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Address: 14700 West 114th Terrace
Lenexa, KS 66215

December 7, 2020

C20D0496

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

**RE: STORM WATER MANGEMENT MEMO
LEE'S SUMMIT HIGH SCHOOL ATHLETICS PROJECT
ADDENDUM TO LSHS CAMPUS DRAINAGE STUDY
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 Athletic Improvements at the Lee's Summit (LSHS) Stadium in Lee's Summit, Missouri.

As part of this project, KVE is proposing minimal changes to the existing drainage system on the west side of the stadium in order to route infrastructure around the proposed bleacher foundation system. Building roof drains that cannot easily be connected to the existing or modified storm sewer system will be collected in downspout collectors and piped to the adjacent lawn areas. Each roof drain discharge pipe is proposed to be capped with a pop-up emitter to reduce the potential for erosion. The pop-up emitter will be set on an open bottom drainage basin installed on an aggregate base to permit excess water in the system to drain into the surrounding soil. The overall drainage pattern around the stadium is not being altered by this project.

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 exceptions is to not require implementation of extensive storm water management systems on low impact and small-scale development projects.

The proposed LSHS Athletics project will impact approximately 52,650 SF of the property on both the west and east sides of the stadium. The change in landcover associated with the LSHS Athletics Project is documented in Table 1.

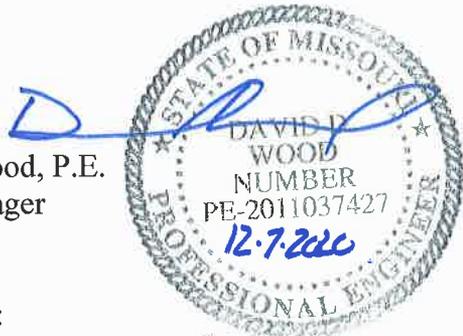
Table 1 - Change in Land Cover LSHS Athletics Project				
Description	Project Area (Sq. Ft)	Area (ac)	Impervious Area (SF)	% Impervious
Existing	52,650	1.21	44,940	85.36%
Proposed			45,220	85.89%
Difference			280	0.53%

A net increase of approximately 280 SF or .53% in impervious coverage as sampled across the 52,650 SF defined project area is expected at project completion. Due to the disconnected and isolated nature of the proposed impervious coverage increases and the project being located upstream of an existing detention basin to the northwest of the stadium, KVE will request that the City of Lee's Summit permits the proposed improvements without addressing the nominal increase in impervious surface associated with this project.

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.

David D. Wood, P.E.
 Project Manager



Attachments:
 Site Plan, Demolition Plan, Grading Plan, Drainage Plans

\\VMLX-FILE\Projects\C20_0496\DSN\Storm\20201207 LSHS Athletics Stormwater Compliance Letter.docx

LEE'S SUMMIT HIGH SCHOOL SITE PLAN

400 SE BLUE PARKWAY, LEE'S SUMMIT, MO 64063
SECTION 8 - TOWNSHIP 47 N - RANGE 31 W

PREPARED FOR:
LEE'S SUMMIT SCHOOL DISTRICT
302 E TRANSPORT RD
LEE'S SUMMIT, MO 64081
PHONE: (816) 986-2421
CONTACT: DAVID WOOD
EMAIL: kyle.gorrell@sr7.net

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

LEGEND:

	AIR CONDITIONER		DUCTILE IRON PIPE
	WALL MOUNTED ELECTRICAL OUTLET		HIGH DENSITY POLYETHYLENE
	UNDERGROUND GAS		WALL MOUNTED CAMERA
	GAS METER		GAS VALVE
	CONTROL POINT		GAS RISER
	BENCHMARK		GAS LINE SIGN
	GATE POST		DOOR ELEVATION
	CHAIN LINK FENCE		AT THRESHOLD
	WOOD FENCE		FINISH FLOOR ELEVATION
	BOLLARD		BUILDING HEIGHT/ELEVATION
	STREET/TRAFFIC SIGN		BACK TO BACK OF CURB MEASUREMENT
	PAINTED DIRECTIONAL ARROW		EDGE TO EDGE OF ASPHALT
	TURN LANE DIRECTION		WATER LINE
	HANDICAP SYMBOL		WATER LINE GATE VALVE
	PARKING STALL COUNT		FIRE HYDRANT
	HANDICAP SIGN		SPRINKLER CONTROL BOX
	HRPMP		WATER MANHOLE
	WHEEL STOP		SIAMESE FIRE CONNECTOR
	UNDERGROUND FIBER OPTIC CABLE		MAIL BOX
	UNDERGROUND FIBER OPTIC (FROM RECORDS)		CONCRETE JOINT/CUT LINE
	TELEPHONE PEDESTAL		AREA INLET
	SANITARY SEWER MANHOLE		CURB INLET
	STORM SEWER MANHOLE		SANITARY SEWER CLEAN OUT
	AREA INLET		DOWN SPOUT
	CURB INLET		FLARED END SECTION
	SANITARY SEWER CLEAN OUT		SANITARY SEWER LINE
	DOWN SPOUT		STORM SEWER LINE
	FLOOR DRAIN		CORRUGATED METAL PIPE
	FLARED END SECTION		REINFORCED CONCRETE PIPE
	SANITARY SEWER LINE		VITRIPPED CLAY PIPE
	STORM SEWER LINE		UNDERGROUND ELECTRIC
	CORRUGATED METAL PIPE		OVERHEAD UTILITY LINE (OF LINES)
	REINFORCED CONCRETE PIPE		PULL BOX
	VITRIPPED CLAY PIPE		LIGHT POLE
	UNDERGROUND ELECTRIC		UTILITY POLE
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Lee's Summit R7 District
Athletics Facilities

Lee's Summit High School
400 SE Blue Parkway
Lee's Summit, MO 64063

owner:
Lee's Summit R7 School District
301 NE Tudor Road
Lee's Summit, MO 64086

architect:
Gould Evans
4200 Pennsylvania Avenue
Kansas City, MO 64111
816.931.6555 voice
www.gould-evans.com

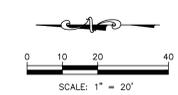
structural engineer:
Bob D. Campbell & Company, Inc.
4338 Bellevue
Kansas City, MO 64111
816.531.4144

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

mechanical/electrical engineer:
Henderson Engineering
1801 Main St
Kansas City, MO 64108
816.663.9700



Know what's below.
Call before you dig.



