



KAW VALLEY ENGINEERING, INC.

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Address: 14700 West 114th Terrace
Lenexa, KS 66215

September 9, 2022

C21D1241

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

**RE: STORM WATER MANGEMENT
LEE'S SUMMIT NORTH 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 North (LSNHS) 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 89.71 acres. Based on aerial photography, the existing impervious area is about 29.40 acres or 32.8% impervious. The proposed LSNHS Robotics Building will impact approximately 38,450 SF of the property on the southeast corner of the building. A net increase of approximately 12,972 SF (0.30 acres) or 0.30% 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:

- 5,800 SF of these improvements are linear sidewalk and driveways that sheet flow to adjacent lawn areas. In most instances, the width of the concrete is 6' limiting the space for runoff from these surfaces to concentrate thereby 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.

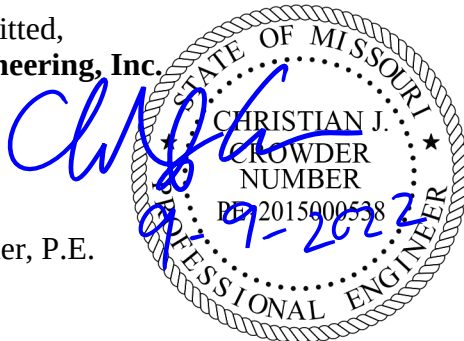
- Added runoff from the proposed improvements that may be captured by the campus storm sewer system is conveyed to the natural channel north of the stadium complex. The expected maximum increase in runoff from this area of campus is 0.3 cfs for the Water Quality Volume (WQv) event, 1.1 cfs for a 10-year event and 2.0 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”).

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 North 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 North Drainage Plan
Site Plan
Demolition Plan
Grading Plan

\\VMLX-FILE\Projects\C21_1241\DSN\Storm\20220909 LSNHS Robotics Stormwater Compliance Letter (R0).docx



LEE'S SUMMIT MISSOURI

DESIGN & CONSTRUCTION MANUAL DESIGN CRITERIA MODIFICATION REQUEST

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

ADDRESS: 901 NE Douglas St., Lee's Summit, MO 64086

PERMIT NUMBER: PL2022374

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

TO: Deputy Director of Public Works / City Engineer

In accordance with the City of Lee's Summit's Design and Construction Manual (DCM), I wish to apply for a modification to one or more provisions of the code as I feel that the spirit and intent of the DCM is observed and the public health, welfare and safety are assured. The following articulates my request for your review and action. (NOTE: Cite specific code sections, justification and all appropriate supporting documents.)

SUBMITTED BY:

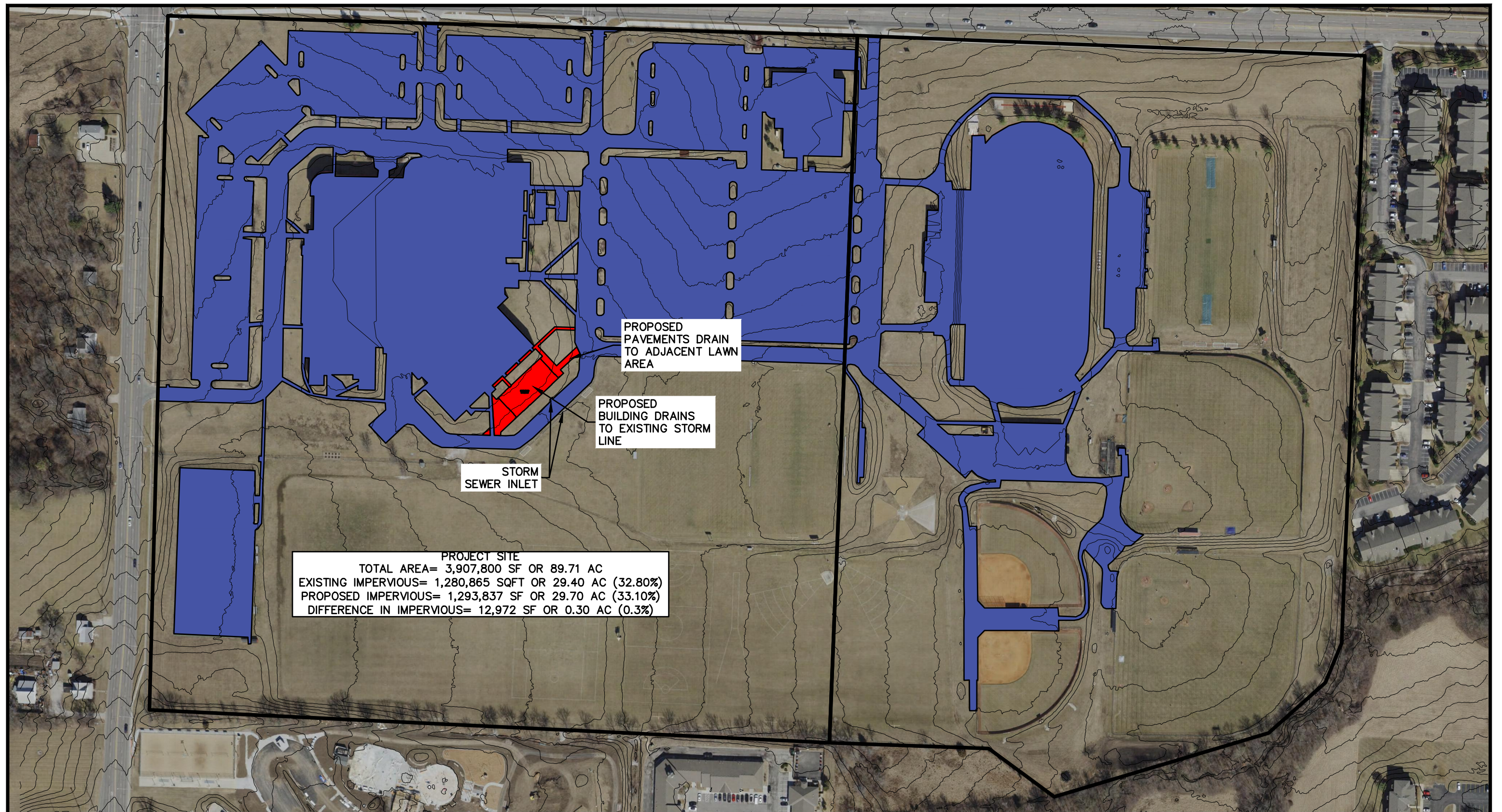
NAME: Christian Crowder () OWNER () OWNER'S AGENT
ADDRESS: 14700 West 114th Terrace PHONE #: (913) 894-5150
CITY, STATE, ZIP: Lenexa, KS 66215
Email: crowder@kveng.com SIGNATURE: 

DEVELOPMENT ENGINEERING MANAGER () APPROVAL () DENIAL
SIGNATURE: _____ DATE: _____

JEFF THORN, P.E.
DEPUTY DIRECTOR OF WATER UTILITIES () APPROVED () DENIAL
SIGNATURE: _____ DATE: _____

GEORGE M. BINGER III, P.E.
DEPUTY DIRECTOR OF PUBLIC WORKS / CITY ENGINEER () APPROVED () DENIAL
SIGNATURE: _____ DATE: _____

COMMENTS: _____



PROJECT SITE
TOTAL AREA= 3,907,800 SF OR 89.71 AC
EXISTING IMPERVIOUS= 1,280,865 SQFT OR 29.40 AC (32.80%)
PROPOSED IMPERVIOUS= 1,293,837 SF OR 29.70 AC (33.10%)
DIFFERENCE IN IMPERVIOUS= 12,972 SF OR 0.30 AC (0.3%)

STORM
SEWER INLET

PROPOSED
PAVEMENTS DRAIN
TO ADJACENT LAWN
AREA

PROPOSED
BUILDING DRAINS
TO EXISTING STORM
LINE

LEGEND:

- EXISTING IMPERVIOUS AREA
- ADDITIONAL IMPERVIOUS AREA FROM PROPOSED IMPROVEMENTS

EXISTING IMPERVIOUS AREA IS ESTIMATED FROM AERIAL TOPOGRAPHY

OVERALL LSN DRAINAGE PLAN

8/24/2022

1241PBASEIMPERV

LEE'S SUMMIT NORTH HIGH SCHOOL - ROBOTICS BUILDING
SITE PLAN
901 NE DOUGLAS ST, LEE'S SUMMIT, MO 64086
SECTION 31 - TOWNSHIP 48 N - RANGE 31 W

LEGEND

- 1/2" x 24" REBAR W/15' x 24" CAP SET (UNLESS NOTED OTHERWISE)
- CURB-CHP
- CUT "+- SET
- (CM) CALCULATED MEASURED VALUE
- (M) MEASURED VALUE
- (D) DEED VALUE
- (P) PLAT VALUE
- CONTROL POINT
- MONUMENT FOUND (ORIGIN UNCERTAIN)
- BENCHMARK
- AIR CONDITIONER
- BREAKER BOX
- BASKETBALL GOAL
- BUILDING HEIGHT/ELEVATION
- BUSH
- SANITARY SEWER CLEAN OUT
- DOWN SPOUT
- CANOPY SUPPORT
- CONIFEROUS TREE
- DOOR ELEVATION (AT THRESHOLD)
- DECIDUOUS TREE
- ELECTRIC BOX
- CONC CONCRETE
- LANDSCAPING AREA
- ELECTRIC METER
- FT FINISH FLOOR ELEVATION
- FIRE HYDRANT
- CHAIN LINK FENCE
- PVC FENCE
- GUY ANCHOR
- HANDICAP SYMBOL
- PARKING STALL COUNT
- HANDICAP SIGN
- LIGHT POLE
- UTILITY POLE
- UTILITY POLE W/ TRANSFORMER
- OVERHEAD UTILITY LINE (# OF LINES)
- PULL BOX
- FIBER OPTIC CABLE SIGN
- STREET/TRAFFIC SIGN
- BUSINESS/BILLBOARD SIGN
- SANITARY SEWER MANHOLE
- WHEEL STOP
- WATER METER
- WALL MOUNTED LIGHT
- WALL MOUNTED CAMERA
- WATER LINE GATE VALVE
- FENCE POST
- WALL MOUNTED VENT
- GRATE INLET

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
- TYPE 1 JOINT (TYP)
- TYPE 3 JOINT (TYP)
- CONCRETE SIDEWALK (055+005) W/Jointing
- TYPE 1/TYPE 3 JOINT TYPE
- L R T
- RAMP
- TRANSITION
- PROJECT AREA (LIMITS OF DISTURBANCE)

SITE DATA:

ZONING: PO (PLANNED OFFICE)

SETBACKS: FRONT: ##'

REAR: ##'

SIDE: ##'

EXISTING USE: SCHOOL

PROPOSED USE: SCHOOL

PROJECT AREA (LIMITS OF DISTURBANCE): 38,450 S.F. - 0.883 AC.

IMPERVIOUS COVERAGE WITHIN PROJECT AREA

EXISTING: 3,080 S.F.

PROPOSED: 16,052 S.F.

INCREASE: 12,972 S.F.

