



UNIVERSITY OF
CENTRAL
ARKANSASTM

WER
ARCHITECTS

| **HKS**

MULTIPURPOSE ARENA

SCHEMATIC DESIGN JULY 2026



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* Refer to [Experiential Branding Package](#)
document for more information



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INTRODUCTION

The University of Central Arkansas Multipurpose Arena (UCA MPA) is envisioned as a transformative new campus landmark and a dynamic gathering place for students, athletes, and the broader Conway community. Strategically located at the north end zone of Estes Stadium, the facility will replace the aging Farris Center and establish a new epicenter for the university's basketball and football programs.

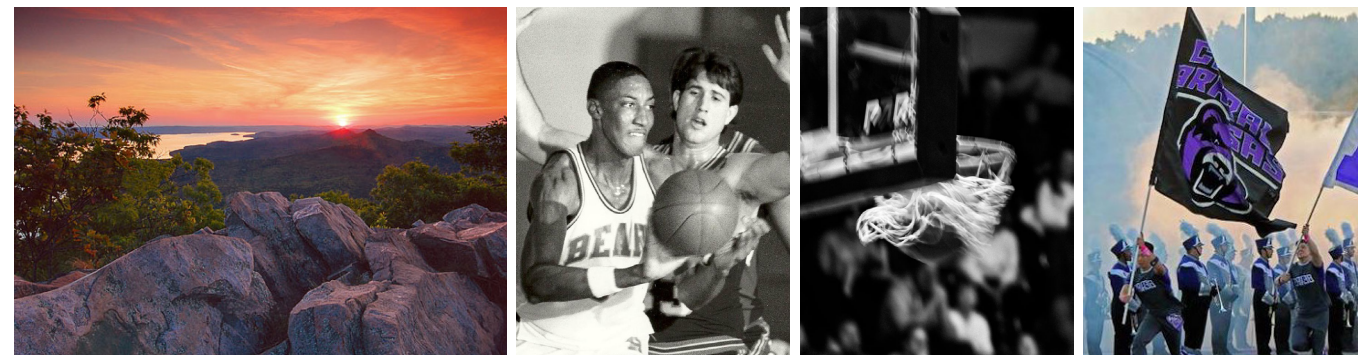
Beyond its role as a premier athletic venue, the UCA MPA is designed from the outset to support a wide variety of event types and campus activities. Flexible seating configurations, adaptable event infrastructure, and multi-use support spaces will allow the arena to transition seamlessly between basketball games, football-related events, tournaments, convocations, concerts, banquets, and community gatherings.

The project also reflects a broader vision articulated by Student Affairs: to create a facility that marks both the beginning and culmination of the student experience at UCA. From orientation and welcome events to commencement ceremonies, the arena is intended to become a symbolic and memorable backdrop for key milestones in students' lives.

In addition to serving the university community, the UCA MPA will position the university as a regional destination for major civic and cultural events. The venue will provide opportunities to host programs such as the Conway Chamber Annual Meeting, Duck Derby, Laurel & Stripes, and numerous other public events that strengthen the connection between UCA and the surrounding community.

As a new gateway to campus and a year-round hub of activity, the UCA Multipurpose Arena is envisioned as a facility that advances athletic excellence, enriches student life, and expands the university's role as a center for community engagement across Central Arkansas.

“Inspired by the rivers, trails, and landscapes that shape Arkansas, the new arena serves as the **heartbeat of campus** and a symbol of the **UCA Bear journey**. Through moments of **belonging**, growth, community, **legacy**, and achievement, the design reflects the path of every student-athlete—from the Den to the Summit. Rooted in the **enduring character** of campus materials and animated by light, movement, and connection, the arena becomes a place where **grit** transforms into greatness and every **Bear leaves a lasting mark.**”





WHAT WE HEARD

OUR STORY



“As an alumni, the **History** of UCA football is as good as it gets on this campus!”

INNOVATIVE



“The arena should create a **High-Performance** environment where sports science, athletic training and student learning intersect”

ENERGY



“Creating a really good place to watch basketball”

BRAND



“Big space with great **Branding**”



EXPERIENCE CONCEPTING THROUGH PERSONAS

COMMUNITY FANS



COMMUNITY FANS

Family & Locals
For the local fans, being part of the Conway community means showing up together to support something bigger than themselves. The new arena becomes a shared ritual—where a lively, family-friendly concourse turns simple moments into lasting memories. As they cheer side by side, their children begin to imagine their own future there as students and athletes. It’s more than game day—it’s connection, tradition, and a sense of belonging they’re proud to call home.

COACHING STAFF



ATHLETIC COACH

Coach
For the head coach, the new arena is a true competitive edge—designed to elevate performance, streamline operations, and support athletes at their peak. It doubles as a powerful recruiting tool, where culture and energy are felt instantly. On game day, every space works together to fuel pride and performance. More than a facility, it’s the foundation for building a lasting legacy.

STUDENT BODY



STUDENT BODY

Student
For the student body, the arena becomes the heart of campus—a connected hub where pathways, social zones, and energy converge. It activates everyday life beyond game day, creating spaces to gather, celebrate, and belong. From spontaneous meetups to big moments, it’s where friendships grow and lasting campus memories are made.

LEGACY BEAR ALUMNI



PROUD ALUMNI

Former Students
For the alumni, the new arena feels like home—an extension of their time at UCA filled with pride, tradition, and lasting memories. It deepens their sense of belonging while connecting generations of Bears through shared game day rituals. Now, they bring their family, passing down stories as new ones unfold. More than a venue, it inspires them to give back and stay invested in a community they’ll always be part of.

ATHLETE COMMUNITY



MEN’S & WOMEN’S BASKETBALL

Athlete
For the athletes, the new arena is where performance and purpose come together—built to push their limits and support their growth. Surrounded by coaches, teammates, and community, they feel seen, supported, and driven. It unites athletes across sports, creating shared pride beyond the court. More than a place to play, it’s where they belong.



LOCATION & URBAN CONTEXT

SITE ANALYSIS

As part of the project’s feasibility study completed in December 2025, three potential sites were evaluated to determine the optimal location for the University of Central Arkansas’ new Multipurpose Arena. The analysis identified the north end zone of Estes Stadium as the preferred site due to its unique ability to create a true home for UCA Men’s and Women’s Basketball while strengthening the campus athletic district while creating new opportunities for student life, athletics, and community engagement.

More than simply an event venue, the new area is envisioned as the home of Bear Basketball – a facility designed to elevate the student-athlete experience, enhance recruiting, increase fan engagement, and establish one of the premier collegiate basketball environments in the ASUN conference. It’s central location within UCA’s athletics campus creates a highly visible destination that reinforces basketball as a year-round focal point of university life while providing the flexibility to host concerts, convocation, championship events, and community programming.

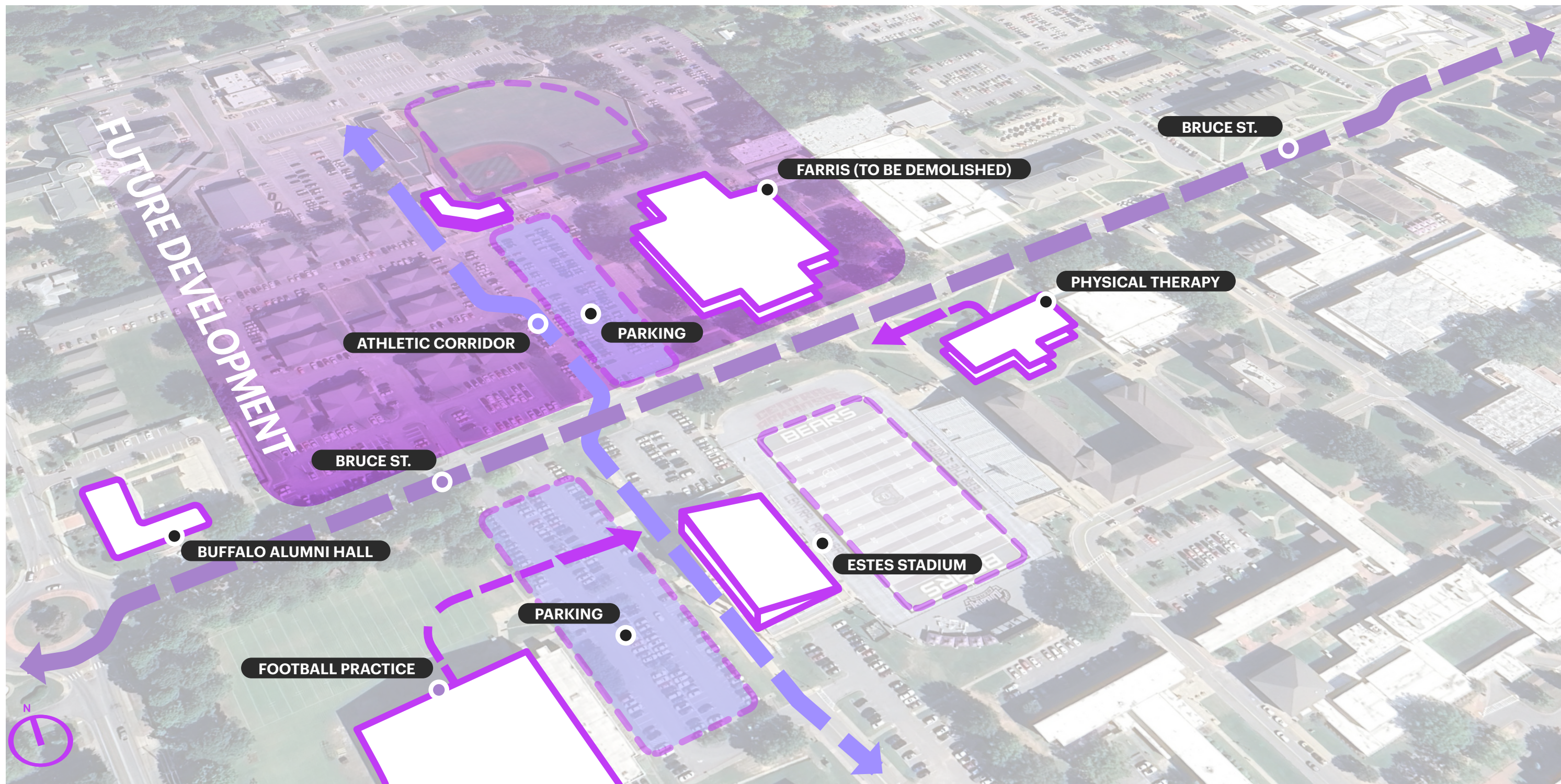
The arena will become a transformative addition to campus, serving as the first building to intentionally bridge the Bruce Street corridor. Following the City of Conway’s planned transfer of Bruce Street between Donaghey Avenue and Farris Road to the University in January 2027, the project will begin to unify what has historically been a vehicular division within campus into a cohesive collegiate environment. Strategically positioned along UCA’s athletic corridor between the HPER Center and Bear Baseball facilities, the arena establishes a prominent gateway that connects the University’s premier athletic venues into a unified destination.

Positioned as the architectural capstone to the north end of Estes Stadium, the facility will help define the University’s athletics identity while creating an energetic year-round center of activity. On basketball game days, the arena will establish an unmistakable home-court atmosphere that celebrates Bear Basketball and creates an exciting arrival experience for students, alumni, and fans. The building’s visibility from Farris Road and the surrounding athletics complex will reinforce the prominence of the University’s basketball programs while providing a dynamic backdrop for recruiting, alumni engagement, and campus traditions.

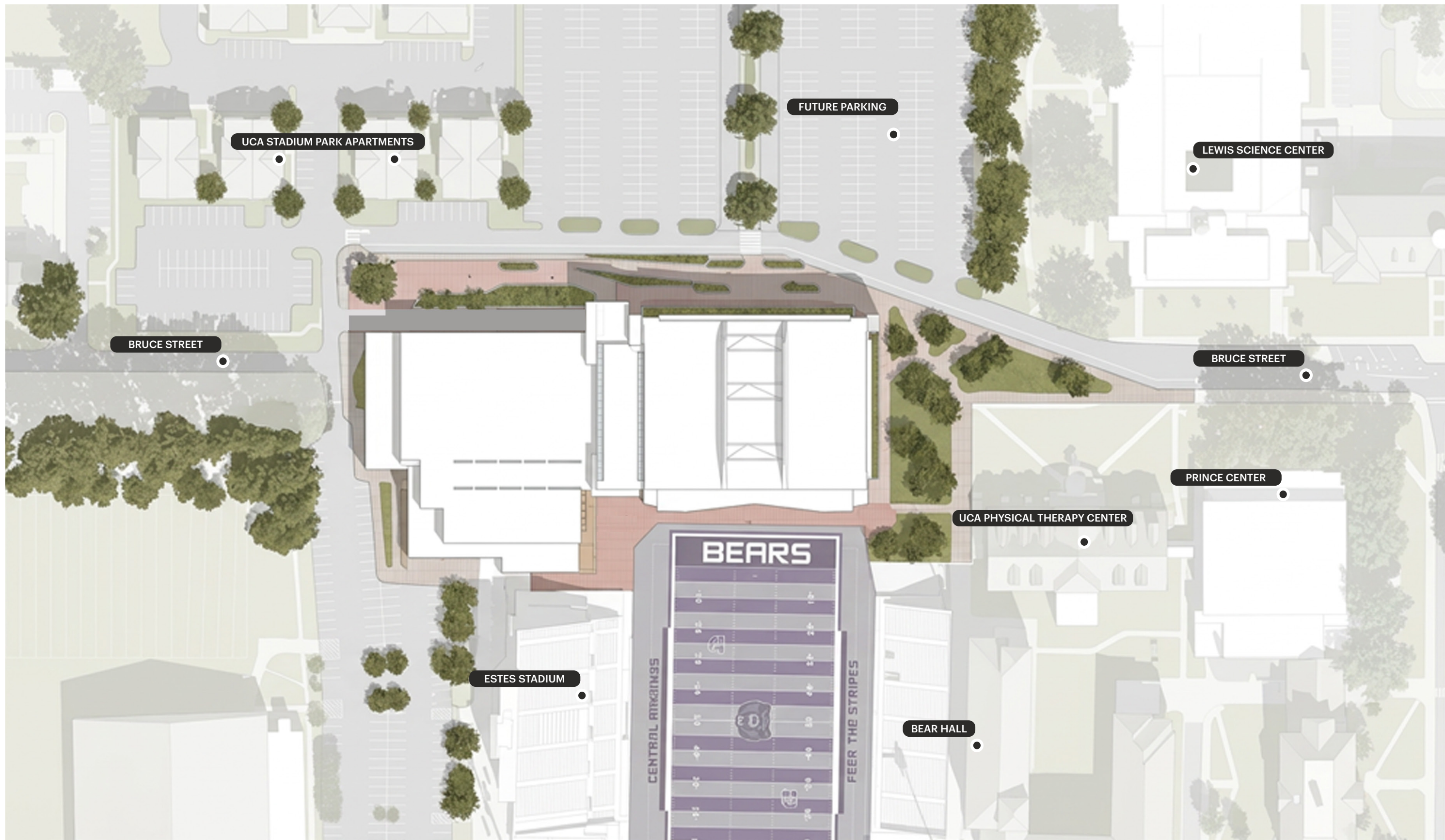
On football game days, the arena will complement the stadium experience, generate a vibrant atmosphere surrounding the stadium, and create opportunities for expanded premium hospitality and fan engagement. Throughout the remainder of the year, the building will activate this portion of campus with events, student activities, and community programming, extending its impact well beyond athletics. Although Bruce Street will no longer serve public vehicular traffic, the site design will maintain code-compliant emergency vehicle access while prioritizing a safer, more walkable pedestrian environment that strengthens campus connectivity and enhances the overall visitor experience. Transforming this portion of campus, however, extends beyond the construction of a new building and includes significant investments in the site’s underlying infrastructure.

Development of the north end zone site also requires significant investment in the campus infrastructure that supports both the new arena and future University growth. The project will include the relocation and coordination of numerous existing underground utilities that currently traverse the site, requiring careful planning to maintain uninterrupted campus operations throughout construction. The site presents approximately seven feet of elevation change across the building footprint, necessitating substantial earthwork and grading to create an accessible, code-compliant, and event-ready campus environment. While these improvements represent a considerable portion of the project’s early construction efforts, they establish the essential foundation for a world-class facility while modernizing critical campus infrastructure. These investments will not only support the arena but will also improve the long-term resiliency, accessibility, and development potential of the University’s athletic district for decades to come.





SITE CONTEXT - EXISTING



SITE PLAN - PROPOSED





OVERVIEW

PROGRAM

The following building program reflects the evolution of the project from the original Feasibility Study completed in December 2025 through the collaborative Schematic Design Phase 1 and Phase 2 workshops conducted in March and April 2026. The program incorporates both the spaces identified during the feasibility study and the additional functions requested by University stakeholders to support the long-term operational, academic, athletic, and event goals of the new Multipurpose Arena.

Within the accompanying program tables, spaces identified with a red box in the Variance column exceed the areas established during the feasibility study. These variances represent deliberate design decisions made in response to operational requirements, user feedback, evolving building systems, and the desire to create a facility capable of supporting a broader range of events and future campus needs. As the design continues to develop, the project team will actively evaluate opportunities to improve planning efficiency, optimize floor plate utilization, and reduce unnecessary circulation while preserving the functionality, flexibility, and quality of the spaces. The overarching objective is to deliver a highly adaptable, operationally efficient facility that will serve the University of Central Arkansas for the next fifty years and beyond, accommodating changing programs, technologies, and community expectations without compromising the user experience.

Program Room	Feasibility Study Area (SF)	Schematic Design Area(SF)	Variance (SF)	Variance %
Spectator Facilities				
Main Entry Lobby/ Arena Lobby	1877	4026	2149	114.5%
Entry Vestibule		270	270	0.0%
Main Concourse	19738	13641	-6097	-30.9%
Club Restrooms	350	442	92	26.3%
Club	4645	4843	198	4.3%
Club - Storage	415	119	-296	-71.3%
Concessions / Pantries	1891	2319	428	22.6%
Public Restrooms	667	3142	2475	371.1%
Ticket Box Office	180	135	-45	-25.0%
Event Floor	17000	19383	2383	14.0%
Team Entry Lobby/ Hall of Fame	2767	5478	2711	98.0%
Entry Vestibule		208	208	0.0%



Program Room	Feasibility Study Area (SF)	Schematic Design Area(SF)	Variance (SF)	Variance %
Team Facilities				
Practice Court	10000	7801	-2199	-22.0%
Equipment Storage		96	96	0.0%
Men's Basketball				
Home Team Men's Basketball Locker/Dressing	1210	1392	182	15.0%
Home Team Men's Basketball Restrooms/Showers	622	409	-213	-34.2%
Nutrition		153	153	0.0%
Nutrition		159	159	0.0%
Video Replay Room	213	500	287	134.7%
Laundry	213	191	-22	-10.1%
Women's Basketball				
Home Team Women's Basketball Locker/Dressing	1197	1390	193	16.1%
Home Team Women's Basketball Restroom/Showers	622	407	-215	-34.6%
Nutrition		154	154	0.0%
Nutrition		160	160	0.0%
Video Replay Room	213	500	287	134.7%
Laundry	213	194	-19	-8.7%
Male Coaches Locker Rooms	279	275	-4	-1.4%
Restroom		80	80	0.0%
Restroom		80	80	0.0%
Female Coaches Locker Rooms	303	274	-29	-9.6%
Restroom		80	80	0.0%
Restroom		80	80	0.0%
Auxiliary Locker/Dressing	400	179	-221	-55.3%
Auxiliary Restrooms/Showers	680	272	-408	-60.0%
Auxiliary Coaches Locker Room & Restroom		354	354	0.0%
Visiting Team Lockers/Dressing	694	434	-260	-37.5%
Visiting Team Restrooms/Showers	200	362	162	81.0%
Visitor Coaches Locker Room		413	413	0.0%
Officials Locker Room & Restrooms	602	744	142	23.6%
Weight Training Room	1780	1660	-120	-6.7%
Entry Vestibule		119	119	0.0%
Sports Medicine Training	1403	1997	594	42.3%
Football Locker Room/ Restrooms/Lounge	7933	10067	2134	26.9%

Athletic Team Offices				
Men's Basketball				
Men's Basketball Head Coaches Office	303	398	95	31.4%
Men's Basketball Head Coaches Restroom		141	141	0.0%
Men's Basketball Assistant Head Coaches Offices	303	584	281	92.7%
Men's Basketball Meeting		401	401	0.0%
Director of Operations/G.A. Office	279		-279	-100.0%
Men's Basketball Lounge		780	780	0.0%
Work/Storage Room	240		-240	-100.0%
Women's Basketball				
Women's Basketball Head Coaches Office	303	426	123	40.6%
Women's Basketball Head Coaches Restroom		151	151	0.0%
Women's Basketball Assistant Coaches Offices	303	594	291	96.0%
Women's Basketball Meeting		373	373	0.0%
Women's Basketball Lounge		792	792	0.0%
Observation Balcony		791	791	0.0%
Basketball Reception		703	703	0.0%
Restroom		76	76	0.0%



Program Room	Feasibility Study Area (SF)	Schematic Design Area(SF)	Variance (SF)	Variance %
Football Coaching Office Suite	7636	4703	-2933	-38.4%
Head Coach				
Head Coach Restroom				
WR / TE				
Running Backs				
Football Restroom				
Quarterbacks				
Coaches' Locker				
Restroom				
Restroom				
D-Line				
O-Line				
Defensive Backs				
Linebackers				
Offensive Coordinator				
Special Teams				
Football Workroom				
Football Office Corridor				
Football Reception Lounge				
Defensive Coordinator				
Defense Conference				
Offense Conference				
Football Pantry				

Administrative Offices

Ticket Manager's Office	120	0	-120	-100.0%
Staff Work Area	110	0	-110	-100.0%
Director's Office	133	0	-133	-100.0%
Event Manager's Office	133	0	-133	-100.0%

Media Facilities

Media/Interview Room	1026	763	-263	-25.6%
Production Room	433	472	39	9.0%
Broadcast Storage		151	151	0.0%
Broadcast IT		73	73	0.0%
Event Floor/Media Restrooms	272	65	-207	-76.1%

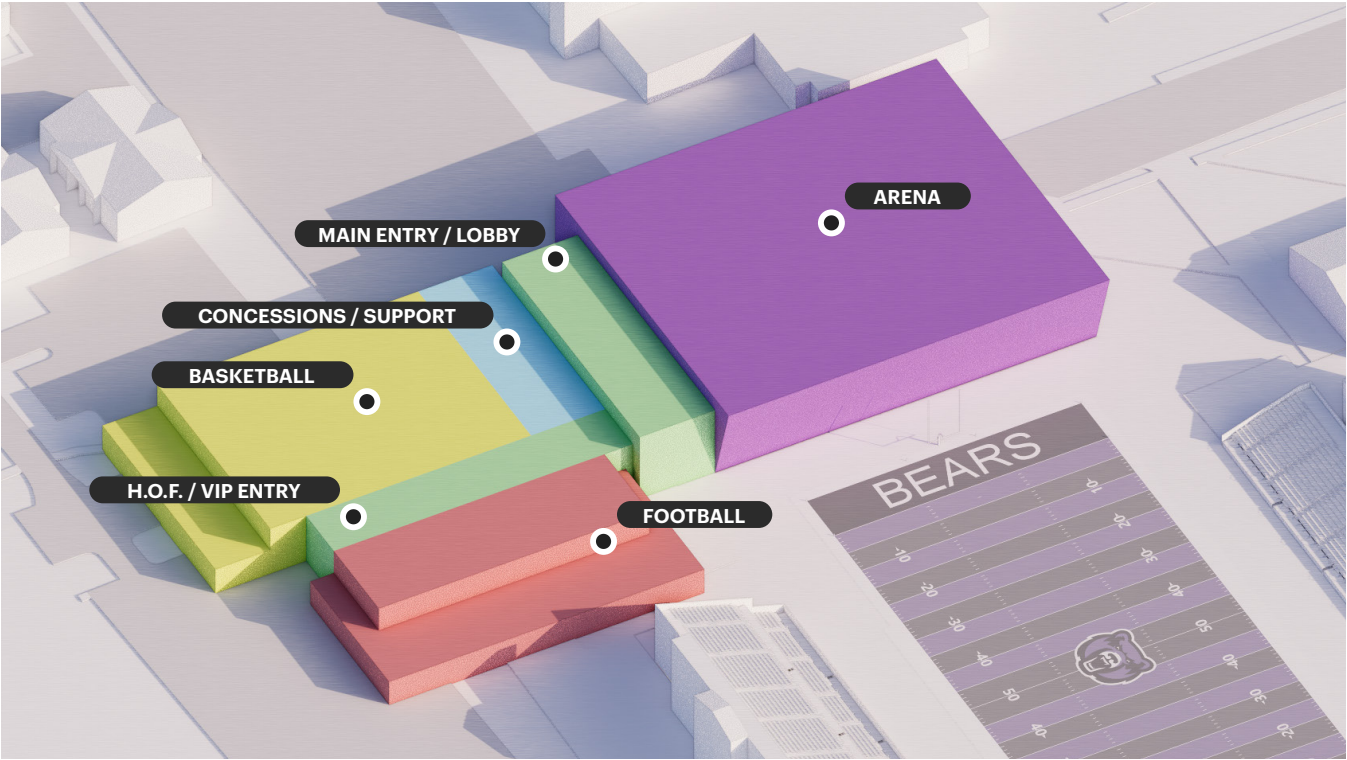
Operations Support

Catering Preparation Room	595	1542	947	159.2%
Serving Pantries/ Hospitality	480	352	-128	-26.7%
General Storage	3758	2481	-1277	-34.0%
Marshalling Area	942	351	-591	-62.7%
Janitorial Closets	569	397	-172	-30.2%
Mechanical Room	3486	4470	984	28.2%
Fire Pump/Sprinkler Riser	160	733	573	358.1%
Main Electrical Room	300	489	189	63.0%
Emergency Elec.		243	243	0.0%
Main Telephone/Data Room	233	192	-41	-17.6%
Telephone/Data Closets	460	753	293	63.7%
Electrical Closets	540	601	61	11.3%
Trash/Empties Storage Room	290	0	-290	-100.0%
Show Power Electrical Room	180	298	118	65.6%
Fire Alarm Control Room	147	0	-147	-100.0%



Program Room	Feasibility Study Area (SF)	Schematic Design Area(SF)	Variance (SF)	Variance %
Public Elevators	200	184		
Elevator Equipment Room	223	97	-126	-56.5%
Circulation/Stair	8790	13403	4613	52.5%
Outdoor Terraces				
Main Concourse Balcony - Exterior		1847	1847	0.0%
Club Balcony - Exterior		1946	1946	0.0%
Football Wash Off		703	703	0.0%
Football Roof Terrace		1629	1629	0.0%
TOTAL - INDOOR			111253	124005
TOTAL - OUTDOOR			6125	6125

**Does not include interior or exterior wall footprints



BLOCK DIAGRAM



DESIGN NARRATIVES

The following pages provide an early description of the intent for the new facility. As the project progresses through each of the design phases, the depth of information for each discipline will continue to grow. During schematic design, pricing heavily relies on the text description of anticipated components while the overall architectural layout and direction settles. All disciplines will include drawings during the design development phase of the project.

The following narratives include:

- Code Analysis
- Architectural
- Interiors
- Civil
- Structural
- Mechanical
- Plumbing
- Fire Protection
- Electrical
- Audio/Visual
- Food Service





CODE ANALYSIS

SCHEMATIC DESIGN CODE SEARCH - PRELIMINARY

2021 international Building Code

APPLICABLE CODES:

- 2021 ARKANSAS FIRE PREVENTION CODE, VOLUME 1 (2021 IFC w/amendments)
- 2021 ARKANSAS FIRE PREVENTION CODE, VOLUME 2 (2021 IBC w/amendments)
- 2020 ARKANSAS NATIONAL ELECTRICAL CODE (2020 NFPA 70, NEC w/amendments)
- 2021 ARKANSAS MECHANICAL CODE (2021 IMC w/amendments)
- 2018 ARKANSAS PLUMBING CODE (2018 IPC w/amendments)
- 2018 ARKANSAS FUEL GAS CODE (2018 IFGC)
- 2014 ARKANSAS ENERGY CODE (2009 IECC)

PROJECT DESCRIPTION:

A 132,000 gross square foot, freestanding, three story, glulam and steel framed structure designed for a multi-purpose arena. The building will include locker rooms and office space for coaching staff for the women's and men's basketball and football programs.

This project will be analyzed as two buildings to meet the overall desired footprint.

BUILDING #1:

Occupancy Classification:	Assembly: A-4	(Section 303.5)
Competitive Court w/ spectator seating	A-4	
Club Seating	A-4	
Accessory occupancies not to exceed 10% of total floor plate per level		(Section 508.2.3)
Sprinkler System:	Building is fully sprinklered	(Section 903.2.1.4)
Fire Alarm:	Building will have fire alarm system with voice/alarm communications	(Section 907.2.1.1)
Construction Type:	II-A w/ Heavy Timber	
Allowable Heights and Areas:		
Allowable Height:	65', 4 Story	(Tables 504.3 & 504.4)
Allowable Area per Floor:	SM – 46,500/ Story for A Occ.	(Table 506.2)
Height Modifications -	Not Required	
Allowable Area Determination:		(Section 506.2)
Single Occupancy Building (consider building all A-4)		
Aa = At + (NS x If) (Up to 3 Story)		(Section 506.2.1: Equation 5-1)
Aa = 46,500 + (15,500*0.75) = 58,125 sf		
Actual Building (BLDG #1) Characteristics:		
Square Footage*		
FIRST FLOOR	46,026 sf	
SECOND FLOOR	26,313 sf	

THIRD FLOOR
TOTAL AREA 8,224 sf
80,563 sf
*Measured to inside face of exterior wall
Building Height - 52' – 0"

Fire Resistance Ratings for Building Elements: (Table 601)

Building Classifications:	Group A, Type II-A w/ HT	(Section 303 & 304)
Structural frame	1	(Table 601)
Bearing walls		
Exterior	1	(Table 601)
Interior	1	(Table 601)
Exterior nonbearing walls and partitions	(See below)	
Interior nonbearing walls in partitions	0	(Table 601)
Floor Construction	1	(Table 601)
Roof Construction	1	(Table 601)
Protection not required over 20'		(Table 601.b)

Fire Resistance Rating of Exterior Walls: (Tables 705.5 and 705.8)

North Wall > 30' to assumed property line	0hr wall and No Limit on unprotected openings
South Wall > 30' to assumed property line	0hr wall and No Limit on unprotected openings
West Wall =0' to assumed property line	1hr wall and NO OPENINGS PERMITTED
East Wall > 30' to assumed property line	0hr wall and No Limit on unprotected openings

Egress:

Game Occupancy	
Arena Floor Occupant Load = 1: 50 Exercise Room	180
Arena Floor Other Load	55
Concourse Other Load	9
Fixed and ADA Seats	2500
Club Level Load	969
TOTAL OCCUPANT LOAD - GAME	3713
Event Occupancy	
Floor Seating with Tables	1293
Arena Floor Other Load	55
Hall of Fame Lobby	36
TOTAL OCCUPANT LOAD - EVENT	1384

Assembly Main Exit sized to accommodate 1/2 of Occupant Load (1030.2)
1660 Occupant Capacity > 1857 (50%) Req = OK
Assembly Other Exits sized to serve 1/2 the occupant load
Stairs (3) 300 Ea = 600 Occupant Capacity





Floor Level Exits (2)	440 Ea = 880 Occupant Capacity	
Total Other Exits Capacity	1480 > 1432 (50%) = OK	
Exit Access Travel Distance	250'-0" Max	(Table 1017.2)
Egress Width per Occupant		
Stairways	0.2"/Occupant	(Section 1005.3.1, Ex 1)
Other egress components	0.15"/ Occupant	(Section 1005.3.2, Ex 1)
Corridor Fire-Resistance Rating	Not Rated	(Table 1020.2)
Max dead-end corridor	20'	(Section 1020.5)
Spaces with one exit	49	(Table 1006.2.1)
Number of exits per Story(More than 1,000 occ)	4	(Table 1006.3.3)

Section 1030.6.1 Assembly Aisle Capacity .3"/Occupant for Risers ≤7"

BUILDING #2:

Occupancy Classification:	Assembly: A-3/Business: B	(Section 303.5)
Practice Basketball Court	A-3	
Football Locker room	A-3	
Football Coaching Offices is NOT considered A occupancy		
Basketball Support Spaces (locker rooms, weight training, and rehabilitation) is NOT considered A occupancy		
Basketball Coaching Offices is NOT considered A occupancy		

Accessory occupancies not to exceed 10% of total floor plate per level (Section 508.2.3)

Administration Area is an Accessory Occupancy (Section 508.2)

Sprinkler System: Building is fully sprinklered (Section 903.2.1.4)

Fire Alarm: Building will have fire alarm system with voice/alarm communications (Section 907.2.1.1)

Construction Type: II-A w/ Heavy Timber

Allowable Heights and Areas:		
Allowable Height:	65', 4 Story	(Tables 504.3 & 504.4)
Allowable Area per Floor:	SM – 46,500/ Story for A Occ.	(Table 506.2)
Height Modifications -	Not Required	

Allowable Area Determination: (Section 506.2)

Single Occupancy Building (consider building all A-4)

Aa = At + (NS x If) (Up to 3 Story) (Section 506.2.1: Equation 5-1)

Aa = 46,500 + (15,500*0.75) = 58,125 sf

Mixed-Occupancy Building (Section 508)



Aa = [At +(NS x If)] (Section 506.2.1: Equation 5-3)

Non-Separated Mixed Use Based on Most Restrictive Use (Section 508.3.2)

Separated Mixed Use Each Story Ratio of Occupancies >1 (Section 508.4.2)

1.1.1. Ground Floor

1.1.1.1.1. (A-3) Actual/Allowable = 15,700/ 58,125 = .27
1.1.1.1.2. (B) Actual/Allowable = 19,379 / 140,625 = .138
0.27 (A-3) +0.138(B) = **0.408 < 1 : OK**

1.1.2. Second Floor

1.1.2.1. (B) Actual/Allowable = 11,740 / 140,625 = .083 < 1 : OK

Actual Building Characteristics:	
Square Footage*	
FIRST FLOOR	35,461 sf
SECOND FLOOR	13,552 sf
TOTAL AREA	49,013 sf
*Measured to inside face of exterior wall	
Building Height - 52' – 0"	

Fire Resistance Ratings for Building Elements: (Table 601)

Building Classifications:	Group A & B, Type II-A w/ HT	(Section 303 & 304)
Structural frame	1	(Table 601)
Bearing walls		
Exterior	1	(Table 601)
Interior	1	(Table 601)
Exterior nonbearing walls and partitions	(See below)	
Interior nonbearing walls in partitions	0	(Table 601)
Floor Construction	1	(Table 601)
Roof Construction	1	(Table 601)
Protection not required over 20'		(Table 601.b)

Fire Resistance Rating of Exterior Walls: (Tables 705.5 and 705.8)

North Wall > 30' to assumed property line	0hr wall and No Limit on unprotected openings
South Wall = 1'-7" to assumed property line	1hr wall and OPENINGS NOT PERMITTED
*Considering adjacency to north Estes Stadium ramp	
South Wall >30' to assumed property line	0hr wall and No Limit on unprotected openings
*Outside of Estes Stadium	
West Wall > 30' to assumed property line	0hr wall and No Limit on unprotected openings
East Wall =0' to assumed property line	1hr wall and OPENINGS NOT PERMITTED



Egress:

Practice Basketball Court	156 occ
BB & FB Locker Rooms	192 occ
Offices	41 occ
Athletic Training	78 occ
TOTAL	467 occ

Exit Access Travel Distance	250'-0" Max	(Table 1017.2)
Egress Width per Occupant		
Stairways	0.2"/Occupant	(Section 1005.3.1, Ex 1)
Other egress components	0.15"/ Occupant	(Section 1005.3.2, Ex 1)
Corridor Fire-Resistance Rating	Not Rated	(Table 1020.2)
Max dead-end corridor	20'	(Section 1020.5)
Spaces with one exit	49	(Table 1006.2.1)

Miscellaneous Provisions:

Concealed insulation		
Flame Spread	not more than 25	(Section 803.1.2)
Smoke Developed	not more that 450	(Section 803.1.2)
Blocking may be wood (not fire treated)		(Section 603.1, Ex. 14)

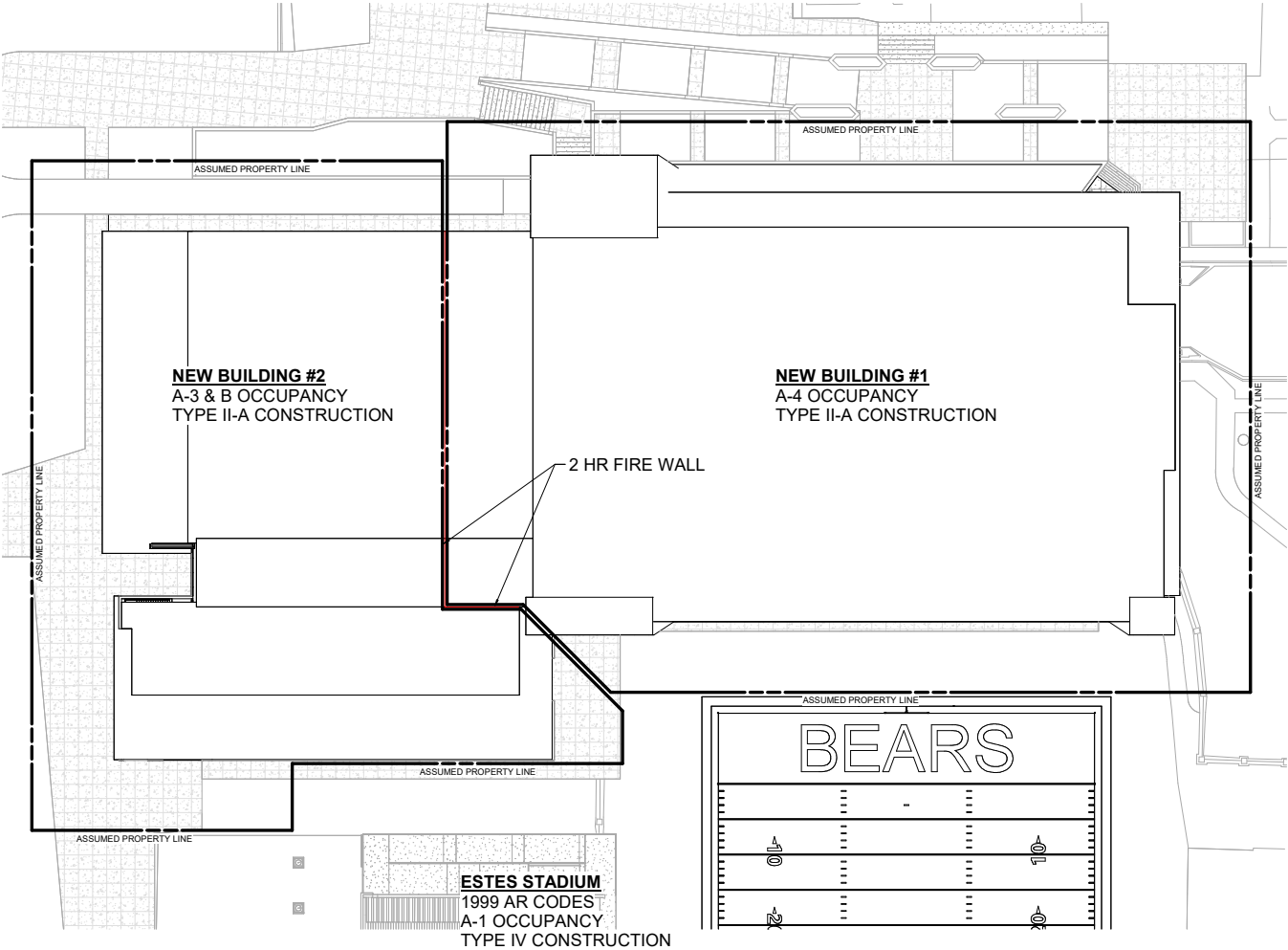
Fire Protection:

- Building will be type II-A Fire Protected building with spray fire proofing
- Spray Fire Proofing to be a calculated thickness based on the steel framing members
- See Section 5 above for fire rating requirements.

Fire Walls:

- Buildings on the Same Lot shall be assumed to have an imaginary line between them. (705.3)
- Fire wall requires 2-hour fire resistance rating (Table 706.4, note a)
- Fire walls shall be permitted to terminate at the interior surface of noncombustible exterior sheathing where the building on each side of the fire wall is protected by an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2. (Section 706.5, ex 3)
- Fire wall that intersect exterior walls shall have 1-hour wall and 3/4 hour opening protection on both sides of the wall. Where exterior wall intersection is 180 degrees or greater, no protection is required. (706.5.1, 1)
- Fire walls shall extend to the outside edge of horizontal projections. (706.5.2)
- Fire walls shall be permitted to terminate at the underside of noncombustible roof sheathing, decks or slabs where both buildings are provided with a Class B roof covering. Openings in the roof shall not be located within 4' of the fire wall. (706.6, ex 3)
- Openings size not limited to 156 sf where buildings both sides are provided with sprinklers (706.8, Ex 2)
- Ducts and air transfer openings may be located in fire walls that are not on a "lot line" and shall comply with Section 717. The size and aggregate width shall not exceed limitations listed in Section 706.8. (706.11)
- Fire Dampers required to be 1.5 hours and comply with Section 717. (Table 717.3.2.1)

SITE PLAN DIAGRAM





ARCHITECTURAL

PROJECT DESCRIPTION

The University of Central Arkansas Arena is a new multipurpose athletics and event facility located within the existing athletics district adjacent to Estes Stadium. The building is intended to eventually replace existing athletic program spaces in the Farris Center. The building consolidates basketball competition and practice facilities, football coaches’ offices and team locker room, athletic administration, and event amenities into a unified campus destination. The project is intended to strengthen operational relationships between existing athletic facilities while providing flexible venues capable of supporting university, athletic, and community events throughout the year.

