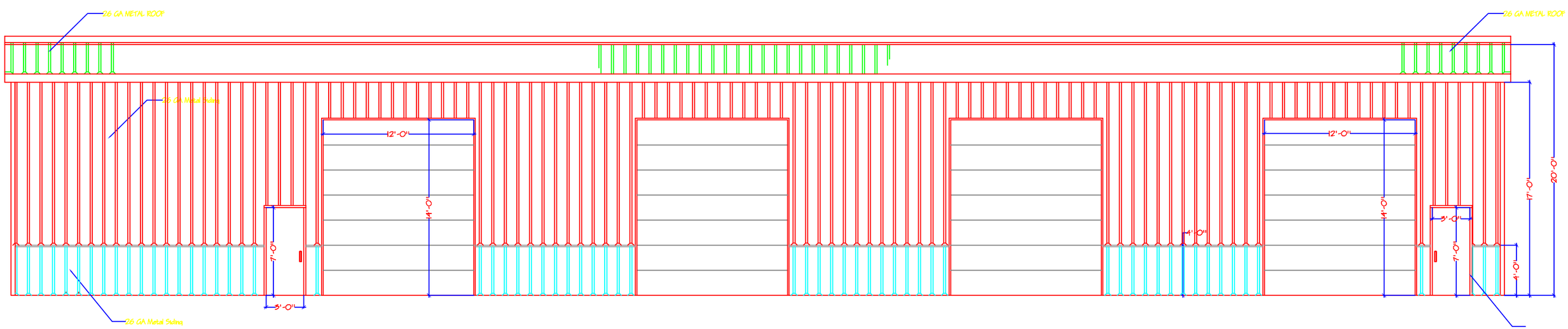


SOUTH FACADE

10/25/23



WEST FACADE OFFICE



WEST FACADE WAREHOUSE

10/25/23

GENERAL NOTES

1. This structure has been designed in accordance with the 2016 AISI NAUS Cold Formed Steel Design Manual and the AISC (16th Edition, ASD) Steel Construction Manual.

2. Fabrication shall be accordance with Topline Standards in compliance with the applicable sections, relating to design requirements and allowable stresses of the latest edition of the "AWS Structural Welding Code D1.1".

3. Materials	ASTM Designation	Minimum Yield
Hot Rolled Angle	A36	Fy = 36 ksi
Structural Steel Plate	A572, A529, A1011	Fy = 55 ksi
Cold Formed Shapes	A1011/(A653 Galvanized)	Fy = 55 ksi
Cable Bracing	A475 (7–Wire Strand)	Ex. High Strength
Rod Bracing	A529 – GR 50	Fy = 50 ksi
Roof & Wall Sheeting	A792 26 GA	80 ksi, Class 1
	A792 24 and 22 GA	50 ksi, Class 2
High Strength Bolts	A325–Group A/(A490–Group B)	
Pipe	A53, Gr. B	Fy = 35 ksi
Round Structural Tubing	A500, Gr. B	Fy = 42 ksi
Shaped Structural Tubing	A500, Gr. B	Fy = 46 ksi
Hot Rolled Shapes	A572, A992, A529 Gr. 50	Fy = 50 ksi
Hot Rolled Shapes	A36	Fy = 36 ksi

4. Shop primer paint is a rust inhibitive primer which meets the end performance of SSPC–Paint 15: Steel Joist Shop Primer/ Metal Building Primer and is Gray Oxide in color. This paint is not intended for long term exposure to the elements. Topline Steel Buildings is not responsible for any deterioration of the shop primer as a result of improper handling or storage. Topline will not be responsible for any field applied paint and or coatings. (Section 7.17 AISC code of Standard Practice for Steel Buildings & Bridges, 13th Edition).

5. Bolts for the construction of Topline Steel Buildings material shall be as follows:
   All secondary member connections – 1/2" x 1 1/4" A307 unless noted
   Bearing frame endwall connections – A325
   Main frame connections – A325 as shown on drawings

6. Connections Using High Strength Structural Bolts:
All high strength bolts are A325–N, unless noted otherwise. High strength structural bolts are supplied without washers, unless noted otherwise. Bolt length shall be such that the end of the bolt extends beyond or is at least flush with the outer face of the nut, when properly installed. All bolted connections, unless noted, are designed as bearing type connection with bolt threads not excluded from the shear plane.

A325–N High Strength Structural Bolts:
Snug–Tightened connections are permitted with A325–N bolts, except for these cases:
- Where crane beams and rigid frame connections in crane buildings are present
- In Slip–Critical Connections
- If noted in the erection drawings otherwise

For these exceptions, Turn–of–the–Nut method must be used.

A490 High Strength Structural Bolts:
A490 structural bolts shall be tightened using the Turn–of–the–Nut method. Snug–Tightened connections are not permitted with A490 bolts.

Tightening Methods:

Snug–Tightened Joint: A condition in which the tightness that exists when all of the plies in a connection have been pulled into firm contact by the bolts in the joint and all of the bolts in the joint have been tightened sufficiently to prevent the removal of the nuts without the use of a wrench, in accordance with the 14th Edition of AISC "Specification for Structural Joints Using High–Strength Bolts", per Section 8.1.

Turn–of–the–Nut method in is to be performed in accordance with the 14th Edition AISC "Specification for Structural Joints Using High–Strength Bolts" per Section 8.2.1.

7. All Bracing shown and provided by Topline for this building is required for transferring building loads to the foundation and shall be installed by the erector as a permanent part of the structure. Cable/Rod bracing is designed for structural loads only and is not designed to plumb the building. The cable/rod bracing shall be taut, tighten to remove sag only. Bracing shall not be over–tighten. If additional bracing is required for stability during erection, it shall be the erectors responsibility to determine the amount of such bracing and to procure and install as necessary.

8. Soil profile type is determined by the foundation Engineer per local code.

9. Building Codes Require Consideration of Snow Surcharges for Any Lower Roof of a Structure Located within 20 Feet of a Higher Structure. Information Supplied to Topline Steel Buildings Does Not Indicate the Presence of a Shadowing Structure within this 20 Foot Envelope. Therefore Snow Surcharges Have Not Been Considered in this Design Unless Noted Otherwise.

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TOP OF THE LINE.

STEPHEN GRAHAM OWEN
LICENSED
23993
KANSAS
PROFESSIONAL ENGINEER
12/14/2023

These drawings and the metal building they represent are the product of Pinnacle Structures Inc. – Cabot, AR. The engineer whose seal appears hereon is employed by Pinnacle Structures Inc. and is not the engineer of record for this project.

DRAWING PACKAGE FOR:

Customer:	CROOKHAM CONSTRUCTION–CHAMBERS
Job Number:	231734
Project:	NEW BUILDING
Project Location:	TONGANOXIE, KS (LEAVENWORTH CO.)
Project Description:	MULTIPLE BUILDINGS

DESIGN REQUIREMENTS

Building Code: IBC 2018

Building Risk Category: II – Normal
Collateral Load: *(A,B) 3.0,1.0 psf
Roof Live Load: 20.00 psf
Tributary Reduction: Yes

Roof Snow Load Data
Ground Snow Load (P_g): 20.00 psf
Flat Roof Snow Load (P_f): 14.00 psf
Snow Exposure Factor (C_e): 1.00
Snow Importance Factor (I_s): 1.00
Thermal Factor (C_t): 1.00

Rain Data:
Rain Intensity (i): 7.00 in/hr

Wind Design Data
Ultimate Design Wind Speed : (3 Second Gust) 115 mph
Nominal Design Wind Speed : 89 mph
Internal Pressure Coefficient: ± 0.18
Wind Exposure: C

Earthquake Design Data:
Analysis Procedure – Equivalent LateraL Force Procedure
Seismic Importance Factor: I_e 1.00
Mapped Spectral Response Acceleration Parameters: S_s 0.094 S_1 0.065
Design Spectral Response Acceleration Parameters: S_{DS} 0.100 S_{D1} 0.104
Site Class : D Seismic Design Category : B

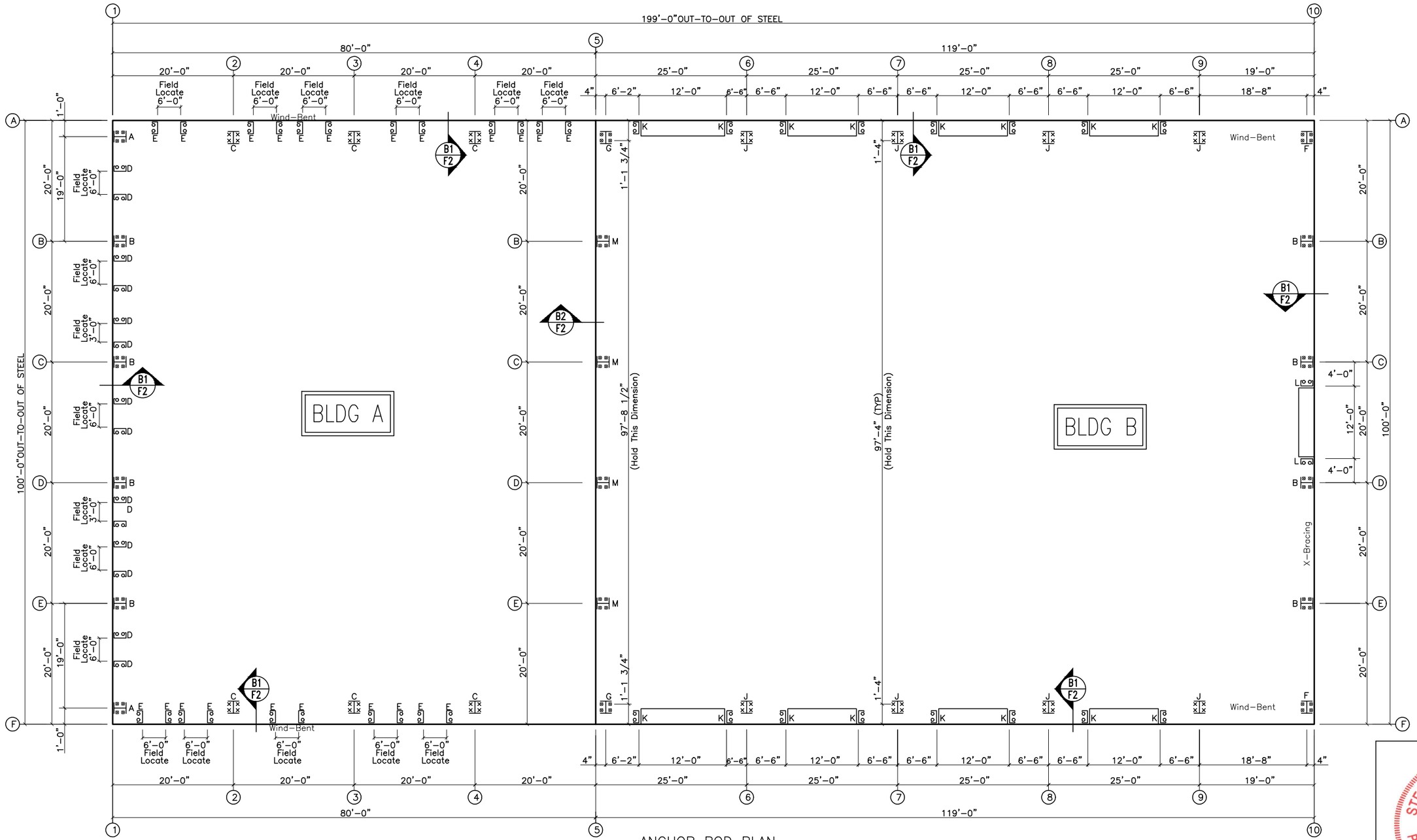
Design Base Shear V
Transverse Direction : 2.43 kips
Longitudinal Direction : 2.11 kips

Basic Seismic Force– Resisting Systems (SFRS)		Cs	R
Transverse	Steel Moment Resisting Frame(s)	0.033	3.00
Left Endwall	Torsionally Braced		
Right Endwall	Steel Concentrically Braced Frame	0.033	3.00
Front Sidewall	Steel Moment Resisting Frame(s)	0.033	3.00
Back Sidewall	Steel Moment Resisting Frame(s)	0.033	3.00

Other:
Drift Surcharge Load(s) P_d 57.26 psf
Width of Snow Drift(s) w 13.80 ft

Exterior wall component & cladding materials not specifically supplied by Topline should be designed to withstand 25.58 /–27.72 psf in the field zone.

*This project is designed for this collateral loading. Suspension of any load–inducing system in excess of this loading is prohibited without consultation with the manufacturer to determine structural reinforcement, if required, to safely support supplemental loads.



ANCHOR ROD PLAN

NOTE: All Base Plates @ 100'-0"

STEPHEN GRAHAM OWEN LICENSED 23993 KANSAS PROFESSIONAL ENGINEER

12/14/2023

GENERAL NOTES

- These drawings are NOT to scale.
- Topline's steel line is shown.
- A sheeting notch or brick ledge, if used, must be added to determine the out of concrete.
- Wall panels shall be held 1/4" above the sheet notch and/or base trim.
- Attachment of material by others to Topline steel is the responsibility of others.

ANCHOR ROD SUMMARY

	Qty	Locate	Dia (in)	Type	Proj (in)
O	108	Jamb	5/8"	F1554 - GR36	2.00
⊠	64	Endwall	3/4"	F1554 - GR36	2.50
⊠	8	Frame	3/4"	F1554 - GR36	2.50
X	56	Frame	1"	F1554 - GR36	3.00

ISSUE	DESCRIPTION	DATE	MARK
0	CONSTRUCTION	12/13/23	

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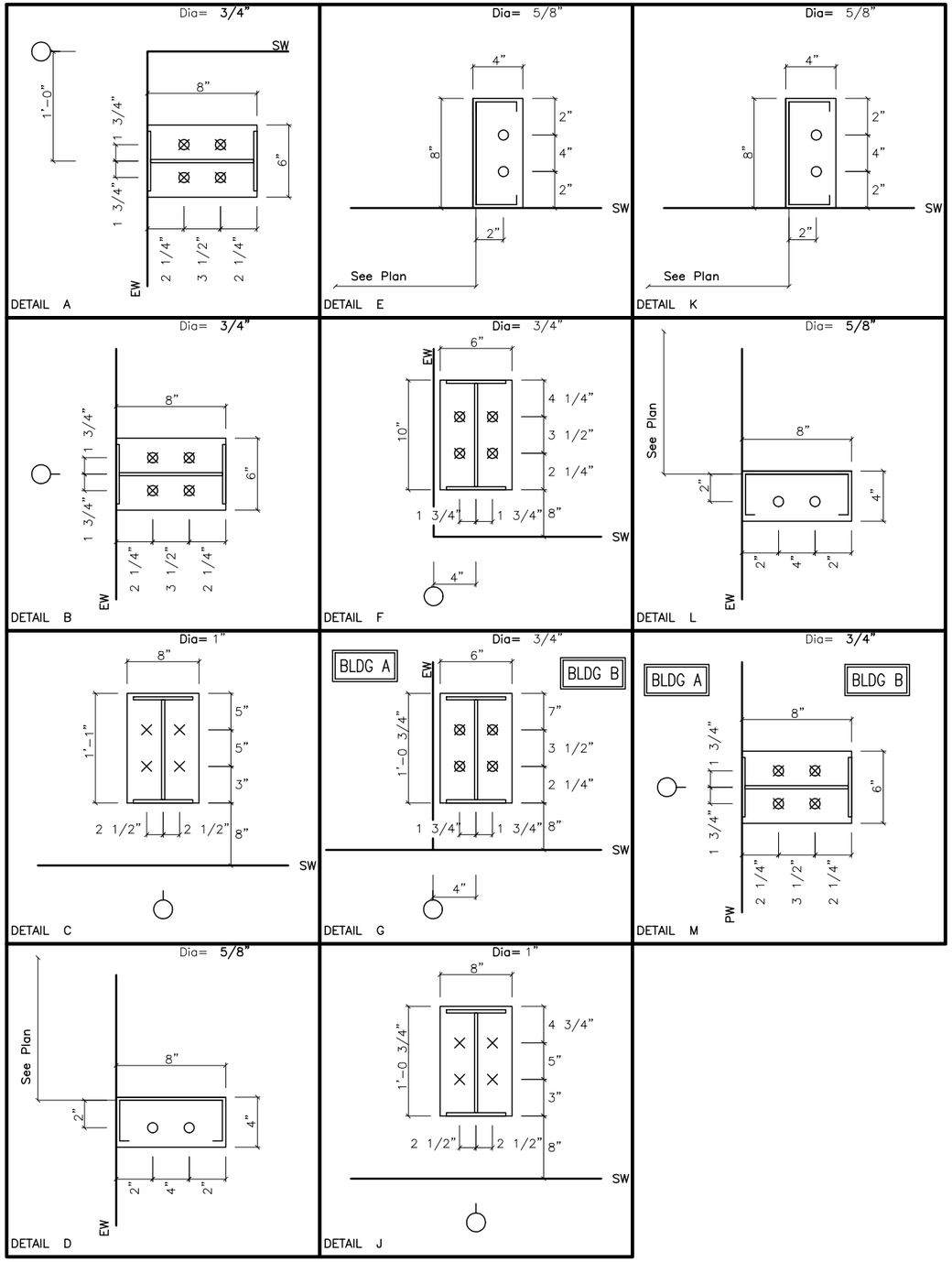
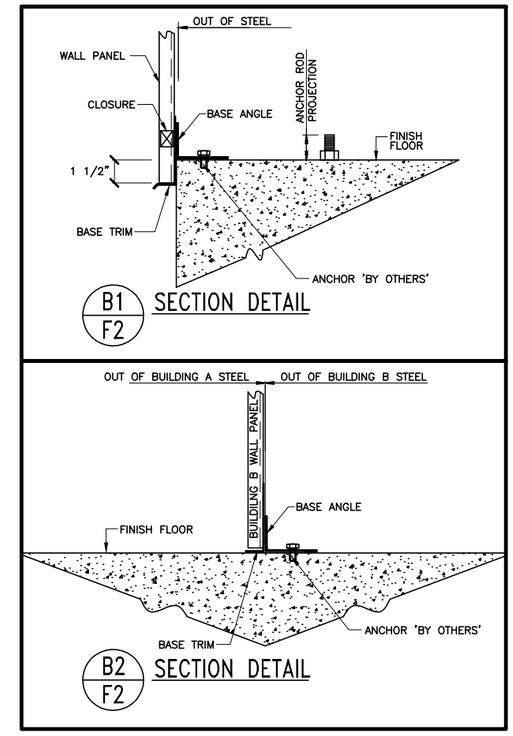
DESCRIPTION:	ANCHOR ROD PLAN
CUSTOMER:	CROOKHAM CONSTRUCTION-CHAMBERS
LOCATION:	TONGANOXIE, KS (LEAVENWORTH CO.)

Detailer	BB	Checker	JJ	Designer	SO
Job No.	231734	Sheet	F1	Issue	0





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ISSUE	DESCRIPTION	DATE	MARK
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DESCRIPTION: ANCHOR ROD PLAN
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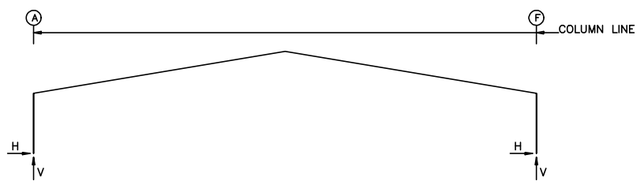
LOCATION: TONGANOXIE, KS (LEAVENWORTH CO.)

Detailer	Checker	Designer
BB	JJ	SO
Job No. 231734	Sheet F2	Issue 0

FRAME LINES: 2 3 4



RIGID FRAME: MAXIMUM REACTIONS, ANCHOR BOLTS, & BASE PLATES

Frm Line	Col Line	Load Id	Hmax H	V Vmax	Load Id	Hmin H	V Vmin	Bolt(in) Qty	Bolt(in) Dia	Base_Plate(in) Width	Base_Plate(in) Length	Base_Plate(in) Thick	Grout (in)
2	A	8	32.4	26.9	2	−10.5	−8.4	4	1.000	8.000	13.00	0.500	0.0
					4	−7.8	−10.9						
2	F	3	10.5	−8.4	8	−32.4	26.9	4	1.000	8.000	13.00	0.500	0.0
		8	−32.4	26.9	6	7.8	−10.9						

RIGID FRAME: MAXIMUM REACTIONS, ANCHOR BOLTS, & BASE PLATES

Frm Line	Col Line	Load Id	Hmax H	V Vmax	Load Id	Hmin H	V Vmin	Bolt(in) Qty	Bolt(in) Dia	Base_Plate(in) Width	Base_Plate(in) Length	Base_Plate(in) Thick	Grout (in)
3	A	8	32.4	26.9	2	−9.6	−8.2	4	1.000	8.000	13.00	0.500	0.0
					4	−7.8	−10.9						
3	F	3	9.6	−8.2	8	−32.4	26.9	4	1.000	8.000	13.00	0.500	0.0
		8	−32.4	26.9	6	7.8	−10.9						

RIGID FRAME: MAXIMUM REACTIONS, ANCHOR BOLTS, & BASE PLATES

Frm Line	Col Line	Load Id	Hmax H	V Vmax	Load Id	Hmin H	V Vmin	Bolt(in) Qty	Bolt(in) Dia	Base_Plate(in) Width	Base_Plate(in) Length	Base_Plate(in) Thick	Grout (in)
4	A	8	32.4	26.9	2	−9.6	−8.2	4	1.000	8.000	13.00	0.500	0.0
					5	−7.8	−8.8						
4	F	3	9.6	−8.2	8	−32.4	26.9	4	1.000	8.000	13.00	0.500	0.0
		8	−32.4	26.9	7	7.8	−8.8						

RIGID FRAME: BASIC COLUMN REACTIONS (k)

Frame Line	Column Line	Dead Horiz	Dead Vert	Collateral Horiz	Collateral Vert	Live Horiz	Live Vert	Snow Horiz	Snow Vert	Wind_Left1 Horiz	Wind_Left1 Vert	Wind_Right1 Horiz	Wind_Right1 Vert
2	A	4.3	3.9	3.7	3.0	14.7	12.0	17.1	14.0	−21.7	−17.9	−13.1	−13.7
2	F	−4.3	3.9	−3.7	3.0	−14.7	12.0	−17.1	14.0	13.1	−13.7	21.7	−17.9

Frame Line	Column Line	Wind_Left2 Horiz	Wind_Left2 Vert	Wind_Right2 Horiz	Wind_Right2 Vert	Wind_Long1 Horiz	Wind_Long1 Vert	Wind_Long2 Horiz	Wind_Long2 Vert	Seismic_Left Horiz	Seismic_Left Vert	Seismic_Right Horiz	Seismic_Right Vert
2	A	−13.3	−9.3	−4.7	−5.2	−17.3	−22.1	−18.6	−18.7	−0.4	−0.1	0.4	0.1
2	F	4.7	−5.2	13.3	−9.3	18.6	−18.7	17.3	−22.1	−0.4	0.1	0.4	−0.1

Frame Line	Column Line	Seismic_Long Horiz	Seismic_Long Vert	MIN_SNOW Horiz	MIN_SNOW Vert	F1UNB_SL_L Horiz	F1UNB_SL_L Vert	F1UNB_SL_R Horiz	F1UNB_SL_R Vert
2	A	0.0	−0.6	24.4	20.0	15.1	14.0	15.1	8.4
2	F	0.0	−0.6	−24.4	20.0	−15.1	8.4	−15.1	14.0

Frame Line	Column Line	Dead Horiz	Dead Vert	Collateral Horiz	Collateral Vert	Live Horiz	Live Vert	Snow Horiz	Snow Vert	Wind_Left1 Horiz	Wind_Left1 Vert	Wind_Right1 Horiz	Wind_Right1 Vert
3	A	4.3	3.9	3.7	3.0	14.7	12.0	17.1	14.0	−20.2	−17.5	−14.6	−14.0
3	F	−4.3	3.9	−3.7	3.0	−14.7	12.0	−17.1	14.0	14.6	−14.0	20.2	−17.5

Frame Line	Column Line	Wind_Left2 Horiz	Wind_Left2 Vert	Wind_Right2 Horiz	Wind_Right2 Vert	Wind_Long1 Horiz	Wind_Long1 Vert	Wind_Long2 Horiz	Wind_Long2 Vert	Seismic_Left Horiz	Seismic_Left Vert	Seismic_Right Horiz	Seismic_Right Vert
3	A	−11.8	−9.0	−6.2	−5.5	−17.3	−22.1	−18.6	−18.7	−0.3	−0.1	0.3	0.1
3	F	6.2	−5.5	11.8	−9.0	18.6	−18.7	17.3	−22.1	−0.2	0.1	0.2	−0.1

Frame Line	Column Line	Seismic_Long Horiz	Seismic_Long Vert	MIN_SNOW Horiz	MIN_SNOW Vert	F2UNB_SL_L Horiz	F2UNB_SL_L Vert	F2UNB_SL_R Horiz	F2UNB_SL_R Vert
3	A	0.0	−0.6	24.4	20.0	15.1	14.0	15.1	8.4
3	F	0.0	−0.6	−24.4	20.0	−15.1	8.4	−15.1	14.0

Frame Line	Column Line	Dead Horiz	Dead Vert	Collateral Horiz	Collateral Vert	Live Horiz	Live Vert	Snow Horiz	Snow Vert	Snow_Drift Horiz	Snow_Drift Vert	Wind_Left1 Horiz	Wind_Left1 Vert
4	A	4.3	3.9	3.7	3.0	14.7	12.0	17.1	14.0	5.3	4.3	−20.2	−17.5
4	F	−4.3	3.9	−3.7	3.0	−14.7	12.0	−17.1	14.0	−5.3	4.3	14.6	−14.0

Frame Line	Column Line	Wind_Right1 Horiz	Wind_Right1 Vert	Wind_Left2 Horiz	Wind_Left2 Vert	Wind_Right2 Horiz	Wind_Right2 Vert	Wind_Long1 Horiz	Wind_Long1 Vert	Wind_Long2 Horiz	Wind_Long2 Vert	Seismic_Left Horiz	Seismic_Left Vert
4	A	−14.6	−14.0	−11.8	−9.0	−6.2	−5.5	−17.3	−18.6	−18.6	−15.1	−0.3	−0.1
4	F	20.2	−17.5	6.2	−5.5	11.8	−9.0	18.6	−15.1	17.3	−18.6	−0.2	0.1

Frame Line	Column Line	Seismic_Right Horiz	Seismic_Right Vert	MIN_SNOW Horiz	MIN_SNOW Vert	F3UNB_SL_L Horiz	F3UNB_SL_L Vert	F3UNB_SL_R Horiz	F3UNB_SL_R Vert
4	A	0.3	0.1	24.4	20.0	15.1	14.0	15.1	8.4
4	F	0.2	−0.1	−24.4	20.0	−15.1	8.4	−15.1	14.0

ENDWALL COLUMN: BASIC COLUMN REACTIONS (k)

Frm Line	Col Line	Dead Vert	Collat Vert	Live Vert	Snow Vert	Wind Left1 Vert	Wind Right1 Vert	Wind Left2 Vert	Wind Right2 Vert	Wind Press Horz	Wind Suct Horz	Wind Long1 Vert	Wind Long2 Vert
1	A	0.5	0.3	2.0	1.4	−2.1	−1.4	−1.2	−0.5	−1.1	1.3	−2.4	−1.6
1	B	1.0	0.7	4.6	3.2	−6.3	−3.9	−4.3	−1.9	−2.8	3.1	−6.4	−3.7
1	C	0.9	0.6	3.6	2.5	−3.3	−3.2	−1.9	−1.8	−3.6	3.9	−4.9	−2.9
1	D	0.9	0.6	3.6	2.5	−3.2	−3.3	−1.8	−1.9	−3.6	3.9	−2.9	−4.9
1	E	1.0	0.7	4.6	3.2	−3.9	−6.3	−1.9	−4.3	−2.8	3.1	−3.7	−6.4
1	F	0.5	0.3	2.0	1.4	−1.4	−2.1	−0.5	−1.2	−1.1	1.3	−1.6	−2.4

Frm Line	Col Line	Seis Left Vert	Seis Right Vert	Seis Long Vert	MIN_SNOW Horz	MIN_SNOW Vert	E1UNB_SL_L Horz	E1UNB_SL_L Vert	E1UNB_SL_R Horz	E1UNB_SL_R Vert
1	A	0.0	0.0	0.0	0.0	2.0	0.0	1.3	0.0	0.4
1	B	0.0	0.0	0.0	0.0	4.6	0.0	3.1	0.0	1.0
1	C	0.0	0.0	0.0	0.0	3.6	0.0	4.4	0.0	1.2
1	D	0.0	0.0	0.0	0.0	3.6	0.0	1.2	0.0	4.4
1	E	0.0	0.0	0.0	0.0	4.6	0.0	1.0	0.0	3.1
1	F	0.0	0.0	0.0	0.0	2.0	0.0	0.4	0.0	1.3

Frm Line	Col Line	Dead Vert	Collat Vert	Live Vert	Snow Vert	Snow Drift Vert	Wind Left1 Vert	Wind Right1 Vert	Wind Left2 Vert	Wind Right2 Vert	Wind Long1 Vert	Wind Long2 Vert	Seis Left Vert
5	E	0.7	0.6	4.0	2.8	6.1	−5.3	−3.5	−3.6	−1.7	−5.6	−3.3	0.0
5	D	0.7	0.6	4.1	2.8	6.2	−3.7	−3.4	−2.2	−2.0	−5.0	−3.2	0.0
5	C	0.7	0.6	4.1	2.8	6.2	−3.4	−3.7	−2.0	−2.2	−3.2	−5.0	0.0
5	B	0.7	0.6	4.0	2.8	6.1	−3.5	−5.3	−1.7	−3.6	−3.3	−5.6	0.0

Frm Line	Col Line	Seis Right Vert	MIN_SNOW Horz	MIN_SNOW Vert	E2UNB_SL_L Horz	E2UNB_SL_L Vert	E2UNB_SL_R Horz	E2UNB_SL_R Vert
5	E	0.0	0.0	4.0	0.0	2.9	0.0	0.8
5	D	0.0	0.0	4.1	0.0	4.3	0.0	1.5
5	C	0.0	0.0	4.1	0.0	1.5	0.0	4.3
5	B	0.0	0.0	4.0	0.0	0.8	0.0	2.9

ENDWALL COLUMN: MAXIMUM REACTIONS, ANCHOR BOLTS, & BASE PLATES

Frm Line	Col Line	Load Id	Hmax H	V Vmax	Load Id	Hmin H	V Vmin	Bolt(in) Qty	Bolt(in) Dia	Base_Plate(in) Width	Base_Plate(in) Length	Base_Plate(in) Thick	Grout (in)
1	A	9	0.8	−1.1	10	−0.7	−1.1	4	0.750	6.000	8.000	0.250	0.0
		8	0.0	2.7	9	0.8	−1.1						
1	B	9	1.9	−3.3	10	−1.7	−3.3	4	0.750	6.000	8.000	0.250	0.0
		8	0.0	6.3	9	1.9	−3.3						
1	C	9	2.4	−2.4	10	−2.1	−2.4	4	0.750	6.000	8.000	0.250	0.0
		11	0.0	5.9	9	2.4	−2.4						
1	D	12	2.4	−2.4	13	−2.1	−2.4	4	0.750	6.000	8.000	0.250	0.0
		14	0.0	5.9	12	2.4	−2.4						
1	E	12	1.9	−3.3	13	−1.7	−3.3	4	0.750	6.000	8.000	0.250	0.0
		8	0.0	6.3	12	1.9	−3.3						
1	F	12	0.8	−1.1	13	−0.7	−1.1	4	0.750	6.000	8.000	0.250	0.0
		8	0.0	2.7	12	0.8	−1.1						
5	E	4	0.0	−2.9	4	0.0	−2.9	4	0.750	6.000	8.000	0.250	0.0
		1	0.0	10.2									
5	D	4	0.0	−2.5	4	0.0	−2.5	4	0.750	6.000	8.000	0.250	0.0
		1	0.0	10.4									
5	C	6	0.0	−2.5	6	0.0	−2.5	4	0.750	6.000	8.000	0.250	0.0
		1	0.0	10.4									
5	B	6	0.0	−2.9	6	0.0	−2.9	4	0.750	6.000	8.000	0.250	0.0
		1	0.0	10.2									

BUILDING BRACING REACTIONS

Wall Loc	Wall Line	Col Line	± Reactions(k) Wind Horz	Wind Vert	Seismic Horz	Seismic Vert	Panel_Shear (lb/ft) Wind	Panel_Shear (lb/ft) Seis	Note
L_EW	1								(i)
F_SW	F	2,3	3.3	3.6	0.5	0.6			(b)
R_EW	5						59	19	
B_SW	A	2,3	3.3	3.6	0.5	0.6			(b)

(b)Wind bent in bay, base above finish floor
(i)Bracing in roof to rigid frame

BLDG A

GENERAL NOTES

1. ANCHOR RODS ARE NOT DESIGNED TO STABILIZE THE COLUMNS DURING ERECTION. TEMPORARY BRACING AS NEEDED FOR SAFETY AND STABILITY IS THE ERECTORS RESPONSIBILITY.
2. FOUNDATION DESIGN AND ANCHOR RODS LENGTHS ARE NOT THE RESPONSIBILITY OF TOPLINE STEEL BUILDINGS
3. THE BUILDING REACTION DATA REPORTS THE LOADS WHICH THIS BUILDING PLACES ON THE FOUNDATION. THE ANCHOR ROD SUMMARY TABLE REPORTS THE ROD DIAMETERS.
4. COLUMN BASE PLATES ARE DESIGNED NOT TO EXCEED A BEARING PRESSURE OF 1050 POUNDS PER SQUARE INCH.
5. ANCHOR RODS SHALL BE ACCURATELY SET TO A TOLERANCE OF 1/8.

NOTES FOR REACTIONS

1. All loading conditions are examined and only maximum/minimum H or V and the corresponding H or V are reported.
2. Positive reactions are as shown in the sketch. Foundation loads are in opposite directions.
3. Bracing reactions are in the plane of the brace with the H pointing away from the braced bay. The vertical reaction is downward.
4. Building reactions are based on the following building data:

Width (ft)	=	100.0
Length (ft)	=	80.0
Eave Height (ft)	=	12.0/ 12.0
Roof Slope (rise/12)	=	2.0/ 2.0
Dead Load (psf)	=	2.2
Collateral Load (psf)	=	3.0
Roof Live Load(psf)	=	20.0
Frame Live Load(psf)	=	12.0
Snow Load (psf)	=	14.0
Wind Speed (mph)	=	115.0
Wind Code	=	IBC 18
Exposure	=	C
Closed/Open	=	C
Importance Wind	=	1.00
Importance Seismic	=	1.00
Seismic Zone	=	B
Seismic Coeff (Fa*Ss)	=	0.15

5. Loading conditions are:
   1 Dead+Collateral+Snow+Snow_Drift
   2 0.6Dead+0.6Wind_Left1
   3 0.6Dead+0.6Wind_Right1
   4 0.6Dead+0.6Wind_Long1L
   5 0.6Dead+0.6Wind_Long1R
   6 0.6Dead+0.6Wind_Long2L
   7 0.6Dead+0.6Wind_Long2R
   8 Dead+Collateral+MIN_SNOW
   9 0.6Dead+0.6Wind_Suction+0.6Wind_Long1L
   10 0.6Dead+0.6Wind_Pressure+0.6Wind_Long1L
   11 Dead+Collateral+E1UNB_SL_L
   12 0.6Dead+0.6Wind_Suction+0.6Wind_Long2L
   13 0.6Dead+0.6Wind_Pressure+0.6Wind_Long2L
   14 Dead+Collateral+E1UNB_SL_R

STEPHEN GRAHAM OWEN
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ISSUE	DESCRIPTION	DATE	MARK
0	CONSTRUCTION	12/13/23	

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DESCRIPTION: ANCHOR ROD REACTIONS
CUSTOMER: CROOKHAM CONSTRUCTION–CHAMBERS
LOCATION: TONGANOXIE, KS (LEAVENWORTH CO.)