- CONSTRUCTION NOTES:**
- CONTRACTOR SHALL VERIFY SITE CONDITIONS PRIOR TO BIDDING. CONTRACTOR SHALL REMOVE ALL BUILDINGS, UTILITIES, PAVEMENT, FOUNDATIONS, FENCES, CURBS AND ALL OTHER STRUCTURES FROM WITHIN PROPERTY LINES EXCEPT AS DESIGNATED "TO REMAIN" OR "TO BE REMOVED BY OTHERS", IN ACCORDANCE WITH THE SPECIFICATIONS AND THE CITY OF LEE'S SUMMIT AND STATE REGULATIONS. SITE CONDITIONS SHOWN WERE AS OF MARCH 19, 2020.
 - ALL UTILITY PIPE LINES TO BE ABANDONED SHALL BE PLUGGED PER CITY AND STATE REGULATIONS.
 - DRIVES, PAVING AND OTHER STRUCTURES SHALL BE REMOVED AS NECESSARY TO CONSTRUCT IMPROVEMENTS SHOWN ON THESE PLANS. REMOVAL AND DISPOSAL SHALL BE IN CONFORMANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.
 - ALL EXISTING UTILITIES ETC. LOCATED WITHIN THE BOUNDARIES OF THE PROPOSED BUILDING SHALL BE COMPLETELY REMOVED TO 10 FEET OUTSIDE OF BUILDING LINE.
 - ALL HAZARDOUS ASBESTOS AND OTHER HAZARDOUS MATERIALS MUST BE IDENTIFIED AND REMOVED PRIOR TO ANY BUILDING DEMOLITION, IN STRICT CONFORMANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.
 - CONTRACTOR SHALL VERIFY THAT ALL UTILITIES TO EXISTING STRUCTURES HAVE BEEN DISCONNECTED PRIOR TO COMMENCING DEMOLITION.
 - EXISTING POWER LINES AND APPURTENANCES TO BE RELOCATED. COORDINATE WITH SITE ELECTRICAL PLAN.
 - ALL SLOPES THAT ARE 4:1 OR STEEPER MUST BE FULLY OR PERMANENTLY STABILIZED WITHIN TWO WEEKS OF FINAL GRADING.
 - PROVIDE CONSTRUCTION FENCING AS NOTED ON CM'S SITE LOGISTIC PLAN.
 - WORK ON WEST SIDE OF THE PROJECT DEMARCATION LINE TO BE SCHEDULED TO MAINTAIN ACCESS TO RECEIVING DOOR AND TRASH PICK UP. PAVING REMOVAL MAY NEED TO BE STAGED. COORDINATE WITH LEE'S SUMMIT SCHOOL DISTRICT AND JE DUNN'S CONSTRUCTION SCHEDULE.
 - CONTRACTOR TO PROVIDE CONCRETE WASHOUT AND CONSTRUCTION ENTRANCE FOR PROJECT. COORDINATE FINAL LOCATION INFIELD WITH SCHOOL DISTRICT TO AVOID DISRUPTION TO PEDESTRIAN TRACK ACCESS (SEE CONSTRUCTION NOTE 5 ON SHEET H-C100).

DEMOLITION

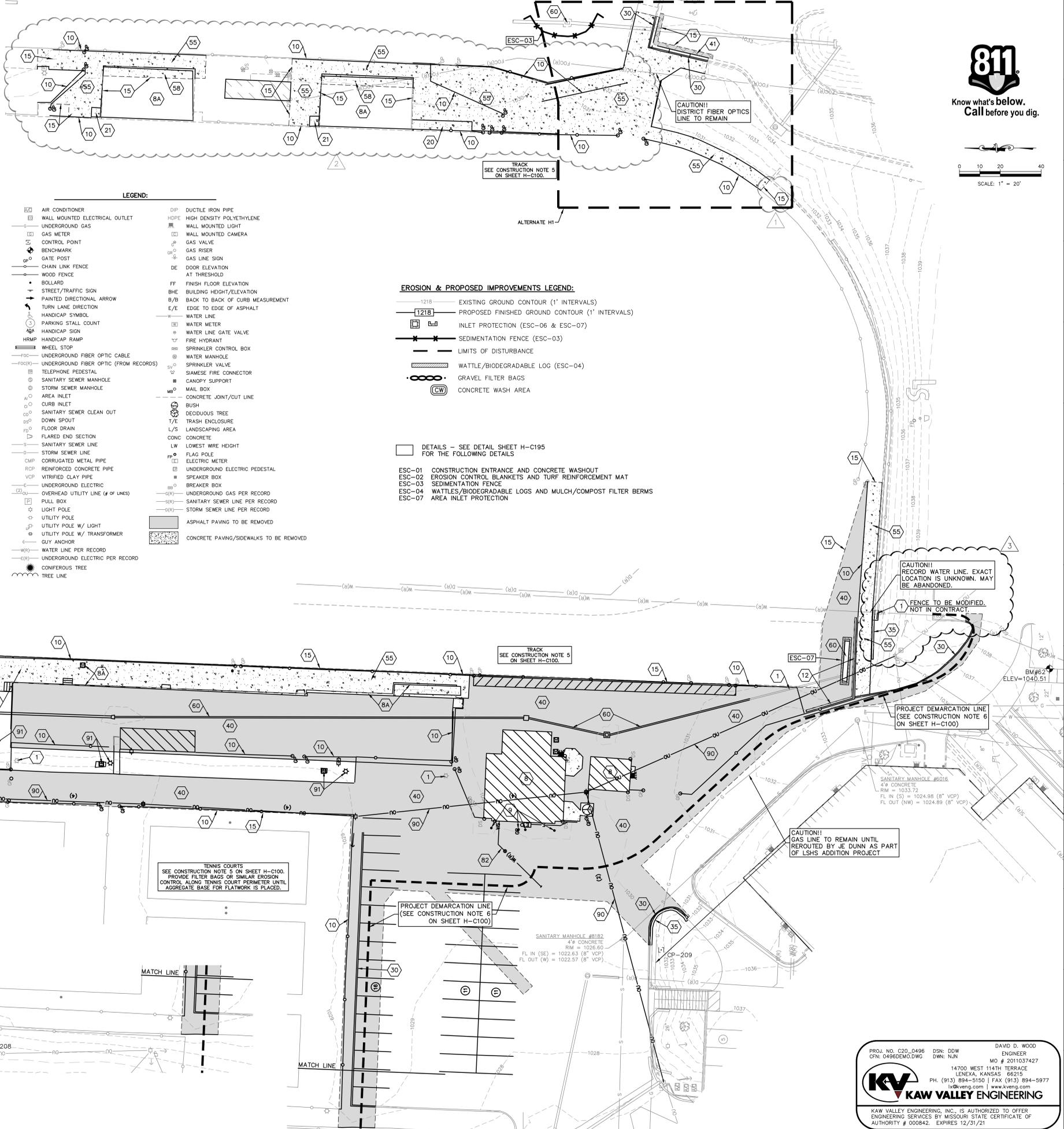
- TO REMAIN.
- REMOVE BUILDING AND BUILDING EQUIPMENT. (COORDINATE WITH ARCHITECTURAL AND MEP PLAN)
- REMOVE EXISTING BLEACHERS AND BLEACHER EQUIPMENT.
- BOLLARD TO BE REMOVED.
- RAILINGS, FENCE AND FENCE POST TO BE REMOVED AS NECESSARY TO CONSTRUCT IMPROVEMENTS.
- RETAINING WALL TO BE REMOVED.
- SAW CUT LINE (FOR CONCRETE SAW CUT AT NEAREST CONTROL JOINT. FOR ASPHALT SAW CUT MINIMUM OF 6" FROM NEW CURB LINE). SEE SHEET H-C100 FOR APPROXIMATE LIMITS.
- CONTRACTOR TO REMOVE BLEACHER RAMP.
- CONTRACTOR TO REMOVE BLEACHER STEPS.
- CONTRACTOR TO REMOVE CONCRETE CURBS TO CONSTRUCT IMPROVEMENTS. SEE SHEET C100 FOR LIMITS.
- CONTRACTOR TO REMOVE MODULAR BLOCK RETAINING WALL AS REQUIRED TO CONSTRUCT IMPROVEMENTS.
- CONTRACTOR TO REMOVE ASPHALT PAVING AS REQUIRED TO CONSTRUCT IMPROVEMENTS.
- CONTRACTOR TO MILL ASPHALT SURFACE, 2' OUTSIDE ASPHALT REMOVAL. REFER TO SECTIONS A-A AND B-B ON SHEETS C190
- CONTRACTOR TO REMOVE CONCRETE PAVING AND WALKS.
- CONTRACTOR TO REMOVE EAST 5 FEET OF EXISTING BLEACHER PAD.
- CONTRACTOR TO MODIFY, REMOVE AND/OR REROUTE STORM SEWER. REFER TO H-C600 SHEETS FOR ADDITIONAL INFORMATION.
- CONTRACTOR TO MODIFY, REMOVE AND/OR REROUTE EXISTING SANITARY SEWER PRIOR TO CONSTRUCTING ADDITION. REFER TO C500 AND P SERIES SHEETS FOR ADDITIONAL INFORMATION.
- CONTRACTOR TO DISCONNECT AND REMOVE EXISTING DOMESTIC SERVICE LINE ROUTED EXTERIOR TO THE BUILDING AS NECESSARY TO CONSTRUCT THE PROPOSED BUILDING. REMAINING PIPE MAY BE ABANDONED AS APPLICABLE. REFER TO H-C500 SHEETS AND MEP PLANS FOR ADDITIONAL INFORMATION.
- REMOVE OVERHEAD ELECTRIC AND POLES. REFER TO SITE ELECTRICAL PLAN AS APPLICABLE.
- REMOVE/REPLACE SITE LIGHTING AND ELECTRICAL FEEDS AS REQUIRED (ROUTING UNKNOWN). REFER TO SITE ELECTRICAL PLAN.

