



**KAW VALLEY ENGINEERING, INC.**

Office: 913.894.5150

Fax: 913.894.5977

Web: [www.kveng.com](http://www.kveng.com)

Address: 14700 West 114<sup>th</sup> Terrace  
Lenexa, KS 66215

September 9, 2022

**C21D1242**

Mr. Kyle Gorrell  
Lee's Summit School District  
302 SE Transport Road  
Lee's Summit, Missouri 64081

**RE: STORM WATER MANGEMENT  
LEE'S SUMMIT WEST HIGH SCHOOL ROBOTICS PROJECT  
LEE'S SUMMIT, MISSOURI**

Dear Mr. Gorrell:

Kaw Valley Engineering, Inc. has completed a review of the stormwater management implications associated with the construction of the Robotics/GIC Building at the Lee's Summit West (LSWHS) Campus in Lee's Summit, Missouri.

The City of Lee's Summit, Missouri has adopted a storm water management design criterion titled Section 5600 (Storm Drainage Systems and Facilities) which was used for stormwater planning and design. APWA 5600 lists exceptions to general requirements and applicability associated with Development in section 5601.3. The intent of these exception is to not require implementation of extensive storm water management systems on low impact and small-scale development projects.

The total site area is approximately 87.90 acres. Based on aerial photography, the existing impervious area is about 26.81 acres or 30.5% impervious. The proposed LSWHS Robotics project will impact approximately 39,005 SF of the property on the southeast side of the building. A net increase of approximately 20,310 SF (0.47 acres) or 0.47% in impervious is expected at project completion. This project exceeds the thresholds listed in section 5601.3 of the APWA manual as described above; however, a waiver to these requirements is justifiable for the following reasons:

- 9,600 SF of these improvements are linear sidewalk and driveways that sheet flow to adjacent lawn areas and/or existing turf swales that exist on the site mimicking the existing condition and continuing to allow for the opportunity to realize benefits from infiltration.
- Based on the site's land use as a school, APWA Section 5600 recommends using a Rational "C" coefficient of 0.75 for schools, which is based on an average impervious coverage of 75%. As noted previously, the impervious coverage before and after the proposed improvements is far below this threshold.

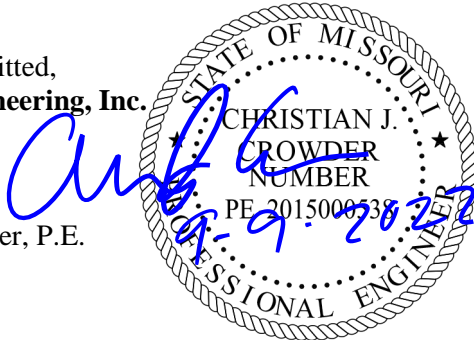
- Added runoff from the proposed improvements that may be captured by the campus storm sewer system is conveyed to the natural channel north of the stadium complex. The expected maximum increase in runoff from this area of campus is 0.42 cfs for the Water Quality Volume (WQv) event, 1.62 cfs for a 10-year event and 2.85 cfs for a 100-year event calculated utilizing the rational method, which are conservative as they do not account for the reductions in volume due to infiltration as noted above. Based on the Small Storm Hydrology Method (Claytor and Schueler 1996), reduction factors can be applied to volumetric runoff from disconnected impervious surfaces that have a pervious flow path at least twice the length of an impervious flow path. As total rainfall increases, the reduction factor will decrease, but the typical reduction factor low-density improvements is approximately 0.23 for the WQv event (1.37"). Most sidewalks and drives are a minimum of 60' from the nearest inlet satisfying this criterion.
- The drainage channel is an unnamed tributary of Mouse Creek upstream of Longview Lake. Based on current aerial photography, the stream corridor downstream of the Lee's Summit West corridor is generally undeveloped or to have been platted and developed with stream buffers as recommended by APWA 5600.

Based on these points, KVE will submit a Design and Construction Manual Construction Modification Request to the City of Lee's Summit, in accordance with sections 1002.A and 1002.B of the City's Design and Construction Manual, to permit construction of the proposed improvements without addressing the increase in impervious surface. The Design and Construction Manual Modification Request, Overall Lee's Summit West Drainage Plan, Project Site Plan, Grading Plan and Demolition Plan are attached for reference.

If you have any questions or require additional information, please do not hesitate to contact me at (913) 894-5150.

Respectfully submitted,  
**Kaw Valley Engineering, Inc.**

Christian J. Crowder, P.E.  
 Project Manager



**Attachments:**

Design and Construction Manual Construction Modification Request  
 Overall Lee's Summit West Drainage Plan  
 Site Plan  
 Demolition Plan  
 Grading Plan

\\VMLX-FILE\Projects\C21\_1242\DSN\Storm\20220909 LSWHS Robotics Stormwater Compliance Letter (R0).docx



# LEE'S SUMMIT MISSOURI

## DESIGN AND CONSTRUCTION MANUAL CONSTRUCTION MODIFICATION REQUEST

PROJECT NAME: Lee's Summit West High School Robotics Project

PREMISE ADDRESS: 2600 SW Ward Rd., Lee's Summit, MO 64063

PERMIT NUMBER: \_\_\_\_\_

OWNER'S NAME: Kyle Gorrell – Lee's Summit School District

TO: Lee's Summit City Engineer

In accordance with Sections 1002.A and 1002.B of the City of Lee's Summit's Design and Construction Manual (DCM), I wish to apply for a modification to one or more specification(s). The following articulates my request for your review and action. (NOTE: Cite specific code sections and engineering justification and drawings.)