Detailer	Checker	Designer
BB	JJ	SO
Job No. 231734	Sheet F3	Issue 0

RIGID FRAME: BASIC COLUMN REACTIONS (k)

Frame Line	Column Line	Dead Horiz	Dead Vert	Collateral Horiz	Collateral Vert	Live Horiz	Live Vert	Snow Horiz	Snow Vert	Snow_Drift Horiz	Snow_Drift Vert	Wind_Left1 Horiz	Wind_Left1 Vert
5	A	0.1	0.9	0.0	0.2	0.2	2.3	0.3	2.7	0.0	0.0	−6.4	−10.5
5	F	−0.1	0.9	0.0	0.2	−0.2	2.3	−0.3	2.7	0.0	0.0	−6.2	0.8
5	B	0.0	2.2	0.0	1.0	0.0	8.9	0.0	8.5	0.0	6.1	0.0	−13.1
5	C	0.0	2.2	0.0	1.0	0.0	8.8	0.0	8.4	0.0	6.2	0.0	−14.7
5	D	0.0	2.2	0.0	1.0	0.0	8.8	0.0	8.4	0.0	6.2	0.0	−8.4
5	E	0.0	2.2	0.0	1.0	0.0	8.9	0.0	8.5	0.0	6.1	0.0	−16.9

Frame Line	Column Line	Wind_Right1 Horiz	Wind_Right1 Vert	Wind_Left2 Horiz	Wind_Left2 Vert	Wind_Right2 Horiz	Wind_Right2 Vert	Wind_Long1 Horiz	Wind_Long1 Vert	Wind_Long2 Horiz	Wind_Long2 Vert	Seismic_Left Horiz	Seismic_Left Vert
5	A	5.0	−0.7	−7.5	−8.3	3.9	1.4	1.7	−4.9	1.6	−3.8	−0.5	−0.6
5	F	5.2	−9.0	−5.1	2.9	6.3	−6.9	−2.0	−3.3	−2.1	−4.5	−0.5	0.6
5	B	0.0	−15.3	0.0	−7.7	0.0	−9.9	0.0	−12.0	0.0	−10.7	0.0	0.7
5	C	0.0	−8.8	0.0	−10.2	0.0	−4.3	0.0	−10.4	0.0	−9.7	0.0	−0.2
5	D	0.0	−14.3	0.0	−3.9	0.0	−9.8	0.0	−9.6	0.0	−10.3	0.0	0.1
5	E	0.0	−14.7	0.0	−11.6	0.0	−9.4	0.0	−11.2	0.0	−12.6	0.0	−0.7

Frame Line	Column Line	Seismic_Right Horiz	Seismic_Right Vert	MIN_SNOW Horiz	MIN_SNOW Vert	F1PAT_LL_1 Horiz	F1PAT_LL_1 Vert	F1PAT_LL_2 Horiz	F1PAT_LL_2 Vert	F1PAT_LL_3 Horiz	F1PAT_LL_3 Vert	F1PAT_LL_4 Horiz	F1PAT_LL_4 Vert
5	A	0.4	0.4	0.4	3.9	0.1	2.1	0.0	−0.2	0.0	0.0	0.1	0.1
5	F	0.4	−0.4	−0.4	3.9	−0.1	0.1	0.0	0.0	0.0	−0.2	−0.1	2.1
5	B	0.0	−0.5	0.0	8.2	0.0	5.4	0.0	2.2	0.0	−0.3	0.0	−0.1
5	C	0.0	0.1	0.0	7.9	0.0	2.3	0.0	5.5	0.0	2.3	0.0	−0.3
5	D	0.0	−0.2	0.0	7.9	0.0	−0.3	0.0	2.3	0.0	5.5	0.0	2.3
5	E	0.0	0.5	0.0	8.2	0.0	−0.1	0.0	−0.3	0.0	2.2	0.0	5.4

Frame Line	Column Line	F1PAT_LL_5 Horiz	F1PAT_LL_5 Vert	F1PAT_LL_6 Horiz	F1PAT_LL_6 Vert	F1UNB_SL_L Horiz	F1UNB_SL_L Vert	F1UNB_SL_R Horiz	F1UNB_SL_R Vert
5	A	0.4	2.7	−0.1	−0.4	0.2	2.6	0.2	1.0
5	F	−0.4	2.7	0.1	−0.4	−0.2	1.0	−0.2	2.6
5	B	0.0	2.1	0.0	2.9	0.0	5.7	0.0	1.3
5	C	0.0	2.4	0.0	2.4	0.0	9.0	0.0	2.8
5	D	0.0	2.4	0.0	2.4	0.0	2.8	0.0	9.0
5	E	0.0	2.1	0.0	2.9	0.0	1.3	0.0	5.7

Frame Line	Column Line	Dead Horiz	Dead Vert	Collateral Horiz	Collateral Vert	Live Horiz	Live Vert	Snow Horiz	Snow Vert	Wind_Left1 Horiz	Wind_Left1 Vert	Wind_Right1 Horiz	Wind_Right1 Vert
6*	A	3.9	4.8	1.2	1.3	13.9	15.0	16.2	17.5	−22.3	−24.1	−13.7	−18.5
6*	F	−3.9	4.8	−1.2	1.3	−13.9	15.0	−16.2	17.5	13.7	−18.5	22.3	−24.1

Frame Line	Column Line	Wind_Left2 Horiz	Wind_Left2 Vert	Wind_Right2 Horiz	Wind_Right2 Vert	Wind_Long1 Horiz	Wind_Long1 Vert	Wind_Long2 Horiz	Wind_Long2 Vert	Seismic_Left Horiz	Seismic_Left Vert	Seismic_Right Horiz	Seismic_Right Vert
6*	A	−15.1	−13.2	−6.5	−7.6	−15.0	−23.7	−16.6	−19.4	−0.2	−0.1	0.2	0.1
6*	F	6.5	−7.6	15.1	−13.2	16.6	−19.4	15.0	−23.7	−0.2	0.1	0.2	−0.1

Frame Line	Column Line	MIN_SNOW Horiz	MIN_SNOW Vert	F2UNB_SL_L Horiz	F2UNB_SL_L Vert	F2UNB_SL_R Horiz	F2UNB_SL_R Vert
6*	A	23.2	25.0	14.4	17.5	14.4	10.6
6*	F	−23.2	25.0	−14.4	10.6	−14.4	17.5

Frame Line	Column Line	Dead Horiz	Dead Vert	Collateral Horiz	Collateral Vert	Live Horiz	Live Vert	Snow Horiz	Snow Vert	Wind_Left1 Horiz	Wind_Left1 Vert	Wind_Right1 Horiz	Wind_Right1 Vert
9	A	3.6	4.5	1.0	1.1	12.2	13.2	14.3	15.4	−26.6	−29.5	−18.0	−22.0
9	F	−3.6	4.5	−1.0	1.1	−12.2	13.2	−14.3	15.4	18.0	−22.0	26.6	−29.5

Frame Line	Column Line	Wind_Left2 Horiz	Wind_Left2 Vert	Wind_Right2 Horiz	Wind_Right2 Vert	Wind_Long1 Horiz	Wind_Long1 Vert	Wind_Long2 Horiz	Wind_Long2 Vert	Seismic_Left Horiz	Seismic_Left Vert	Seismic_Right Horiz	Seismic_Right Vert
9	A	−19.8	−19.9	−11.2	−12.4	−13.2	−28.3	−14.6	−24.6	−0.2	−0.1	0.2	0.1
9	F	11.2	−12.4	19.8	−19.9	14.6	−24.6	13.2	−28.3	−0.2	0.1	0.2	−0.1

Frame Line	Column Line	Seismic_Long Horiz	Seismic_Long Vert	MIN_SNOW Horiz	MIN_SNOW Vert	F3UNB_SL_L Horiz	F3UNB_SL_L Vert	F3UNB_SL_R Horiz	F3UNB_SL_R Vert
9	A	0.0	−1.0	20.4	22.0	12.7	15.4	12.6	9.3
9	F	0.0	−1.0	−20.4	22.0	−12.6	9.3	−12.7	15.4

6* Frame lines: 6 7 8

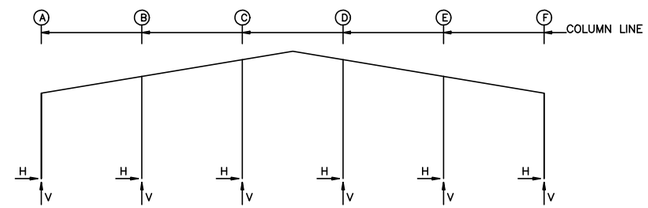
NOTES FOR REACTIONS

1. All loading conditions are examined and only maximum/minimum H or V and the corresponding H or V are reported.
2. Positive reactions are as shown in the sketch. Foundation loads are in opposite directions.
3. Bracing reactions are in the plane of the brace with the H pointing away from the braced bay. The vertical reaction is downward.
4. Building reactions are based on the following building data:

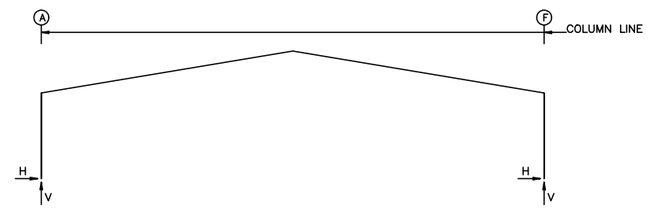
Width (ft)	=	100.0
Length (ft)	=	119.0
Eave Height (ft)	=	17.0/ 17.0
Roof Slope (rise/12)	=	2.0/ 2.0
Dead Load (psf)	=	2.2
Collateral Load (psf)	=	1.0
Roof Live Load(psf)	=	20.0
Frame Live Load(psf)	=	12.0
Snow Load (psf)	=	14.0
Wind Speed (mph)	=	115.0
Wind Code	=	IBC 18
Exposure	=	C
Closed/Open	=	C
Importance Wind	=	1.00
Importance Seismic	=	1.00
Seismic Zone	=	B
Seismic Coeff (Fa*Ss)	=	0.15

5. Loading conditions are:
   1 Dead+Collateral+Snow+Snow_Drift
   2 Dead+0.6Wind_Left1
   3 Dead+0.6Wind_Right1
   4 0.6Dead+0.6Wind_Left1
   5 0.6Dead+0.6Wind_Right1
   6 0.6Dead+0.6Wind_Left2
   7 0.6Dead+0.6Wind_Right2
   8 Dead+Collateral+MIN_SNOW
   9 0.6Dead+0.6Wind_Left1+0.6Wind_Suction
   10 0.6Dead+0.6Wind_Pressure+0.6Wind_Long1L
   11 0.6Dead+0.6Wind_Right1+0.6Wind_Suction
   12 0.6Dead+0.6Wind_Pressure+0.6Wind_Long2L
   13 0.6Dead+0.6Wind_Suction+0.6Wind_Long1L
   14 Dead+Collateral+0.45Wind_Right2+0.45Wind_Suction+0.75MIN_SNOW
   15 Dead+Collateral+E2UNB_SL_L
   16 Dead+Collateral+E2UNB_SL_R
   17 0.6Dead+0.6Wind_Suction+0.6Wind_Long2L
   18 Dead+Collateral+0.45Wind_Left2+0.45Wind_Suction+0.75MIN_SNOW

FRAME LINES: 5



FRAME LINES: 6 7 8 9



RIGID FRAME: MAXIMUM REACTIONS, ANCHOR BOLTS, & BASE PLATES

Frm Line	Col Line	Column_Reactions(k) Load Id	Hmax H	V Vmax	Load Id	Hmin H	V Vmin	Bolt(in) Qty	Dia	Base_Plate(in) Width	Length	Thick	Grout (in)
5	A	3	3.0	0.4	6	−4.5	−4.5	4	0.750	6.000	12.75	0.375	0.0
		8	0.5	4.9	4	−3.8	−5.8						
5	F	7	3.8	−3.6	2	−3.8	1.3	4	0.750	6.000	12.75	0.375	0.0
		8	−0.5	4.9	5	3.1	−4.9						
5	B	5	0.0	−7.8	5	0.0	−7.8	4	0.750	6.000	8.000	0.375	0.0
		1	0.0	17.8									
5	C	4	0.0	−7.5	4	0.0	−7.5	4	0.750	6.000	8.000	0.375	0.0
		1	0.0	17.8									
5	D	5	0.0	−7.2	5	0.0	−7.2	4	0.750	6.000	8.000	0.375	0.0
		1	0.0	17.8									
5	E	4	0.0	−8.9	4	0.0	−8.9	4	0.750	6.000	8.000	0.375	0.0
		1	0.0	17.8									

RIGID FRAME: MAXIMUM REACTIONS, ANCHOR BOLTS, & BASE PLATES

Frm Line	Col Line	Column_Reactions(k) Load Id	Hmax H	V Vmax	Load Id	Hmin H	V Vmin	Bolt(in) Qty	Dia	Base_Plate(in) Width	Length	Thick	Grout (in)
6*	A	8	28.2	31.1	4	−11.1	−11.5	4	1.000	8.000	12.75	0.500	0.0
6*	F	5	11.1	−11.5	8	−28.2	31.1	4	1.000	8.000	12.75	0.500	0.0
		8	−28.2	31.1	5	11.1	−11.5						

6* Frame lines: 6 7 8

RIGID FRAME: MAXIMUM REACTIONS, ANCHOR BOLTS, & BASE PLATES

Frm Line	Col Line	Column_Reactions(k) Load Id	Hmax H	V Vmax	Load Id	Hmin H	V Vmin	Bolt(in) Qty	Dia	Base_Plate(in) Width	Length	Thick	Grout (in)
9	A	8	25.0	27.6	4	−13.8	−15.0	4	1.000	8.000	12.75	0.500	0.0
9	F	5	13.8	−15.0	8	−25.0	27.6	4	1.000	8.000	12.75	0.500	0.0
		8	−25.0	27.6	5	13.8	−15.0						

GENERAL NOTES

1. ANCHOR RODS ARE NOT DESIGNED TO STABILIZE THE COLUMNS DURING ERECTION. TEMPORARY BRACING AS NEEDED FOR SAFETY AND STABILITY IS THE ERECTORS RESPONSIBILITY.
2. FOUNDATION DESIGN AND ANCHOR RODS LENGTHS ARE NOT THE RESPONSIBILITY OF TOPLINE STEEL BUILDINGS
3. THE BUILDING REACTION DATA REPORTS THE LOADS WHICH THIS BUILDING PLACES ON THE FOUNDATION. THE ANCHOR ROD SUMMARY TABLE REPORTS THE ROD DIAMETERS.
4. COLUMN BASE PLATES ARE DESIGNED NOT TO EXCEED A BEARING PRESSURE OF 1050 POUNDS PER SQUARE INCH.
5. ANCHOR RODS SHALL BE ACCURATELY SET TO A TOLERANCE OF 1/8.

BLDG B

ENDWALL COLUMN: BASIC COLUMN REACTIONS (k)

Frm Line	Col Line	Wind Press Horz	Wind Press Vert	Wind Suct Horz	Wind Suct Vert	MIN_SNOW Horz	MIN_SNOW Vert	E1UNB_SL_L Horz	E1UNB_SL_L Vert	E1UNB_SL_R Horz	E1UNB_SL_R Vert	E1PAT_LL_1 Horz	E1PAT_LL_1 Vert	E1PAT_LL_2 Horz	E1PAT_LL_2 Vert
5	B	−3.9	4.3	0.0	5.6	0.0	3.9	0.0	1.0	0.0	5.6	0.0	2.2
5	C	−4.6	5.1	0.0	5.0	0.0	5.7	0.0	1.8	0.0	2.3	0.0	5.5
5	D	−4.6	5.1	0.0	5.0	0.0	1.8	0.0	5.7	0.0	−0.3	0.0	2.3
5	E	−3.9	4.3	0.0	5.6	0.0	1.0	0.0	3.9	0.0	0.1	0.0	−0.3

Frm Line	Col Line	E1PAT_LL_3 Horz	E1PAT_LL_3 Vert	E1PAT_LL_4 Horz	E1PAT_LL_4 Vert	E1PAT_LL_5 Horz	E1PAT_LL_5 Vert	E1PAT_LL_6 Horz	E1PAT_LL_6 Vert
5	B	0.0	−0.3	0.0	0.1	0.0	2.6	0.0	2.7
5	C	0.0	2.3	0.0	−0.3	0.0	2.4	0.0	2.4
5	D	0.0	5.5	0.0	2.3	0.0	2.4	0.0	2.4
5	E	0.0	2.2	0.0	5.6	0.0	2.6	0.0	2.7

Frm Line	Col Line	Dead Vert	Collat Vert	Live Vert	Snow Vert	Wind_Left1 Horz	Wind_Left1 Vert	Wind_Right1 Horz	Wind_Right1 Vert	Wind_Left2 Horz	Wind_Left2 Vert	Wind_Right2 Horz	Wind_Right2 Vert
10	F	0.5	0.1	1.6	1.1	0.0	−2.0	0.0	−1.9	0.0	−1.1	0.0	−1.0
10	E	1.0	0.2	4.3	3.0	−3.7	−11.0	0.0	0.8	−3.7	−9.0	0.0	2.8
10	D	1.0	0.2	3.8	2.7	0.0	−0.5	3.7	−7.5	0.0	0.8	3.7	−6.2
10	C	1.0	0.2	3.8	2.7	0.0	−2.6	0.0	−4.8	0.0	−1.3	0.0	−3.5
10	B	1.0	0.2	4.3	3.0	0.0	−4.1	0.0	−6.7	0.0	−2.1	0.0	−4.7
10	A	0.5	0.1	1.6	1.1	0.0	−1.9	0.0	−2.1	0.0	−0.9	0.0	−1.1

Frm Line	Col Line	Wind_Press Horz	Wind_Press Vert	Wind_Suct Horz	Wind_Suct Vert	Wind_Long1 Horz	Wind_Long1 Vert	Wind_Long2 Horz	Wind_Long2 Vert	Seis_Left Horz	Seis_Left Vert	Seis_Right Horz	Seis_Right Vert	Seis_Long Horz	Seis_Long Vert
10	F	−6.0	−7.5	1.8	7.5	0.0	−2.7	0.0	−1.7	0.0	0.0	0.0	0.0	−0.6	−1.0
10	E	−4.0	0.0	4.4	0.0	0.0	−5.4	−1.0	−5.0	−0.3	−0.3	0.0	0.3	0.0	0.0
10	D	−4.7	0.0	5.2	0.0	1.0	−6.0	0.0	−1.7	0.0	0.3	0.3	−0.3	0.0	0.0
10	C	−4.7	0.0	5.2	0.0	0.0	−2.9	0.0	−4.7	0.0	0.0	0.0	0.0	0.0	0.0
10	B	−4.0	0.0	4.4	0.0	0.0	−3.8	0.0	−6.7	0.0	0.0	0.0	0.0	0.0	0.0
10	A	−6.0	−7.5	1.8	7.5	0.0	−1.7	0.0	−2.7	0.0	0.0	0.0	0.0	−0.6	−1.0

Frm Line	Col Line	MIN_SNOW Horz	MIN_SNOW Vert	E2UNB_SL_L Horz	E2UNB_SL_L Vert	E2UNB_SL_R Horz	E2UNB_SL_R Vert
10	F	0.0	1.6	0.0	1.1	0.0	0.4
10	E	0.0	4.3	0.0	2.9	0.0	0.8
10	D	0.0	3.8	0.0	4.3	0.0	1.3
10	C	0.0	3.8	0.0	1.3	0.0	4.3
10	B	0.0	4.3	0.0	0.8	0.0	2.9
10	A	0.0	1.6	0.0	0.4	0.0	1.1

ENDWALL COLUMN: MAXIMUM REACTIONS, ANCHOR BOLTS, & BASE PLATES

Frm Line	Col Line	Column_Reactions(k) Load Id	Hmax H	V Vmax	Load Id	Hmin H	V Vmin	Bolt(in) Qty	Dia	Base_Plate(in) Width	Length	Thick	Grout (in)
5	B *	9	2.6	−9.6	10	−2.4	−8.6						
		1	0.0	18.4	9	2.6	−9.6						
5	C *	9	3.1	−6.8	10	−2.8	−6.3						
		1	0.0	17.7	9	3.1	−6.8						
5	D *	11	3.1	−6.7	12	−2.8	−6.4						
		1	0.0	17.7	11	3.1	−6.7						
5	E *	11	2.6	−9.7	12	−2.4	−8.6						
		1	0.0	18.4	11	2.6	−9.7						
10	F	13	1.1	3.2	10	−3.6	−5.8	4	0.750	6.000	10.00	0.375	0.0
		14	0.8	4.7									
10	E	9	2.6	−6.0	10	−2.4	−2.6	4	0.750	6.000	8.000	0.375	0.0
		14	2.0	5.7	9	2.6	−6.0						
10	D	11	3.1	−3.9	10	−2.8	−3.0	4	0.750	6.000	8.000	0.250	0.0
		15	0.0	5.5	11	3.1	−3.9						
10	C	11	3.1	−2.3	12	−2.8	−2.2	4	0.750	6.000	8.000	0.250	0.0
		16	0.0	5.5	11	3.1	−2.3						
10	B	17	2.6	−3.4	12	−2.4	−3.4	4	0.750	6.000	8.000	0.250	0.0
		8	0.0	5.5	17	2.6	−3.4						
10	A	17	1.1	3.2	12	−3.6	−5.8	4	0.750	6.000	10.00	0.375	0.0
		18	0.8	4.7									

*See Rigid Frame Interior Column Reactions

BUILDING BRACING REACTIONS

Wall Loc	Wall Line	Col Line	± Reactions(k) Wind Horz	Wind Vert	Seismic Horz	Seismic Vert	Panel_Shear (lb/ft) Wind	Seis	Note
L_EW	5								(h)
F_SW	F	9,10	4.4	7.5	0.6	1.0			(b)
R_EW	10	E,D	3.7	4.1	0.3	0.3			
B_SW	A	9,10	4.4	7.5	0.6	1.0			(b)

(b)Wind bent in bay, base above finish floor
(h)Rigid frame at endwall

STEPHEN GRAHAM OWEN
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12/14/2023

1SSUE	DESCRIPTION	DATE	MARK
0	CONSTRUCTION	12/13/23	

topline STEEL BUILDINGS
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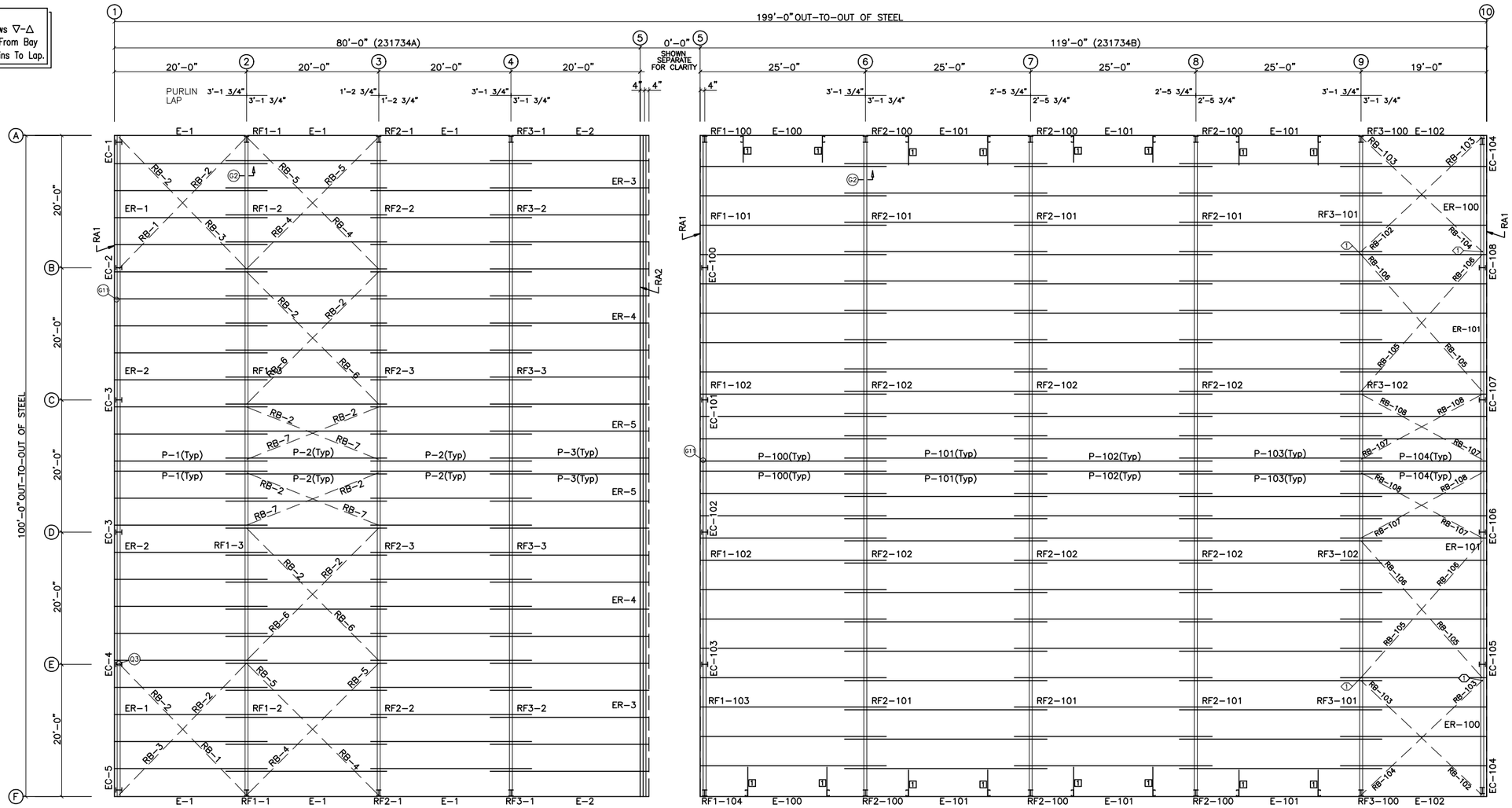
DESCRIPTION:	ANCHOR ROD PLAN
CUSTOMER:	CROOKHAM CONSTRUCTION–CHAMBERS
LOCATION:	TONGANOXIE, KS (LEAVENWORTH CO.)

Detailer	BB	Checker	JJ	Designer	SO
Job No.	231734	Sheet	F4	Issue	0

NOTE:
Alternate Arrows ∇-Δ
Up And Down From Bay
To Bay For Purlins To Lap.



ROOF FRAMING PLAN

SPECIAL BOLTS ROOF PLAN					
ID	QUAN	TYPE	DIA	LENGTH	WASH
1	2	A325	1/2"	1 1/4"	2

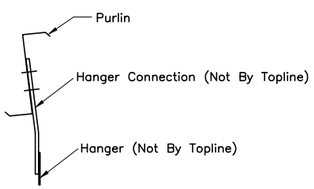
MEMBER TABLE ROOF PLAN	
MARK	PART
231734A	
P-1	8X25Z16
P-2	8X25Z16
P-3	8X25Z12
E-1	8ES14-2
E-2	8ES14-2
RB-1	1/2"ROD
RB-2	1/2"ROD
RB-3	1/2"ROD
RB-4	5/8"ROD
RB-5	5/8"ROD
RB-6	1/2"ROD
RB-7	1/2"ROD
231734B	
P-100	8X25Z14
P-101	8X25Z14
P-102	8X25Z16
P-103	8X25Z16
P-104	8X25Z16
E-100	8ES14-2
E-101	8ES14-2
E-102	8ES14-2
RB-102	5/8"ROD
RB-103	5/8"ROD
RB-104	5/8"ROD
RB-105	1/2"ROD
RB-106	1/2"ROD
RB-107	1/2"ROD
RB-108	1/2"ROD

CONNECTION PLATES ROOF PLAN	
ID	MARK/PART
1	DB-1

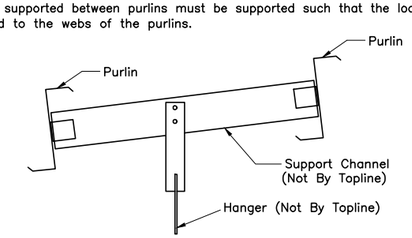
COLLATERAL LOAD NOTE:

Roof purlin has been designed for the collateral load listed on the cover. The total applied loads due to ceiling panels, ducts, sprinkler distribution lines, electrical equipment, conduit, fireproofing, other piping or mechanical loads cannot exceed this maximum uniform load. Topline Steel Buildings is not responsible for lateral or longitudinal bracing of suspended members subject to lateral seismic or wind loading.

Loads supported directly from the purlins must have connections through the web of the purlin.



Loads supported between purlins must be supported such that the loads are applied to the webs of the purlins.



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ISSUE	DESCRIPTION	DATE	MARK
P	PERMIT	12/13/23	

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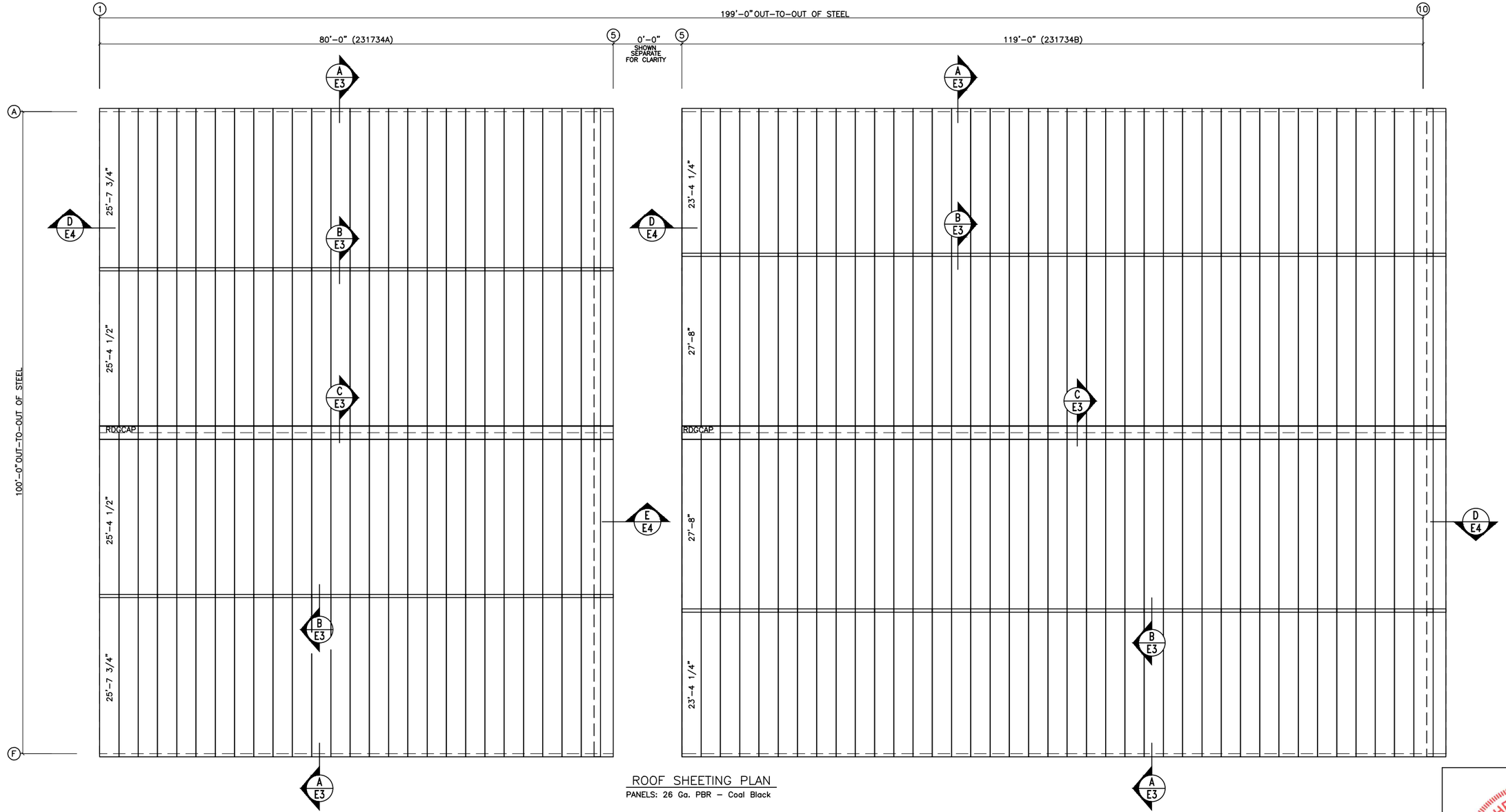
DESCRIPTION:	ROOF FRAMING
CUSTOMER:	CROOKHAM CONSTRUCTION-CHAMBERS
LOCATION:	TONGANOXIE, KS (LEAVENWORTH CO.)

Detailer	BB	Checker	JJ	Designer	SO
Job No.	231734	Sheet	E1	Issue	P



ROOF SHEETING PLAN

PANELS: 26 Ga. PBR – Coal Black

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12/14/2023

ROOF CURB NOTE:

It is the responsibility of the customer to verify with the P.E.M.B. manufacturer that any roof curbs installed on this roof meet the requirements for the roof warranty when applicable.

ISSUE	DESCRIPTION	DATE	MARK
P	PERMIT	12/13/23	

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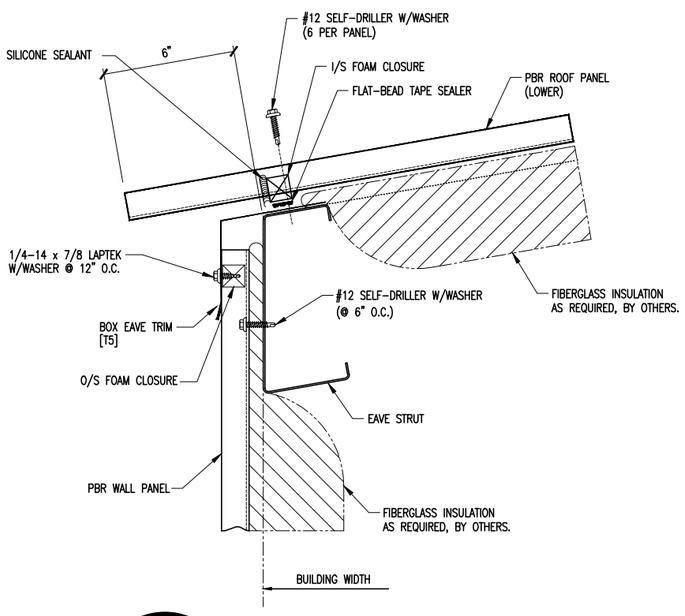
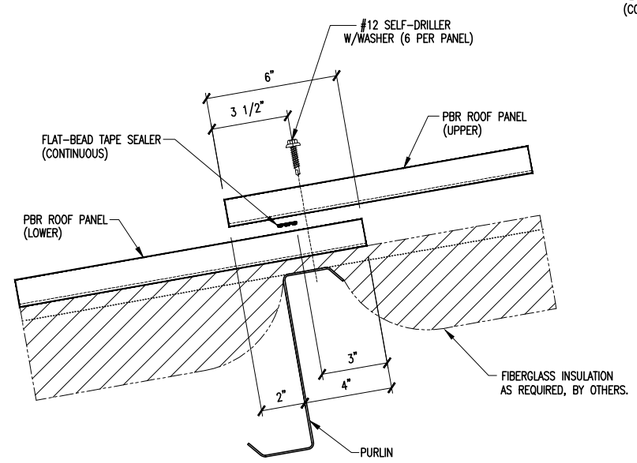
DESCRIPTION:	ROOF SHEETING
CUSTOMER:	CROOKHAM CONSTRUCTION–CHAMBERS
LOCATION:	TONGANOXIE, KS (LEAVENWORTH CO.)

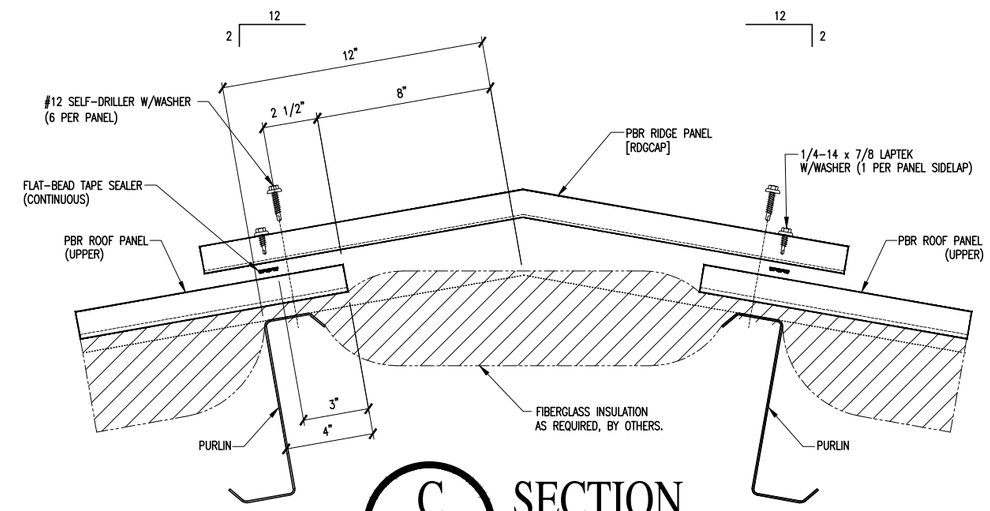
Detailer	BB	Checker	JJ	Designer	SO
Job No.	231734	Sheet	E2	Issue	P



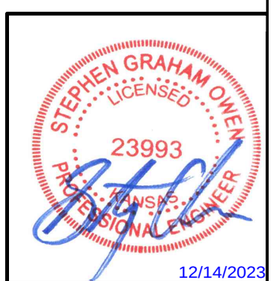
A
E3
SECTION



B
E3
SECTION



C
E3
SECTION



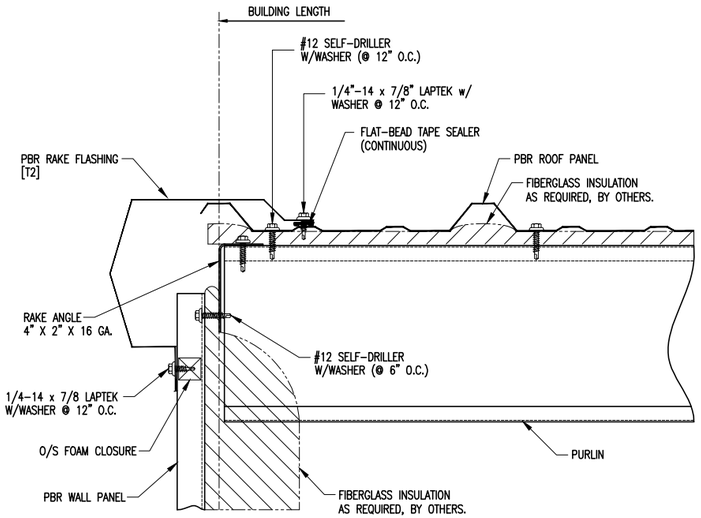
12/14/2023

ISSUE	DESCRIPTION	DATE	MARK
P	PERMIT	12/13/23	

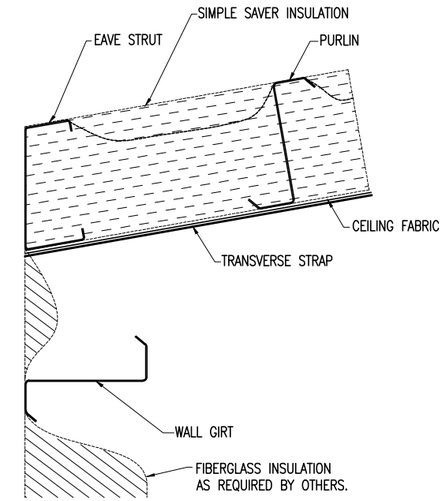
topline STEEL BUILDINGS
TOP OF THE LINE.

DESCRIPTION: ROOF SHEETING
CUSTOMER: CROOKHAM CONSTRUCTION-CHAMBERS
LOCATION: TONGANOXIE, KS (LEAVENWORTH CO.)

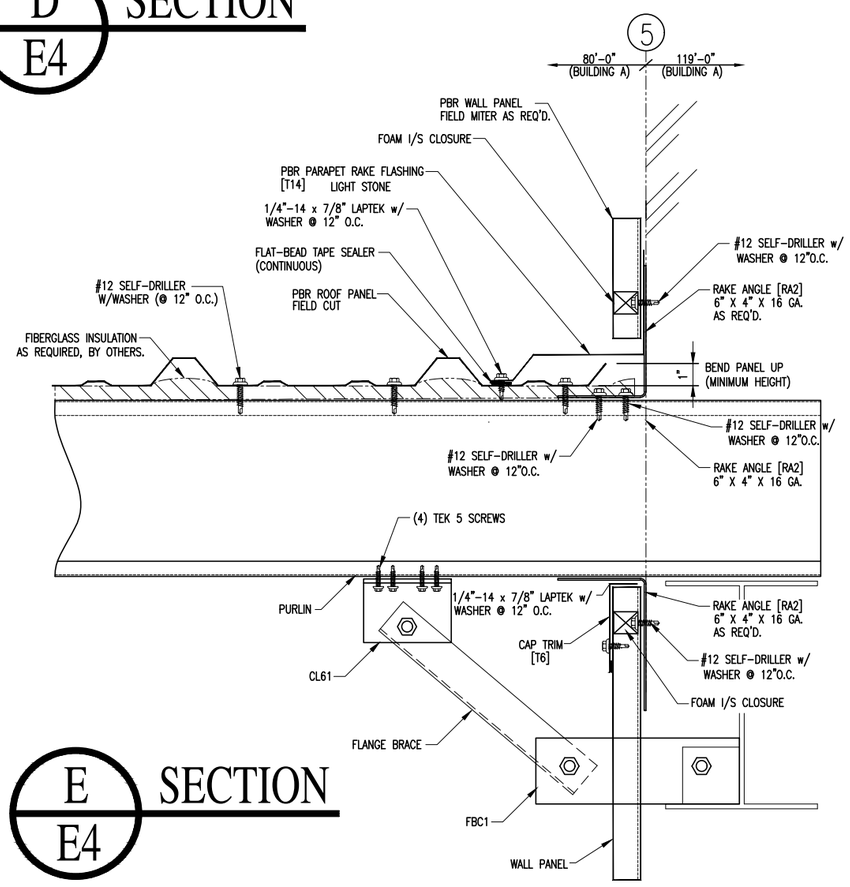
Detailer	BB	Checker	JJ	Designer	SO
Job No.	231734	Sheet	E3	Issue	P



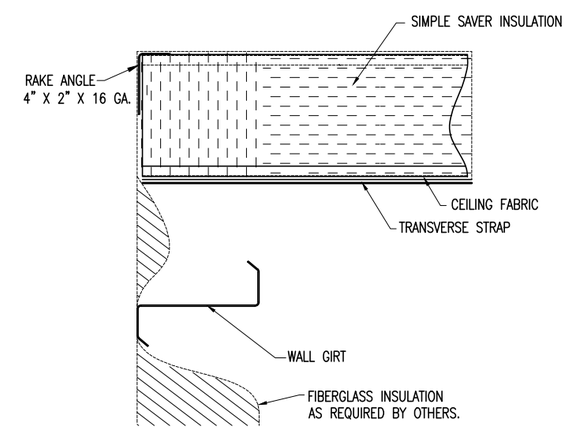
D / E4 SECTION



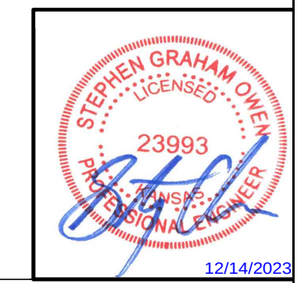
EAVE DETAIL FOR SIMPLE SAVER



E / E4 SECTION



RAKE DETAIL FOR SIMPLE SAVER



12/14/2023

ISSUE	DESCRIPTION	DATE	MARK
P	PERMIT	12/13/23	

topline STEEL BUILDINGS — TOP OF THE LINE. — WWW.TOPLINEBUILDINGS.COM

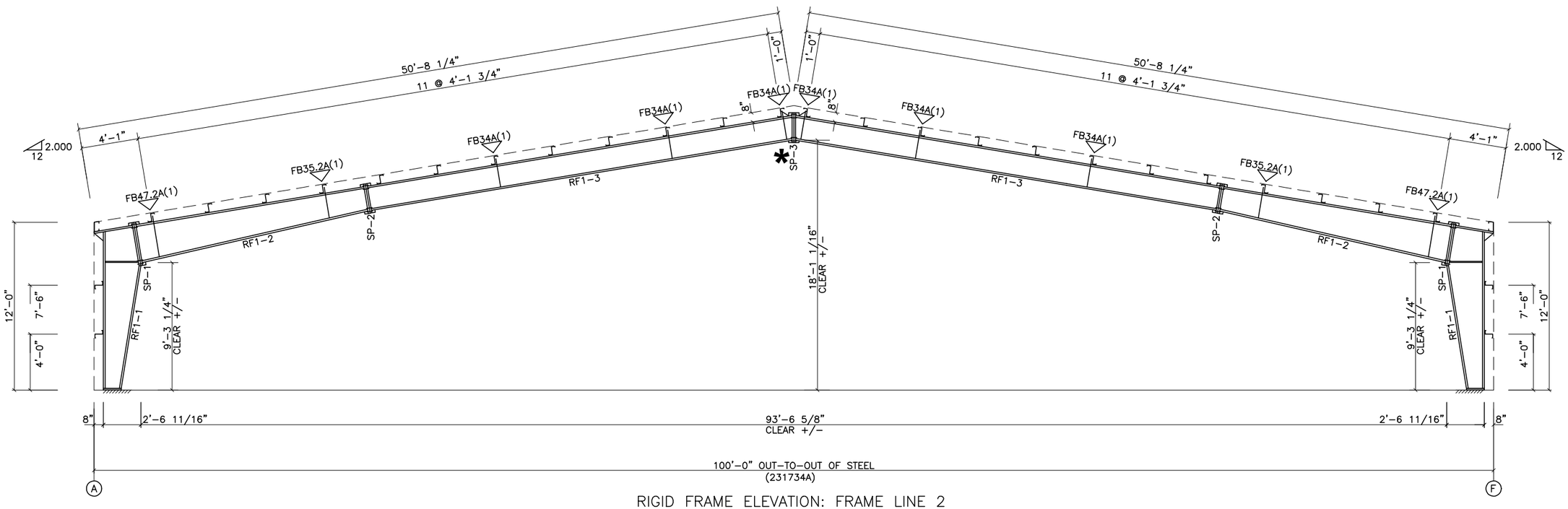
DESCRIPTION: ROOF SHEETING
CUSTOMER: CROOKHAM CONSTRUCTION-CHAMBERS
LOCATION: TONGANOXIE, KS (LEAVENWORTH CO.)