BUILDING ORGANIZATION

The arena is organized into three primary volumes: The event arena, the basketball operations wing, and the football locker room. These elements are connected by transparent public atriums that serve as the primary circulation spine and gathering spaces and celebratory space for the entire athletic department.

This organization responds directly to the surrounding athletics district. The arena aligns with Estes Stadium to maximize shared premium experiences, while the athletic wing strengthens operational connections to adjacent football, baseball, and support facilities.

TRANSPARENCY

Given the building’s scale and central location among other athletic facilities, visual transparency is the building’s primary architectural strategy rather than a secondary material choice. Generous glazing at the public atrium, club level, and end-zone façade visually connects interior activity with the surrounding campus. Rather than presenting a singular front façade, all four elevations participate in the public experience, allowing the arena to contribute to campus life throughout the day and evening.

MATERIAL STRATEGY

The material palette balances continuity with existing campus while expressing the arena as a contemporary civic building.

Brick forms the base of the composition, grounding the civic building within UCA’s architectural context and reinforcing the scale of the athletic support wing. Opaque exterior walls will generally be masonry brick veneer or ACM panels (rainscreen) on metal studs, with gypsum sheathing, air & water barrier and semi-rigid mineral wool insulation. Aluminum composite panels introduce a lighter, contemporary material to be used on canopies, secondary volumes, and architectural accents, while use of anodized aluminum provides refined detailing at transitions and facade articulation.

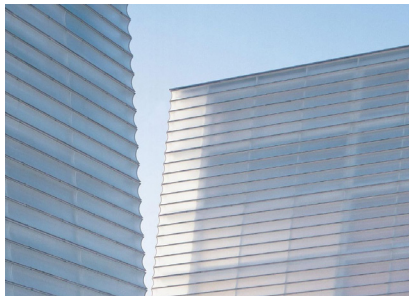
At the arena bowl, practice court, and feature facades, translucent polycarbonate walls will allow diffuse daylight during the day and become illuminated surfaces after dark, allowing light itself to become part of the building’s architectural identity.

Large, glazed areas are concentrated where visual connection are most meaningful, particularly along the south-facing concourse and club level overlooking Estes Stadium. Horizontal sunshades integral to the glazed curtain wall system moderate solar exposure while maintaining outward views. Operable overhead doors at loading areas, football wash-off facilities, and service functions allow operational spaces to remain concealed when not in use.

To add warmth to the arena’s aesthetics, the main structural members of the arena and practice facility will be exposed, glue-laminated columns and beams with long span acoustical metal deck above. The long-span structural system and wood aesthetic incorporates local lumber industry, getting away from traditional steel-truss basketball facilities and allowing the arena to feel more suited for all event types.



Geometric Integrated Circulation with Landscape



Translucent Insulated Panel & Curtainwall Glazing



UCA Cast Stone



UCA Brick



Aluminum Composite Material (ACM) Panels

CANOPIES & PUBLIC REALM

Deep roof overhangs emphasize the building’s horizontal expression while providing shade and weather protection at primary gathering spaces. Aluminum-clad canopies establish continuity with the building envelope, with linear wood slat soffits to introduce warmth and a finer human scale.

LIGHT WALL

A translucent “light wall” brackets each exterior corner of the arena volume. Composed of a translucent polycarbonate system with integrated programmable lighting and media behind. By day, it becomes a volumetric building material that diffuses daylight. By night, it transforms the arena into a glowing landmark that communicates activity within and celebratory moments during game day.

END-ZONE TERRACE

The south event level opens directly toward Estes Stadium, creating a flexible outdoor terrace capable of supporting football viewing, recruiting events, university functions, and informal gathering. Space is provided for potential temporary tiered platforms at ground level for select events, allowing the space to adapt to multiple operational needs while strengthening the relationship between the arena and football stadium.

ROOF

The arena roof will predominantly be a modified-bituminous roof with structural roof trusses spanning above and joists below. Non-arena spaces will generally be low-slope TPO over metal deck with built-up roof insulation and pedestal deck and pavers on any occupied roof terrace.

Mechanical equipment will generally be inside of the building envelope on mechanical mezzanines, with minimal rooftop equipment consolidated within screened rooftop enclosures wherever required.

VERTICAL CIRCULATION

Two elevators will be provided near the center of the arena. One elevator will be designated for fan access with an emphasis on VIP access from ground floor VIP lobby to Club Level, with anticipated higher end cab material selections (Level 4 minimum). Directly adjacent will be a service elevator with emphasis on kitchen service from ground level to both main concourse concessions, and club level food & beverage offerings.

The main lobby is connected to the event level with an open, monumental staircase to match adjacent lobby and hall of fame finishes. The basketball operations wing includes a central open stair for ease of circulation between levels. Egress stairs are also dispersed around each wing of the building to meet code requirements.



ARENA SEATING BOWL

The arena seating bowl will consist of two elements, permanent structure, and retractable seating platforms. Any seating on the main concourse level, and the top two seating tiers will be permanent and integral with the building structure. The majority of tiered seating below will be on retractable platform systems with permanent chairbacks. Courtside seats are expected to be non-permanent furniture. Although subject to change in the next phases of design, chairbacks are expected to be 21” wide, with 2 sections of bench seating only (student sections).

Fan-facing rails in the seating bowl and lobbies will generally be glass guardrails with aluminum feet and caps. Painted pipe handrails will be provided mid-aisle at permanent seating tiers. Mid aisle rails will be included and integral to the engineering of the retractable seating. Removable rails will be included as required on the retractable, but will also be required on the main concourse and included with the architecture at all egress aisles to provide fall protection when retractable seating is closed. The club level will include two permanent seating tiers below club level. Permanent wider (24”) and padded seats will be included for all seats at this level.

BASKETBALL EQUIPMENT & FLOORING

The arena basketball court is expected to be maple hardwood, and meet current Division 1 NCAA requirements at the time of project completion. The arena court will be panelized and completely removable. Practice court will be permanently installed with striping and material design should match the arena as closely as possible. The concrete slab under the practice court will be lowered to accommodate the thickness of the wood flooring. Wood courts for competition can last 15-25 years if well-maintained, but are intended to be refinished every 4-5 years.

Arena Wood Floor Options:

Permanent Wood Floor	Recessed in concrete slab	Higher Install Cost	Lower Operational Cost	Potential for more wear and tear leading to long-term maintenance replacement costs	Could limit types of hosted events due to weight restrictions
Panelized Wood Floor System	2 3/4” on top of concrete slab	Lower Install Cost	Higher Operational Cost	Less wear and tear and easier to replace at end of life	Can be removed for flexibility of non-basketball/volleyball events, will require storage space for panels

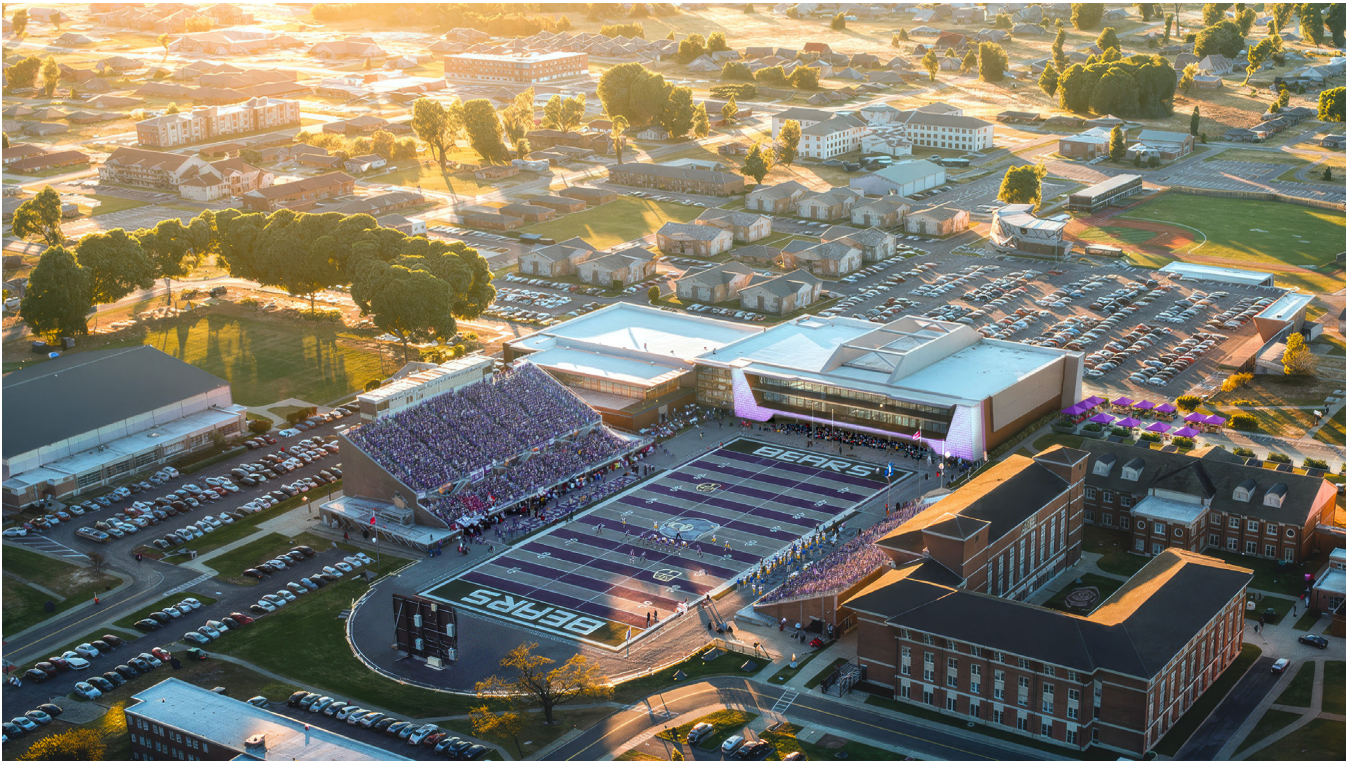
Basketball goals will be competition grade collapsible and movable with integrated lighting and applied clock/shot clock as required by NCAA. The arena court will include two additional goals for practice, to result in four goals for practice sessions. The practice court will include one additional overhead mounted goal along the sideline of the practice court.

DESIGN ASSIST & EXPECTED DELEGATED DESIGN SCOPE

- Scoreboards
- Sports Lighting (Main Arena, and Practice Court)
- Wood Sports Courts
- Specialty Sports Equipment
- Retractable, Variable Rise Arena Seating



NORTH AERIAL



SOUTHEAST AERIAL



MAIN ENTRY - NORTH ELEVATION



EXTERIOR MATERIAL PALETTE



VIEW FROM BEAR HALL SUITES



VIEW FROM CENTER FIELD



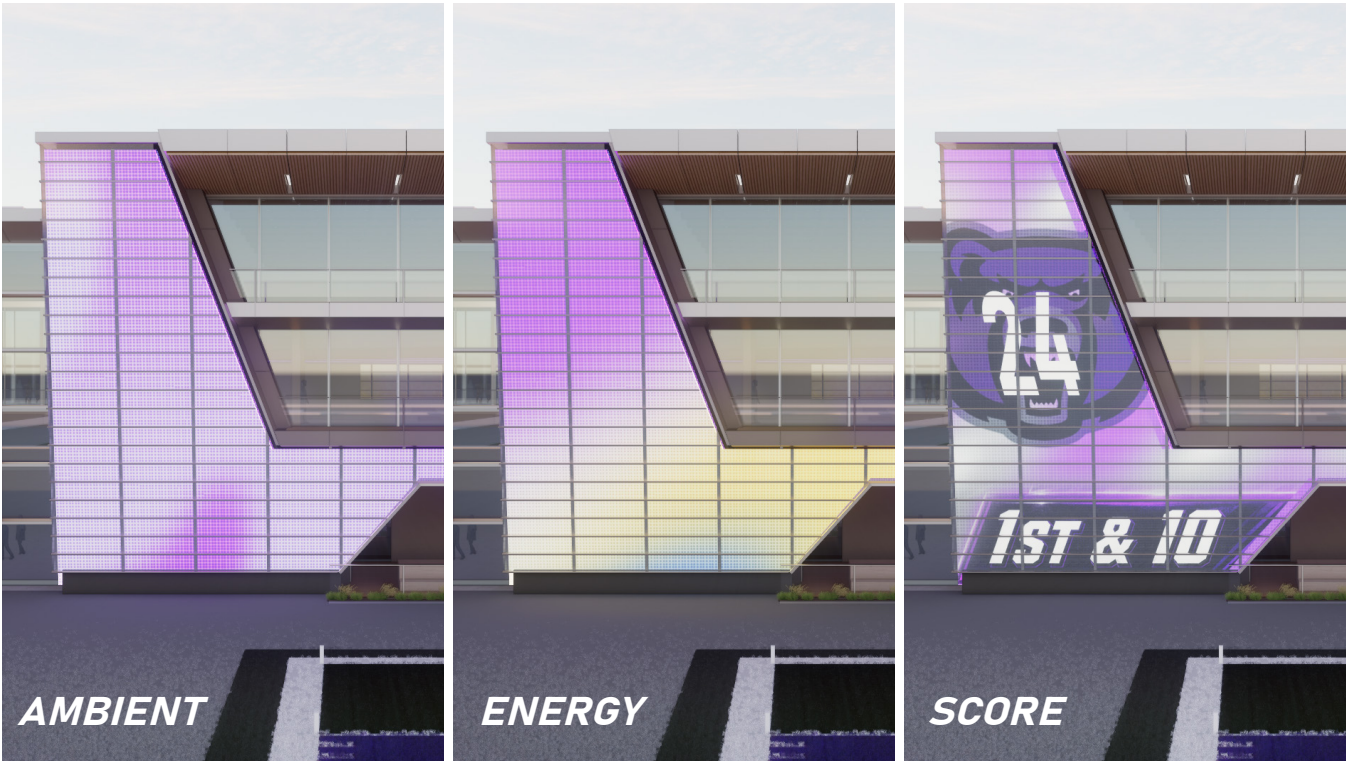
FOOTBALL TERRACE - VIP EXPERIENCE



CLUB TERRACE



FOOTBALL ENTRY - STORMING THE FIELD



SOUTH EXTERIOR LIGHT WALL VARIATIONS





INTERIORS

The UCA Multipurpose Arena extends the campus experience by blending athletics, community, and architecture into a cohesive destination. Inspired by the natural flow of Arkansas, the design uses natural daylight, warm materials, and integrated branding to create an inviting and memorable fan experience.

Expansive glazing fills the concourse with daylight, while Southern Yellow Pine wood beams, integrated linear lighting, and limestone-toned terrazzo flooring reflect Arkansas’ natural landscape. Lighting is seamlessly incorporated into the architectural language, emphasizing movement and guiding visitors through the space.

Branding is thoughtfully integrated into the architecture through illuminated signage, graphics, and material expressions, creating authentic moments of university pride. Together, these elements establish a timeless, hospitality-driven environment that celebrates UCA’s identity while welcoming students, alumni, recruits, and the community.

GENERAL NOTES

1. All millwork to be constructed with formaldehyde-free materials.
2. All millwork counter tops to be solid surface or quartz.
3. All interior paints to be low-odor and have low VOC emissions.
4. All interior adhesives to have low VOC emissions.
5. All rubber bases to be millwork wall finishing system, unless noted otherwise.
6. All cabinetry to be specified with high pressure custom plastic laminate with PVC edge banding, unless noted otherwise.
7. Walls shall have an eggshell paint finish, unless noted otherwise. All door frames shall have a semi-gloss paint finish.
8. All recessed down lighting fixtures to have brushed stainless trim/reflector.
9. Lobby space shall have motorized roller shades. Offices shall have manual roller shades, unless noted otherwise. Conference rooms shall have motorized blackout shades. South Concourse glazing to have motorized shades, dual roller with solar and blackout.
10. All emergency devices to be white and located in the ceiling.
11. All sprinkler heads to be recessed with white escutcheons except in large volume athletic spaces with exposed ceilings.
12. All exit signage to be edge lit red LED.
13. Refer to Room Data Sheets for additional information.

SPECIALTY ITEMS

Athletic Lockers

The custom athletic lockers, constructed of wood and premium laminate finishes, are designed to deliver a premium, high-performance experience while supporting the daily needs of student-athletes. Each locker features custom-grade construction with thoughtfully organized compartments and integrated ventilation to maximize storage, airflow, and durability.

Sized at 36” wide by 32” deep, each locker includes a backlit custom graphic nameplate that creates a personalized identity for every athlete. Heavy-duty drawer glides and soft-close hinges provide long-lasting performance in a high-use environment. Custom upholstered seat and back cushions feature the UCA logo and a tailored stitching pattern, reinforcing the program’s identity while enhancing player comfort. Integrated LED lighting at the compartments and toe kick improves visibility and creates a refined, hospitality-inspired aesthetic. Each locker also includes integrated power and USB charging within a lockable compartment to support personal devices and modern athlete needs. Refer to the Room Data Sheets for additional dimensional, equipment, and performance requirements.

Specialty ceilings are a combination of 3-dimensional Armstrong Castworks GFRG, Acoustibuilt drywall ceiling 0.80 NRC rating Class A, continuous cove lighting, and exposed ceiling structure.



A/V and technology integration includes 80” TV screens at lounge areas, film rooms. LED digital displays at the football locker rooms, and ceiling mounted speakers throughout. Refer to the A/V narrative for additional integration intent. There will be an integrated dry erase board of similar size in each locker room.

FINISH CATEGORIES

Finish Level 1

• Location • Flooring • Walls • Doors • Ceilings • Casework • Counters	General Seating (Includes Seating Bowl Railings) Sealed concrete N/A N/A N/A N/A N/A N/A
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Finish Level 2

• Location • Flooring • Walls • Doors • Ceilings • Casework • Counters	Concourse Areas: Concourse, Practice Court, Restrooms, Concessions, Spectator Services Poured custom terrazzo flooring, epoxy Painted gypsum, accent tile wall, vinyl base, integral, epoxy base, variable acoustic drapery Painted hollow metal doors and frames Glulam beams, southern yellow pine, stained Plastic laminate cabinets Quartz countertop
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Finish Level 3

• Location • Flooring • Walls	Back of House Sealed concrete, epoxy Painted gypsum, accent tile wall, vinyl base, integral, epoxy base, FRP/diamond plate wall guard in kitchen, corridor wall protection & corner guards
• Doors • Ceilings • Casework • Counters	Painted hollow metal doors and frames Exposed structure, gypsum soffits and acoustic ceiling tile Plastic laminate cabinets Solid surface countertop

Finish Level 4

• Location • Flooring • Walls	Team Spaces: Locker Rooms/showers, Training, Team, Lounge, Offices Carpet tile, rubber flooring, porcelain tile at wet areas Painted gypsum, all wet areas to have all tile walls with accent wall, conference rooms to have acoustic wall panels, vinyl base, wood base
• Doors	Painted hollow metal doors and frames, wood doors, with painted hollow metal frame, modular glass walls at office fronts
• Ceilings • Casework • Counters	Exposed structure, gypsum soffits and acoustic ceiling tile, and clouds Wood veneer cabinets Quartz/solid surface countertop



Finish Level 5

- Location
 - Flooring
 - Walls
- Entry Lobbies, Hall of Fame, Club Level**

Terrazzo flooring, tile at bar/wet areas

Painted gypsum, accent tile wall at bar, wood paneling at communal spaces,

Tile/wood base, through body color integral wall protection

Wood doors with painted hollow metal frame

Exposed structure, gypsum and wood soffits

Wood veneer cabinets, specialty millwork trophy cases with integrated lighting

Quartz/solid surface countertop

Custom wall covering/large scale graphics



BASKETBALL LOCKER ROOMS

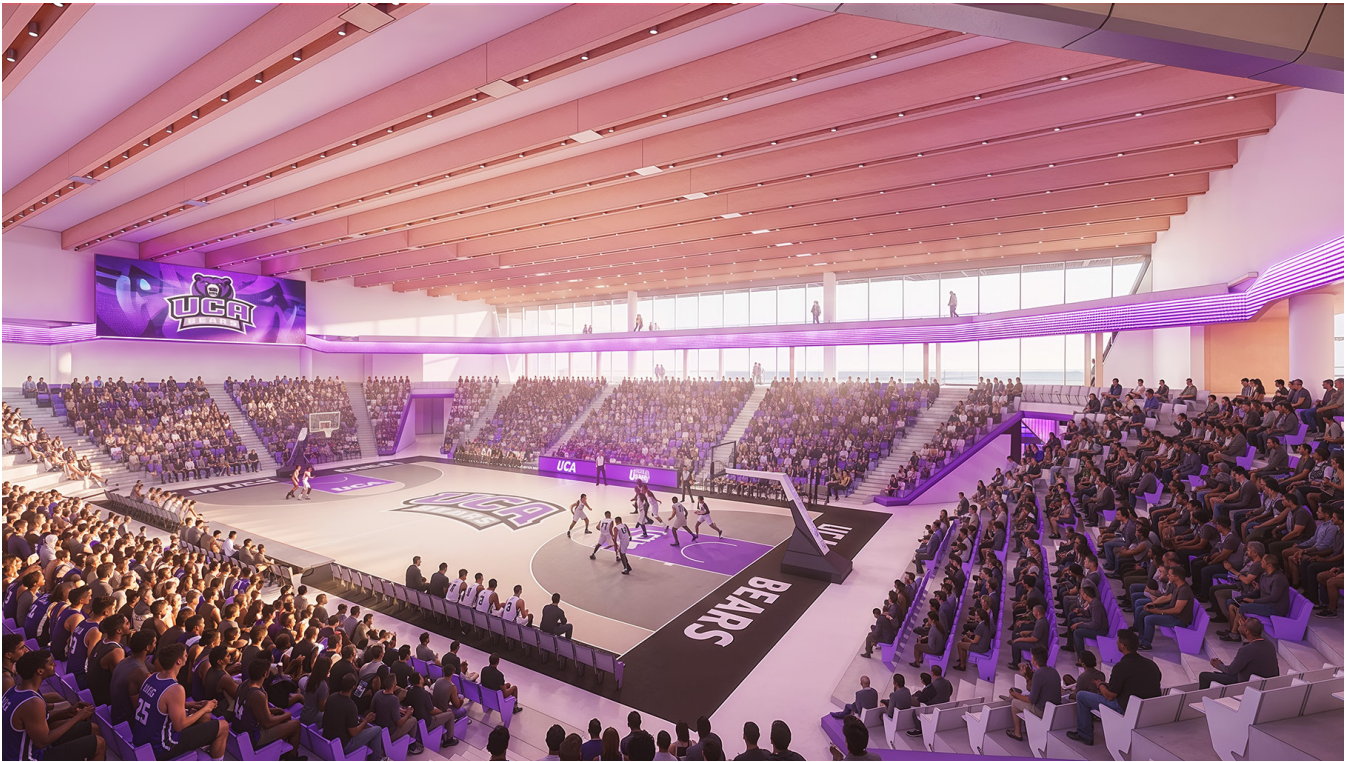


FOOTBALL LOCKER ROOM

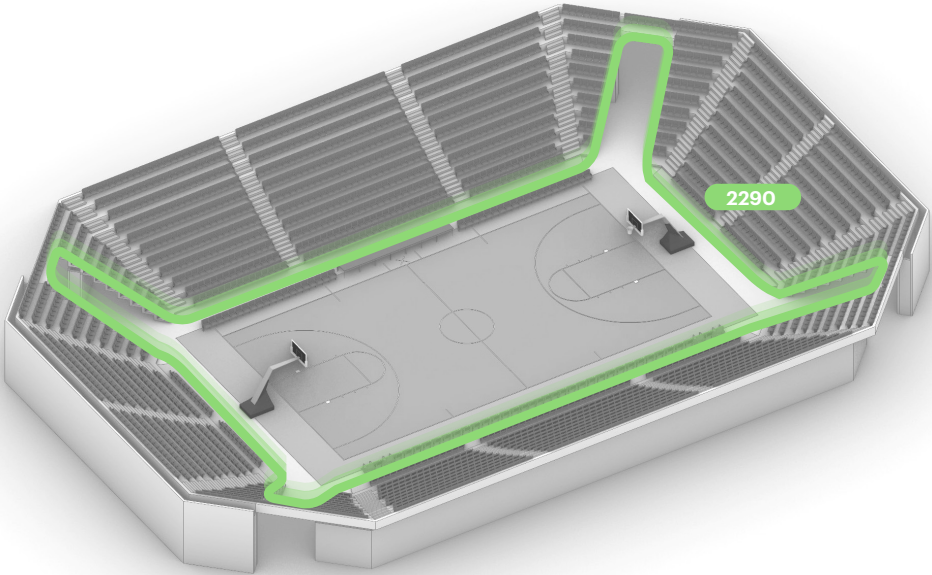




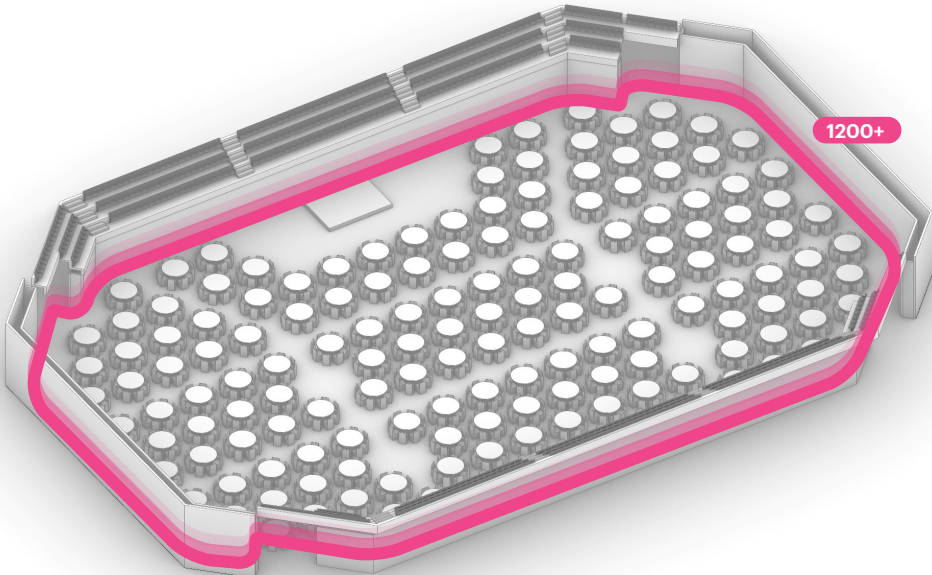
MAIN LOBBY



ARENA BOWL



ARENA BOWL - GAME DAY



RETRACTED BOWL - EVENT FLOOR



LOWER LOBBY - ACCESS TO HALL OF FAME



LOBBY STAIR - FIELD VIEW



HALL OF FAME - UPPER LEVEL



HALL OF FAME - LOWER LEVEL ENTRY



CIVIL

INTRODUCTION

The proposed arena will replace the Farris Center and will be located at the north end of Estes Stadium. Overall project site will be approximately 4 acres, and will close Bruce Street permanently between Farris Road and Western Avenue to public traffic.

BASIS OF DESIGN

- 2010 ADA Standards for Accessible Design
- 2021 Arkansas Fire Prevention Code
- City of Conway Code of Ordinances
- Conway Drainage Criteria Manual Rev. 12.28.20
- 2024 Conway Corp Construction Specifications
- UCA Construction Standards

SITE LAYOUT

The elevation of site is falling from east to west. The proposed location is on an existing street. The Finished Floor Elevation (FFE) is anticipated to be at 310.00. The intent is for public access to the arena be from the north, with loading docks and team entrances to the west. During football activities, the football players will access the football field from the east side of the southwest portion of the arena.

FLOODPLAIN

This property is located outside of the special flood hazard area, Zone X, as shown on the current Flood Insurance Rate Map (FIRM Panel 05045C0279H, effective 12/19/2006). Zone X areas have been determined to be outside of both the 1% and 0.2% annual chance (100-year and 500-year) floodplains.

UTILITIES

Bruce Street has underground electric lines on both sides of the street, as well as a transformer within the current footprint of the proposed arena. The relocation of these lines and equipment will be coordinated with the electrical engineer and Conway Corporation. The current building layout shows the electrical room and emergency electric room to be on the north side of the western portion of the building.

There is an existing fiber optic communications line on the south side of Bruce Street. Relocation of the fiber optic lines will be coordinated with the electrical engineer and Conway Corporation.

There is an existing 8-inch sanitary sewer line that runs north to south under the western portion of the proposed building footprint that will need to be relocated. There are four proposed sanitary sewer lines on the north and west sides of the building. One of the connections on the north side will also have a grease trap. There will also be a 6-inch sanitary sewer line on the north side of the building.

There are existing water lines on both sides of Bruce Street along with one existing fire hydrant. The existing main is running parallel to Bruce Street on the south and turns north and crosses to the northside of Bruce Street between the Farris Center and the Lewis Science Center. There is also a water line running west to the fire hydrant next to the parking lot entrance on the west side of the Farris Center. This main will need to be relocated to the north side of the area of impact. There is a proposed 4-inch domestic and a proposed 6-inch or 8-inch fire line. Both are located on the north side of the western portion of the building. Fire hydrants will be placed in accordance with the 2021 Arkansas Fire Prevention Code requirements. Water meters for domestic and landscape meters will be located on the northwest portion of the area of impact.

There is an existing gas line running underneath the north half of Bruce Street. This line will need to be relocated to the north side of the area of impact. The proposed arena will have a natural gas connection on north side of the facility.

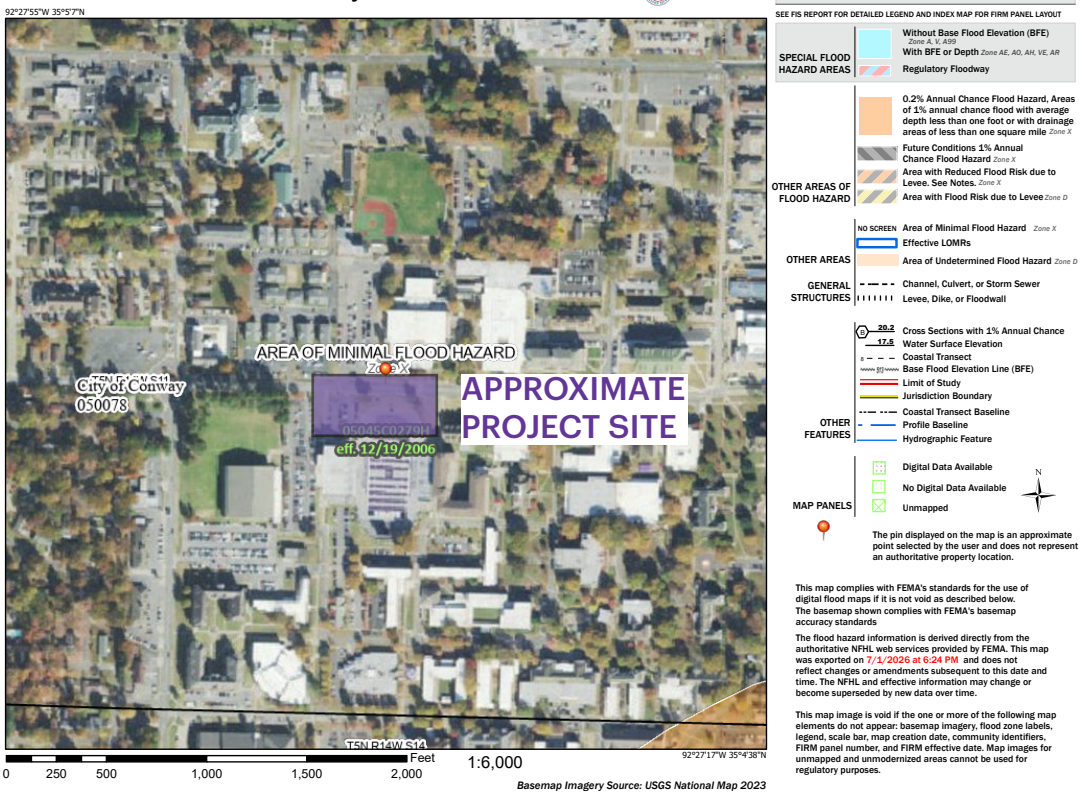
There are existing storm drain lines on both sides of Bruce Street. They run east to west to a main line that runs north to south. The main line is a 3-foot x 6.5-foot box culvert located under the western portion of the proposed arena's footprint. This will need to be relocated to the west along with the lines that are being connected from the north. The existing lines on the north and south sides of Bruce Street will tie into the drainage system for the proposed facility. The storm drainage system will be designed to meet the 10-yr storm per the Conway Drainage Criteria Manual. Storm drain lines for the arena will tie directly to the drainage system.

LANDSCAPE

Landscaping for the property will be done in accordance with the UCA Construction Standards. We will coordinate with the architects and fire marshal to provide access for emergency vehicles around the facility. The current plan on the north side of the arena is to utilize drivable pavers. The south side of the arena will require remediation of the area between the goal post and the new arena to provide emergency vehicle access and to repair damaged turf following construction activities.



National Flood Hazard Layer FIRMette





STRUCTURAL

1. APPLICABLE STRUCTURAL DESIGN CODES

Building Code

- Arkansas Fire Prevention Code (2021 Edition)
- 2021 International Building Code (IBC)

Design Code

- ASCE 7-16 Minimum Design Loads for Buildings & Other Structures

Concrete Code

- ACI 318-19 Building Code Requirements for Structural Concrete

Steel Code

- AISC 360-16 Specification for Structural Steel Buildings

Masonry Code

- TMS 402/ACI 350 Building Code Requirements for Masonry Structures

All required standards shall be as referenced in Chapter 25 of the IBC.

2. GENERAL

2.1 Project Description

The proposed project consists of a new multipurpose athletic facility to be located south of the Farris Center and Bruce Street and north of Estes Stadium on the University of Central Arkansas (UCA) Campus in Conway, Arkansas. This building is planned to have a competition arena, a practice court, football and basketball locker rooms, and athletic personnel offices.



Figure 1 Site Plan: Aerial of Site



2.2 Objective

The object of this narrative is to outline the gravity and lateral structural systems applicable to the proposed facility. The primary performance criteria considered significant in the development of the structural system recommendation are as follows:

- Economic/System Cost
- Speed of Construction
- Long Term Durability
- Structural System Depth
- Control of Deflections/Serviceability
- Impact on Other Systems, Architectural, MEP, etc.

2.3 Methodology

In schematic design, framing systems will be designed for a bay or two of building structure, i.e. “bay studies.” A bay study represents the typical framing spans currently planned for building. Potential lateral systems derive from the primary gravity system material types based on system compatibility.

3. DESIGN CRITERIA

3.1 Design Loads & Building Classification

The following preliminary load criteria have been established with regard to the listed applicable codes, design loads, fire protection, and construction types. These loads assume the structure will be classified as a structure that could pose a substantial risk to human life with assembly type occupancy.

- Occupancy CategoryType III

3.1.1 Floor Loads

Superimposed live loads on the floors are proposed as the following:

- | | |
|----------------------------------|---------|
| Assembly Areas (non-reducible) | 100 psf |
| Fixed Seating (non-reducible) | 60 psf |
| Offices (reducible) | 60 psf |
| Locker Rooms (reducible) | 100 psf |
| Mechanical Areas (non-reducible) | 150 psf |
| Storage Rooms (non-reducible) | 125 psf |
| Kitchens (non-reducible) | 125 psf |
| Stairs & Exits (non-reducible) | 100 psf |
| Roof (non-reducible) | 20 psf |

A live partition load of 20 psf will be included with all listed loads less than 100 psf. Higher loads would be used where required, such as elevated mechanical spaces, kitchens, specialty equipment areas, or areas with additional floor systems or hanging loads.

Consideration of increasing the floor live loading of lighter occupancy spaces provides a nominal amount of flexibility for future changes and allows a majority of floor area across the lower levels of the project to use consistent framing. This creates a more resilient and durable structure with a potentially longer lifespan. Often there is minimal initial cost impact for this load increase with significant long-term benefits with changing space functions.

Typical superimposed dead loads are proposed as the following. These loads cover ceilings, MEP distribution systems, and floor finishes. At the roof level the load includes the typical systems hung from the structure below and an additional allowance for the roofing system. Any areas with further superimposed dead loads, such as curbs, heavy floor finishes, or housekeeping pads, etc, should be identified and planned for. Heavy piping over mechanical spaces or primary chilled water/hot water supply and return lines will be considered.

- | | |
|---------------------|--------|
| Typical Floor Areas | 15 psf |
| Typical Roof | 20 psf |
| Arena Roof | 25 psf |



3.1.2 Snow Loads

Design snow loads will be applied in accordance with ASCE 7. The following criteria are applicable to this project:

- Mean Recurrence Interval50 Years
- Ground Snow Load10 psf
- Importance Factor1.1
- ExposureC
- Exposure Factor1.0
- Thermal Factor1.0
- Flat Roof Snow Load for Design7.7 psf (Minimum)

Snow drift loads must be calculated based on final building configurations. These drift loads will occur on top of the roof systems per the code required load combinations.

3.1.3 Ice Loads

Design ice loads will be applied in accordance with ASCE 7-16 Concurrent wind loads are reduced when ice gravity loads are included. The following criteria are applicable to this project:

- Mean Recurrence Interval50 Years
- Uniform Mapped Ice Thickness1.5 in
- Mapped Concurrent Design Wind Pressure30 mph
- Ice Importance Factor1.15
- Concurrent Wind Importance Factor1.00
- Height Factor, at 50 ft1.09
- Design Ice Thickness1.85 in
- Ice Density56 pcf

3.1.4 Wind Design Criteria

Design wind loads will be applied in accordance with ASCE 7. The following criteria are applicable to this project:

- Basic Wind Speed114 mph
- ExposureC
- Velocity Pressure at h=0 ft, Kz & qz0.85 & 24 psf
- Velocity Pressure at h=50 ft, Kz & qz1.09 & 21 psf

3.1.5 Seismic Design Criteria

Design seismic loads will be applied in accordance with ASCE 7. The following criteria are applicable to this project:

- Mean Recurrence Interval50 Years
- Importance Factor1.25
- Site Location
 - Latitude35.09°
 - Longitude-92.44°
- Soil Site ClassificationC
- Mapped Spectral Response Accelerations
 - Ss0.6
 - S10.18
- Spectral Response Coefficients
 - Sds0.4
 - Sd10.15
- Seismic Design CategoryC



3.2 Fire Protection

The proposed facility Fire Protection requirements must be coordinated with the selected architectural classification. Typically, for a sports facility a 2-hour rated structure is required for the columns and floor to floor. A reduced 1-hour rated structure can be used for the arena roof.

For concrete structural systems this fire rating requirement determines the required clear concrete cover to the reinforcement and the minimum floor slab thickness. For steel systems the fire rating requirement dictates the thickness of fireproofing on the steel beams and the thickness of concrete above the composite metal deck per the approved deck UL assembly ratings.

4. FOUNDATIONS

4.1 Foundation Systems

A site and structure specific geotechnical report was provided by Building & Earth Sciences, LLC dated 06/11/2026. Per the geotechnical report recommendations, the foundation system is recommended to be drilled concrete piers bearing in weathered shale.

As noted above, the building seismic design is classified as SCD-C. The building code requires foundation ties between individual drilled piers. This will be accomplished with either grade beams below the slab-on-grade or reinforced thickened beams integral with the slab on grade.

Preliminarily estimated column service loads and pier diameters and embedment into shale are listed in the table below.

		Typical Estimated Foundation Loads		Approximate Drilled Pier Size
Location	Number of Stories	Interior Column	Exterior Column	
Competition Arena	3	160 to 200 kips	160 to 200 kips	36” diameter with 8’-0” penetration into shale for both exterior and interior columns
Columns Below Arena Roof Trusses	-	-	580 to 620 kips	60” diameter with 8’-0” penetration into shale
Practice Gym, Personnel, Offices, & Locker Rooms	2	240 to 290 kips	120 to 150 kips	36” diameter with 8’-0” penetration into shale at interior, 30” diameter with 8’-0” penetration into shale at exterior

4.2 Slab-On-Grade

The ground/first floor level slabs will be a slab-on-grade per the geotechnical recommendations. The subgrade will consist of four-inch layer of DOT approved graded aggregate base over natural ground or compacted structural fill moisture conditioned and compacted to a minimum of 98% of the standard Proctor Value. The slab-on-grade construction will consist of a 5” thick normal-weight concrete slab with #4 rebar spaced at 16 inches on center in each direction.



5. GRAVITY FRAMING

The following structural and roof framing systems will be used on this project.

- Composite Steel Framing
- Mass Timber Framing

5.1 Composite Steel Framing

Structural steel framing is one of the most common systems used throughout the country. It represents an economical solution capable of carrying the floor loads with longer spans and increased bay sizes. Steel systems are much lighter than concrete framing resulting in reduced foundation system sizes. Because of the required fire rating in sports facilities, steel framing typically requires fire proofing.

The vibration characteristics of a steel floor will be more sensitive than that of a concrete beam and slab, but can be engineered within acceptable levels. Specific areas with sensitive equipment could warrant a thicker floor slab or heavier beam framing to minimize the vibration translating through the building. A summary of the typical beam and slab floor framing properties is as follows:

System Properties:

- Typical Floor Composite Slab (NWC)
 - Concrete above metal deck4 1/2" thick
 - Composite deck3", 20 gage deck
 - Total composite slab thickness7 1/2"
 - Reinforcement#4 @ 16" on center each way 2 hours
 - Fire assembly rating2 hours
- Typical Metal Roof Deck3" type N, 20 Gage
- Interior Girders
 - Span24'-0" to 30'-0"
 - Beam SizeW24X55 to W24X68
 - LocationAt Grids
- Perimeter Girders (Note the size depends highly on exterior skin loads and deflection requirements to support the skin)
 - Spans28'-0" to 32'-0"
 - Beam SizeW21X50 to W24X55
 - LocationAt perimeter grids
- Total Steel Gravity System13 to 16 psf Steel Tonnage

To eliminate columns in the locker rooms, deeper W27 beams will be utilized to clear span the rooms. For steel moment frames, an additional 3 to 5 psf steel tonnage allowance would be required. Steel braced frames result in minimal additional steel tonnage. See Section 7 for the material properties of the steel members and concrete slab.