See attached Storm Water Management Memo


SUBMITTED BY:

NAME: Christian Crowder ( ) OWNER (x) OWNER'S AGENT

ADDRESS: 14700 West 114<sup>th</sup> Terrace

Tel.# (913)-894-5150

CITY, STATE, ZIP: Lenexa, KS 66215

Email: crowder@kveng.com SIGNATURE: 

FORWARDING MANAGER: \_\_\_\_\_ RECOMMENDATION: ( ) APPROVAL ( ) DENIAL

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

GEORGE BINGER III, P.E. – CITY ENGINEER: ( ) APPROVED ( ) DENIED

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

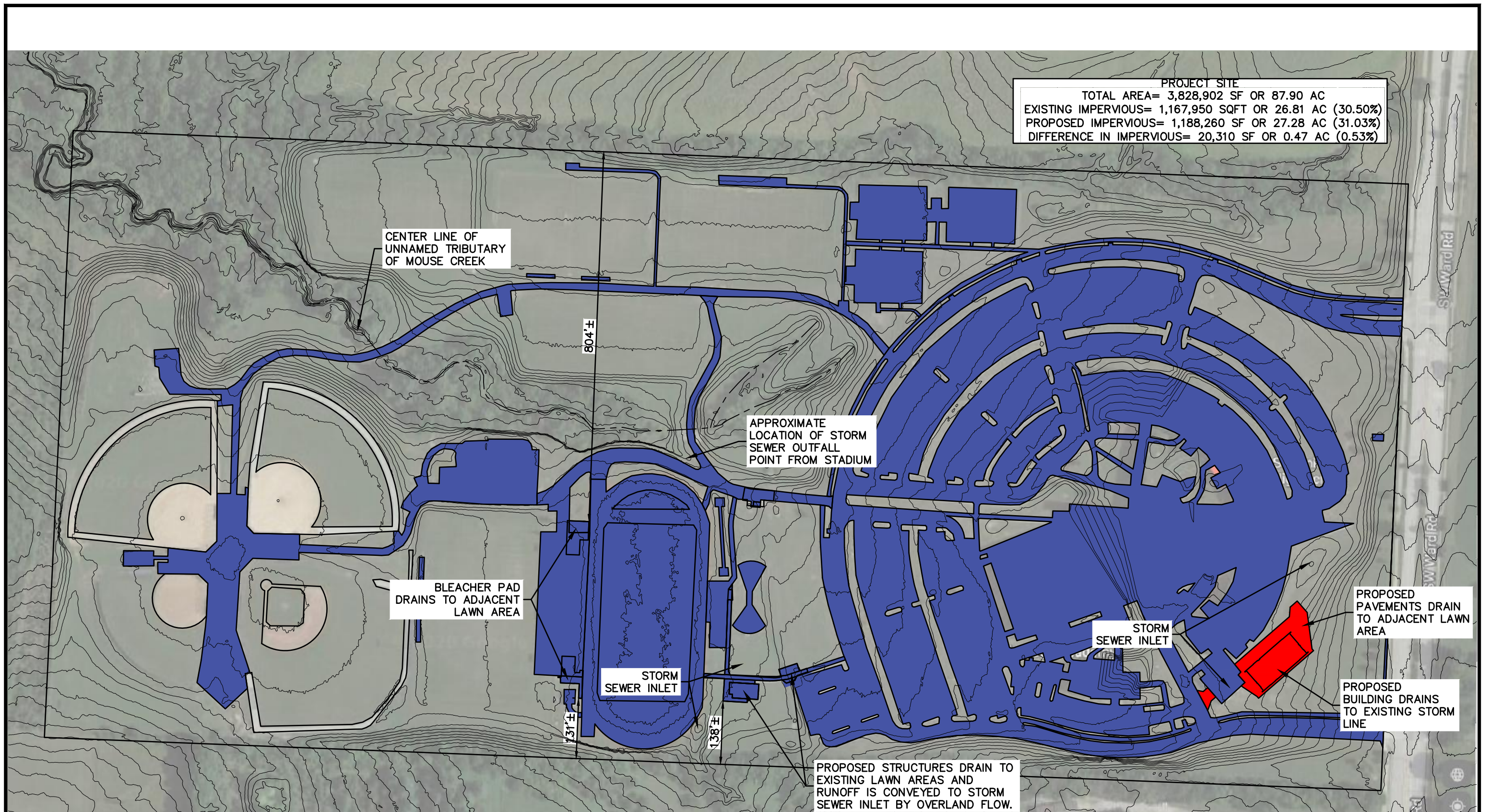
COMMENTS \_\_\_\_\_

**A COPY MUST BE ATTACHED TO THE APPROVED PLANS**

**Development Services**

220 SE Green Street | Lee's Summit, MO 64063 | P: 816.969.1200 | F: 816.969.1221 | cityofLS.net







# LEE'S SUMMIT WEST HIGH SCHOOL - ROBOTICS BUILDING SITE PLAN

2600 SW WARD RD, LEE'S SUMMIT, MO 64082  
SECTION 31 - TOWNSHIP 48 N - RANGE 31 W

COORDINATE TABLE		
NORTHING	EASTING	DESCRIPTION
1000	985053.57	2817526.73 BC
1001	985073.31	2817534.01 EC
1002	985102.35	2817567.56 EC
1003	985091.01	2817577.37 R15
1004	985104.77	2817583.36 EC
1005	985082.95	2817633.45 EC
1006	985079.06	2817636.82 EC
1007	985096.07	2817504.04 BC
1008	985093.72	2817516.34 EC
1009	985256.05	2817703.80 EC
1010	985277.06	2817705.31 EC
1011	985290.38	2817720.70 EC
1012	985265.51	2817742.23 EC
1013	985186.37	2817752.90 EC
1014	985182.48	2817756.27 EC
1016	985070.63	2817514.79 EC
1017	985144.23	2817451.06 EC
1018	985241.24	2817418.81 EC
1019	985244.49	2817428.26 EC
1020	985149.27	2817459.92 EC
1021	985108.69	2817495.06 EC
1022	985036.63	2817549.56 SW
1023	985041.63	2817568.76 SW
1024	985035.89	2817570.24 SW
1025	985030.88	2817550.83 SW
1026	985145.96	2817576.67 SW
1027	985177.71	2817549.17 SW
1028	985145.83	2817723.10 RW
1029	985173.92	2817755.54 RW
1030	985191.71	2817762.27 RW
1031	985288.40	2817749.24 RW
1032	985125.55	2817594.34 EC