Detailer	BB	Checker	JJ	Designer	SO
Job No.	231734	Sheet	E4	Issue	P

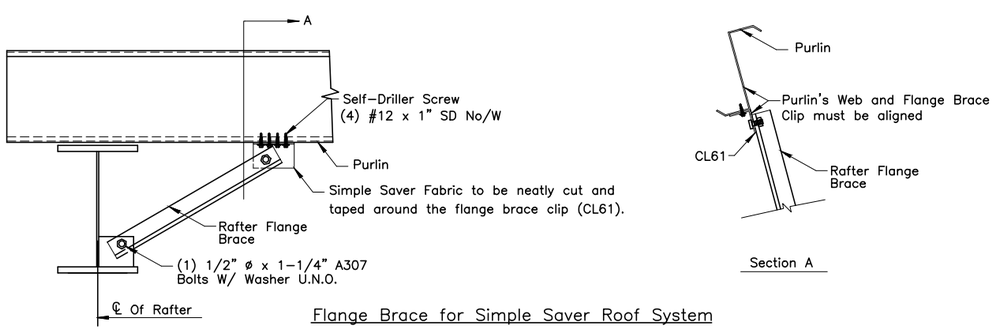
SPLICE PLATE & BOLT TABLE									
Mark	Qty Top	Bot	Int	Type	Dia	Length	Width	Thick	Length
SP-1	4	4	0	A325	1"	2 3/4"	8"	3/4"	3'-1 1/2"
SP-2	4	4	0	A325	3/4"	2"	8"	1/2"	2'-0 3/8"
SP-3	4	4	0	A325	3/4"	2"	6"	1/2"	2'-0 1/2"

MEMBER TABLE					
Mark	Web Depth Start/End	Web Plate Thick	Web Plate Length	Outside Flange W x Thk x Length	Inside Flange W x Thk x Length
RF1-1	12.0/30.0	0.250	140.6	8 x 5/16" x 136.5 8 x 1/4" x 33.2	8 x 3/8" x 108.7
RF1-2	30.0/18.0	0.188	200.9	8 x 1/4" x 200.9	8 x 1/2" x 201.3
RF1-3	18.0/18.0	0.164	240.0	6 x 1/4" x 240.5	6 x 5/16" x 131.1
	18.0/18.0	0.164	131.1	6 x 1/4" x 130.6	6 x 1/4" x 237.0

FLANGE BRACES: (1) One Side; (2) Two Sides
FBxxA(1): xx=length(in)
A - L2X2X1/8



RIGID FRAME ELEVATION: FRAME LINE 2



Flange Brace for Simple Saver Roof System

* NOTE:
(3) 10 GA. Shims were provided for splice @ peak to be used as req'd to make up for sagging due to deflection.

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ISSUE	DESCRIPTION	DATE	MARK
P	PERMIT	12/13/23	

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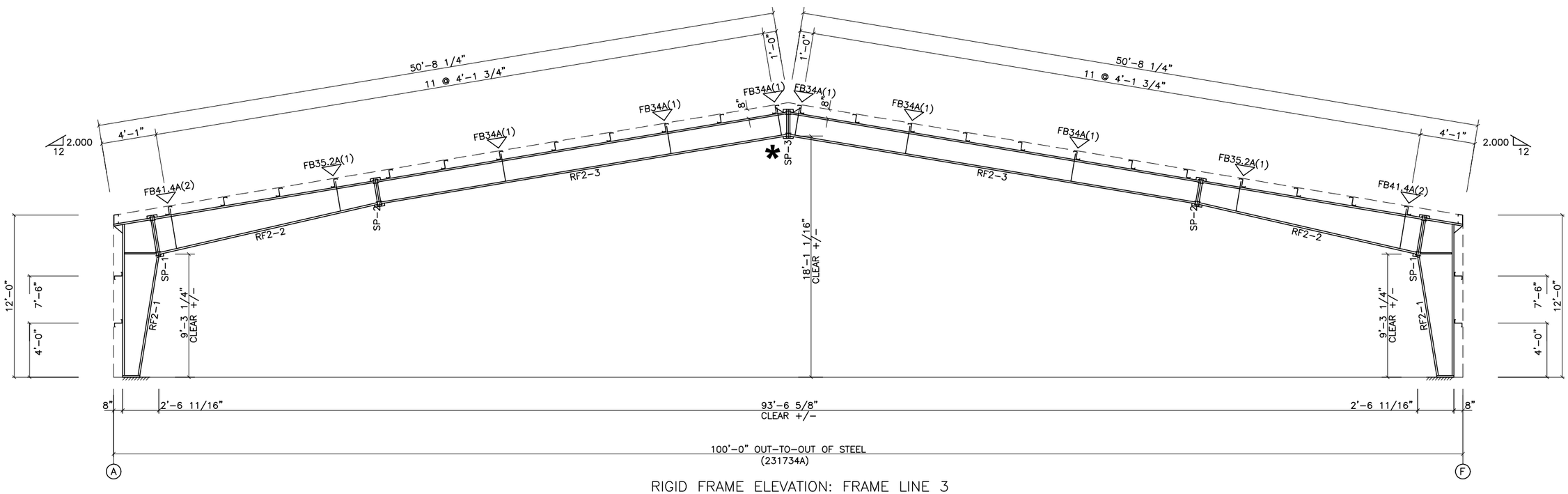
DESCRIPTION: RIGID FRAME ELEVATION
CUSTOMER: CROOKHAM CONSTRUCTION-CHAMBERS
LOCATION: TONGANOXIE, KS (LEAVENWORTH CO.)

Detailer BB	Checker JJ	Designer SO
Job No. 231734	Sheet E5	Issue P

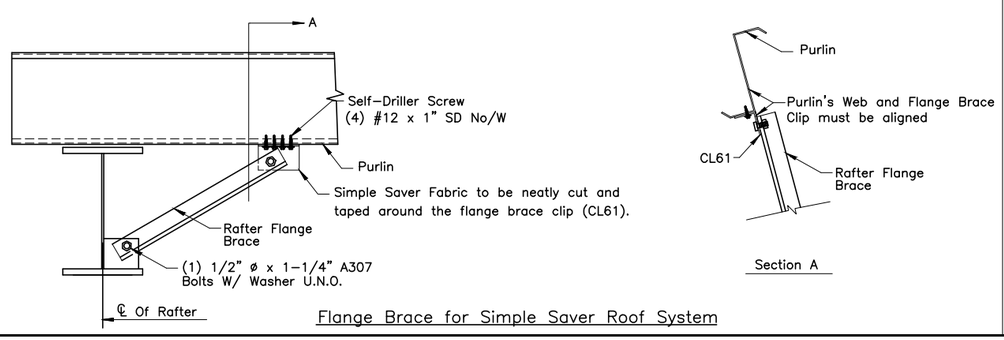
SPLICE PLATE & BOLT TABLE									
Mark	Qty Top	Bot	Int	Type	Dia	Length	Width	Thick	Length
SP-1	4	4	0	A325	1"	2 3/4"	8"	3/4"	3'-1 1/2"
SP-2	4	4	0	A325	3/4"	2"	8"	1/2"	2'-0 3/8"
SP-3	4	4	0	A325	3/4"	2"	6"	1/2"	2'-0 1/2"

MEMBER TABLE					
Mark	Web Depth Start/End	Web Plate Thick	Web Plate Length	Outside Flange W x Thk x Length	Inside Flange W x Thk x Length
RF2-1	12.0/30.0	0.250	140.6	8 x 5/16" x 136.5 8 x 1/4" x 33.2	8 x 3/8" x 108.7
RF2-2	30.0/18.0	0.188	200.9	8 x 1/4" x 200.9	8 x 1/2" x 201.3
RF2-3	18.0/18.0	0.164	240.0	6 x 1/4" x 240.5	6 x 5/16" x 131.1
	18.0/18.0	0.164	131.1	6 x 1/4" x 130.6	6 x 1/4" x 237.0

FLANGE BRACES: (1) One Side; (2) Two Sides
FBxxA(1): xx=length(in)
A - L2X2X1/8



RIGID FRAME ELEVATION: FRAME LINE 3



Flange Brace for Simple Saver Roof System

* NOTE:
(3) 10 GA. Shims were provided for splice @ peak to be used as req'd to make up for sagging due to deflection.

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12/14/2023

ISSUE	DESCRIPTION	DATE	MARK
P	PERMIT	12/13/23	

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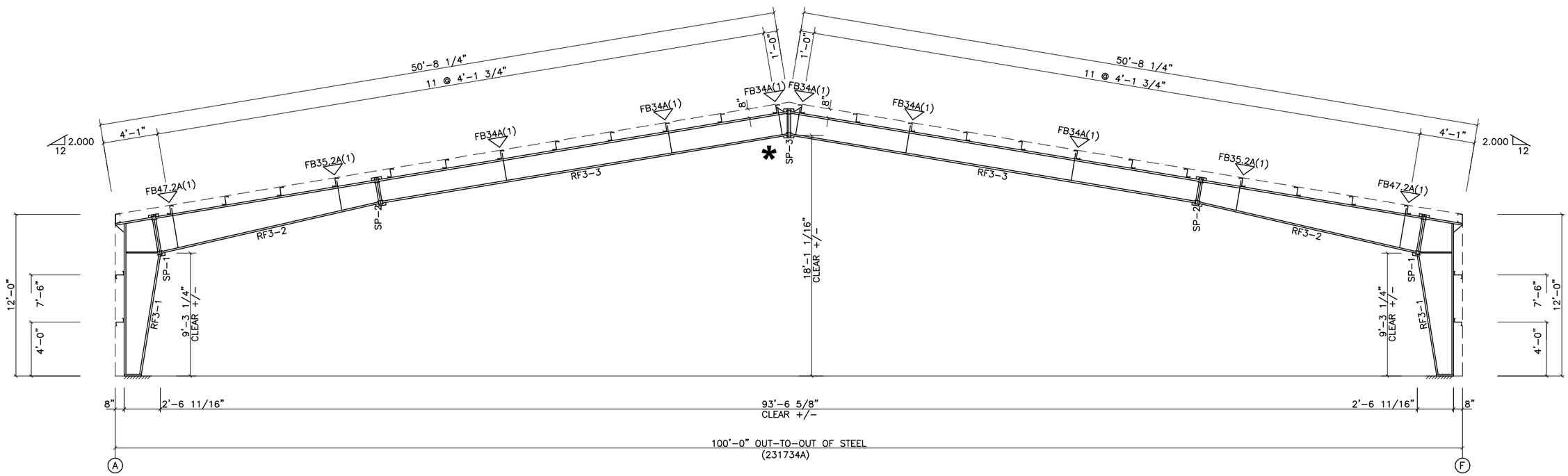
DESCRIPTION:	RIGID FRAME ELEVATION
CUSTOMER:	CROOKHAM CONSTRUCTION-CHAMBERS
LOCATION:	TONGANOXIE, KS (LEAVENWORTH CO.)

Detailer	BB	Checker	JJ	Designer	SO
Job No.	231734	Sheet	E6	Issue	P

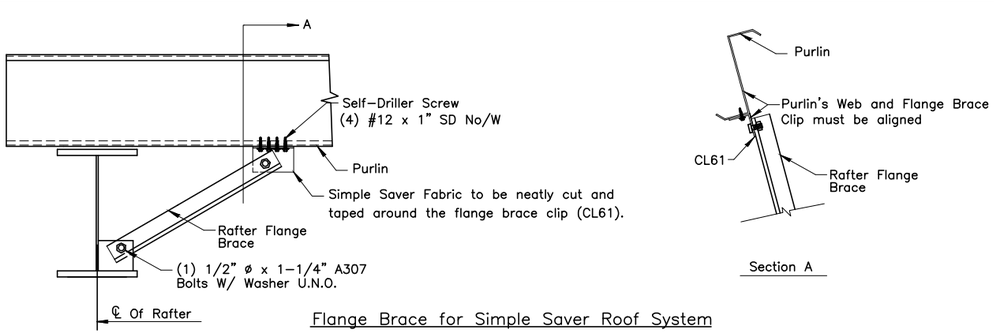
SPLICE PLATE & BOLT TABLE									
Mark	Qty Top	Bot	Int	Type	Dia	Length	Width	Thick	Length
SP-1	4	4	0	A325	1"	2 3/4"	8"	3/4"	3'-1 1/2"
SP-2	4	4	0	A325	3/4"	2"	8"	1/2"	2'-0 3/8"
SP-3	4	4	0	A325	3/4"	2"	6"	1/2"	2'-0 1/2"

FLANGE BRACES: (1) One Side; (2) Two Sides
FBxxA(1): xx=length(in)
A - L2X2X1/8

MEMBER TABLE					
Mark	Web Depth Start/End	Web Plate Thick	Web Plate Length	Outside Flange W x Thk x Length	Inside Flange W x Thk x Length
RF3-1	12.0/30.0	0.250	140.6	8 x 5/16" x 136.5 8 x 1/4" x 33.2	8 x 3/8" x 108.7
RF3-2	30.0/18.0	0.188	200.9	8 x 1/4" x 200.9	8 x 1/2" x 201.3
RF3-3	18.0/18.0	0.164	240.0	6 x 1/4" x 240.5	6 x 5/16" x 131.1
	18.0/18.0	0.164	131.1	6 x 1/4" x 130.6	6 x 1/4" x 237.0



RIGID FRAME ELEVATION: FRAME LINE 4



Flange Brace for Simple Saver Roof System

* NOTE:
(3) 10 GA. Shims were provided for splice @ peak to be used as req'd to make up for sagging due to deflection.

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12/14/2023

ISSUE	DESCRIPTION	DATE	MARK
P	PERMIT	12/13/23	

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TOP OF THE LINE.

DESCRIPTION: RIGID FRAME ELEVATION
CUSTOMER: CROOKHAM CONSTRUCTION-CHAMBERS
LOCATION: TONGANOXIE, KS (LEAVENWORTH CO.)

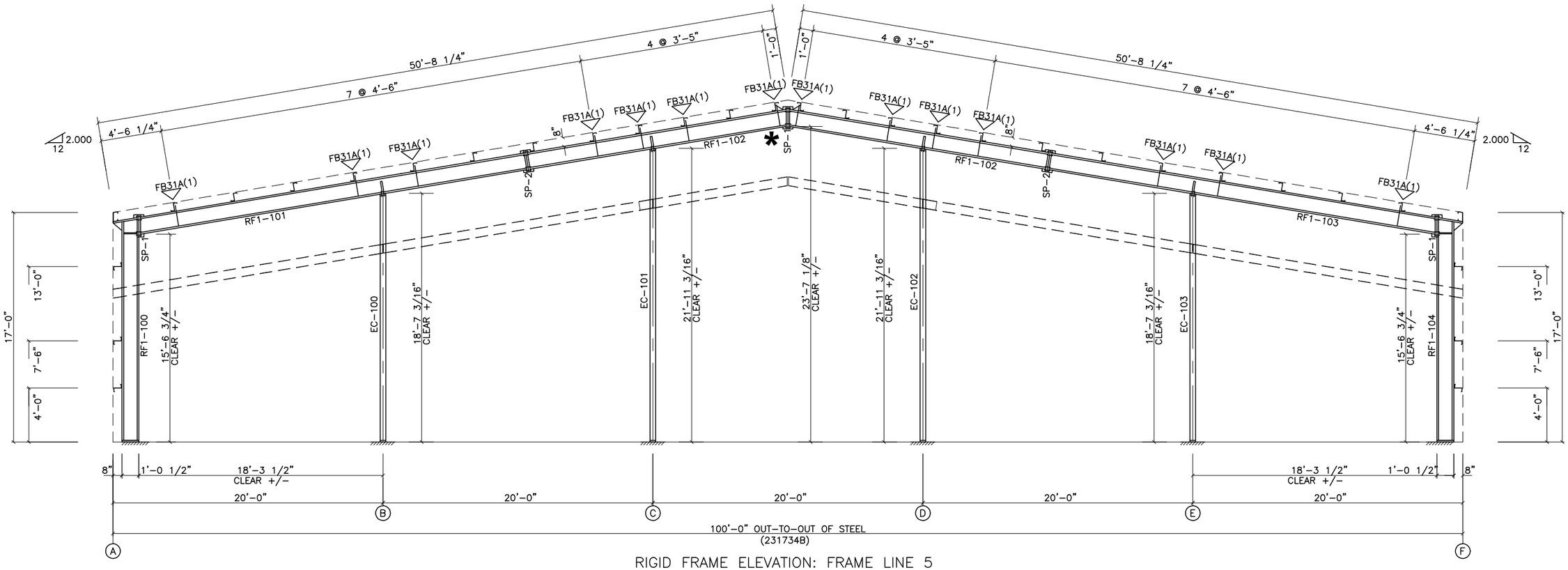
Detailer	Checker	Designer
BB	JJ	SO
Job No. 231734	Sheet E7	Issue P

SPLICE PLATE & BOLT TABLE										
Mark	Qty Top	Bot	Int	Type	Dia	Length	Width	Thick	Length
SP-1	4	4	0	A325	3/4"	1 3/4"	6"	3/8"	1'-6 1/2"
SP-2	4	4	0	A325	3/4"	1 3/4"	6"	3/8"	1'-6 1/4"

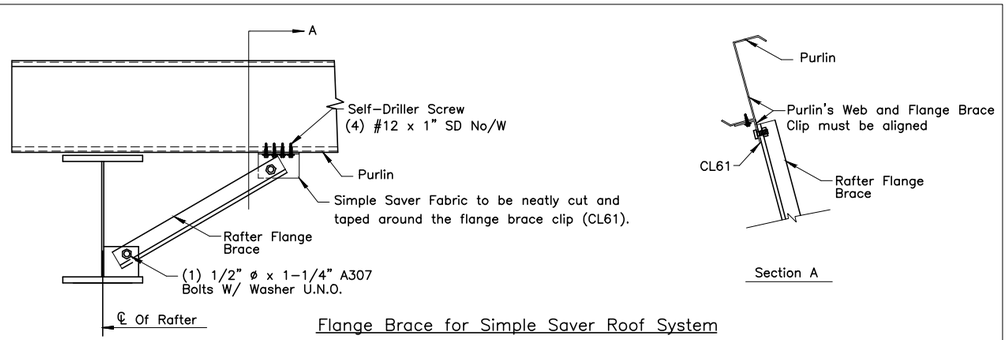
CAP PLATE BOLTS				
Mark	Qty	Type	Dia	Length
EC-100	4	A325	5/8"	1 1/2"
EC-101	4	A325	5/8"	1 1/2"
EC-102	4	A325	5/8"	1 1/2"
EC-103	4	A325	5/8"	1 1/2"

FLANGE BRACES: (1) One Side; (2) Two Sides
FBxxA(1): xx=length(in)
A - L2X2X1/8

MEMBER TABLE					
Mark	Web Depth Start/End	Web Plate Thick	Web Plate Length	Outside Flange W x Thk x Length	Inside Flange W x Thk x Length
RF1-100	12.0/12.0	0.164	198.6	6 x 1/4" x 196.6 6 x 1/4" x 20.5	6 x 1/4" x 183.4
RF1-101	12.0/12.0 12.0/12.0	0.164 0.164	240.0 112.3	5 x 1/4" x 240.5 5 x 1/4" x 109.8	5 x 1/4" x 240.5 5 x 1/4" x 111.8
RF1-102	12.0/12.0	0.164	235.5	5 x 1/4" x 235.5	5 x 1/4" x 233.5
RF1-103	12.0/12.0 12.0/12.0	0.164 0.164	112.3 240.0	5 x 1/4" x 109.8 5 x 1/4" x 240.5	5 x 1/4" x 111.8 5 x 1/4" x 240.5
RF1-104	12.0/12.0	0.164	198.6	6 x 1/4" x 20.5 6 x 1/4" x 196.6	6 x 1/4" x 183.4
EC-100	W08642				
EC-101	W08642				
EC-102	W08642				
EC-103	W08642				



RIGID FRAME ELEVATION: FRAME LINE 5



Flange Brace for Simple Saver Roof System

* NOTE:
(3) 10 GA. Shims were provided for splice @ peak to be used as req'd to make up for sagging due to deflection.

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12/14/2023

ISSUE	DESCRIPTION	DATE	MARK
P	PERMIT	12/13/23	

topline STEEL BUILDINGS
TOP OF THE LINE.

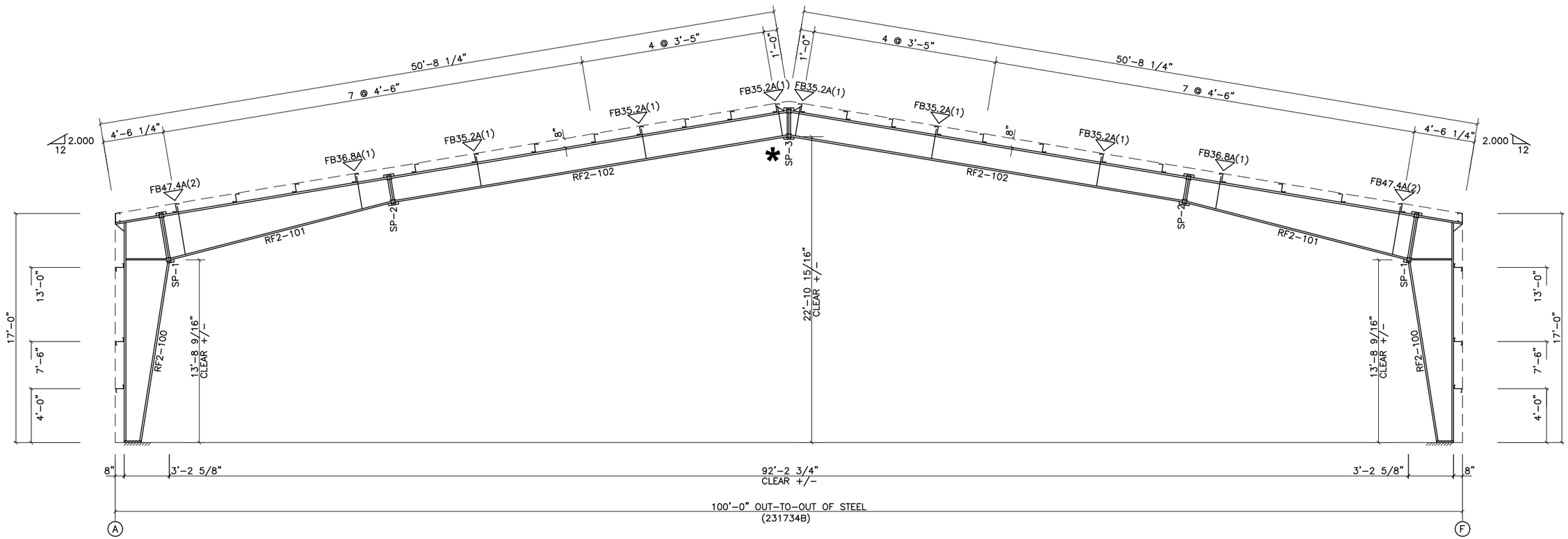
DESCRIPTION:	RIGID FRAME ELEVATION
CUSTOMER:	CROOKHAM CONSTRUCTION-CHAMBERS
LOCATION:	TONGANOXIE, KS (LEAVENWORTH CO.)

Detailer	Checker	Designer
BB	JJ	SO
Job No. 231734	Sheet E8	Issue P

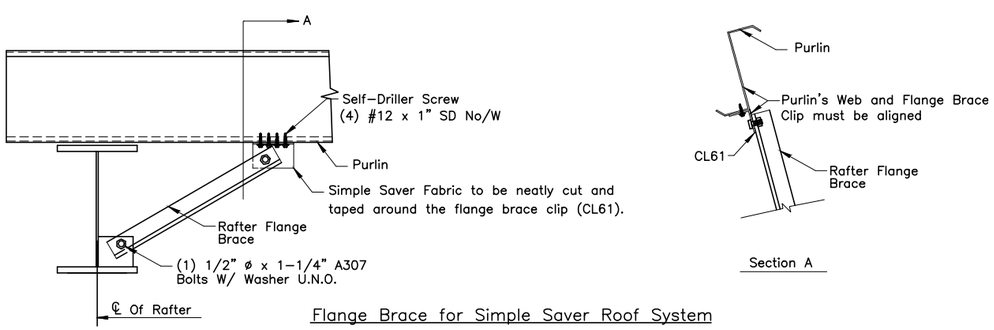
SPLICE PLATE & BOLT TABLE									
Mark	Qty Top	Bot	Int	Type	Dia	Length	Width	Thick	Length
SP-1	4	4	0	A325	1"	2 3/4"	8"	3/4"	3'-9 3/8"
SP-2	4	4	0	A325	3/4"	2"	8"	1/2"	2'-2 3/8"
SP-3	4	4	0	A325	3/4"	2"	6"	1/2"	2'-2 5/8"

MEMBER TABLE					
Mark	Web Depth Start/End	Web Plate Thick	Web Plate Length	Outside Flange W x Thk x Length	Inside Flange W x Thk x Length
RF2-100	12.0/38.0	0.250	201.6	8 x 1/4" x 196.4 8 x 1/4" x 39.9	8 x 3/8" x 162.5
RF2-101	38.0/20.0	0.250	205.3	8 x 1/4" x 205.3	8 x 3/8" x 206.1
RF2-102	20.0/20.0	0.164	240.0	6 x 1/4" x 120.0	6 x 5/16" x 120.0
	20.0/20.0	0.164	120.0	6 x 5/16" x 240.0	6 x 1/4" x 236.6

FLANGE BRACES: (1) One Side; (2) Two Sides
FBxxA(1): xx=length(in)
A – L2X2X1/8



RIGID FRAME ELEVATION: FRAME LINE 6 7 8



Flange Brace for Simple Saver Roof System

* NOTE:
(3) 10 GA. Shims were provided for splice @ peak to be used as req'd to make up for sagging due to deflection.

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1SSUE	DESCRIPTION	DATE	MARK
P	PERMIT	12/13/23	

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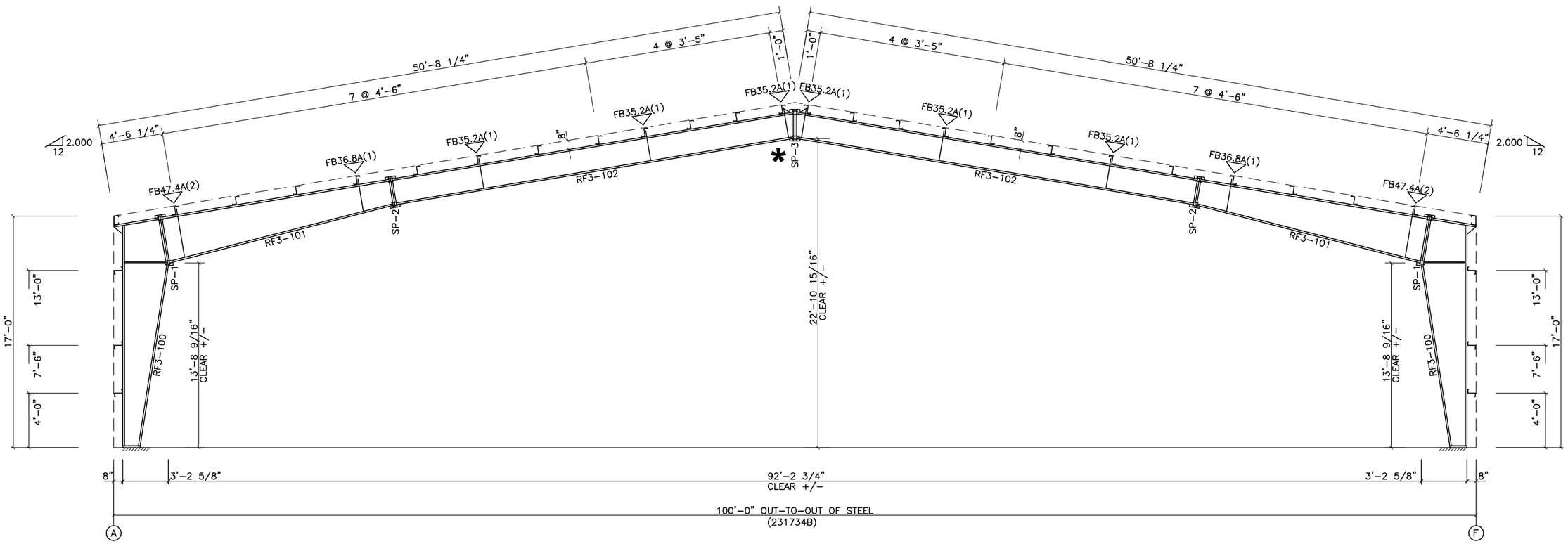
DESCRIPTION:	RIGID FRAME ELEVATION
CUSTOMER:	CROOKHAM CONSTRUCTION-CHAMBERS
LOCATION:	TONGANOXIE, KS (LEAVENWORTH CO.)

Detailer	BB	Checker	JJ	Designer	SO
Job No.	231734	Sheet	E9	Issue	P

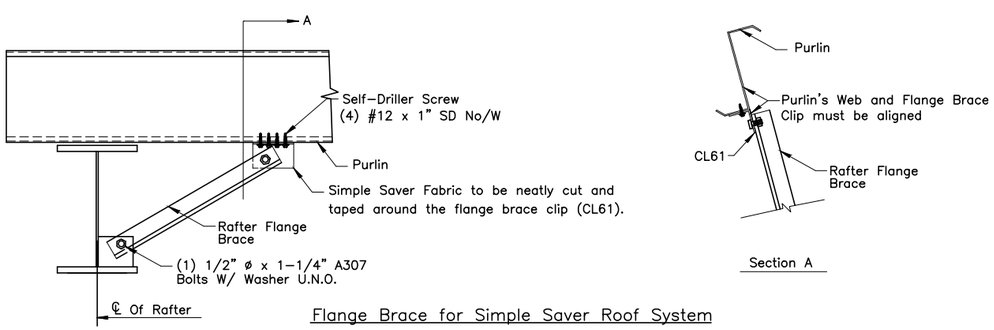
SPLICE PLATE & BOLT TABLE									
Mark	Qty Top	Bot	Int	Type	Dia	Length	Width	Thick	Length
SP-1	4	4	0	A325	1"	2 3/4"	8"	3/4"	3'-9 3/8"
SP-2	4	4	0	A325	3/4"	2"	8"	1/2"	2'-2 3/8"
SP-3	4	4	0	A325	3/4"	2"	6"	1/2"	2'-2 5/8"

MEMBER TABLE					
Mark	Web Depth Start/End	Web Plate Thick	Web Plate Length	Outside Flange W x Thk x Length	Inside Flange W x Thk x Length
RF3-100	12.0/38.0	0.250	201.6	8 x 1/4" x 196.4 8 x 1/4" x 39.9	8 x 3/8" x 162.5
RF3-101	38.0/20.0	0.250	205.3	8 x 1/4" x 205.3	8 x 3/8" x 206.1
RF3-102	20.0/20.0	0.164	240.0	6 x 1/4" x 120.0	6 x 5/16" x 120.0
	20.0/20.0	0.164	120.0	6 x 5/16" x 240.0	6 x 1/4" x 236.6

FLANGE BRACES: (1) One Side; (2) Two Sides
FBxxA(1): xx=length(in)
A – L2X2X1/8



RIGID FRAME ELEVATION: FRAME LINE 9



Flange Brace for Simple Saver Roof System

* NOTE:
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CUSTOMER:	CROOKHAM CONSTRUCTION-CHAMBERS
LOCATION:	TONGANOXIE, KS (LEAVENWORTH CO.)

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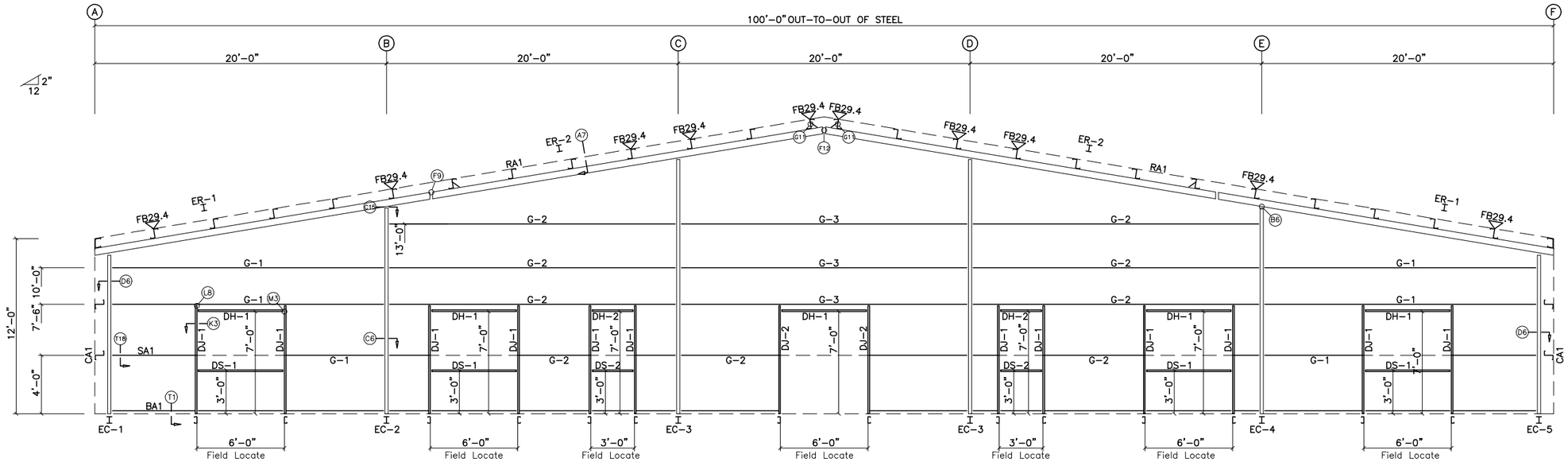
Job No.	231734	Sheet	E10	Issue	P

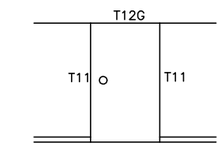


ENDWALL FRAMING: FRAME LINE 1

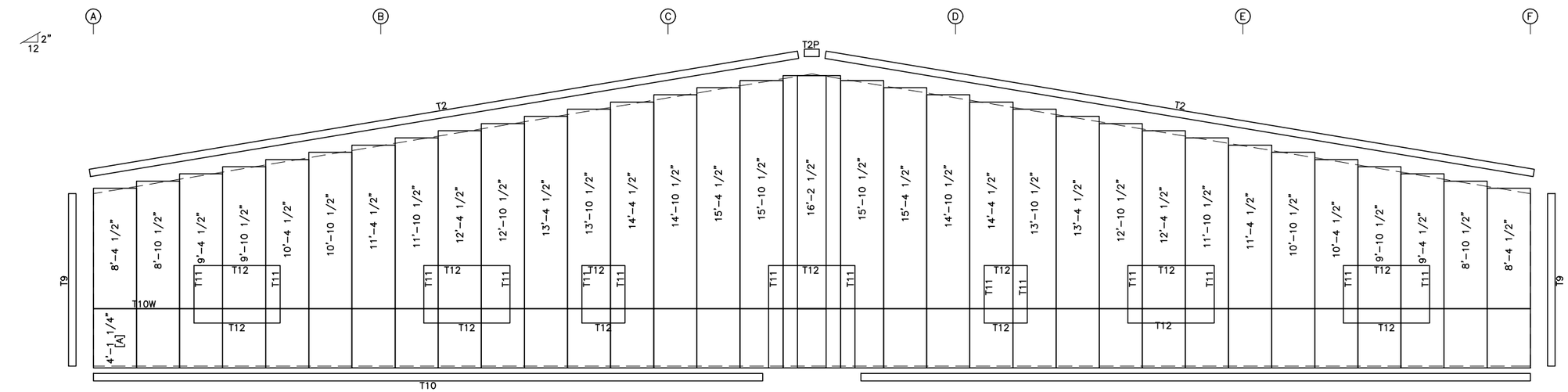
BOLT TABLE FRAME LINE 1				
LOCATION	QUAN	TYPE	DIA	LENGTH
ER-1/ER-2	8	A325	5/8"	1 3/4"
ER-2/ER-2	8	A325	5/8"	1 3/4"
Columns/Raf	4	A325	5/8"	1 1/2"

FLANGE BRACE TABLE FRAME LINE 1		
▽ID	MARK	LENGTH
1	FB29.4	2'-5 3/8"

MEMBER TABLE FRAME LINE 1	
MARK	PART
EC-1	W08542
EC-2	W08542
EC-3	W08542
EC-4	W08542
EC-5	W08542
ER-1	W08542
ER-2	W08542
DJ-1	8X25C16
DJ-2	8X25C16
DH-1	8X25C16
DH-2	8X25C16
DS-1	8X25C16
DS-2	8X25C16
G-1	8X25Z16
G-2	8X25Z16
G-3	8X25Z14



(4) FIELD LOCATED 3070 DOOR TRIM KITS (ASH GRAY)



ENDWALL SHEETING & TRIM: FRAME LINE 1

PANELS: 26 Ga. PBR – Charcoal Gray

[A] PANELS: 26 Ga. PBR – Coal Black

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12/14/2023

GENERAL NOTES:

1. Topline standard trim lap is 3 inches max.
2. Topline pre-cuts wall panels at factory located openings as required.
3. Slot girts in field for cable passage at flush walls as required.
4. TSB is NOT responsible for attachment of material by others.

ISSUE	DESCRIPTION	DATE	MARK
P	PERMIT	12/13/23	

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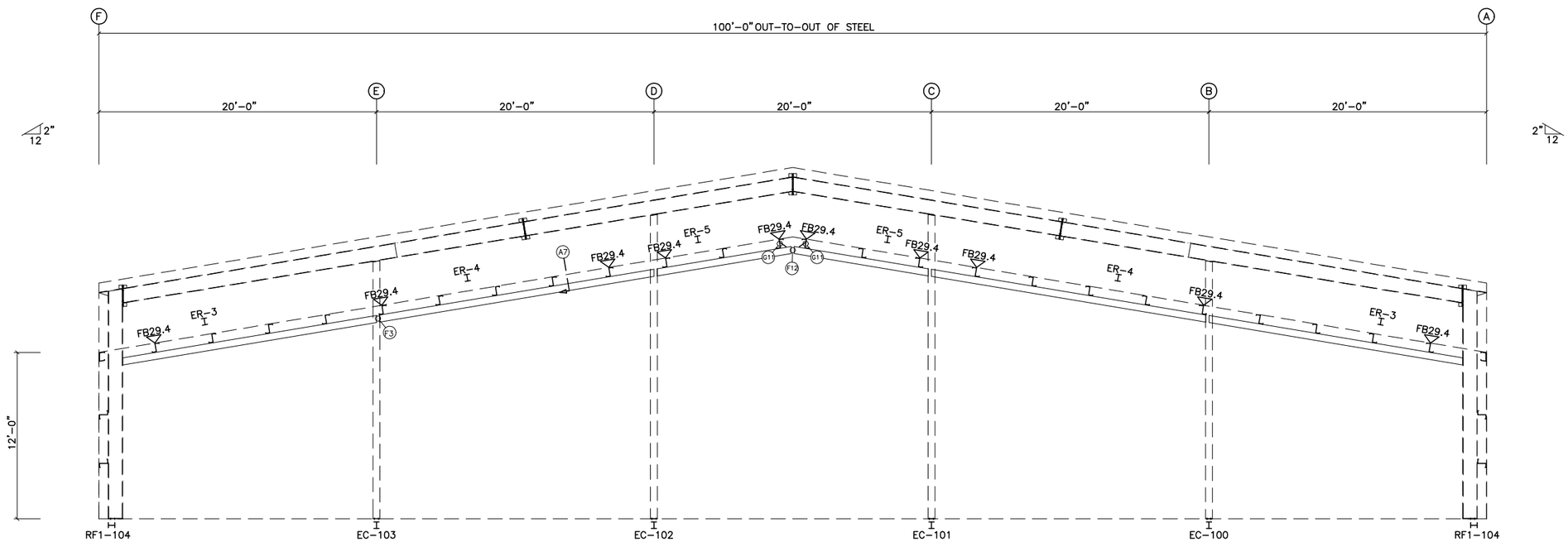
DESCRIPTION:	ENDWALL FRAMING
CUSTOMER:	CROOKHAM CONSTRUCTION-CHAMBERS
LOCATION:	TONGANOXIE, KS (LEAVENWORTH CO.)