5.2 Mass Timber Framing

Mass timber is both a relatively new material for use in buildings and has been around and proven for centuries. New manufacturing processes have allowed the creation of glued assemblies for columns, beams, floors, and roofs. The glues and resulting wood assemblies have been fire tested to modern codes and found to often exceed the performance of steel structures.

The recent growth of manufacturing facilities has been enabled by automation and high tech glue formulations. Because the facilities are new, they use some of the latest equipment and techniques allowing high tolerance, and the low labor intensity results in cost effective systems. New floor and roof systems such as Cross Laminated Timber (CLT) complement the long standing glued-laminated timber (glulam) framing used for beams and columns.

Within North America mass timber is sustainably grown and harvested. North America actually has an overabundance of the material that needs to be used in order to sustain the private forestry industry.

Overall, mass timber is lighter than concrete and steel. It has fewer pieces to put in place than steel and can be erected quicker with fewer workers. Similar to steel construction, mass timber is fabricated in pieces (beams, columns, floor panels) offsite and erected by bolting those pieces together onsite. Due to this fact, a hybrid mass timber & steel structure can be attractive. For this project, mass timber is used in select locations at the arena roof, lobby entry roof, and practice court roof as described in the following sections.



5.3 Competition Arena Roof

The structure for the arena roof will consist of approximately 65 foot long glued-laminated timber beams spanning over the long direction of the basketball court to two 168 foot long steel trusses spanning over the short direction basketball court. The trusses will be upturned above the roof and are supported on 36 inch diameter concrete columns. An acoustic deep metal roof deck spans 12 feet between the glulam beams. See below for a framing summary and see the appendix for a framing plan and sections. See Section 7 for material properties for the wood and steel members.

- Roof Deck (12 foot span)
 - Epic deck Toris 4A Acoustic4" deep
- Beam Size (65 foot span)(2) 12 1/4" x 37 1/8"
- Roof Truss (168 foot span)W-Flange Chord and Web members

5.4 Entry Lobby Roof & Practice Court Roof

The entry lobby and practice court roof will consist of glulam double beams spaced at 12 feet on center and spanning across the short dimension of the practice gym court. See the appendix for framing plans. See Section 7 for material properties for the wood and steel members. A summary of the typical beam and slab floor framing properties is as follows:

- Roof Deck (12 foot span)
 - Epic deck Toris 4A Acoustic4" deep
- Entry Lobby Beams(2) GL 10 1/4" x 22" @ 12'-0" on center
- Entry Lobby GirdersW12X50 Girders
- Practice Court Beams(2) GL 12 1/4" x 33 7/8"
- Practice Court GirdersGL 12 1/4" x 33 7/8"
- Practice Court ColumnsGL 10 1/4" x 11"

6. LATERAL FORCE RESISTING SYSTEM

6.1 Lateral System Design Criteria

Drift limitations for the building designs must maintain acceptable limitation ratios for the overall building drift and the floor to floor drift. For the design of this building the following drift limitations should be used in the lateral system design:

Wind:

- Drift Ratio0.0025 x h_x
- Deflection LimitationL/400

Seismic:

- Allowable Story Drift0.010 x h_x
- Deflection LimitationL/100

The wind ratios follow generally accepted engineering practice for buildings of this approximate height. For seismic, the drift limits are listed in Table 12.12-1 of ASCE 7-16 for each occupancy category. These limitations are the full inelastic drift response in an earthquake event and are the values above. The allowed calculated elastic drifts for a given lateral system type are dictated by the response factor, R, of a system, and the deflection amplification factor, Cd. Both factors can be found in ASCE 7 for lateral systems of many different types and materials.

For the Seismic Design Category of this building, SDC C, there are code required limitations on lateral system type or building height. An "ordinary" or "intermediate" class lateral system should be sufficient for the level of seismic activity and load at this site.

6.2 Lateral System Conclusion

For a low-rise building in a region with normal wind loads and moderate seismic activity, any lateral system compatible with the gravity framing type can be used. A hybrid steel braced frame and moment frame system based on economy of implementation and compatibility with the building layout is anticipated.



7. MATERIAL REQUIREMENTS

7.1 Concrete

Concrete shall comply with the following minimum 28-day compressive strengths. All concrete is based on normal-weight aggregates. Specific system requirements have been noted above.

- Concrete Columns
 - Strength4,000 psi (min)
 - Aggregates11/2” max aggregate
 - Assume high range water reducers for slump
- Drilled Piers
 - Strength4,000 psi (min)
 - Aggregates11/2” max aggregate
 - Assume high range water reducers for piers
- Slabs-on-Grade
 - Strength4,000 psi (min)
 - Aggregate1” max aggregate
 - Assume high range water reducers to increase slumps
- Exterior Slabs-on-Grade
 - Strength4,500 psi (min)
 - Aggregates1” max aggregate
 - Assume use of water reducers to increase slumps
- Retaining Walls
 - Strength4,500 psi (min)
 - Aggregates11/2” max aggregate
 - Assume use of water reducers to increase slumps
- Elevated Concrete Slab-on-Metal Deck
 - Strength4,000 psi (min)
 - Aggregate3/4” max aggregate
 - Assume use of water reducers to increase slumps

Use water reducing admixtures and other concrete admixtures in accordance with ACI. Slumps without water reducers shall no greater than 4” with a water to cementitious content for all types of concrete not greater than 0.45. Additional requirements are as follows:

- Concrete Shrinkage Limitation: Applicable to concrete framing systems, walls, slab-on-grade, and other horizontal surfaces. Maximum average drying shrinkage at 28-days of air storage shall not exceed 0.04 percent when tested in accordance with ASTM C 157.
- Minimize Paste Content: use the lowest possible cementitious content necessary for the specified strength and aggregate size: Water shall be determined from this condition. All additional slump and workability shall be achieved with mid to high range water reducers. In no case shall the paste content be increased for workability.
- Control of Water Content in Concrete: Control water at all times during mixing, placing, finishing, curing and after completion of curing phase. Excess water during mixing and placing phases effects properties of concrete, including but not limited to strength, shrinkage/cracking, set-time and long-term durability. Excess water after curing phase effects drying of hardened concrete with direct effect on application of finish materials applied with adhesives sensitive to moisture and/or water vapor.

7.2 Concrete Reinforcing

Reinforcing steel types and grades shall comply with ACI requirements and building code:

- ASTM A615 Gr. 60 (rebar)
- ASTM C1116, Type 3 macro-monofilament fibers manufactured for use as temperature and shrinkage reinforcement with dosage to achieve an average residual strength of 200 psi, but not less than 5 lb/cubic yard.

Shrinkage reducing fibers in slabs on grade or elevated concrete on metal deck are allowed for shrinkage reduction or as temperature steel replacement provided the surface finish of the concrete is not compromised. Use fibers and dosages specifically designed to replace rebar where applicable.



7.3 Structural Steel

Structural steel framing shall comply with the following designations:

- W-ShapesASTM A992
- HSS-Shapes: Round
 - ASTM A500, Grade C, round 46 ksi, rectangular 50 ksi
 - ASTM A1085
- All other Shapes, PlatesASTM A36
- Rods and Anchor BoltsF1554 Grade 36
- Headed Studs (Composite)2/4” dia full fusion welded
- Galvanizing of Steel FramingASTM A123

All exterior steel framing for support of screen walls, equipment dunnage, or other exposed element shall be assumed to be galvanized.

7.4 Structural Deck

Structural steel deck shall comply with ASTM A653 with the following types:

- Roof Deck, galvanized G903” 18 Gauge, Type N
- Composite Deck, galvanized G903” 20 Gauge, Type B

Roof deck attachment shall assume the use of shot in fasteners for anchorage with screwed side laps. Final fastener frequency depends on lateral system requirements.

7.5 Structural Wood

Wood framing shall comply with the following material requirements:

- Glulam BeamsSouthern Pine, 24F-V3
- Glulam ColumnsSouthern Pine, 47-SP-N2M12
- Glulam Appearance ClassificationArchitectural

Roof deck attachment shall assume the use of shot in fasteners for anchorage with screwed side laps. Final fastener frequency depends on lateral system requirements.

7.6 Masonry

Masonry construction used for partitions in wet areas or interior partitions shall comply with the following. All cells with reinforcement shall be grouted solid:

- Concrete Masonry Units, ASTM C90Normal Weight Type 1
- Compressive Strength
 - Net Individual1700 psi
 - Net Average of 3 units1900 psi
- Mortar
 - TypeASTM C476 Type S
 - Strength at 28 days1800 psi cube strength
- Grout
 - TypeASTM C476
 - Strength at 28 days2500 psi
- Joint ReinforcementASTM A82 wire ladder
- Masonry Wall Assembly (minimum)F’m of 1500 psi



MECHANICAL

HVAC

The facility shall be designed in compliance with ASHRAE 90.1-2013.

The new facility will be heated and cooled utilizing 8” chilled water supply and return piping routed from the nearby district cooling loop and three 3,000 MBH condensing hot water boilers located in the new building.

Heating, ventilation and air conditioning for the arena, common spaces, offices, concession areas, locker rooms, and practice gym areas will be provided by indoor variable volume air handling units. These units will contain chilled water coils, integral face and bypass preheat water coils, filters, energy recovery wheel (where applicable), exhaust fans (where applicable), and supply fans. The ventilation air will be delivered to the occupied spaces through the air handling units. The arena and practice gym air handling units shall be single zone variable volume units. The supply air from the remaining units shall be distributed to variable volume terminals with hot water reheat coils to provide zoned temperature control. The air will be supplied to the spaces through ceiling mounted supply diffusers or sidewall duct-mounted diffusers. The ceiling cavity will be utilized as a return air plenum wherever practical. Air handling equipment shall be provided with airflows as follows:

AHU-1:	16,000 CFM
AHU-2:	13,000 CFM
AHU-3:	9,400 CFM
AHU-4:	20,000 CFM
AHU-5:	13,000 CFM
AHU-6:	7,000 CFM
AHU-7A:	30,000 CFM
AHU-7B:	30,000 CFM
ERAHU-1:	4,000 CFM SUPPLY / 3,500 CFM EXHAUST

Humidification shall be provided for the air handling units AHU-4, AHU-7A, and AHU-7B which serve the practice gym and the arena. Humidification within those areas to be served shall be maintained at a minimum of 35% relative humidity (RH) year-round to help protect the flooring.

District chilled water piping routed to the building into the East mechanical room and be provided with a building booster pump. Supply and return chilled water piping will be pumped throughout the facility to the indoor air handling units.

The heating hot water system will consist of condensing hot water boilers located in the east arena mechanical room. Category IV flues will be routed up through the second floor above the mechanical room to the roof. Each boiler will be piped in a primary – secondary arrangement with two (duty and standby) variable volume building pumps. Hot water piping will be routed through the facility to the indoor air handling units and the variable volume terminal units on each floor.

The ductwork will be comprised of galvanized sheet metal and constructed in accordance with current SMACNA duct construction standards. Supply air ducts that deliver air from the air handling units to the terminal boxes will be high pressure, flat oval or round, spiral lock seam construction. Supply air downstream of terminal boxes, and all return and exhaust ducts will be low pressure. Concealed ductwork is to be insulated with two inch thick, one pound density, fiberglass ductwrap. Exposed supply ductwork will be dual wall spiral ductwork, and exposed return ductwork will be insulated with two inch thick fiberglass ductboard with canvas covering.

Chilled and hot water piping will be Schedule 40 black steel pipe for sizes 2½” and larger. Piping 2” and smaller shall be Type “L” hard drawn copper tubing. Piping will be insulated with fiberglass pipe insulation 2” thick for piping 2” and larger and 1” thick for piping 1½” and smaller condensate drain piping will be Type “M” copper and will be insulated with 1” thick fiberglass insulation. District chilled water piping shall be SDR11 HDPE piping and fittings.



Building chilled and heating water pumps shall be vertical in-line split coupled pumps with inverter-duty motors and shaft grounding rings. Each pump shall be provided with a variable speed drive with an electronic bypass. Boiler primary pumps will be vertical inline circulators with ECM motors.

Variable Frequency Drives (VFD) equal to ABB ACH580 series with bypass, input line reactors, and LCD display will be provided for all HVAC motor loads requiring variable control. Non-fusible heavy duty electrical disconnects shall be provided at each piece of HVAC equipment not requiring a VFD. Fusible disconnects shall be provided at all equipment as required by the manufacturer. Honeywell and Danfoss drives are also acceptable as equals.

The HVAC equipment (boilers, pumps, AHU’s, VAV terminals, exhaust fans, fan coil units, etc.) shall be controlled by a building automation system. In addition to standard AHU, VAV, Chilled and Heating Water System monitored control points, chilled water district isolation valve position, AHU coil entering / leaving water temperatures, chilled / heating water flow, boiler BACnet interfaces, Pump BACnet interfaces, heating water makeup water flow, domestic hot water temperature, domestic water pump status will all be monitored control points. Domestic water usage, natural gas usage, total electrical energy, HVAC systems, interior lighting, exterior lighting, and receptacle circuits shall all be recorded a minimum of every 15 minutes and stored for a minimum of 2 years in the building automation system per ASHRAE 90.1-2013. This system is interfaced with the campus building automation system. This system is to provide local and remote-control ability.



PLUMBING

GENERAL

Isolation valves shall be provided throughout the building to enable servicing, expansion, renovation or construction of any part of the facility without interruption of plumbing services to adjacent spaces. Isolation valves shall be included at each restroom. Condensate drains shall be provided from air conditioning equipment to discharge indirectly to approved receptors. General purpose floor drains shall be provided in each public restroom, including restrooms with one water closet and lavatory. Elevators shall be provided with a 50 GPM sump pump and pit, and shall discharge to a barrel for future collection.

PLUMBING FIXTURES

All plumbing fixtures will be High Efficiency Type, and maintain the following water consumption values:

- Water Closet (flush valve) = 1.6 GPF
- Urinal = 1.0 GPF
- Lavatory = 0.5 GPM
- Sink = 1.5 GPM
- Shower = 1.5 GPM

- Where shown on architectural plan, fixtures will be mounted at ADA accessible elevation.
- Water closets will be wall mounted vitreous china with hardwired sensor operated electronic flush valves.
- Urinals will be wall hung vitreous china with hardwired sensor operated electronic flush valves.
- Lavatories will be vitreous china wall mounted or under-counter type with hardwired sensor faucets, with 0.5 gpm flow restrictors and ADA insulation kits. Lavatories in the public restrooms will be the metering type.
- Sinks in break rooms will be stainless steel single or double compartment type with ADA compliant faucets.
- Shower heads in home and visitors shower rooms shall be mounted at a minimum of 6 feet 6 inches.
- Janitor's mop sinks shall be 24" x 24" x 10" terrazzo floor mounted type.
- Electric water coolers shall have bottle filling stations.
- General-purpose floor drains with removable nickel bronze grates will be in each toilet room, including toilet rooms with one water closet and lavatory.
- Recessed box type mild-climate wall hydrants will be on the exterior of the building near each entrance or at a maximum of every 100 feet around the perimeter of the building.
- Appropriate 'barrier free' fixtures will be provided in accordance with the "Americans with Disabilities Act" (ADA).
- Floor drains for general use will be provided with removable nickel bronze grates and trap primers.
- One above slab hot hydrotherapy tub for 6-8 people
- One above slab cold hydrotherapy tub for 6-8 people
- Hot water can wash shall be provided at the loading dock and marshalling area



DOMESTIC WATER SYSTEM

A new 4-inch domestic water service line will be provided for the new UCA Arena building. A reduced pressure zone backflow preventer in accordance with the water department's cross connection control requirements will be installed in the new domestic water entry room, located at the north side of the building. The domestic water service room shall be shared with the fire protection riser and backflow device. A domestic water booster pump is not anticipated to be needed for the scope of work. Further review will be needed to confirm this upon review of a current site hydrant flow test.

- Domestic hot and cold water will be provided for all domestic plumbing fixtures and devices that require potable water.
- Type L copper piping will be used for above ground domestic hot, hot water return, and cold water piping with soldering and/or mechanical joints.
- The cold water distribution piping will be sized for a maximum velocity of 8 FPS.
- Quarter turn ball valves (brass/bronze) with solid metal stem for isolation valves will be used. For pipe sizes 2-1/2" and over butterfly valves will be used.
- Isolation valves will be provided throughout the facility to enable servicing of any part of the facility without interruption of plumbing services to adjacent spaces. In addition, isolation valves will be provided on mains and branches to isolate piping sections for maintenance.
- Water hammer arresters will be installed on all domestic water piping in accordance with PDI (Plumbing & Drainage Institute) Standards.
- All interior exposed insulated piping & fittings will be provided with PVC jackets. Jackets will be plenum rated where applicable.
- All piping will be identified in accordance ASME A13.1 with preprinted self-adhesive or self-banding markers spaced at a maximum of 50' or 25' in congested areas.

DOMESTIC HOT WATER SYSTEM

The domestic hot water system shall be centralized natural gas fired tankless water heaters with storage. Storage shall be provided for the large demand of hot water required for team showering during peak hours. The water heaters shall generate 140 degree F. water, and will be distributed throughout the facility at a temperature of 110 degree F. using recirculation pumps and a master mixing valve (with bypass for maintenance). Hot water service to the kitchen will be 140 degree F., hand sinks will have point of use mixing valves set to 100 degree F.

- Point-of-use ASSE listed thermostatic mixing valves will be installed at the plumbing fixtures to dispense hot water at the required lower temperatures
- Hot water balancing valves will be installed to maintain adequate water temperature in all sections of piping.
- The hot water distribution piping will be sized for a maximum velocity of 5 FPS.
- All domestic hot, and hot water return piping will be insulated with minimum 1" thick fiberglass insulation with "all service jacket".
- All insulating materials, adhesives, coatings, etc., will have a flame spread of 25 or less and smoke developed rating not higher than 50. All containers for mastics and adhesives will have U.L. Label.

SANITARY, WASTE & VENT SYSTEM

Two new 4-inch and one 6-inch sanitary sewer lines will exit from the north side of the building, and two new 4-inch sanitary sewer lines will exit from the west side of the building.

- Epoxy coated hub-less cast iron pipe and fittings with heavy duty corrugated stainless steel couplings, will be used above grade for waste and vent piping. Schedule 40 solid wall PVC (polyvinyl chloride), Schedule 40, DWV, ASTM D-2655-77 with NFS seal of approval piping with solvent cement fittings will be used below grade for waste and vent piping.
- Any sanitary sewer, or vent piping in HVAC return air plenum shall be cast iron with hub & spigot type joints below grade and hubless type joints above grade. Hub & spigot joints shall be made with neoprene rubber type material and hubless joints shall be made with heavy-duty stainless steel and neoprene couplings.
- Floor drains shall be provided with trap primers where required.
- Cleanouts shall be provided on ground level to facilitate maintenance.



GREASE, WASTE AND VENT SYSTEM

A new 3,000 gallon grease interceptor and sampling box will be provided to serve the kitchen, and shall be located on the north/ west side of the building. The grease trap shall comply with the 2018 Arkansas Plumbing Code, and shall be installed if in accordance with the Arkansas Department of Health.

- Epoxy coated hub-less cast iron pipe and fittings with Heavy duty corrugated stainless steel couplings will be used above and below grade for grease waste and vent piping.
- The gravity grease interceptor shall be designed and tested in accordance with IAPMO/ANSI Z1001-2016.
- An industrial grade self regulating electric heater trace system shall be used for the grease interceptor piping.

STORM WATER DRAINAGE SYSTEM

A gravity storm drainage system will be provided for the facility. The system will connect to each roof drain, area drain. The storm drainage system will be sized based upon the local rainfall rate of 3.75 inch per hour and an 1/8-inch per foot horizontal slope. Secondary roof drains will discharge separate from the primary system to grade.

- Epoxy coated hub-less cast iron pipe and fittings with Heavy duty corrugated stainless steel couplings, will be used above grade for storm piping. Schedule 40 solid wall PVC (polyvinyl chloride), Schedule 40, DWV, ASTM D-2655-77 with NFS seal of approval piping with solvent cement fittings will be used below grade for storm piping.
- Any sanitary sewer, or vent piping in HVAC return air plenum shall be cast iron with hub & spigot type joints below grade and hubless type joints above grade. Hub & spigot joints shall be made with neoprene rubber type material and hubless joints shall be made with heavy-duty stainless steel and neoprene couplings.
- Cleanouts shall be provided on ground level to facilitate maintenance.
- 1” glass fiber insulation shall be provided for all storm and overflow drain piping.

NATURAL GAS SYSTEM

One new natural gas service line with gas meter will be provided by the local gas company. The location will be coordinated with the local gas company (CenterPoint Energy), civil engineer and the architect during design. The distribution system will include all regulators, valves, vents, piping, and fittings that are required for the facility. The operating pressure of the gas meter/ regulator assembly will be 2-5 psi. The natural gas service total connected load is unknown at this time.

- All areas being served with gas will have isolation valves to enable maintenance of any equipment without shutting down the entire system.
- Low pressure natural gas distribution system will be based on a maximum pressure of 10-inch water column.
- Piping inside building shall be ASTM A-120-79, carbon steel, butt welded, Schedule 40 black steel.
- Gas service outside building in ground shall be plastic pipe. Plastic pipe shall be “SDR-11 Driscopipe 6500” with copper trace wire, or approved equal, conforming to ASTM C2513. Connections and transition fittings shall be made by heat fusion, mechanical coupling.





FIRE PROTECTION

FIRE PROTECTION SPRINKLER SYSTEM

The entire building shall be protected by a new wet standpipe and dry sprinkler system with fire pump designed and installed in accordance with NFPA (National Fire Protection Association), all state and local codes, standards, recommended practices and guides. A sprinkler system booster pump will be required to increase system pressure.

Sprinkler heads shall be of the standard design and quick response type. Piping shall be Schedule 40 steel. Piping shall be seismically braced as required.

Backflow prevention assemblies shall be designed and installed in accordance with the Arkansas Department of Health, Division of Engineering Cross-Connection Control Program, NFPA 13, 14 and 20 and local codes.

Fire protection piping shall be designed and installed so that system is fed from fire service into the fire pump room. Piping to be routed full size where it will be routed below grade to free standing remote fire department connection located at edge of parking lot.





ELECTRICAL

New electrical power, lighting, fire alarm, lightning protection, communications, and access control / security systems shall be provided for the new Multipurpose Arena as described below. All systems shall be designed in compliance with ASHRAE 90.1-2013.

GENERAL

The following services and systems are planned for this facility.

- Electrical service power: 480Y/277V, 3-phase, 4-wire
- Lighting: interior, site, specialty sports, emergency/egress, controls
- Emergency generator with life safety and standby power transfer switches
- Fire detection and alarm – Johnson Controls (campus standard)
- A/V system conduit, boxes and 120V power
- Fiber and Cat 6 data cabling scope has not been determined if provided by owner or contractor at this point
- Security: access control box, conduit only and 120V power supplies, CCTV Cat 6 data cabling (camera’s furnished and installed by owner)
- Company switches for broadcast trucks, satellite truck and road show venues inside arena
- ESPN broadcast control room box, conduit and power supplies

ELECTRICAL POWER

The existing underground primary electrical line relocation near Bruce Street will be handled directly with owner and Conway Corporation.

Electrical service will be provided from an on-site pad mounted transformer located near the northwest corner of the building. Loaction to be coordinated with architect and thoughtfully screened from public viewing. Metering per Conway Corporation. New underground electrical secondary service shall be 480Y277V, 3-phase, 4-wire with copper conductors from the pad mount transformer to a pad mounted exterior Main Electrical Service disconnect circuit breaker enclosure. The main feeder will be routed from the exterior Main Electrical Service disconnect into the building to a main lugs only distribution switchboard.

The estimated size for the new electrical service is 3000A for the building.

All grounding and bonding shall be per NEC Article 250. A UL 1449 3rd Edition compliant Surge Protective Device (SPD) shall be provided at the main electrical service entrance. Main SPD device rating of 200kA per mode.

Power metering at switchboard will be Square D PM5000 series.

I-Line distribution and lighting and appliance electrical panelboards shall be located throughout the building on each floor in the main and secondary electrical rooms. Separate panels will be provided for lighting, mechanical equipment, and general purpose power loads. All panel boards shall be provided with copper bussing and bolt on circuit breakers. 208Y/120V loads will be fed from dry-type transformers in each electrical room. Electrical loads shall be balanced within 10%. Branch circuit panelboards containing electronic or digital power circuits will be supplied with branch SPD devices with rating of 40kA per mode.

In addition to dry type transformer general purpose use throughout the building there will be an additional 4-112.5 kva dry type transformers to serve company switches. Company switches will be 1-400A weather resistant, 1-100A weather resistant, 2-400A indoor and 2-200A indoor. Company switches shall be similar to Lex Products CS Series.

All electrical circuits shall be routed in conduit. All electrical conduits shall be fully concealed. Underground conduits shall be a minimum 1” Sch. 40 PVC with Galvanized Rigid Steel (GRS) long sweep elbows. Outdoor conduits installed above grade shall be GRS with threaded connections. Indoor conduits shall be Electrical Metallic Tubing (EMT) with compression type fittings. Minimum indoor conduit size shall be a minimum ¾”.

Electrical conductors for all feeder and branch circuit shall be copper THHN/THWN. The minimum conductor size for indoor branch circuits shall be #12 AWG. The minimum conductor size for underground circuits shall be #10 AWG. Conductors up to #10 AWG shall be solid copper. Conductors #8 AWG and larger shall be stranded copper. Branch circuit conductors shall be sized to prevent a voltage drop exceeding 3% at the furthest outlet. Voltage drop on both feeder and branch circuit conductors shall not exceed 5% at the furthest outlet.

Non-fusible heavy duty electrical disconnects shall be provided at each piece of HVAC equipment not requiring a VFD. Fusible disconnects will be provided at all equipment as required by the manufacturer.

All wiring devices shall be commercial specification grade. Mounting heights shall be per the latest edition of the ADA Standard for Accessible Design guide. Typical mounting heights will be 18” A.F.F. for receptacles and 48” A.F.F. for controls (ie switches). General purpose duplex receptacles will be provided throughout the facility. Special purpose receptacles will be provided for any special equipment. Ground fault circuit interrupter (GFCI) receptacles will be provided where required. Weatherproof GFCI receptacles will be provided within 25’ of any outdoor HVAC equipment and at regular intervals along the building exterior. Cover plate color/materials shall be coordinated with the Architect and Owner.

Automatic receptacle plug load controls shall be provided where required by ASHRAE 90.1-2013.

LIGHTING

Energy efficient, commercial grade lighting fixtures will be used throughout the facility. Lighting levels for each area will meet the requirements as published in the latest edition of the Illuminating Engineering Society of North America (IESNA) Handbook. Lighting sources will be LED. Site lighting shall be full cutoff type in compliance with Arkansas Shielded Outdoor Lighting Act. Emergency lighting will be provided in all areas considered part of the common path of egress. Egress lighting will be controlled through room controller emergency contacts or emergency lighting control units.

Specialty lighting will include sports lighting in the gym in compliance with NCAA Division 1 and ESPN requirements.

Sidewalk/plaza lighting will be UCA campus standard acorn post top fixture.

Lighting controls will meet the requirements of ASHRAE 90.1-2013. Controls in private rooms will be standalone occupancy controls. Mechanical / electrical spaces will be manual toggle type switches. Public spaces, common corridors, restrooms, stairwells, etc. will be controlled by a lighting control system. Occupancy and daylighting sensors will be provided to reduce overall energy consumption. Dimming control with occupancy and daylight sensors will be used in the corridors and stairwells to reduce energy consumption. Site lighting will be switched by the building lighting control system based on schedule and outdoor photocell sensors. Lighting controls manufacturer to be determined.

EMERGENCY GENERATOR

A diesel fuel emergency generator and automatic transfer switch will be installed at the facility. Emergency generators will power all emergency lighting in common areas and the path of egress, elevators, fire pumps (if required), fire alarm and access control panels. Non-emergency transfer switches will be provided to power coolers and refrigeration equipment in the event of a power outage. In addition to the life safety power branch, an additional standby power branch will be provided for optional selected loads as determined by owner. Owner has preference for the generator to be Caterpillar.





FIRE ALARM & MASS NOTIFICATION

The voice evacuation fire alarm system will be a Johnson Controls fully addressable type system per university standard. The system will comply with NFPA 101 AFPC/IBC/IFC and ADA. Smoke detectors shall be installed in all storage spaces, common areas, and path of egress. Heat detectors will be used in spaces that are prone to nuisance tripping of smoke detectors. Duct mounted smoke detectors will be installed in air handling equipment over 2,000 cfm to shut down units in the event of an alarm. Manual pull stations will be installed within 5'-0" of each egress point. Notification devices will be combination speaker/strobe type installed in all public spaces and corridors. Strobe notification devices will be installed in each restroom and in all rooms designated as ADA spaces. Voice evacuation handset and remote annunciator panels will be provided at each fireman entrance as directed by the local fire marshal. The system will be interlocked with fire sprinkler flow and tamper switches such that initiation of any sprinkler head within the building shall cause the system to go into alarm mode. All fire alarm cabling shall be in conduits. Conduits will be color coded red for fire alarm.

BI-DIRECTIONAL AMPLIFIER SYSTEM

A bi-directional amplifier system shall be provided if required by the local fire marshal.

FIBER/DATA CABLING SYSTEMS

Cable tray shall be provided above the ceilings along the corridors for communications cabling. 24" wide center hung cable tray will be installed in all main corridors. 18" wide cable tray will be provided in secondary corridors. Cable tray will connect between all intermediate closets, telecommunications rooms, and main cross-connect. A continuous bonding conductor will be provided in all cable trays and bond to the telecommunications grounding bar. J-hooks shall be required in all other areas as required for cable routing. Conduit pathways will be provided for digital signage as directed by the owner.

Communications room fittings, racks, cable trays, collection boards, etc. shall be provided at each communications space per university standards. Power will be provided in all communications spaces per university standards. Communications system grounding will be provided per BICSI standards.

Network cable will be per owner standards. Cabling will be color coded for each system requiring network cable. Color coding per owner. It has not been determined at this point if fiber/data cabling will be in the construction contract or out of contract (owner furnished and installed).

ACCESS CONTROLS

Access control system infrastructure will be provided to control doors at building entry/exit points and at interior doors as directed by the owner. All exterior doors to be monitored through BAS system with one exterior door at each public entry to be controlled. Each office suite entry, locker rooms, food service & mechanical rooms to have access control. Access control system components and cabling furnished and installed by owner.

SECURITY CAMERAS

Video surveillance cameras shall be provided and installed by owner. Network cabling to cameras to be determined.

A/V SYSTEM INFRASTRUCTURE

Boxes, conduit and 120V branch circuits will be provided for building A/V system. Low voltage cabling 70V and less will be installed by A/V system installer.





AUDIO & VISUAL

1.1 SOUND REINFORCEMENT SYSTEMS

General

For purposes of evaluation, a “sound reinforcement system” is defined as an audio system used by one or more presenters at one or more locations in a room, as well as the amplification of moderate-level music events such as a piano. A “paging” system is defined as an audio system used for public paging to standing or seated crowds during normally short announcements; such paging may be done locally, or from remote locations. For the record, both features will be incorporated into the Sound Reinforcement System(s) for this facility. The Systems shall deliver:

1. Uniform Coverage: Ensure consistent SPL and intelligibility across all seating zones, concourses, and auxiliary spaces.
2. Scalability: Support future expansion and reconfiguration for varied event types.
3. Redundancy & Reliability: Minimize single points of failure with failover paths and power backup.
4. Integration: Seamless interoperability with broadcast, paging, and emergency systems.
5. All loudspeaker zones will be available for muting or delay alignment through the Digital Signal Processor (DSP) for multiple stadium functions and audience capacities.
6. Shaping the acoustical response of the loudspeakers will be accomplished using the Digital Signal Processing System (DSP). The audio processing shall be in the digital domain following the input source and shall remain until power amplification is required. The system shall be able to provide amplifier control and monitoring as well as a list of audio devices, which may be chosen and configured into the system at any time. These features will be chosen from a device menu running under the Windows environment. The DSP System shall be equal to the QSC Core 510i.
7. A system of jacks and outlets will be provided throughout the Multipurpose Arena to facilitate program input and output. These jacks will be connected to patch panels, rack-mounted in the control room/control position. Input from the University's user group will be needed during the Design Development Phase of the project to help define this scope.
8. A digital mixing console will be provided for mixing of audio programming within the facility.
9. Four (4) wireless microphones will be supplied for use in this in the Arena Bowl. Each wireless system will be equipped with one (1) handheld and one (1) beltpack transmitter. The systems shall be equal to the Shure ULXD System.
10. Any and all audio programming can and will be supplied to the Broadcast Pedestal (TVRP) and AV Production Room for processing and distribution.
11. All systems will be available for augmentation of the facilities life-safety announcements, but will not be continuously electronically supervised. While all of the equipment is UL listed, they are not listed for life safety purposes.
12. Assistive Listening Systems for each space shall be provided for the hearing impaired as required by the Americans Disability Act. Transmission method will be via RF (Radio Frequency).
13. An emergency announcement or “God Mic” will be provided in the PA/Sound Room or as directed by the University. When activated this microphone will mute all audio programing so that an emergency announcement can be made.

Main Bowl Loudspeaker Deployment

1. Line arrays or point-source clusters suspended from trusses in an exploded cluster configuration.
2. The loudspeaker module is a passive 2-way design housing 2 x 10” neodymium LF drivers and one 1.4” exit HF compression driver with 3” diaphragm mounted to a dedicated wave shaping device and a passive crossover network. Line Array element shall be equal or better than the d&b Ali90 Loudspeaker.
3. Low frequency reproduction will be provided by two long excursion neodymium drivers, an 18” driver in a bass reflex design facing to the front and a 12” driver in a two chamber bandpass design radiating to the rear. Subwoofer shall be equal to the d&b Vi-Sub.
4. Coverage optimized via EASE or similar modeling software for directivity and throw.
5. Certified load-rated mounts and seismic bracing will be supplied if necessary. All rigging systems will be certified by a Structural Engineer licensed in the state of Arkansas.

Concourse

1. Delayed sound coverage will be provided in any area not in the direct sound pressure supplied the main bowl system public address system.
2. Loudspeakers will be mounted to the structure above. The cabinet houses two 8” neodymium LF drivers in a bass-reflex design and one 1.26” HF driver with a 2.4” coil mounted to rotatable CD horn. Both LF drivers are positioned in a bipolar arrangement providing vertical dispersion control. The frequency response extends from 55 Hz to 18kHz and shall be equal to the d&b U7.

Practice Court

1. An overhead distributed sound reinforcement system will be provided for this space.
2. Full range Loudspeakers will be suspended from the structure above providing even sound reinforcement to the floor as well and the seated public. The loudspeaker cabinet houses two 8” neodymium LF drivers in a bass-reflex design and one 1.26” HF driver with a 2.4” coil mounted to rotatable CD horn. Both LF drivers are positioned in a bipolar arrangement providing vertical dispersion control. The frequency response extends from 55 Hz to 18kHz and shall be equal to the d&b U7.
3. Sound System will be a stand alone system with overflow capabilities programming from the Arena.

Club & VIP Area

1. Sound reinforcement will be provided to these spaces utilizing recessed ceiling mounted 70.7v loudspeakers. This loudspeaker type is comprised of a 8” Bass/Mid multi-fiber treated paper cone with a coaxially mounted 1” high frequency section. Frequency response be be 44Hz – 30kHz (+/- 10dB) and be equal to the Atlas FC-8T.
2. Local Volume and source selection via 7” touch panels
3. Audiovisual connectivity from First Security Field at Estes Stadium will be connected to the public address and video replay systems within this space to facilitate its use during football games.

Landscape Loudspeakers

1. This loudspeaker system will be designed to deliver high-impact, localized audio playback for walk up music to the exterior zones such as player entrances, fan plazas or ceremonial pathways.
2. This design integrates in-ground loudspeakers into the hardscape to provide immersive, directional audio coverage without obstructing pedestrian flow or compromising aesthetics. The system supports playback of walk-up music cues triggered manually or via automation tied to venue control systems.
3. The Outdoor Loudspeaker to be an 8” coaxial device providing 43Hz – 20kHz frequency response and shall be equal to the Atlas Sound GST-G/GSS-G.

Amplifiers

1. Networked Class-D amplifiers with onboard DSP and monitoring
2. Load monitoring, thermal protection, and remote diagnostics will be provided on all devices.
3. Power amplifiers will be digitally connected to the AV/PA closed network system.
4. Amplifiers will be rack mounted in dedicated AV/PA Rooms.
5. Power amplifiers output channels will drive Lo-Z and 70/100V lines and deliver up to twice the rated power when asymmetrically loaded providing up to 2000W @4ohms. Power amplifiers shall be equal to the Powersoft Unica Series.

Digital Signal Processor (DSP):

1. The DSP will provide control of all audio and video content of the Sound Reinforcement and Audiovisual Systems.
2. The DSP is a flexible and shall feature 8 onboard I/O Slots for analog audio content. The system shall control audio and video processing on a dedicated Linux realtime operating systems.
3. The DSP shall be built using standard computer industry hardward and IT industry networking protocols.
4. Preset recall for different event modes (sports, concerts, speeches)
5. Shaping the acoustical response of the loudspeakers will be accomplished using the Digital Signal Processing System (DSP). The audio processing shall be in the digital domain following the input source and shall remain until power amplification is required. The system shall be able to provide amplifier control and monitoring as well as a list of audio devices, which may be chosen and configured into the system at any time. These features will be chosen from a device menu running under the Windows environment. The DSP System Shall be equal to the QSC Core 510i.
6. The DSP shall provide monitoring for alerts for amplifier faults, speaker impedance shifts and or network issues.

Emergency Paging:

1. Priority override via fire alarm or mass notification system
2. Compliant with NFPA 72 and local life safety codes
3. Broadcast Tie-In
4. XLR and Dante outputs to mobile production units and in-house broadcast
5. Sync with video replay and scoreboard systems





Tuning

- 1. Onsite calibration using SMAART or equivalent software and will be provided by the system manufacturer.
- 2. Final presets locked with password protection will be provided to the end users upon system completion.

Audio Control Position

- 1. House Systems front of house location should be Mid-Lower bowl or rear floor, aligned with the acoustic center of the space.
- 2. Road Show front of house location should be on the lower bowl directly opposite the proposed stage location.
- 3. Equipment associated with this space will include Digital Mixing Console (DiGiCo, Yamaha, Allen & Heath), redundant control surface and stage box connectivity (Dante, AVB, Madi) and Touchscreen control for DSP presents and zone routing.
- 4. Connectivity shall be Fiber and Cat6A to DSP Core and Amp Racks and Tie-lines to video control, lighting control and intercom systems.

Assistive Listening System (ALS)

- 1. The Assistive Listening System will provide clear, intelligible audio to patrons with hearing loss across all seating zones.
- 2. The system will meet or exceed ADA Title III requirements and local building codes.
- 3. Integration will provide seamless operation with house audio, emergency paging and broadcast systems.
- 4. System components will consist of ALS transmitter fed from main audio mix, wireless receivers with headphones or neck loops and charging station and storage for receivers.
- 5. Transmission technology will consist of RF (VHF/UHF), IR (Infrared) or Wi-Fi Streaming. RF or Wi-Fi is recommended due to wide coverage and minimal line-of-sight constraints.
- 6. Coverage Zones will include seating bowl, concourses, suites and ADA-designated areas.
- 7. ADA requires 4% of the seating capacity. A total of 106 receivers with 10% neck loops for T-coil hearing aids will be required.
- 8. The ALS System shall be Listen Technologies or equivalent by Williams Sound.

AUDIO VISUAL INFRASTRUCTURE

- 1. The arena conduit infrastructure provides structured serviceable connectivity for:
 - a. Game Operations: Scorer’s table, shot clocks, timing interfaces, replay systems, and in-game control
 - b. Broadcast media: TV truck tie ins, commentary positions, RF coordination, and auxiliary production
 - c. Team Support: Home/visitor bench I/O, coaching stations, and portable practice equipment
 - d. Future Expansion: Additional cameras, data drops, and specialty events (graduations, concerts, tournaments)
- 2. Conduit pathways are designed as permanent infrastructure, sized for long term A/V, data, and control cabling rather than a single equipment generation.
- 3. Primary zones:
 - a. Center court/scorer’s table zone: Floor boxes aligned with the scorer’s table and replay/operations positions, typically at mid court on the side line
 - b. Bench zones (home/visitor): Floor boxes distributed along each bench for intercom, data, and low voltage support
 - c. Broadcast sideline/endline positions: Camera and announce positions with dedicated floor boxes for SMPTE/fiber, audio, and data
 - d. Event-flex positions: Select floor boxes at corners or mid sideline reserved for portable staging, press row, or special events
- 4. All conduits associated with this system shall be concealed.
- 5. The conduit infrastructure beneath the basketball playing surface provides protected, code compliant pathways for A/V, data, control, and power cabling to floor boxes located along the sidelines, baselines, scorer’s table, and team bench areas. The installation is coordinated with structural, architectural, and electrical trades to ensure long term serviceability and compatibility with the hardwood floor system.
- 6. The contractor shall furnish and install all conduits, sleeves, floor boxes, and associated hardware required to support low voltage and power systems serving the arena floor. All work shall comply with NEC, local codes, and manufacturer requirements for the hardwood athletic floor system.
- 7. Conduits beneath the playing surface shall be installed prior to slab pour or during slab preparation, depending on structural design. Routing shall avoid structural beams, post tension cables, and expansion joints unless specifically detailed.



1.2 VIDEO / SCOREBOARD & SCORING / TIMING SYSTEMS

Design Build Approach

A Design Build approach will be utilized to provide the LED Display & Scoring Systems for this facility. Our staff will work with the Team’s preferred Vendor to establish/confirm video resolution, board size, electronics, connectivity, and static features if any.