1033	985127.53	2817592.63 EC
1034	985162.71	2817633.26 EC
1035	985139.11	2817611.50 B1
1036	985218.76	2817703.47 H1
1037	985176.67	2817739.91 H3
1038	985097.03	2817647.94 B3

PREPARED FOR:  
LEE'S SUMMIT R-7 SCHOOL DISTRICT  
502 SE TRANSPLANT DRIVE,  
LEE'S SUMMIT, MO 64081  
PHONE: (816) 986-2420  
CONTACT: KYLE CORRELL  
EMAIL: kyle.correll@lar7.net

PREPARED BY:  
KAW VALLEY ENGINEERING, INC.  
14700 W 114TH TERR.  
LENEXA, KANSAS 66215  
PHONE: (913) 894-5150  
CONTACT: CHRIS CROWDER  
EMAIL: crowder@kveeng.com

- NOTES:
- 6 DISTURBED AREAS TO BE LANDSCAPED OR SODDED AS NOTED ON L SERIES SHEETS.
  - 13 BOLLARDS (REFER TO ARCHITECTURAL SHEETS)
  - 60 STORM SEWER STRUCTURE (SEE SHEET C690-A)
  - 65 CONTRACTOR TO ADJUST LID TO MATCH ELEVATIONS SHOWN ON C300-A
  - 70 SANITARY SEWER SERVICE STRUCTURE (SEE SHEET C700-A)
  - 80 WATER STRUCTURE (SEE SHEET C800-A)
  - 82 FIRE HYDRANT (SEE SHEET C800-A)

DETAILS - SEE SHEET C190-A  
FOR THE FOLLOWING DETAILS

- 001 STANDARD CONCRETE CURB & GUTTER  
002 ZERO HEIGHT CURB  
040 ASPHALT PAVEMENT  
042 CONCRETE PAVEMENT  
055 CONCRETE SIDEWALK  
130 BOLLARD

- LEGEND:
- CONTROL POINT
  - BENCHMARK
  - PULL BOX (ELECTRIC)
  - YARD LIGHT
  - LIGHT POLE
  - ELECTRIC METER
  - WALL MOUNTED CAMERA
  - BREAKER BOX
  - BHE BUILDING HEIGHT/ELEVATION
  - GAS METER
  - GAS LINE RISER
  - WATER METER
  - WATER LINE GATE VALVE
  - FIRE HYDRANT
  - SPRINKLER CONTROL BOX
  - WATER MANHOLE
  - WALL MOUNTED SIAMSE FIRE CONNECTOR
  - SANITARY SEWER MANHOLE
  - STORM SEWER MANHOLE
  - PVC POLYVINYL CHLORIDE PIPE
  - HDPE HIGH DENSITY POLYETHYLENE
  - STREET/TRAFFIC SIGN
  - DOOR ELEVATION
  - FF FINISH FLOOR ELEVATION
  - B/B BACK TO BACK OF CURB MEASUREMENT
  - E/E EDGE TO EDGE OF ASPHALT
  - C/C EDGE TO EDGE OF CONCRETE
  - L/S LANDSCAPING AREA
  - BOLLARD
  - GATE POST
  - FENCE POST

