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Address: 14700 West 114<sup>th</sup> 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

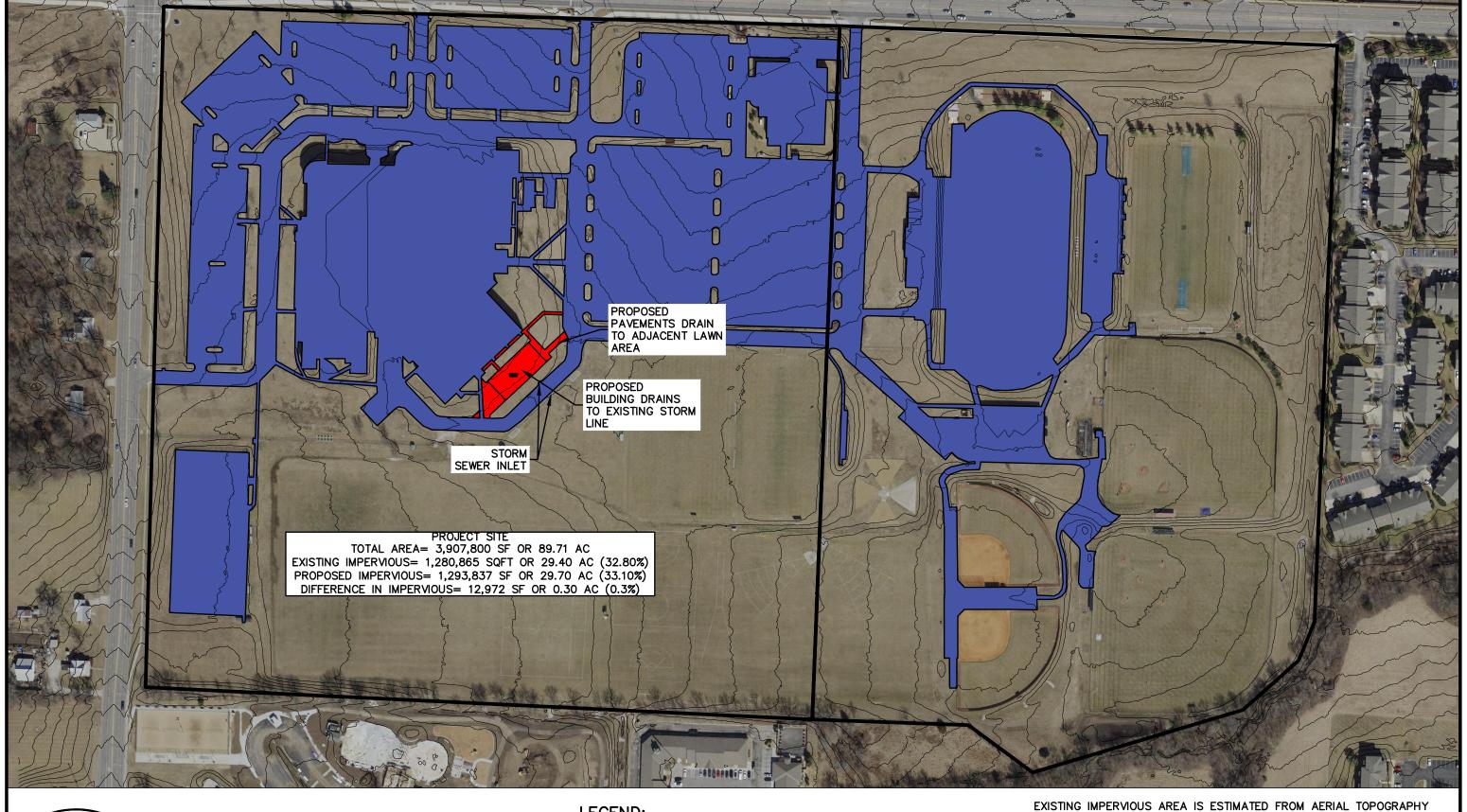
Demolition Plan

**Grading Plan** 



## 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.)			
		see attached summary	
		SUBMITTED BY:  NAME: Christian Crowder  ADDRESS: 14700 West 114 <sup>th</sup> Terrace  CITY, STATE, ZIP: Lenexa, KS 66215  Email:crowder@kveng.com SIGN	PHONE #: (913) 894-5150
		DEVELOPMENT ENGINEERING MANAGER Sr. Staff Engineer SIGNATURE:	(x) APPROVAL ( ) DENIAL DATE: Dec. 2, 2022
		JEFF THORN, P.E. DEPUTY DIRECTOR OF WATER UTILITIES SIGNATURE:	( ) APPROVED ( ) DENIAL DATE:
		GEORGE M. BINGER III, P.E. DEPUTY DIRECTOR OF PUBLIC WORKS / CITY ENGINEER SIGNATURE:	( ) APPROVED ( ) DENIAL DATE:
COMMENTS:			



14700 WEST 114TH TERRACE LENEXA, KANSAS 66215 PH. (913) 894-5150 | FAX (913) 894-5977 |x@kveng.com | www.kveng.com KAW VALLEY ENGINEERING **LEGEND:** 

EXISTING IMPERVIOUS AREA

ADDITIONAL IMPERVIOUS AREA FROM PROPOSED IMPROVEMENTS

OVERALL LSN DRAINAGE PLAN 8/24/2022 1241PBASEIMPERV