LED Display Systems

Video LED Display Systems will be supplied providing high-resolution, vibrant visuals visible from all seating zones. The system(s) will support dynamic content for sports scoring, replays, advertising, and live feeds. Seamless connectivity with facilities Sound Reinforcement, AV systems, broadcast infrastructure, and control room workflows.

End Wall Hung Display Physical Configuration

- 1. 16.8'H x 30'W (customizable based on sightlines and rigging constraints)

Video Display Technical Specifications

- 1. 3.9mm SMD LED modules for indoor viewing distances
- 2. Resolution per face: ~800 x 450 pixels (varies by final dimensions)
- 3. Pixel Pitch: 3.9mm
- 4. Display Height: Typically 24–36 pixels (~3.7”–5.9” tall), customizable per sightline and architectural constraints
- 5. Display Length shall be Continuous or segmented with gaps for structural or ADA compliance
- 6. Content Sources shall be Scoring Systems, media server, live video, sponsor graphics and animations
- 7. Integration with Daktronics Show control, Ross Xpression, Motion Rocket or similar platforms.
- 8. Mounting shall be custom aluminum or steel brackets anchored to concrete or steel fascia.
- 9. Display depth: [2.5 inches]
- 10. Fabricated viewing area made from aluminum “columns” of custom height in increments of 19.69 inches
- 11. LED pixel elements:
- 12. Single Tri-color SMD LED
- 13. “Virtual Pixels” and any other deceptive or non-compliant design methods are specifically excluded from the scope of work
- 14. LED pixel pitch: Exactly 3.90 mm.
- 15. Luminosity: 1000 NITS minimum.
- 16. Color capacity: 68 Billion
- 17. Viewing angles: 160 degrees horizontal and 155 vertical.
- 18. Contrast Ratio: 1,000:1
- 19. Sub-Module parts replacement shall include per-pixel filtering to simplify matching without use of additional software, or mechanical/electrical adjustments.
- 20. Working Temperature -20 to +45C.
- 21. Frame Rate 60 frames per second.
- 22. Refresh Rate 3840 Hz
- 23. Includes signal redundancy so that if there is a signal connection between the video modules the system automatically adjusts the signal path to avoid disruption to the image on the LED video screen.
- 24. Video input (when applicable) NTSC or PAL standard, via Composite (BNC), S-Video mini DIN, Serial Digital Interface (SDI), High Definition Serial Digital Interface (HD-SDI). HDMI available.
- 25. Includes complete control system processor for fully functional installation.
- 26. Voltage: 100 to 265 Volts AC, 50 - 60 HZ. per column with Power Factor Correction.
- 27. LED life expectancy shall be 100,000 hours to 50% brightness degradation.
- 28. Service access: LED Panels Front access by magnetic latch, all other components, front.
- 29. Shall not require any regular scheduled maintenance such as filter cleaning or replacement.



Access

- 1. Front and rear serviceable or liftable modules for maintenance.
- 2. The LED display shall be supported by a purpose built overhead hoist system designed to safely lift, lower, and secure the complete display assembly for installation, service, and long term operation. The hoist system shall consist of rated motorized winches, aircraft grade lifting cables, guide tracks, and structural attachment points engineered to accommodate the full operational load of the LED display, including dynamic forces and maintenance conditions. All components shall be coordinated with the project structural engineer to ensure proper load distribution into the building’s primary structure. The hoist shall provide smooth, controlled vertical travel with redundant safety brakes, load monitoring, and limit switches to prevent over travel or unintended movement. The system shall allow technicians full access to the front and rear of the LED display when lowered, while maintaining precise alignment and stability when raised and locked in its operating position. All equipment shall comply with applicable rigging, electrical, and life-safety standards, and shall be installed in a manner that ensures long-term reliability, serviceability, and safe operation within the arena environment.

Emergency Override

- 1. Capability to display emergency messaging per NFPA 101 and local codes.
- 2. Priority input from mass notification system.

Visual Calibration

- 1. Brightness, color uniformity, and grayscale tuning.
- 2. Viewing angle verification from all seating zones.

Training

- 1. Onsite training for AV operators and scoreboard techs.
- 2. Documentation for presets, troubleshooting, and content workflows.

Scoring & Timing Systems

Scoring and Timing Systems shall deliver real-time, sport-specific scoring and timing data to all audience zones and broadcast feeds.

Modes

Ensure seamless switching between basketball and other event modes with minimal operator intervention.

Integration

Integrate with venue-wide AV, broadcast and control systems for synchronized event management.

Shot Clocks / Play Clocks

- 1. Basketball: Dual 24-second shot clocks above backboards with integrated game clock.

Auxillary Displays

- 1. Concourse: IPTV endpoints showing synchronized scoring and timing feeds.
- 2. Team Areas: Bench-side LED strips.

Scorer’s Table

- 1. Provide 3.9mm 10’ LED Scorer’s tables (Qty: 4 ea.)

Timing System

- 1. Precision: Atomic clock-synchronized master timing system with redundancy.
- 2. Control: Centralized via scoring console with override capabilities for officials.

Scoring Console

- 1. Interface: Touchscreen GUI with sport-specific layouts, manual override, and replay triggers
- 2. Integration: Interfaces with broadcast truck, AV matrix and venue control software.



1.3 AUDIO VISUAL SYSTEMS

Project Scope & Objectives

- 1. The audiovisual system is designed to deliver immersive, high-impact experiences across all audience zones while supporting broadcast-grade production, venue operations, and multi-use flexibility. The system integrates video, audio, control, and networking technologies to meet the demands of sports events, concerts, press conferences, and emergency communications.

Venue Zones Covered

- 1. Main Bowl: LED walls, PA system, camera feeds
- 2. Concourse & Entryways: Digital signage, background music, paging
- 3. Club & VIP Areas: Local AV control, IPTV, audio zones
- 4. Press Box & Control Room: Multiview monitoring, intercom, routing
- 5. Back-of-House: Paging, staff comms, utility displays
- 6. Broadcast Truck Dock: Fiber tie-ins, signal handoff, sync feed

Video System Design

- 1. Signal Distribution: AV over IP using 1GbE multicast (e.g., Visionary Solutions, SDVoE, or equivalent)
- 2. Sources: Cameras, replay servers, graphics engines, IPTV feeds
- 3. Displays: LED walls, LCD signage, club TVs (x4), control room monitors
- 4. Processing: Video wall processors, seamless switchers, scalers
- 5. Control: Touch panel interfaces, presets for event modes

Audio System Design

- 1. PA System: Zoned coverage using weather-resistant loudspeakers (e.g., JBL, Atlas Sound, or equivalent)
- 2. DSP & Routing: Dante-enabled processors for flexible audio matrixing
- 3. Microphones: Wireless handhelds, lavaliers, headset mics for production and press
- 4. Intercom: Wired/wireless systems for tech crew and broadcast coordination
- 5. Assistive Listening: ADA-compliant systems integrated via Dante or analog bridge

Control & Automation

- 1. Platform: Centralized control via Q-SYS, Crestron, or Extron
- 2. Interfaces: Touch panels in control room, club, and mobile apps for tech staff
- 3. Presets: Game day, concert, press event, emergency override
- 4. Monitoring: SNMP, web-based diagnostics, remote access

Network Infrastructure

- 1. Switching: Managed 1GbE/10GbE switches with IGMP snooping and VLAN segmentation
- 2. Redundancy: Dual NICs, UPS-backed racks, failover-ready topology
- 3. Security: Role-based access, firewall segmentation, encrypted control paths

Integration & Compliance

- 1. Broadcast Integration: Fiber uplinks, sync feeds, tally integration
- 2. ADA & Code Compliance: Audio coverage, signage visibility, emergency paging
- 3. Environmental: Fanless gear in quiet zones, IP-rated gear in outdoor areas
- 4. Mounting & Access: Rack kits, cable management, service access paths

Integration Deployment & Commissioning

- 1. Staging: Preconfigured endpoints with QR-coded labels
- 2. Installation: Rack-mount gear, structured cabling, zone testing
- 3. Commissioning: Signal validation, control programming, training
- 4. Documentation: As-builts, signal flow diagrams, maintenance guide



Locker Rooms

- 1. Stand-alone Audiovisual Systems will be supplied for these spaces.
- 2. Sound reinforcement will be provided to this space utilizing recessed ceiling mounted 70.7v loudspeakers. This loudspeaker type is comprised of a 10” mid bass driver with a coaxially mounted 1.25” high frequency section. Digital control of this space will be provided via a 7” LCD Panel allowing the end users to select input devices (background music, home radio feed, public address (PA) feed, local TV audio if applicable, local computer inputs and volume adjustment.
- 3. Wired and wireless audio and video inputs will be supplied providing the athlete’s and coaching staff local input within this space.
- 4. Audio system loudspeakers and background music will be zoned to receive emergency evacuation notification, paging, and program material from the main public address system.
- 5. Computer interfaces will be provided for use by the athlete’s and coaching staff.
- 6. Each locker room will be supplied with Flat Panel Displays. Basketball Lockers will be furnished with two (2) 86” displays. Football Lockers will be furnished with four (4) 86” displays. Flat Panel Displays shall be equal to the Phillips 86BDL351 1Q/OO and furnished in the numbers indicated in the EAV Series Drawings. DTV outlets (“TV”) will be located at appropriate locations within this space. Viewing devices (TV’s Flat Panel Screens, Video Displays, etc...) and mounts will be contractor supplied and installed.

Football Office & Position Rooms

- 1. Stand-alone Audiovisual Systems will be supplied for these spaces.
- 2. Sound reinforcement will be provided to those spaces sufficient in size to mandate sound reinforcement utilizing recessed ceiling mounted 70.7v loudspeakers. This loudspeaker type is comprised of a 8” Bass/Mid, multi-fiber treated paper cone low frequency section with a 1” titanium dome with neodymium magnet system.
- 3. Digital control of this space will be provided via a 7” LCD Panel allowing the end users to select input devices (background music, home radio feed, public address (PA) feed, local TV audio if applicable, etc...) and volume adjustment.
- 4. Wired and wireless audio and video inputs will be supplied providing the athlete’s and coaching staff local input within this space.
- 5. Audio system loudspeakers and background music will be zoned to receive emergency evacuation notification, paging, and program material from the main public address system.
- 6. Computer interfaces will be provided for use by the athlete’s and coaching staff.
- 7. Each position room will be supplied with 65” Flat Panel Displays equal to the Phillips 65BDL3652T. Larger position rooms will be supplied with the Phillips 86BDL3652T.

Concourse & Common Spaces

- 1. Concourse and Common Areas will be provided with sound reinforcement via the bowl public address system. Each loudspeaker zone designated with the “HR” nomenclature will be terminated in the equipment rack nearest to the zone and be connected to one (1) power amplifier channel.
- 2. Sound pressure to these spaces will be via overhead distributed loudspeaker systems and may be either recessed or pendant mounted.
- 3. Loudspeakers will be capable of supplying a frequency response of 80Hz – 20kHz and be equipped with an 8” mid bass and coaxially mounted 1.25” high frequency section. Each loudspeaker zone designated with the “HR” nomenclature will be terminated in the equipment rack nearest to the zone and be connected to one (1) power amplifier channel.
- 4. Digital control of this space will be provided via a 7” LCD Panel allowing the end users to select input devices (background music, home radio feed, public address (PA) feed, local TV audio if applicable, etc...) and volume adjustment. Digital control panel will be placed in a secure location and password protected to prevent unauthorized access to control features.
- 5. Shaping the acoustical response of the loudspeakers and control of digital content will be accomplished using the DSP.
- 6. Flat Panel Displays shall be equal to the Phillips 75BDL351 1Q/OO and furnished in the numbers indicated in the EAV Series Drawings. Four (4) devices should be programmed into the facility in the Schematic Design Phase. DTV outlets (“TV”) will be located at appropriate locations within this space. Viewing devices (TV’s Flat Panel Screens, Video Displays, etc...) and mounts will be contractor supplied and installed.



1.4 BROADCAST CABLING SYSTEMS

Cabling System

A Broadcast Cabling System can be defined as conduit, cable, and connector panels that provide local and national broadcasters direct access to broadcast camera positions within a given facility.

Typical System

A typical system will include one (1) broadcast pedestal. All connections associated with the camera positions within the arena will terminate at this location. Local and national broadcasters will park their remote trucks adjacent to this pedestal, make connection to the camera positions, and film each game. Uploading the game from this location via satellite or microwave is anticipated. Should this be the case, direct line of sight to the southwestern horizon is critical for satellite uplinks.

Camera Position Connectivity

Numerous camera positions will be located throughout the Arena Seating Bowl. Each of these camera positions will include the following connectivity in recessed floor boxes or recessed enclosures in vertical wall surfaces.

- 1. Fiber Optic Connections
- 2. Video Connections
- 3. Audio Connections
- 4. Data/IT Connections - optional in some cases
- 5. 120VAC Power

ESPN HD Standards

System design is typically configured per ESPN HD Standards.

Broadcast Pedestal

One Broadcast Pedestal (TVRP) will be provided on the exterior of the facility housing all connectivity in the above referenced paragraph, fiber, DTV feed, telecom lines, internet, and PA feed.

PTZ Camera

One PTZ Camera location will be added to the exterior of the south side of the facility. This position will be an extension of the University’s existing broadcast cabling system associated with Estes Stadium and will be supplied via singled mode fiber. Camera shall be equal to the Panasonic AW-UE150AKPJ with Dotworkz D2/O3 all weather enclosure and controller.

ESPN ROOM

The ESPN Room will serve as a central patch point for all broadcast cabling. All interior cabling will run thru conduit and be terminated in patch bays for distribution to the Broadcast Pedestal (TVRP) and PA Sound Room.

Interviews

Interviews with the end user’s preferred video production designer will be conducted during the Design Development Phase in order to determine the exact scope of work required for this facility.

Allowance

A \$400,000 allowance should be included for in-house video production equipment.

Design Objectives

- 1. Deliver robust, scalable broadcast cabling infrastructure to support national-level sports coverage, in-house production, and third-party mobile units.
- 2. Ensure seamless integration with venue AV, control rooms, and architectural constraints.
- 3. Accommodate simultaneous basketball and other sporting and nonsporting configurations with minimal re-patching.

Infrastructure Overview Signal Types Supported

- 1. Video: 3G/12G-SDI, HDMI (for local monitors), IP-based NDI/SMPTE ST 2110 (future-ready)
- 2. Audio: Analog XLR, AES/EBU, Dante (over Cat6A)
- 3. Control/Data: Ethernet (Cat6A), RS-422, fiber (single-mode and multi-mode)
- 4. Intercom: 4-wire analog, IP-based Clear-Com/RTS



Cable Pathways

- 1. Conduit & Tray Systems: Routed through the bowl perimeter, and under seating risers
- 2. Fiber Trunks: Terminated at broadcast patch bays and routed to mobile unit dock
- 3. Copper Runs: Shielded and isolated to minimize interference, with home-run paths to central racks

Venue Zones & Connectivity

- 1. Main Bowl - Camera Drops at center court, corners, penalty box, scorer’s table and tunnel entries
- 2. Overhead Structure – Overhead camera feeds, lighting control and RF antenna matrix
- 3. Broadcast Pedestal – SMPTE Hybrid fiber, tactical fiber, audio snakes and intercom tie-lines
- 4. Press Area – Commentary positions, IFB, audio splits and Ethernet
- 5. Locker Rooms – Interview drops, audio feed
- 6. Concourse – Fan engagement zones, IPTV and roaming camera drops

Patch & Termination Strategy

- 1. Broadcast Patch Bays: Located in control room, dock, and press box; labeled per SMPTE standards.
- 2. Overhead structure - Overhead camera feeds, lighting control and RF antenna matrix
- 3. Fiber Termination: LC/SC connectors in rack-mounted panels with slack management.
- 4. Copper Termination: Neutrik/XLR for audio, RJ45 for data, BNC for SDI.
- 5. Labeling & Documentation: Color-coded, QR-coded labels with digital schematics for quick reference.

Mobile Unit Integration

- 1. Dock Access: 100+ tie lines including SDI, audio, intercom, and fiber
- 2. Power & Grounding: Isolated broadcast ground, surge protection, UPS-backed circuits
- 3. Redundancy: Dual fiber paths, backup copper feeds, failover routing

Scalability & Future-Proofing

- 1. IP Backbone: 10Gb+ switches with VLAN segmentation for Dante, NDI, control
- 2. Fiber Expansion: Spare strands and conduit capacity for 4K/8K workflows
- 3. Remote Production Ready: Edge encoding, SRT/RTMP uplinks, cloud routing options

1.5 PRODUCTION STUDIO / ESPN ROOM

Video Production System

The video production system will be engineered to deliver high-impact, multi-zone content distribution across the new Multipurpose Arena. It supports live event coverage, broadcast-grade recording, dynamic signage, and venue-wide AV integration. The system is scalable, future-proof, and compliant with commercial construction standards and broadcast protocols. Enable seamless capture, switching, and distribution of live video feeds from multiple camera sources. Support simultaneous output to in-bowl LED displays, concourse monitors, control room preview stations, and external broadcast trucks. Ensure redundancy, low-latency signal flow, and compatibility with both IP and SDI workflows. A budgetary figure of \$700,000.00 should be carried for this system.

System Components

- 1. Camera Infrastructure: 5 – 7 broadcast-grade PTZ and handheld cameras with fiber backhaul. Cameras to be equal to Panasonic AK-HC3900 with Fujinon ZA22x7.6 BERD Lens
- 2. Production Switcher: 2ME switcher with multiview, tally, and macro support
- 3. Routing & Distribution:
 - 40 x 40 SDI matrix router with IP gateway integration
 - Dante-enabled audio routing for embedded and discrete feeds

Replay & Graphics

- 1. Dual-channel replay system with slow-motion capability
- 2. Real-time graphics engine for overlays, sponsor content, and score bugs
- 3. Replay & Graphics systems equal to Ross Ultix Carbonite



Monitoring & Control

- 1. 4K multiviewer arrays in control room
- 2. Touchscreen control interfaces for switching, tally, and camera presets
- 3. Monitors shall be equal to Dell UltraSharp U2412M or HD P4317Q

Recording & Archival

- 1. Redundant SSD-based recorders with NAS backup
- 2. Cloud sync for post-event access and compliance archiving

Venue Integration

- 1. Display Zones: Main bowl LED wall, ribbon boards, concourse monitors, VIP suites, and press areas
- 2. Signal Transport: Hybrid fiber/coax backbone with IP-over-fiber for future expansion
- 3. Control Room: Ergonomic layout with line-of-sight to bowl, acoustic treatment, and ADA compliance

Compliance & Standards

- 1. NEC, NFPA, and ADA compliant
- 2. SMPTE 2110 and 2022-6 ready
- 3. UL-listed components and plenum-rated cabling

Compliance & Standards Operational Workflow

- 1. Pre-event setup via presets and macros
- 2. Live switching with real-time graphics and replay
- 3. Post-event archival and cloud sync
- 4. Remote diagnostics and firmware updates via secure VPN



FOOD SERVICE

SCHEMATIC DESIGN

The food service program for the University of Central Arkansas Multipurpose Arena is designed to support a wide range of athletic, campus, and community events while providing operational flexibility and efficient service. The facility includes three primary food service components: an Event Floor Kitchen, Event Floor Hospitality space, a Main Concession Kitchen, and a Club Level Pantry. Together, these areas support catered events, basketball and football operations, concessions, premium hospitality, and special events.

EVENT FLOOR KITCHEN

The Event Floor Kitchen serves as the primary production and plating facility for catered events held within the arena. The kitchen is designed to support approximately 1,200 to 1,500 meals during banquet, conference, and special event functions.

Food deliveries are received at the arena loading dock and transferred through a dedicated service corridor to the kitchen's storage areas. Products are organized within dry storage, a walk-in cooler, and a walk-in freezer prior to event preparation. Lockable storage areas within the dry storage room and walk-in cooler accommodate beer, wine, and liquor for catered functions.

Because the arena's primary production kitchen is located off-site, most large catered meals will be prepared at the central campus kitchen and transported to the arena. Prepared foods will be stored in refrigerated or heated holding equipment until final assembly. The event kitchen is intended to support final plating, reheating, saucing, garnishing, and service immediately prior to meal delivery.

Food preparation areas include stainless steel preparation tables with integral sinks and mobile work tables to allow flexible work configurations for varying event sizes and menu requirements. A dual-sided hot food serving counter facilitates efficient meal assembly and simultaneous plating by multiple staff members.

Cooking capabilities are limited to reheating, retherming, and light cooking using a six-burner commercial range and combi oven. Beverage service includes commercial coffee brewing equipment, hot water service for tea, and an ice machine supporting beverage stations throughout the facility. UCA does not currently serve fountain soda beverages, but the facility will be planned for flexibility if the beverage provided contract should ever change. This will require floor penetrates and large conduit runs for soda lines.

The kitchen includes a complete warewashing area consisting of soiled dish landing tables, a single-door high-temperature dishwashing machine, and a dedicated pot and pan washing sink.

EVENT LEVEL HOSPITALITY

The courtside hospitality space is designed to provide a premium self-service food and beverage experience for basketball patrons seated adjacent to the playing floor. Located immediately behind the courtside seating area, the hospitality space will support efficient guest circulation while maintaining close proximity to their seats. Food service will primarily consist of self-service buffet stations and beverage counters supplied by the arena's main catering kitchen, with infrastructure to accommodate a variety of catered menu offerings for games, special events, and private functions. Refrigerated undercounter storage, heated holding equipment, beverage dispensing, ice service will support flexible food presentation while minimizing back-of-house operations within the space. Finishes and furnishings will reinforce a premium hospitality environment. The hospitality area will serve as a high-value amenity that enhances the courtside experience while providing operational flexibility for future programming and premium event offerings.

MAIN CONCESSION KITCHEN

The main concession kitchen supports approximately 2,500 spectators during basketball games and other arena events. This kitchen functions as the central production area for concession operations throughout the arena.

Food products are supplied from the event floor kitchen's dry storage, walk-in cooler, and walk-in freezer via service circulation dedicated to back-of-house operations.

The concession kitchen provides fresh preparation of core concession menu items including hot dogs, grilled hamburgers, and fried chicken tenders. This kitchen will include commercial fryers, griddles, and ovens to support high-volume production during peak service periods. Additional menu offerings could include Chick-fil-A items, barbecue sandwiches, and potential pizza offerings, are received pre-cooked and maintained within heated holding equipment prior to service. This kitchen will utilize ware washing facilities consisting of an undercounter dishwasher and pot and pan sink.

Grab-and-go concession items include freshly prepared popcorn, nachos, cotton candy, roasted peanuts, chips, candy, and other packaged snacks.

Equipment necessary for self-service include heated self-service merchandising cabinets for prepared hot foods as well as refrigerated grab-and-go display cases for bottled beverages.

To improve transaction speed and reduce queue lengths, concessions are planned to utilize up to six self-checkout electronic kiosks located at controlled exits. Operations are intended to be fully cashless.

CLUB LEVEL FOOD & BEVERAGE SERVICE

The club level pantry supports premium hospitality during basketball games, football events, and other special functions. The space is designed to accommodate approximately 150 guests.

Food service is based primarily on catered meals prepared at the off-site production kitchen, the event floor kitchen, or the concessions. Prepared food is transported to the club level pantry where it is held until service.

The pantry functions primarily as a finishing and service area rather than a production kitchen. Food is presented using multiple chafing dishes and buffet service equipment. The service lines are intended to be flexible depending on the event.

The pantry will need refrigerated food holding as required, three-compartment sink for utensil and service ware washing but will only have limited storage for event supplies. Because the Club Level Pantry does not include a dedicated dishwashing operation, soiled wares will be transported to the Event Floor Kitchen for cleaning following each event.

Beverage service includes two portable bars capable of serving soft drinks, beer, wine, and mixed beverages.

OVERALL FOOD SERVICE CONCEPT

The arena's food service operation is organized around a centralized support model that minimizes redundant production spaces while providing the flexibility necessary to accommodate athletic events, concerts, banquets, conferences, and community gatherings. The Event Floor Kitchen serves as the primary back-of-house support facility for catered functions, while the Main Concession Kitchen focuses on high-volume spectator food service. The Club Level Pantry provides premium hospitality through a streamlined service model utilizing food prepared elsewhere within the facility or at the university's central production kitchen.

This distributed food service approach maximizes operational efficiency, supports multiple simultaneous event types, and allows the facility to adapt to future programming needs while maintaining high-quality food service throughout the arena.





The project schedule as presented here has been revised to reflect the additional design time to meet requests made by UCA. We have adjusted the schedule for the design team to begin the next design phase after Nabholz has completed their pricing exercise. This adjustment allows for additional fund raising time and to be most efficient with responsive design based on pricing. Expected construction completion and athletics seasons should be discussed so that the schedule can work backwards from UCA expectations. We understand that the time of this project heavily relies on fund raising efforts.



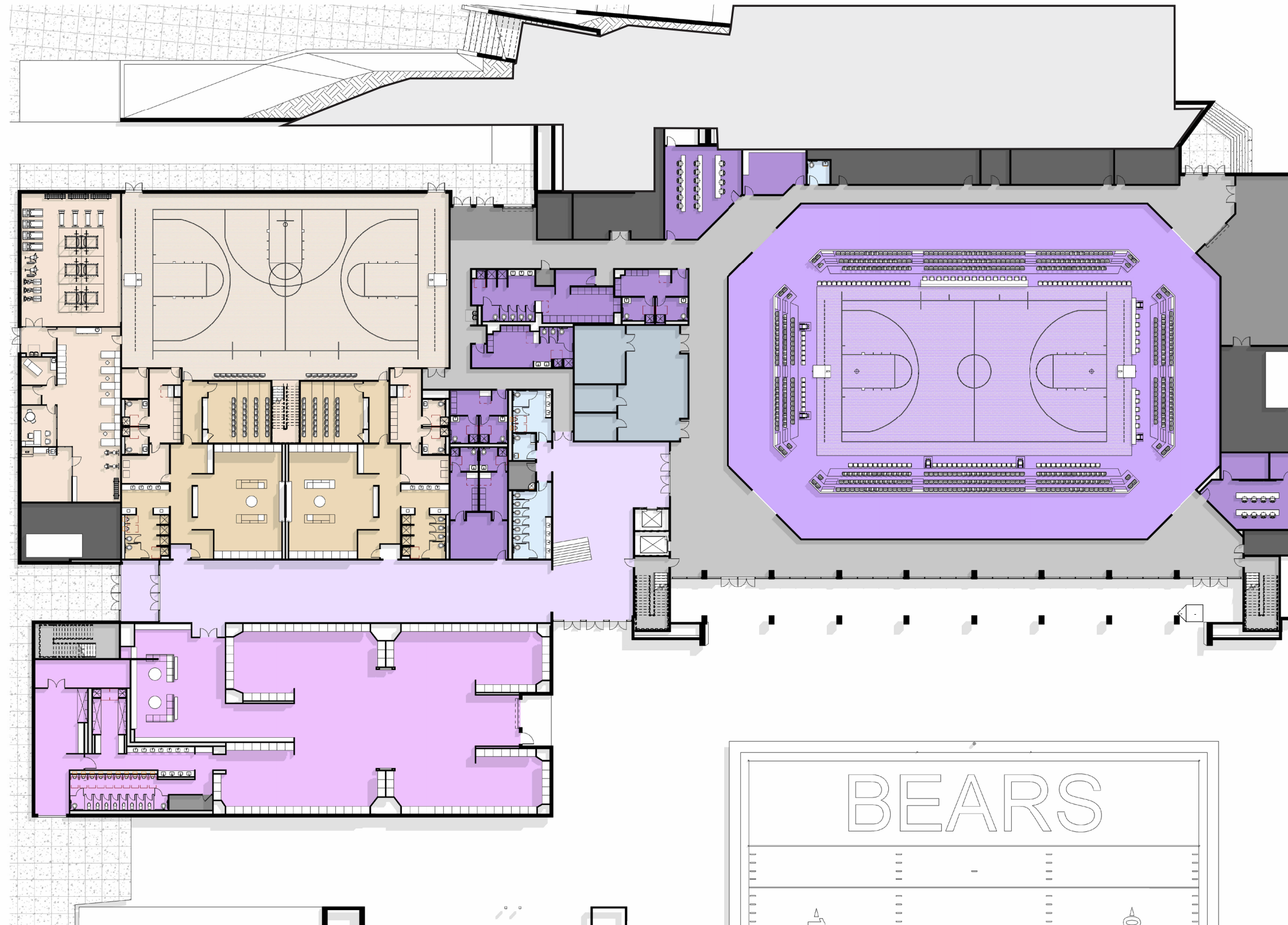


II. DRAWINGS

APPENDIX



EVENT LEVEL PLAN - LEVEL 1



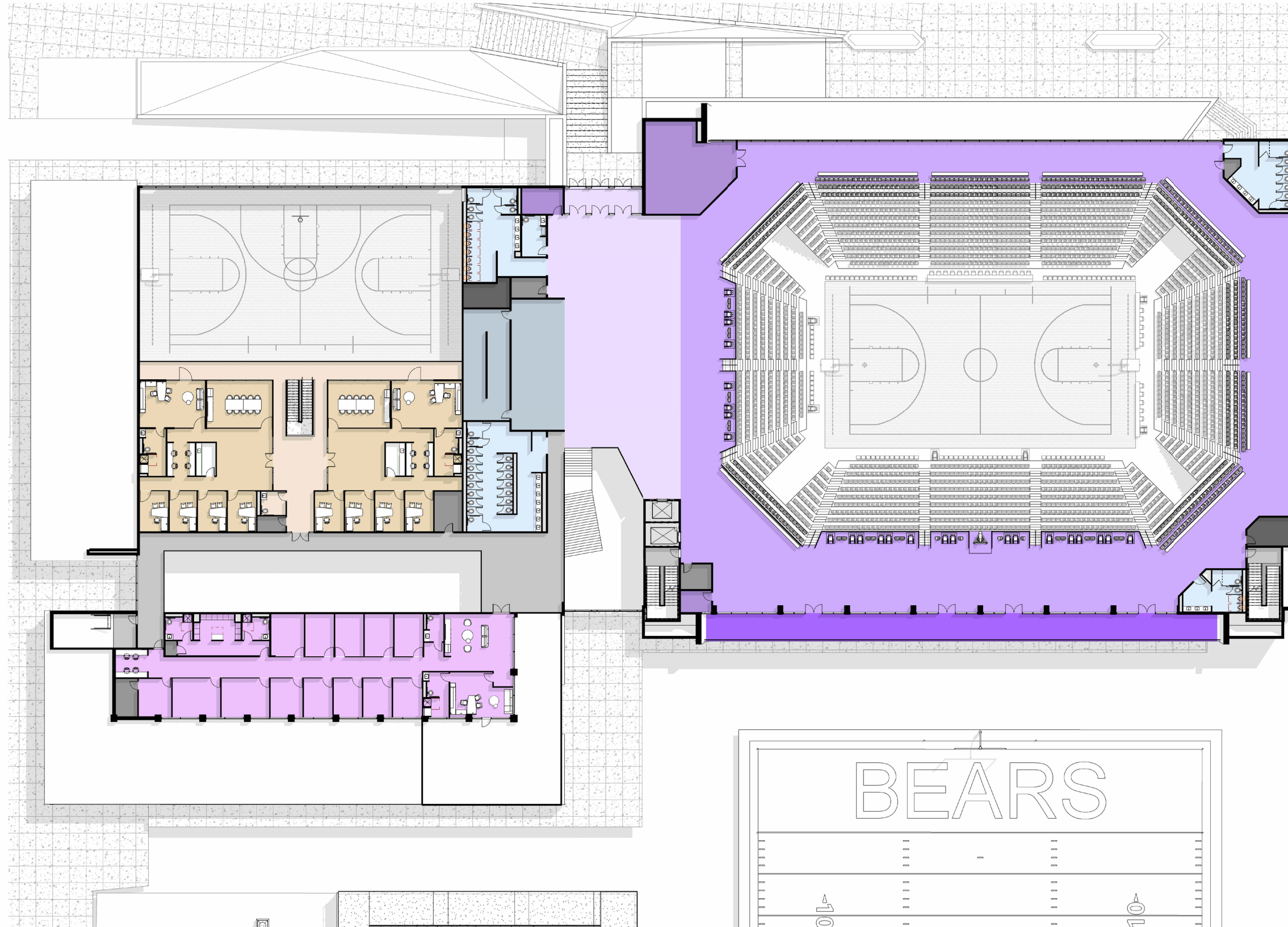
Department Key

- Arena
- Arena Support
- Auxiliary & Officials
- Basketball Ops
- Building Ops/ Back of House
- Circulation
- Entry & Hall of Fame
- Food & Beverage
- Football Ops
- Men's Basketball Ops
- MEP
- Restrooms
- Women's Basketball Ops

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MAIN CONCOURSE PLAN - LEVEL 2



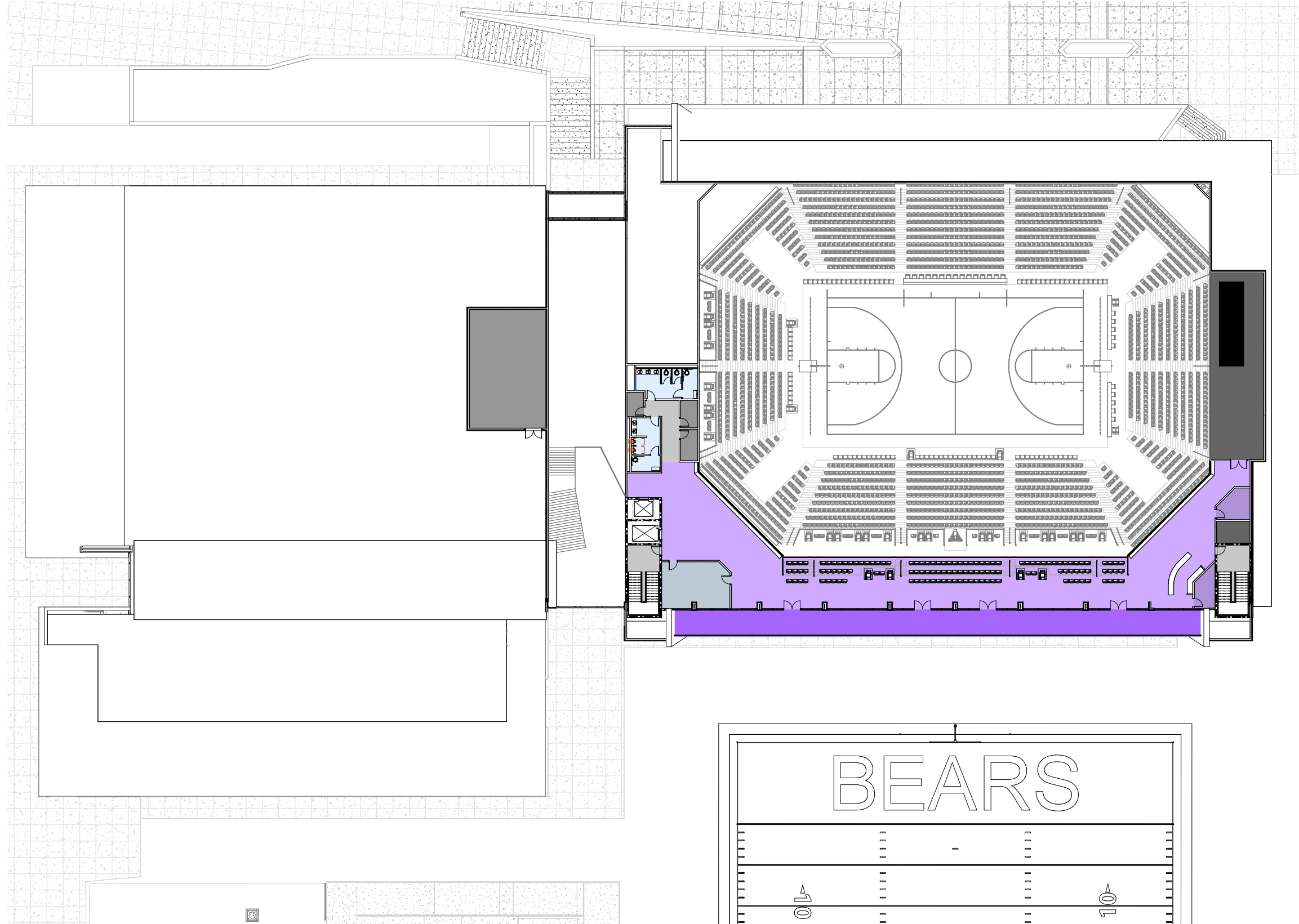
Department Key

- Arena
- Arena (Outdoor)
- Arena Support
- Basketball Ops
- Building Ops/ Back of House
- Circulation
- Entry & Hall of Fame
- Food & Beverage
- Football Ops
- Men's Basketball Ops
- MEP
- Restrooms
- Women's Basketball Ops

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CLUB LEVEL PLAN - LEVEL 3



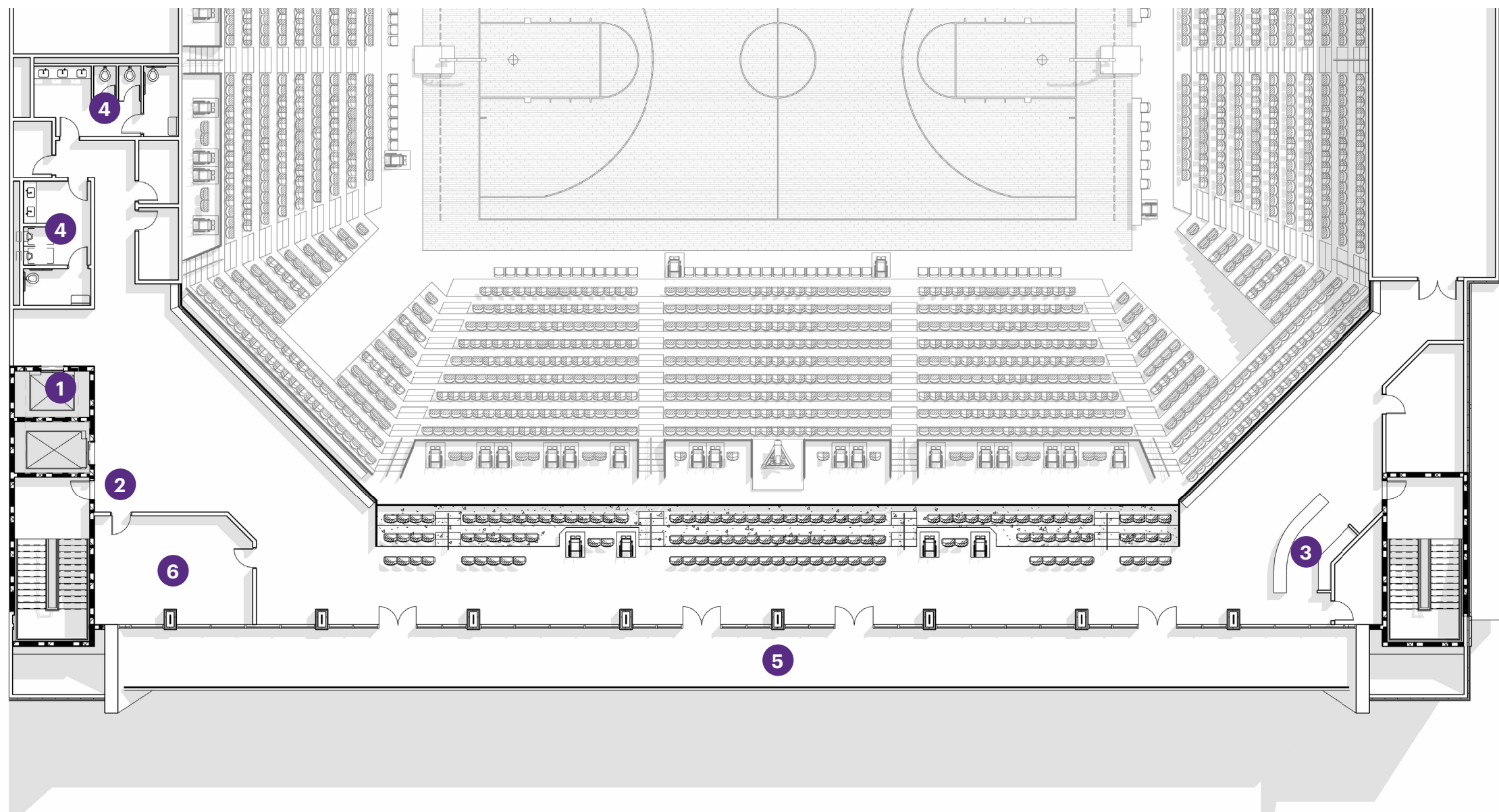
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- Arena Support
- Building Ops/ Back of House
- Circulation
- Food & Beverage
- MEP
- Restrooms

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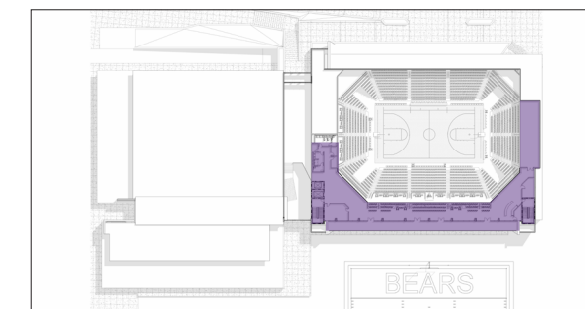
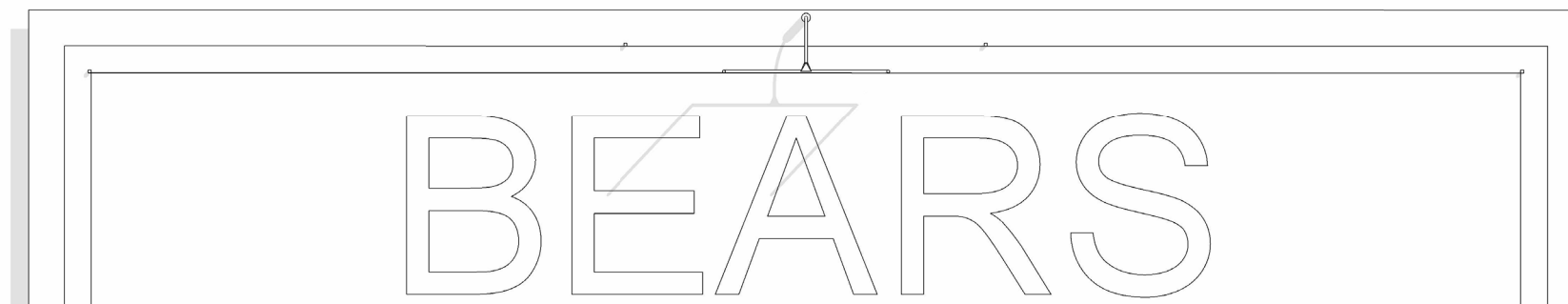