## PROPOSED LEGEND

- ASPHALT EDGE TREATMENT.  
SEE SECTION ON C190
- CONCRETE CURB AND GUTTER  
CONCRETE CURB AND GUTTER WITH  
REVERSE FLOW
- ASPHALT OVERLAY (040)  
AREAS OF FULL DEPTH ASPHALT (040)  
TURF
- CONCRETE PAVEMENT (042) W/JOINTING  
JOINT (TYP.)
- CONCRETE SIDEWALK (055+005) W/JOINTING  
JOINT (TYP.)
- TYPE 1/TYPE 3 JOINT TYPE  
L LANDING  
R RAMP  
T TRANSITION
- PROJECT AREA (LIMITS OF DISTURBANCE)

## CONSTRUCTION NOTES:

- COORDINATE START-UP AND ALL CONSTRUCTION ACTIVITIES WITH THE LEE'S SUMMIT SCHOOL DISTRICT.
- CONSTRUCTION METHODS AND MATERIALS NOT SPECIFIED IN THESE PLANS ARE TO MEET OR EXCEED THE CURRENT EDITION OF THE KANSAS CITY METROPOLITAN CHAPTER OF AIA SPECIFICATIONS AS ADOPTED AND AMENDED BY THE CITY OF LEE'S SUMMIT, MISSOURI AND MODIFIED AS NOTED ON THESE PLANS.
- ALL CONSTRUCTION WORK AND UTILITY WORK OUTSIDE OF PROPERTY BOUNDARIES SHALL BE PERFORMED IN COOPERATION WITH AND IN ACCORDANCE WITH REGULATIONS OF THE AUTHORITIES CONCERNED.
- PUBLIC CONVENIENCE AND SAFETY: THE CONTRACTOR SHALL CONDUCT THE WORK IN A MANNER THAT WILL INSURE, AS FAR AS PRACTICABLE, THE LEAST OBSTRUCTION TO TRAFFIC, AND SHALL PROVIDE FOR THE CONVENIENCE AND SAFETY OF THE GENERAL PUBLIC AND RESIDENTS ALONG AND ADJACENT TO PUBLIC ROADWAYS. CONTRACTOR IS RESPONSIBLE TO OBTAIN RIGHT-OF-WAY PERMIT FOR CONSTRUCTION OF DRIVE APPROACHES AND SIDEWALKS ALONG SE MILLER STREET AND SE MAIN STREET. CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL AS REQUIRED BY THE CITY OF LEE'S SUMMIT PUBLIC WORKS DEPARTMENT. REFERENCE MUTCD STANDARD DRAWINGS.
- ALL DIMENSIONS SHOWN ARE TO THE BACK OF CURB UNLESS OTHERWISE NOTED.
- ALL SIDEWALK JOINTS WITHIN PROJECT AREA SHALL BE RECALCULATED WITH JOINT SEALANT. REFER TO TYPE 1 AND TYPE 2 JOINTS ON SHEET C190.

## UTILITY STATEMENT:

THE UNDERGROUND UTILITIES SHOWN HEREON ARE FROM FIELD SURVEY INFORMATION OF ONE-CALL LOCATED UTILITIES, FIELD SURVEY INFORMATION OF ABOVE GROUND OBSERVABLE EVIDENCE, AND/OR THE SCALING AND PLOTTING OF EXISTING UTILITY MAPS AND DRAWINGS AVAILABLE TO THE SURVEYOR AT THE TIME OF SURVEY. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. FURTHERMORE, THE SURVEYOR DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES BY EXCAVATION UNLESS OTHERWISE NOTED ON THIS SURVEY. MISSOURI ONE CALL TICKET #220632754

## WARRANTY / DISCLAIMER

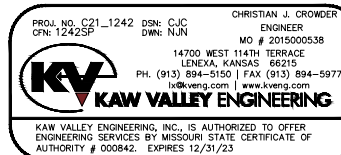
THE DESIGNS REPRESENTED IN THESE PLANS ARE IN ACCORDANCE WITH ESTABLISHED PRACTICES OF CIVIL ENGINEERING FOR THE DESIGN FUNCTIONS AND USES INTENDED BY THE OWNER AT THIS TIME. HOWEVER, NEITHER KAW VALLEY ENGINEERING, INC NOR ITS PERSONNEL CAN OR DO WARRANTY THESE DESIGNS OR PLANS AS CONSTRUCTED, EXCEPT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

## CAUTION - NOTICE TO CONTRACTOR

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

## SAFETY NOTICE TO CONTRACTOR

IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.



multistudio  
the evolution of gould evans

Lee's Summit Robotics,  
Gic & Phys Educaiton

LSN: 901 NE Douglas St., Lee's Summit MO  
64086  
LSW: 2600 SW Ward Rd, Lee's Summit MO  
64082  
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

Project Number: 0121-0100

owner:  
Lee's Summit R-7 School  
301 NE Tudor Road  
Lee's Summit, MO 64086

architect:  
multistudio  
4200 Pennsylvania  
Kansas City, MO 64111  
816.931.6655  
multistudio

civil engineer:  
Kaw Valley Engineering  
14700 West 114th Terrace  
Lenexa, KS 66215  
913.485.0318  
kveng.com

structural engineer:  
Bob D. Campbell &  
4338 Bellevue  
Kansas City, MO 64111  
816.531.4144  
www.bdc-engrs.com