Detailer	BB	Checker	JJ	Designer	SO
Job No.	231734	Sheet	E11	Issue	P

BOLT TABLE FRAME LINE 5				
LOCATION	QUAN	TYPE	DIA	LENGTH
Cor_Column/Raf	4	A325	5/8"	1 1/2"
ER-3/ER-4	4	A325	5/8"	1 3/4"
ER-4/ER-5	4	A325	5/8"	1 3/4"
ER-5/ER-5	8	A325	5/8"	2"

FLANGE BRACE TABLE FRAME LINE 5		
▽ID	MARK	LENGTH
1	FB29.4	2'-5 3/8"

MEMBER TABLE FRAME LINE 5	
MARK	PART
ER-3	W08542
ER-4	W08542
ER-5	W08542



FALSE RAFTER FRAMING: FRAME LINE 5

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12/14/2023

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ISSUE	DESCRIPTION	DATE	MARK
P	PERMIT	12/13/23	

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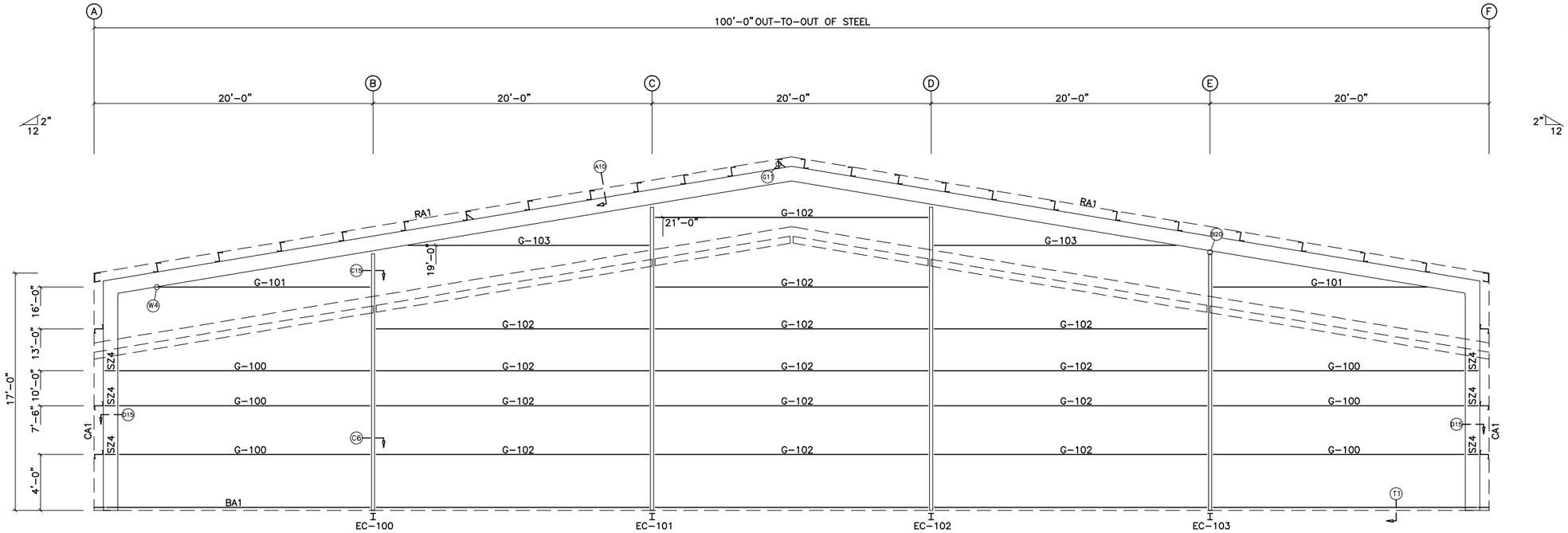
DESCRIPTION: ENDWALL FRAMING
CUSTOMER: CROOKHAM CONSTRUCTION-CHAMBERS
LOCATION: TONGANOXIE, KS (LEAVENWORTH CO.)

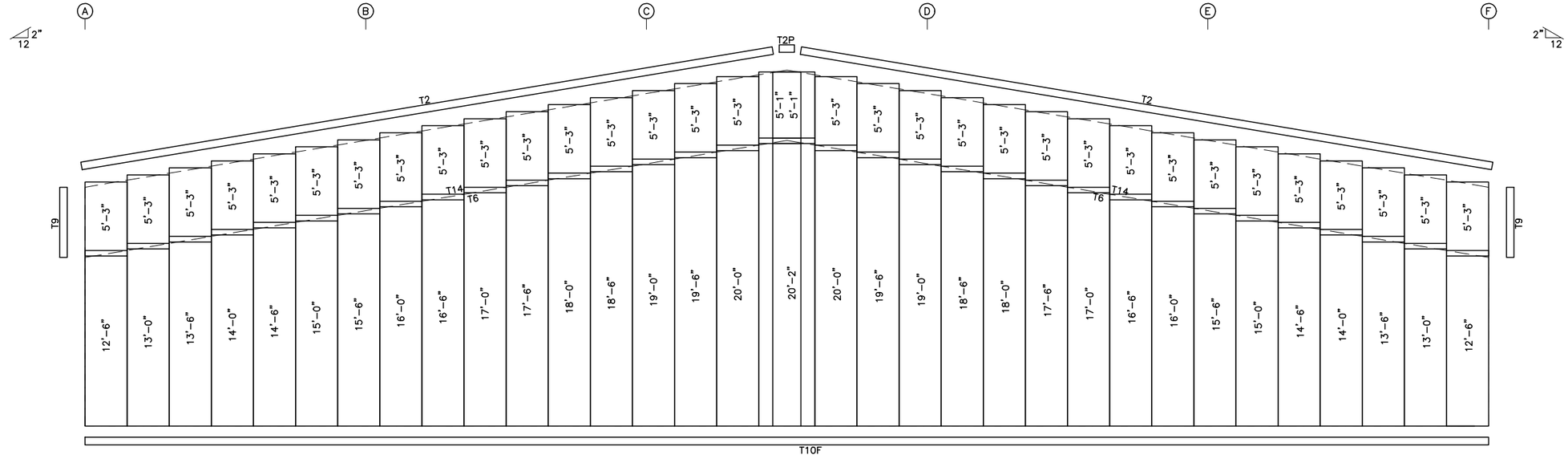
Detailer BB	Checker JJ	Designer SO
Job No. 231734	Sheet E12	Issue P

BOLT TABLE FRAME LINE 5				
LOCATION	QUAN	TYPE	DIA	LENGTH
231734B				
Columns/Raf	4	A325	5/8"	1 1/2"

MEMBER TABLE FRAME LINE 5	
MARK	PART
231734B	
EC-100	W08642
EC-101	W08642
EC-102	W08642
EC-103	W08642
G-100	8X25Z16
G-101	8X25Z16
G-102	8X25Z16
G-103	8X25Z16



ENDWALL FRAMING: FRAME LINE 5
(BUILDING B)



ENDWALL SHEETING & TRIM: FRAME LINE 5
PANELS: 26 Ga. PBR – Charcoal Gray

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12/14/2023

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ISSUE	DESCRIPTION	DATE	MARK
P	PERMIT	12/13/23	

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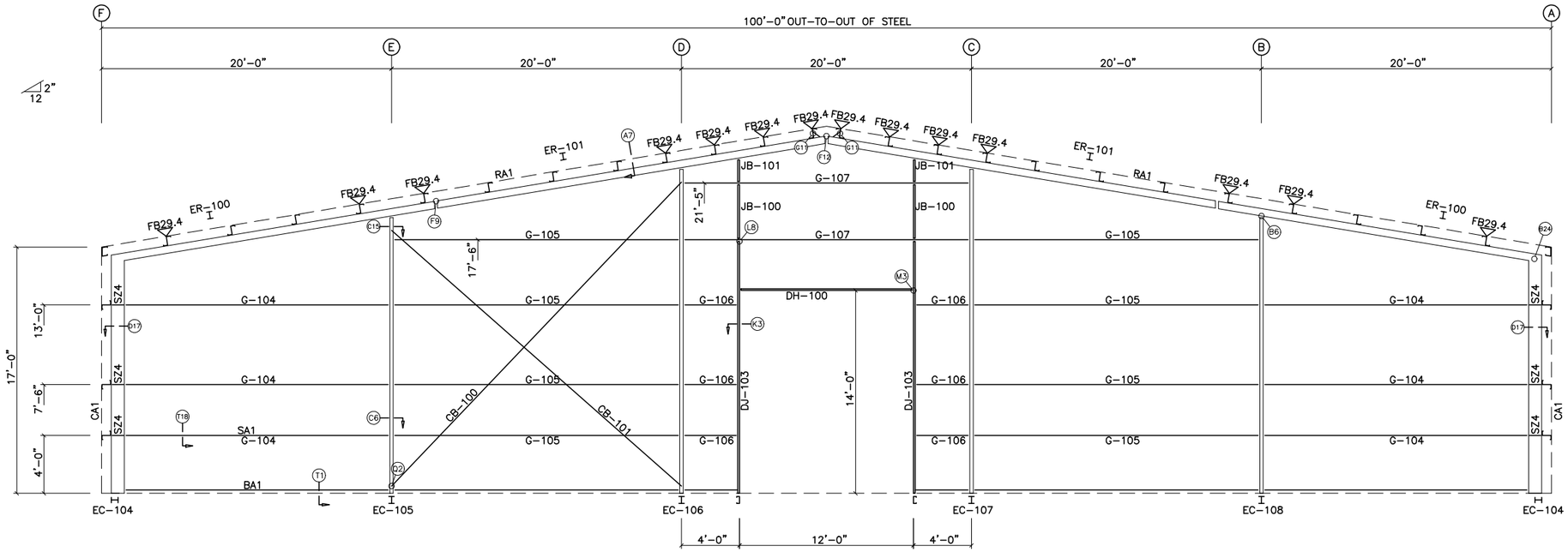
DESCRIPTION:	ENDWALL FRAMING
CUSTOMER:	CROOKHAM CONSTRUCTION-CHAMBERS
LOCATION:	TONGANOXIE, KS (LEAVENWORTH CO.)

Detailer	Checker	Designer
BB	JJ	SO
Job No. 231734	Sheet E13	Issue P

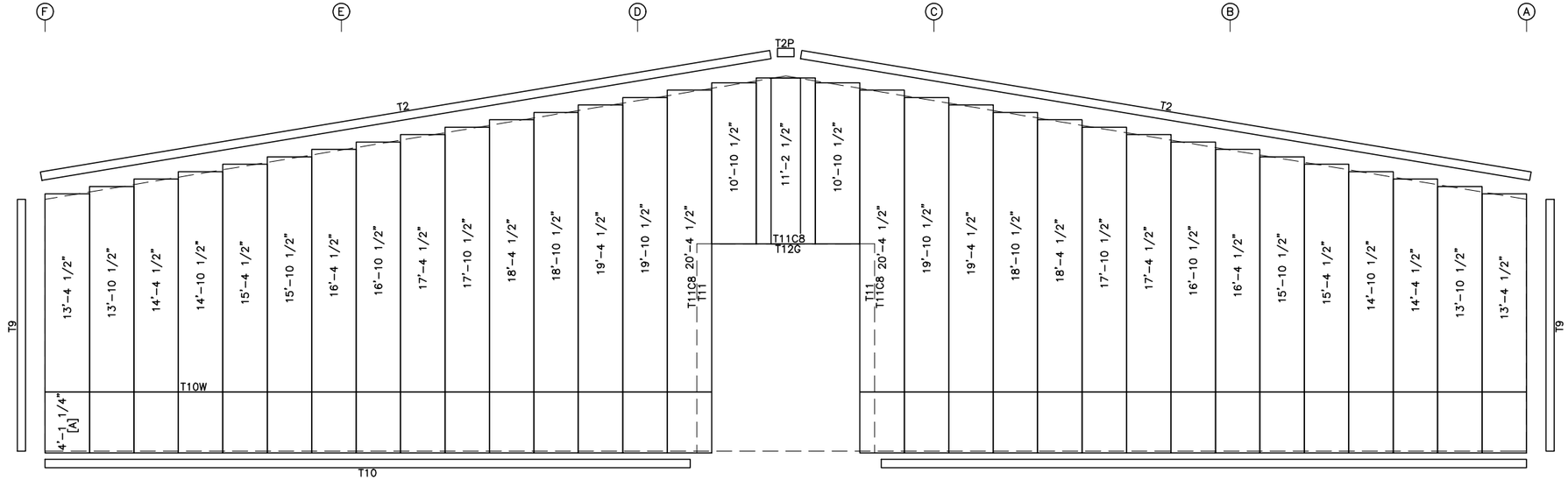
BOLT TABLE FRAME LINE 10				
LOCATION	QUAN	TYPE	DIA	LENGTH
Cor_Column/Raf	4	A325	5/8"	1 1/2"
ER-100/ER-101	8	A325	5/8"	1 3/4"
ER-101/ER-101	8	A325	5/8"	1 3/4"
Int_Column/Raf	4	A325	5/8"	1 1/2"

FLANGE BRACE TABLE FRAME LINE 10		
▽ID	MARK	LENGTH
1	FB29.4	2'-5 3/8"

MEMBER TABLE FRAME LINE 10	
MARK	PART
EC-104	W10542
EC-105	W08542
EC-106	W08542
EC-107	W08542
EC-108	W08542
ER-100	W08542
ER-101	W08542
DJ-103	8X35C16
DH-100	8X25C16
G-104	8X25Z14
G-105	8X25Z14
G-106	8X25Z16
G-107	8X25Z12
CB-100	1/4"CB
CB-101	1/4"CB
JB-100	8X25C16
JB-101	8X25C16



ENDWALL FRAMING: FRAME LINE 10



ENDWALL SHEETING & TRIM: FRAME LINE 10

PANELS: 26 Ga. PBR – Charcoal Gray

[A] PANELS: 26 Ga. PBR – Coal Black

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ISSUE	DESCRIPTION	DATE	MARK
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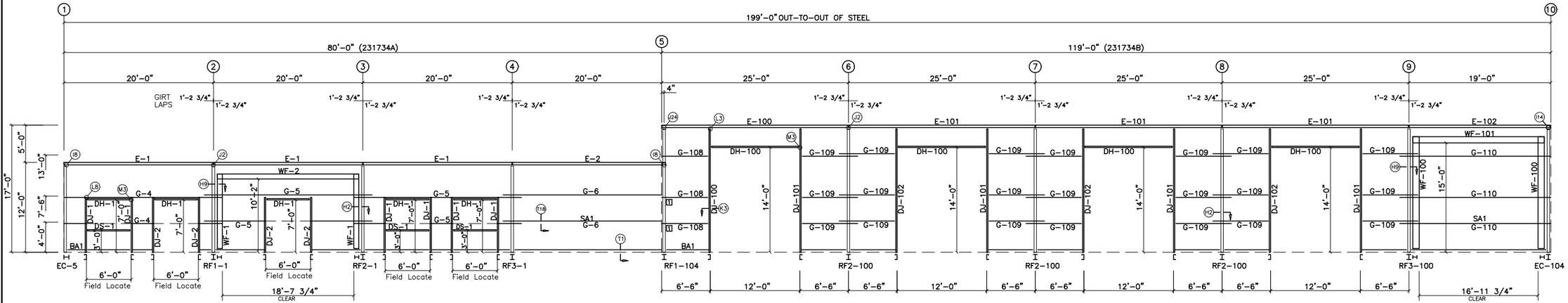
DESCRIPTION:	ENDWALL FRAMING
CUSTOMER:	CROOKHAM CONSTRUCTION-CHAMBERS
LOCATION:	TONGANOXIE, KS (LEAVENWORTH CO.)

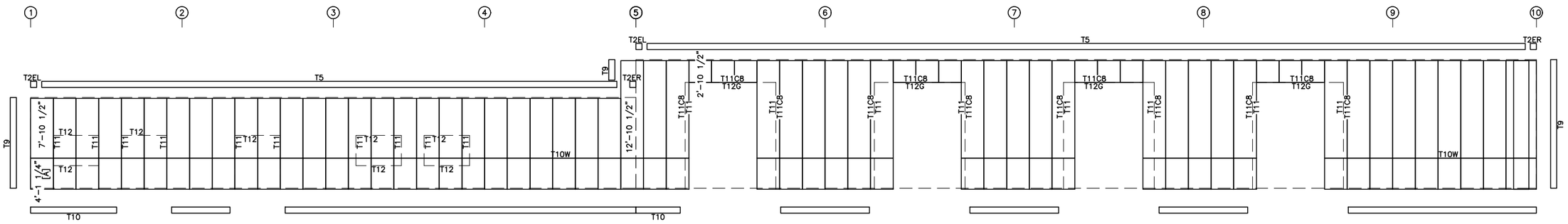
Detailer	BB	Checker	JJ	Designer	SO
Job No.	231734	Sheet	E14	Issue	P

BOLT TABLE FRAME LINE F				
LOCATION	QUAN	TYPE	DIA	LENGTH
231734A				
WF-1 – WF-2	8	A325	3/4"	2"
WF-1 – RF1-1	6	A325	5/8"	1 1/2"
WF-1 – RF2-1	6	A325	5/8"	1 1/2"
231734B				
WF-100 – WF-101	8	A325	3/4"	2"
WF-100 – RF3-100	8	A325	5/8"	1 1/2"
WF-100 – EC-104	8	A325	5/8"	1 1/2"

MEMBER TABLE FRAME LINE F	
MARK	PART
231734A	
WF-1	W08642
WF-2	W08642
DJ-1	8X25C16
DJ-2	8X25C16
DH-1	8X25C16
DS-1	8X25C16
E-1	8ES14-2
E-2	8ES14-2
G-4	8X25Z16
G-5	8X25Z16
G-6	8X25Z16
231734B	
WF-100	W10652
WF-101	W10642
DJ-100	8X35C16
DJ-101	8X25C16
DJ-102	8X25C16
DH-100	8X25C16
E-100	8ES14-2
E-101	8ES14-2
E-102	8ES14-2
G-108	8X25Z16
G-109	8X25Z16
G-110	8X25Z16



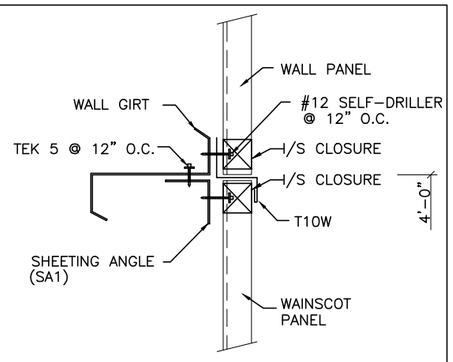
SIDEWALL FRAMING: FRAME LINE F



SIDEWALL SHEETING & TRIM: FRAME LINE F

PANELS: 26 Ga. PBR – Charcoal Gray

[A] PANELS: 26 Ga. PBR – Coal Black



T18 TRANSITION FROM WALL PANEL TO WAINSCOT WITH PANELS NOT LAPPED

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DESCRIPTION: SIDEWALL FRAMING

CUSTOMER: CROOKHAM CONSTRUCTION–CHAMBERS

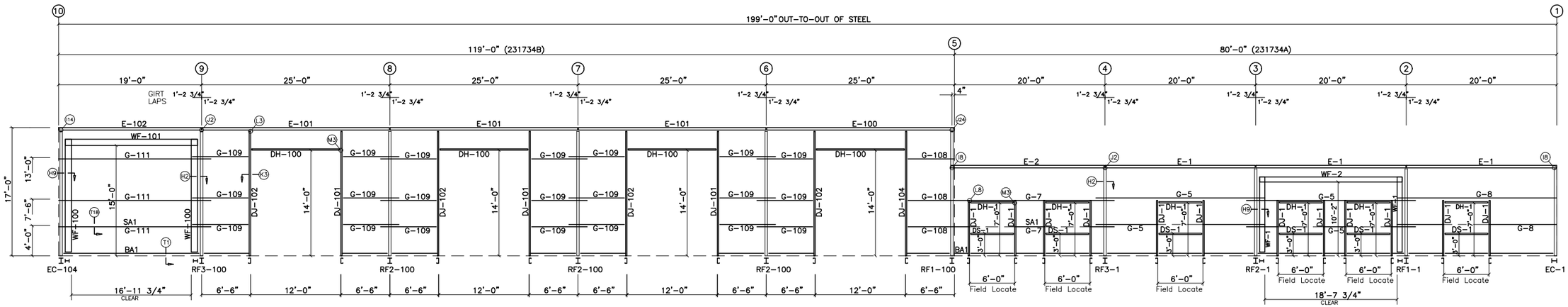
LOCATION: TONGANOXIE, KS (LEAVENWORTH CO.)

Detailer BB	Checker JJ	Designer SO
Job No. 231734	Sheet E15	Issue P

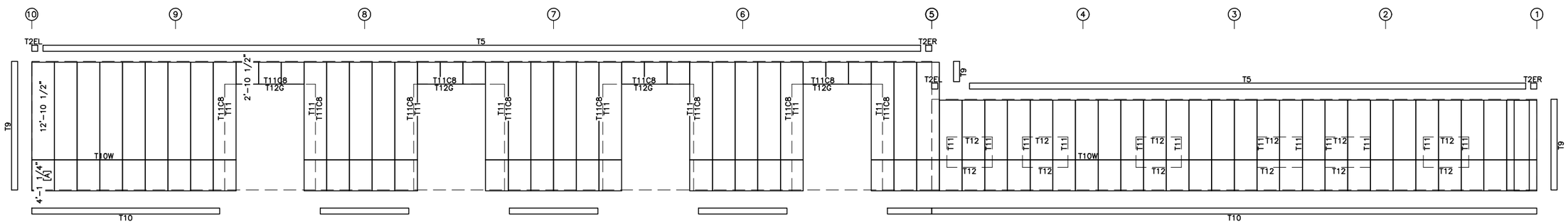
BOLT TABLE FRAME LINE A				
LOCATION	QUAN	TYPE	DIA	LENGTH
231734A				
WF-1 – WF-2	8	A325	3/4"	2"
WF-1 – RF2-1	6	A325	5/8"	1 1/2"
WF-1 – RF1-1	6	A325	5/8"	1 1/2"
231734B				
WF-100 – WF-101	8	A325	3/4"	2"
WF-100 – EC-104	8	A325	5/8"	1 1/2"
WF-100 – RF3-100	8	A325	5/8"	1 1/2"

MEMBER TABLE FRAME LINE A	
MARK	PART
231734A	
WF-1	W08642
WF-2	W08642
DJ-1	8X25C16
DH-1	8X25C16
DS-1	8X25C16
E-1	8ES14-2
E-2	8ES14-2
G-5	8X25Z16
G-7	8X25Z16
G-8	8X25Z16
231734B	
WF-100	W10652
WF-101	W10642
DJ-101	8X25C16
DJ-102	8X25C16
DJ-104	8X35C16
DH-100	8X25C16
E-100	8ES14-2
E-101	8ES14-2
E-102	8ES14-2
G-108	8X25Z16
G-109	8X25Z16
G-111	8X25Z16

CONNECTION PLATES FRAME LINE A	
CID	MARK/PART
1	r1



SIDEWALL FRAMING: FRAME LINE A



SIDEWALL SHEETING & TRIM: FRAME LINE A

PANELS: 26 Ga. PBR – Charcoal Gray

[A] PANELS: 26 Ga. PBR – Coal Black

STEPHEN GRAHAM OWEN LICENSED 23993 KANSAS PROFESSIONAL ENGINEER

12/14/2023

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ISSUE	DESCRIPTION	DATE	MARK
P	PERMIT	12/13/23	

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DESCRIPTION:	SIDEWALL FRAMING
CUSTOMER:	CROOKHAM CONSTRUCTION-CHAMBERS
LOCATION:	TONGANOXIE, KS (LEAVENWORTH CO.)

Detailer	BB	Checker	JJ	Designer	SO
Job No.	231734	Sheet	E16	Issue	P

Final Stormwater Management Plan

prepared for

Polished and Decorative Concrete

RESIDENTIAL DEVELOPMENT

State Avenue & Tonganoxie Road
Tonganoxie, KS

Initial Submittal: March 8, 2024
Revised: April 19, 2024

Schlagel & Associates
Project # 24-032

prepared by

SCHLAGEL & ASSOCIATES, P.A.
Lenexa, Kansas

Prepared for

Polished and Decorative Concrete

SCHLAGEL
ENGINEERS PLANNERS SURVEYORS LANDSCAPE ARCHITECTS

MARK ALLEN BREUER
LICENSED
20329
KANSAS
PROFESSIONAL ENGINEER
04.19.2024

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- 1.2 Methodology 1

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APPENDIX A – Site Information

- Location Map/Current Aerial Photo
- NRCS Soil Survey
- National Wetland Inventory Map
- FEMA FIRM Panel

APPENDIX B – Supporting Calculations

- Existing Drainage Area Map
- Proposed Drainage Area Map
- HydroCAD Model Output

* * * *

1.0 GENERAL INFORMATION

The proposed 6.28-acre commercial development with associated infrastructure is located in Section 04, Township 11, and Range 21, at State Avenue and Ridge Street in Tonganoxie, Leavenworth County, Kansas. The site is bound with Tonganoxie Drive to the North and State Avenue to the South. There are similar Commercial/Industrial developments surrounding the site.

1.1 OBJECTIVE

The intent of this report is to provide information pertaining to the existing and proposed watershed, identify and address any downstream drainage issues, meet the required detention requirements, and address permitting requirements. This study provides the final design calculations for the currently proposed development that includes one extended dry detention basin.

1.2 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 (February 16, 2011) and the *City of Tonganoxie Municipal Code* were utilized in preparation of this document and site watershed analysis. Watershed sizes were determined from topographical survey of the existing conditions, aerial photography, and the proposed site layout. Soil cover was determined from inspection of the site and aerial photography. A soil survey for the project area obtained from the NRCS online portal was utilized in determining soil types on-site and can be found in Appendix A. Times of concentration were compiled according to *NRCS TR-55 Urban Hydrology for Small Watersheds (1986)* methodology for sheet flow and shallow concentrated flow. Travel times for channel flows were estimated using *Table 5602-6* from APWA Section 5600. Pipe flow velocities were estimated to be 9 feet per second. HydroCAD version 10.0 was used to model runoff. All storm events were modeled using SCS 24-hour Type II distributions and were modeled for the 10 and 100-year storm events.

* * * * *

2.0 EXISTING CONDITIONS ANALYSIS

The site as it exists today is currently a woods and grass combination cover condition. The entire site directs runoff to one release point located in the northwest corner of the site, where it is captured via a ditch along the south side of Tonganoxie Road. Current runoff on the property is conveyed via sheet, shallow and channel flow.

2.1 EXISTING SOIL CONDITIONS

On-site soils 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 on-site.

- **7252 – Grundy Silty Clay Loam**, 1-3 Percent Slopes; Somewhat Poorly Drained, Non-Hydric, Hydrologic Soil Group C/D, 10.6% of site
- **7303 – Martin Silty Clay Loam**, 3-7 Percent Slopes; Moderately Well Drained, Medium Runoff Class, Non-Hydric, Hydrologic Soil Group C/D, 89.4% of site

2.2 TRIBUTARY AREAS

The existing tributary area is provided in Appendix B in the Existing Drainage Map. The site release point has been identified as Release Point 1 (RP 1). Majority of flows are located on-site, with a small off-site area located directly south of the proposed site. This designation corresponds with the watershed model located in Appendix B.

2.3 CURVE NUMBER AND TIME OF CONCENTRATION

The existing curve numbers and times of concentration for each sub area have been established based on the procedures outlined in *NRCS TR-55 Urban Hydrology for Small Watersheds (1986)*. Existing curve numbers were based on aerial photography, site inspection, and the soil types present on site. The site was taken as Woods/Grass combination in Fair condition with an associated curve number of 76. Hydrologic soil group C/D was present on site. A current aerial photograph can be found in Appendix A, as well as a copy of the NRCS soils report generated from the NRCS Web Soil Survey. Table 2.3.1 below summarizes the curve number calculations for each of the sub areas.

Time of concentration flow paths were based on sheet flow, shallow concentrated flow. Sheet flow lengths were limited to 100 feet, or where a grade break occurred after which flow was considered shallow concentrated. The Existing Drainage Area Map in Appendix B shows time of concentration flow paths used in the analysis. Detailed calculations are also included with the HydroCAD summary in Appendix B.

Table 2.3.1 Existing Cover Conditions

HYDROCAD EXISTING OUTPUT					
Sub-basin	Area (ac.)	CN	Tc (min)	10-year (cfs)	100-year (cfs)
EX DA #1	6.28	76	13.9	20.29	39.74
OFF-SITE DA	1.28	82	13.7	4.98	9.04

2.4 EXISTING FLOW RATES

Existing flow rates were determined for the 10 and 100-year design storms. Detailed routing calculations can be found in Appendix B.

* * * *

3.0 AGENCY REVIEW

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

3.1 CORPS OF ENGINEERS REVIEW

There are no identified wetlands per the wetland inventory map within the proposed development. Therefore, it is not anticipated for any permitting requirements to be required. A National Wetland Inventory Map is provided in Appendix A.

3.2 FEMA REQUIREMENTS

There is not a FEMA identified floodplain located on the proposed property per Flood Insurance Rate Map Panel No. 20103C0302G Therefore, no FEMA requirements associated with this project are anticipated. Please see the attached FEMA Firmette in Appendix A.

3.3 KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT

All land disturbance activities will be permitted in accordance with the City of Tonganoxie, KS specifications as well as the Kansas Department of Health and Environment and National Pollution Discharge Elimination System (NPDES) requirements. NPDES and NOI Applications will be made with the future permitting of the site in compliance with local, state, and federal guidelines.

* * * * *

4.0 PROPOSED STORM WATER MANAGEMENT ANALYSIS

With the proposed development, the site will maintain the main watershed. Detention is being proposed for the site via an extended dry detention basin located in the northwestern portion of the property.

All components of the basin and enclosed storm sewer will meet or exceed the specifications provided in Section *5600 – Storm Drainage Systems & Facilities of the Standard Specifications and Design Criteria* compiled by the Kansas City Metropolitan Chapter of the American Public Works Association and the City of Tonganoxie Technical Specifications.

4.1 TRIBUTARY AREAS

The proposed sub areas are shown on the Proposed Drainage Map in Appendix B. The proposed drainage areas have been delineated as DA to Basin, Off-Site to Basin, On-Site Bypass, and Off-Site Bypass to quantify runoff volumes. The site release point R#1 remains unchanged from existing. The designations correspond with the watershed model located in Appendix B.

4.2 CURVE NUMBER AND TIME OF CONCENTRATION

The proposed curve numbers and time of concentrations for each sub area have been established based on the procedures outlined in NRCS TR-55 Urban Hydrology for Small Watersheds (1986). Proposed curve numbers were based on soil types present on site and the impervious and pervious surfaces in the proposed condition. A composite curve number for each sub area was determined. Table 4.2.1 summarizes the curve number calculations for each of the sub areas.

Time of concentration flow paths were based upon sheet flow, shallow concentrated flow, and channel/pipe/gutter flow conditions. Sheet flow lengths were limited to 100 feet after which flow was considered shallow concentrated. Detailed calculations of the times of concentration and proposed flow paths can be found in Appendix B on the Proposed Drainage Area Map.

Table 4.2.1 Proposed Cover Conditions

HYDROCAD PROPOSED OUTPUT					
Sub-basin	Area (ac.)	CN	Tc (min)	10-year (cfs)	100-year (cfs)
DA TO BASIN	3.12	88	5	18.72	31.74
OFF-SITE TO BASIN	0.81	84	5	4.45	7.87
ON-SITE BYPASS	3.20	84	11.2	14.21	25.18
OFF-SITE BYPASS	0.43	84	10.1	1.97	3.50

4.3 PROPOSED FLOW RATES

Proposed flow rates were determined for the 10 and 100-year storm events. Detention routing will be discussed in section 4.4. Detailed routing calculations can be found in Appendix B.

4.4 DETENTION ANALYSIS

As previously mentioned, one extended dry detention basin will be constructed with the proposed development. The proposed basin will be located in the northwest corner of the site. The basin has been sized with a primary 15” outlet pipe to accommodate detention of the 10 and 100-year storm events. The basin will also have an emergency spillway set at an elevation 0.5 foot above the 100-year water surface elevation. The 100-year WSE is at 878.66 feet. The bottom of the spillway will be set at 879.18 with a length of 50 feet. The water surface elevation of the flows through the spillway is 879.59 feet. The top of dam for the spillway will provide an additional 1 foot of freeboard, setting the top elevation of the dam at 880.60 feet. The riprap for the pond outlet pipe has been sized per the sheet titled “Approximate Size of Riprap Required to Resist Movement Based On Conduit Outlet Velocity.” This sheet can be found in Appendix B. Per this sheet, at a pipe slope of 8%, KDOT Light 18” riprap is adequate for the proposed outlet pipe. Detailed velocity calculations have also been provided and can be found in Appendix B. With a pipe slope of 8%, the max shear stress is 3.42 pounds per square foot, which is under the allowable shear stress for KDOT Light 18” stone riprap, which is 5 pounds per square foot. The design of the basin will be detailed with the construction documents. Complete hydrograph routing and model output can be found in Appendix B.

Table 4.4.1 Site Release Summary

SITE RELEASE INFORMATION (NO DETENTION)				
	10-year (cfs)		100-year (cfs)	
	EXISTING	PROPOSED	EXISTING	PROPOSED
R#1	25.26	36.69	48.78	63.75

SITE RELEASE INFORMATION (WITH DETENTION)				
	10-year (cfs)		100-year (cfs)	
	EXISTING	PROPOSED	EXISTING	PROPOSED
R#1	25.26	25.14	48.78	39.51

* * * * *

5.0 SUMMARY AND RECOMMENDATIONS

The proposed commercial development of this 6.28-acre tract of land within the City of Tonganoxie has incorporated water quantity controls proposed. The proposed development will include the construction of one dry detention basin to accommodate the detention of the 10 and 100-year storm events.

* * * * *

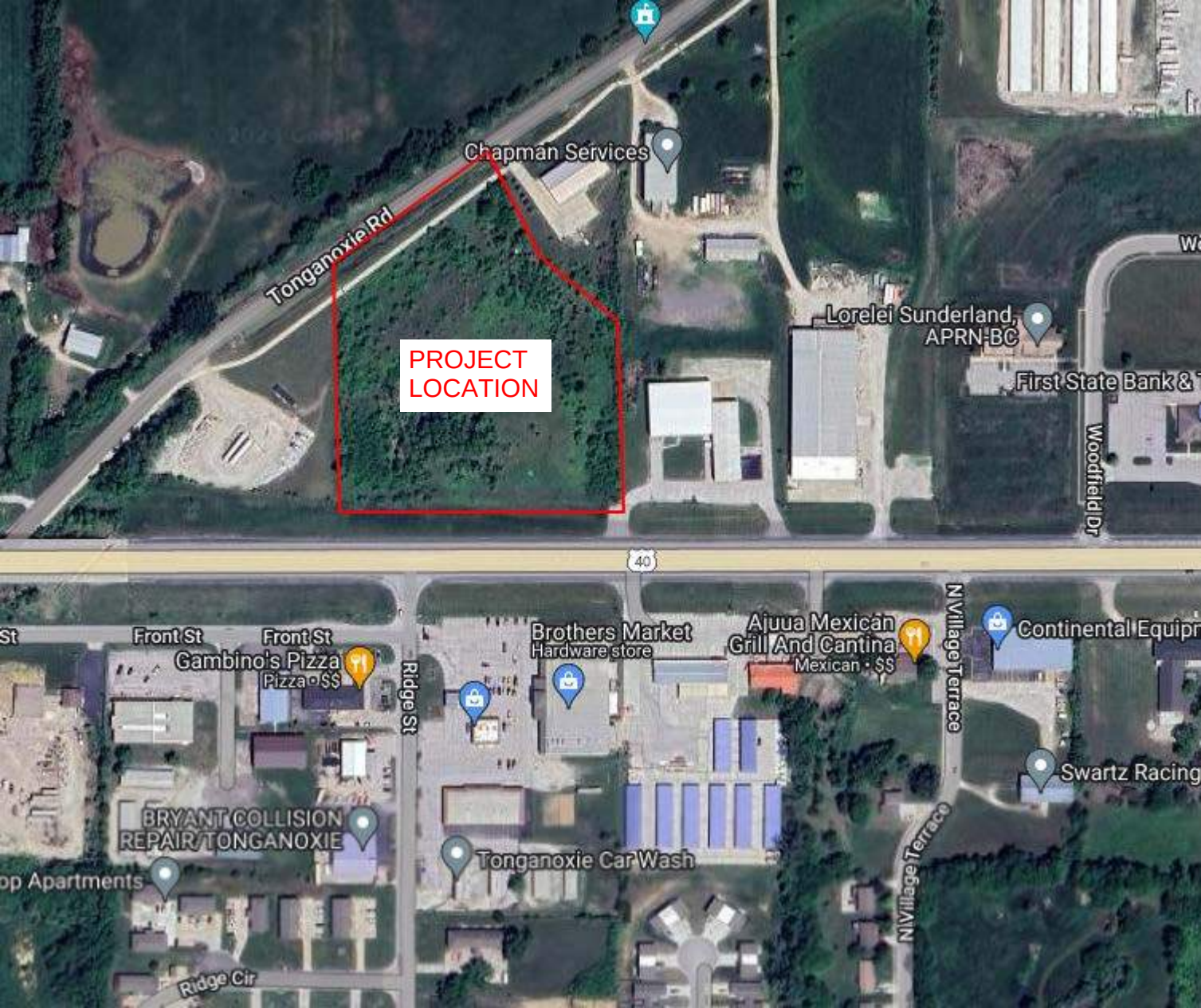
APPENDIX A – SITE INFORMATION

Location Map/Current Aerial Photo

NRCS Soil Survey

National Wetland Inventory Map

FEMA FIRM Panel


Chapman Services
Tonganoxie Rd
PROJECT LOCATION
Lorelei Sunderland, APRN-BC
First State Bank &
Woodfield Dr
40
Front St
Front St
Gambino's Pizza
Pizza • $$
Ridge St
Brothers Market
Hardware store
Ajuua Mexican Grill And Cantina
Mexican • $$
N Village Terrace
Continental Equipm
Swartz Racing
BRYANT COLLISION REPAIR TONGANOXIE
Tonganoxie Car Wash
op Apartments
N Village Terrace
Ridge Cir

United States Department of Agriculture

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

Leavenworth County, Kansas

March 4, 2024

Preface

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

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

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

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

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

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

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

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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

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.

Map Scale: 1:1,290 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 15 30 60 90

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Unit Polygons

Soil Map Unit Lines

Soil Map Unit Points

Special Point Features

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

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

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: Leavenworth County, Kansas
Survey Area Data: Version 18, Sep 12, 2023

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

Date(s) aerial images were photographed: 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.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
7252	Grundy silty clay loam, 1 to 3 percent slopes	0.8	10.6%
7303	Martin silty clay loam, 3 to 7 percent slopes, eroded	6.4	89.4%
Totals for Area of Interest		**7.1**	**100.0%**

Map Unit Descriptions

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

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

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

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.