NOTE:
THIS EROSION CONTROL PLAN HAS BEEN PLACED IN THE CITY'S FILE FOR THIS PROJECT. THE PLAN APPEARS TO FULFILL THE MISSOURI DEPARTMENT OF NATURAL RESOURCES TECHNICAL CRITERIA AND THE CRITERIA FOR EROSION CONTROL AND REQUIREMENTS OF THE CITY. I UNDERSTAND THAT ADDITIONAL EROSION CONTROL MEASURES MAY BE NEEDED IF UNFORESEEN EROSION PROBLEMS ARISE OR IF THE SUBMITTED PLAN DOES NOT FUNCTION AS INTENDED. THE REQUIREMENTS OF THIS PLAN SHALL RUN WITH THE LAND AND BE THE OBLIGATION OF THE LAND OWNER UNTIL SUCH TIME AS THE PLAN IS PROPERLY COMPLETED, MODIFIED OR VOIDED.

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.



- LEGEND:**
- AIR CONDITIONER
 - WALL MOUNTED ELECTRICAL OUTLET
 - UNDERGROUND GAS
 - GAS METER
 - CONTROL POINT
 - BENCHMARK
 - GATE POST
 - CHAIN LINK FENCE
 - WOOD FENCE
 - BOLLARD
 - STREET/TRAFFIC SIGN
 - PAINTED DIRECTIONAL ARROW
 - TURN LANE DIRECTION
 - HANDICAP SYMBOL
 - PARKING STALL COUNT
 - HANDICAP SIGN
 - HRMP
 - WHEEL STOP
 - UNDERGROUND FIBER OPTIC CABLE
 - UNDERGROUND FIBER OPTIC (FROM RECORDS)
 - TELEPHONE PEDESTAL
 - SANITARY SEWER MANHOLE
 - STORM SEWER MANHOLE
 - AREA INLET
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 - SANITARY SEWER CLEAN OUT
 - FLOOR DRAIN
 - FLARED END SECTION
 - SANITARY SEWER LINE
 - STORM SEWER LINE
 - CORRUGATED METAL PIPE
 - REINFORCED CONCRETE PIPE
 - VITRIFIED CLAY PIPE
 - UNDERGROUND ELECTRIC
 - OVERHEAD UTILITY LINE (# OF LINES)
 - PULL BOX
 - LIGHT POLE
 - UTILITY POLE
 - UTILITY POLE W/ LIGHT
 - UTILITY POLE W/ TRANSFORMER
 - GUY ANCHOR
 - WATER LINE PER RECORD
 - UNDERGROUND ELECTRIC PER RECORD
 - CANIFEROUS TREE
 - TREE LINE
 - DIP
 - DUCTILE IRON PIPE
 - HDPPE
 - HIGH DENSITY POLYETHYLENE
 - WALL MOUNTED LIGHT
 - WALL MOUNTED CAMERA
 - GAS VALVE
 - GAS RISER
 - GAS LINE SIGN
 - DOOR ELEVATION AT THRESHOLD
 - DE
 - FINISH FLOOR ELEVATION
 - BHE
 - BUILDING HEIGHT/ELEVATION
 - B/B
 - BACK TO BACK OF CURB MEASUREMENT
 - E/E
 - EDGE TO EDGE OF ASPHALT
 - WATER LINE
 - WATER METER
 - WATER LINE GATE VALVE
 - FIRE HYDRANT
 - SPRINKLER CONTROL BOX
 - WATER MANHOLE
 - SPRINKLER VALVE
 - SIAMSESE FIRE CONNECTOR
 - CANOPY SUPPORT
 - MAIL BOX
 - CONCRETE JOINT/CUT LINE
 - BUSH
 - DECIDUOUS TREE
 - T/E
 - TRASH ENCLOSURE
 - L/S
 - LANDSCAPING AREA
 - CONC
 - CONCRETE
 - LW
 - LOWEST WIRE HEIGHT
 - FP
 - FLAG POLE
 - ELECTRIC METER
 - UNDERGROUND ELECTRIC PEDESTAL
 - SPEAKER BOX
 - BREAKER BOX
 - UNDERGROUND GAS PER RECORD
 - SANITARY SEWER LINE PER RECORD
 - STORM SEWER LINE PER RECORD
 - ASPHALT PAVING TO BE REMOVED
 - CONCRETE PAVING/SIDEWALKS TO BE REMOVED