MEP/Code:  
Henderson Engineers  
8345 Lenexa Drive, Suite  
300  
Lenexa, KS 66214  
816.742.5000  
www.hendersonengineers.com

Issue Date: September 5, 2022

Revisions

NUMBER DESCRIPTION DATE

UNLESS A PROFESSIONAL SEAL WITH SIGNATURE AND DATE IS  
AFFIXED, THIS DOCUMENT IS PRELIMINARY AND IS NOT INTENDED FOR  
CONSTRUCTION, RECORDING PURPOSES OR IMPLEMENTATION

Kaw Valley Engineering, Inc.  
Missouri Certificate of Authority: 000842  
Christian Crowder Date: 9/5/2022  
Engineer License No. PE-2015000538

LSW SITE AND  
DIMENSION PLAN

C100-A

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

SITE DATA:  
ZONING: P0 (PLANNED OFFICE)  
SETBACKS: FRONT: ##  
REAR: ##  
SIDE: ##

EXISTING USE: SCHOOL  
PROPOSED USE: SCHOOL  
PROJECT AREA (LIMITS OF DISTURBANCE): 39,005 S.F. - 0.895 AC.

IMPERVIOUS COVERAGE WITHIN PROJECT AREA  
EXISTING: 2,245 S.F.  
PROPOSED: 22,555 S.F.  
INCREASE: 20,310 S.F.

HORIZONTAL AND VERTICAL DATUM:  
PROJECT COORDINATES ORIGINATE FROM AN ASSUMED  
COORDINATE SYSTEM.

## PROJECT BENCH MARK:

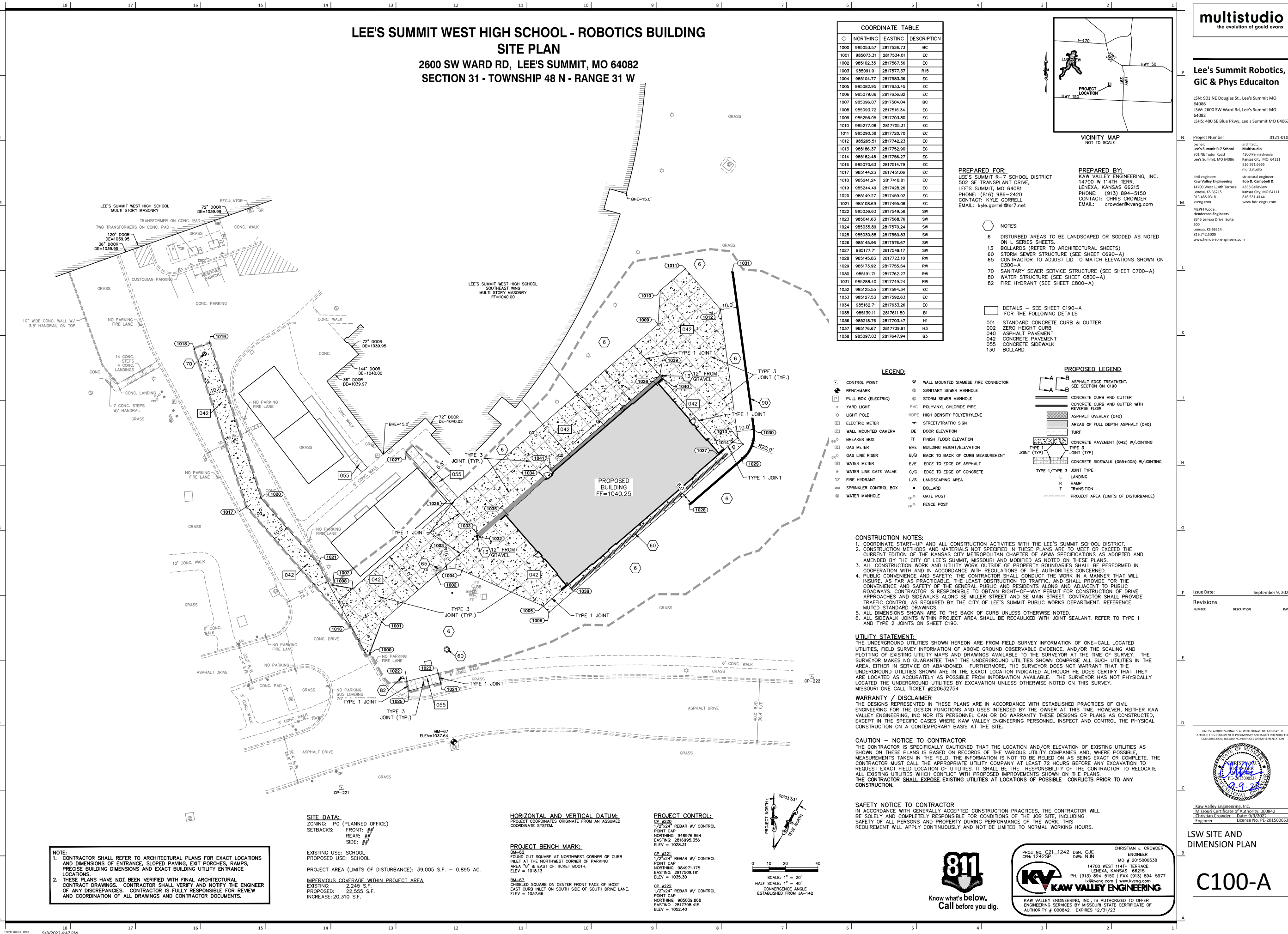
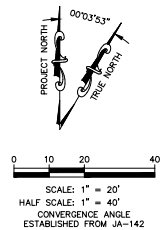
BM-62  
FOUND CUT SQUARE AT NORTHWEST CORNER OF CURB  
INLET AT THE NORTHWEST CORNER OF PARKING  
AREA "G" & EAST OF TICKET BOOTH.  
ELEV = 1018.13  
BM-67  
CHISELED SQUARE ON CENTER FRONT FACE OF MOST  
EAST CURB INLET ON SOUTH SIDE OF SOUTH DRIVE LANE.  
ELEV = 1037.66