Leavenworth County, Kansas

7252—Grundy silty clay loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2v90b
Elevation: 730 to 1,700 feet
Mean annual precipitation: 28 to 40 inches
Mean annual air temperature: 50 to 55 degrees F
Frost-free period: 160 to 205 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Grundy and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Grundy

Setting

Landform: Hillslopes
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loess

Typical profile

Ap - 0 to 6 inches: silty clay loam
BA - 6 to 11 inches: silty clay loam
Btg1 - 11 to 14 inches: silty clay
Btg2 - 14 to 42 inches: silty clay
Btg3 - 42 to 51 inches: silty clay loam
C - 51 to 79 inches: silty clay loam

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 9 to 16 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 7.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C/D
Ecological site: R106XY074NE - Clayey Upland
Hydric soil rating: No

Minor Components

Sharpsburg

Percent of map unit: 10 percent
Landform: Hillslopes
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: R106XY075NE - Loamy Upland
Hydric soil rating: No

7303—Martin silty clay loam, 3 to 7 percent slopes, eroded

Map Unit Setting

National map unit symbol: 2v8zp
Elevation: 730 to 1,700 feet
Mean annual precipitation: 28 to 40 inches
Mean annual air temperature: 50 to 55 degrees F
Frost-free period: 160 to 205 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Martin, eroded, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Martin, Eroded

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Colluvium derived from limestone and shale

Typical profile

Ap - 0 to 6 inches: silty clay loam
BA - 6 to 12 inches: silty clay loam
Bt1 - 12 to 17 inches: silty clay
Bt2 - 17 to 56 inches: silty clay
BC - 56 to 65 inches: silty clay loam
C - 65 to 79 inches: silty clay loam

Properties and qualities

Slope: 3 to 7 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 12 to 17 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: Moderate (about 7.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C/D
Ecological site: R106XY075NE - Loamy Upland
Hydric soil rating: No

Minor Components

Clime, eroded

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R076XY112KS - Limy Hills
Hydric soil rating: No

Vinland, eroded

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: R106XY075NE - Loamy Upland
Hydric soil rating: No

Pawnee, eroded

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: R106XY074NE - Clayey Upland
Hydric soil rating: No

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

AASHTO Group Index

The AASHTO Group Index is a refinement to the seven major groups of the AASHTO soil classification system. According to

this system, soil is classified into seven major groups: A -I through A-7. Soils classified into groups A-1, A-2. and A-3 are granular materials of which 35% or less of the particles pass through the No. 200 sieve. Soils of which more than 35% pass through the No. 200 sieve are classified into groups A-4, A-5, A-6, and A-7. These soils are mostly silt and clay-type materials.

The classifications system is based on the following criteria:

1. Grain size

a. Gravel ; fraction passing the 75-mm(3-in.) sieve and retained on the No. 10 (2-mm) U.S. sieve

b. sand: fraction passing the No. 10 (2-mm) U.S. sieve and retained on the No.200 (0.075-mm) U.S. sieve

c. Silt and clay: fraction passing the No. 200 U.S. sieve

2. Plasticity The term silty is applied when the fine fractions of the soil have a plasticity index of 10 or less. The term clayey is applied when the fine fractions have a plasticity index of 11 or more.

3. If cobbles and boulders (size larger than 75 mm) are encountered, they are excluded from the portion of the soil sample from which classification is made.

To evaluate the quality of a soil as a highway subgrade material, one must also incorporate a number called the group index (GI) with the groups and subgroups of the soil. This index is written in parentheses after the group or subgroup designation.

The group index is given by the equation:

$$GI = (F200-35)[0.2+ 0.005(LL- 40)] + 0.01(.F200-15)(PI- 10)$$

where:

F200 = percentage passing through the No. 200 sieve

LL — liquid limit

PI : plasticity index

The group index is used typically to refine an AASHTO class but in the soil survey database is often used as a standalone soil attribute.

For each soil layer, this attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Map—AASHTO Group Index

Map Scale: 1:1,290 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 15 30 60 90

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

= 29

Not rated or not available

Soil Rating Lines

= 29

Not rated or not available

Soil Rating Points

= 29

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

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

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: Leavenworth County, Kansas
Survey Area Data: Version 18, Sep 12, 2023

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

Date(s) aerial images were photographed: 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.

Table—AASHTO Group Index

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
7252	Grundy silty clay loam, 1 to 3 percent slopes	29	0.8	10.6%
7303	Martin silty clay loam, 3 to 7 percent slopes, eroded	29	6.4	89.4%
Totals for Area of Interest			**7.1**	**100.0%**

Rating Options—AASHTO Group Index

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Interpret Nulls as Zero: No

Layer Options (Horizon Aggregation Method): All Layers (Weighted Average)

Hydrologic Soil Group

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.

Map—Hydrologic Soil Group

Map Scale: 1:1,290 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 15 30 60 90

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

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

Soil Rating Lines

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

Soil Rating Points

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

Water Features

Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

Aerial Photography

MAP INFORMATION

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

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

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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.

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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.

Table—Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
7252	Grundy silty clay loam, 1 to 3 percent slopes	C/D	0.8	10.6%
7303	Martin silty clay loam, 3 to 7 percent slopes, eroded	C/D	6.4	89.4%
Totals for Area of Interest			**7.1**	**100.0%**

Rating Options—Hydrologic Soil Group

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

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U.S. Fish and Wildlife Service
National Wetlands Inventory

Wetland Map

March 6, 2024

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was NAD 1983 State Plane Kansas North, zone 1501. The **Horizontal datum** was NAD 83, GRS80 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242**, or visit its website at http://www.ngs.noaa.gov/.

Base Map Information shown on this FIRM was provided in digital format by Leavenworth County GIS Department. This information was photogrammetrically compiled at a scale of 1:1,200 from aerial photography dated 2012.

Based on updated topographic information, this map reflects more detailed and up-to-date **stream channel configurations and floodplain delineations** than those shown on the previous FIRM for this jurisdiction. As a result, the Flood Profiles and Floodway Data tables may reflect stream channel distances that differ from what is shown on the map. Also, the road to floodplain relationships for unrevised streams may differ from what is shown on previous maps.

The "profile baselines" represent the hydraulic modeling baselines that match the flood profiles in the FIS report. As a result of improved topographic data, the "profile baseline", in some cases, may deviate significantly from the channel centerline or appear outside the SFHA.

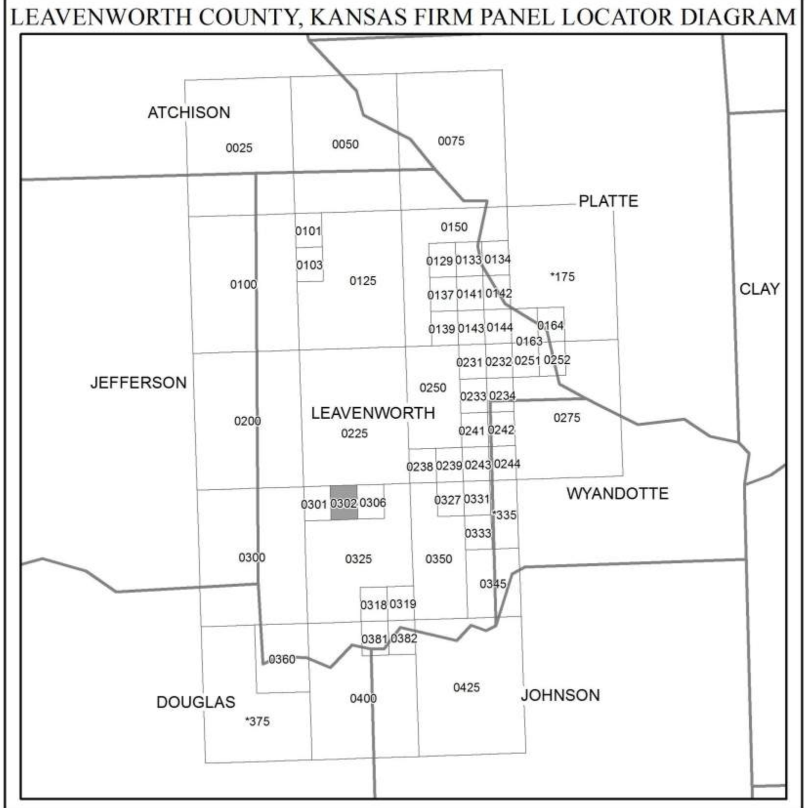
Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

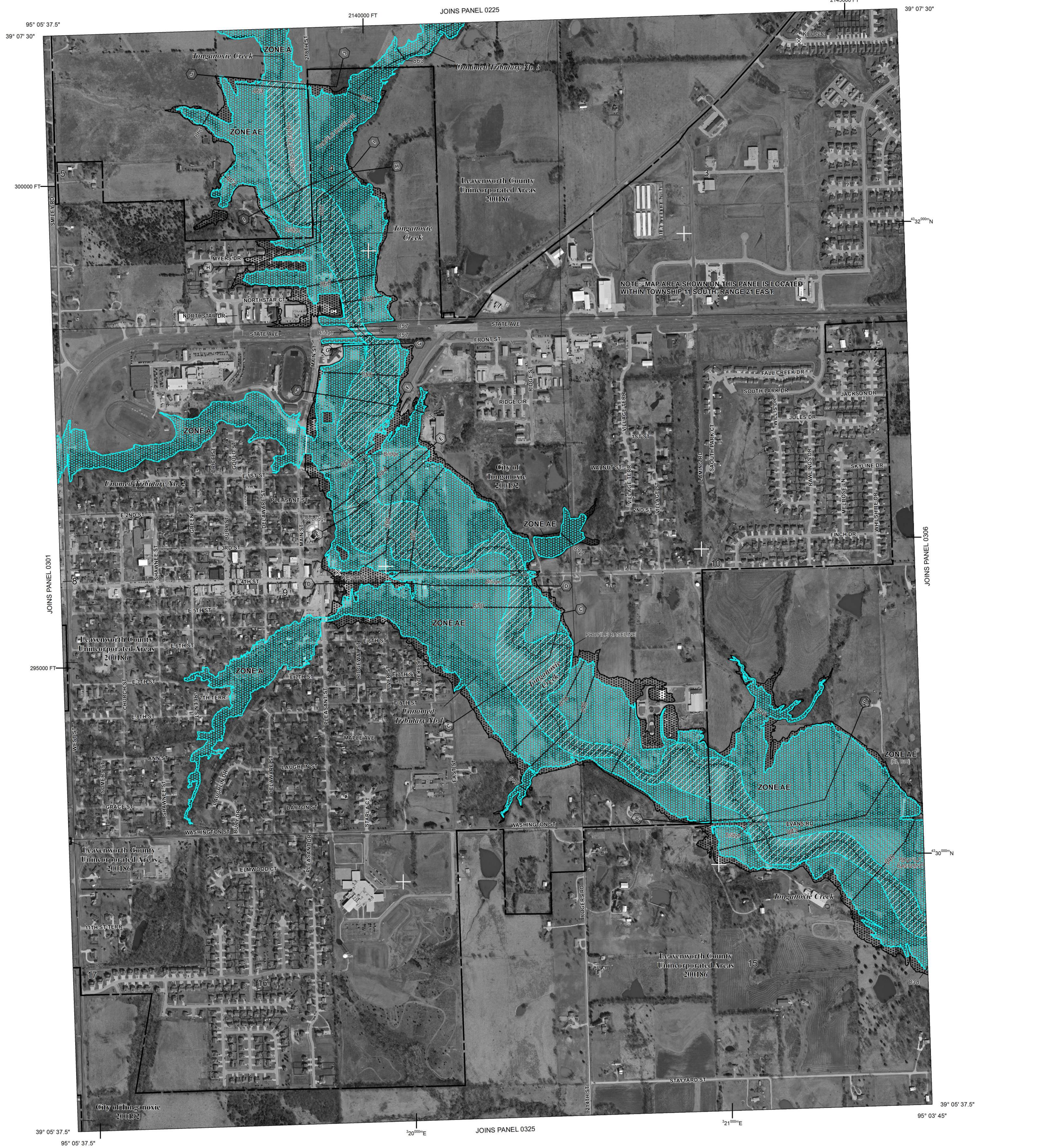
Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** (MSC) via the FEMA Map Information eXchange (FMIX) at 1-877-336-2627 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. The MSC may also be reached by Fax at 1-800-358-9620 and its website at http://msc.fema.gov/.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/business/nfip/.

LEAVENWORTH COUNTY, KANSAS FIRM PANEL LOCATOR DIAGRAM





LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAS)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% annual chance floodplain boundary
0.2% annual chance floodplain boundary
Floodway boundary
Zone D boundary
Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities.
CBRS and OPA boundary
International, State, or County boundary
Corporate, Extraterritorial Jurisdiction, or Urban Growth boundary
Area Not Included boundary
Military Reservation, Native American Lands boundary

513	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988

A —— A	Cross section line
23 - - - - 23	Transect line
87°07'45", 32°22'30"	Geographic coordinates referenced to the North Americam Datum of 1983 (NAD 83)
$^{42}76^{000m}$E	1000-meter Universal Transverse Mercator grid values, zone 14
600000 FT	5000-foot grid ticks: Kansas State Plane coordinate system (FIPS 1501), Lambert Conformal Conic projection
DX5510 ×	Bench mark (see explanation in Notes to Users section of this FIRM panel)
• M1.5	River Mile
	Culvert, Flume, Penstock, or Aqueduct
	Road or Railroad Bridge

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
AUGUST 18, 2009

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
July 16, 2015 - to reflect updated topographic information

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 500 1000 FEET

150 0 150 300 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0302G

FIRM
FLOOD INSURANCE RATE MAP

LEAVENWORTH COUNTY, KANSAS
AND INCORPORATED AREAS

PANEL 302 OF 425
(SEE LOCATOR DIAGRAM OR MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
LEAVENWORTH COUNTY	200186	0302	G
TONGANOXIE, CITY OF	200192	0302	G

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

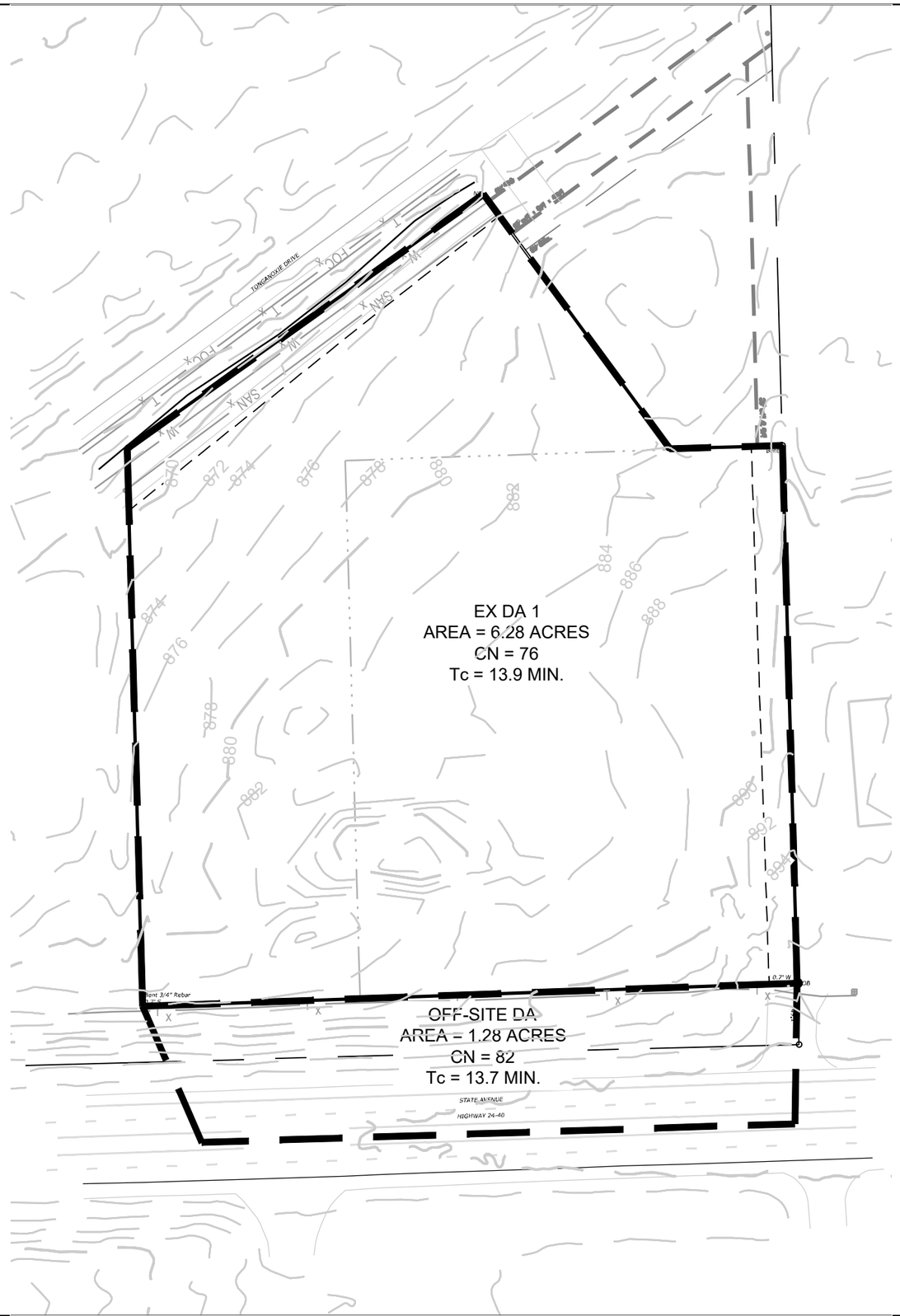
MAP NUMBER
20103C0302G

MAP REVISED
JULY 16, 2015

Federal Emergency Management Agency

APPENDIX B – SUPPORTING CALCULATIONS

Existing Drainage Area Map
Proposed Drainage Area Map
HydroCAD Model Output
Velocity Calculations
Rip-Rap Sizing Sheet



0 100' 200'

SCALE: 1" = 100'

SCHLAGEL
ENGINEERS PLANNERS SURVEYORS LANDSCAPE ARCHITECTS
14920 West 107th Street Lenexa, Kansas 66215
(913) 492-5158 Fax: (913) 492-8400
WWW.SCHLAGELASSOCIATES.COM
Kansas State Certificates of Authority
#E-296 #LA-29 #LS-54

POLISHED AND DECORATIVE CONCRETE HYDRO MAPS

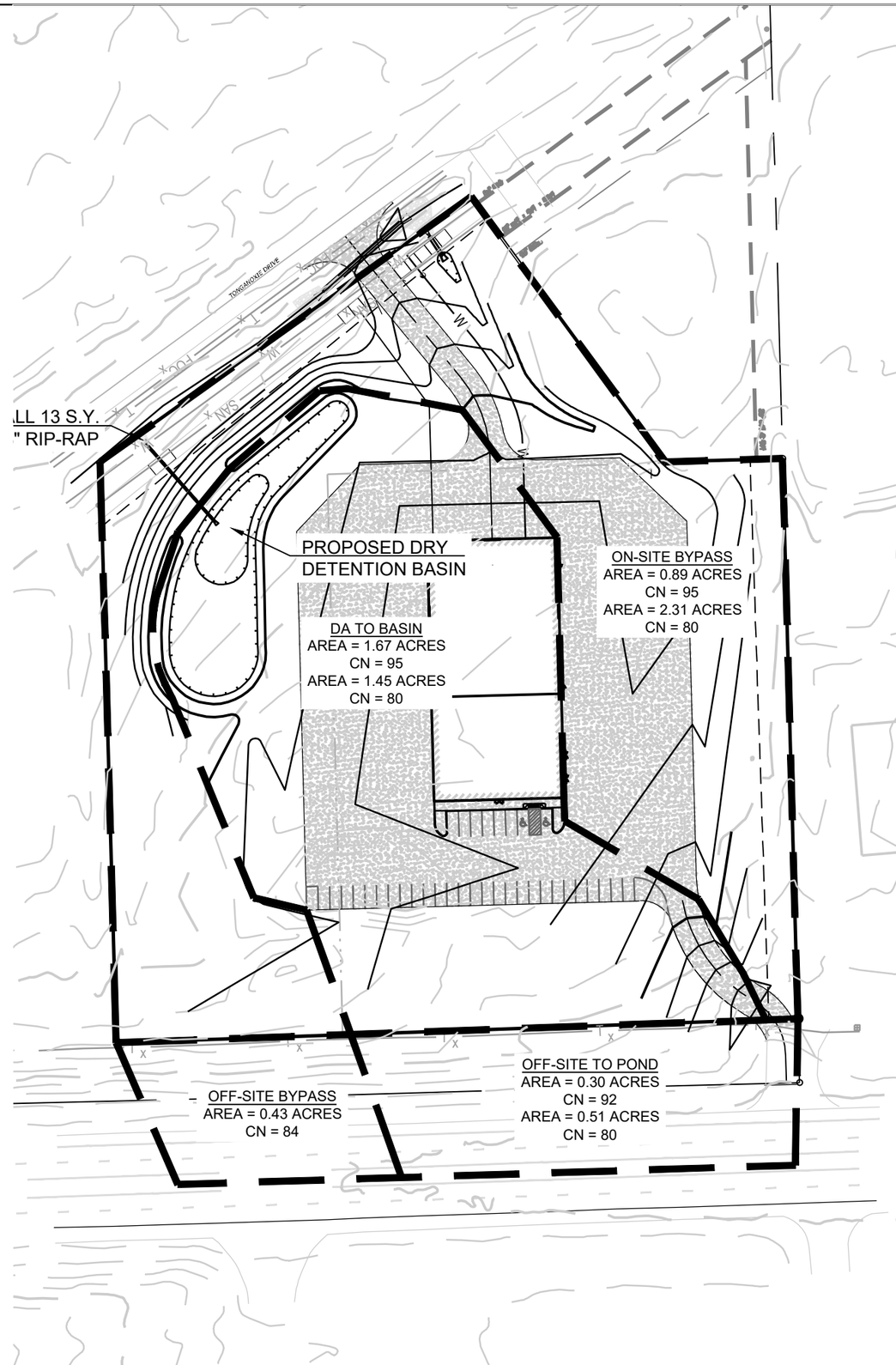
STATE AVE & TONGANOXIE RD TONGANOXIE, KS

DRAWN BY:	NCA
DATE PREPARED:	03/08/2024
PROJ. NUMBER:	24-032

EXISTING DRAINAGE MAP

SHEET 1

I:\PROJECTS\2024\24-032\3.0 Design\4.0 Civil\2.0 Hydro\24-032-HYDRO-EX.dwg, EXISTING DRAINAGE MAP, 1:1



0 100' 200'

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POLISHED AND DECORATIVE
CONCRETE
HYDRO MAPS

STATE AVE & TONGANOXIE RD TONGANOXIE, KS

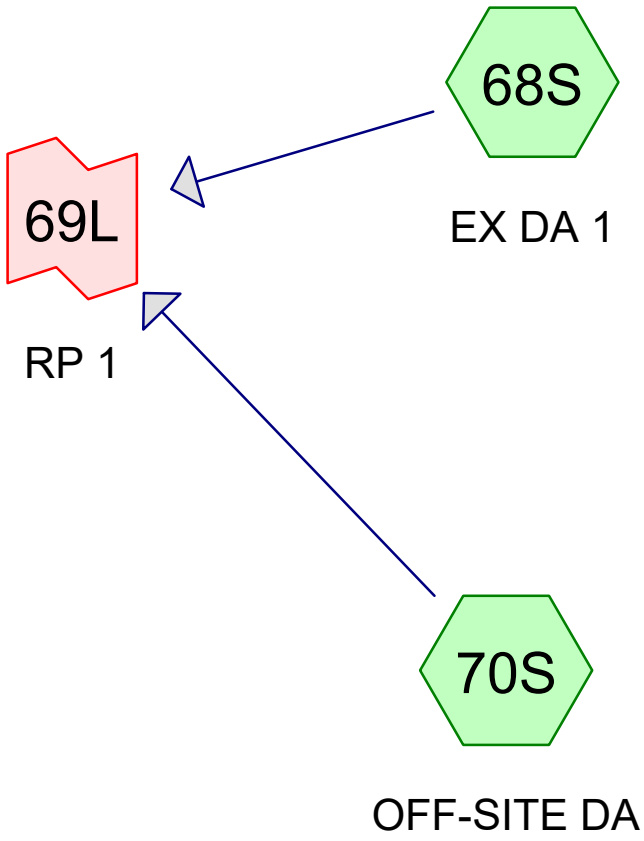
DRAWN BY:	NCA
DATE PREPARED:	03/08/2024
PROJ. NUMBER:	24-032

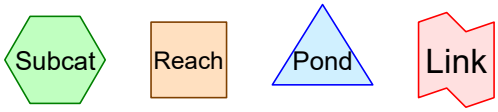
PROPOSED
DRAINAGE MAP

SHEET
2

I:\PROJECTS\2024\24-032\3.0 Design\4.0 Civil\2.0 Hydro\24-032-HYDRO-BMP.dwg, PROPOSED DRAINAGE MAP, 1:1

Existing Condition





Routing Diagram for 24-032 Existing HydroCAD
Prepared by Schlagel Associates, Printed 4/19/2024
HydroCAD® 10.20-4a s/n 08303 © 2023 HydroCAD Software Solutions LLC

Summary for Subcatchment 68S: EX DA 1

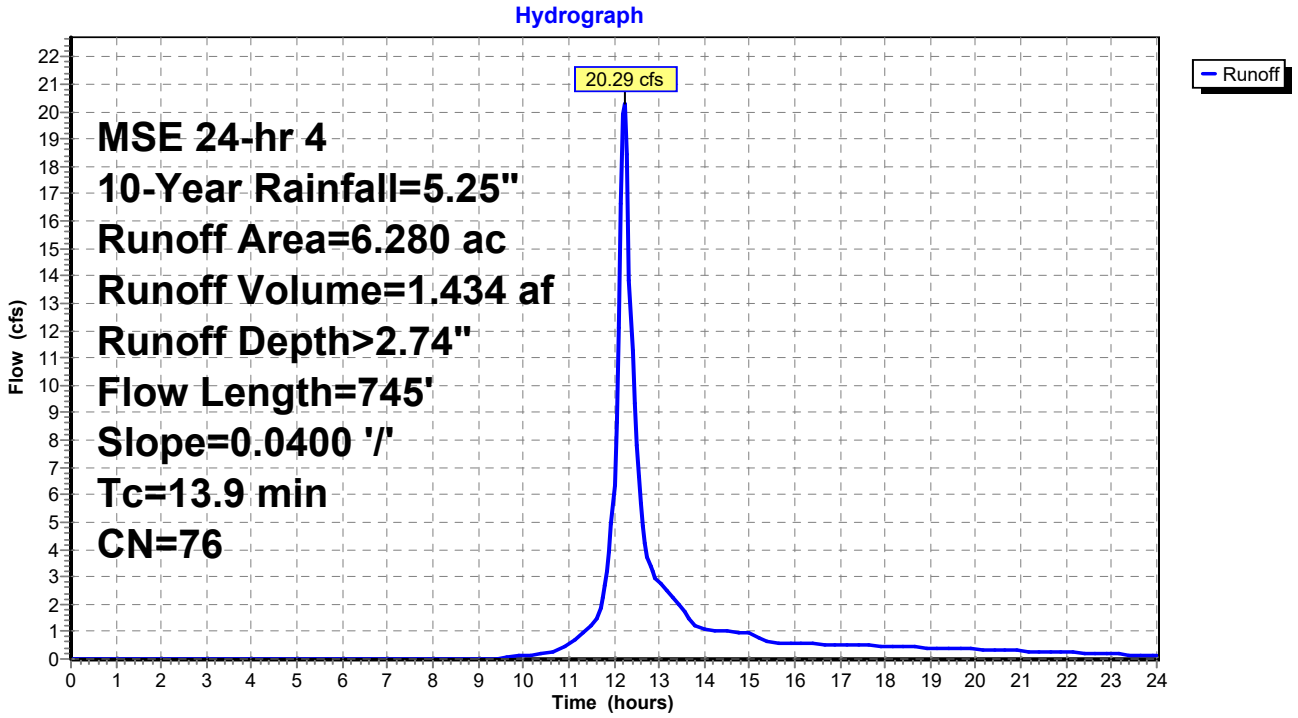
Runoff = 20.29 cfs @ 12.22 hrs, Volume= 1.434 af, Depth> 2.74"
Routed to Link 69L : RP 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=5.25"

Area (ac)	CN	Description
6.280	76	Woods/grass comb., Fair, HSG C
6.280		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	100	0.0400	0.27		**Sheet Flow,** Range n= 0.130 P2= 3.60"
7.7	645	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
13.9	745	Total			

Subcatchment 68S: EX DA 1



Summary for Subcatchment 70S: OFF-SITE DA

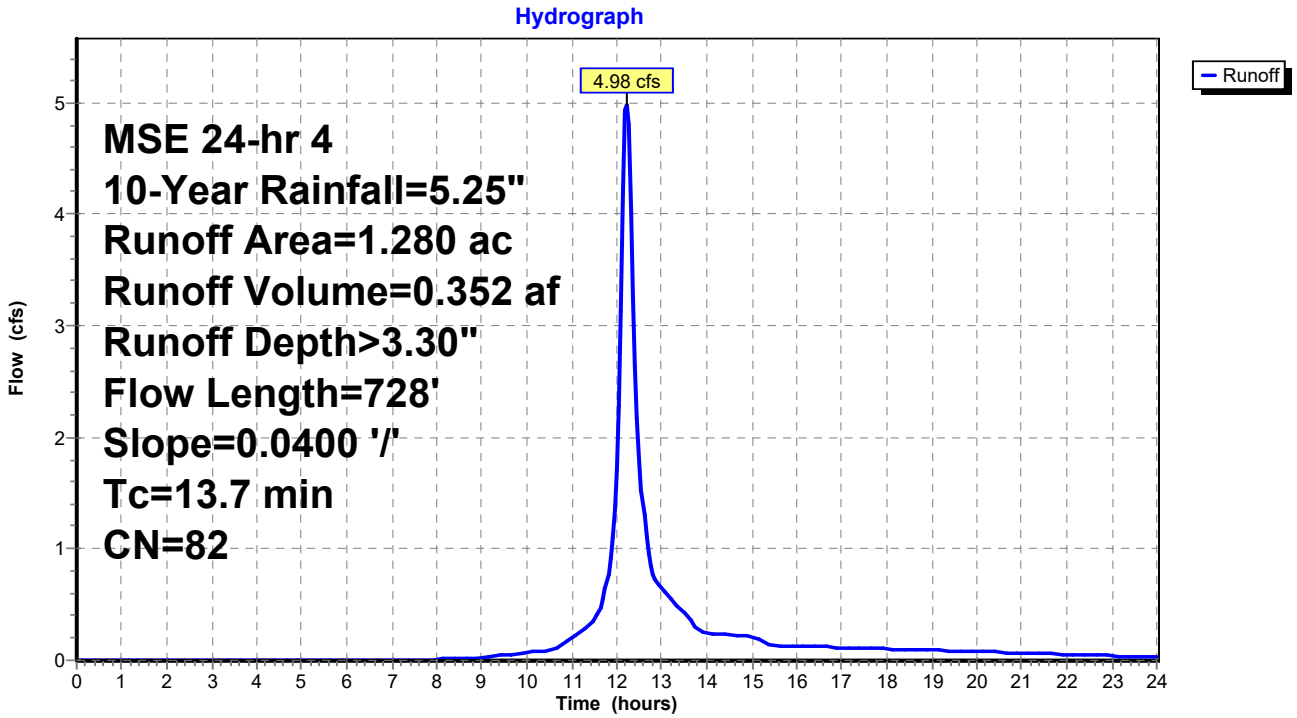
Runoff = 4.98 cfs @ 12.22 hrs, Volume= 0.352 af, Depth> 3.30"
Routed to Link 69L : RP 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=5.25"

Area (ac)	CN	Description
0.460	92	Paved roads w/open ditches, 50% imp, HSG C
0.820	76	Woods/grass comb., Fair, HSG C
1.280	82	Weighted Average
1.050		82.03% Pervious Area
0.230		17.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	100	0.0400	0.27		**Sheet Flow,** Range n= 0.130 P2= 3.60"
7.5	628	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
13.7	728	Total			

Subcatchment 70S: OFF-SITE DA

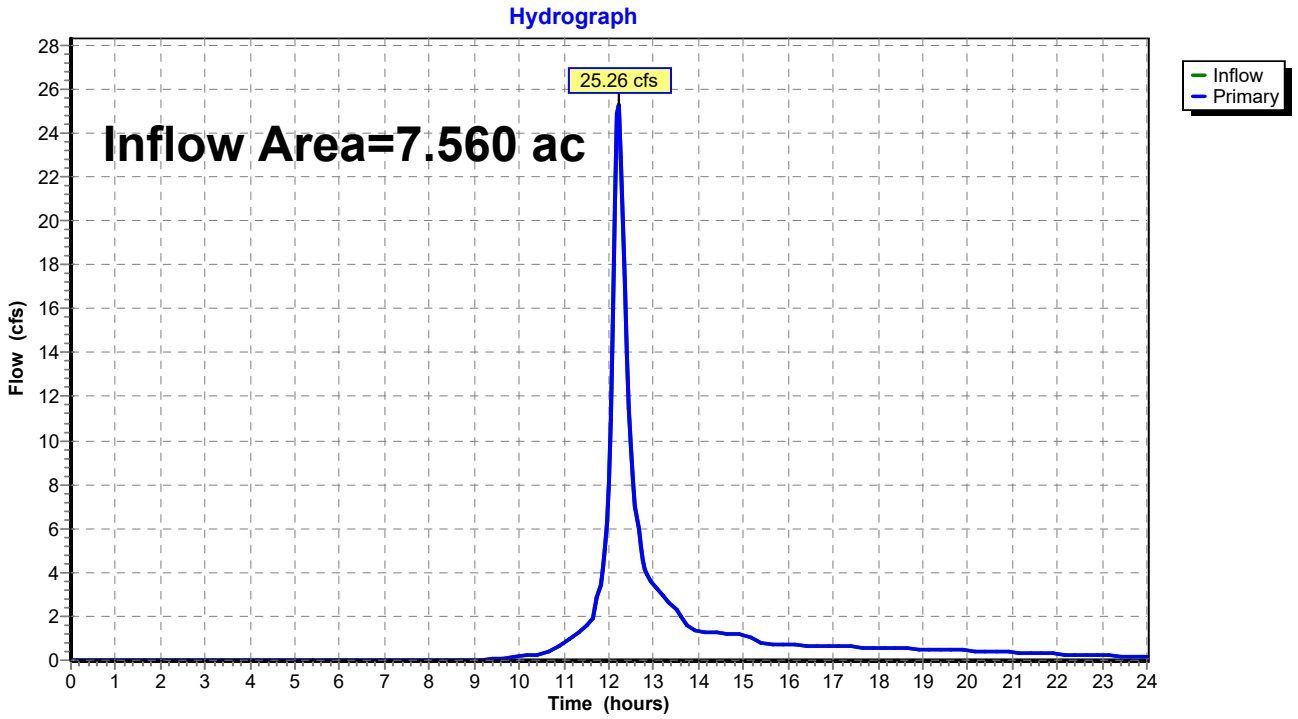


Summary for Link 69L: RP 1

Inflow Area = 7.560 ac, 3.04% Impervious, Inflow Depth > 2.83" for 10-Year event
Inflow = 25.26 cfs @ 12.22 hrs, Volume= 1.786 af
Primary = 25.26 cfs @ 12.22 hrs, Volume= 1.786 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 69L: RP 1



Summary for Subcatchment 68S: EX DA 1

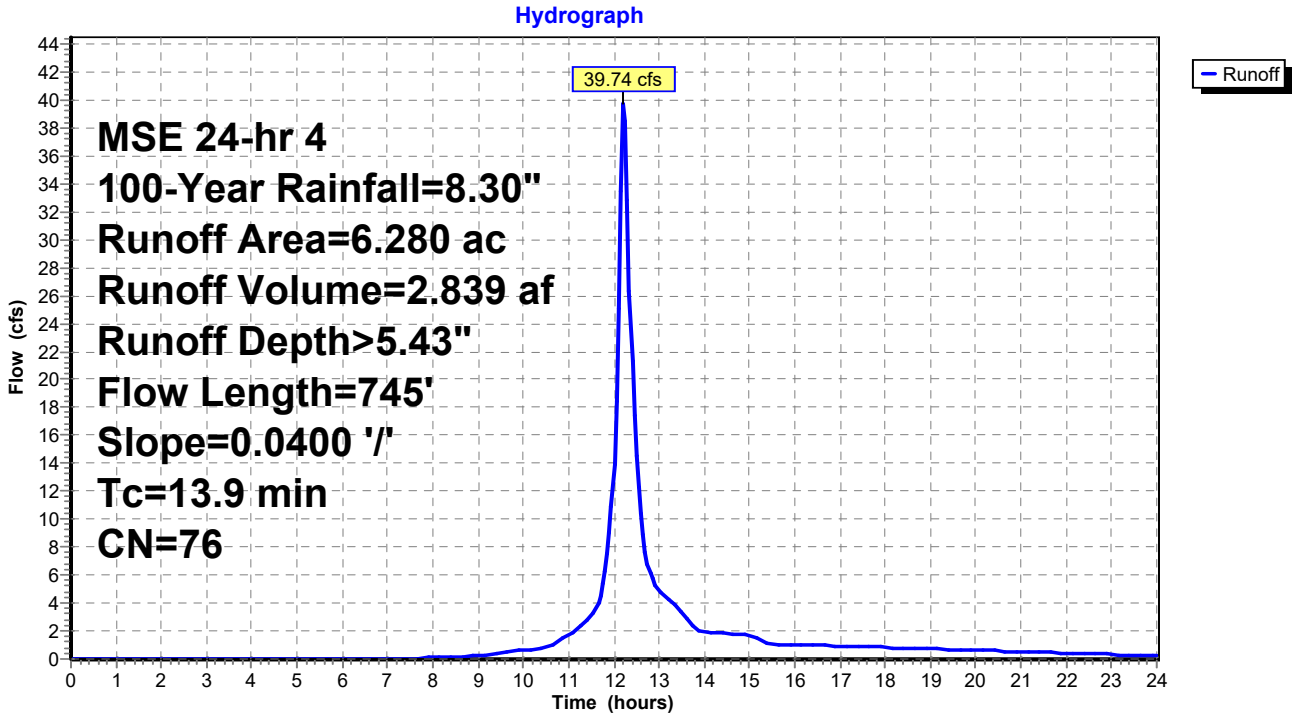
Runoff = 39.74 cfs @ 12.22 hrs, Volume= 2.839 af, Depth> 5.43"
Routed to Link 69L : RP 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=8.30"

Area (ac)	CN	Description
6.280	76	Woods/grass comb., Fair, HSG C
6.280		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	100	0.0400	0.27		**Sheet Flow,** Range n= 0.130 P2= 3.60"
7.7	645	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
13.9	745	Total			

Subcatchment 68S: EX DA 1



Summary for Subcatchment 70S: OFF-SITE DA

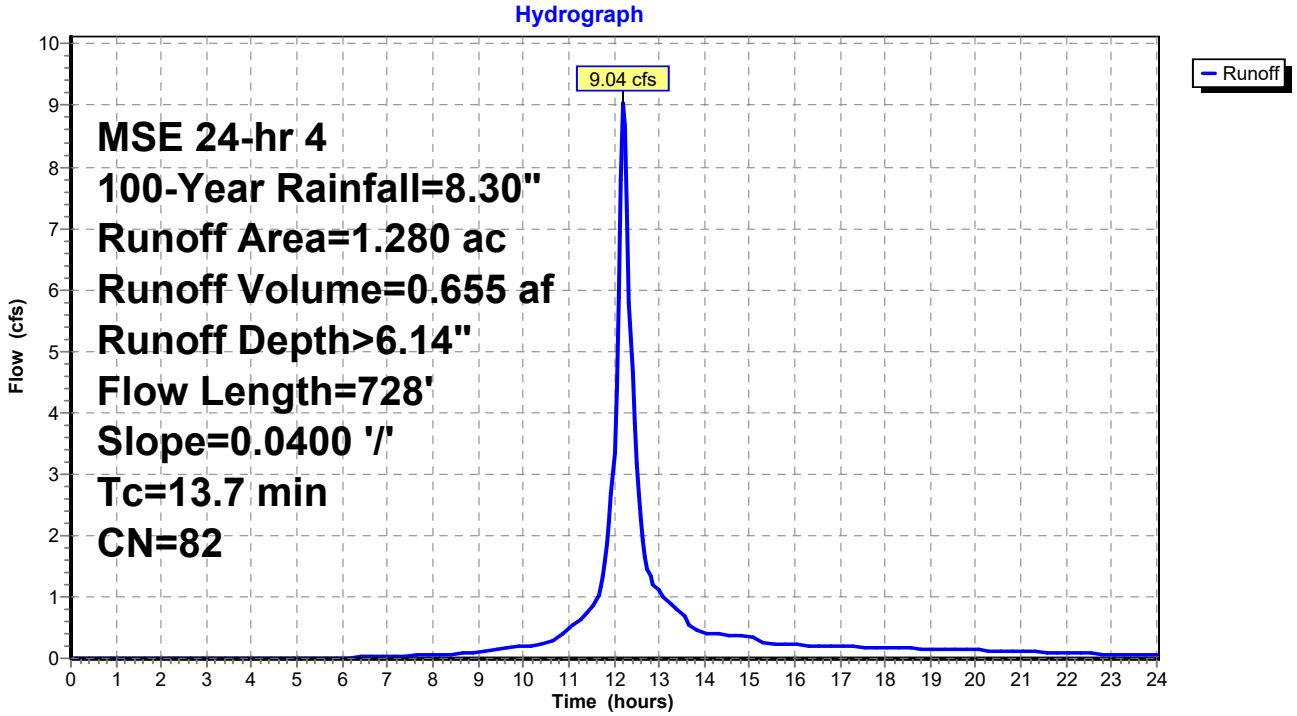
Runoff = 9.04 cfs @ 12.21 hrs, Volume= 0.655 af, Depth> 6.14"
Routed to Link 69L : RP 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=8.30"