- EROSION & PROPOSED IMPROVEMENTS LEGEND:**
- 1218
 - EXISTING GROUND CONTOUR (1' INTERVALS)
 - PROPOSED FINISHED GROUND CONTOUR (1' INTERVALS)
 - INLET PROTECTION (ESC-06 & ESC-07)
 - SEDIMENTATION FENCE (ESC-03)
 - LIMITS OF DISTURBANCE
 - WATTLE/BIODEGRADABLE LOG (ESC-04)
 - GRAVEL FILTER BAGS
 - CONCRETE WASH AREA
 - DETAILS - SEE DETAIL SHEET H-C195 FOR THE FOLLOWING DETAILS
 - ESC-01 CONSTRUCTION ENTRANCE AND CONCRETE WASHOUT
 - ESC-02 EROSION CONTROL BLANKETS AND TURF REINFORCEMENT MAT
 - ESC-03 SEDIMENTATION FENCE
 - ESC-04 WATTLES/BIODEGRADABLE LOGS AND MULCH/COMPOST FILTER BERMS
 - ESC-07 AREA INLET PROTECTION

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Kaw Valley Engineering, Inc.
Missouri Certificate of Authority: 000842
David Wood Date: 09/28/2020
Engineer License No. PE-2011037427

REVISIONS

Number	DESCRIPTION	DATE
1	Addendum 1	10/13/20
2	Addendum 2	10/23/20
3	PRO05	12/07/20

PROJECT NO: 0119-0100
DATE: SEPTEMBER 28, 2020

PROJ. NO. C20_0496 DSN: DDW DAVID D. WOOD ENGINEER
CFN: 0496DEMO.DWG DWN: NJN MO # 2011037427
14700 WEST 114TH TERRACE
LENEXA, KANSAS 66215
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www.kveng.com | www.kveng.com

KV KAW VALLEY ENGINEERING

KAW VALLEY ENGINEERING, INC. IS AUTHORIZED TO OFFER ENGINEERING SERVICES BY MISSOURI STATE CERTIFICATE OF AUTHORITY # 000842. EXPIRES 12/31/21

DEMOLITION AND EROSION CONTROL PLAN
H-C200
BID SET

**Lee's Summit R7 District
Athletics Facilities**

Lee's Summit High School
400 SE Blue Parkway
Lee's Summit, MO 64063

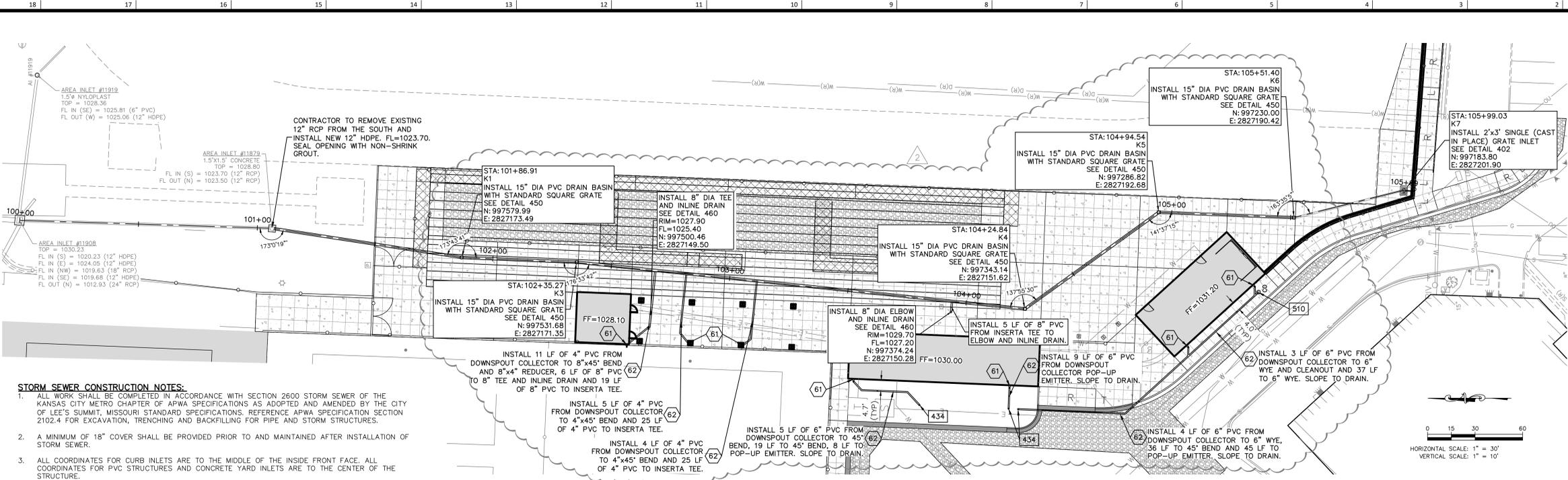
owner:
Lee's Summit R7 School District
301 NE Tudor Road
Lee's Summit, MO 64086

architect:
Gould Evans
4200 Pennsylvania Avenue
Kansas City, MO 64111
816.931.6555 voice
www.gould-evans.com

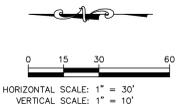
structural engineer:
Bob D. Campbell & Company, Inc.
4338 Bellevue
Kansas City, MO 64111
816.531.4144

civil engineer:
Kaw Valley Engineering
14700 West 14th Terrace
Lenexa, KS 66215
913.485.0318

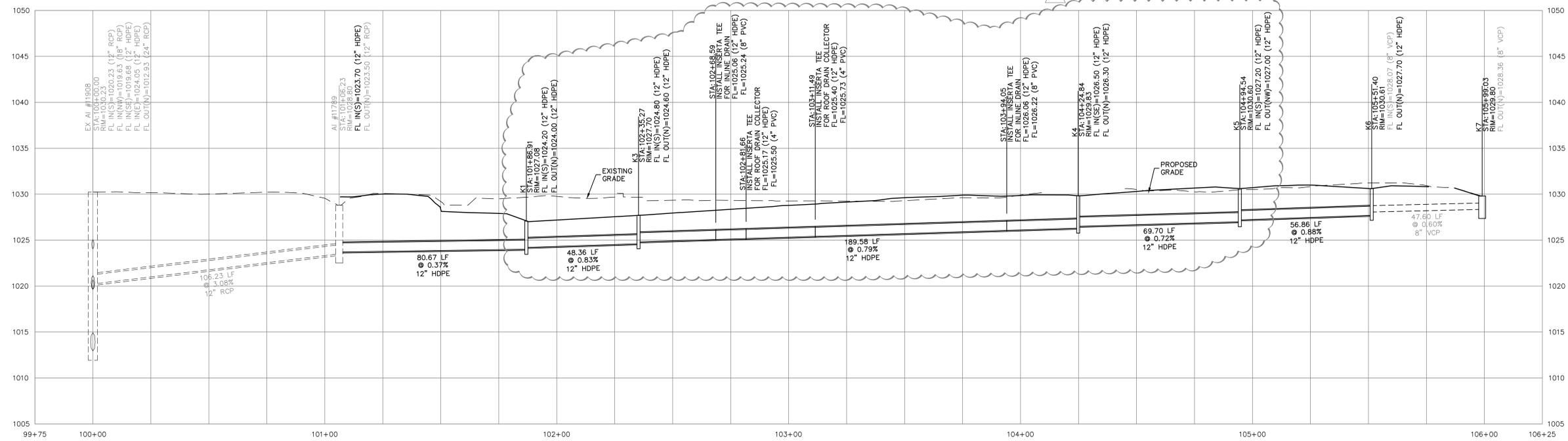
mechanical/electrical engineer:
Henderson Engineers
1801 Main St
Kansas City, MO 64108
816.663.3700