CLUB LEVEL - ENLARGED PLAN



Key Plan

- 1 VIP Elevator
- 2 Entry
- 3 Bar
- 4 Restrooms
- 5 Club Terrace
- 6 Club Pantry

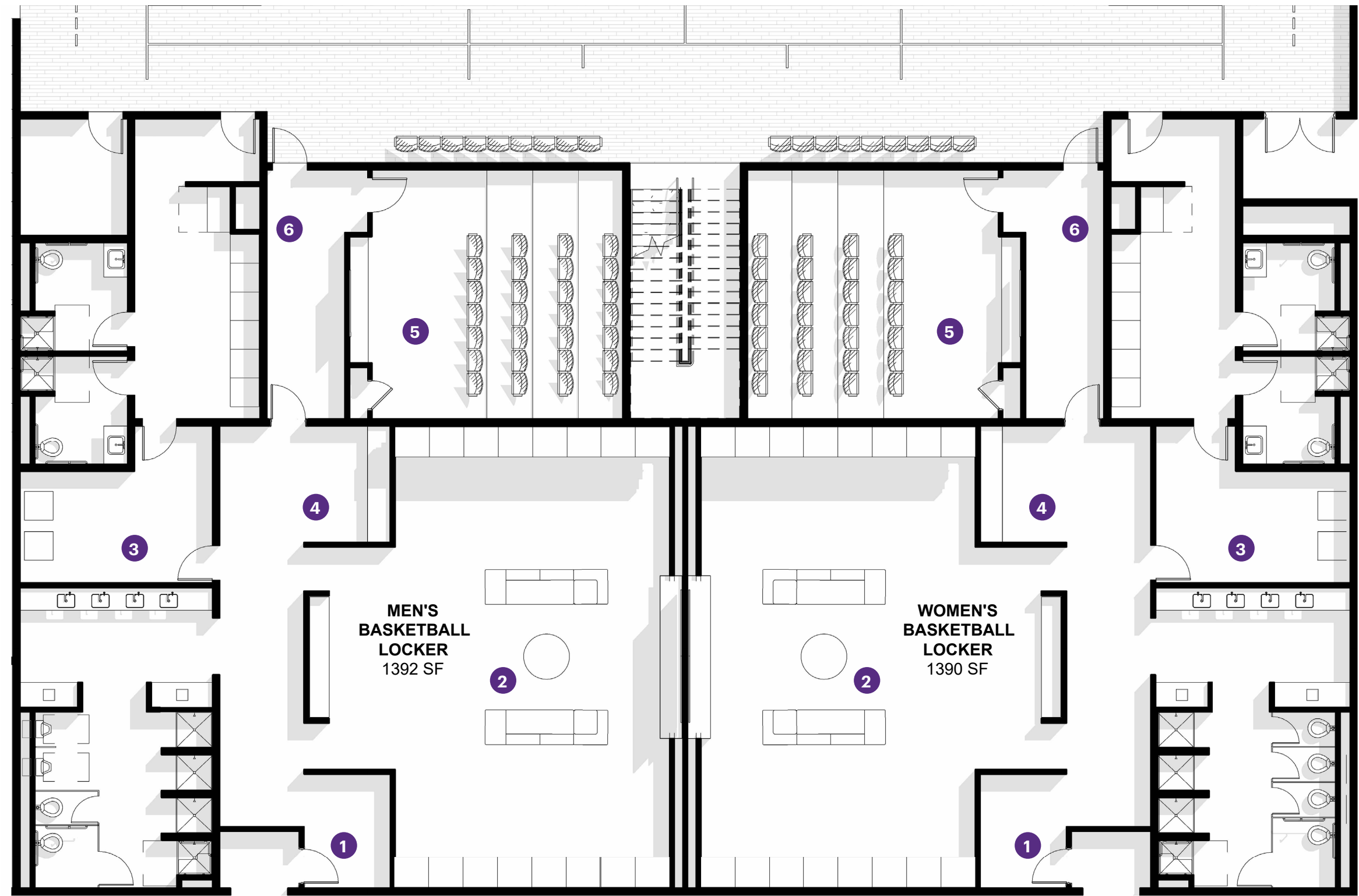


CLUB LEVEL

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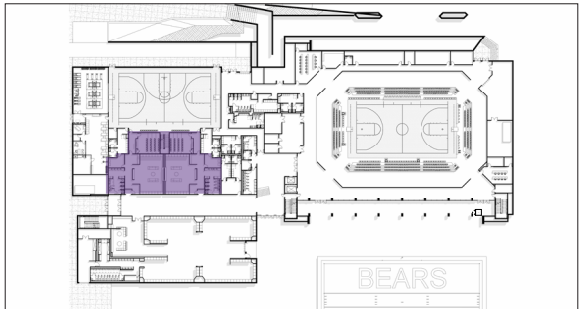


BASKETBALL LOCKER ROOMS - ENLARGED PLAN



Key Plan

- 1 Entry
- 2 Locker & Lounge
- 3 Laundry
- 4 Nutrition
- 5 Media
- 6 Exit To Practice Court



EVENT LEVEL

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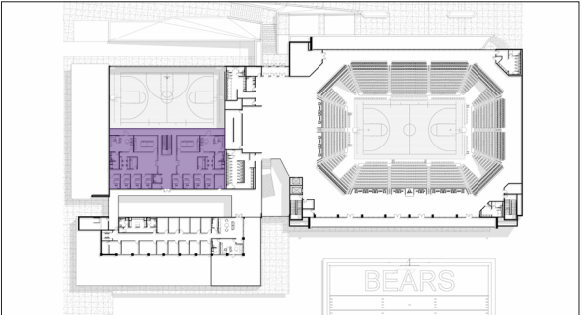


BASKETBALL OFFICES - ENLARGED PLAN



Key Plan

- 1 Entry
- 2 Conference
- 3 Head Coach
- 4 Lounge
- 5 Pantry
- 6 Restroom
- 7 Assistant Offices
- 8 Observation Balcony



CONCOURSE LEVEL

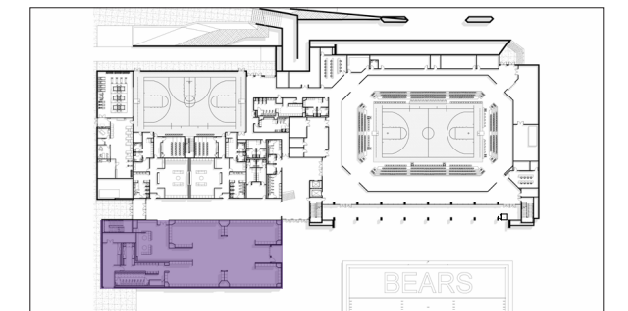
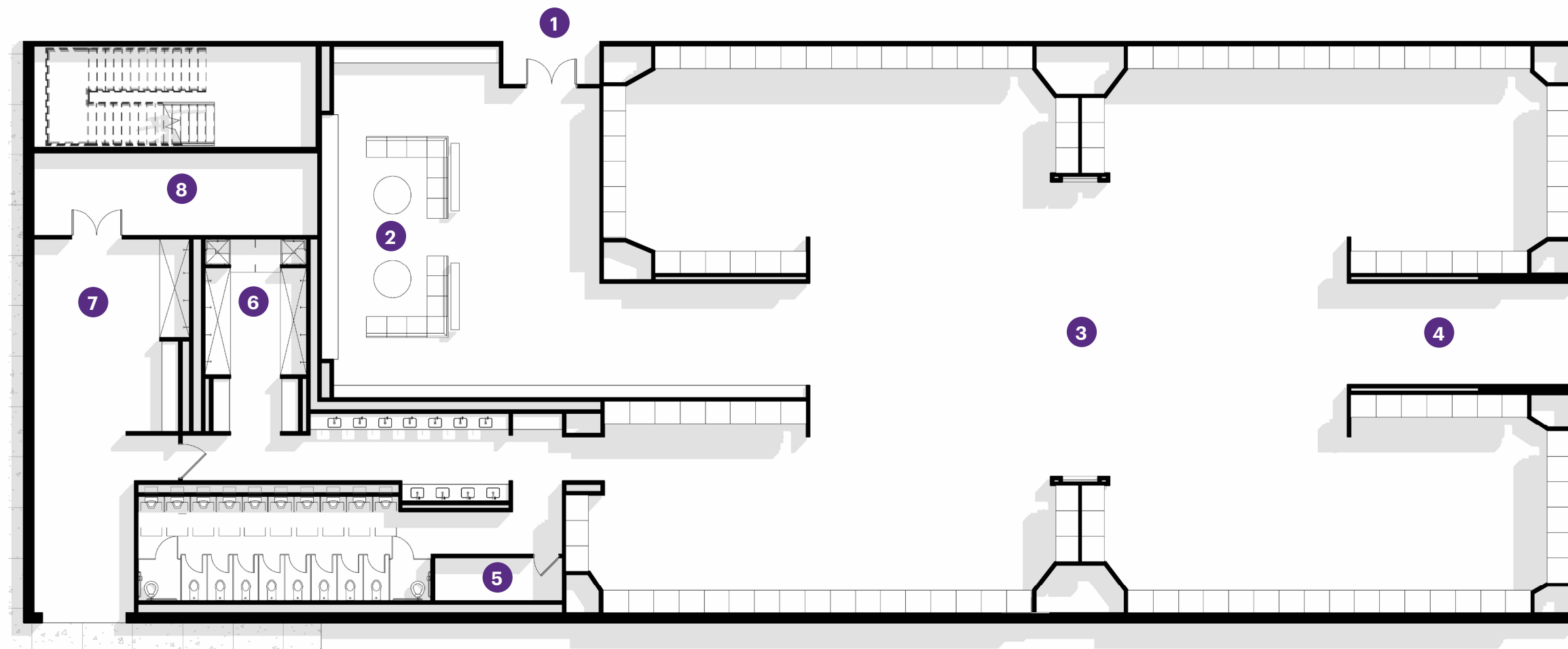
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FOOTBALL LOCKER - ENLARGED PLAN

Key Plan

- 1 Entry
- 2 Lounge
- 3 Lockers
- 4 Exit To Field
- 5 Janitors Closet
- 6 Showers
- 7 Wash Off
- 8 Equipment Room



CONCOURSE LEVEL

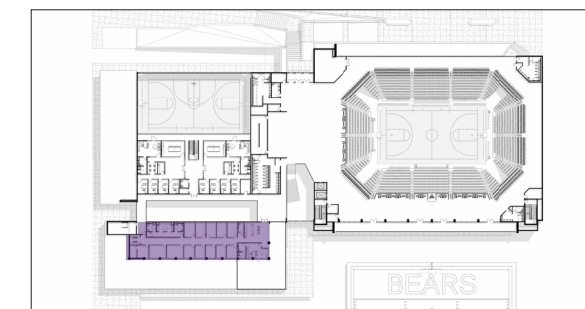
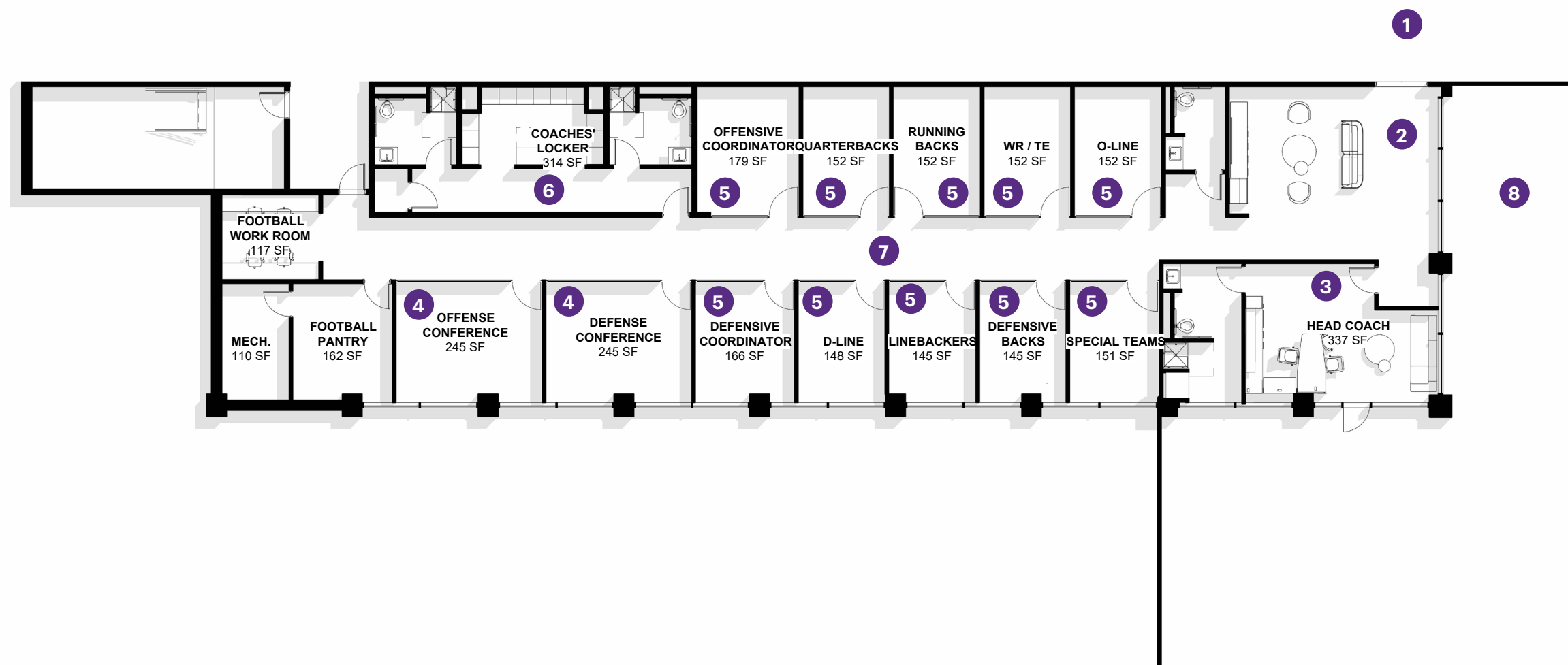
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FOOTBALL OFFICES - ENLARGED PLAN

Key Plan

- 1 Entry
- 2 Reception
- 3 Football Head Coach
- 4 Conference
- 5 Offices
- 6 Lockers
- 7 Corridor
- 8 VIP Terrace

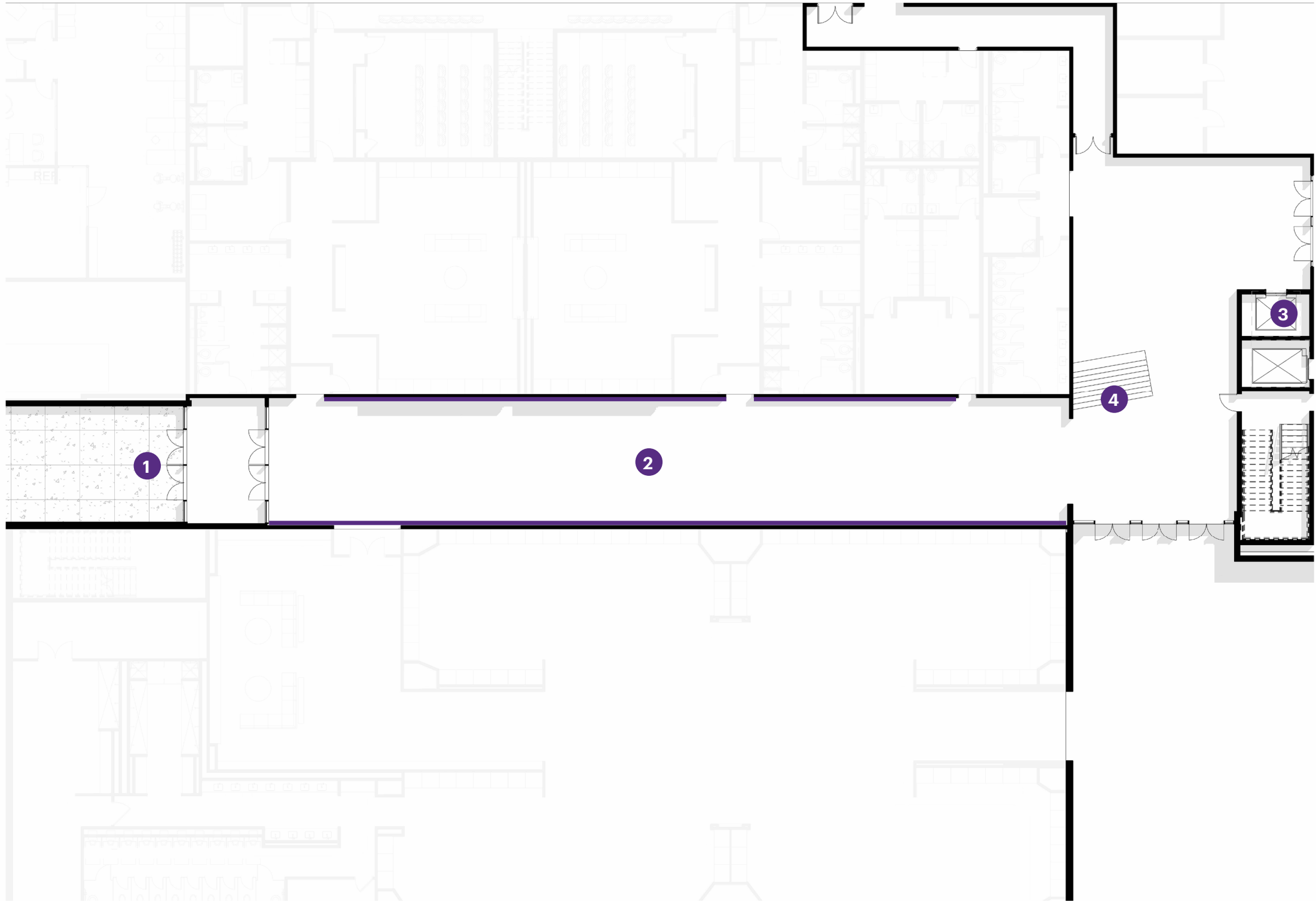


CONCOURSE LEVEL

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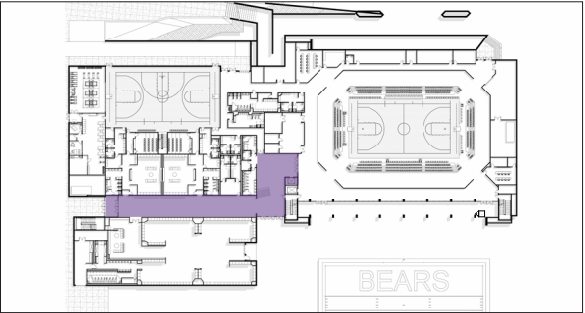
HALL OF FAME - ENLARGED PLAN



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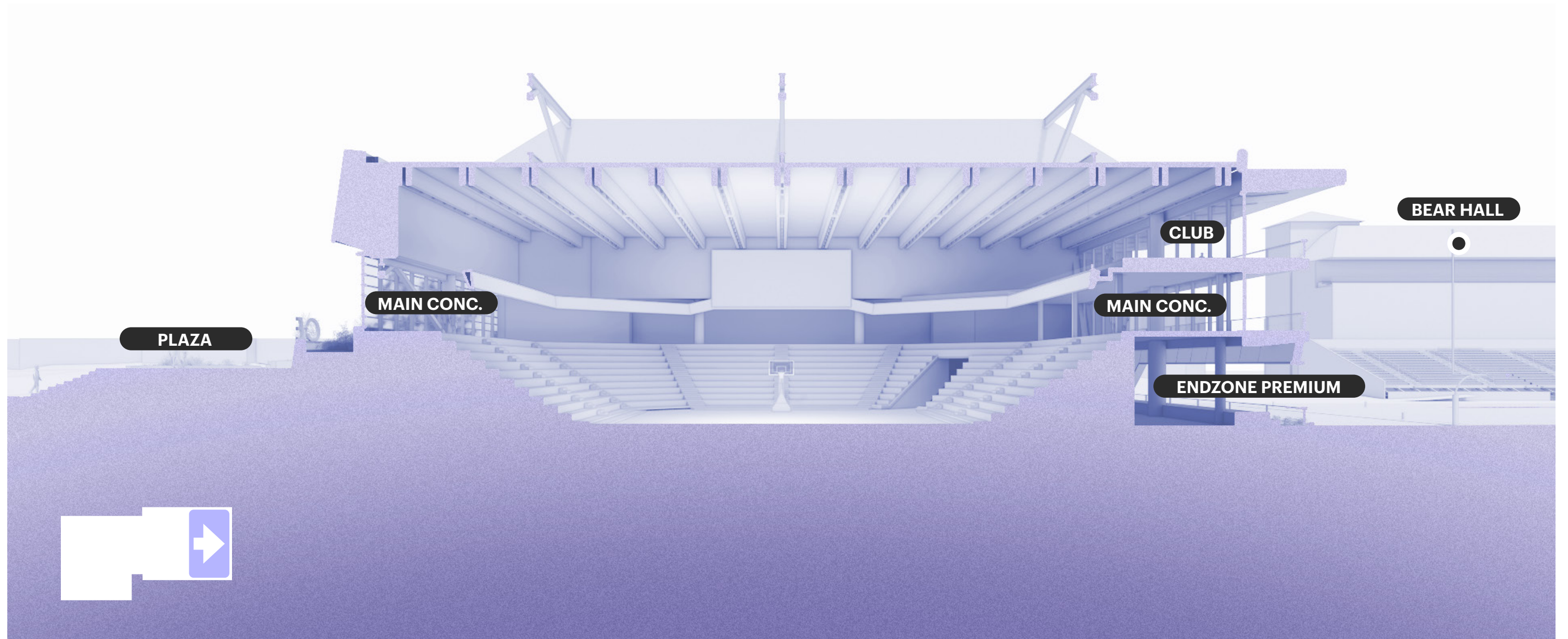
Key Plan

- 1 VIP Entry
- 2 UCA Branding Moments
- 3 VIP Elevator to Club Level
- 4 Stair to Main Lobby



EVENT LEVEL

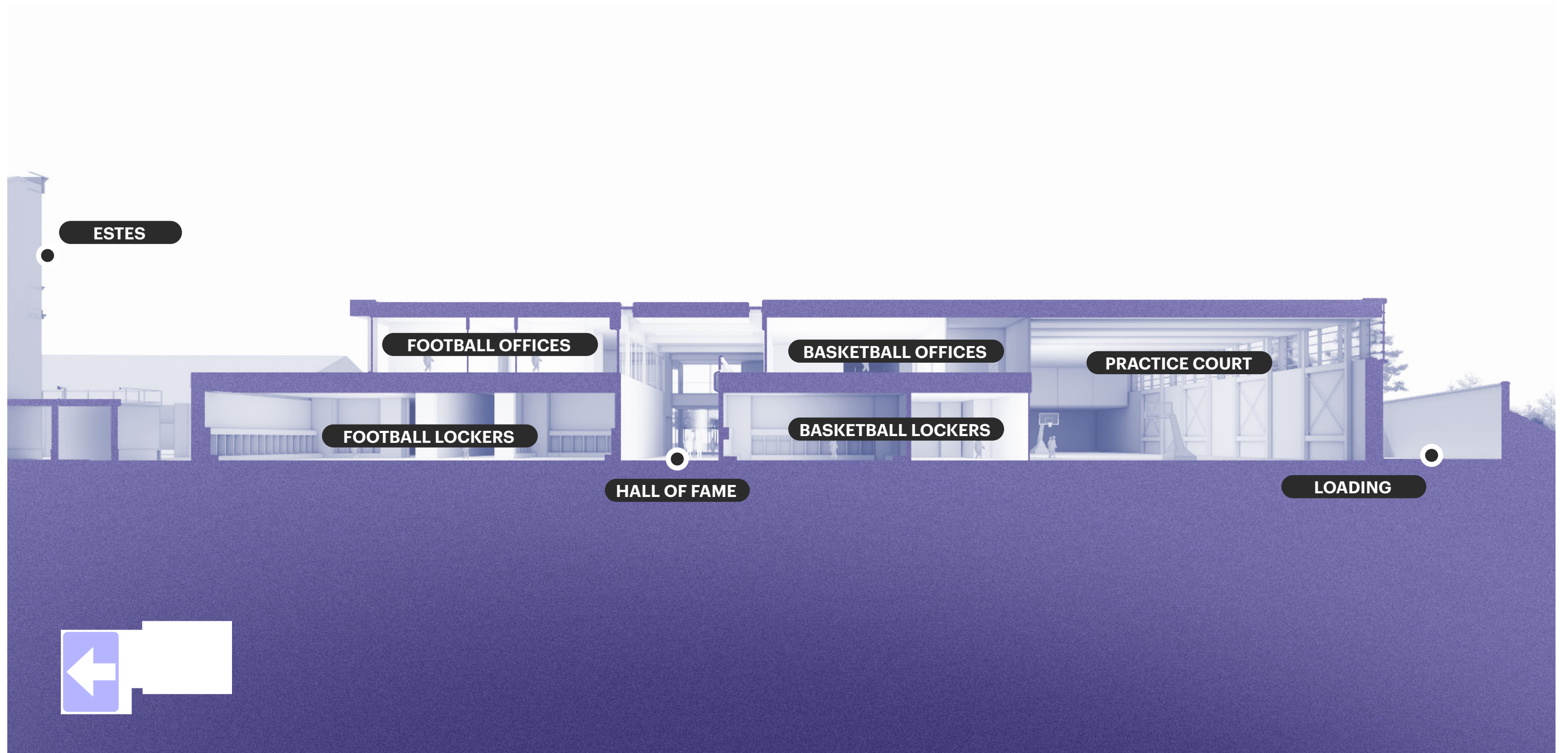
ARENA - EAST SECTION



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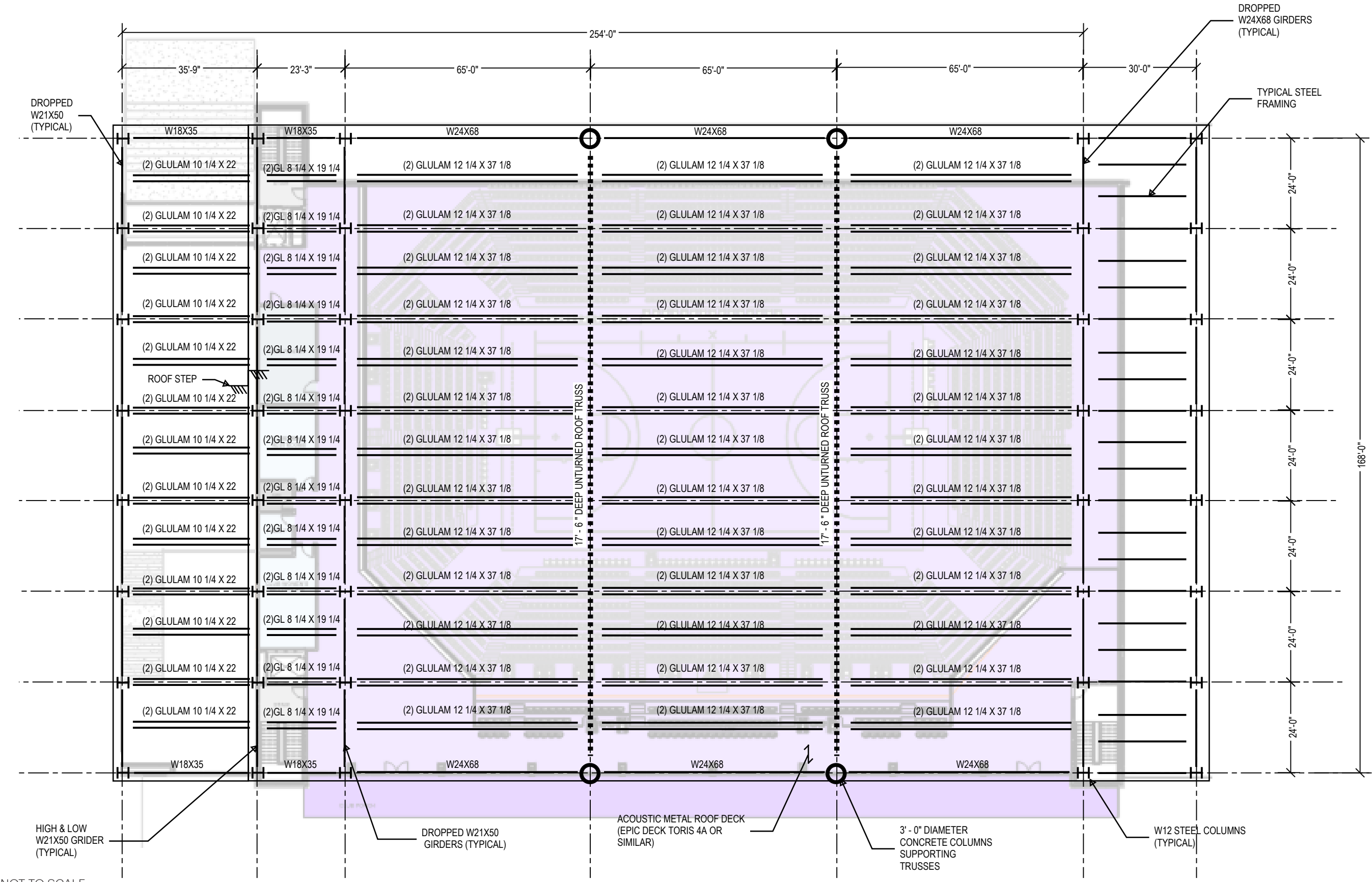


ATHLETIC WING - WEST SECTION



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UCA ARENA FRAMING PLAN



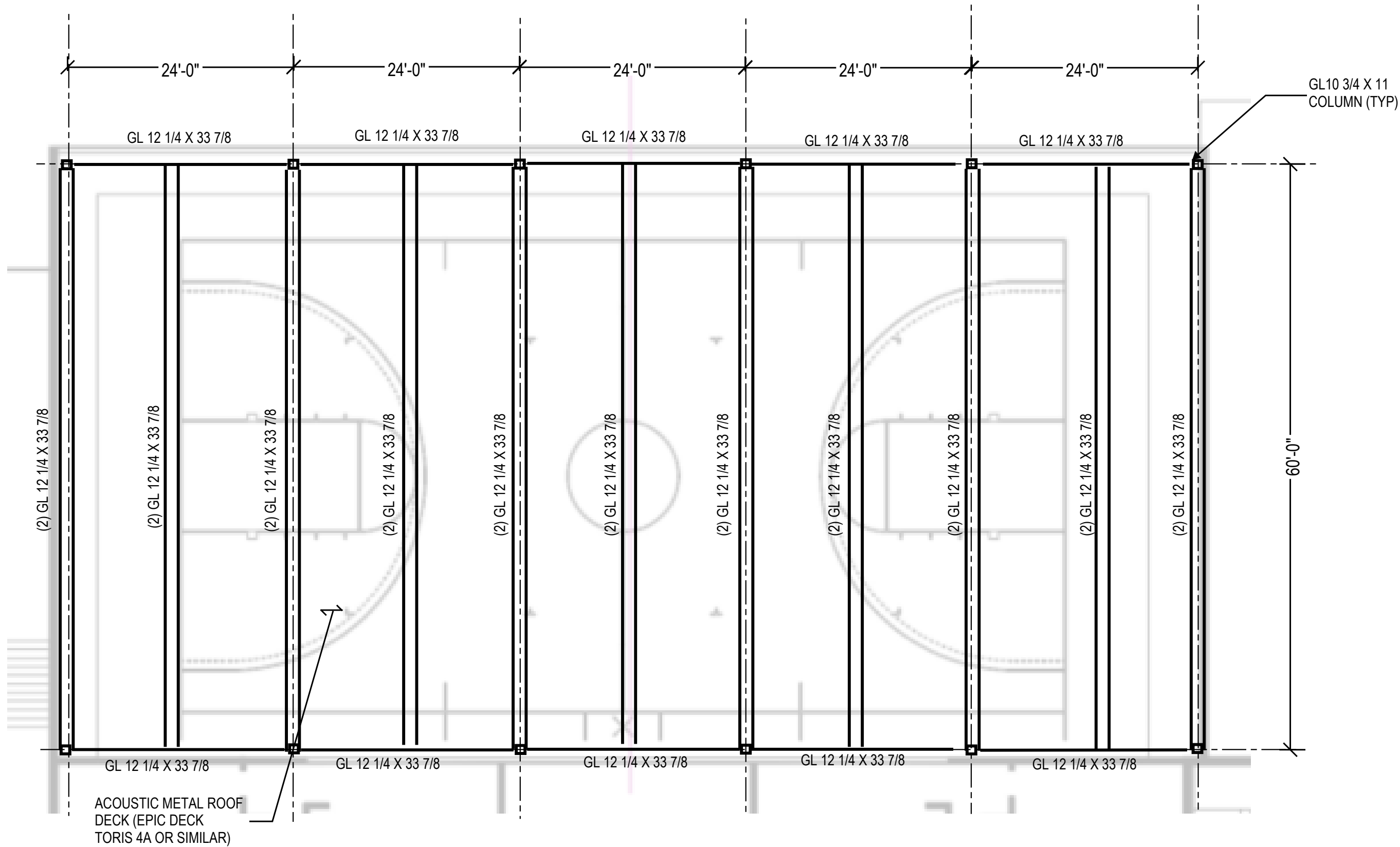
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UCA PRACTICE ROOF FRAMING PLAN



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III. SURVEYS

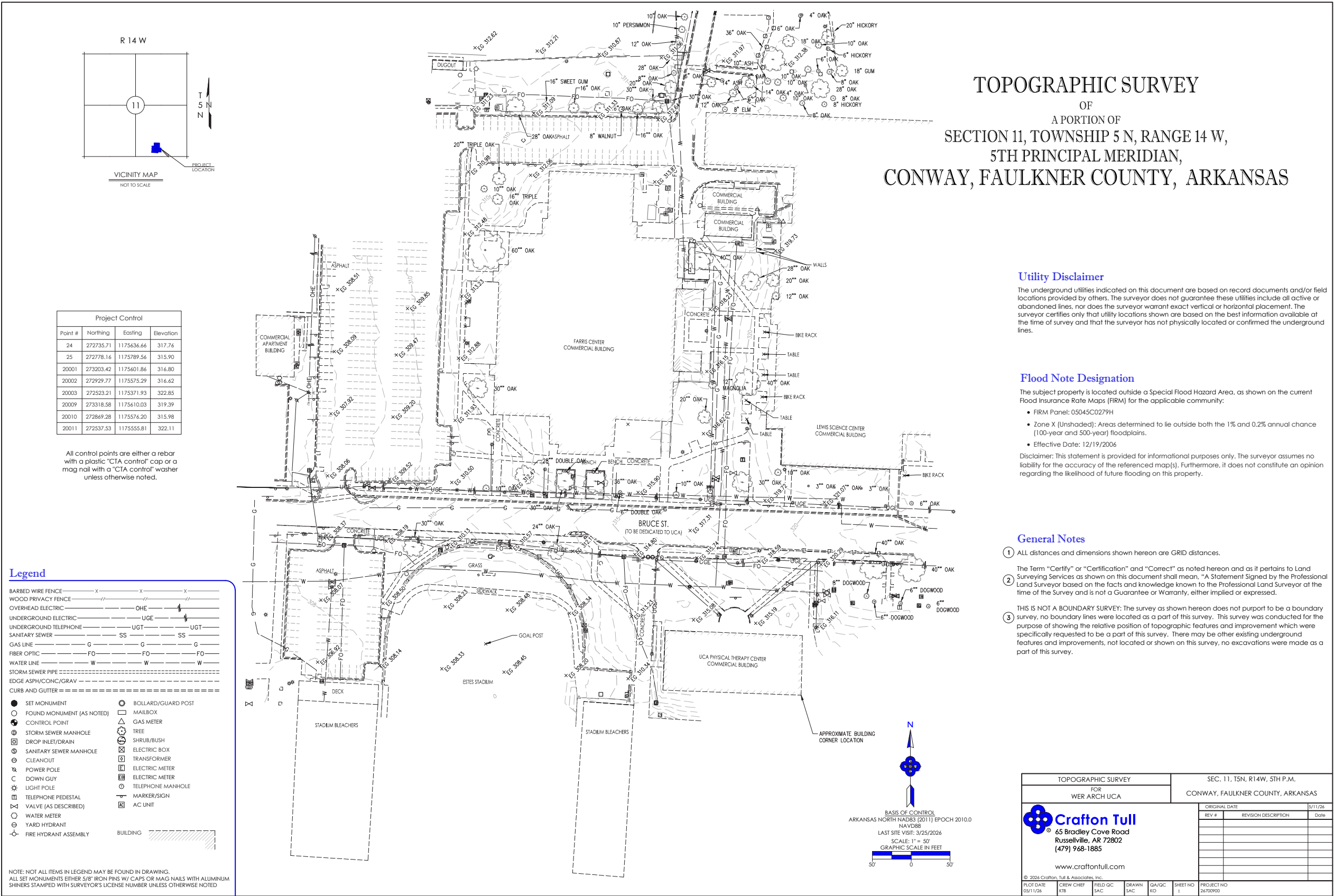
APPENDIX

UCA ARENA SURVEY



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MULTIPURPOSE ARENA SCHEMATIC DESIGN



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ARIZONA NORTH NAD83 (2011) EPOCH 2010.0

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BASIS OF CONTROL

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GRAPHIC SCALE IN FEET

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SCALE: 1" = 50'

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LAST SITE VISIT: 3/25/2026

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GRAPHIC SCALE IN FEET

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SCALE: 1" = 50'

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LAST SITE VISIT: 3/25/2026

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GRAPHIC SCALE IN FEET

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SCALE: 1" = 50'

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LAST SITE VISIT: 3/25/2026

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ARIZONA NORTH NAD83 (2011) EPOCH 2010.0

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BASIS OF CONTROL

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GRAPHIC SCALE IN FEET

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SCALE: 1" = 50'



IV. ROOM DATA SHEETS

APPENDIX

The following room data sheets are intended to be a joint effort between the University and the design team. This will be a living document throughout the entire design process to track the needs of each space. As more conversations occur, more information will populate these sheets. At completion, these same pages will serve as the checklist to ensure that the design team is providing all of the components requested throughout the months of planning.

The color bar designates the assigned department for the space specified.



Entry Lobbies/Hall of Fame

Room Name:	Arena Lobby/ Hall of Fame	Room #:	
Prepared By:	HKS	Date:	7/22/2026
		Revised:	
ARCHITECTURAL:		Lighting/Electrical:	
Floor / Base	Custom Poured Terrazzo with zinc divider pattern strips	General Lighting	
Walls	Wood, Limestone tile texture with metal accents. Assume \$50/SF for branding elements indicated in renderings. A level 5 finish to be provided on gypsum surface prior to application of the finish. 4" metal wall base.	Special Lighting	
North		Floor Boxes	
East		Special outlets(TV, equipment, etc.)	
South		Occupancy Sensors	
West		UPS Power	
Wall Protection		Emergency Power	
Ceiling	Glulam wood beam accents, painted gypsum, wood accents and soffits		
Special Acoustical Material		Communications:	
Windows		Telephone	
Shades(blackout, 3%, etc.)		Public Address	
Graphics	Refer to Branding Package	Data	
Other	Custom LED screen technology		
	"Grand" stairway, Open atrium space, Ticket Box Office, Elevators, "Hall of Fame" custom millwork hallway design with integrated lighting and branding, ATM machine	Special Systems:	
		Security Camera(Exterior, Interior, etc.)	Security Systems, Ticketing Kiosks
		Door Access Control	
		Closed Circuit TV	
		Cable TV	
		Other	
MECHANICAL:		Specialty Equipment:	
Humidity Control		(Appliances/Furniture/Furnishings)	
Temperature Set Point(other than normal)		1)	
Specialized Exhaust (lockers, cleats, etc.)		2)	
Commercial Washer/Dryer		3)	
Other:		4)	
PLUMBING:			
Sink Quantity			
Toilet Quantity			
Floor Mounted			
Wall Mounted			
Weight Limint			
Urinal Quantity			
Shower Quantity			
Water Fountain/Bottle Filler			
Hose Bibb/ wall hydrant			
Floor Drain			
Laundry			
Other			

Notes:



1)

2)

3)

4)

Comments, Sketches, or Photos?