COORDINATE TABLE		
NORTHING	EASTING	DESCRIPTION
1000	1005662.70	2823983.21 BC
1001	1005662.61	2823986.21 BC
1002	1005579.51	2824004.19 BC
1003	1005609.94	2824002.68 SW
1004	1005615.93	2824002.38 SW
1005	1005645.31	2824000.93 SW
1006	1005650.79	2824006.76 SW
1007	1005639.60	2824017.29 EC
1008	1005598.27	2824058.01 EC
1009	1005568.83	2824026.70 BC
1010	1005561.33	2824026.49 BC
1011	1005561.25	2824029.49 BC
1012	1005614.27	2823968.91 SW
1013	1005607.85	2823960.55 SW
1014	1005616.23	2823952.78 SW
1015	1005623.18	2823960.17 SW
1016	1005654.85	2823991.96 SW
1017	1005681.85	2824030.30 SW
1018	1005666.23	2824045.00 SW
1019	1005670.34	2824049.37 SW
1020	1005686.06	2824034.58 SW
1021	1005749.03	2824101.57 SW
1022	1005733.01	2824116.64 SW
1023	1005730.95	2824114.44 EC
1024	1005738.48	2824122.46 SW
1025	1005754.51	2824107.39 SW
1026	1005754.71	2824098.84 SW
1027	1005796.33	2824143.10 SW
1028	1005790.26	2824145.40 SW
1029	1005794.97	2824187.01 SW
1030	1005788.98	2824186.81 SW
1031	1005712.23	2824147.14 EC
1032	1005753.01	2824190.88 EC
1033	1005703.49	2824155.37 EC
1034	1005688.69	2824154.18 EC
1035	1005696.23	2824162.19 EC
1036	1005725.23	2824178.77 EC
1037	1005738.31	2824197.27 BC
1038	1005734.52	2824199.06 BC
1039	1005727.71	2824197.10 BC
1040	1005763.31	2824186.01 EC
1041	1005770.61	2824186.24 SW
1042	1005770.43	2824192.30 BC
1043	1005764.43	2824192.10 BC
1044	1005643.22	2824022.84 B1
1045	1005602.66	2824060.98 B3
1046	1005726.56	2824111.48 H1
1047	1005686.00	2824149.61 H3

PREPARED FOR:

LEE'S SUMMIT R-7 SCHOOL DISTRICT
502 SE TRANSPLANT DRIVE,
LEE'S SUMMIT, MO 64081
PHONE: (816) 986-2420
CONTACT: KYLE GORRELL
EMAIL: kyle.gorrell@sr7.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

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.

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 APWA 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 RECAULKED WITH JOINT SEALANT. REFER TO TYPE 1 AND TYPE 2 JOINTS ON SHEET C190.

DETAILS - SEE SHEET C190-B FOR THE FOLLOWING DETAILS

- 001 STANDARD CONCRETE CURB & GUTTER
- 002 ZERO HEIGHT CURB
- 005 INTEGRAL CURB AND SIDEWALK
- 040 ASPHALT PAVEMENT
- 042 CONCRETE PAVEMENT
- 055 CONCRETE SIDEWALK
- 060 SIDEWALK RAMP

NOTES:

- 6 DISTURBED AREAS TO BE LANDSCAPED OR SODDED AS NOTED ON L SERIES SHEETS.
- 7 CONCRETE STOMP (REFER TO STRUCTURAL SHEETS)
- 10 CONCRETE MOW STRIP
- 13 BOLLARD (REFER TO ARCHITECTURAL SHEETS)
- 60 STORM SEWER STRUCTURE (SEE SHEET C600-B)
- 70 SANITARY SEWER STRUCTURE (SEE SHEET C700-B)
- 80 WATER STRUCTURE (SEE SHEET C800-B)
- 82 FIRE HYDRANT (SEE SHEET C800-B)

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 #220613016

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 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. C21-1241 DSN: CJC
CIN: 1241SF DWN: NJN
ENGINEER
MO # 2015000538
14700 WEST 114TH TERRACE
LENEXA, KANSAS 66215
PH. (913) 894-5150 | FAX (913) 894-5977
kveeng.com | www.kveeng.com

KAW VALLEY ENGINEERING, INC. IS AUTHORIZED TO OFFER ENGINEERING SERVICES BY MISSOURI STATE CERTIFICATE OF AUTHORITY # 000842. EXPIRES 12/31/23

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 District
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
kveeng.com

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

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

Issue Date: September 9, 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: 9/9/2022
Engineer License No. PE-2015000538

LSN SITE AND
DIMENSION PLAN

C100-B

SCALE: 1" = 20'