- STORM SEWER CONSTRUCTION NOTES:**
- ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH SECTION 2600 STORM SEWER OF THE KANSAS CITY METRO CHAPTER OF APWA SPECIFICATIONS AS ADOPTED AND AMENDED BY THE CITY OF LEE'S SUMMIT, MISSOURI STANDARD SPECIFICATIONS, REFERENCE APWA SPECIFICATION SECTION 2102.4 FOR EXCAVATION, TRENCHING AND BACKFILLING FOR PIPE AND STORM STRUCTURES.
 - A MINIMUM OF 18" COVER SHALL BE PROVIDED PRIOR TO AND MAINTAINED AFTER INSTALLATION OF STORM SEWER.
 - ALL COORDINATES FOR CURB INLETS ARE TO THE MIDDLE OF THE INSIDE FRONT FACE. ALL COORDINATES FOR PVC STRUCTURES AND CONCRETE YARD INLETS ARE TO THE CENTER OF THE STRUCTURE.
 - ALL JUNCTION BOXES/AREA INLETS HAVE ONE COORDINATE PROVIDED AT THE CENTER OF STRUCTURE. SEE PLAN FOR CLARIFICATION. ORIENT STRUCTURES PARALLEL TO ADJACENT CURB, BUILDING OR WALL FACE, UNLESS NOTED OTHERWISE.
 - RIM ELEVATION IS PROVIDED AT COORDINATE, UNLESS NOTED OTHERWISE. CONTRACTOR TO ADJUST ELEVATION OF RIM AS REQUIRED TO MATCH SLOPE OF ADJACENT CURB LINE. REFER TO DRAINING PLAN (C300 SERIES SHEETS).
 - ALL EXISTING UTILITIES INDICATED ON THE DRAWING ARE ACCORDING TO THE BEST INFORMATION AVAILABLE TO THE ENGINEER, HOWEVER, ALL UTILITIES ACTUALLY EXISTING MAY NOT BE SHOWN. UTILITIES DAMAGED THROUGH THE NEGLIGENCE OF THE CONTRACTOR TO OBTAIN THE LOCATION OF SAME SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT THEIR EXPENSE.
 - ALL BACKFILL SHALL BE COMPACTED TO 95 PERCENT STANDARD DENSITY AT OPTIMUM MOISTURE.
 - ALL EXCAVATION BENEATH THE STREETS AND PARKING LOTS FOR DRAINAGE PIPE LESS THAN 4'-0" IN DIAMETER SHALL BE BACKFILLED WITH AGGREGATE TO FOUR FEET (4') PAST BACK OF CURB IN ACCORDANCE WITH APWA SPECIFICATIONS SECTION 2102.4J.
 - RELOCATION OF ANY WATER LINE, SEWER LINE OR SERVICE LINE THEREOF REQUIRED FOR THE CONSTRUCTION OF THIS PROJECT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE AT THEIR EXPENSE.
 - IF PRECAST STORM STRUCTURES ARE TO BE USED ON THIS PROJECT, THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND HAVE THEM APPROVED BY THE ENGINEER PRIOR TO FABRICATION OF THE STRUCTURES. FAILURE TO DO SO SHALL BE CAUSE FOR REJECTION.
 - ALL HDPE PIPE JOINTS SHALL BE WATER TIGHT.



- DETAILS SEE SHEET C690 AND C691
- 402 SINGLE GRATE INLET
 - 433 DOWNSPOUT COLLECTOR
 - 434 POP-UP EMITTER
 - 450 POP DRAIN BASIN - CONTRACTOR TO ORDER INLETS ONE FOOT TALLER THAN PLAN ELEVATION SO INLET CAN BE FIELD ADJUSTED
 - 460 INLINE DRAIN
 - 510 CLEANOUT
- NOTES**
- 61 DOWNSPOUT COLLECTOR (SEE DETAIL 433 ON SHEET W-C901)
 - 62 PVC SCH-40 ROOF DRAIN SLOPE TO DRAIN (1% MINIMUM FOR 6" ROOF DRAINS, 2% MINIMUM FOR 4" ROOF DRAINS)



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David Wood Date: 09/28/2020
Engineer License No. PE-2011037427

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2	Addendum 2	10/23/20
3	PRO05	12/07/20

PROJECT NO: 0119-0100
DATE: SEPTEMBER 28, 2020

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.

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.



PROJ. NO. C20_0496 DSN: DDW DAVID D. WOOD ENGINEER
CFN: 0496DPP.DWG DWN: NJN MO # 2011037427
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PH. (913) 894-5150 | FAX (913) 894-5977
kv@kveeng.com | www.kveeng.com

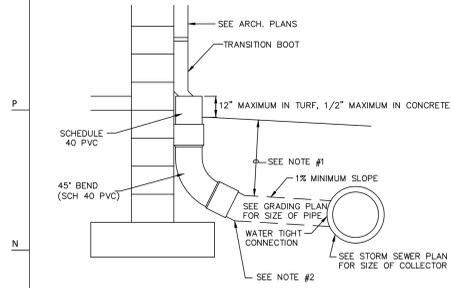
KAW VALLEY ENGINEERING

KAW VALLEY ENGINEERING, INC. IS AUTHORIZED TO OFFER ENGINEERING SERVICES BY MISSOURI STATE CERTIFICATE OF AUTHORITY # 000842. EXPIRES 12/31/21