Main Concourse Arena/Seating Bowl

Room Name:

Main Concourse

Room #:

Prepared By:

HKS

Date:

7/22/2026

Revised:

ARCHITECTURAL:

Floor / Base	Stained and Sealed Concrete, Poured Custom Terrazzo	General Lighting	Sports Court lighting to meet current NCAA Division 1 standards for Regional Broadcast (80fc minimum maintained)
Walls	Glass Curtain Wall, Painted Gypsum, Wood panel accents	Special Lighting	
North		Floor Boxes	
East		Special outlets(TV, equipment, etc.)	
South		Occupancy Sensors	
West		UPS Power	
Wall Protection		Emergency Power	
Ceiling	Glulam Beams, Southern Pine Stain Finish, with EPIC Metal deck spanning between		
Special Acoustical Material		Communications:	
Windows		Telephone	
Shades(blackout, 3%, etc.)		Public Address	Hookups for PA and Sound System speakers to be included on both event level and main concourse
Graphics	Branding & wall graphics will be prominently included, final scope TBD	Data	
Other	Vertical Circulation for ADA and VIP Elevators and Freight Elevator	Special Systems:	
		Security Camera(Exterior, Interior, etc.)	
		Door Access Control	
		Closed Circuit TV	
		Cable TV	Video Board to be included, final scope TBD
		Other	Retractable Bleacher System
		Specialty Equipment:	
		(Appliances/Furniture/Furnishings)	

PLUMBING:

Sink Quantity		1) Basketball goals with integral clocks & shot clocks, video scoreboards, wall pads, scorers' table, media tables, courtside seating, portable Basketball goal tie downs, in floor electrical and data connections
Toilet Quantity		2)
Floor Mounted		3)
Wall Mounted		4)
Weight Limint		
Urinal Quantity		
Shower Quantity		
Water Fountain/Bottle Filler		
Hose Bibb/ wall hydrant		
Floor Drain		
Laundry		
Other		

Notes:

1) Seating Bowl: Provide approximately 2500 seats including Courtside Seats, Club Seats, ADA seats. Armchair seating - 21" self-rising seats; 19" or 20" where

2) Precast concrete treads and risers for top 2 rows integral to the building structure, 9 rows of retractable seating below.

3) Roof structure to have pick points for adaptable rigging connections



- 4) Circulation pathways to be easy to navigate for scissor lift.
- 5) Scoreboard to be easily accessible and maintain

Comments, Sketches, or Photos?



Practice Court

Room Name:

Basketball Practice Court

Prepared By:

HKS

Room #:

Date:

7/22/2026

Revised:

ARCHITECTURAL:

Floor / Base

Hardwood sports flooring custom pattern design to match arena floor. Connor Sports Flooring system

Walls

Integral color sand blasted face CMU, Branding accent walls

North

East

South

West

Wall Protection

Ceiling

Glulam Beams Southern Pine Stain Finish, with EPIC Metal deck spanning between

Special Acoustical Material

Acoustical Panels applied to upper walls

Windows

Shades(blackout, 3%, etc.)

Graphics

Some branding & wall graphics will be included, final scope TBD

One overhead, operable, motorized basketball goal included. Wall pads up to 8'-0" along the practice court baselines (short side).

Other

MECHANICAL:

Humidity Control

Temperature Set Point(other than normal)

Specialized Exhaust (lockers, cleats, etc.)

Commercial Washer/Dryer

Other:

PLUMBING:

Sink Quantity

Toilet Quantity

Floor Mounted

Wall Mounted

Weight Limint

Urinal Quantity

Shower Quantity

Water Fountain/Bottle Filler

Hose Bibb/ wall hydrant

Floor Drain

Laundry

Other

Notes:

1)

2)

3)

4)

Lighting/Electrical:

General Lighting

Special Lighting

Floor Boxes

Special outlets(TV, equipment, etc.)

Occupancy Sensors

UPS Power

Emergency Power

Communications:

Telephone

Public Address

Data

Special Systems:

Security Camera(Exterior, Interior, etc.)

Door Access Control

Closed Circuit TV

Cable TV

Other

Specialty Equipment:

(Appliances/Furniture/Furnishings)

1) Basketball goals, scoreboards, wall pads, portable Basketball goal tie downs

2)

3)

4)

Comments, Sketches, or Photos?





Room Name:	Men's & Women's BB Locker Room	Room #:	
Prepared By:	HKS	Date:	7/22/2026
		Revised:	

Floor / Base	Carpet tile surrounded by a thin perimeter of skate-resistant rubber tile flooring and 4" metal base. Custom Branding Design Element integrated Wet areas: Porcelain tile
---------------------	--

All walls to receive epoxy paint. Assume 25% wall coverage for vinyl graphics. Provide \$50/SF for branding element. Walls to receive a level 5 finish prior to the install of wallcovering or graphic film.

Specialty ceiling is a combination of 3-dimensional Armstrong Castworks GFRG and Acoustibuilt drywall ceiling 0.80 NRC rating Class A. Continuous cove lighting, and exposed ceiling.

Humidity Control	
Temperature Set Point (other than normal)	
Specialized Exhaust (lockers, cleats, etc.)	
Commercial Washer/Dryer	
Other:	

Room #: _____
Date: 7/22/2026
Revised: _____

General Lighting

The team's locker room lighting is designed as an adaptable system that responds dynamically to pre-game energy, post-game recovery, and team rituals using programmable technology. Millwork lighting is fully integrated into the lockers. Shower and wet areas to also have recessed cove lighting in shower areas.

Floor Boxes

Occurrence Sensors

UPS Power

Emergency Power

Telephone _____

Public Address _____

Data _____

Security Camera(Exterior, Interior, etc.)	
Door Access Control	
Closed Circuit TV	
Cable TV	

(Appliances/Furniture/Furnishings)

1) The strategy for AV in the team's locker room is to provide the team with the digital tools needed to review, analyze, and monitor activities on the field, 80" televisions for lounge, film rooms, game clocks, and speakers will be distributed throughout the full complex. Various bluetooth speakers to be provided to connect to audio, and gaming systems.

Sink Quantity	
Toilet Quantity	
Floor Mounted	
Wall Mounted	
Weight Limint	
Urinal Quantity	
Shower Quantity	4 for each locker room (Home)
Water Fountain/Bottle Filler	
Hose Bibb/ wall hydrant	
Floor Drain	
Laundry	Commerical grade washer and dryers with bins for storage, shelving and hanging racks
Other	Phenolic toilet partitions, automatic plumbing fixtures, integrated accessories, min 4' H mirrors and back ledge shelf, quartz countertop, towel drop storage

1) Film Rooms: Provide 6" Riser at each level of seating with recessed cove step lighting. Provide fixed seating with custom branding. 50% of room to be fabric-wrapped acoustical wall paneling. 50% of the room to be acoustical metal paneling with custom reveal configuration. Provide \$50/SF for branding elements indicated in renderings. A level 5 finish to be provided on gypsum surface prior to application of the finish. 4" metal wall base. Assume large format digital display at front wall with touchscreen display. Digital game clock to be provided.

2) All lockers shall be custom grade with compartments and properly ventilation. Lockers to have graphic designed name plates backlit, heavy-duty drawer glides, soft-close hinges, custom upholstered seat and back cushion with UCA logo and stitching pattern, integrated lighting at compartments/toe kick with power/USB for devices. 36"W x 32"D.

3) 25 seats in film room

Flat ceiling solution:

Armstrong Acoustibuilt- Smooth, non-directional, monolithic, drywall-like visual with excellent acoustical properties(Level 4 equivalent finish).

Item No. 2604: .80 NRC / 46 CAC

Cove light solution:

Armstrong Castworks GFRG- Smooth finish, can be cast into any shape or compound curve. The attached brochure shows some standard examples of light covers to give you an idea of the possibilities.

Mounting solution:

Armstrong FrameAll Drywall Grid- Suspension System for mounting Acoustibuilt panels and Castworks coves

Item No. HD8906

5) 18 lockers each for Mens and Womens Basketball

Comments, Sketches, or Photos?

2) Nutrition space to have full refrigerator, microwave, upper and lower cabinets, sink and dishwasher. Quartz countertop.

3)

4)

4 for each locker room (Home)

Commerical grade washer and dryers
with bins for storage, shelving and
hanging racks

Phenolic toilet partitions, automatic plumbing fixtures, integrated accessories, min 4' H mirrors and back ledge shelf, quartz countertop, towel drop storage



Football Lockers

Room Name:	Football Locker Room	Room #:	
Prepared By:	HKS	Date:	7/22/2026
		Revised:	

ARCHITECTURAL:

Floor / Base

Carpet tile surrounded by a thin perimeter of skate-resistant rubber tile flooring and 4" metal base. Custom Branding Design Element integrated.

Wet areas: Porcelain tile

Walls

All walls to receive epoxy paint. Assume 25% wall coverage for vinyl graphics. Provide \$100/SF for branding element. Walls to receive a level 5 finish prior to the install of wallcovering or graphic film.

North

East

South

West

Wall Protection

Ceiling

Specialty ceiling is a combination of 3-dimensional Armstrong Castworks GFRG and Acoustibuilt drywall ceiling 0.80 NRC rating Class A. Continuous cove lighting, and exposed ceiling.

Special Acoustical Material

Windows

Shades(blackout, 3%, etc.)

Graphics

Other

MECHANICAL:

Humidity Control
Temperature Set Point(other than normal)

Specialized Exhaust (lockers, cleats, etc.)

Commercial Washer/Dryer

Other:

Lighting/Electrical:

General Lighting

The team's locker room lighting is designed as an adaptable system that responds dynamically to pre-game energy, post-game recovery, and team rituals using programmable technology. Millwork lighting is fully integrated into the lockers. Shower and wet areas to also have recessed cove lighting in shower areas.

Special Lighting

Floor Boxes

Special outlets(TV, equipment, etc.)

Occupancy Sensors

UPS Power

Emergency Power

Communications:

Telephone

Public Address

Data

Special Systems:

Security Camera(Exterior, Interior, etc.)

Door Access Control

Closed Circuit TV

Cable TV

Other

Specialty Equipment:

(Appliances/Furniture/Furnishings)

1) The strategy for AV in the team's locker room is to provide the team with the digital tools needed to review, analyze, and monitor activities on the field, 80" televisions for lounge, film rooms, game clocks, and speakers will be distributed throughout the full complex. Various bluetooth speakers to be provided to connect to audio, and gaming systems.

PLUMBING:

Sink Quantity

Toilet Quantity

Floor Mounted

Wall Mounted

Weight Limint

Urinal Quantity

Shower Quantity

Water Fountain/Bottle Filler

Hose Bibb/ wall hydrant

Floor Drain

Laundry

Other

Commerical grade washer and dryers with bins for storage, shelving and hanging racks

Phenolic toilet partitions, automatic plumbing fixtures, integrated accessories, min 4' H mirrors and back ledge shelf, quartz countertop, towel drop storage

Notes:

1) All lockers shall, custom grade with compartments and properly ventilation. Lockers to have graphic designed name plates backlit, heavy-duty drawer glides, soft-close hinges, custom upholstered seat and back cushion with UCA logo and stitching pattern, integrated lighting at compartments/toe kick with power/USB for devices. 36"w x 32"d.

Manufacturer: Longhorn or Hollman lockers

2) Locker Ceiling:

Flat ceiling solution:

Armstrong Acoustibuilt- Smooth, non-directional, monolithic, drywall-like visual with excellent acoustical properties(Level 4 equivalent finish). Item No. 2604; .80 NRC / 46 CAC

Cove light solution:

Armstrong Castworks GFRG- Smooth finish, can be cast into any shape or compound curve. The attached brochure shows some standard examples of light coves to give you an idea of the possibilities.

Mounting solution:

Armstrong FrameAll Drywall Grid- Suspension System for mounting Acoustibuilt panels and Castworks coves Item No. HD8906"

3) Lockers 120 minimum

4)

Comments, Sketches, or Photos?

2) Nutrition space to have full regrigerator, microwave, upper and lower cabinets, sink and dishwasher. Quartz countertop.

3)

4)





Visiting Team Areas/Officials

Room Name:		Room #:	
Prepared By:	HKS	Date:	7/22/2026
		Revised:	
<u>ARCHITECTURAL:</u>		<u>Lighting/Electrical:</u>	
Floor / Base		General Lighting	
Walls		Special Lighting	
North		Floor Boxes	
East		Special outlets(TV, equipment, etc.)	
South		Occupancy Sensors	
West		UPS Power	
Wall Protection		Emergency Power	
Ceiling		<u>Communications:</u>	
Special Acoustical Material		Telephone	
Windows		Public Address	
Shades(blackout, 3%, etc.)		Data	
Graphics		<u>Special Systems:</u>	
Other		Security Camera(Exterior, Interior, etc.)	
		Door Access Control	
		Closed Circuit TV	
		Cable TV	
		Other	
<u>MECHANICAL:</u>		<u>Specialty Equipment:</u>	
Humidity Control		(Appliances/Furniture/Furnishings)	
Temperature Set Point(other than normal)		1)	
Specialized Exhaust (lockers, cleats, etc.)		2)	
Commercial Washer/Dryer		3)	
Other:		4)	
<u>PLUMBING:</u>			
Sink Quantity			
Toilet Quantity			
Floor Mounted			
Wall Mounted			
Weight Limint			
Urinal Quantity			
Shower Quantity	2 showers each		
Water Fountain/Bottle Filler			
Hose Bibb/ wall hydrant			
Floor Drain			
Laundry			
Other			
<u>Notes:</u>			
1)			
2)			
3)			
4)			



Comments, Sketches, or Photos?



Weight Training

Room Name:	Weight Room	Room #:	
Prepared By:	HKS	Date:	7/22/2026
		Revised:	
ARCHITECTURAL:		Lighting/Electrical:	
Floor / Base	48"x25' Roll Rubber flooring; 19mm for primary strength floor, thicker as needed for deadlift/Olympic lifting platforms	General Lighting	
Walls		Special Lighting	
North		Floor Boxes	
East		Special outlets(TV, equipment, etc.)	
South		Occupancy Sensors	
West		UPS Power	
Wall Protection		Emergency Power	
Ceiling	Exposed, painted structure with acoustical panels under the roof deck		
Special Acoustical Material		Communications:	
Windows		Telephone	
Shades(blackout, 3%, etc.)	Automatic window shades	Public Address	
Graphics	Some branding & wall graphics will be included, final scope TBD		
Other	At least one wall to have mirrors up to 8'-0"	Data	
MECHANICAL:		Special Systems:	
Humidity Control		Security Camera(Exterior, Interior, etc.)	
Temperature Set Point(other than normal)		Door Access Control	
Specialized Exhaust (lockers, cleats, etc.)		Closed Circuit TV	
Commercial Washer/Dryer		Cable TV	
Other:			
		Other	
PLUMBING:		Specialty Equipment:	
Sink Quantity		(Appliances/Furniture/Furnishings)	
Toilet Quantity		1)	
Floor Mounted		2)	
Wall Mounted		3)	
Weight Limint		4)	
Urinal Quantity			
Shower Quantity			
Water Fountain/Bottle Filler			
Hose Bibb/ wall hydrant			
Floor Drain			
Laundry			
Other			
Notes:			
1)			
2)			



3)
4)
Comments, Sketches, or Photos?



Sports Medicine

Room Name:	Treatment & Taping, Rehabilitation, Hydrotherapy, Exam, Trainer Office	Room #:	
Prepared By:	HKS	Date:	7/22/2026
		Revised:	

ARCHITECTURAL:

Floor / Base	3/8" rolled rubber in rehab spaces and resilient sheet flooring in treatment spaces; porcelain tile in wet areas hydrotherapy space
Walls	ceramic tile in wet areas
North	
East	
South	
West	
Wall Protection	
Ceiling	2' x 2' ACT
Special Acoustical Material	
Windows	
Shades(blackout, 3%, etc.)	Automatic window shades
Graphics	
Other	

MECHANICAL:

Humidity Control	
Temperature Set Point(other than normal)	
Specialized Exhaust (lockers, cleats, etc.)	
Commercial Washer/Dryer	
Other:	

PLUMBING:

Sink Quantity	2 (unisex)
Toilet Quantity	2 (unisex)
Floor Mounted	
Wall Mounted	
Weight Limint	
Urinal Quantity	
Shower Quantity	
Water Fountain/Bottle Filler	
Hose Bibb/ wall hydrant	
Floor Drain	
Laundry	
Other	5-8/ tub, plan for 2 tubs (1 hot, 1 cold)

Notes:

Lighting/Electrical:

General Lighting	
Special Lighting	
Floor Boxes	
Special outlets(TV, equipment, etc.)	
Occupancy Sensors	
UPS Power	
Emergency Power	

Communications:

Telephone	
Public Address	
Data	

Special Systems:

Security Camera(Exterior, Interior, etc.)	
Door Access Control	
Closed Circuit TV	
Cable TV	
Other	

Specialty Equipment:
(Appliances/Furniture/Furnishings)

1)	
2)	
3)	
4)	

1) Hydrotherapy Pools:
ADA transfer walls, used for pool and spa access, must be 16–19 inches high, 12–16 inches deep, and at least 60 inches long, featuring a 60-inch minimum square clear deck space. They must include at least one non-rotating, non-abrasive grab bar, centered on the deck space, 4–6 inches above the wall.

2) 6 tables
3) Strength coach needs a small office within their own space on the ground floor
4)

Comments, Sketches, or Photos?





Basketball Team Offices

Room Name:	Basketball Office Suite	Room #:	
Prepared By:	HKS	Date:	7/22/2026
		Revised:	

ARCHITECTURAL:

Floor / Base	Carpet tile, porcelain tile in wet areas
--------------	--

Walls	Painted Gyp/Wallcovering Type II; modular glass walls at office fronts
-------	--

North	
East	
South	
West	
Wall Protection	

Ceiling	2'x2' AC1, gyp ceiling, acoustic cloud/felt in conference room
---------	--

Special Acoustical Material	Fabric wrap acoustic panels in conference room
-----------------------------	--

Windows	
Shades(blackout, 3%, etc.)	

Graphics	
Other	A level 5 finish to be provided on gypsum surface prior to application of the finish

MECHANICAL:

Humidity Control	
Temperature Set Point(other than normal)	
Specialized Exhaust (lockers, cleats, etc.)	
Commercial Washer/Dryer	
Other:	

PLUMBING:

Sink Quantity	Automatic faucet
Toilet Quantity	
Floor Mounted	
Wall Mounted	
Weight Limint	
Urinal Quantity	
Shower Quantity	2 showers for each team's staff
Water Fountain/Bottle Filler	
Hose Bibb/ wall hydrant	
Floor Drain	
Laundry	
Other	

Lighting/Electrical:

General Lighting	
------------------	--

Special Lighting	
Floor Boxes	
Special outlets(TV, equipment, etc.)	
Occupancy Sensors	
UPS Power	
Emergency Power	

Communications:

Telephone	
Public Address	
Data	

Special Systems:

Security Camera(Exterior, Interior, etc.)	
Door Access Control	
Closed Circuit TV	
Cable TV	
Other	

Specialty Equipment:
(Appliances/Furniture/Furnishings)

1) Pantry to have refrigerator, microwave, upper and lower cabinets with quartz countertop	
2)	
3)	
4)	

Notes:

1) Football/Basketball Offices- L-shaped desk, TV and two guest chairs
2) Separate Coaches Offices: Mens (5) - head coach+ 4 full time assistants Womens (4) - head coach + 3 full time assistants
3) Basketball Coaches coed lockers with single occupant shower room – 5 lockers for each program
4)
5)

Comments, Sketches, or Photos?





Football Team Offices

Room Name:	Football Office Suite	Room #:	
Prepared By:	HKS	Date:	7/22/2026
		Revised:	

ARCHITECTURAL:

Floor / Base	Carpet tile, porcelain tile in wet areas
--------------	--

Walls	Painted Gyp/Wallcovering Type II; modular glass walls at office fronts
-------	--

North	
East	
South	
West	
Wall Protection	

Ceiling	2"x2' ACT, gyp ceiling, acoustic cloud/felt in conference room
---------	--

Special Acoustical Material	Fabric wrap acoustic panels in conference room
-----------------------------	--

Windows	
Shades(blackout, 3%, etc.)	

Graphics	
Other	A level 5 finish to be provided on gypsum surface prior to application of the finish

MECHANICAL:

Humidity Control	
Temperature Set Point(other than normal)	

Specialized Exhaust (lockers, cleats, etc.)	
Commercial Washer/Dryer	
Other:	

PLUMBING:

Sink Quantity	Automatic faucet
Toilet Quantity	
Floor Mounted	
Wall Mounted	
Weight Limint	
Urinal Quantity	
Shower Quantity	2 showers for each team's staff
Water Fountain/Bottle Filler	
Hose Bibb/ wall hydrant	
Floor Drain	
Laundry	
Other	

Lighting/Electrical:

General Lighting	
------------------	--

Special Lighting	
Floor Boxes	
Special outlets(TV, equipment, etc.)	
Occupancy Sensors	
UPS Power	
Emergency Power	

Communications:

Telephone	
Public Address	
Data	

Special Systems:

Security Camera(Exterior, Interior, etc.)	
Door Access Control	
Closed Circuit TV	
Cable TV	
Other	

Specialty Equipment:

(Appliances/Furniture/Furnishings)

1) Pantry to have refrigerator, microwave, upper and lower cabinets with quartz countertop
2)
3)
4)

Notes:

1) Football/Basketball Offices- L-shaped desk, TV and two guest chairs
2) Football: 12 full time staff, GA room open desk layout, analysts, don't want cubicles
3)
4)
5)

Comments, Sketches, or Photos?





Club Level

Room Name:	Club Level	Room #:	
Prepared By:	HKS	Date:	7/22/2026
		Revised:	
ARCHITECTURAL:		Lighting/Electrical:	
Floor / Base	Poured Custom Terrazzo	General Lighting	
Walls	Painted drywall with stained wood accent panels	Special Lighting	
North		Floor Boxes	
East		Special outlets(TV, equipment, etc.)	
South		Occupancy Sensors	
West		UPS Power	
Wall Protection		Emergency Power	
Ceiling	Painted gypsum drywall and soffits, wood accents		
Special Acoustical Material		Communications:	
Windows		Telephone	
Shades(blackout, 3%, etc.)		Public Address	
Graphics		Data	
	Design wood veneer millwork bar and storage to accommodate undercounter refrigerator, barstools, TV (wall or ceiling mounted), quartz counterop, undercounter continous lighting. Glass guardrails around perimeter, including front of seating areas		
Other	Male and Female Restrooms	Special Systems:	
	Terrace Patio	Security Camera(Exterior, Interior, etc.)	
		Door Access Control	
		Closed Circuit TV	
		Cable TV	
		Other	
MECHANICAL:		Specialty Equipment:	
Humidity Control		(Appliances/Furniture/Furnishings)	
Temperature Set Point(other than normal)		1)	
Specialized Exhaust (lockers, cleats, etc.)		2)	
Commercial Washer/Dryer		3)	
Other:		4)	
PLUMBING:			
Sink Quantity			
Toilet Quantity			
Floor Mounted			
Wall Mounted			
Weight Limint			
Urinal Quantity			
Shower Quantity			
Water Fountain/Bottle Filler			
Hose Bibb/ wall hydrant			
Floor Drain			
Laundry			
	Include baby changing at ADA restrooms in both Male and Female Restrooms		
Other	Quartz countertop with automatic faucet and accessories, framed decorative mirror		
Notes:			
1) Standing rail 10" depth solid surface countertop			
2) Pantry Kitchen			
3) Small storage			
4)			



Comments, Sketches, or Photos?



Operations Support

Room Name:

Prepared By:

Misc.
HKS

Room #:

Date:

Revised:

7/22/2026

ARCHITECTURAL:

Floor / Base

Walls

North

East

South

West

Wall Protection

Ceiling

Special Acoustical Material

Windows

Shades(blackout, 3%, etc.)

Graphics

Other

MECHANICAL:

Humidity Control

Temperature Set Point(other than normal)

Specialized Exhaust (lockers, cleats, etc.)

Commercial Washer/Dryer

Other:

PLUMBING:

Sink Quantity

Toilet Quantity

Floor Mounted

Wall Mounted

Weight Limint

Urinal Quantity

Shower Quantity

Water Fountain/Bottle Filler

Hose Bibb/ wall hydrant

Floor Drain

Laundry

Other

Notes:

Lighting/Electrical:

General Lighting

Special Lighting

Floor Boxes

Special outlets(TV, equipment, etc.)

Occupancy Sensors

UPS Power

Emergency Power

Communications:

Telephone

Public Address

Data

Special Systems:

Security Camera(Exterior, Interior, etc.)

Door Access Control

Closed Circuit TV

Cable TV

Other

Specialty Equipment:
(Appliances/Furniture/Furnishings)

1)

2)

3)

4)

1) Stage Carts

- 3 Tall Stage Carts: Each measures 55" x 96" (8'). These hold 9 pieces per cart (27 total)

- 1 Short Stage Cart: Measures 98" x 47". This holds 12 pieces.

- 1 Short Stage Cart: Measures 31" x 96". This holds 6 pieces.

Carpet Carts
- 4 Carpet Carts: Each measures 87" x 44".
Ramps Cart
- 1 Ramp Cart: Measures 98" x 47".
Chair Carts
- 8 Chair Carts: Each measures 70" x 31". (604 Chairs)
Odds & Ends
- Podium, Pipe and Drape Cart 32" x 50", 34 Gray Padded chairs, flags, diploma table.
About 463.65 Square Feet needed for these items.

2)

3)

4)

Comments, Sketches, or Photos?





Media Facilities

Room Name:	Media/Interview, Broadcast/ Production, Broadcast Storage, Broadcast IT	Room #:	
Prepared By:	HKS	Date:	7/22/2026
		Revised:	

ARCHITECTURAL:

Floor / Base

Walls

North

East

South

West

Wall Protection

Ceiling

Special Acoustical Material

Windows

Shades(blackout, 3%, etc.)

Graphics

Other

MECHANICAL:

Humidity Control

Temperature Set Point(other than normal)

Specialized Exhaust (lockers, cleats, etc.)

Commercial Washer/Dryer

Other:

PLUMBING:

Sink Quantity

Toilet Quantity

Floor Mounted

Wall Mounted

Weight Limint

Urinal Quantity

Shower Quantity

Water Fountain/Bottle Filler

Hose Bibb/ wall hydrant

Floor Drain

Laundry

Other

Lighting/Electrical:

General Lighting

Special Lighting

Floor Boxes

Special outlets(TV, equipment, etc.)

Occupancy Sensors

UPS Power

Emergency Power

Communications:

Telephone

Public Address

Data

Special Systems:

Security Camera(Exterior, Interior, etc.)

Door Access Control

Closed Circuit TV

Cable TV

Other

Specialty Equipment:

(Appliances/Furniture/Furnishings)

1)

2)

3)

4)

Notes:

1)

2)

3)

4)



Comments, Sketches, or Photos?



Truck Dock

Room Name:		Room #:	
Prepared By:	WER	Date:	7/22/2026
		Revised:	
<u>ARCHITECTURAL:</u>		<u>Lighting/Electrical:</u>	
Floor / Base		General Lighting	
Walls		Special Lighting	
North		Floor Boxes	
East		Special outlets(TV, equipment, etc.)	
South		Occupancy Sensors	
West		UPS Power	
Wall Protection		Emergency Power	
Ceiling			1-400A/208/120V/3ph for the broadcast truck
Special Acoustical Material		Specialty Power	1-100A/208/120V/3ph for satellite truck
Windows			(2) 400amp and (2) 200amp company switches for concerts
Shades(blackout, 3%, etc.)			
Graphics			
Other			
<u>MECHANICAL:</u>		<u>Communications:</u>	
Humidity Control		Telephone	
Temperature Set Point(other than normal)		Public Address	
Specialized Exhaust (lockers, cleats, etc.)			
Commercial Washer/Dryer		Data	
Other:			
<u>PLUMBING:</u>		<u>Special Systems:</u>	
Sink Quantity		Security Camera(Exterior, Interior, etc.)	
Toilet Quantity		Door Access Control	
Floor Mounted		Closed Circuit TV	
Wall Mounted		Cable TV	
Weight Limint		Other	
Urinal Quantity			
Shower Quantity			
Water Fountain/Bottle Filler			
Hose Bibb/ wall hydrant			
Floor Drain			
Laundry			
Other			
<u>Notes:</u>			
1) Plan for trash compactor			
2) Screened from public view			
3) Electric Dock Leveler			
4)			



Comments, Sketches, or Photos?



BOH Spaces

Room Name:

Prepared By:

HKS

Room #:

Date:

7/22/2026

Revised:

ARCHITECTURAL:

Floor / Base

Walls

North

East

South

West

Wall Protection

Ceiling

Special Acoustical Material

Windows

Shades(blackout, 3%, etc.)

Graphics

Other

MECHANICAL:

Humidity Control

Temperature Set Point(other than normal)

Specialized Exhaust (lockers, cleats, etc.)

Commercial Washer/Dryer

Other:

PLUMBING:

Sink Quantity

Toilet Quantity

Floor Mounted

Wall Mounted

Weight Limint

Urinal Quantity

Shower Quantity

Water Fountain/Bottle Filler

Hose Bibb/ wall hydrant

Floor Drain

Laundry

Other

Notes:

1)

2)

3)

4)

Lighting/Electrical:

General Lighting

Special Lighting

Floor Boxes

Special outlets(TV, equipment, etc.)

Occupancy Sensors

UPS Power

Emergency Power

Communications:

Telephone

Public Address

Data

Special Systems:

Security Camera(Exterior, Interior, etc.)

Door Access Control

Closed Circuit TV

Cable TV

Other

Specialty Equipment:
(Appliances/Furniture/Furnishings)

1)

2)

3)

4)

Comments, Sketches, or Photos?



V. GEOTECHNICAL REPORT
APPENDIX



REPORT OF SUBSURFACE EXPLORATION
AND GEOTECHNICAL EVALUATION
UCA MULTI-PURPOSE ARENA
CONWAY, ARKANSAS
BUILDING & EARTH PROJECT No.: LR260019 – REVISION 1

PREPARED FOR:
WER Architects

JUNE 11, 2026

June 11, 2026

WER Architects
901 West Third Street
Little Rock, Arkansas 72201

Attention: Ms. Holly Vetsch, AIA, P.E. – Project Architect

Subject: Report of Subsurface Exploration and Geotechnical Evaluation
UCA Multi-Purpose Arena
Conway, Arkansas
Building & Earth Project No: LR260019 – Revision 1

Dear Ms. Vetsch:

Building & Earth Sciences, LLC (Building & Earth) has completed the authorized subsurface exploration and geotechnical engineering evaluation for the UCA Multi-Purpose Arena located along Bruce Street on the campus of the University of Central Arkansas (UCA) in Conway, Arkansas.

The purpose of this exploration and evaluation was to determine general subsurface conditions at the site and to address applicable geotechnical aspects of the proposed construction and site development. The recommendations in this report are based on a physical reconnaissance of the site, conditions observed at the time of the exploration, and observation and classification of samples obtained from eight (8) test borings conducted at the site. Three test borings were omitted from the original scope of work due to concerns of damaging the turf of the stadium and existing utilities. These recommendations are based on the conditions encountered at the time of the exploration. Confirmation of the anticipated subsurface conditions during construction is an essential part of geotechnical services.

We appreciate the opportunity to provide consultation services for the proposed project. If you have any questions regarding the information in this report or need any additional information, please call us.

Respectfully Submitted,

BUILDING & EARTH SCIENCES, LLC

AR Certificate of Authorization No. 569, Expiration Date 12/31/2026


Stuart M. Scheiderer, P. E.
Branch Manager




Joseph D. Vistad, P. E.
Regional Manager - Principal



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APPENDIX

1.0 PROJECT & SITE DESCRIPTION

The subject site is located along Bruce Street on the campus of UCA in Conway, Arkansas. Information relative to the proposed site and the proposed development is listed in Table 1 below. Photographs depicting the current site condition are presented on the following page.

Development Item	Detail	Description
General Site	Size (Ac.)	±2 acres
	Existing Development	UCA campus and football field
	Vegetation	Short cut grass and trees
	Slopes	No
	Retaining Walls	No
	Drainage	Typical drainage systems for school campus and football field
	Cuts & Fills	Estimated at 2 feet (maximum)
Proposed Buildings	No. of Bldgs	One (1)
	Square Ft.	±116,000
	Stories	Two-story
	Construction	Glulam and Steel Superstructure
	Column Loads	±385 kips (provided)
	Wall Loads	±4 kips per linear foot (assumed)
	Preferred Foundation	Conventional Shallow Foundation
	Preferred Slab	Slab-on-Grade

Table 1: Project and Site Description

Notes:

- If actual loading conditions exceed our assumed loads, Building & Earth should be allowed to review the proposed structural design and its effects on our recommendations for foundation design.***
- A site grading plan sheet was not provided for review in preparation of this report. Once final grades are determined, Building & Earth should be allowed to review the plan and its effects on our recommendations.***



Figure 1: West Center Site Area looking North



Figure 2: Central Site Area looking East

2.0 SCOPE OF SERVICES

The authorized subsurface exploration was performed on April 9 and 22, 2026, in conformance with our proposal LR28007 – Revision 1, dated February 16, 2026. A signed proposal was returned on March 5, 2026. Occasionally some modification of the scope outlined in our proposal is required to provide for proper evaluation of the subsurface conditions encountered in the test borings. Additional boring location planning was required after contract execution to ensure subsurface exploration avoided underground utilities and damage to turf in within the football stadium. Three borings were removed from the scope of work due to the amount of utilities within the stadium area, field and potential damage to the turf. Additional investigation is recommended to verify the conditions identified herein exist within unexplored areas.

The purpose of the geotechnical exploration was to determine general subsurface conditions at specific boring locations and to gather data on which to base a geotechnical evaluation with respect to the proposed construction. The subsurface exploration for this project consisted of eight (8) test borings. The site was drilled using a Geoprobe 7822DT equipped with an automatic hammer for performing Standard Penetration Tests (SPT) to help evaluate the relative soil strength. Refer to the Appendix for a description of the drilling and sampling procedures.

The boring locations were determined in the field by a representative of our staff using Google Earth. As such, the boring locations shown on the Boring Location Plan attached to this report should be considered approximate.

The soil/rock samples recovered during our site investigation were visually classified and specific samples were selected by the project engineer for laboratory analysis. The laboratory analysis consisted of:

Test	ASTM	No. of Tests
Natural Moisture Content	D2216	32
Atterberg Limits	D4318	4
Material Finer Than No. 200 Sieve by Washing	D1140	5

Table 2: Scope of Laboratory Tests

The results of the laboratory analysis are presented on the enclosed Boring Logs and in tabular form in the Appendix of this report. Descriptions of the laboratory tests that were performed are also included in the Appendix.

The results of the work are presented within this report that addresses:

- General site geology.

- Summary of existing surface conditions.
- A description of the subsurface conditions encountered at the boring locations.
- A description of the groundwater conditions observed in the boreholes during drilling. Long-term monitoring is not included in the scope of work.
- Presentation of field and laboratory test results.
- Site preparation considerations including material types to be expected at the site, treatment of any encountered unsuitable soils, excavation considerations, and surface drainage.
- Recommendations to be used for foundation design, including appropriate foundation types, bearing pressures, and depths.
- Presentation of expected total and differential settlements, and recommendations to reduce the expected movements, if appropriate.
- Recommendations to be used for design of slabs-on-grade, including modulus of subgrade reaction.
- Seismic Site Classification per IBC based on SPT test boring information.
- Compaction requirements and recommended criteria to establish suitable material for structural backfill.
- Recommended typical minimum flexible and rigid pavement sections based on assumed traffic loading conditions

3.0 GEOTECHNICAL SITE CHARACTERIZATION

The following discussion is intended to create a general understanding of the site from a geotechnical engineering perspective. It is not intended to be a discussion of every potential geotechnical issue that may arise, nor to provide every possible interpretation of the conditions identified. It is important to note that the following conditions and subsequent recommendations are based solely on the subsurface conditions observed at the boring locations, and the assumption that significant changes in subsurface conditions do not occur between boreholes. However, anomalous conditions can occur due to the geologic conditions at the site, and it will be necessary to evaluate the assumed conditions during site grading and foundation installation. The seasonal weather conditions and rainfall amount prior to and during site grading can have a significant impact on the near surface site conditions.

3.1 GENERAL SITE GEOLOGY

Based on a review of the Arkansas Geological Map, Conway exists primarily within the Atoka Formation of central Arkansas. The Atoka commonly consists of weathered shale with interbedded layers of sandstone in some areas of variable thickness and depths. Residual deposits of clays with variable amounts of shale are typically encountered in the area. The soils encountered are considered consistent with the general geology of the region.

3.2 EXISTING SURFACE CONDITIONS

At the time of our exploration, the site was part of the UCA campus. The proposed footprint of the area extends across areas of parking lots, green spaces, Bruce Street and into the existing football stadium. Extensive amounts of utilities were present within the parking lot on the west side of the stadium and resulted in conflicts and an additional mobilization of the drill rig. Coordination with utilities involved through an on-site meeting required moving three borings in this area from the original location and omission of three borings.

3.3 SUBSURFACE CONDITIONS

A generalized stratification summary has been prepared using data from the test borings and is presented in the table below. The stratification depicts the general soil/rock conditions and strata encountered in the test borings.

Stratum No.	Description	Consistency/Relative Density
1	Existing Fill – Shaley Clay (CL)	Very Stiff
1	Residual Silts and Clays – Silt/Sandy Silt (ML) and Silty Clay (CL)	Soft to Hard
3	Residual Shaley Clay – Shaley Clay (CL)	Very Soft to Very Stiff
4	Weathered Bedrock – Shale/Sandstone	Soft to Moderately Hard/Poorly Cemented

Table 3: Stratification Summary

Subsurface profiles, presented in the Appendix, have also been prepared based on data obtained at specific boring locations. For specific details on the information obtained from individual test borings, refer to the Boring Logs included in the Appendix. The ground surface elevations at the boring locations indicated in this report were estimated based on Google Earth.

3.3.1 EXISTING FILL – SHALEY CLAY (CL)

Materials considered to be fill were encountered beneath the existing asphalt at boring B-10. These materials consisted of shaley clay, consistent with local fill, and visually

different than the underlying sandy lean clay (CL). The natural moisture content of the sample tested was 6.5%, with an N-value of 11, correlating to a consistency of very stiff. It is highly likely other areas of fill exist and it is possible that some of the other shallow materials are indeed fill as well. However, distinguishing between fill and natural soils in the remaining borings was difficult due to their similar nature.

3.3.2 RESIDUAL SILT AND CLAY – SANDY SILT (ML) AND SANDY LEAN CLAY (CL)

Residual fine-grained silts and clays were encountered beneath the existing topsoil and pavements. Sandy silt (ML) with various amounts of clay were encountered in test borings B-01 through B-04 and B-11, extending to depths of about 2.5 to 8.5 feet below existing grades. A representative sample tested was found to be low plasticity with a plasticity index of 3. Another sample was found to consist of about 70% fines (passing the No. 200 sieve), resulting in a classification of sandy silt (ML). The N-values ranged from 2 to 14, corresponding to consistencies of soft to very stiff. The natural moisture content ranged from 9.8% to 23.3%.

Sandy lean clay (CL) was encountered in all test borings except B-11 beneath the asphalt, topsoil or sandy silt (ML). These soils extended to depths of about 8.5 to 13.5 feet below existing grades. Representative samples tested were found to be low to medium plasticity with liquid limits (LL) of 25 and 43, and plasticity index (PI) of 8 and 27. Samples also contained about 54% to 62% fines, resulting in a classification of sandy lean clay (CL). The natural moisture content ranged from 13.4% to 28.8%. The soils were found to be very soft to very stiff with N-values ranging from 1 to 21 blows per foot.

3.3.3 RESIDUAL CLAY – SHALEY CLAY (CL)

Shaley clay (CL), or a very highly weathered shale layer was encountered beneath the sandy clay in borings B-01 through B-04. These soils had N-values in excess of 50 blows per foot and contained a significant amount of shale fragments. The materials are considered to behave more as a clay than rock, thus a classification of shaley clay (CL) was assigned by the engineer. The N-values increased as the materials transitioned to shale.

3.3.4 WEATHERED BEDROCK – SHALE/SANDSTONE

Shale and sandstone bedrock with varying amounts of clay were encountered beneath the overburden soils. While both shale and sandstone layers were noted throughout the site, the sandstone was most notably present beneath the sandy lean clay layer in borings B-08 and B-10, with shale being evident in all borings explored. Shale or sandstone was encountered at a depth ranging from about 8.5 feet to 23.5 feet below existing grades. It is common for these materials to be interbedded within the formation, with individual thicknesses of each layer variable and inconsistent. Materials may appear more as shale in the field in some areas and sandstone in others due to irregularities in bedding. The N-

values exceeded 50 blows per foot. Based on the N-values, the predominant shale materials were considered soft to moderately hard, while the sandstone materials were poorly cemented.

3.4 AUGER REFUSAL

Auger refusal is the drilling depth at which the borehole can no longer be advanced using soil drilling procedures. Auger refusal can occur on boulders, buried debris or rock units. Coring is required to sample the material below auger refusal, which was beyond the approved scope of work for this project. Auger refusal was encountered in B-10 at a depth of 22.1 feet below existing grades.

3.5 GROUNDWATER AT BORING LOCATIONS

For purposes of this report, “groundwater” refers to water encountered at the borehole locations. Designation between perched water and a true groundwater table was not included in our scope of work.

Water levels reported are accurate only for the time and date that the borings were drilled. Long term monitoring of the boreholes was not included as part of our subsurface exploration. The borings were backfilled the same day that they were drilled so the stabilized water level may be different than shown. Groundwater was encountered in B-08 at a depth of 23.5 feet and in B-10 at a depth of 20 feet below existing grades.

The prevalent weather conditions prior to construction will influence the amount and depth of water at the borehole locations. Identifying the static depth to the groundwater table verses the presence of perched water was not included in our scope of services.

3.6 SEISMIC SITE CLASSIFICATION

Basis of Evaluation	Recommended Site Classification
2021 International Building Code (IBC) and ASCE 7, Chapter 20	C
This recommended seismic site classification is based on the 2021 Edition of the International Building Code, the subsurface conditions encountered in the borings, and our knowledge of the geologic conditions of the site. Our subsurface exploration extended to a maximum depth of about 24 feet; hence the seismic site classification should be re-evaluated in the event subsurface information is made available to a depth of 100 feet.	

Table 4: Seismic Site Classification

4.0 SITE DEVELOPMENT CONSIDERATIONS

A site grading plan was not available for review at the issuance of this report. Information obtained from Google Earth indicates the site slopes down to the west and southwest across the site. We estimate cut and fill amounts on the order of about 5 feet will be

required to reach finished grades. ***Once the final grades are determined, or if the building extent or locations are modified, then Building & Earth should be allowed to review the plan and its effects on our recommendations.***

Our recommendations are based on the subsurface conditions observed during the exploration and do not account for seasonal weather variations that may occur prior to or during construction.