Area (ac)	CN	Description
0.460	92	Paved roads w/open ditches, 50% imp, HSG C
0.820	76	Woods/grass comb., Fair, HSG C
1.280	82	Weighted Average
1.050		82.03% Pervious Area
0.230		17.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	100	0.0400	0.27		**Sheet Flow,** Range n= 0.130 P2= 3.60"
7.5	628	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
13.7	728	Total			

Subcatchment 70S: OFF-SITE DA

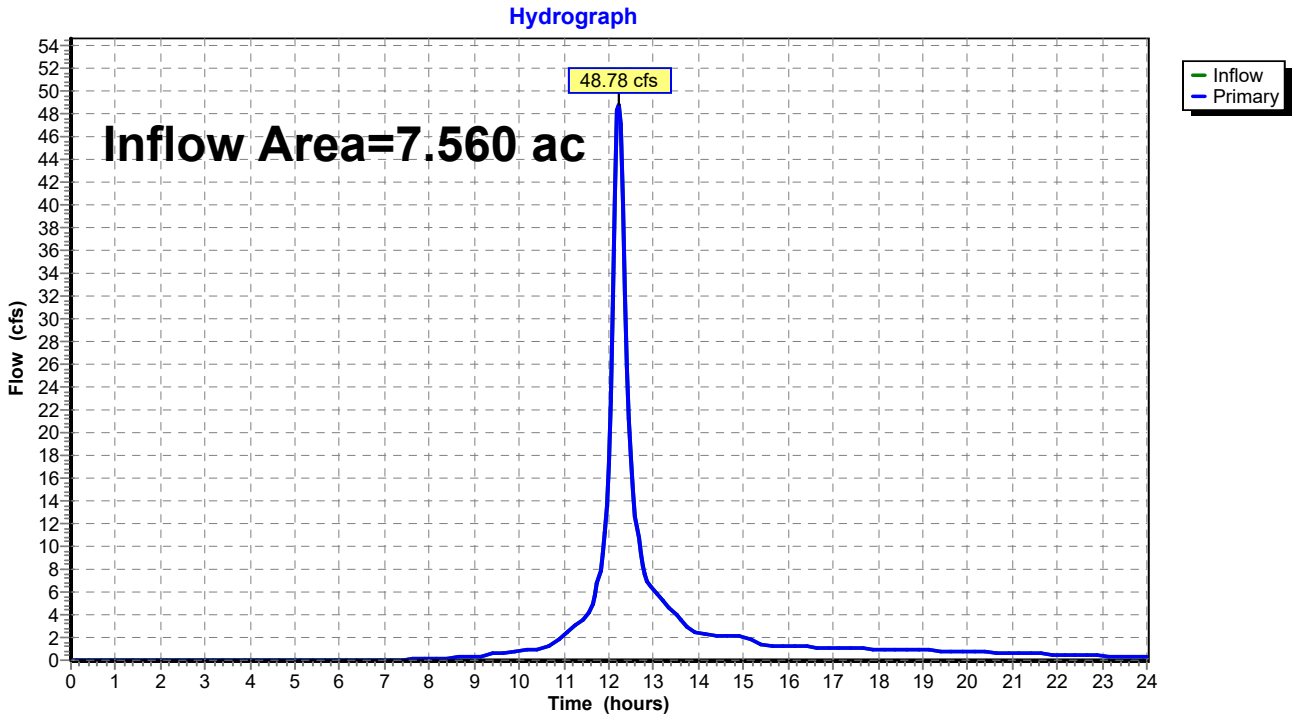


Summary for Link 69L: RP 1

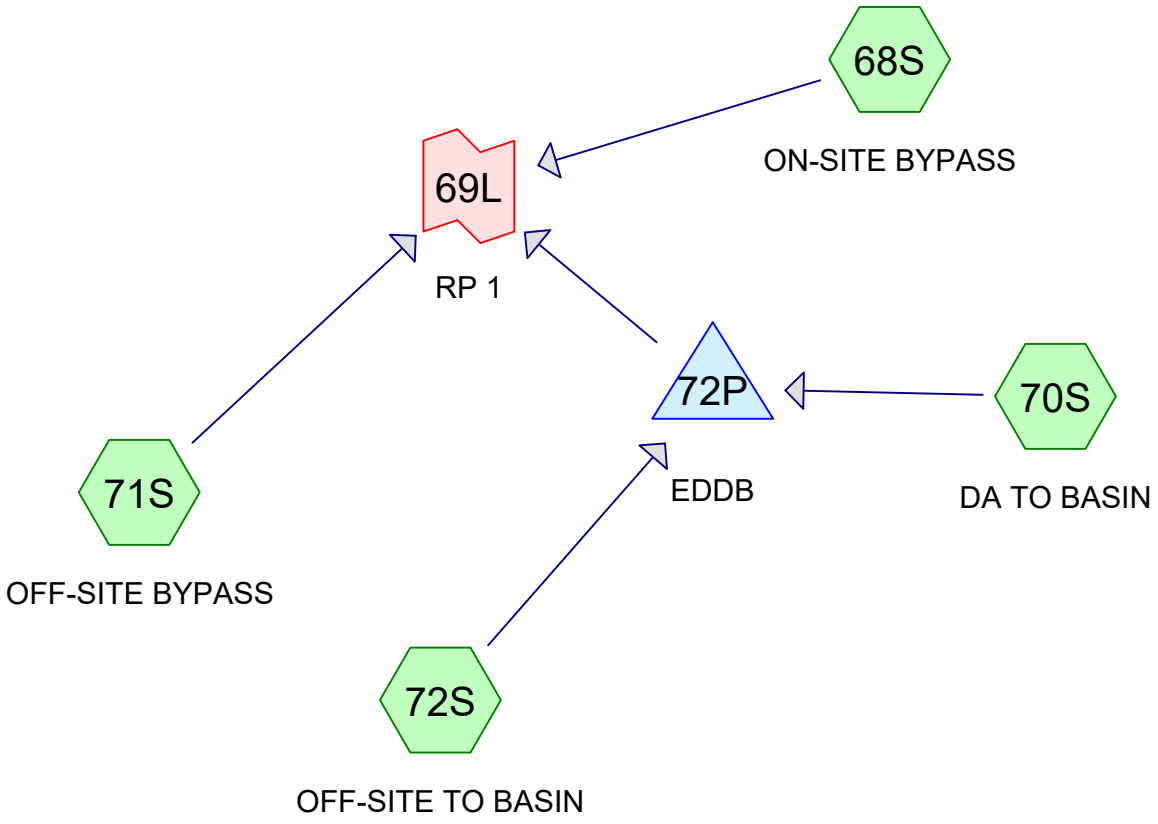
Inflow Area = 7.560 ac, 3.04% Impervious, Inflow Depth > 5.55" for 100-Year event
Inflow = 48.78 cfs @ 12.22 hrs, Volume= 3.494 af
Primary = 48.78 cfs @ 12.22 hrs, Volume= 3.494 af, Atten= 0%, Lag= 0.0 min

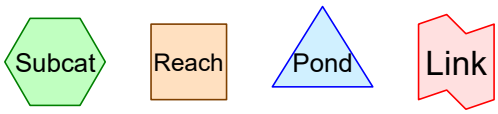
Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 69L: RP 1



Proposed Condition





Routing Diagram for 24-032 Proposed HydroCAD
Prepared by Schlagel Associates, Printed 4/19/2024
HydroCAD® 10.20-4a s/n 08303 © 2023 HydroCAD Software Solutions LLC

Summary for Subcatchment 68S: ON-SITE BYPASS

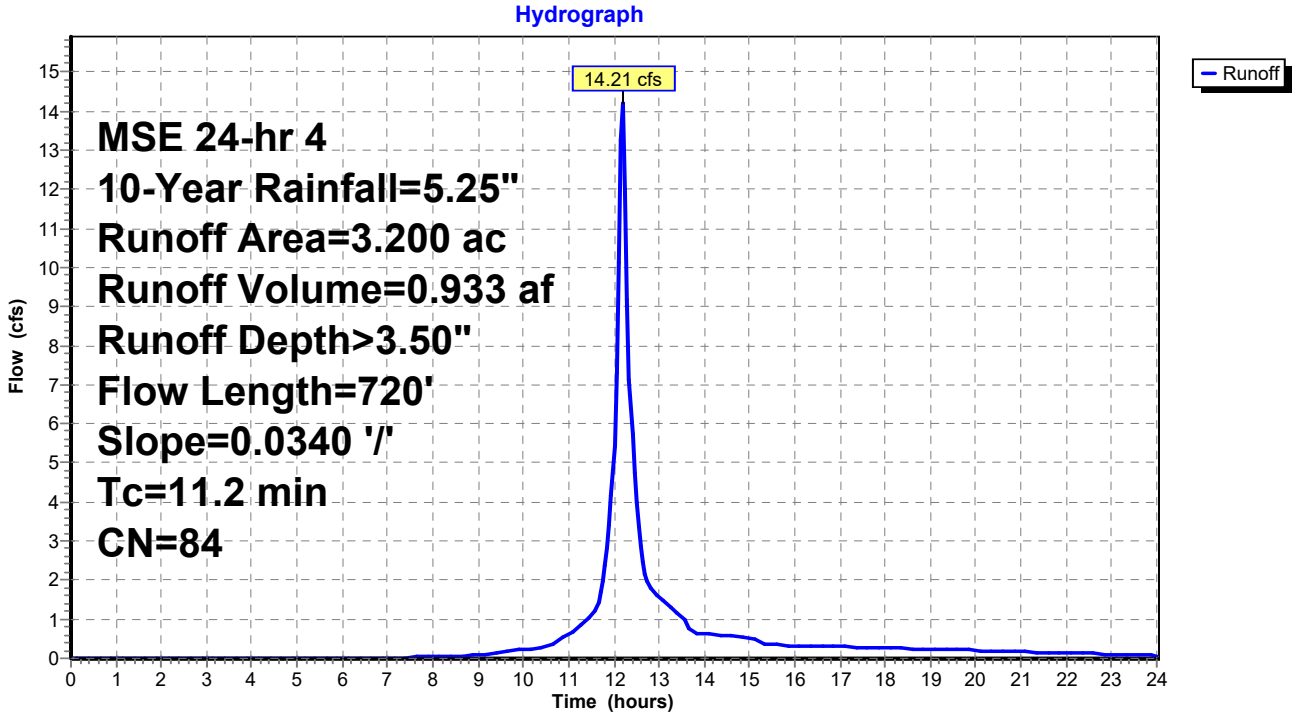
Runoff = 14.21 cfs @ 12.19 hrs, Volume= 0.933 af, Depth> 3.50"
Routed to Link 69L : RP 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=5.25"

Area (ac)	CN	Description
0.890	95	Urban commercial, 85% imp, HSG D
2.310	80	>75% Grass cover, Good, HSG D
3.200	84	Weighted Average
2.444		76.36% Pervious Area
0.756		23.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	100	0.0340	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
3.7	620	0.0340	2.77		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
11.2	720	Total			

Subcatchment 68S: ON-SITE BYPASS



Summary for Subcatchment 70S: DA TO BASIN

[49] Hint: Tc<2dt may require smaller dt

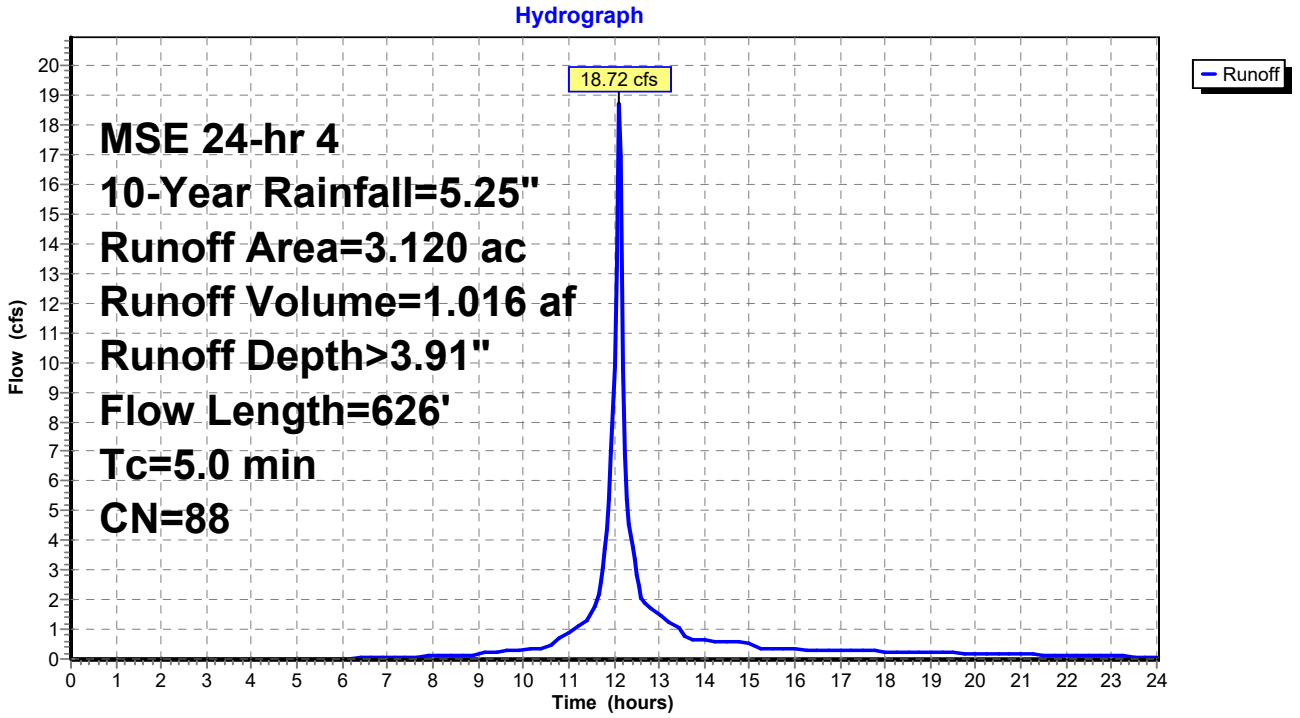
Runoff = 18.72 cfs @ 12.11 hrs, Volume= 1.016 af, Depth> 3.91"
Routed to Pond 72P : EDDB

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=5.25"

Area (ac)	CN	Description
1.670	95	Urban commercial, 85% imp, HSG D
1.450	80	>75% Grass cover, Good, HSG D
3.120	88	Weighted Average
1.700		54.50% Pervious Area
1.419		45.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	100	0.0400	1.93		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.60"
1.4	326	0.0350	3.80		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.7	200	0.0300	1.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
5.0	626	Total			

Subcatchment 70S: DA TO BASIN



Summary for Subcatchment 71S: OFF-SITE BYPASS

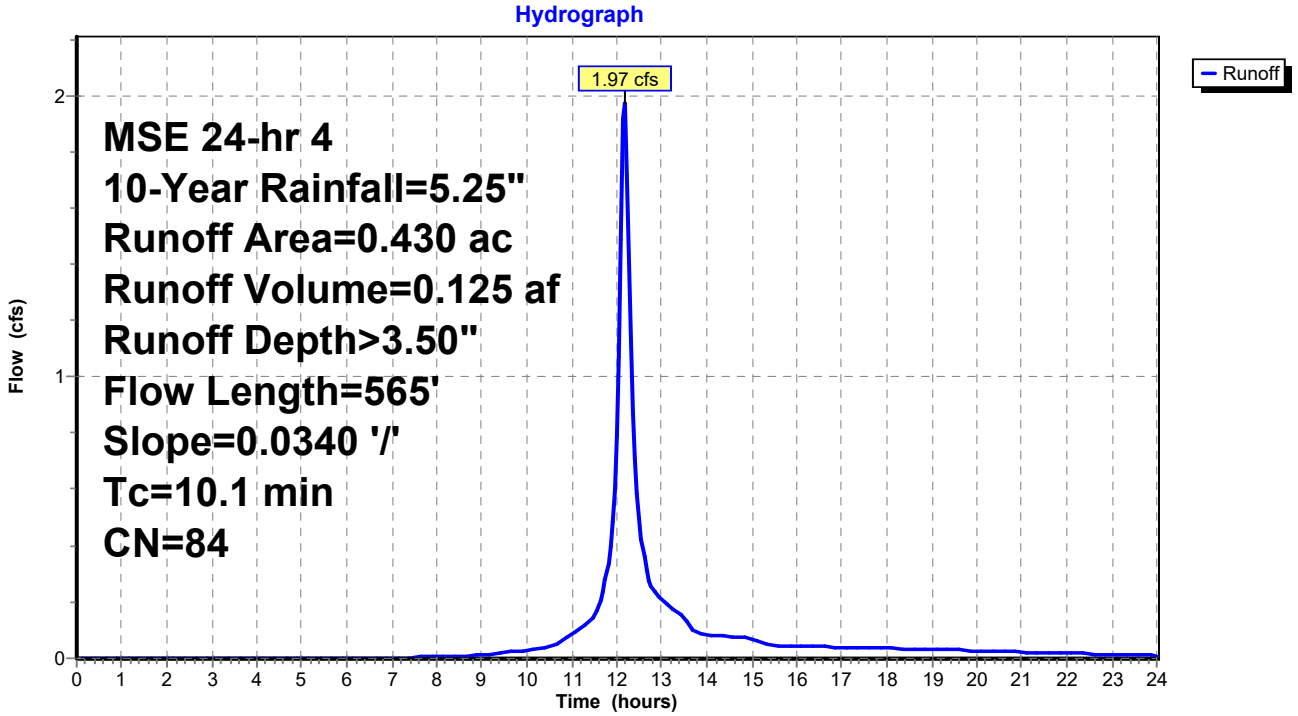
Runoff = 1.97 cfs @ 12.17 hrs, Volume= 0.125 af, Depth> 3.50"
Routed to Link 69L : RP 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=5.25"

Area (ac)	CN	Description
0.160	92	Paved roads w/open ditches, 50% imp, HSG C
0.270	80	>75% Grass cover, Good, HSG D
0.430	84	Weighted Average
0.350		81.40% Pervious Area
0.080		18.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	100	0.0340	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
2.6	465	0.0340	2.97		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
10.1	565	Total			

Subcatchment 71S: OFF-SITE BYPASS



Summary for Subcatchment 72S: OFF-SITE TO BASIN

[49] Hint: Tc<2dt may require smaller dt

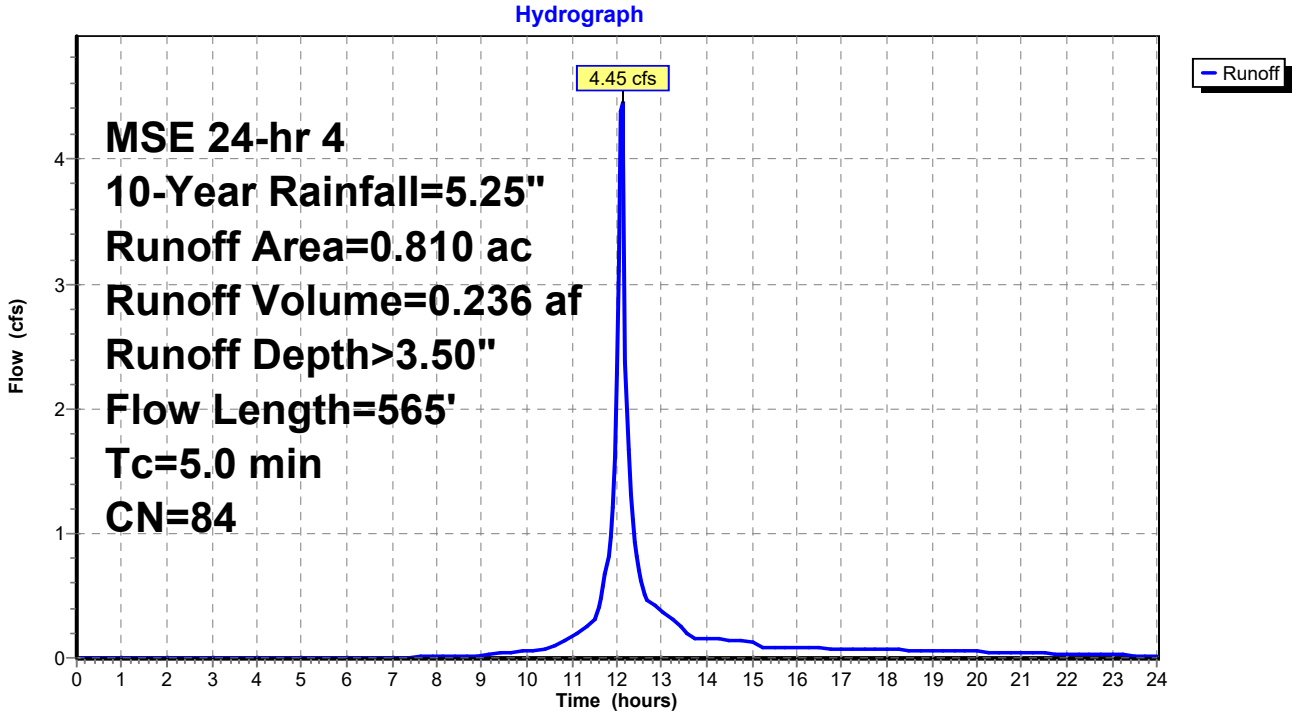
Runoff = 4.45 cfs @ 12.11 hrs, Volume= 0.236 af, Depth> 3.50"
Routed to Pond 72P : EDDB

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=5.25"

Area (ac)	CN	Description
0.300	92	Paved roads w/open ditches, 50% imp, HSG C
0.510	80	>75% Grass cover, Good, HSG D
0.810	84	Weighted Average
0.660		81.48% Pervious Area
0.150		18.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	565		1.88		**Direct Entry,**

Subcatchment 72S: OFF-SITE TO BASIN



Summary for Pond 72P: EDDB

Inflow Area = 3.930 ac, 39.94% Impervious, Inflow Depth > 3.82" for 10-Year event
Inflow = 23.17 cfs @ 12.11 hrs, Volume= 1.252 af
Outflow = 9.07 cfs @ 12.25 hrs, Volume= 1.251 af, Atten= 61%, Lag= 8.1 min
Primary = 9.07 cfs @ 12.25 hrs, Volume= 1.251 af
Routed to Link 69L : RP 1

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 877.48' @ 12.25 hrs Surf.Area= 8,762 sf Storage= 10,218 cf

Plug-Flow detention time= 8.1 min calculated for 1.251 af (100% of inflow)
Center-of-Mass det. time= 7.9 min (796.9 - 789.0)

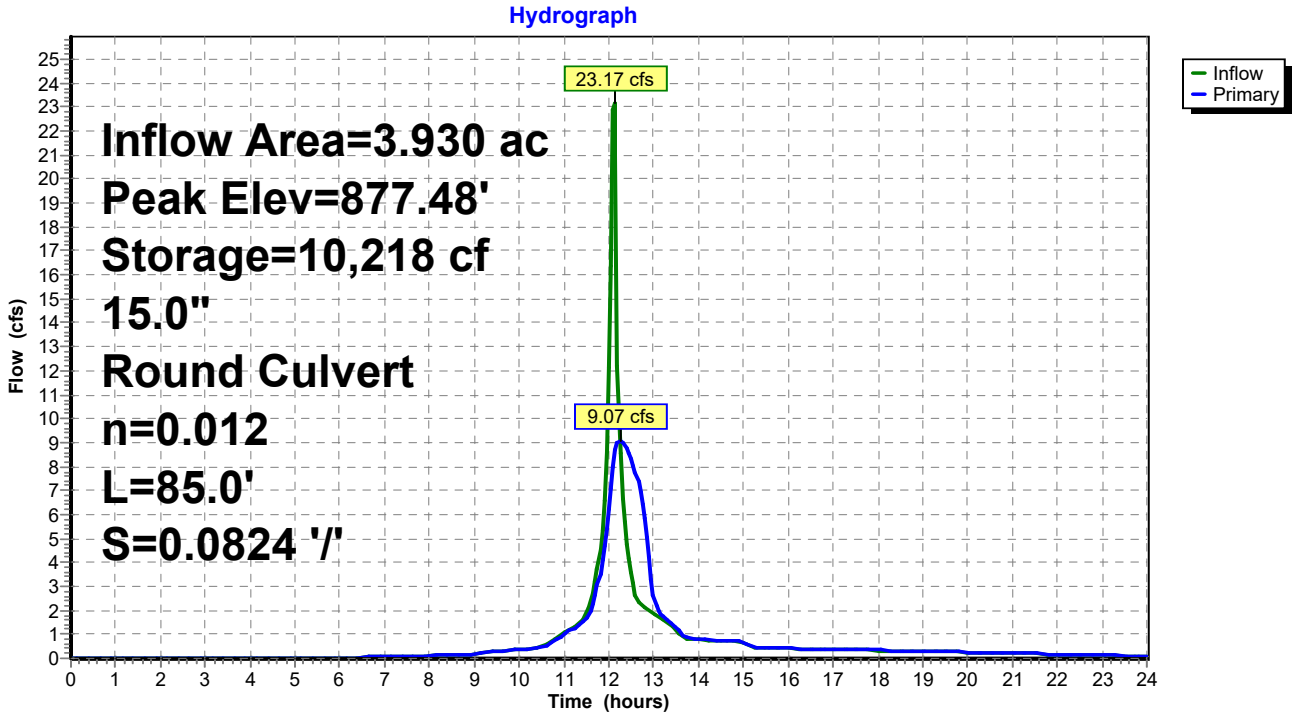
Volume	Invert	Avail.Storage	Storage Description
#1	874.50'	40,834 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
874.50	50	0	0
876.00	2,477	1,895	1,895
878.00	10,964	13,441	15,336
880.00	14,534	25,498	40,834

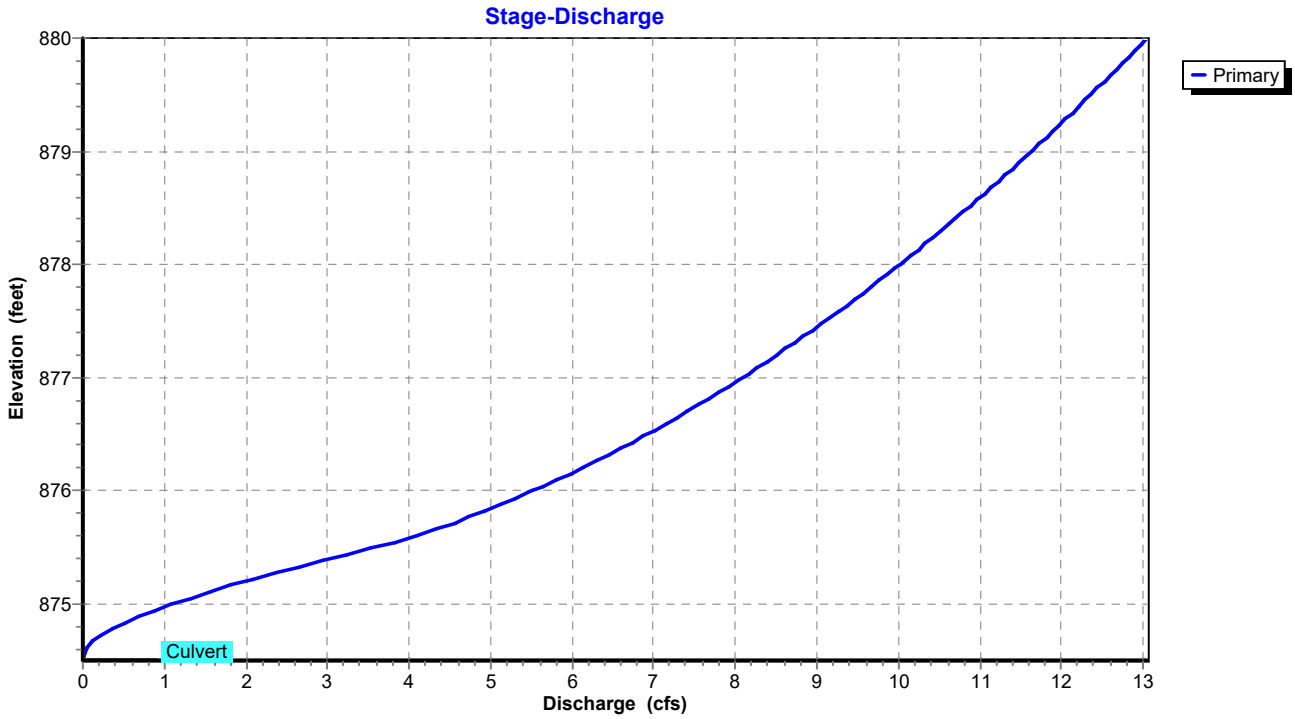
Device	Routing	Invert	Outlet Devices
#1	Primary	874.50'	**15.0" Round Culvert** L= 85.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 874.50' / 867.50' S= 0.0824 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=9.07 cfs @ 12.25 hrs HW=877.48' (Free Discharge)
└─**1=Culvert** (Inlet Controls 9.07 cfs @ 7.39 fps)

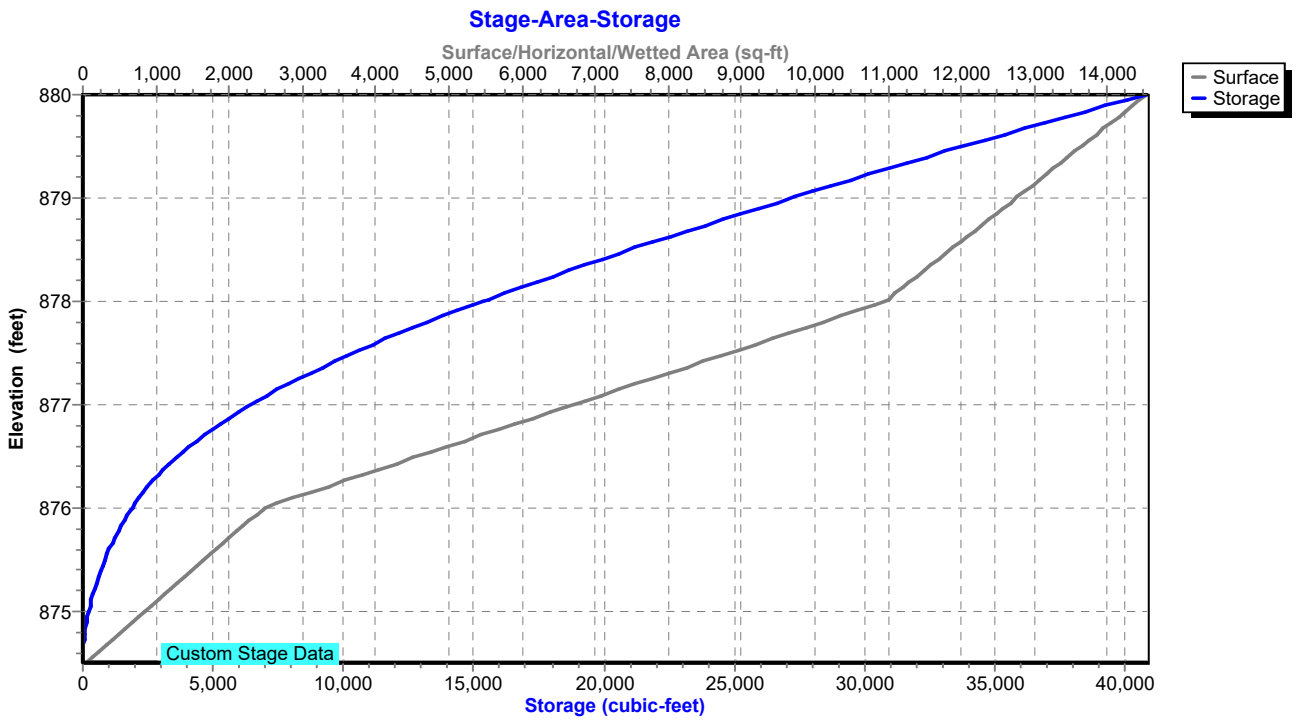
Pond 72P: EDDB



Pond 72P: EDDB



Pond 72P: EDDB

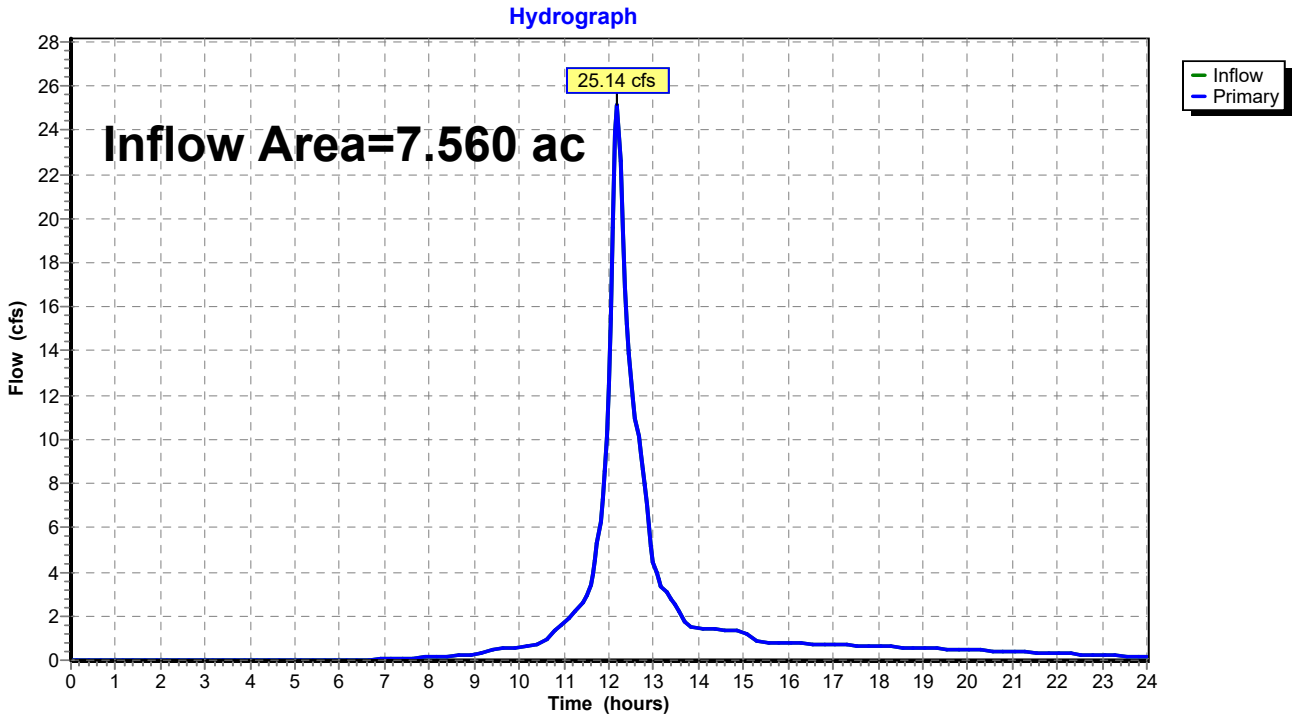


Summary for Link 69L: RP 1

Inflow Area = 7.560 ac, 31.83% Impervious, Inflow Depth > 3.67" for 10-Year event
Inflow = 25.14 cfs @ 12.19 hrs, Volume= 2.309 af
Primary = 25.14 cfs @ 12.19 hrs, Volume= 2.309 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 69L: RP 1



Summary for Subcatchment 68S: ON-SITE BYPASS

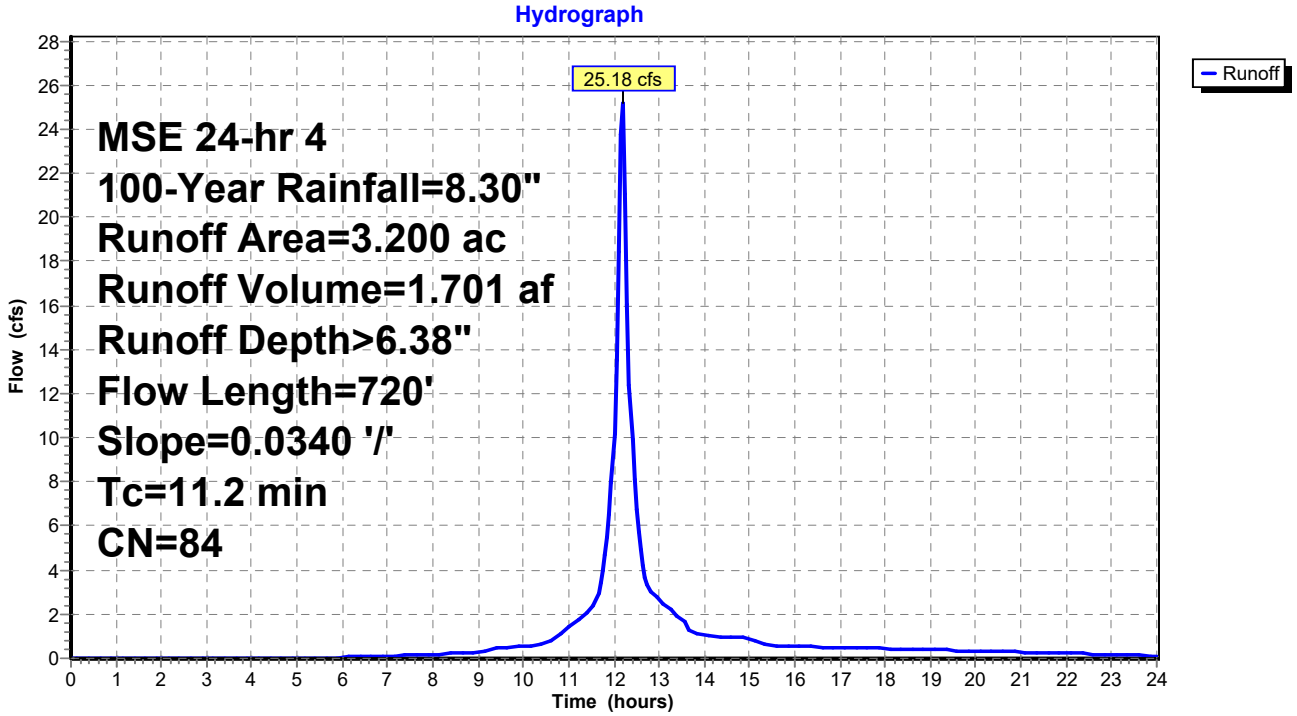
Runoff = 25.18 cfs @ 12.19 hrs, Volume= 1.701 af, Depth> 6.38"
Routed to Link 69L : RP 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=8.30"

Area (ac)	CN	Description
0.890	95	Urban commercial, 85% imp, HSG D
2.310	80	>75% Grass cover, Good, HSG D
3.200	84	Weighted Average
2.444		76.36% Pervious Area
0.756		23.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	100	0.0340	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
3.7	620	0.0340	2.77		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
11.2	720	Total			

Subcatchment 68S: ON-SITE BYPASS



Summary for Subcatchment 70S: DA TO BASIN

[49] Hint: Tc<2dt may require smaller dt

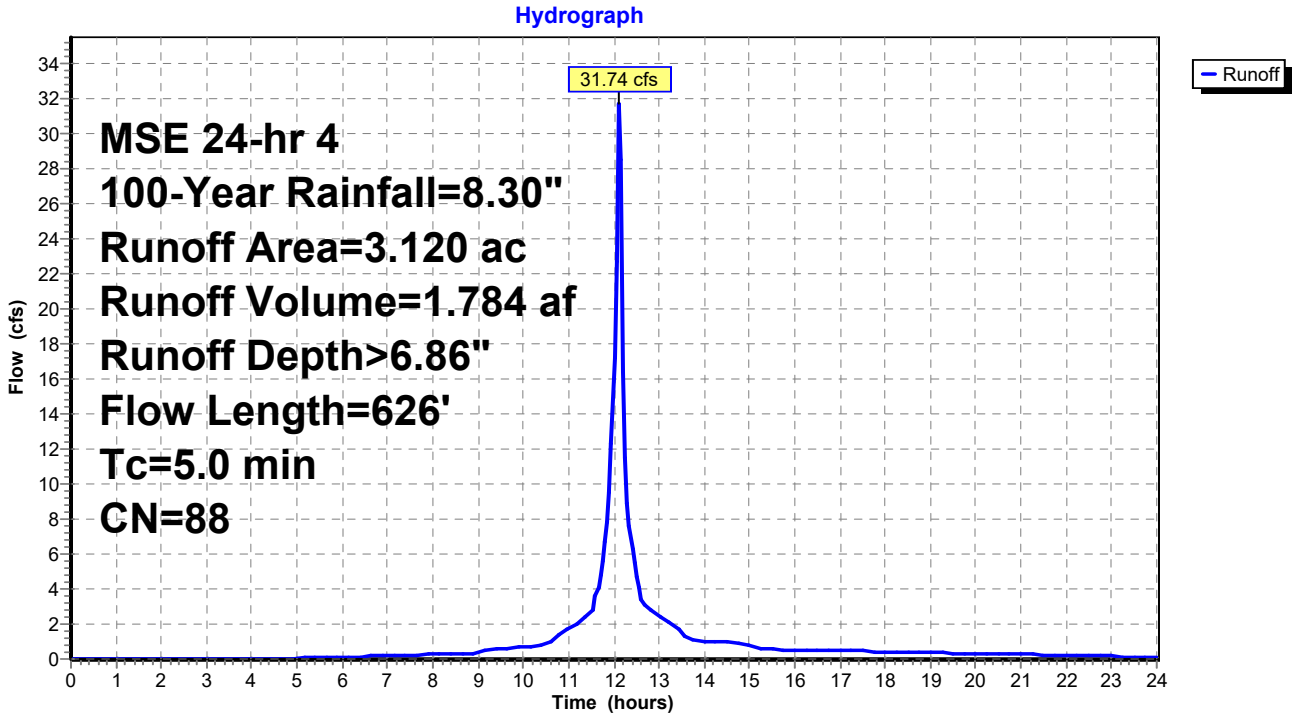
Runoff = 31.74 cfs @ 12.11 hrs, Volume= 1.784 af, Depth> 6.86"
Routed to Pond 72P : EDDB