**STORM SEWER
PLAN AND PROFILE**

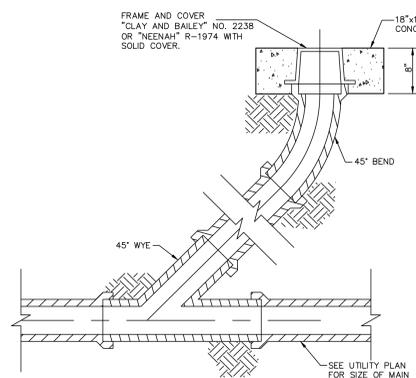
H-C600

BID SET

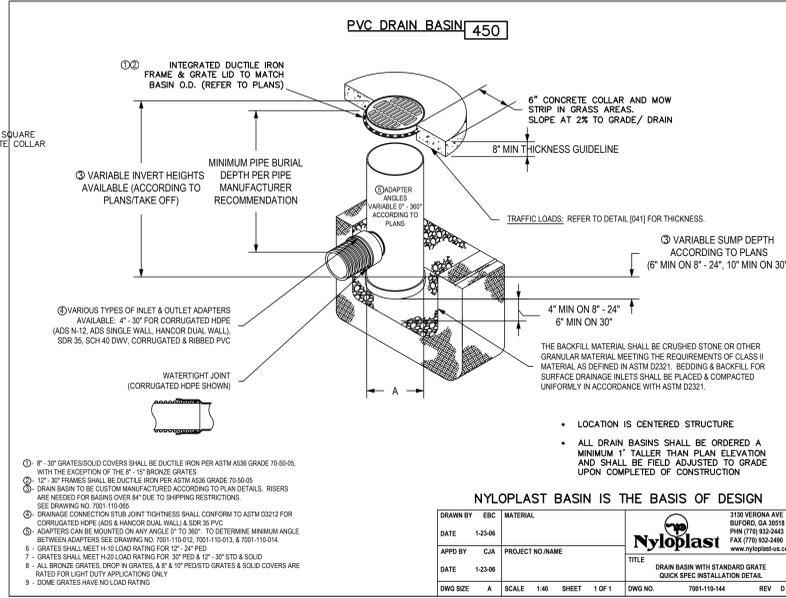


NOTES:
 1) FOR ALL DEPTHS OF COVER LESS THAN TWO (2) FEET, PIPE MUST BE SCHEDULE 40 PVC. FOR DEPTHS OF COVER GREATER THAN TWO (2) FEET, FLEXIBLE PIPE MAY BE USED. REFER TO SPECIFICATIONS FOR ALLOWABLE PIPE TYPES.
 2) A WATERTIGHT CONNECTION SHALL BE MAINTAINED WITH ANY TRANSITION FROM SCHEDULE 40 PVC PIPE TO ANY OTHER PIPE TYPE.
 3) THE DOWNSPOUT COLLECTOR DRAIN SHALL BE INSTALLED BEFORE THE DOWNSPOUTS ARE INSTALLED ON THE BUILDING. SITEWORK CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK TO AND INCLUDING THE RODENT SCREEN. BUILDING CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONNECTION AT THE POINT OF THE RODENT SCREEN.

DOWNSPOUT COLLECTOR 433

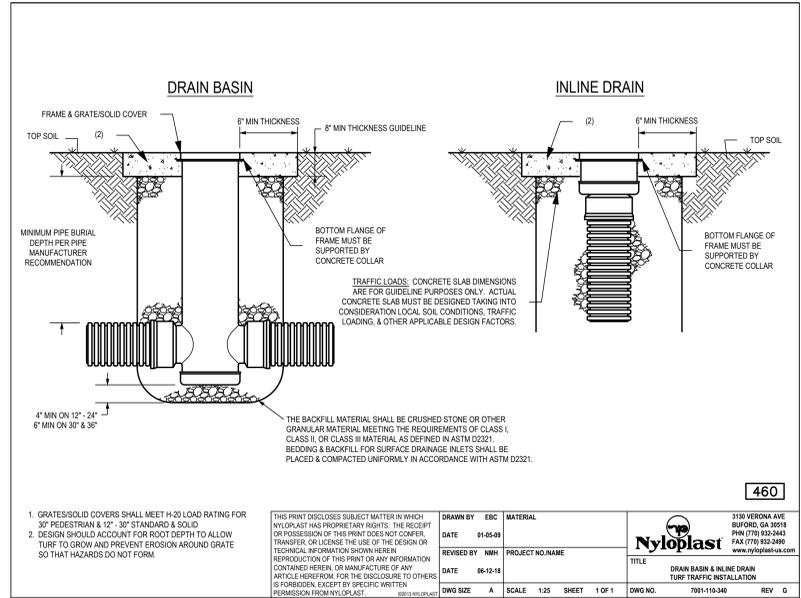


CLEAN-OUT 510



NYLOPLAST BASIN IS THE BASIS OF DESIGN

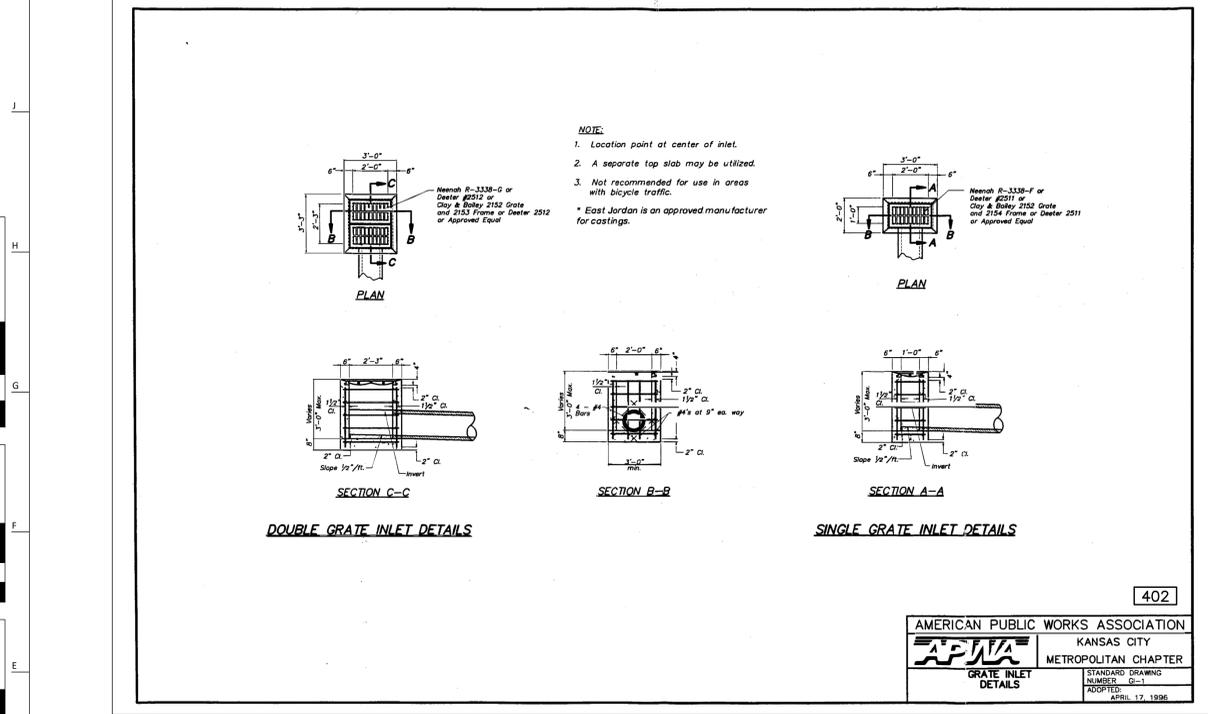
DRAWN BY: EBC	MATERIAL: NYLOPLAST	310 VERONA AVE BURLINGTON, GA 30618 PH: (770) 932-2460 FAX: (770) 932-2460 www.nyloplast.com
DATE: 1-24-09	PROJECT NO./NAME: DRAIN BASIN WITH STANDARD GRADE QUICK SPEC INSTALLATION DETAIL	TITLE: DRAIN BASIN WITH STANDARD GRADE QUICK SPEC INSTALLATION DETAIL
APP'D BY: CA	SCALE: 1/4" = 1'-0"	DWG NO.: 7001-110-144
DATE: 1-23-06	SHEET: 1 OF 1	REV: D



1. GRATES/SOLID COVERS SHALL MEET H-20 LOAD RATING FOR 30' PEDESTRIAN & 12" - 30" STANDARD & SOLID 2. DESIGN SHOULD ACCOUNT FOR ROOT DEPTH TO ALLOW TURE TO GROW AND PREVENT EROSION AROUND GRATE SO THAT HAZARDS DO NOT FORM.