Based on our evaluation of the subsurface information encountered in the test borings, and the anticipated foundation loads, it is recommended that construction with a deep foundation system is required due to anticipated loads and variable soft soil conditions identified across the site. The site development recommendations outlined below are intended for development of the site to support construction with a deep foundation system. ***If a different type of foundation system is preferred, Building & Earth must be allowed to review the site development recommendations to verify that they are appropriate for the preferred foundation system.***

The primary geotechnical concerns for this project are:

- The presence of low consistency soils in all borings at various depths within the upper 8.5 feet.
- The presence of moisture sensitive soils in all borings except B-03 and B-11 at various depths within the upper 13.5 feet.
- Shallow weathered sandstone and shale bedrock encountered at depths ranging from 8.5 to 23.5 feet.

Recommendations addressing the site conditions are presented in the following sections.

4.1 DEMOLITION

Removal of sidewalks, pavements, landscaping and other features will be required to facilitate construction. Borings within paved areas encountered about 2 inches of asphalt and 6 inches of crushed stone at the surface, though thicknesses are expected to vary across the site. As indicated previously, significant amounts of utilities are also present. Demolition should include the removal and backfilling of associated foundations, utilities, landscaping, etc. Voids left by removal of these items should be backfilled as outlined in the *Structural Fill* section of this report.

4.2 INITIAL SITE PREPARATION

All vegetation, trees, roots, topsoil and any other deleterious materials should also be removed from the proposed construction areas. Approximately 3 to 4 inches of topsoil were observed in the green areas. The topsoil thickness is accurate only for the specific

boring locations and likely will vary in unexplored areas of the site. Grubbing of trees should include removal of tree stumps and root systems. The geotechnical engineer or their designated field representative should observe stripping and grubbing operations to evaluate that all unsuitable materials are removed from locations for proposed construction.

The existing asphalt should be removed within the proposed footprint of the building. N-values obtained from the borings indicate the soils immediately beneath the asphalt in some areas are firm and stable, however soft layers of sandy lean clay were identified in both B-08 and B-09 either preceding or between the stiffer layers of sandy lean clay in the upper 5 to 8.5 feet. The presence of these layers could result in instability at the surface and require undercut. Materials disturbed during clearing operations should be stabilized in place or, if necessary, undercut to undisturbed materials and backfilled with properly compacted, approved structural fill.

During site preparation activities, the contractor should identify borrow source materials that will be used as structural fill and provide samples to the testing laboratory so that conformance to the *Structural Fill* requirements outlined below and appropriate moisture-density relationship curves can be determined.

4.3 SUBGRADE EVALUATION

We recommend that the project geotechnical engineer, or their representative, assess the subgrade after site preparation. Unstable or unsuitable areas may exist in unexplored portions of the site. All locations requiring fill or structural support should be proofrolled using a loaded tandem-axle dump truck (gross vehicle weight: 20–25 tons) or, in areas with limited access, evaluated through shallow test pits and probings at the appropriate stages:

- After an area has been stripped, and undercut if required, prior to the placement of any fill.
- After grading an area to the finished subgrade elevation in a building or pavement area.
- After areas have been exposed to any precipitation, and/or have been exposed for more than 48 hours.

Some instability may exist during construction, depending on climatic and other factors immediately preceding and during construction. If any soft or otherwise unsuitable soils are identified during the proofrolling process, they should be undercut or stabilized prior to fill placement, or construction of floor slab and pavement. All unsuitable material

identified during construction should be removed and replaced in accordance with the *Structural Fill* section of this report.

4.4 MOISTURE SENSITIVE SOILS

Moisture sensitive sandy silts (ML) and sandy lean clays (CL) are present at the project site. Refer to the appended profiles and boring logs to identify areas in which these soils will be at final grade or used as fill.

These moisture sensitive soils will degrade if allowed to become saturated. Accordingly, construction during wet weather conditions should be avoided, as this could result in soft and unstable soil conditions that would require ground modification, such as in place stabilization or undercutting. Due to the prevalence of moisture sensitive soils at the site, site grading during historically wet periods should be avoided.

Refer to the *Wet Weather Construction* section of this report for additional considerations.

It is not Building & Earth's responsibility to evaluate expected weather patterns for the time of year construction is planned, as these conditions can significantly affect site preparation and earthwork activities. This is particularly important where moisture-sensitive soils are present, since periods of rainfall or freezing conditions may adversely impact soil performance, excavation and compaction.

4.5 UNDERCUTTING OF LOW CONSISTENCY SOILS

Low consistency soils were encountered in all the borings at various depths within the upper 8.5 feet below the existing ground surface. In borings B-01, B-02, B-03, B-09, B-10 and B-11, these softer soils were present at the surface and extended to depths of about 2 to 7 feet below existing grades. In borings B-04, B-08 and B-10, softer soils were encountered beneath a firmer surficial layer and extended to depths of about 4 to 7 feet below existing grades. Low consistency soils should be undercut to a stable, suitable subgrade. The undercutting should extend laterally 5 feet outside the building footprint.

Some unsuitable or unstable areas may be present in unexplored areas of the site. Once the known undercut is complete, the areas planned for construction should be proofrolled to identify any additional soft soils requiring further removal.

Undercut soils should be replaced with structural fill. Clean, non-organic, non-saturated soils taken from the undercut area can be re-used as structural fill. The placement procedure, compaction and composition of the structural fill should meet the requirements of the *Structural Fill* section of this report.

The undercutting should be conducted under the observation of the geotechnical engineer or their designated representative. *Weather conditions at the time of construction will affect the undercutting depths and quantities.* Some instability may exist during

construction, depending on climatic and other factors immediately preceding and during construction.

4.6 STRUCTURAL FILL

Structural fill recommendations for this project are as follows:

Soil Type	USCS Classification	Property Recommendations	Placement Location
Sand and Gravel	GW, GP, GM, SW, SP, SM or combinations	Maximum 2" particle size	All locations and depths with proper drainage and moisture conditioning.
Low PI Clayey and Granular Soils	CL, SC, GC	$LL < 40$, $PI < 20$, $\gamma_d > 100$ pcf	All locations and depths with proper drainage and moisture conditioning.
Medium to High PI Clays	CH	$LL > 40$, $PI > 20$, $\gamma_d > 100$ pcf	Not Suitable for structural fill.
Silt	ML, MH	N/A	Not Suitable for structural fill.
On-site soils	CL	As listed above	All locations and depths with proper drainage and moisture conditioning.

Table 5: Structural Fill Recommendations

Notes:

- 1. LL indicates the soil Liquid Limit; PI indicates the soil Plasticity Index; γ_d indicates the maximum dry density as defined by the density standard outlined in the table below.***
- 2. Laboratory testing of the soils proposed for fill should be performed to verify their conformance with the above recommendations.***
- 3. Any fill to be placed at the site should be reviewed by the geotechnical engineer.***

Recommendations for structural fill placement are as follows:

Specification	Recommendation
Lift Thickness	Maximum 8-inch loose lifts when compacted with large heavy compaction equipment. Maximum 6-inch loose lifts when compacted with lightweight compaction equipment. (thinner lifts may be required in confined locations).
Density	Minimum of 98 percent of maximum dry density as defined by ASTM D698 at all locations and depths.
Moisture	±2 percent of optimum moisture as defined by ASTM D698 for cohesive soils. For cohesionless soils with greater than 12 percent passing the US Standard No. 200 sieve, ±3 percent of optimum moisture as defined above. Moisture requirement is waived for cohesionless soil with less than 12 percent passing the No. 200 sieve. Fill materials consisting mostly of shale or broken shale should be placed between 0% and 4% above optimum moisture content.
Density Testing Frequency	One test per 2,500 sf in building areas and one test per 5,000 sf in pavement areas with minimum of 3 tests per lift. One test per 200 feet of trench backfill with minimum of 2 tests per lift. The testing frequency can be increased or decreased by the Geotechnical Engineer of Record in the field based on uniformity of material being placed and compactive effort used.

Table 6: Structural Fill Placement Recommendations

Notes:

- 1. All utility trenches should be backfilled and compacted in the manner specified above for structural fill. It may be necessary to reduce the lift thickness to 4 to 6 inches to achieve compaction using hand-operated equipment.***

4.7 EXCAVATION CONSIDERATIONS

All excavations performed at the site should follow OSHA guidelines for temporary excavations. Excavated soils should be stockpiled according to OSHA regulations to limit the potential cave-in of soils.

4.7.1 DIFFICULT EXCAVATION

Auger refusal was encountered in boring B-10 at a depth of 22 feet below existing grade. Shale or sandstone bedrock was encountered as shallow as 8.5 feet below existing grades. The depth that weathered rock and rock can be excavated is a function of the material, the equipment used, the skill of the operator, the desired rate of removal and other factors. Large earthmoving equipment can typically rip weathered rock that can be excavated with a track hoe, however, the contractor should review the site conditions and determine the excavation techniques needed. If more detailed information is desired as to the rippability of the weathered rock, Building & Earth can provide a proposal to perform a Seismic Refraction Study to determine Seismic Wave Velocities in the rock.

4.7.2 GROUNDWATER EFFECT ON GRADING

Groundwater was encountered in the boreholes at depths of 20 and 23.5 feet below existing grades. Groundwater could also be encountered during demolition, adjacent to or beneath existing structures and within existing utility trenches. It should be noted that fluctuations in the water level could occur due to seasonal variations in rainfall, and prevalent weather conditions during site grading. The contractor should be prepared to remove water seepage from excavations if encountered during construction. Excavations extending below water levels will require dewatering systems (such as well points, sump pumps or trench drains). The contractor should evaluate the most economical and practical dewatering method based on the conditions encountered during construction, as the design of permanent or temporary dewatering systems was not included in our scope of services.

4.8 UTILITY TRENCH BACKFILL

Following completion of building pad and pavement subgrade preparation, trench excavations typically will occur for the installation of under-slab and under-pavement utility lines. The performance of a slab-on-grade and pavement is dependent on the subgrade conditions; therefore, it is important that backfill of utility trench excavations be monitored by a representative of Building & Earth. The field monitoring of backfill placement should include verification of material type, lift thickness, compaction, and moisture content for each lift, and follow the recommendations outlined in the *Structural Fill* section of this report.

At the perimeter wall crossings, we recommend that clay soils or a flowable fill be used to backfill the utility trench. The clay or flowable fill will act as a relatively impermeable plug reducing the risk of water migration from the outside into the interior of the building. The plug should be at least 36 inches wide and should extend below the perimeter walls to provide for a proper seal.

4.9 LANDSCAPING AND DRAINAGE CONSIDERATION

The potential for soil moisture fluctuations within building areas and pavement subgrades should be reduced to lessen the potential of subgrade movement. Site grading should include positive drainage away from buildings and pavements. Excessive irrigation of landscaping poses a risk of saturating and softening soils below shallow footings and pavements, which could result in settlement of footings and premature failure of pavements.

4.10 WET WEATHER CONSTRUCTION

Excessive movement of construction equipment across the site during wet weather may result in ruts, which will collect rainwater, prolonging the time required to dry the subgrade soils. Therefore, the grading contractor should maintain positive drainage to avoid surface water ponding and provide temporary dewatering methods as required to help avoid degradation and softening of the soils.

During rainy periods, additional effort will be required to properly prepare the site and establish/maintain an acceptable subgrade. The difficulty will increase in areas where moisture sensitive soils are exposed at the subgrade elevation.

A perched-water condition occurs when water seeping downward is slowed by a low permeability soil layer, such as rock units. The perched-water level can be any number of feet above the true groundwater level. Due to the prevalence of a sandstone and shale unit encountered across the project site, the successful contractor should expect to encounter perched water during wet weather construction.

Grading contractors typically postpone grading operations during wet weather to wait for conditions that are more favorable. Contractors can typically disk or aerate the upper soils to promote drying during intermittent periods of favorable weather. When deadlines restrict postponement of grading operations, additional measures such as undercutting and replacing saturated soils or stabilization can be utilized to facilitate placement of additional fill material.

5.0 DEEP FOUNDATION RECOMMENDATIONS

Specific structural loading conditions provided for this report revision indicate individual column loads will be on the order of 385 kips. We have assumed wall loads will be less than 4 kips per linear foot. ***If these assumptions concerning structural loading are incorrect, our office should be contacted, such that our recommendations can be reviewed.***

Drilled piers are a commonly used deep foundation system for heavy settlement sensitive structures. Drilled piers extended through softer and variable consistencies of soils to continuous, competent rock can be used to support the proposed building. Using this approach, an auger is used to excavate soil; and rock removal techniques are used to remove broken or discontinuous rock to reach a competent bearing strata.

A design decision to be addressed when using rock sockets is whether to neglect one or the other component of resistance (side or base), for the purpose of evaluating the drilled pier capacity. For strong rock, the Federal Highway Administration (FHWA) recommends to use either side friction or end bearing resistance only, but not both. It is our opinion

that the use of drilled piers sized for only end bearing is appropriate for the site for the following reasons:

- The drilled pier base will be bearing in rock which is either massive or tightly jointed. The unconfined compressive strength of the materials encountered is very high and the rock is mostly continuous.
- The conditions are suitable for the preparation of a clean base. This can be verified by visual observation prior to concrete placement.
- The amount of rock removal is a major factor in the drilled pier foundation costs. The use of a high allowable end bearing capacity will reduce the amount of rock removal required for the shafts.

Most of the upper rock surface is varied in a range of 8.5 to 23.5 feet below the surface. Hard rock excavation will be required in order to prepare a level bearing surface for the drilled piers. The amount of rock excavated will vary at any particular location. The amount of rock excavation required to achieve a suitable bearing condition will have a major impact on the foundation construction costs. The table below summarizes the approximate depths and elevations where rock surface and competent rock were encountered at each boring location.

Boring Number	Approximate Depth to Rock Surface (ft)	Boring Number	Approximate Depth to Rock Surface (ft)
B-01	18.5	B-08	9.5
B-02	13.5	B-09	13.5
B-03	18.5	B-10	9.0
B-04	23.5	B-11	8.5

Table 7: Summary of Subsurface Conditions for Drilled Piers

Notes

- 1. The depths provided in this table are measured from the existing ground surface.**
- 2. The depths and elevations of competent rock are based primarily on N-values and observations of the driller/engineer and may not depict all conditions within the subject site.**

A factor of safety of 3.0 was used for the drilled pier analysis. The following table summarizes the design parameters for drilled piers bearing as recommended:

Parameter	Value
Minimum Diameter	30 in.
Allowable End Bearing Pressure	30 ksf
Allowable Skin Friction for Uplift Resistance	5 ksf (concrete on rock socket)
Minimum Spacing	3 x Pier Diameter
Group Reduction Factor	None*
Minimum Rock Socket (Embedment)	1 x Pier Diameter

Table 8: Design Parameters for Drilled Piers

Note

1. We understand that pier groups will not be used.

Estimated settlements were for piers founded as recommended is less than 1 inch. Differential settlements are estimated to be on the order of half total settlement values. A more detailed settlement analyses can be performed once final loads and spacings are determined.

A Building & Earth engineer or qualified representative should observe the installation of production piers to check that the installation criteria are implemented. We recommend that drilled piers have a minimum diameter of 30 inches to allow for cleaning and reviewing the exposed bearing surface. Loose material and fractured rock should be removed from the bearing surface. Bearing elevations will be adjusted based on actual conditions encountered. Alternative recommendations can be provided if anomalous or unforeseen conditions occur.

Proper installation of drilled piers is essential to the success of the foundation system. In addition to structural considerations, certain safety hazards to personnel exist during construction and observation. The following guidelines should be observed during the installation of drilled piers:

- Prior to shaft entry or inspection:
- Install metal casing in excavations over 4 feet or where the risk of sidewall collapse is present.
- Monitor subsurface atmosphere with appropriate gas detection equipment.
- Outfit personnel with OSHA (or MSHA) approved safety equipment including harness and separate safety line.
- Concrete Placement:
 - Concrete slump of 5 to 8 inches.

- The concrete may be placed by “free-fall” if the concrete is not allowed to strike the reinforcement or the sides of the temporary casing. Otherwise, tremies or centering chutes should be used.
- Clean bearing and socket surface of loose debris.
- Place concrete the same day excavation is completed.
- Maintain positive head of concrete during casing removal to prevent contamination.
- Should water enter the excavation:
 - Maintain a maximum water level of less than 2 inches deep.
 - Continue dewatering until concrete is placed.
- Should water infiltration exceed pump limits:
 - Allow water to attain static level.
 - Pump or tremie concrete to bottom of excavation.
 - Maintain a minimum 5 feet hose tremie embedment into the concrete during placement.

The analysis of uplift effects was not included in our scope of services. The length and diameter required to resist uplift loads should be determined by the structural engineer of record, applying the provided skin friction uplift resistance. We understand that the lateral evaluation of the drilled pier will be performed by the structural engineer. Soil parameters to be used for the evaluation of individual pier behavior under lateral loading conditions are presented in the Appendix. The soil parameters were estimated based on visual inspection of the soil and rock samples, laboratory test results, SPT N-values and engineering judgment.

6.0 BELOW GRADE WALL RECOMMENDATIONS

We recommend that all below grade walls be backfilled with free-draining granular fill such as No. 57 stone (ASTM D 448). The lowest earth pressures are developed when stone fill is placed in the zone defined by projecting a 1(H):1(V) line from the base of the wall to the finished subgrade elevation / ground surface as shown in the schematics presented in this section. If soil is used for backfill, the pressures will be greater and, as a minimum, a drainage blanket (at least 2 feet wide) should be used so that hydrostatic pressure does not develop on the wall as shown in the below. For either case, a layer of suitable filtration fabric, such as Amoco/ProPex 4545 or Mirafi N140 or equivalent, should be placed

between the soil and stone backfill to reduce migration of soil fines into the drainage zone behind the wall.

Because the stone fill behind the walls may support slabs and other hardscapes, the fill must be placed and compacted in a systematic manner. The stone fill should be placed in lifts not exceeding six (6) inches and compacted using a vibratory plate compactor. Because density tests cannot be performed in open graded aggregate, the fill placement and compaction should be visually monitored.

The following earth pressures are recommended for design of stem walls and below-grade walls. At rest parameters should be used to design walls that are not allowed to rotate or translate. For retaining walls allowed to move, the active condition can be used. Appropriate surcharge loads must be included in the design.

Backfill Material	Soil Parameters		Equivalent Fluid Weights for Active and At-Rest Pressure (pcf) ¹	
	Wet Unit Weight (pcf)	Effective Angle of Internal Friction (°)	At-Rest Condition	Active Condition
ASTM No. 57 Stone	110	36	46	29
Structural Fill	125	28	66	45

Table 9: Soil Parameters and Earth Pressure Values

Notes:

- 1. Assumes level backfill and no surcharge loading**
- 2. A triaxial test was not performed for determination of soil parameters. Soil parameters were instead estimated based on N-values, our experience with similar soils, and engineering judgment only.**

Lateral earth pressures are greater for walls with free-draining material placed in a zone steeper than the 1(H):1(V) projection recommended above. In that case, we recommend that walls be designed using the soil parameter values for structural fill or residuals soils as shown in the table above.

The recommended lateral earth pressure values are based on a fully drained condition. If hydrostatic pressure is allowed to build up behind walls, additional pressures will develop. The No. 57 aggregate backfill will function as a drainage blanket. The drainage blanket should have a minimum width of 2 feet and should be wrapped in filter fabric to minimize intrusion of fines. A perforated drain line should be installed at the base of wall footings and should extend to a sump where water can be collected and removed, or drains should discharge by gravity flow to a suitable outfall. Weep holes can be installed in the face of the wall to allow the water to drain, if feasible.

Generalized below grade wall schematics are presented on the following page.

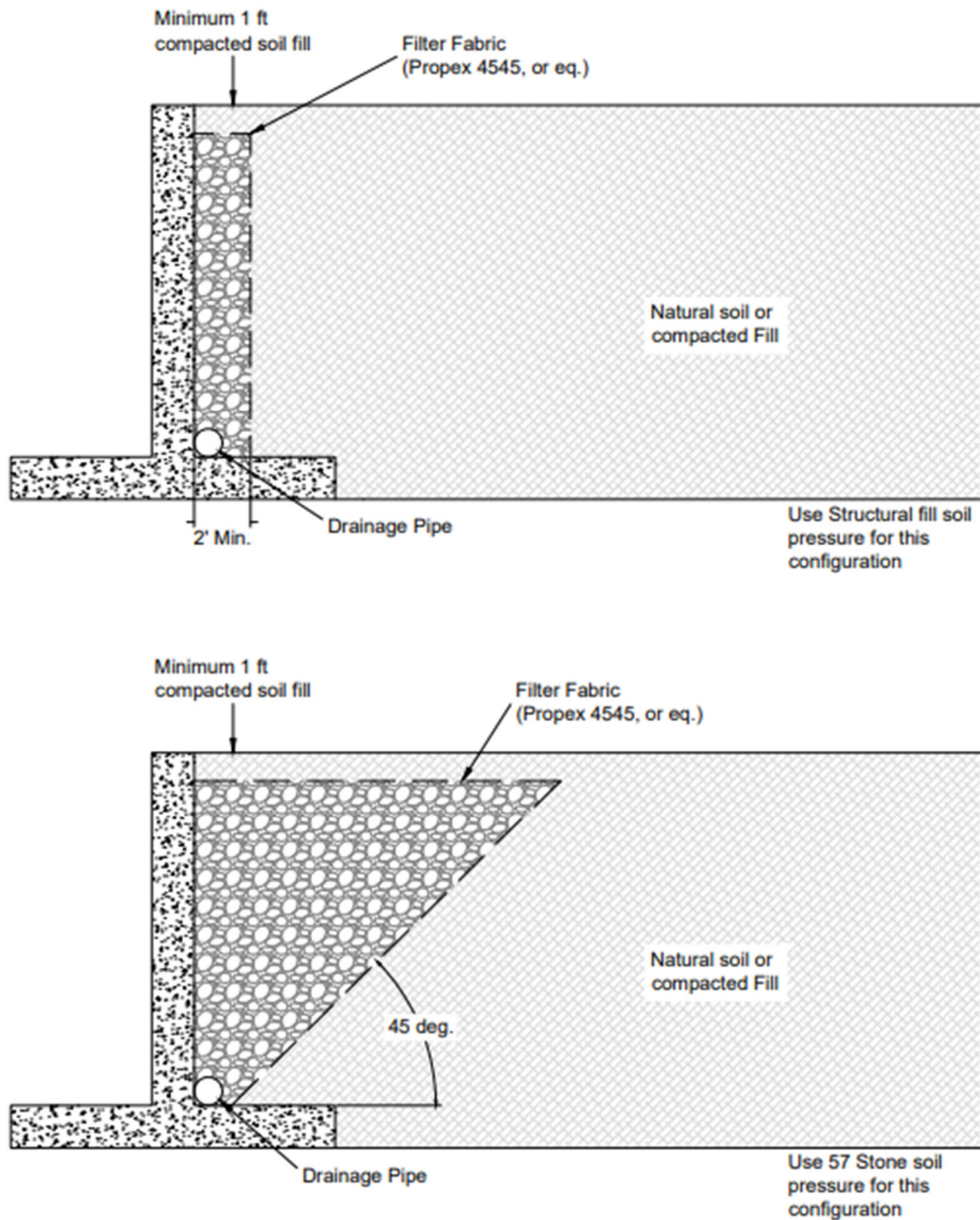


Figure 3: Wall Backfill Details

Lateral pressures arising from surcharge loading, earthquake loading, and groundwater, should be added to the above earth pressures to determine the total lateral pressures. In addition, transient loads imposed on the retaining walls by construction equipment during backfilling should be taken into consideration. Excessively heavy grading equipment (that could impose temporary excessive lateral pressures) should not be allowed within 5 feet (horizontally) of the walls.

Passive earth pressures of materials adjacent to the retaining wall footings as well as bearing material friction at the footing bases may be used to resist shear. The following table presents recommended allowable friction coefficient values and passive earth pressure values for the anticipated materials.

Material Description	Friction Coefficient	Passive Coefficient
Residual Soils or Structural Fill/Existing Fill	0.30	2.0

Table 10: Soil Parameter Values for Resisting Shear

The use of passive resistance requires that the material adjacent to the footing base is undisturbed and should not be removed (for utility installation, excavation, etc.).

7.0 FLOOR SLABS

Site development recommendations presented in this report should be followed to provide for subgrade conditions suitable for support of grade supported slabs. Floor slabs will be supported on adequate natural ground or properly compacted structural fill.

We recommend floor slabs for the proposed structure be supported on a minimum four-inch layer of DOT approved graded aggregate base (GAB). The base should be moisture conditioned and compacted to a minimum of 98% of the standard Proctor value. The purpose of this layer is to help distribute concentrated loads. With the use of the graded aggregate base, a modulus of subgrade reaction of 125 pci can be used in the design of a grade-supported building floor slab.

If the facility is temperature controlled, we recommend a minimum 10-mil thick vapor retarder meeting ASTM E 1745, Class C requirements be placed directly below the slab-on-grade floors. A higher quality vapor retarder (Class A or B) may be used if desired to further inhibit the migration of moisture through the slab-on-grade and should be evaluated based on the floor covering and use. The vapor retarder should extend to the edge of the slab-on-grade floors and should be sealed at all seams and penetrations. The slab should be appropriately reinforced (if required) to support the proposed loads.

If the facility will have an exposed concrete floor and not temperature controlled, a vapor barrier is not necessary.

Where applicable, we recommend that the floor slab be isolated from the foundation footings so differential settlement of the structure will not induce shear stresses on the floor slab. Temperature and shrinkage reinforcements in slabs on grade may be considered and incorporated accordingly in the slab design. ACI 360R-10 provides guidance on the proper quantity of such reinforcement. The slab should also be appropriately reinforced to support the proposed loads as required. If welded-wire mesh

reinforcement is utilized, the mesh reinforcement should be placed 2 inches below the slab surface or upper one-third of the slab thickness, whichever is closer to the surface. Adequate construction joints, contraction joints and isolation joints should also be provided in the slab to reduce the impacts of cracking and shrinkage, in general accordance with ACI standards and guidelines (ACI 360R-10).

8.0 PAVEMENT CONSIDERATIONS

Based on the materials encountered at the boring locations and after our recommendations for site preparation are implemented, pavements at the subject site may be designed based on a California Bearing Ratio (CBR) of five (5). Note that no CBR or plate load testing was completed to develop these recommendations. For pavement design purposes, we have assumed two levels of traffic for commonly used pavement sections. Specific traffic information was not provided.

It has been our experience that parking lots experience a certain level of wear and stress greater than roadways designed for similar traffic volumes. Therefore, parking lots are typically designed using the AASHTO method and adjusted based on experience. If the owner would like Building & Earth to assess other likely traffic volumes, we will gladly review other options.

In addition, we have assumed the following design parameters:

Design Criteria	Value
Design life (Years)	20
Initial Serviceability	4.2 (Flexible) 4.5 (Rigid)
Terminal Serviceability	2.0
Reliability	85%
Standard Deviation	0.45 (Flexible) 0.35 (Rigid)

Table 11: Assumed Design Parameters

Note: All base and pavement construction operations should meet minimum requirements of the Arkansas Department of Transportation (ArDOT) Standard Specifications for Highway Construction, 2014 Edition. The applicable sections of the specifications are identified as follows:

Material	Specification Section
Portland Cement Concrete Pavement	501
Bituminous Asphalt Wearing Layer	407
Mineral Aggregate Base Materials	303

Table 12: ArDOT Specification Sections

8.1 FLEXIBLE PAVEMENT

The asphalt pavement sections described herein were designed using the “AASHTO Guide for Design of Pavement Structures, 1993”. Alternative pavement sections were designed by establishing the structural numbers used for the AASHTO design system and substituting materials based upon structural equivalency as follows:

Material	Structural Coefficient
Asphalt Concrete	0.44
Crushed Stone Base	0.14

Table 13: Structural Equivalent Coefficient

The following flexible pavement sections are based on the design parameters presented above:

Minimum Recommended Thickness (in)		Material
Standard Duty	Heavy Duty	
2.5	3.5	Asphaltic Concrete Surface Course
8	8	Aggregate Base

Table 14: Asphalt Pavement Recommendations

8.2 RIGID PAVEMENT

The following rigid pavement sections are based on the design parameters presented above. We assume an effective modulus of subgrade reaction (k) of 150 pci. We have assumed concrete elastic modulus (E_c) of 3.6×10^6 psi, and a concrete modulus of rupture (S'_c) of 650 psi.

Minimum Recommended Thickness (in)		Material
Standard Duty	Heavy Duty	
5	6	Portland Cement Concrete, $f'_c=4000$ psi
4	4	Base

Table 15: Rigid Pavement Recommendations

The concrete should be protected against moisture loss, rapid temperature fluctuations, and construction traffic for several days after placement. All pavements should be sloped for positive drainage. We recommended that the pavements be reinforced to hold any cracks that might develop tightly together and restrain their growth.

All pavement components must be placed and compacted in accordance with the applicable sections of the Arkansas Department of Transportation (ArDOT) Standard Specifications for Highway Construction, 2014 Edition.

9.0 SUBGRADE REHABILITATION

The subgrade soils often become disturbed during the period between initial site grading and construction of surface improvements. The amount and depth of disturbance will vary with soil type, weather conditions, construction traffic, and drainage.

The engineer should evaluate the subgrade soil during final grading to verify that the subgrade is suitable to receive pavement and/or concrete slab base materials. The final evaluation may include proofrolling or density tests.

Subgrade rehabilitation can become a point of controversy when different contractors are responsible for site grading and building construction. The construction documents should specifically state which contractor will be responsible for maintaining and rehabilitating the subgrade. Rehabilitation may include moisture conditioning and re-compacting soils. When deadlines or weather restrict grading operations, additional measures such as undercutting and replacing saturated soils or chemical stabilization can often be utilized.

10.0 CONSTRUCTION MONITORING

Field verification of site conditions is an essential part of the services provided by the geotechnical consultant. In order to confirm our recommendations, it will be necessary for Building & Earth personnel to make periodic visits to the site during site grading. Typical construction monitoring services are listed below.

- Periodic observation and consultation by a member of our engineering staff during site development.
- Continuous monitoring during structural fill placement.
- Field density testing during structural fill placement.
- Observation and verification of the bearing surfaces exposed after foundation excavation.
- Reinforcing steel inspections.
- Molding and testing concrete cylinders.
- Structural steel inspections (if required).

11.0 CLOSING AND LIMITATIONS

This report was prepared for WER Architects, for specific application to the UCA Multi-Purpose Arena located in Conway, Arkansas. The information in this report is not

transferable. This report should not be used for a different development on the same property without first being evaluated by the engineer.

The recommendations in this report were based on the information obtained from our field exploration and laboratory analysis. The data collected and presented in this report is representative of the subsurface conditions encountered at the specific boring locations at the time of the exploration. Variations in soil and groundwater conditions may occur between boring locations and throughout other areas of the site. Engineering judgment was applied in regard to conditions between borings. In addition, seasonal or short-term changes in weather patterns, such as rainfall or drought, can further influence subsurface conditions. Evaluation of these potential variations and changes falls outside the scope of this report and should be addressed by the client and contractor during construction.

This report has been prepared in accordance with generally accepted standards of geotechnical engineering practice. No other warranty is expressed or implied. In the event that changes are made, or anticipated to be made, to the nature, design, or location of the project as outlined in this report, Building & Earth must be informed of the changes and given the opportunity to either verify or modify the conclusions of this report in writing, or the recommendations of this report will no longer be valid.

The scope of services for this project did not include any environmental assessment of the site or identification of pollutants or hazardous materials or conditions. If the owner is concerned about environmental issues Building & Earth would be happy to provide an additional scope of services to address those concerns.

This report is intended for use during design and preparation of specifications and may not address all conditions at the site during construction. Contractors reviewing this information should acknowledge that this document is for design information only and is not a substitute for means, methods, or construction practices, which remain the sole responsibility of the contractor.

An article published by the Geoprofessional Business Association (GBA), titled *Important Information About Your Geotechnical Report*, has been included in the Appendix. We encourage all individuals to become familiar with the article to help manage risk.

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GEOTECHNICAL INVESTIGATION METHODOLOGIES

The subsurface exploration, which is the basis of the recommendations of this report, has been performed in accordance with industry standards. Detailed methodologies employed in the investigation are presented in the following sections.

DRILLING PROCEDURES – STANDARD PENETRATION TEST (ASTM D1586)

At each boring location, soil samples were obtained at standard sampling intervals with a split-spoon sampler. The borehole was first advanced to the sample depth by augering and the sampling tools were placed in the open hole. The sampler was then driven 18 inches into the ground with a 140-pound automatic hammer free-falling 30 inches. The number of blows required to drive the sampler each 6-inch increment was recorded. The initial increment is considered the “seating” blows, where the sampler penetrates loose or disturbed soil in the bottom of the borehole.

The blows required to penetrate the final two (2) increments are added together and are referred to as the Standard Penetration Test (SPT) N-value. The N-value, when properly evaluated, gives an indication of the soil’s strength and ability to support structural loads. Many factors can affect the SPT N-value, so this result cannot be used exclusively to evaluate soil conditions.

The SPT testing was performed using a drill rig equipped with an automatic hammer. Automatic hammers mechanically control the height of the hammer drop, and doing so, deliver higher energy efficiency (90 to 99 % efficiency) than manual hammers (60 % efficiency) which are dropped using a manually operated rope and cathead system. Because historic data correlations were developed based on use of a manual hammer, it is necessary to adjust the N-values obtained using an automatic hammer to make these correlations valid. Therefore, an energy correction factor of 1.3 was applied to the recorded field N-values from the automatic hammer for the purpose of our evaluation. The N-values discussed or mentioned in this report and shown on the boring logs are recorded field values.

Samples retrieved from the boring locations were labeled and stored in plastic bags at the jobsite before being transported to our laboratory for analysis. The project engineer prepared Boring Logs summarizing the subsurface conditions at the boring locations.

BORING LOG DESCRIPTION

Building & Earth Sciences used the gINT software program to prepare the attached boring logs. The gINT program provides the flexibility to custom design the boring logs to include the pertinent information from the subsurface exploration and results of our laboratory analysis. The soil and laboratory information included on our logs is summarized below:

DEPTH AND ELEVATION

The depth below the ground surface and the corresponding elevation are shown in the first two columns.

SAMPLE TYPE

The method used to collect the sample is shown. The typical sampling methods include Split Spoon Sampling, Shelby Tube Sampling, Grab Samples, and Rock Core. A key is provided at the bottom of the log showing the graphic symbol for each sample type.

SAMPLE NUMBER

Each sample collected is numbered sequentially.

BLOWS PER INCREMENT, REC%, RQD%

When Standard Split Spoon sampling is used, the blows required to drive the sampler each 6-inch increment are recorded and shown in column 5. When rock core is obtained the recovery ratio (REC%) and Rock Quality Designation (RQD%) is recorded.

SOIL DATA

Column 6 is a graphic representation of four different soil parameters. Each of the parameters use the same graph, however, the values of the graph subdivisions vary with each parameter. Each parameter presented on column 6 is summarized below:

- **N-value** - The Standard Penetration Test N-value, obtained by adding the number of blows required to drive the sampler the final 12 inches, is recorded. The graph labels range from 0 to 50.
- **Qu** – Unconfined Compressive Strength estimate from the Pocket Penetrometer test in tons per square foot (tsf). The graph labels range from 0 to 5 tsf.
- **Atterberg Limits** – The Atterberg Limits are plotted with the plastic limit to the left, and liquid limit to the right, connected by a horizontal line. The difference in the plastic and liquid limits is referred to as the Plasticity Index. The Atterberg Limits test results are also included in the Remarks column on the far right of the boring log. The Atterberg Limits graph labels range from 0 to 100%.
- **Moisture** – The Natural Moisture Content of the soil sample as determined in our laboratory.

SOIL DESCRIPTION

The soil description were prepared in accordance with ASTM D2488, Visual Description of Soil Samples. Strata changes are indicated by a solid line, with the depth of the change indicated on the left side of the line and the elevation of the change indicated on the right side of the line. If subtle changes within a soil type occur, a broken line is used. The Boring Termination or Auger Refusal depth is shown as a solid line at the bottom of the boring.

GRAPHIC

The graphic representation of the soil type is shown. The graphic used for each soil type is related to the Unified Soil Classification chart. A chart showing the graphic associated with each soil classification is included.

REMARKS

Remarks regarding borehole observations, and additional information regarding the laboratory results and groundwater observations.

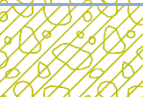
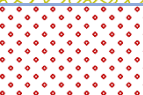
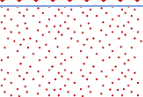
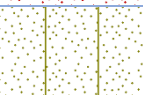
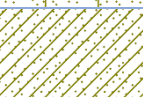
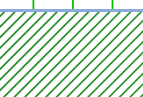
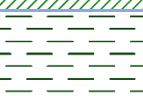
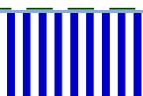
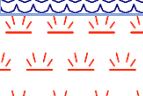
Major Divisions			Symbols		Group Name & Typical Description
			Lithology	Group	
Coarse Grained Soils More than 50% of material is larger than No. 200 sieve size	Gravel and Gravelly Soils More than 50% of coarse fraction is larger than No. 4 sieve	Clean Gravels (Less than 5% fines)		GW	Well-graded gravels, gravel – sand mixtures, little or no fines
				GP	Poorly-graded gravels, gravel – sand mixtures, little or no fines
		Gravels with Fines (More than 12% fines)		GM	Silty gravels, gravel – sand – silt mixtures
				GC	Clayey gravels, gravel – sand – clay mixtures
	Sand and Sandy Soils More than 50% of coarse fraction is smaller than No. 4 sieve	Clean Sands (Less than 5% fines)		SW	Well-graded sands, gravelly sands, little or no fines
				SP	Poorly-graded sands, gravelly sands, little or no fines
		Sands with Fines (More than 12% fines)		SM	Silty sands, sand – silt mixtures
				SC	Clayey sands, sand – clay mixtures
Fine Grained Soils More than 50% of material is smaller than No. 200 sieve size	Silts and Clays Liquid Limit less than 50	Inorganic		ML	Inorganic silts and very find sands, rock flour, silty or clayey fine sands or clayey silt with slight plasticity
				CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		Organic		OL	Organic silts and organic silty clays of low plasticity
	Silts and Clays Liquid Limit greater than 50	Inorganic		MH	Inorganic silts, micaceous or diatomaceous fine sand, or silty soils
				CH	Inorganic clays of high plasticity
		Organic		OH	Organic clays of medium to high plasticity, organic silts
		Highly Organic Soils			

Table 1: Soil Classification Chart (based on ASTM D2487)

Building & Earth Sciences classifies soil in general accordance with the Unified Soil Classification System (USCS) presented in ASTM D2487. Table 1 and Figure 1 exemplify the general guidance of the USCS. Soil consistencies and relative densities are presented in general accordance with Terzaghi, Peck, & Mesri’s (1996) method, as shown on Table 2, when quantitative field and/or laboratory data is available. Table 2 includes Consistency and Relative Density correlations with N-values obtained using either a manual hammer (60 percent efficiency) or automatic hammer (90 percent efficiency). The *Blows Per Increment* and *SPT N-values* displayed on the boring logs are the unaltered values measured in the field. When field and/or laboratory data is not available, we may classify soil in general accordance with the Visual Manual Procedure presented in ASTM D2488.

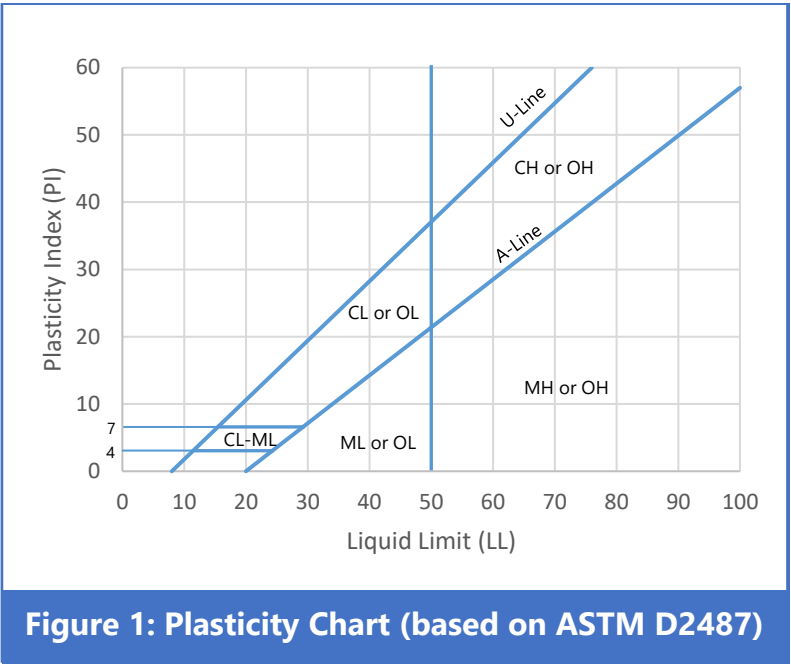


Figure 1: Plasticity Chart (based on ASTM D2487)

Non-cohesive: Coarse-Grained Soil			Cohesive: Fine-Grained Soil			
SPT Penetration (blows/foot)		Relative Density	SPT Penetration (blows/foot)		Consistency	Estimated Range of Unconfined Compressive Strength (tsf)
			Automatic Hammer*	Manual Hammer		
Automatic Hammer*	Manual Hammer		< 2	< 2	Very Soft	< 0.25
0 - 3	0 - 4	Very Loose	2 - 3	2 - 4	Soft	0.25 – 0.50
3 - 7	4 - 10	Loose	3 - 5	4 - 8	Medium Stiff	0.50 – 1.00
7 - 20	10 - 30	Medium Dense	5 - 10	8 - 15	Stiff	1.00 – 2.00
20 - 33	30 - 50	Dense	10 - 20	15 - 30	Very Stiff	2.00 – 4.00
> 33	> 50	Very Dense	> 20	> 30	Hard	> 4.00

Table 2: Soil Consistency and Relative Density (based on Terzaghi, Peck & Mesri, 1996)

* - Modified based on 90% hammer efficiency

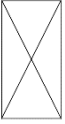
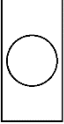
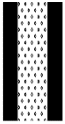
	Standard Penetration Test ASTM D1586 or AASHTO T-206		Dynamic Cone Penetrometer (Sower DCP) ASTM STP-399
	Shelby Tube Sampler ASTM D1587		No Sample Recovery
	Rock Core Sample ASTM D2113		Groundwater at Time of Drilling
	Auger Cuttings		Groundwater as Indicated

Table 1: Symbol Legend

Soil	Particle Size	U.S. Standard
Boulders	Larger than 300 mm	N.A.
Cobbles	300 mm to 75 mm	N.A.
Gravel	75 mm to 4.75 mm	3-inch to #4 sieve
Coarse	75 mm to 19 mm	3-inch to ¾-inch sieve
Fine	19 mm to 4.75 mm	¾-inch to #4 sieve
Sand	4.75 mm to 0.075 mm	#4 to #200 Sieve
Coarse	4.75 mm to 2 mm	#4 to #10 Sieve
Medium	2 mm to 0.425 mm	#10 to #40 Sieve
Fine	0.425 mm to 0.075 mm	#40 to #200 Sieve
Fines	Less than 0.075 mm	Passing #200 Sieve
Silt	0.075 mm to 2 µm	N.A.
Clay	Less than 2 µm	N.A.