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=8.30"

Area (ac)	CN	Description
1.670	95	Urban commercial, 85% imp, HSG D
1.450	80	>75% Grass cover, Good, HSG D
3.120	88	Weighted Average
1.700		54.50% Pervious Area
1.419		45.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	100	0.0400	1.93		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.60"
1.4	326	0.0350	3.80		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.7	200	0.0300	1.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
5.0	626	Total			

Subcatchment 70S: DA TO BASIN



Summary for Subcatchment 71S: OFF-SITE BYPASS

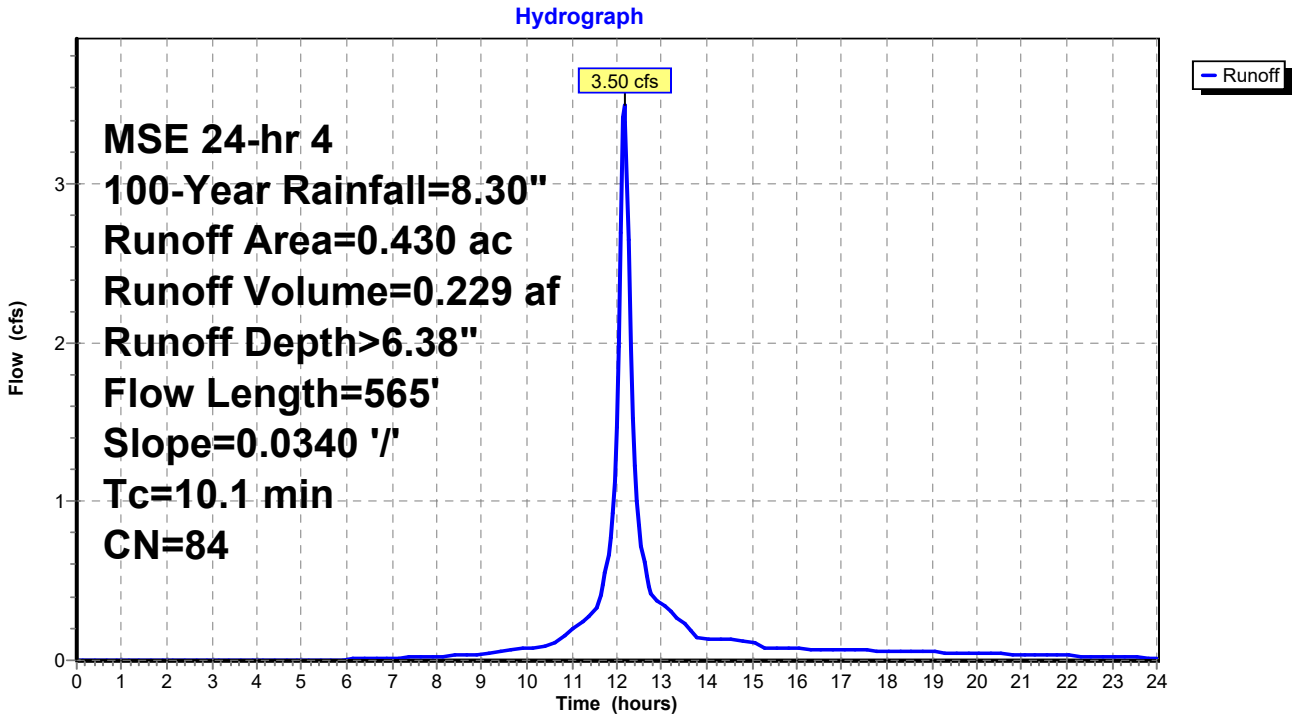
Runoff = 3.50 cfs @ 12.17 hrs, Volume= 0.229 af, Depth> 6.38"
Routed to Link 69L : RP 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=8.30"

Area (ac)	CN	Description
0.160	92	Paved roads w/open ditches, 50% imp, HSG C
0.270	80	>75% Grass cover, Good, HSG D
0.430	84	Weighted Average
0.350		81.40% Pervious Area
0.080		18.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	100	0.0340	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
2.6	465	0.0340	2.97		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
10.1	565	Total			

Subcatchment 71S: OFF-SITE BYPASS



Summary for Subcatchment 72S: OFF-SITE TO BASIN

[49] Hint: Tc<2dt may require smaller dt

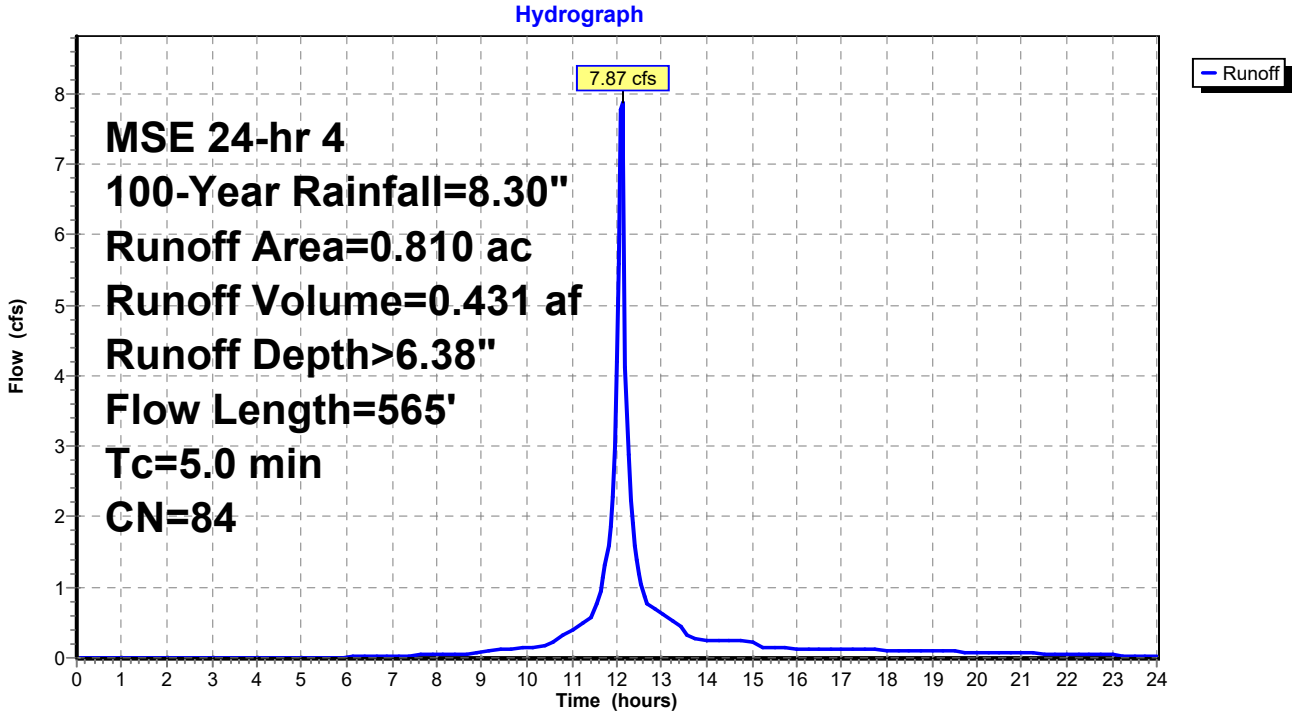
Runoff = 7.87 cfs @ 12.11 hrs, Volume= 0.431 af, Depth> 6.38"
Routed to Pond 72P : EDDB

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=8.30"

Area (ac)	CN	Description
0.300	92	Paved roads w/open ditches, 50% imp, HSG C
0.510	80	>75% Grass cover, Good, HSG D
0.810	84	Weighted Average
0.660		81.48% Pervious Area
0.150		18.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	565		1.88		**Direct Entry,**

Subcatchment 72S: OFF-SITE TO BASIN



Summary for Pond 72P: EDDB

Inflow Area = 3.930 ac, 39.94% Impervious, Inflow Depth > 6.76" for 100-Year event
Inflow = 39.61 cfs @ 12.11 hrs, Volume= 2.214 af
Outflow = 11.14 cfs @ 12.31 hrs, Volume= 2.214 af, Atten= 72%, Lag= 11.7 min
Primary = 11.14 cfs @ 12.31 hrs, Volume= 2.214 af
Routed to Link 69L : RP 1

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 878.68' @ 12.31 hrs Surf.Area= 12,179 sf Storage= 23,215 cf

Plug-Flow detention time= 14.5 min calculated for 2.209 af (100% of inflow)
Center-of-Mass det. time= 14.3 min (790.2 - 775.9)

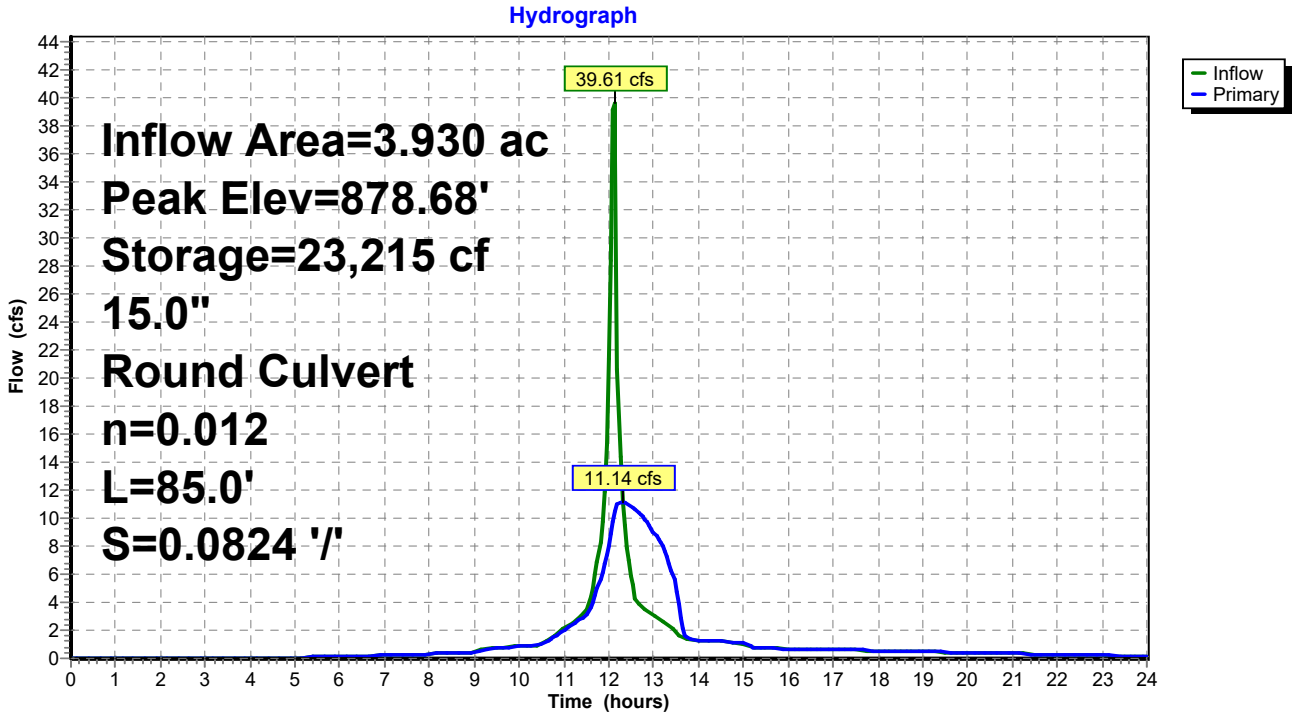
Volume	Invert	Avail.Storage	Storage Description
#1	874.50'	40,834 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
874.50	50	0	0
876.00	2,477	1,895	1,895
878.00	10,964	13,441	15,336
880.00	14,534	25,498	40,834

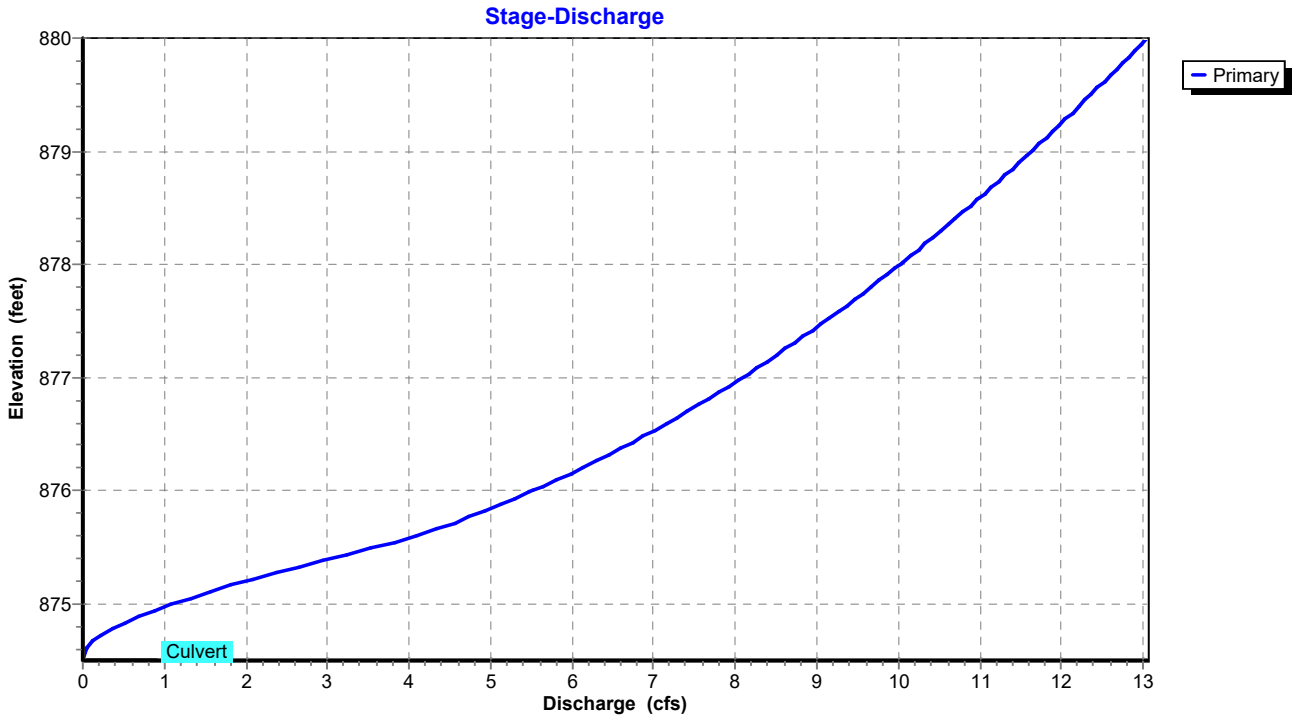
Device	Routing	Invert	Outlet Devices
#1	Primary	874.50'	**15.0" Round Culvert** L= 85.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 874.50' / 867.50' S= 0.0824 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=11.14 cfs @ 12.31 hrs HW=878.68' (Free Discharge)
└─**1=Culvert** (Inlet Controls 11.14 cfs @ 9.08 fps)

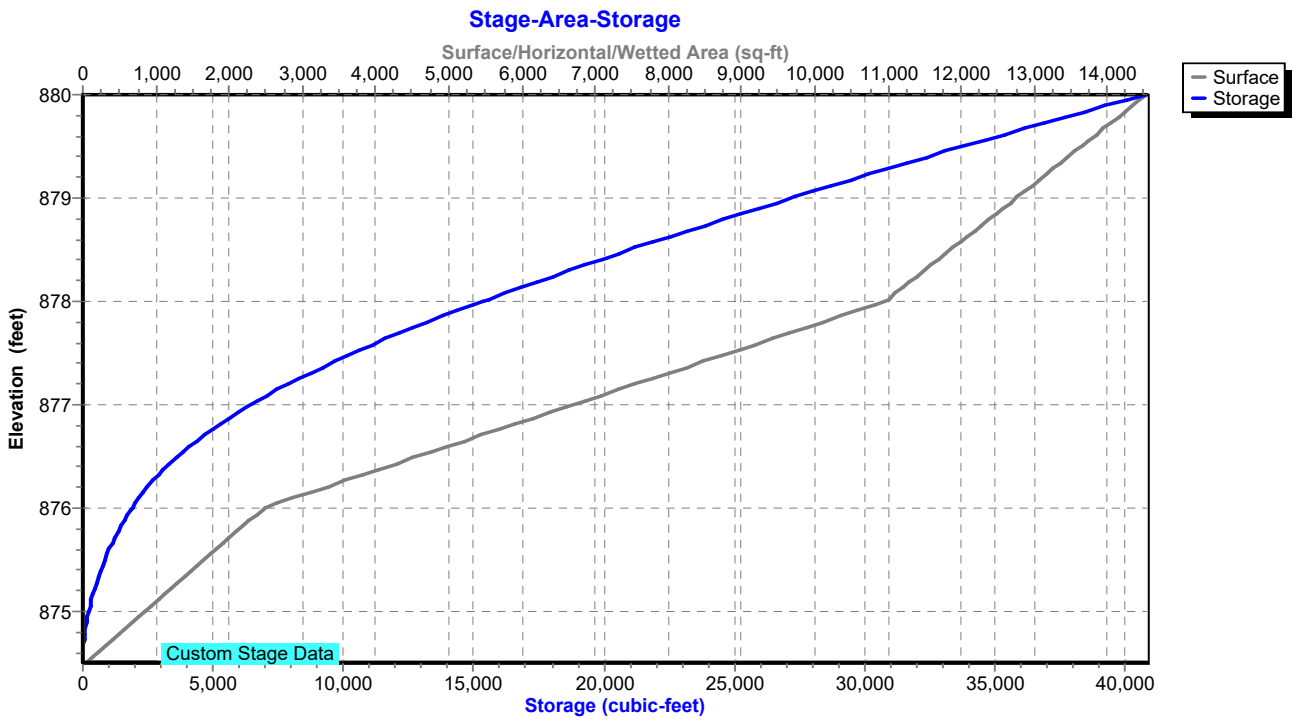
Pond 72P: EDDB



Pond 72P: EDDB



Pond 72P: EDDB

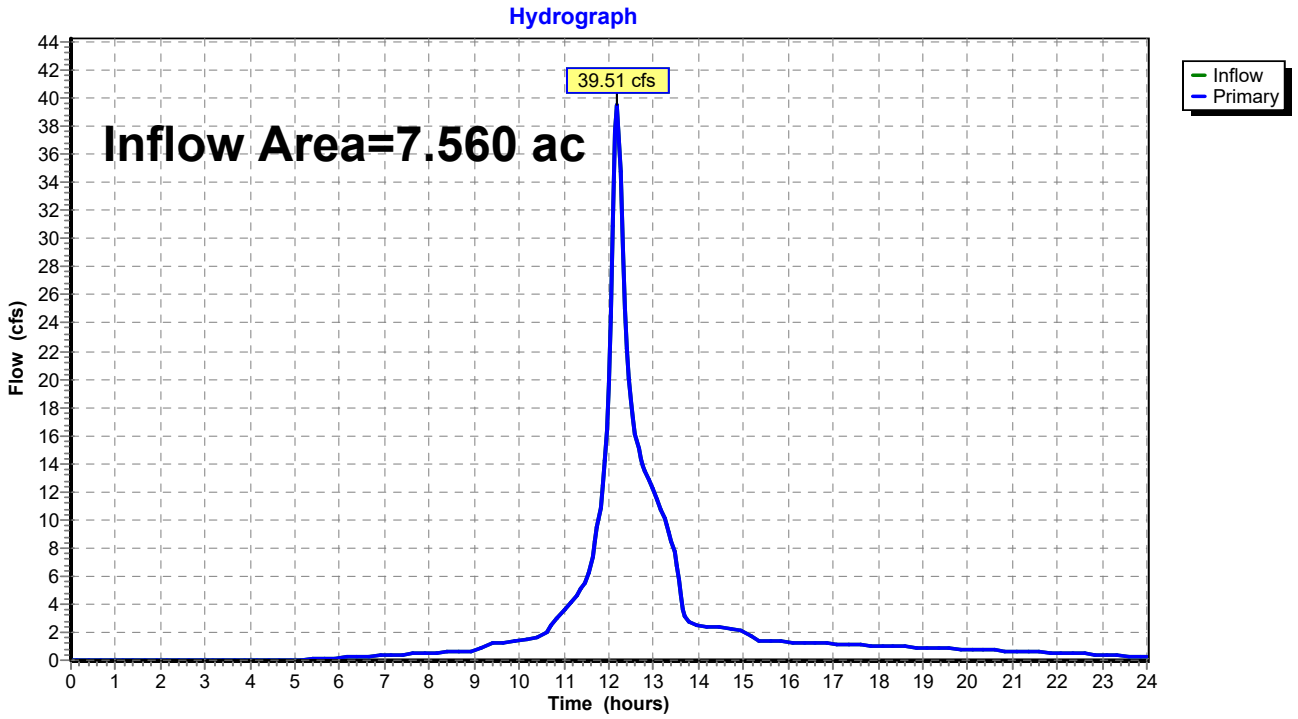


Summary for Link 69L: RP 1

Inflow Area = 7.560 ac, 31.83% Impervious, Inflow Depth > 6.58" for 100-Year event
Inflow = 39.51 cfs @ 12.19 hrs, Volume= 4.143 af
Primary = 39.51 cfs @ 12.19 hrs, Volume= 4.143 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 69L: RP 1



Hydraulic Analysis Report

Project Data

Project Title:

Designer:

Project Date: Friday, April 19, 2024

Project Units: U.S. Customary Units

Notes:

Channel Analysis: Pond Outlet Velocity Calculations

Notes:

Parameters

Channel Type: Circular

Flow: 11.1400 (cfs)

Depth: 0.6649 (ft)

Mannings 0.0120

Longitudinal Slope: 0.0824 (ft/ft)

Pipe Diameter: 1.2500 (ft)

Area of Flow: 0.6635 (ft^2)

Wetted Perimeter: 2.0434 (ft)

Average Velocity: 16.7909 (ft/s)

Top Width: 1.2474 (ft)

Froude Number: 4.0574

Critical Depth: 1.2054 (ft)

Critical Velocity: 17.7034 (ft/s)

Critical Slope: 0.0222 (ft/ft)

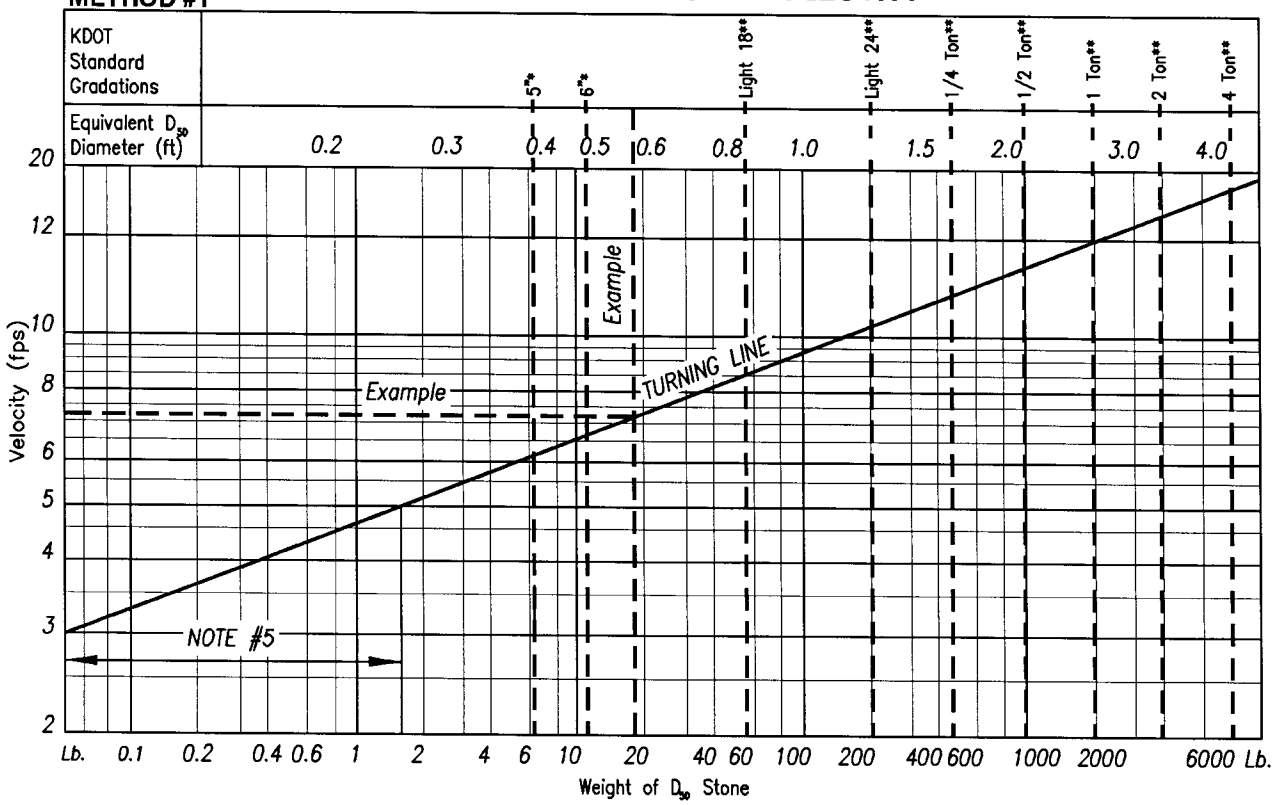
Critical Top Width: 0.4635 (ft)

Calculated Max Shear Stress: 3.4188 (lb/ft^2)

Calculated Avg Shear Stress: 1.6694 (lb/ft^2)

APPROXIMATE SIZE OF RIPRAP REQUIRED TO RESIST MOVEMENT BASED ON CONDUIT OUTLET VELOCITY

METHOD #1



Example: A 15" pipe has an exit velocity of 7.2 fps with a tail water depth of 30" and channel slope of 2%. Acceptable Riprap Size: D_{50}=0.58', W =19lbs., KDOT Gradation=Light 18",
Max. Stress = (62.4)(2.5)(.02) = 3.2 psf < 5 psf O.K.

Haw to use this nomograph:

Method #1
1. Find the exit velocity at the outlet.
2. Intersect with Turning Line.
3. Read top and bottom scales to determine approximate weight and size of stone.
4. Read top scale to determine KDOT gradation of stone.
5. Compare to see if design sizes meet or exceed the sizes calculated by method 2 on this sheet.

Method #2
1. Calculate Maximum Shear Stress (Using Table).
2. Compare Maximum Shear Stress to Allowable Shear Stress from Table. Maximum shear stress must be equal or less than allowable stress or larger stone is required.

General Notes:

1. This nomograph allaws the user ta approximate the D_{50} stone size of riprap for conduit outlet protection based on the exit velocity of the conduit.
2. This nomagraph is based on Figure 2.3.12–6a, "Guide for Estimating Stability of Channels and Large Rocks", KDOT Design Manual, Valume III, Bridge Sectian.
3. Conduit velocity as calculated by Manning's Equation.
4. Estimations based on this nomograph are only valid for velocities between 5 fps and 15 fps. Outlets with higher velocities should be investigated further.
5. Riprap is not normally required for velocity below 5 f.p.s. Consider grass lining materials.

METHOD #2 - MAX. SHEAR STRESS

$$\tau_c = \gamma d s$$

$$\gamma = 62.4 pcf$$

$$d = depth\_of\_tailwater\_(ft)$$

$$s = slope\_at\_exit\_(ft/ft)$$

Allowable Shear Stress for KDOT Standard Gradations	
Heavy Series	
4 Ton	27 psf
2 Ton	21 psf
1 Ton	16 psf
1/2 Ton	13 psf
1/4 Ton	10 psf
Light Series	
Light 24"	6 psf
Light 18"	5 psf
Stone for Ditch Lining	
6"	3 psf
5"	2 psf

KDOT Gradations are based on the stone specifications from the KDOT Standard Specifications for State Road and Bridge Construction (1990) – * Table 12b Stone for Aggregate Ditch Lining, and ** Table 11 Stane for Riprap.

SCHLAGEL
ENGINEERS PLANNERS SURVEYORS LANDSCAPE ARCHITECTS

April 18, 2024

George Brajkovic, City Manager
City of Tonganoxie
526 E. 4th Street
Tonganoxie, KS 66086

RE: POLISHED AND DECORATIVE CONCRETE
SITE PLAN REVIEW
24-1001L

Dear George:

This letter is regarding the above-referenced project and Engineer staff review comments by BG Consultants dated March 25, 2024 to which we have the following responses:

Site Plan Review

1. The hatching on the receiving/delivery area does not appear in the legend. The surfacing type needs to be identified on the plan.
   Response: Legend has been updated and surface type identified on the plan

2. Does the applicant plan on using any of the paved areas for outside storage of materials?
   Response: No outside storage

3. The applicant will need to obtain appropriate approvals from KDOT for modification/improvement of the entrance onto US24-40. The City needs a copy of the approval.
   Response: Understood

4. County requirements for the driveway addition onto Tonganoxie Dr. needs to be obtained. The city needs a copy of any applicable approval.
   Response: Understood. The applicant wishes to pursue obtaining a building permit with the contingency that the driveway connection be removed if not permitted by the county.

5. The City walking path will need to be reconstructed with a cross section including 6" rock base and 6" fiber reinforced concrete pavement or equivalent.
   Response:
   Plan has been revised as requested

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6. Domestic Water Service needs to be connected to the 8" waterline along County Rd. 5.
   Response: REVISED AS REQUESTED

7. A fire hydrant needs to be added at the entrance location on Tonganoxie Dr. See attached standard detail.
   Response: Revised as requested
8. Provide a description of all internal connections to the sanitary sewer service including a description of whether the effluent will be domestic, commercial or industrial effluent.

   a. What will the effluent contain?
      Response: Domestic sewage.

   b. Will solvents or paints be used in the polishing process?
      Response: No. All polishing will occur offsite at other sites.

<u>Storm Water Drainage Report Review:</u>

1. A stormwater management plan has been submitted. The following comments should be addressed prior to approval:

   a. Summary Memo
      i. Revise as needed based upon comments below.
         Response: Acknowledged

   b. Curve Numbers
      i. The curve number for Existing "Off-Site DA" appears to be a little high. It should be similar to Proposed "Off-Site to Pond".
         Response: Curve number has been updated as requested.

      ii. The curve number for Proposed "Off-Site Bypass" appears to be a little high. It should be similar to Proposed "Off-Site to Pond".
         Response: Curve Number has been updated as requested.

   c. Detention Pond

      i. The outlet structure outlet elevation and slope does not match the site plan. Revise.
         Response: Slopes have been revised to match the site plan.

      ii. The Invert of the pond should match the flowline elevation of the outlet structure.

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Response: Outlet pipe has been extended to match the proposed flowline.

iii. Provide discharge velocity calculations and erosion protection, if needed.
Response: Velocity calculations have been provided with this resubmittal. KDOT 18" Riprap is being provided at the outlet.

iv. The detention pond will need to be constructed within a dedicated easement or tract with maintenance responsibilities by the owner.
Response: Acknowledged.

Recommended Action:
We recommend that the City require resubmittal and review of information requested prior to approval.

Should you have additional comments/questions, please do not hesitate to contact me. Thank you.

Sincerely,

SCHLAGEL & ASSOCIATES, P.A.

Mark A. Breuer, PE
Principal / Engineering Manager
Direct 913-322-7154
MAB@schlagelassociates.com

/mdr
Attachments

City of Tonganoxie, Kansas

PLANNING STAFF REPORT

Case#: 2024-002P

Date of Report: April 8, 2024; updated April 25,2024

Application: **Site Plan**
Date of Application: 3/15/2024 (via email); revised plans 4/16/24 and 4/19/24 (via email)
Date of Meeting: 5/2/2024

Action: *A site plan requires review and approval by the Planning Commission. If the site meets the standards of the zoning district, and the standards and criteria of the Site Plan Review Standards, the Planning Commission shall approve the site plan. Approval of a site plan makes the project eligible to apply for building permits.*

Applicant Name: Tom Stean, Crookham Construction

Property Owner Name: Pure Grit, LLS

Subject Property
Address: State Avenue (between Tonganoxie Drive and Woodfield Drive)
Property Size: 6.2 aces (two unplatted parcels – 2.7 acres and 3.5 acres
Zoning: I-MD Moderate Industrial
Legal Description: [meets & bounds for two properties with parcel IDs 1920404003001000 and 1920404003001010]

Surrounding Property – Zoning and Use:
West: I-MD, Moderate Industrial; Storage
North: RR-2.5, Rural Residential; Vacant, unincorporated (Leavenworth County)
East: I-MD, Moderate Industrial; Office / Warehouse
South: GBD, General Business; Retail

Staff Recommendation:
Staff recommends approval with conditions and contingency on related County application.

I. PROJECT DESCRIPTION

A. Subject Property. The property is a 6.2-acre vacant lot on the north side of US 24/40 and the south side of Tonganoxie Drive, just east of Woodfield Drive. The property is two separate parcels under common ownership – one 2.7 acres and one 3.5 acres, that have irregular boundaries do to surrounding development and prior subdivision decisions on other property. The lot is zoned Moderate Industrial (I-MD). The lot dimensions are 522' wide, and between 432 feet and 633 feet deep due to the angle of Tonganoxie Drive.

B. Proposal. The applicant is proposing to build a 20, 000 square foot mixed office/warehouse building (100' x 200') centered in the middle of the property – approximately 8,000 square feet of office and 12,000 square feet of warehouse. The applicant proposes to use an existing driveway off of US 24/40 that is shared by the property to the east, and add a second access on the north side off Tonganoxie Drive. The building would be surrounded by a large concrete circulation area, providing access to several service bays on the east and west sides of the rear warehouse building, and include 35 parking spaces on the front associated with the office portion. The Tonganoxie Zoning ordinance also requires that all new buildings and additions to existing buildings in industrial zoning districts have a site plan reviewed and approved by the Planning Commission.

II. REVIEW CONSIDERATIONS

Site plans are reviewed according to all of the applicable zoning district standards as well as Article 9 of the subdivision regulations (Site Plan Review Standards).

The following are the I-MD zoning standards

	I-MD Standards	Proposed Project
Lot Area	1.25 acres	7.2 acres (jointed)
Lot Width	100'	522' (existing)
Lot Depth	150'	432' – 633' (existing)
Height	3 stories / 50'	20.66'
Front Setback	50'	174.08'
Side Setback	25'	249.26' (west)' 174.93' (east)
Rear Setback	25'	Varies – between 120' and 200'
Parking	1 space per 1,000 s.f. (20 required)	35 spaces
Landscape	Buffer planting (along residential property) – N/A • Large shade trees (40' on center) • Large shrub (8' on center) • Not applicable in this case Right-of-way Buffer • 20' buffer • No specific planting requirements; performance standards Other areas (storage, mechanical, screening): • Performance standards with a combination of fence and landscape	• 18 frontage trees (swamp white oak) -9 proposed along 24/40 frontage (1 per 58'); 9 proposed on Tonganoxie Drive (1 per 41')

The site plan meets all of the above lot standards, however the plan includes two unplatted parcels, and the building exists near a current boundary line. Although both parcels are in common ownership

currently, the parcels should be platted and recorded through the City's lot consolidation process. This may be approved administratively by staff, upon proper submission of a survey plat, or in the event that staff determines there are any issues with the survey plat, it may be referred to Planning Commission. Upon approval by the City, the survey plan needs to be recorded with Leavenworth County.

Article 9 of the Subdivision Regulations include the City's Site Plan Standards and Review Criteria. They apply to any new construction in industrial districts [1.2.1.1]. They specifically include the following standards:

1. ***Articulation of Wall and Roof Planes [3.1].*** Buildings more than 2,000 square feet are required to have a 3-to-1 ratio of facade articulation, meaning a building should not be more than 3 times its height wide, without offsets. The intent of this standard is to break up large expanses of walls and to add a three-dimensional quality to structures.

   This building is approximately 20 feet high, with typical wall planes between 12 feet and 17 feet high, depending on the elevation. A width of less than 3 times this height would be between 36 and 50' feet. The front and rear elevations are 100' and the side elevations are 200'. Therefore, the guideline would require 1 to 2 offsets on the front and rear elevations and 3 to 5 offsets on the side elevation to break the overall façade into components that meet the 3:1 ration.

   No elevation provides off-sets; however, the building has two-tiered materil composition with a 4-foot wainscot along the base for all elevations, and the front elevation has a l canopy framing the front entry (22' wide and 9' high). The front office portion of the building also has a lower wall profile with a steeper pitch roof (approximately 12 feet high at the sides up to a 20-foot center ridge)

   On the side elevations, the 200' length is broken up by the same two-panel wainscoting detail and the fact that approximately 35% of the elevation comprised the front office portion with an approximately 12-feet high wall plane and a steeper pitched roof, and the rear wall plane that is approximately 17-feet high with a shallow pitched roof.

   The intent of this standard is to avoid longer and uninterrupted building masses and improve the relationship of buildings to adjacent property and streetscape. The combination of (1) the brick wainscoting; (2) the centered front entry feature and canopy; (3) the variation in massing of the front office and rear warehouse; and (4) the frequency and rhythm of windows and doors on the entire building gives sufficient variation to these larger wall planes. In addition, the building has a significant setback from all sides (more than 150 feet in all cases). These factors show that the intent of this standard - to give variation to massing and materials on larger walls, and avoid long, blank walls on streetscapes and adjacent property lines – is likely met, and the Planning Commission may consider whether this alternative design meets the intent of the standard for this particular plan and context. The Planning Commission may grant a waiver to the standard of off-sets at a 3:1 ration when if feels the intent is met by an alternative design.

2. ***Cladding and Roofing Materials [3.2].*** Metal buildings with a quality appearance is acceptable in industrial districts. Other materials may be approved by the Planning Commission on a case-by-case basis, specifically to account for uses such as car wash, auto maintenance or storage buildings where a large portion of the wall may be doors or other types of openings.

   The proposed building is corrugated metal panel with a two-panel system, a 4' wainscot along the base and at the front entry feature, and a larger main wall plane of separate material. It includes a metal-seamed roof. These materials are all listed in the acceptable materials list of

Section 3.2 of the design standards. Colors and a specific material palette have not been submitted with the plans. (See Item 4 below.)

3. ***Visual Elements [3.3].*** Retail or office portions of industrial buildings require 30% of the facade and street walls to have design elements that allow visual penetration to the interior of buildings such as display units, windows and doors. The intent of this standard for industrial buildings is to break up monotonous, impersonal facades.

   This building includes a centered front entry feature with an extension of the brick or manufactured stone wainscot on the front elevation (approximately 9-feet high and 22-feet wide), and an associated entry canopy. There are also 3 windows are regular intervals along the front – 2 at 4 feet by 3 feet, and 4 at 4 feet by 6 feet. The side elevations include a similar level of details with windows and doors on the front office portion, and then more utilitarian large garage bays on the rear warehouse portion of the building. This results in approximately 13% to 20% transparent visual elements on the elevations of the office portion of the building. While under the recommended 30%, the building has a very large office portion; includes windows at regular intervals along the perimeter of the office portion; and has a substantial setback from the street and adjacent property. This, combined with other design features on the building likely meet the intent of this section to have visual elements that break up the monotony of the building. The Planning Commission may grant a waiver to the standard of 30% windows and doors on retail or office portions of buildings when it feels the intent is met by an alternative design.