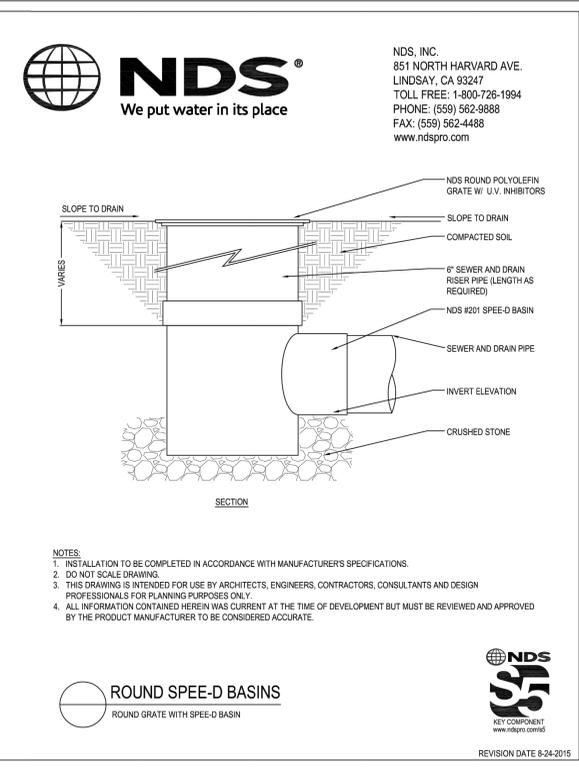
THIS PRINT DISCLOSES SUBJECT MATTER IN WHICH NYLOPLAST HAS PROPRIETARY RIGHTS. THE RECEIPT OR POSSESSION OF THIS PRINT DOES NOT CONVEY, TRANSFER, OR LICENSE THE USE OF THE DESIGN OR TECHNICAL INFORMATION SHOWN HEREIN. REPRODUCTION OF THIS PRINT OR ANY INFORMATION CONTAINED HEREIN, OR MANUFACTURE OF ANY ARTICLE HEREFROM FOR THE DISCLOSURE TO OTHERS IS FORBIDDEN, EXCEPT BY SPECIFIC WRITTEN PERMISSION FROM NYLOPLAST.

DRAWN BY: EBC	MATERIAL: NYLOPLAST	310 VERONA AVE BURLINGTON, GA 30618 PH: (770) 932-2460 FAX: (770) 932-2460 www.nyloplast.com
DATE: 01-05-09	PROJECT NO./NAME: DRAIN BASIN & IN-LINE DRAIN TUBE TRAP DETAIL	TITLE: DRAIN BASIN & IN-LINE DRAIN TUBE TRAP DETAIL
REVISED BY: NWH	SCALE: 1/2" = 1'-0"	DWG NO.: 7001-110-340
DATE: 06-12-18	SHEET: 1 OF 1	REV: G



AMERICAN PUBLIC WORKS ASSOCIATION
APWA
KANSAS CITY METROPOLITAN CHAPTER
GRATE INLET DETAILS
 STANDARD DRAWING NUMBER: 02-1
 ADOPTED: APRIL 17, 1996

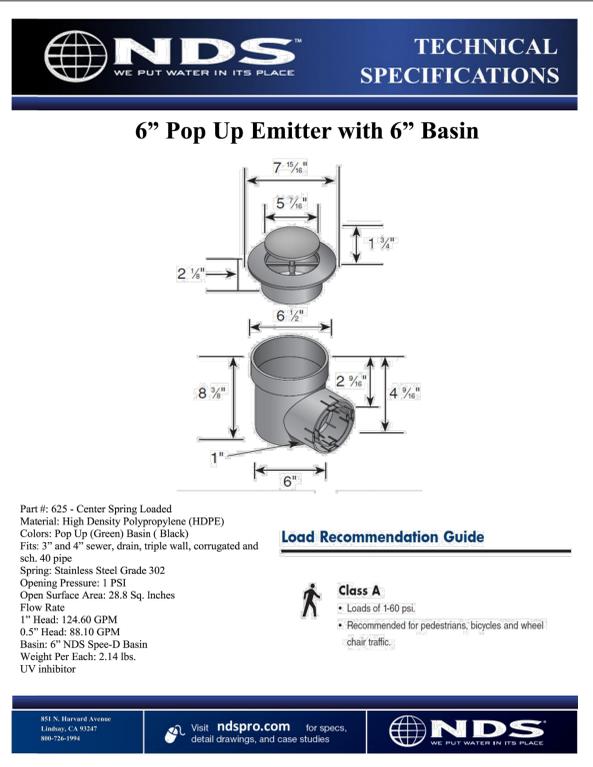
INLET NOTES
GENERAL
 1. ALL STORM SEWER STRUCTURES SHALL BE POURED IN PLACE.
 2. DO NOT SCALE THESE DRAWINGS FOR DIMENSIONS OR CLEARANCES. ANY QUESTIONS REGARDING DIMENSIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO CONSTRUCTION.
 3. THE FIRST DIMENSION LISTED IN THE CONSTRUCTION NOTES IS THE "L" DIMENSION. THE SECOND DIMENSION IS THE "W" DIMENSION. THE CONCRETE THICKNESS AND REINFORCEMENT SHOWN IS FOR BOXES WITH ("L" + "H") AND ("W" + "H") LESS THEN OR EQUAL TO 20. FOR BOXES WITH EITHER OF THESE CALCULATIONS GREATER THAN 20, A SPECIAL DESIGN IS REQUIRED. PRECASTER SHALL PROVIDE DESIGN CALCULATIONS FOR DEEP STRUCTURES TO ENGINEER PRIOR TO CONSTRUCTING BOX.
CONCRETE
 4. CONCRETE USED IN THIS WORK SHALL BE CLASS "A" CONCRETE (AE) THROUGHOUT, AND SHALL MEET THE REQUIREMENTS OF THE KANSAS CITY METROPOLITAN CHAPTER OF THE APWA TECHNICAL SPECIFICATIONS.
 5. CONCRETE CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF STANDARD SPECIFICATIONS FOR MOB, LATEST EDITION, EXCEPT AS MODIFIED IN THE APWA TECHNICAL SPECIFICATIONS.
 6. INLET FLOORS SHALL BE SHAPED WITH NON-REINFORCED CONCRETE INVERTS TO PROVIDE SMOOTH FLOW.
 7. BEVEL ALL EXPOSED EDGES WITH 3/4" TRIANGULAR MOLDING.
 8. 8" SOLID CONCRETE BLOCK OR BRICK MAY BE USED IN WALLS IN LIEU OF POURED CONCRETE WHERE NEITHER "H" + "L" NOR "H" + "W" (IN FEET) EXCEED FOURTEEN. BLOCK OR BRICK MAY BE USED IN ANY BOX WHERE "H" IS 5' OR LESS.
 9. ALL CRUSHED STONE USED AS AGGREGATE FOR CONCRETE CONSTRUCTION SHALL BE OBTAINED FROM QUARRIES AND BEDS DESIGNATED BY THE MISSOURI DEPARTMENT OF TRANSPORTATION AS MEETING DURABILITY REQUIREMENTS OF KANSAS CITY METROPOLITAN CHAPTER OF THE APWA TECHNICAL SPECIFICATIONS.
REINFORCING STEEL
 10. REINFORCING STEEL SHALL BE NEW BILLET, MINIMUM GRADE 60 AS PER ASTM A615, AND SHALL BE BENT COLD.
 11. ALL DIMENSIONS RELATIVE TO REINFORCING STEEL ARE TO CENTERLINE OF BARS. 2" CLEARANCE SHALL BE PROVIDED THROUGHOUT UNLESS NOTED OTHERWISE. TOLERANCE OF +/- 1/8" SHALL BE PERMITTED.
 12. ALL LAP SPICES NOT SHOWN SHALL BE A MINIMUM OF 40 BAR DIAMETERS IN LENGTH.
 13. ALL REINFORCING STEEL SHALL BE SUPPORTED ON FABRICATED STEEL BAR SUPPORTS @ 3'-0" MAXIMUM SPACING.
 14. ALL DOWELS SHALL BE ACCURATELY PLACED AND SECURELY TIED IN PLACE PRIOR TO PLACEMENT OF BOTTOM SLAB CONCRETE. STICKING OF DOWELS INTO FRESH OR PARTIALLY HARDENED CONCRETE WILL NOT BE ACCEPTABLE.
CONSTRUCTION
 15. THE BOTTOM SLAB SHALL BE AT LEAST 24 HOURS OLD BEFORE PLACING SIDEWALL CONCRETE. ALL SIDEWALL FORMS SHALL REMAIN IN PLACE A MINIMUM OF 24 HOURS AFTER SIDEWALLS ARE POURED BEFORE REMOVAL, AND AFTER REMOVAL SHALL BE IMMEDIATELY TREATED WITH MEMBRANE CURING COMPOUND.
 16. MATERIAL SELECTION AND COMPACTION REQUIREMENTS FOR BACKFILL AROUND STRUCTURES SHALL BE AS SPECIFIED IN THE KANSAS CITY METROPOLITAN CHAPTER OF THE APWA TECHNICAL SPECIFICATIONS.