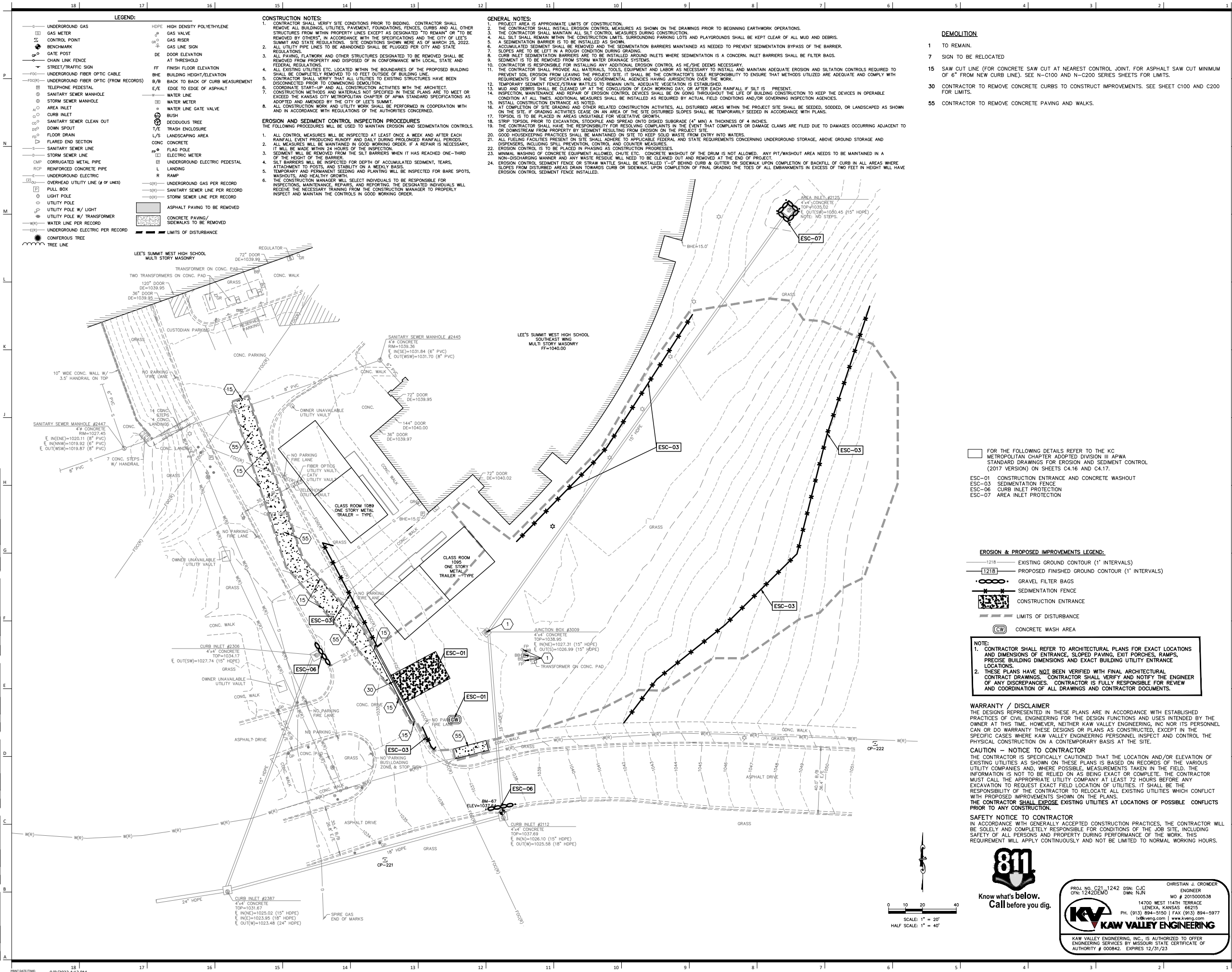
## PROJECT CONTROL:

CP-#220  
1/2"x24" REBAR W/ CONTROL  
POINT CAP  
NORTHING: 948976.984  
EASTING: 2817509.181  
ELEV = 1035.30

CP-#221  
1/2"x24" REBAR W/ CONTROL  
POINT CAP  
NORTHING: 984971.175  
EASTING: 2817509.181  
ELEV = 1035.30

CP-#222  
1/2"x24" REBAR W/ CONTROL  
POINT CAP  
NORTHING: 985039.868  
EASTING: 2817798.415  
ELEV = 1052.40







Lee's Summit Robotics,  
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Project Number: 0121-0100

owner:	Lee's Summit R-7 School	architect:	Multistudio
	301 NE Tudor Road		4200 Pennsylvania
	Lee's Summit, MO 64086		Kansas City, MO 64111
			816.931.6655
			multistudio

civil engineer:	Kaw Valley Engineering	structural engineer:	Bob D. Campbell &
	14700 West 114th Terrace		4338 Bellevue
	Lenexa, KS 66215		Kansas City, MO 64111
	913.485.0318		816.531.4144
	kveng.com		www.bdc-engrs.com

MEP/Code:	Henderson Engineers	structural engineer:	Bob D. Campbell &
	8345 Lenexa Drive, Suite		4338 Bellevue
	300		Kansas City, MO 64111
	Lenexa, KS 66214		816.742.5000
	www.hendersonengineers.com		

## LEGEND (PROPOSED)

22.9 SPOT ELEVATION (ADD 1000),

1000 FINISHED 1' CONTOUR INTERVALS,  
TOP OF PAVEMENT

1000 EXISTING GROUND CONTOUR (1' INTERVALS)

SWALE

LP LOW POINT

HP HIGH POINT

## GRADING NOTES:

- THE CONSTRUCTION AREA SHALL BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL AND ORGANIC MATTER FROM ALL AREAS TO BE OCCUPIED BY BUILDING AND PAVING. TOPSOIL FOR REPLACEMENT ON SLOPES MAY BE STOCKPILED ON SITE. EXCESS TOPSOIL MAY BE WASTED IN FILL SLOPES PROVIDED THAT NO TOPSOIL WILL BE WASTED WITHIN 10 FEET OF THE EDGE OF THE BUILDING OR PARKING AREA. BURNING OF TIMBER WILL NOT BE PERMITTED UNLESS APPROVAL IS OBTAINED FROM GOVERNING OFFICIALS. STRIPPING EXISTING TOPSOIL AND ORGANIC MATTER SHALL BE TO A MINIMUM DEPTH OF 6 INCHES. CONSTRUCTION MANAGER SHALL DESIGNATE LOCATION OF STOCKPILE AREAS DURING CONSTRUCTION. ANY UNAUTHORIZED STOCKPILE SHALL BE REMOVE/RELOCATED AT THE CONTRACTORS EXPENSE.
- AREAS TO RECEIVE FILL SHALL BE SCARIFIED AND THE TOP 12-INCH DEPTH COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D 698 WITH A MOISTURE CONTENT OF  $\pm 3\%$  OF OPTIMUM FOR SOILS WITH A LIQUID LIMIT OF LESS THAN 40 AND 0 TO  $\pm 4\%$  FOR SOILS WITH A LIQUID LIMIT GREATER THAN 40. ANY UNSUITABLE AREAS SHALL BE UNDERCUT AND REPLACED WITH SUITABLE MATERIAL BEFORE ANY FILL MATERIAL CAN BE APPLIED.
- OFF-SITE SOIL MATERIAL FOR USE UNDER BUILDING AND PAVED AREAS SHALL HAVE A PLASTICITY INDEX OF 25 OR LESS, A LIQUID LIMIT OF 45 OR LESS AND CONTAIN NO ROCK LARGER THAN THREE INCHES. OFF-SITE FILL MATERIAL SHALL BE APPROVED BY THE OWNER'S TESTING AGENCY PRIOR TO BRINGING ON SITE.
- EARTHWORK UNDER THE BUILDING, PAVING AND LIGHTLY LOADED STRUCTURAL FEATURES SHALL COMPLY WITH THE CONTRACT DOCUMENTS AND PROJECT GEOTECHNICAL REPORT. THE BUILDING PAD SHALL BE EXCAVATED AS REQUIRED TO ALLOW THE PLACEMENT OF LOW VOLUME CHANGE MATERIAL. REFER TO GEOTECHNICAL REPORT FOR PREPARING BUILDING PAD AND LOW VOLUME CHANGE THICKNESS REQUIREMENTS. OTHER FILL MATERIAL SHALL BE MADE IN LIFTS NOT TO EXCEED EIGHT INCHES DEPTH COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D 698. LVC SOILS SHALL BE COMPACTED AT A MOISTURE CONTENT OF 0 TO  $\pm 4\%$  OF OPTIMUM FOR SOILS WITH A LIQUID LIMIT GREATER THAN 40 AND  $\pm 3\%$  OF OPTIMUM FOR SOILS WITH A LIQUID LIMIT LESS THAN 40. NO ROCK LARGER THAN THREE INCHES IN ANY DIMENSION NOR ANY SHALE SHALL BE PLACED IN THE TOP 24 INCHES OF EMBANKMENT.
- AREAS THAT ARE TO BE CUT TO SUBGRADE LEVELS SHALL BE PROOF ROLLED WITH A LOADED DUMP TRUCK OR SIMILAR APPROVED CONSTRUCTION EQUIPMENT TO DETECT UNSUITABLE SOIL CONDITIONS.
- IN ALL AREAS OF EXCAVATION, IF UNSUITABLE SOIL CONDITIONS ARE ENCOUNTERED, THE OWNER'S ENGINEER SHALL RECOMMEND TO THE OWNER THE METHODS OF UNDERCUTTING AND REPLACEMENT OF PROPERLY COMPACTED, APPROVED FILL MATERIAL. ALL PROOFROLLING AND UNDERCUTTING SHOULD BE PERFORMED DURING A PERIOD OF DRY WEATHER.
- ALL EXCAVATIONS SHALL BE CONSIDERED AS UNCLASSIFIED. REFER TO PROJECT GEOTECHNICAL REPORT.
- ALL DISTURBED SLOPES ARE TO BE 3:1 OR FLATTER.
- ALL SLOPES DISTURBED EXCEEDING 4:1 SHALL BE HYDROSEEDDED, SODDED OR PROTECTED BY EROSION CONTROL BLANKETS THAT WILL PREVENT EROSION AND PLACED SUCH THAT THE SURFACE IS FLUSH WITH SURROUNDING GROUND AND SHAPED TO CHANNEL WATER IN DIRECTIONS INDICATED. SEE GENERAL NOTES ON THIS SHEETS.
- ALL SLOPES AND AREAS DISTURBED BY CONSTRUCTION SHALL BE GRADED SMOOTH AND A MINIMUM OF FOUR INCHES OF TOPSOIL APPLIED. IF ADEQUATE TOPSOIL IS NOT AVAILABLE ON-SITE, THE CONTRACTOR SHALL PROVIDE TOPSOIL, APPROVED BY THE OWNER, AS NEEDED. THE AREA SHALL THEN BE SODDED OR SEEDDED, FERTILIZED, MULCHED, WATERED AND MAINTAINED UNTIL HARDY GRASS GROWTH IS ESTABLISHED IN ALL AREAS. ANY AREAS DISTURBED FOR ANY REASON SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER PRIOR TO FINAL ACCEPTANCE OF THE PROJECT. REFER TO THE NOTES ON THIS SHEET FOR TEMPORARY SEEDING SPECIFICATIONS. REFER TO PROJECT SITE PLAN FOR FINAL STABILIZATION TREATMENTS.
- CONTRACTOR IS TO REMOVE AND DISPOSE OF ALL DEBRIS, RUBBISH AND OTHER MATERIALS RESULTING FROM PREVIOUS AND CURRENT DEMOLITION OPERATIONS.
- THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO AVOID PROPERTY DAMAGE TO ADJACENT PROPERTIES DURING THE CONSTRUCTION PHASES OF THIS PROJECT. THE CONTRACTOR WILL BE HELD SOLELY RESPONSIBLE FOR ANY DAMAGES TO THE ADJACENT PROPERTIES OCCURRING DURING THE CONSTRUCTION PHASES OF THIS PROJECT.
- IT IS NOT THE DUTY OF THE ENGINEER OR THE OWNER TO REVIEW THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES, IN, ON OR NEAR THE CONSTRUCTION SITE AT ANY TIME DURING CONSTRUCTION.
- IF ANY OF THESE NOTES CONFLICT WITH THE PROJECT GEOTECHNICAL REPORT AND ALL ADDENDUMS PREPARED BY CFS ENGINEERS DATED JULY 22, 2022 (CFS PROJECT NO. 22--5547), RECOMMENDATIONS IN GEOTECHNICAL REPORT SHALL GOVERN.