4. ***Color / Patterns / Textures for Facades and Street Walls [3.4].*** Colors, patterns and textures of exterior buildings or coatings are to be compatible with existing surroundings. Extremely bright or fluorescent colors should be avoided.

   The building is proposed to be a metail panel building with two panels on each elevation – a 4' wainscot base and a main wall, and a standing seem metal roof. Specific materials and colors are not included on the plan. Prior to or at the Planning Commission the applicant should present a color palette and material samples or manufacturers specifications for materials to evaluate this criteria.

5. ***Axillary Elements [3.5].*** Screening of mechanical equipment, trash, or loading areas for industrial buildings should be to the rear or otherwise create from the street or residential areas.

   Mechanical equipment, trash and loading areas are not specifically designated on the site plan. To the extent any mechanical, storage, or loading areas are included on the site, they shall be subject to further permit reviews by staff to ensure they meet the fence and/or landscape standards to screen these areas from the streetscape and adjacent property. (24-012.C)

6. ***Landscape [4.0 and Section 17-011.G, and Section 24].*** A landscape plan is required to demonstrate buffering and screening, contribute to the overall appearance of the site, contribute to the character of the area, and help manage any runoff or similar mitigation of site impacts that can be accomplished with vegetation. Additionally, the I-MD district requires a 10' landscape strip to be maintained along all rights-of-way (17-011.G.).

   There are no specific planting requirements associated with development in the I-MD district outside of buffer and screening standards. These only apply when abutting or adjacent to

residential development, which is not the case for this site. There is also a requirement for a 10' landscape strip along all rights of way in the I-MD district, but no specific planting requirement. Therefore, the landscape plan is subject to the general performance criteria in Section 4.0 of the site design standards.

The applicants landscape plan proposes 18 large shade trees (swamp white oak) – 9 along the frontage of the property on US 24/40 and 9 alont the frotnage of Tonganoxie Drive. This results in an average spacing of approximately 58 feet on US 24/40 and approximately 41 feet on Tonganixie Drive. With all trees reaching maturity this would provide an acceptable frontage landscape design – similar to what has been implemented along streetscapes in the nearby industrial areas.

7. ***Parking [17-016].*** The I-MD district requires 1 space for every 1,000 square feet of buildings and the parking shall be setback 10' from the property lines. Parking slots of more than 6 spaces require painted lines or curbs (20-101.F.). All parking shall be surface with a bituminous or concrete pavement meeting the standards and specifications of the City. Alternative materials may be approved for low use parking areas such as fire safety lanes or overflow parking. [20-010.H]

   The proposed building requires 20 parking spaces, and the site plan includes 35 striped parking spaces in front of the building on US 24/40. Additionally, the nature of the site accounts for larger-vehicle circulation over paved surfaces and meets all design, dimension, and location standards.

   The site plan proposes two access points – an existing driveway on the southeast side of the lot that is shared with the property to the east and accesses US 24/40 (KDOT right-of-way); and a new driveway on the north side that accesses Tonganoxie Drive (Leavenworth County right-of-way). KDOT has reviewed the site plan and has no issues with the access proposed. Leavenworth County has reviewed the site plan and noted that the access on Tonganoxie Drive does not comply with the County's required separation distance from the existing access on the lot to the east. The applicant has a variance request pending with the County, that will not be heard until after the Planning Commission review of this site plan. If the County denies this request, a new access location elsewhere on the site may affect grading and drainage, and a new site plan may need to be reviewed. KDOT has indicated that the presence or absence of a driveway on Tonganoxie Drive does not impact their authrization, however should any access plans change on US 24/40 as a result of any subsequent decisions or changes, they will require a new review. Therefore, any review and approval of this site plan by the Planning Commission should be contingent on the applicant's variance from the County being approved, and access provided as shown on this plan. The access may be removed if not approved by the County, however if access is moved or it alters any other paving, grading, or stormwater issues a new site plan submittal may be required.

   The City Engineer memo (March 25, 2024) also notes these access issues as well as reference to constriction specifications for the interface of the trail and proposed access on the north side.

8. ***Stormwater [5.0].*** Section 5.0 includes a variety of stormwater standards and performance criteria to be administered by the City Engineer. It includes provisions for engineering studies, stormwater management plans, or waivers of requirements for projects under certain thresholds.

The City Engineer reviewed the plans for compliance with the stormwater standards and has asked for several revisions or additional information to be resubmitted. See City Engineer memo dated March 25, 2024). These items have not been submitted yet but should be submitted and approved by the City Engineer prior to the issuance of any building permits. Additionally, if any access, paving, or grading changes due to approvals for access needed by other entities, revisions to stormwater plans and information may be necessary.

9. ***Exceptions [1.7].*** Where site plans do not meet any of the standards, the Planning Commission may grant exceptions to the standards in the following situations: the standard would create a hardship beyond the control of the applicant; OR the exception is a minor modification where the intent and purpose of the standard is fulfilled.

   Based on the information submitted, the application does not meet, or it is not clear that it meets, the following standards:

   - The front and side elevation would require articulation or off-sets, since it is greater than a 3:1 ratio. The intent of this standard is to break up larger wall planes. However, this building includes some design elements to break up the larger wall planes, and, is set back substantially from the street and side properties, reducing the need to break the building into proportions with the 3:1 ratio.
   - Portions of the building elevations lack visual elements that create transparency on the facade and street wall (30%). The intent of this standard for industrial buildings is to break up monotonous, impersonal facades. However, this building does not include any substantially evident retail, and the office proportion does include regularly spaced windows and other design features that reduce the monotony of larger building elevations. It is setback substantially from the street on all sides.
   - Similar to past applications where buildings have a more utilitarian design and/or are setback a greater distance from the property line, and exception to these requirements are warranted where:
     - Other basic techniques of windows, doors, materials, and details are used to break up elevations.
     - Buildings are setback a greater distance from property.
     - Landscape – particularly related to streetscape relationships is enhanced.

     This application presents all of these mitigating responses.

III. EFFECT OF DECISION

Approval of the site plan authorizes the applicant to proceed to building permits. Prior to issuance of these permits the applicant must construction documents demonstrate compliance with all standards of the City, demonstrate compliance with the approved site plan, and compliance with any conditions of the site plan approval. If the site plan is not approved by the Planning Commission, the applicant may appeal this decision to the City Council.

IV. Staff Recommendation

The Planning Commission may approve the site plan. However, any approval shall be based on the following conditions:

1. The applicant submit a survey plat to consolidate the two parcels, meeting the city's subdivision standards, and the plat be approved and recorded with Leavenworth County applicant prior to any building permits.

2. The applicant presents a color palette and material samples or manufacturers specifications for materials prior to or at the Planning Commission meeting.
3. The Planning Commission find that the intent of the design standards have been met by the proposed building design, and finds alternatives for two specific standards acceptable:
    a. A determination that the articulation of the walls is not required due to the scale of this building and the nature of the front and side elevations to adjacent property not being important to the intent of the articulation standard.
    b. A determination that visual elements on the street wall are not required due to either (a) the fact that this building is an industrial building and the office portions have sufficient windows and other visual breaks; and/or (b) the building is set back far enough from the street that visual elements are not crucial to the buildings.
    c. The landscape treatments on US 24/40 and Tonganoxie Drive are sufficient to mitigate views of the site and building from the streetscape.
4. The applicant shall confirm that all storage, mechanical equipment, or other auxiliary elements shall be located behind the fenced area, or otherwise screened and not visible from the street with landscape and/or fences. Specifications for the fence that meet the City ordinance shall be turned in at the time of building permits. Any other visible features shall require landscape screening.
5. All issues of the City Engineer memo dated March 25, 2024 be addressed prior to building permits. Specifically:
    - Access be approved, contingent on Leavenworth County and KDOT reviews, and construction of the trail / driveway interface be as specified.
    - All utility connections and required improvements by provided according the city specifications, including water, sewer, and fire hydrants.
    - Stormwater management plan be resubmitted with details requested by the City Engineer and approved prior to any permits.
6. Any approvals by the City are contingent on the access shown, and this plan receiving the appropriate approvals from Leavenworth County for access on Tonganoxie Drive. If these plans for access are not approved, the access for Tonganoxie Drive may be removed and the plan considered approved without this access. However, if any access changes as a result, or if the grading, paving, or stormwater issues are altered as a result of removal of this access, a new site plan may be required.

If the Planning Commission determines that this application does not meet any of the standards, or that these recommended conditions to the standards or exceptions do not meet the intent and requirements, it may deny the application, stating the specific reasons for denial.

_____

Chris Brewster, Contract City Planner
Multistudio

BG CONSULTANTS
ENGINEERS · ARCHITECTS · SURVEYORS

MEMO

To: George Brajkovic, City Manager
City of Tonganoxie

Cc: Dan Porter, Asst. City Manager
Kent Heskett, City Superintendent
John Zimbleman, Fire Chief
Chris Brewster, City Planner

From: Brian Kingsley, City Engineer

Date: April 25, 2024

Re: Polished and Decorative Concrete
Site Plan Review
24-1001L

The following are the City Engineer and staff review comments related to Engineering issues:

Site Plan Review:

1. The applicant has indicated that the driveway addition onto Tonganoxie Dr. will not be constructed unless approved by the County.

    a. If the Tonganoxie Dr. access is not constructed, a waterline extension will be required along the Highway 24-40 frontage to provide an accessible fire hydrant at the driveway access to the site.

Storm Water Drainage Report Review:

1. Summary Memo

    a. Section 4.4 – The 100-year WSE is shown as 878.66 but the hydrographs indicate that it is 878.68.

2. Site Plan

    a. The pipe slope is listed as 14% but the stormwater study shows 8.24%.
    b. The 100-year WSE is shown as 878.76 but the hydrographs indicate that it is 878.68.

Recommended Action: We recommend that the City consider approval of the site plan contingent upon 1) correction of the the storm water issues identified in the Memo and Site Plan and 2) issues related to the fire hydrant location and access being addressed, if necessary.

--END

For questions or comments, please contact:
Brian Kingsley, PE
President
T: 785.727.7261
E: brian.kingsley@bgcons.com

HOME BUILDERS ASSOCIATION OF GREATER KANSAS CITY

Residential Building Permit Statistics

OCTOBER 2023

	Single Family Units^	Multi-Family Units%	Total Units	S-F Units YTD	M-F Units YTD	Total Units YTD
CASS COUNTY						
Archie	0	0	**0**	0	0	**0**
Belton	0	0	**0**	27	0	**27**
Cass County	0	0	**0**	0	0	**0**
Cleveland	0	0	**0**	0	0	**0**
Garden City	0	0	**0**	0	0	**0**
Harrisonville	1	0	**1**	16	0	**16**
Lake Winnebago	1	0	**1**	19	0	**19**
Lee's Summit	1	0	**1**	7	0	**7**
Peculiar	0	0	**0**	0	0	**0**
Pleasant Hill	0	0	**0**	43	0	**43**
Raymore	23	0	**23**	146	0	**146**
Village of Loch Lloyd	0	0	**0**	0	0	**0**
	26	**0**	**26**	**258**	**0**	**258**
CLAY COUNTY						
Clay County	9	0	**9**	52	0	**52**
Excelsior Springs	2	0	**2**	9	0	**9**
Gladstone	0	0	**0**	2	0	**2**
Kansas City	13	0	**13**	352	0	**352**
Kearney	1	0	**1**	19	0	**19**
Lawson	0	0	**0**	0	0	**0**
Liberty	3	0	**3**	44	0	**44**
North Kansas City	0	0	**0**	0	31	**31**
Pleasant Valley	0	0	**0**	0	0	**0**
Smithville	3	0	**3**	31	0	**31**
	31	**0**	**31**	**509**	**31**	**540**
JACKSON COUNTY						
Blue Springs	12	0	**12**	110	0	**110**
Buckner	0	0	**0**	0	0	**0**
Grain Valley	20	0	**20**	58	0	**58**
Grandview	0	0	**0**	0	0	**0**
Greenwood	0	0	**0**	0	0	**0**
Independence	3	0	**3**	37	0	**37**
Jackson County	5	0	**5**	48	0	**48**
Kansas City	12	0	**12**	151	7	**158**
Lake Lotawana	0	0	**0**	19	0	**19**
Lee's Summit	22	0	**22**	164	150	**314**
Oak Grove	12	0	**12**	61	0	**61**
Raytown	0	0	**0**	0	0	**0**
Sugar Creek	0	0	**0**	0	0	**0**
	86	**0**	**86**	**648**	**157**	**805**
PLATTE COUNTY						
Kansas City	16	0	**16**	346	0	**346**
Parkville	0	0	**0**	11	0	**11**
Platte City	0	0	**0**	0	0	**0**
Platte County	10	0	**10**	68	0	**68**
Riverside	2	0	**2**	21	0	**21**
Weatherby Lake	0	0	**0**	0	0	**0**
Weston	0	0	**0**	0	0	**0**
	28	**0**	**28**	**446**	**0**	**446**
JOHNSON COUNTY						
De Soto	0	0	**0**	16	0	**16**
Edgerton	0	0	**0**	0	0	**0**
Fairway	0	0	**0**	0	0	**0**
Gardner	25	0	**25**	146	0	**146**
Johnson County	2	0	**2**	36	0	**36**
Leawood	5	0	**5**	41	0	**41**
Lenexa	9	0	**9**	110	0	**110**
Merriam	0	0	**0**	0	361	**361**
Mission Hills	0	0	**0**	0	0	**0**
Olathe	17	0	**17**	322	364	**686**
Overland Park	21	0	**21**	230	156	**386**
Prairie Village	4	0	**4**	35	0	**35**
Roeland Park	0	0	**0**	0	0	**0**
Shawnee	9	0	**9**	148	0	**148**
Spring Hill	6	0	**6**	83	0	**83**
Westwood	0	0	**0**	0	0	**0**
	98	**0**	**98**	**1167**	**881**	**2048**

	Single Family Units^	Multi-Family Units%	Total Units	S-F Units YTD	M-F Units YTD	Total Units YTD
LEAVENWORTH COUNTY						
Basehor	9	0	**9**	63	0	**63**
Lansing	0	0	**0**	0	0	**0**
Leav. County	4	0	**4**	59	0	**59**
Leavenworth	0	0	**0**	0	0	**0**
Tonganoxie	2	0	**2**	12	0	**12**
	15	**0**	**15**	**134**	**0**	**134**
WYANDOTTE COUNTY						
Bonner Springs	0	0	**0**	0	0	**0**
Edwardsville	0	0	**0**	0	0	**0**
KCK/Wyandotte Co	14	0	**14**	78	0	**78**
	14	**0**	**14**	**78**	**0**	**78**
MIAMI COUNTY						
Louisburg	0	0	**0**	17	19	**36**
Miami County	5	0	**5**	49	0	**49**
Osawatomie	0	0	**0**	0	0	**0**
Paola	0	0	**0**	0	0	**0**
Spring Hill	0	0	**0**	1	0	**1**
	5	**0**	**5**	**67**	**19**	**86**
Totals	**303**	**0**	**303**	**3307**	**1088**	**4395**

Comparison of Single Family Building Units for Greater Kansas City

(Cass, Clay, Jackson, Platte, Johnson, Leavenworth, Miami, Wyandotte Counties)

Month/Year	2016	2017	2018	2019	2020	2021	2022	2023
January	274	457	463	234	355	411	444	185
February	408	477	463	234	475	493	416	152
March	542	571	549	357	438	560	457	359
April	523	562	564	411	434	637	450	390
May	503	504	598	391	374	579	465	439
June	578	567	569	387	421	558	547	373
July	494	512	485	471	493	480	448	376
August	536	480	514	429	444	502	498	403
September	424	514	353	396	557	458	314	327
October	466	583	485	500	510	690	316	303
November	417	502	354	410	404	524	303	
December	352	468	276	434	461	653	227	
Annual Total	5.517	6.197	5.673	4.654	5.366	6545	4885	3307

Comparison of Permits By Units Issued Year to Date

2016 - 2023

	S-F Units	M-F Units	Total Units
2016	4748	3543	8291
2017	5227	1903	7130
2018	5043	3229	8272
2019	3810	2427	6237
2020	4501	2155	6656
2021	5368	658	6026
2022	4355	2355	6710
2023	3307	1088	4395

^The Single Family number is units and includes both attached and detached units.
%Multi-Family units are in buildings with 5 or more units.
Not available at time of report

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HOME BUILDERS ASSOCIATION OF GREATER KANSAS CITY

Residential Building Permit Statistics

November 2023

	Single Family Units^	Multi-Family Units%	Total Units	S-F Units YTD	M-F Units YTD	Total Units YTD
CASS COUNTY						
Archie	0	0	**0**	0	0	**0**
Belton	1	0	**1**	28	0	**28**
Cass County	5	0	**5**	5	0	**5**
Cleveland	0	0	**0**	0	0	**0**
Garden City	0	0	**0**	0	0	**0**
Harrisonville	2	0	**2**	18	0	**18**
Lake Winnebago	1	0	**1**	20	0	**20**
Lee's Summit	1	0	**1**	8	0	**8**
Peculiar	2	0	**2**	2	0	**2**
Pleasant Hill	0	0	**0**	43	0	**43**
Raymore	30	0	**30**	176	0	**176**
Village of Loch Lloyd	0	0	**0**	0	0	**0**
	42	**0**	**42**	**300**	**0**	**300**
CLAY COUNTY						
Clay County	8	0	**8**	60	0	**60**
Excelsior Springs	3	0	**3**	12	0	**12**
Gladstone	0	0	**0**	2	0	**2**
Kansas City	13	0	**13**	365	0	**365**
Kearney	3	0	**3**	22	0	**22**
Lawson	0	0	**0**	0	0	**0**
Liberty	10	0	**10**	54	0	**54**
North Kansas City	0	0	**0**	0	31	**31**
Pleasant Valley	0	0	**0**	0	0	**0**
Smithville	2	0	**2**	33	0	**33**
	39	**0**	**39**	**548**	**31**	**579**
JACKSON COUNTY						
Blue Springs	15	0	**15**	125	0	**125**
Buckner	0	0	**0**	0	0	**0**
Grain Valley	0	0	**0**	58	0	**58**
Grandview	0	0	**0**	0	0	**0**
Greenwood	0	0	**0**	0	0	**0**
Independence	15	0	**15**	52	0	**52**
Jackson County	9	0	**9**	57	0	**57**
Kansas City	15	0	**15**	166	7	**173**
Lake Lotawana	0	0	**0**	19	0	**19**
Lee's Summit	26	179	**205**	190	329	**519**
Oak Grove	3	0	**3**	64	0	**64**
Raytown	0	0	**0**	0	0	**0**
Sugar Creek	0	0	**0**	0	0	**0**
	83	**179**	**262**	**731**	**336**	**1067**
PLATTE COUNTY						
Kansas City	22	28	**50**	368	28	**396**
Parkville	0	0	**0**	11	0	**11**
Platte City	0	0	**0**	0	0	**0**
Platte County	22	0	**22**	90	0	**90**
Riverside	5	0	**5**	26	0	**26**
Weatherby Lake	0	0	**0**	0	0	**0**
Weston	0	0	**0**	0	0	**0**
	49	**28**	**77**	**495**	**28**	**523**
JOHNSON COUNTY						
De Soto	4	0	**4**	20	0	**20**
Edgerton	0	0	**0**	0	0	**0**
Fairway	0	0	**0**	0	0	**0**
Gardner	22	0	**22**	168	0	**168**
Johnson County	3	0	**3**	39	0	**39**
Leawood	10	0	**10**	51	0	**51**
Lenexa	19	0	**19**	129	0	**129**
Merriam	0	0	**0**	0	361	**361**
Mission Hills	0	0	**0**	0	0	**0**
Olathe	20	0	**20**	342	364	**706**
Overland Park	11	195	**206**	241	351	**592**
Prairie Village	2	0	**2**	37	0	**37**
Roeland Park	0	0	**0**	0	0	**0**
Shawnee	16	0	**16**	164	0	**164**
Spring Hill	14	0	**14**	97	0	**97**
Westwood	0	0	**0**	0	0	**0**
	121	**195**	**316**	**1288**	**1076**	**2364**

	Single Family Units^	Multi-Family Units%	Total Units	S-F Units YTD	M-F Units YTD	Total Units YTD
LEAVENWORTH COUNTY						
Basehor	6	0	**6**	69	0	**69**
Lansing	0	0	**0**	0	0	**0**
Leav. County	1	0	**1**	60	0	**60**
Leavenworth	0	0	**0**	0	0	**0**
Tonganoxie	0	0	**0**	12	0	**12**
	7	**0**	**7**	**141**	**0**	**141**
WYANDOTTE COUNTY						
Bonner Springs	0	0	**0**	0	0	**0**
Edwardsville	0	0	**0**	0	0	**0**
KCK/Wyandotte Co	10	0	**10**	88	0	**88**
	10	**0**	**10**	**88**	**0**	**88**
MIAMI COUNTY						
Louisburg	0	0	**0**	17	19	**36**
Miami County	2	0	**2**	51	0	**51**
Osawatomie	0	0	**0**	0	0	**0**
Paola	0	0	**0**	0	0	**0**
Spring Hill	0	0	**0**	1	0	**1**
	2	**0**	**2**	**69**	**19**	**88**
Totals	**353**	**402**	**755**	**3660**	**1490**	**5150**

Comparison of Single Family Building Units for Greater Kansas City

(Cass, Clay, Jackson, Platte, Johnson, Leavenworth, Miami, Wyandotte Counties)

Month/Year	2016	2017	2018	2019	2020	2021	2022	2023
January	274	457	463	234	355	411	444	185
February	408	477	463	234	475	493	416	152
March	542	571	549	357	438	560	457	359
April	523	562	564	411	434	637	450	390
May	503	504	598	391	374	579	465	439
June	578	567	569	387	421	558	547	373
July	494	512	485	471	493	480	448	376
August	536	480	514	429	444	502	498	403
September	424	514	353	396	557	458	314	327
October	466	583	485	500	510	690	316	303
November	417	502	354	410	404	524	303	353
December	352	468	276	434	461	653	227	
Annual Total	5,517	6,197	5,673	4,654	5,366	6545	4885	3660

Comparison of Permits By Units Issued Year to Date

2016 - 2023

	S-F Units	M-F Units	Total Units
2016	5517	4003	9520
2017	6197	2043	8240
2018	5673	3229	8902
2019	4654	2781	7435
2020	5366	2184	7550
2021	6545	864	7409
2022	4658	2386	7044
2023	3660	1490	5150

^The Single Family number is units and includes both attached and detached units.
%Multi-Family units are in buildings with 5 or more units.
Not available at time of report

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HOME BUILDERS ASSOCIATION OF GREATER KANSAS CITY

Residential Building Permit Statistics

DECEMBER 2023

	Single Family Units^	Multi-Family Units%	Total Units	S-F Units YTD	M-F Units YTD	Total Units YTD
CASS COUNTY						
Archie	0	0	**0**	0	0	**0**
Belton	4	0	**4**	32	0	**32**
Cass County	13	0	**13**	18	0	**18**
Cleveland	0	0	**0**	0	0	**0**
Garden City	0	0	**0**	0	0	**0**
Harrisonville	1	0	**1**	19	0	**19**
Lake Winnebago	1	0	**1**	21	0	**21**
Lee's Summit	0	0	**0**	8	0	**8**
Peculiar	11	0	**11**	13	0	**13**
Pleasant Hill	1	0	**1**	44	0	**44**
Raymore	5	0	**5**	181	0	**181**
Village of Loch Lloyd	0	0	**0**	0	0	**0**
	36	**0**	**36**	**336**	**0**	**336**
CLAY COUNTY						
Clay County	4	0	**4**	64	0	**64**
Excelsior Springs	0	0	**0**	12	0	**12**
Gladstone	0	0	**0**	2	0	**2**
Kansas City	14	0	**14**	379	0	**379**
Kearney	1	0	**1**	23	0	**23**
Lawson	0	0	**0**	0	0	**0**
Liberty	20	0	**20**	74	0	**74**
North Kansas City	0	0	**0**	0	31	**31**
Pleasant Valley	0	0	**0**	0	0	**0**
Smithville	0	0	**0**	33	0	**33**
	39	**0**	**39**	**587**	**31**	**618**
JACKSON COUNTY						
Blue Springs	0	0	**0**	125	0	**125**
Buckner	0	0	**0**	0	0	**0**
Grain Valley	2	0	**2**	60	0	**60**
Grandview	0	0	**0**	0	0	**0**
Greenwood	0	0	**0**	0	0	**0**
Independence	4	0	**4**	56	0	**56**
Jackson County	4	0	**4**	61	0	**61**
Kansas City	14	0	**14**	180	7	**187**
Lake Lotawana	0	0	**0**	19	0	**19**
Lee's Summit	17	0	**17**	207	329	**536**
Oak Grove	8	0	**8**	72	0	**72**
Raytown	0	0	**0**	0	0	**0**
Sugar Creek	0	0	**0**	0	0	**0**
	49	**0**	**49**	**780**	**336**	**1116**
PLATTE COUNTY						
Kansas City	14	0	**14**	382	28	**410**
Parkville	3	0	**3**	14	0	**14**
Platte City	0	0	**0**	0	0	**0**
Platte County	2	0	**2**	92	0	**92**
Riverside	2	0	**2**	28	0	**28**
Weatherby Lake	0	0	**0**	0	0	**0**
Weston	0	0	**0**	0	0	**0**
	21	**0**	**21**	**516**	**28**	**544**
JOHNSON COUNTY						
De Soto	0	0	**0**	20	0	**20**
Edgerton	0	0	**0**	0	0	**0**
Fairway	0	0	**0**	0	0	**0**
Gardner	16	0	**16**	184	0	**184**
Johnson County	2	0	**2**	41	0	**41**
Leawood	4	0	**4**	55	0	**55**
Lenexa	22	0	**22**	151	0	**151**
Merriam	0	0	**0**	0	361	**361**
Mission Hills	0	0	**0**	0	0	**0**
Olathe	43	0	**43**	385	364	**749**
Overland Park	15	218	**233**	256	569	**825**
Prairie Village	4	0	**4**	41	0	**41**
Roeland Park	0	0	**0**	0	0	**0**
Shawnee	4	0	**4**	168	0	**168**
Spring Hill	6	0	**6**	103	0	**103**
Westwood	0	0	**0**	0	0	**0**
	116	**218**	**334**	**1404**	**1294**	**2698**

	Single Family Units^	Multi-Family Units%	Total Units	S-F Units YTD	M-F Units YTD	Total Units YTD
LEAVENWORTH COUNTY						
Basehor	4	0	**4**	73	0	**73**
Lansing	0	0	**0**	0	0	**0**
Leav. County	9	0	**9**	69	0	**69**
Leavenworth	0	0	**0**	0	0	**0**
Tonganoxie	2	0	**2**	14	0	**14**
	15	**0**	**15**	**156**	**0**	**156**
WYANDOTTE COUNTY						
Bonner Springs	0	0	**0**	0	0	**0**
Edwardsville	0	0	**0**	0	0	**0**
KCK/Wyandotte Co	1	0	**1**	89	0	**89**
	1	**0**	**1**	**89**	**0**	**89**
MIAMI COUNTY						
Louisburg	0	0	**0**	17	19	**36**
Miami County	3	0	**3**	54	0	**54**
Osawatomie	0	0	**0**	0	0	**0**
Paola	0	0	**0**	0	0	**0**
Spring Hill	5	0	**5**	6	0	**6**
	8	**0**	**8**	**77**	**19**	**96**
Totals	**285**	**218**	**503**	**3945**	**1708**	**5653**

Comparison of Single Family Building Units for Greater Kansas City

(Cass, Clay, Jackson, Platte, Johnson, Leavenworth, Miami, Wyandotte Counties)

Month/Year	2016	2017	2018	2019	2020	2021	2022	2023
January	274	457	463	234	355	411	444	185
February	408	477	463	234	475	493	416	152
March	542	571	549	357	438	560	457	359
April	523	562	564	411	434	637	450	390
May	503	504	598	391	374	579	465	439
June	578	567	569	387	421	558	547	373
July	494	512	485	471	493	480	448	376
August	536	480	514	429	444	502	498	403
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October	466	583	485	500	510	690	316	303
November	417	502	354	410	404	524	303	353
December	352	468	276	434	461	653	227	285
Annual Total	5,517	6,197	5,673	4,654	5,366	6545	4885	3945

Comparison of Permits By Units Issued Year to Date

2016 - 2023

	S-F Units	M-F Units	Total Units
2016	5517	4451	9968
2017	6197	2434	8631
2018	5673	3245	8918
2019	4654	3014	7668
2020	5366	2292	7658
2021	6545	1293	7838
2022	4885	2432	7317
2023	3945	1708	5653

^The Single Family number is units and includes both attached and detached units.
%Multi-Family units are in buildings with 5 or more units.
Not available at time of report

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HOME BUILDERS ASSOCIATION OF GREATER KANSAS CITY

Residential Building Permit Statistics

JANUARY 2024

	Single Family Units^	Multi-Family Units%	Total Units	S-F Units YTD	M-F Units YTD	Total Units YTD
CASS COUNTY						
Archie	0	0	**0**	0	0	**0**
Belton	4	0	**4**	4	0	**4**
Cass County	3	0	**3**	3	0	**3**
Cleveland	0	0	**0**	0	0	**0**
Drexel	0	0	**0**	0	0	**0**
Harrisonville	2	0	**2**	2	0	**2**
Lake Winnebago	2	0	**2**	2	0	**2**
Lee's Summit	0	0	**0**	0	0	**0**
Peculiar	2	0	**2**	2	0	**2**
Pleasant Hill	0	0	**0**	0	0	**0**
Raymore	2	0	**2**	2	0	**2**
Village of Loch Lloyd	0	0	**0**	0	0	**0**
	15	**0**	**15**	**15**	**0**	**15**
CLAY COUNTY						
Clay County	6	0	**6**	6	0	**6**
Excelsior Springs	1	0	**1**	1	0	**1**
Gladstone	0	0	**0**	0	0	**0**
Kansas City	27	29	**56**	27	29	**56**
Kearney	2	0	**2**	2	0	**2**
Lawson	0	0	**0**	0	0	**0**
Liberty	1	0	**1**	1	0	**1**
North Kansas City	0	0	**0**	0	0	**0**
Pleasant Valley	0	0	**0**	0	0	**0**
Smithville	0	0	**0**	0	0	**0**
	37	**29**	**66**	**37**	**29**	**66**
JACKSON COUNTY						
Blue Springs	33	0	**33**	33	0	**33**
Buckner	0	0	**0**	0	0	**0**
Grain Valley	0	0	**0**	0	0	**0**
Grandview	0	0	**0**	0	0	**0**
Greenwood	0	0	**0**	0	0	**0**
Independence	3	0	**3**	3	0	**3**
Jackson County	1	0	**1**	1	0	**1**
Kansas City	0	0	**0**	0	0	**0**
Lake Lotawana	0	0	**0**	0	0	**0**
Lee's Summit	20	0	**20**	20	0	**20**
Oak Grove	8	0	**8**	8	0	**8**
Raytown	0	0	**0**	0	0	**0**
Sugar Creek	0	0	**0**	0	0	**0**
	65	**0**	**65**	**65**	**0**	**65**
PLATTE COUNTY						
Kansas City	15	0	**15**	15	0	**15**
Parkville	4	0	**4**	4	0	**4**
Platte City	0	0	**0**	0	0	**0**
Platte County	11	0	**11**	11	0	**11**
Riverside	2	0	**2**	2	0	**2**
Weatherby Lake	0	0	**0**	0	0	**0**
Weston	0	0	**0**	0	0	**0**
	32	**0**	**32**	**32**	**0**	**32**
JOHNSON COUNTY						
De Soto	18	0	**18**	18	0	**18**
Edgerton	0	0	**0**	0	0	**0**
Fairway	0	0	**0**	0	0	**0**
Gardner	6	0	**6**	6	0	**6**
Johnson County	2	0	**2**	2	0	**2**
Leawood	3	0	**3**	3	0	**3**
Lenexa	12	0	**12**	12	0	**12**
Merriam	0	0	**0**	0	0	**0**
Mission Hills	0	0	**0**	0	0	**0**
Olathe	18	0	**18**	18	0	**18**
Overland Park	21	150	**171**	21	150	**171**
Prairie Village	4	0	**4**	4	0	**4**
Roeland Park	0	0	**0**	0	0	**0**
Shawnee	6	0	**6**	6	0	**6**
Spring Hill	4	0	**4**	4	0	**4**
Westwood	0	0	**0**	0	0	**0**
	94	**150**	**244**	**94**	**150**	**244**

	Single Family Units^	Multi-Family Units%	Total Units	S-F Units YTD	M-F Units YTD	Total Units YTD
LEAVENWORTH COUNTY						
Basehor	6	0	**6**	6	0	**6**
Lansing	0	0	**0**	0	0	**0**
Leavenworth County	2	0	**2**	2	0	**2**
Leavenworth	0	0	**0**	0	0	**0**
Tonganoxie	5	0	**5**	5	0	**5**
	13	**0**	**13**	**13**	**0**	**13**
WYANDOTTE COUNTY						
Bonner Springs	0	0	**0**	0	0	**0**
Edwardsville	0	0	**0**	0	0	**0**
KCK/Wyandotte Co	9	0	**9**	9	0	**9**
	9	**0**	**9**	**9**	**0**	**9**
MIAMI COUNTY						
Louisburg	0	0	**0**	0	0	**0**
Miami County	7	0	**7**	7	0	**7**
Osawatomie	0	0	**0**	0	0	**0**
Paola	0	0	**0**	0	0	**0**
Spring Hill	38	0	**38**	38	0	**38**
	45	**0**	**45**	**45**	**0**	**45**
Totals	**310**	**179**	**489**	**310**	**179**	**489**

Comparison of Single Family Building Units for Greater Kansas City

(Cass, Clay, Jackson, Platte, Johnson, Leavenworth, Miami, Wyandotte Counties)

Month/Year	2017	2018	2019	2020	2021	2022	2023	2024
January	457	463	234	355	411	444	185	310
February	477	463	234	475	493	416	152	
March	571	549	357	438	560	457	359	
April	562	564	411	434	637	450	390	
May	504	598	391	374	579	465	439	
June	567	569	387	421	558	547	373	
July	512	485	471	493	480	448	376	
August	480	514	429	444	502	498	403	
September	514	353	396	557	458	314	327	
October	583	485	500	510	690	316	303	
November	502	354	410	404	524	303	353	
December	468	276	434	461	653	227	287	
Annual Total	6,197	5,673	4,654	5,366	6,545	4885	3947	310

Comparison of Permits By Units Issued Year to Date

2017 - 2024

	S-F Units	M-F Units	Total Units
2017	457	10	467
2018	463	0	463
2019	234	407	641
2020	355	67	422
2021	411	44	455
2022	444	288	732
2023	173	0	173
2024	310	179	489

^The Single Family number is units and includes both attached and detached units.
%Multi-Family units are in buildings with 5 or more units.
Not available at time of report

Permit information reflects the most recent data at time of publication. In order to ensure accurate recording of residential building permit statistics, the HBA may revise monthly and year-to-date figures when updated data is made available. *Copyright 2024 Home Builders Assoc of Greater Kansas City. All rights reserved.*

HOME BUILDERS ASSOCIATION
OF GREATER KANSAS CITY

Residential Building Permit Statistics

February 2024

	Single Family Units^	Multi-Family Units%	Total Units	S-F Units YTD	M-F Units YTD	Total Units YTD
CASS COUNTY						
Archie	0	0	**0**	0	0	**0**
Belton	46	0	**46**	50	0	**50**
Cass County	10	0	**10**	13	0	**13**
Cleveland	0	0	**0**	0	0	**0**
Garden City	0	0	**0**	0	0	**0**
Harrisonville	3	0	**3**	5	0	**5**
Lake Winnebago	0	0	**0**	2	0	**2**
Lee's Summit	0	0	**0**	0	0	**0**
Peculiar	3	0	**3**	5	0	**5**
Pleasant Hill	0	0	**0**	0	0	**0**
Raymore	6	0	**6**	8	0	**8**
Village of Loch Lloyd	0	0	**0**	0	0	**0**
	68	**0**	**68**	**83**	**0**	**83**
CLAY COUNTY						
Clay County	2	0	**2**	8	0	**8**
Excelsior Springs	0	0	**0**	1	0	**1**
Gladstone	0	0	**0**	0	0	**0**
Kansas City	5	0	**5**	32	29	**61**
Kearney	5	0	**5**	7	0	**7**
Lawson	0	0	**0**	0	0	**0**
Liberty	7	0	**7**	8	0	**8**
North Kansas City	0	0	**0**	0	0	**0**
Pleasant Valley	0	0	**0**	0	0	**0**
Smithville	3	0	**3**	3	0	**3**
	22	**0**	**22**	**59**	**29**	**88**
JACKSON COUNTY						
Blue Springs	5	0	**5**	38	0	**38**
Buckner	0	0	**0**	0	0	**0**
Grain Valley	13	0	**13**	13	0	**13**
Grandview	0	0	**0**	0	0	**0**
Greenwood	0	0	**0**	0	0	**0**
Independence	2	0	**2**	5	0	**5**
Jackson County	3	0	**3**	4	0	**4**
Kansas City	1	0	**1**	1	0	**1**
Lake Lotawana	0	0	**0**	0	0	**0**
Lee's Summit	36	0	**36**	56	0	**56**
Oak Grove	4	0	**4**	12	0	**12**
Raytown	0	0	**0**	0	0	**0**
Sugar Creek	0	0	**0**	0	0	**0**
	64	0	**64**	**129**	**0**	**129**
PLATTE COUNTY						
Kansas City	4	0	**4**	19	0	**19**
Parkville	7	0	**7**	11	0	**11**
Platte City	0	0	**0**	0	0	**0**
Platte County	8	0	**8**	19	0	**19**
Riverside	2	0	**2**	4	0	**4**
Weatherby Lake	0	0	**0**	0	0	**0**
Weston	0	0	**0**	0	0	**0**
	21	**0**	**21**	**53**	**0**	**53**
JOHNSON COUNTY						
De Soto	3	0	**3**	21	0	**21**
Edgerton	0	0	**0**	0	0	**0**
Fairway	0	0	**0**	0	0	**0**
Gardner	16	0	**16**	22	0	**22**
Johnson County	3	0	**3**	5	0	**5**
Leawood	0	0	**0**	3	0	**3**
Lenexa	29	0	**29**	41	0	**41**
Merriam	0	0	**0**	0	0	**0**
Mission Hills	0	0	**0**	0	0	**0**
Olathe	28	0	**28**	46	0	**46**
Overland Park	29	0	**29**	50	150	**200**
Prairie Village	3	0	**3**	7	0	**7**
Roeland Park	0	0	**0**	0	0	**0**
Shawnee	5	0	**5**	11	0	**11**
Spring Hill	19	0	**19**	23	0	**23**
Westwood	0	0	**0**	0	0	**0**
	135	**0**	**135**	**229**	**150**	**379**

	Single Family Units^	Multi-Family Units%	Total Units	S-F Units YTD	M-F Units YTD	Total Units YTD
LEAVENWORTH COUNTY						
Basehor	5	0	**5**	11	0	**11**
Lansing	0	0	**0**	0	0	**0**
Leav. County	5	0	**5**	7	0	**7**
Leavenworth	0	0	**0**	0	0	**0**
Tonganoxie	0	0	**0**	5	0	**5**
	10	**0**	**10**	**23**	**0**	**23**
WYANDOTTE COUNTY						
Bonner Springs	0	0	**0**	0	0	**0**
Edwardsville	0	0	**0**	0	0	**0**
KCK/Wyandotte Co	3	0	**3**	12	0	**12**
	3	**0**	**3**	**12**	**0**	**12**
MIAMI COUNTY						
Louisburg	0	0	**0**	0	0	**0**
Miami County	3	0	**3**	10	0	**10**
Osawatomie	0	0	**0**	0	0	**0**
Paola	0	0	**0**	0	0	**0**
Spring Hill	2	0	**2**	40	0	**40**
	5	**0**	**5**	**50**	**0**	**50**
Totals	**328**	**0**	**328**	**638**	**179**	**817**

Comparison of Single Family Building Units for Greater Kansas City

(Cass, Clay, Jackson, Platte, Johnson, Leavenworth, Miami, Wyandotte Counties)

Month/Year	2017	2018	2019	2020	2021	2022	2023	2024
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October	583	485	500	510	690	316	303	
November	502	354	410	404	524	303	353	
December	468	276	434	461	653	227	287	
Annual Total	6,197	5,673	4,654	5,366	6545	4885	3947	638

Comparison of Permits By Units Issued Year to Date

2017 - 2024

	S-F Units	M-F Units	Total Units
2017	934	336	1270
2018	926	0	926
2019	468	714	1182
2020	830	519	1349
2021	904	93	997
2022	860	472	1332
2023	337	0	337
2024	638	179	817

^The Single Family number is units and includes both attached and detached units.
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Not available at time of report

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