NOTES:
 1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
 2. DO NOT SCALE DRAWING.
 3. THIS DRAWING IS INTENDED FOR USE BY ARCHITECTS, ENGINEERS, CONTRACTORS, CONSULTANTS AND DESIGN PROFESSIONALS FOR PLANNING PURPOSES ONLY.
 4. ALL INFORMATION CONTAINED HEREIN WAS CURRENT AT THE TIME OF DEVELOPMENT BUT MUST BE REVIEWED AND APPROVED BY THE PRODUCT MANUFACTURER TO BE CONSIDERED ACCURATE.

ROUND SPEE-D BASINS
 ROUND GRADE WITH SPEE-D BASIN

NDS, INC.
 851 NORTH HARVARD AVE.
 LINDSAY, CA 93247
 TOLL FREE: 1-800-726-1994
 PHONE: (559) 562-9888
 FAX: (559) 562-4488
 www.ndspro.com



Part #: 625 - Center Spring Loaded
Material: High Density Polypropylene (HDPE)
Colors: Pop Up (Green) Basin (Black)
Fits: 3" and 4" sewer, drain, triple wall, corrugated and sch. 40 pipe
Spring: Stainless Steel Grade 302
Opening Pressure: 1 PSI
Open Surface Area: 28.8 Sq. Inches
Flow Rate:
 1" Head: 124.60 GPM
 0.5" Head: 88.10 GPM
Basin: 6" NDS Spee-D Basin
Weight Per Each: 2.14 lbs.
UV inhibitor

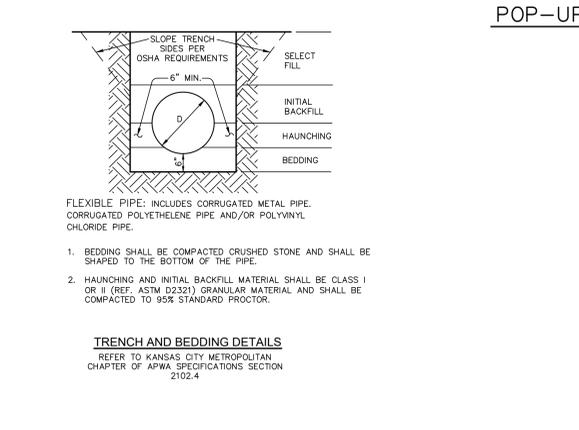
Load Recommendation Guide

Class A
 • Loads of 160 psi
 • Recommended for pedestrians, bicycles and wheel chair traffic.

851 N. Harvard Avenue
Lindsay, CA 93247
800-726-1994

Visit ndspro.com for specs, detail drawings, and case studies

NDS
 WE PUT WATER IN ITS PLACE



POP-UP EMITTER 434

FLEXIBLE PIPE: INCLUDES CORRUGATED METAL PIPE, CORRUGATED POLYETHYLENE PIPE AND/OR POLYVINYL CHLORIDE PIPE.

1. BEDDING SHALL BE COMPACTED CRUSHED STONE AND SHALL BE SHAPED TO THE BOTTOM OF THE PIPE.
 2. HAUNCHING AND INITIAL BACKFILL MATERIAL SHALL BE CLASS I OR II (REF. ASTM D2321) GRANULAR MATERIAL AND SHALL BE COMPACTED TO 95% STANDARD PROCTOR.

TRENCH AND BEDDING DETAILS
 REFER TO KANSAS CITY METROPOLITAN CHAPTER OF APWA SPECIFICATIONS SECTION 2102.4

PROJ. NO. C20_0496
 DSN: DDW
 CN: 0496DET.DWG
 DWN: NUN

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 phoenix • san francisco

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Lee's Summit R7 District Athletics Facilities

Lee's Summit High School
 400 SE Blue Parkway
 Lee's Summit, MO 64063

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

architect:
Gould Evans
 4200 Pennsylvania Avenue
 Kansas City, MO 64111
 816.931.6655 voice
 www.gould-evans.com

structural engineer:
Bob D. Campbell & Company, Inc.
 4338 Bellevue
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DAVID D. WOOD
 ENGINEER
 PE-2011037427
 MISSOURI PROFESSIONAL ENGINEER

Kaw Valley Engineering, Inc.
 Missouri Certificate of Authority: 000842
 David Wood Date: 09/28/2020
 Engineer License No. PE-2011037427

REVISIONS

Number	DESCRIPTION	DATE
1	ADDENDUM 1	10/13/20
2	ADDENDUM 3	10/23/20
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PROJECT NO: 0119-0100
 DATE: SEPTEMBER 28, 2020

STORM DETAILS

H-C690

BID SET