## NOTE:

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

## WARRANTY / DISCLAIMER

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

## CAUTION - NOTICE TO CONTRACTOR

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

## SAFETY NOTICE TO CONTRACTOR

IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.



Know what's below.  
Call before you dig.

PROJ. NO. C21_1242	DSN: CJC	CHRISTIAN J. CROWDER
CPN: 1242CP	DWN: NJN	ENGINEER
		MO # 2015000538
		14700 WEST 114TH TERRACE
		LENEXA, KANSAS 66215
		PH. (913) 894-5150   FAX (913) 894-5977
		kveng.com   www.kveng.com
KAW VALLEY ENGINEERING, INC. IS AUTHORIZED TO OFFER ENGINEERING SERVICES BY MISSOURI STATE CERTIFICATE OF AUTHORITY # 000842. EXPIRES 12/31/23		

Issue Date: September 9, 2022

## Revisions

NUMBER	DESCRIPTION	DATE
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UNLESS A PROFESSIONAL SEAL WITH SIGNATURE AND DATE IS AFFIXED, THIS DOCUMENT IS PRELIMINARY AND IS NOT INTENDED FOR CONSTRUCTION, RECORDING PURPOSES OR IMPLEMENTATION



Kaw Valley Engineering, Inc.  
Missouri Certificate of Authority: 000842  
Christian Crowder Date: 9/9/2022  
Engineer License No. PE-2015000538

LSW GRADING PLAN

C300-A

## NOTES:

- 22 MATCH EXISTING SIDEWALK ELEVATION.
- 23 MATCH EXISTING PAVEMENT ELEVATION.
- 24 MATCH EXISTING CURB ELEVATION.

0 10 20 40  
SCALE: 1" = 20'  
HALF SCALE: 1" = 40'