Table 2: Standard Sieve Sizes

N-Value 	Standard Penetration Test Resistance calculated using ASTM D1586 or AASHTO T-206. Calculated as sum of original, field recorded values.	Atterberg Limits 	A measure of a soil's plasticity characteristics in general accordance with ASTM D4318. The soil Plasticity Index (PI) is representative of this characteristic and is bracketed by the Liquid Limit (LL) and the Plastic Limit (PL).
Qu 	Unconfined compressive strength, typically estimated from a pocket penetrometer. Results are presented in tons per square foot (tsf).	% Moisture 	Percent natural moisture content in general accordance with ASTM D2216.

Table 3: Soil Data

Hollow Stem Auger	Flights on the outside of the shaft advance soil cuttings to the surface. The hollow stem allows sampling through the middle of the auger flights.
Mud Rotary / Wash Bore	A cutting head advances the boring and discharges a drilling fluid to support the borehole and circulate cuttings to the surface.
Solid Flight Auger	Flights on the outside bring soil cuttings to the surface. Solid stem requires removal from borehole during sampling.
Hand Auger	Cylindrical bucket (typically 3-inch diameter and 8 inches long) attached to a metal rod and turned by human force.

Table 4: Soil Drilling Methods

Descriptor	Meaning
Trace	Likely less than 5%
Few	5 to 10%
Little	15 to 25%
Some	30 to 45%
Mostly	50 to 100%

Table 5: Descriptors

Manual Hammer	The operator tightens and loosens the rope around a rotating drum assembly to lift and drop a sliding, 140-pound hammer falling 30 inches.
Automatic Trip Hammer	An automatic mechanism is used to lift and drop a sliding, 140-pound hammer falling 30 inches.
Dynamic Cone Penetrometer (Sower DCP) ASTM STP-399	Uses a 15-pound steel mass falling 20 inches to strike an anvil and cause penetration of a 1.5-inch diameter cone seated in the bottom of a hand augered borehole. The blows required to drive the embedded cone a depth of 1-3/4 inches have been correlated by others to N-values derived from the Standard Penetration Test (SPT).

Table 6: Sampling Methods

Non-plastic	A 1/8-inch thread cannot be rolled at any water content.
Low	The thread can barely be rolled and the lump cannot be formed when drier than the plastic limit.
Medium	The thread is easy to roll and not much time is required to reach the plastic limit. The thread cannot be re-rolled after reaching the plastic limit. The lump crumbles when drier than the plastic limit.
High	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be re-rolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier than the plastic limit.

Table 7: Plasticity

Dry	Absence of moisture, dusty, dry to the touch.
Moist	Damp but no visible water.
Wet	Visible free water, usually soil is below water table.

Table 8: Moisture Condition

Stratified	Alternating layers of varying material or color with layers at least 1/2 inch thick.
Laminated	Alternating layers of varying material or color with layers less than 1/4 inch thick.
Fissured	Breaks along definite planes of fracture with little resistance to fracturing.
Slickensides	Fracture planes appear polished or glossy, sometimes striated.
Blocky	Cohesive soil that can be broken down into small angular lumps which resist further breakdown.
Lensed	Inclusion of small pockets of different soils, such as small lenses of sand scattered through a mass of clay.
Homogeneous	Same color and appearance throughout.

Table 9: Structure

KEY TO HATCHES

Hatch	Description	Hatch	Description	Hatch	Description
	GW - Well-graded gravels, gravel – sand mixtures, little or no fines		Asphalt		Clay with Gravel
	GP - Poorly-graded gravels, gravel – sand mixtures, little or no fines		Aggregate Base		Sand with Gravel
	GM - Silty gravels, gravel – sand – silt mixtures		Topsoil		Silt with Gravel
	GC - Clayey gravels, gravel – sand – clay mixtures		Concrete		Gravel with Sand
	SW - Well-graded sands, gravelly sands, little or no fines		Coal		Gravel with Clay
	SP - Poorly-graded sands, gravelly sands, little or no fines		CL-ML - Silty Clay		Gravel with Silt
	SM - Silty sands, sand – silt mixtures		Sandy Clay		Limestone
	SC - Clayey sands, sand – clay mixtures		Clayey Chert		Chalk
	ML - Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silt with slight plasticity		Low and High Plasticity Clay		Siltstone
	CL - Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays		Low Plasticity Silt and Clay		Till
	OL - Organic silts and organic silty clays of low plasticity		High Plasticity Silt and Clay		Sandy Clay with Cobbles and Boulders
	MH - Inorganic silts, micaceous or diatomaceous fine sand, or silty soils		Fill		Sandstone with Shale
	CH - Inorganic clays of high plasticity		Weathered Rock		Coral
	OH - Organic clays of medium to high plasticity, organic silts		Sandstone		Boulders and Cobbles
	PT - Peat, humus, swamp soils with high organic contents		Shale		Soil and Weathered Rock

Table 1: Key to Hatches Used for Boring Logs and Soil Profiles

BORING LOCATION PLAN



**REFERENCE USED
TO PRODUCE THIS
DRAWING:**

Google Earth Satellite
Imagery dated
10/15/2023 with
Approximate Building
Boundaries

BORING LOCATION PLAN

DATE: 04/22/2026

PROJECT NO.

LR260019

PROJECT NAME / LOCATION:

UCA Multi-Purpose Arena
Conway, Arkansas

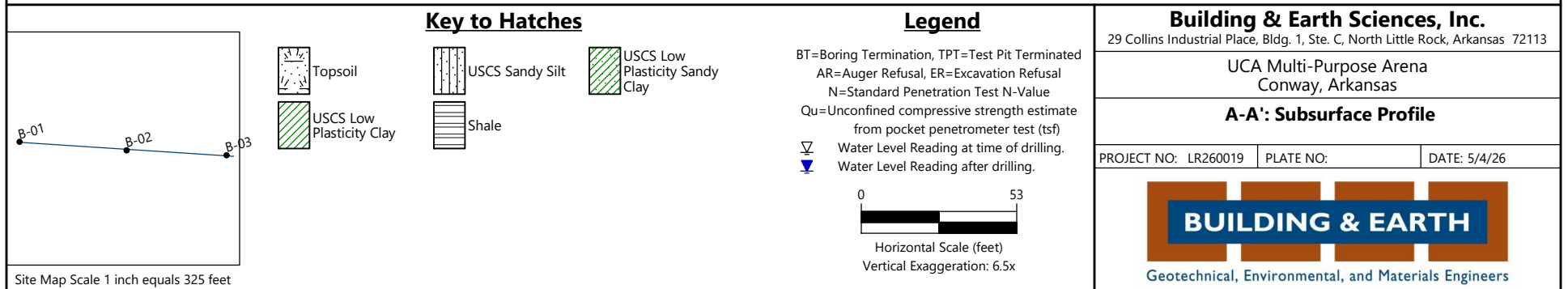
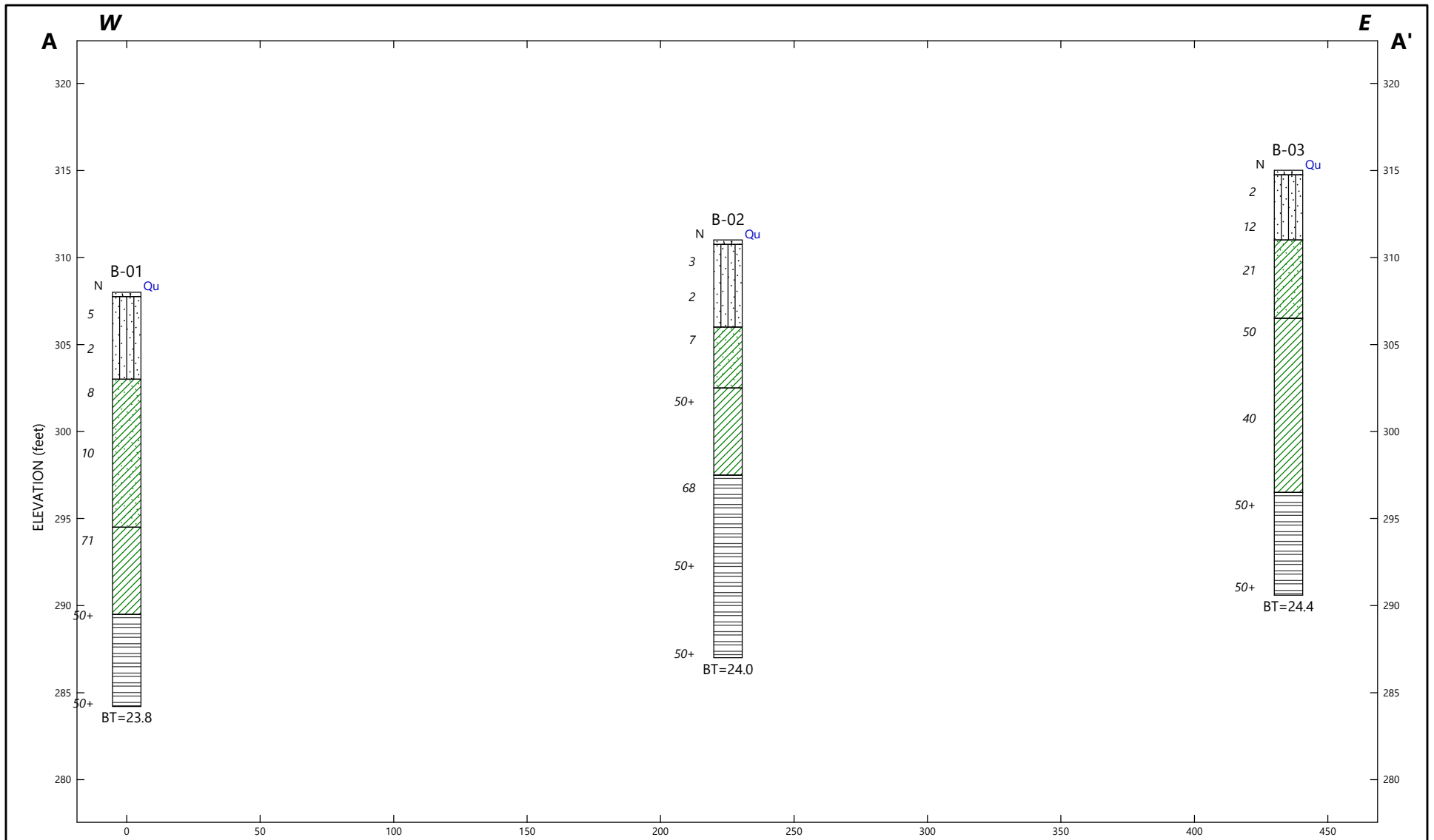
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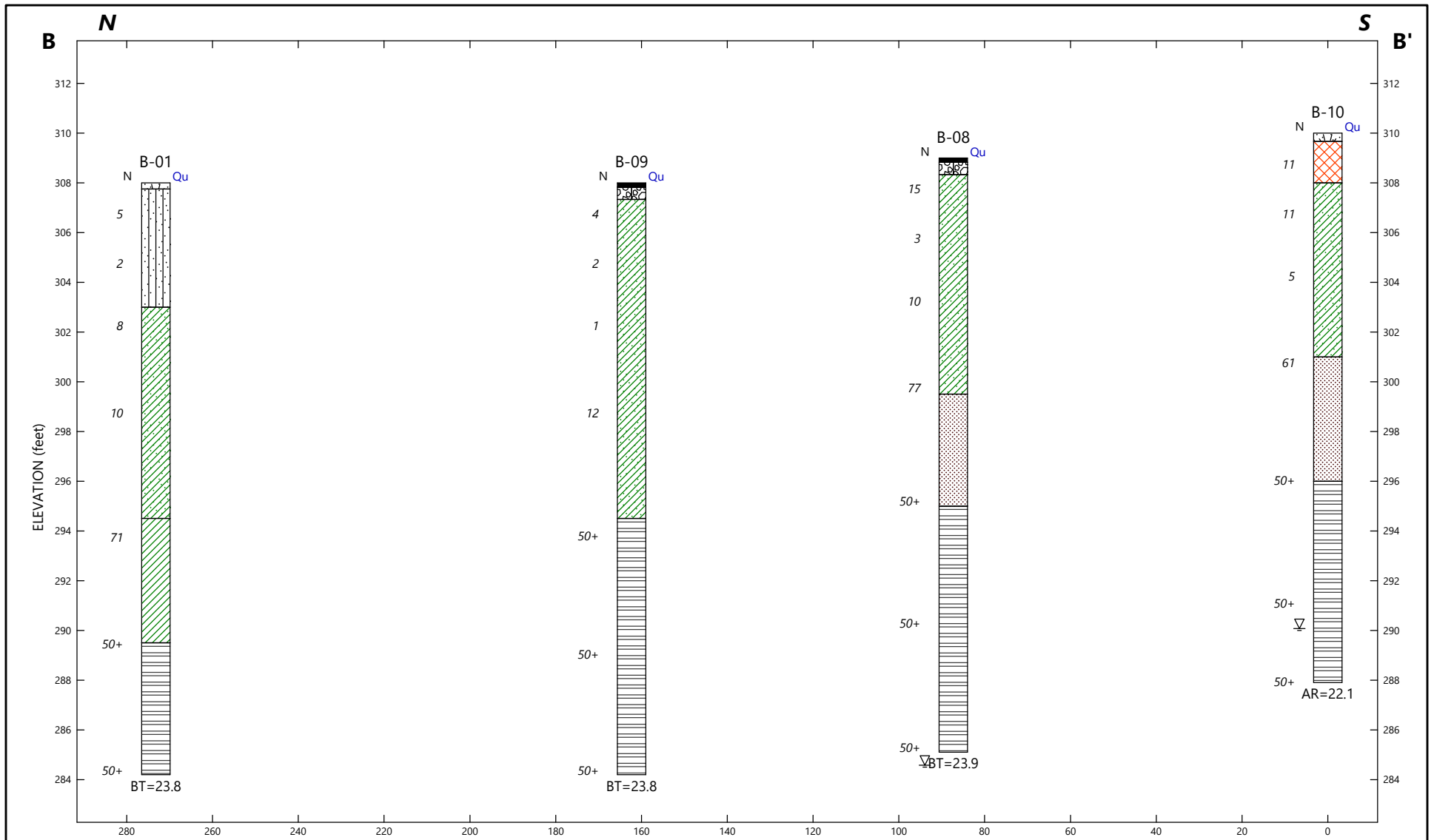
As Shown

BUILDING & EARTH

Geotechnical, Environmental, and Materials Engineers

SUBSURFACE PROFILES





Site Map Scale 1 inch equals 205 feet

Key to Hatches

Topsoil	USCS Sandy Silt	USCS Low Plasticity Sandy Clay
USCS Low Plasticity Clay	Shale	Asphalt
Aggregate Base Material	Sandstone	Fill

Legend

BT=Boring Termination, TPT=Test Pit Terminated
 AR=Auger Refusal, ER=Excavation Refusal
 N=Standard Penetration Test N-Value
 Qu=Unconfined compressive strength estimate from pocket penetrometer test (tsf)
 Water Level Reading at time of drilling.
 Water Level Reading after drilling.

Horizontal Scale (feet)

Vertical Exaggeration: 6x

Building & Earth Sciences, Inc.

29 Collins Industrial Place, Bldg. 1, Ste. C, North Little Rock, Arkansas 72113

UCA Multi-Purpose Arena
Conway, Arkansas

B-B': Subsurface Profile

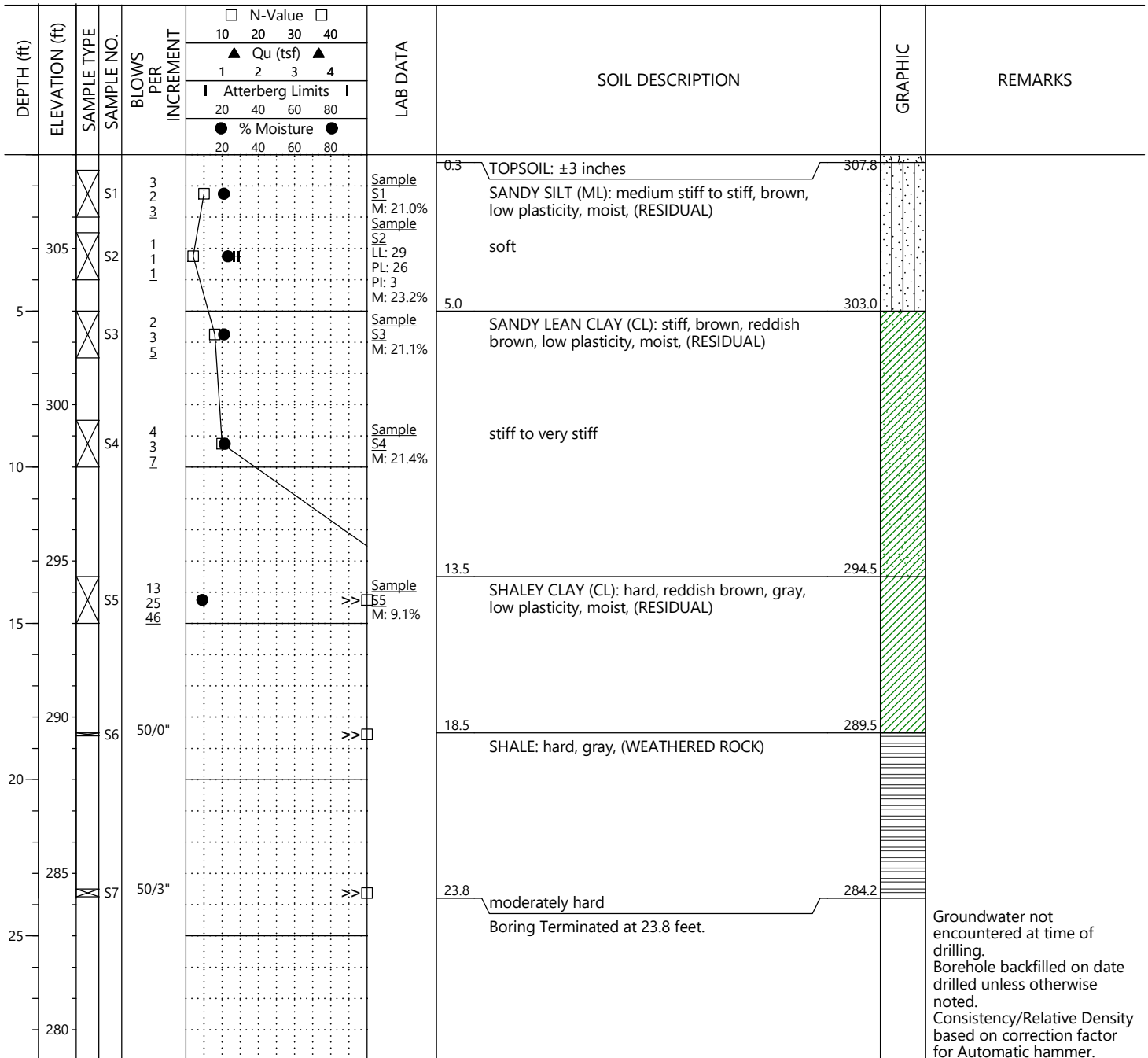
PROJECT NO: LR260019	PLATE NO:	DATE: 5/4/26
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BUILDING & EARTH
Geotechnical, Environmental, and Materials Engineers

BORING LOGS

PROJECT NAME: UCA Multi-Purpose Arena
PROJECT NUMBER: LR260019
DRILLING METHOD: Hollow Stem Auger
EQUIPMENT USED: GeoProbe 7822DT
HAMMER TYPE: Automatic
BORING LOCATION: Northwest Building Corner

LOCATION: Conway, Arkansas
DATE DRILLED: 4/9/26
WEATHER: Clear Sunny
ELEVATION: 308
DRILL CREW: Building & Earth
LOGGED BY: T. Tollett



SAMPLE TYPE ☒ Split Spoon

N-VALUE STANDARD PENETRATION RESISTANCE (AASHTO T-206)

% MOISTURE PERCENT NATURAL MOISTURE CONTENT

☒ GROUNDWATER LEVEL IN THE BOREHOLE AT TIME OF DRILLING

☒ STABILIZED GROUNDWATER LEVEL

REC RECOVERY

RQD ROCK QUALITY DESIGNATION

UD UNDISTURBED

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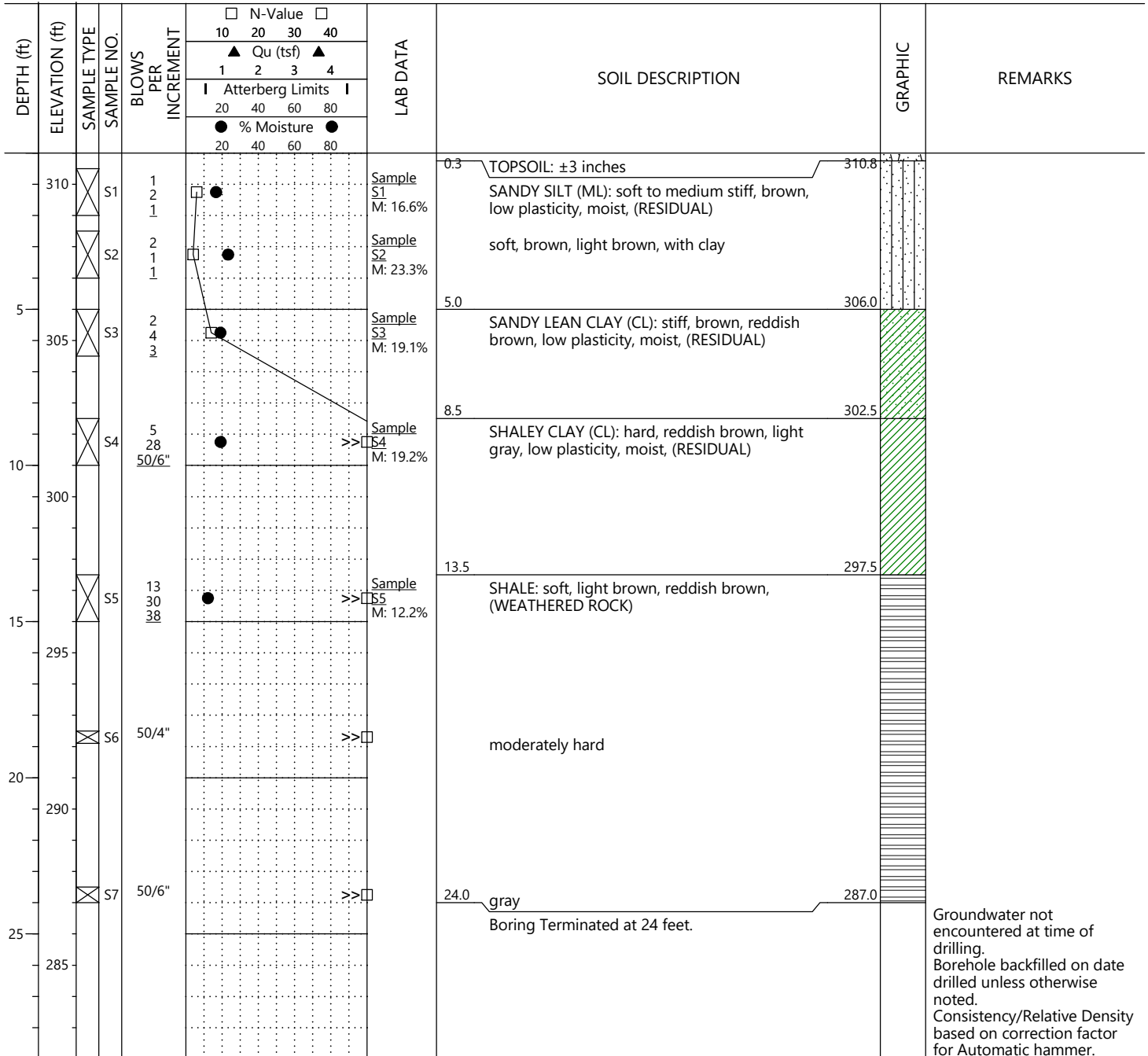
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PL: PLASTIC LIMIT **F:** PERCENT PASSING NO. 200 SIEVE

PI: PLASTICITY INDEX

PROJECT NAME: UCA Multi-Purpose Arena
PROJECT NUMBER: LR260019
DRILLING METHOD: Hollow Stem Auger
EQUIPMENT USED: GeoProbe 7822DT
HAMMER TYPE: Automatic
BORING LOCATION: North Side of Building, Center

LOCATION: Conway, Arkansas
DATE DRILLED: 4/9/26
WEATHER: Clear Sunny
ELEVATION: 311
DRILL CREW: Building & Earth
LOGGED BY: T. Tollett



SAMPLE TYPE ☒ Split Spoon

N-VALUE STANDARD PENETRATION RESISTANCE (AASHTO T-206)

% MOISTURE PERCENT NATURAL MOISTURE CONTENT

☒ GROUNDWATER LEVEL IN THE BOREHOLE AT TIME OF DRILLING

☒ STABILIZED GROUNDWATER LEVEL

REC RECOVERY

RQD ROCK QUALITY DESIGNATION

UD UNDISTURBED

Qu POCKET PENETROMETER UNCONFINED COMPRESSIVE STRENGTH

LL: LIQUID LIMIT **M:** NATURAL MOISTURE CONTENT

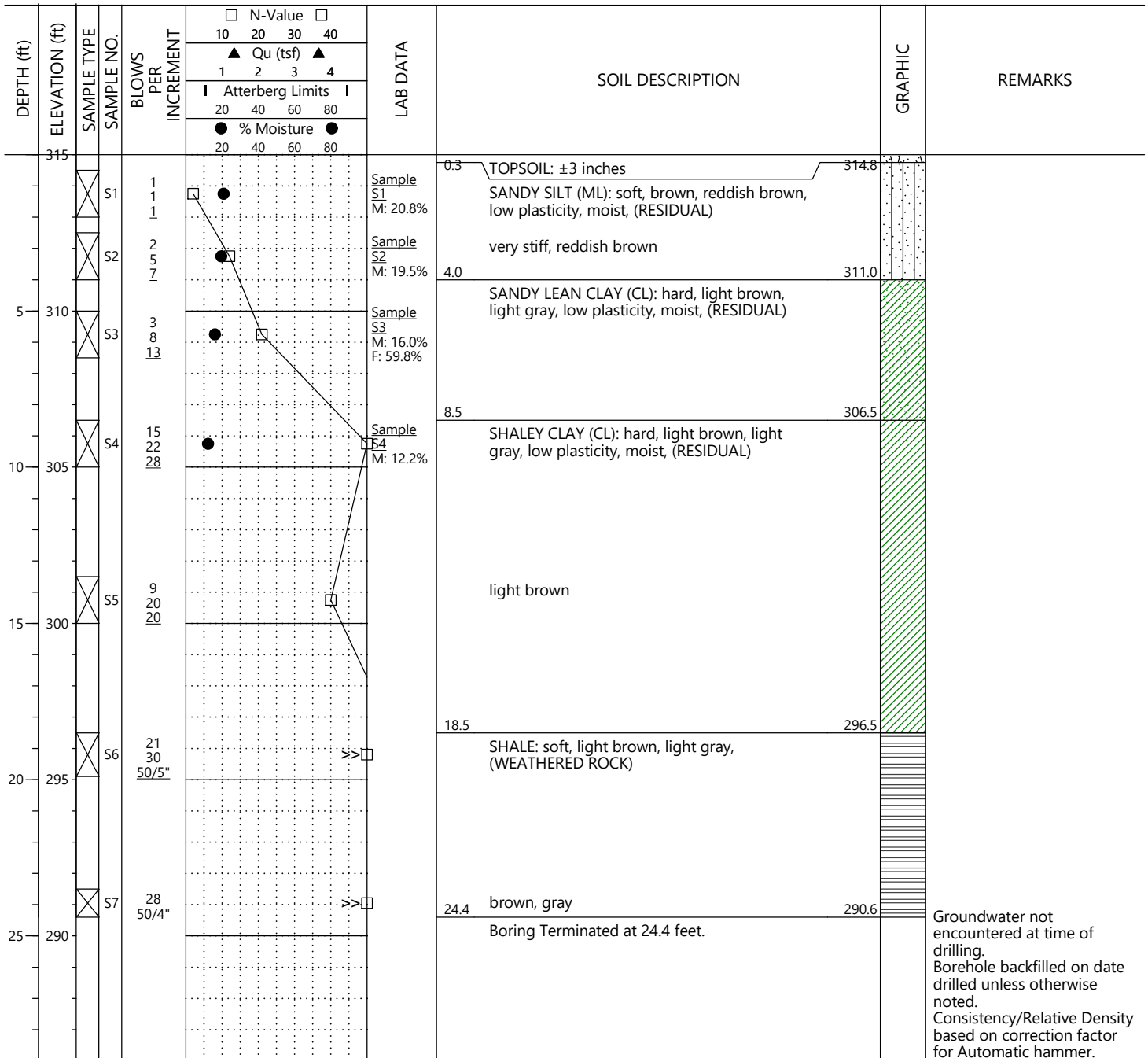
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PI: PLASTICITY INDEX

Groundwater not encountered at time of drilling. Borehole backfilled on date drilled unless otherwise noted. Consistency/Relative Density based on correction factor for Automatic hammer.

PROJECT NAME: UCA Multi-Purpose Arena
PROJECT NUMBER: LR260019
DRILLING METHOD: Hollow Stem Auger
EQUIPMENT USED: GeoProbe 7822DT
HAMMER TYPE: Automatic
BORING LOCATION: Northeast Building Corner

LOCATION: Conway, Arkansas
DATE DRILLED: 4/9/26
WEATHER: Clear Sunny
ELEVATION: 315
DRILL CREW: Building & Earth
LOGGED BY: T. Tollett



SAMPLE TYPE ☒ Split Spoon

N-VALUE STANDARD PENETRATION RESISTANCE (AASHTO T-206)

% MOISTURE PERCENT NATURAL MOISTURE CONTENT

☒ GROUNDWATER LEVEL IN THE BOREHOLE AT TIME OF DRILLING

☒ STABILIZED GROUNDWATER LEVEL

REC RECOVERY

RQD ROCK QUALITY DESIGNATION

UD UNDISTURBED

Qu POCKET PENETROMETER UNCONFINED COMPRESSIVE STRENGTH

LL: LIQUID LIMIT **M:** NATURAL MOISTURE CONTENT

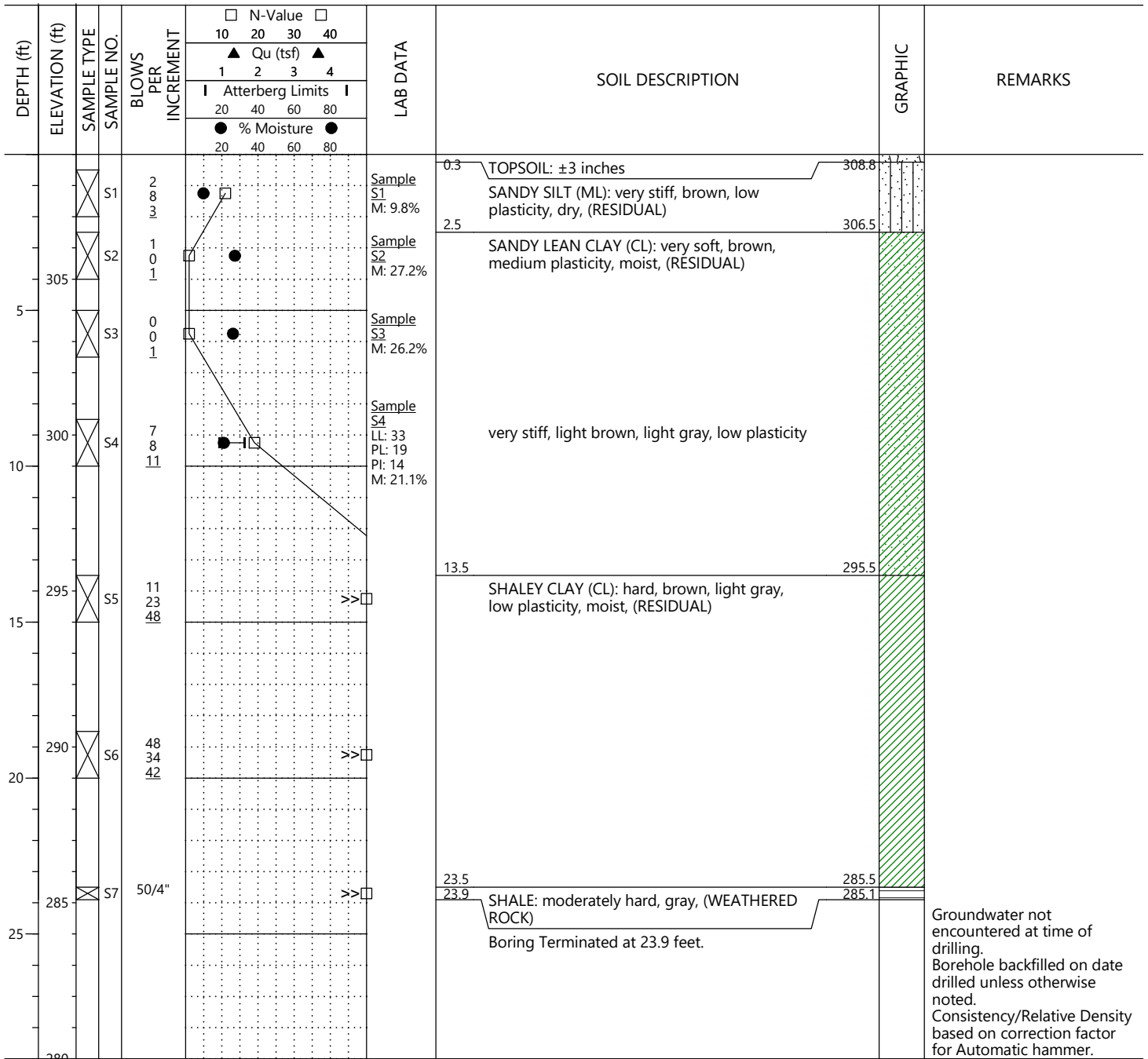
PL: PLASTIC LIMIT **F:** PERCENT PASSING NO. 200 SIEVE

PI: PLASTICITY INDEX

Groundwater not encountered at time of drilling. Borehole backfilled on date drilled unless otherwise noted. Consistency/Relative Density based on correction factor for Automatic hammer.

PROJECT NAME: UCA Multi-Purpose Arena
PROJECT NUMBER: LR260019
DRILLING METHOD: Hollow Stem Auger
EQUIPMENT USED: GeoProbe 7822DT
HAMMER TYPE: Automatic
BORING LOCATION: West End of Building

LOCATION: Conway, Arkansas
DATE DRILLED: 4/9/26
WEATHER: Clear Sunny
ELEVATION: 309
DRILL CREW: Building & Earth
LOGGED BY: T. Tollett

SAMPLE TYPE ☒ Split Spoon

N-VALUE STANDARD PENETRATION RESISTANCE (AASHTO T-206)

% MOISTURE PERCENT NATURAL MOISTURE CONTENT

☒ GROUNDWATER LEVEL IN THE BOREHOLE AT TIME OF DRILLING☒ STABILIZED GROUNDWATER LEVEL

REC RECOVERY

RQD ROCK QUALITY DESIGNATION PL: PLASTIC LIMIT F: PERCENT PASSING NO. 200 SIEVE

UD UNDISTURBED

LL: LIQUID LIMIT M: NATURAL MOISTURE CONTENT

PI: PLASTICITY INDEX

Qu POCKET PENETROMETER UNCONFINED COMPRESSIVE STRENGTH

PROJECT NAME: UCA Multi-Purpose Arena

PROJECT NUMBER: LR260019

DRILLING METHOD: Hollow Stem Auger

EQUIPMENT USED: GeoProbe 7822DT

HAMMER TYPE: Automatic

BORING LOCATION: Southwest Corner of Building

LOCATION: Conway, Arkansas

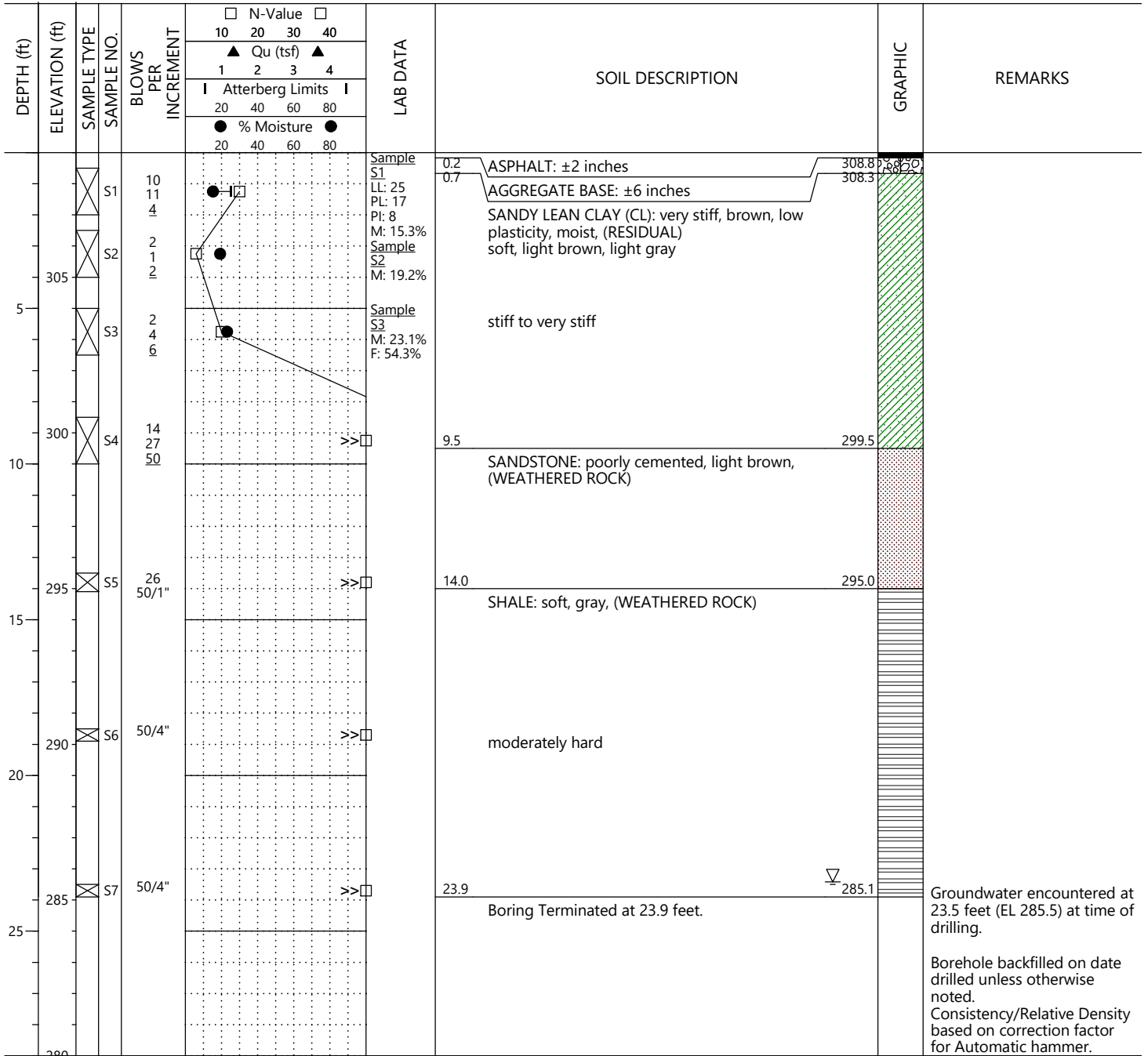
DATE DRILLED: 4/22/26

WEATHER: Cloudy

ELEVATION: 309

DRILL CREW: Building & Earth

LOGGED BY: T. Tollett



SAMPLE TYPE ☒ Split Spoon

N-VALUE STANDARD PENETRATION RESISTANCE (AASHTO T-206)

% MOISTURE PERCENT NATURAL MOISTURE CONTENT

☒ GROUNDWATER LEVEL IN THE BOREHOLE AT TIME OF DRILLING

☒ STABILIZED GROUNDWATER LEVEL

REC RECOVERY

RQD ROCK QUALITY DESIGNATION

UD UNDISTURBED

Qu POCKET PENETROMETER UNCONFINED COMPRESSIVE STRENGTH

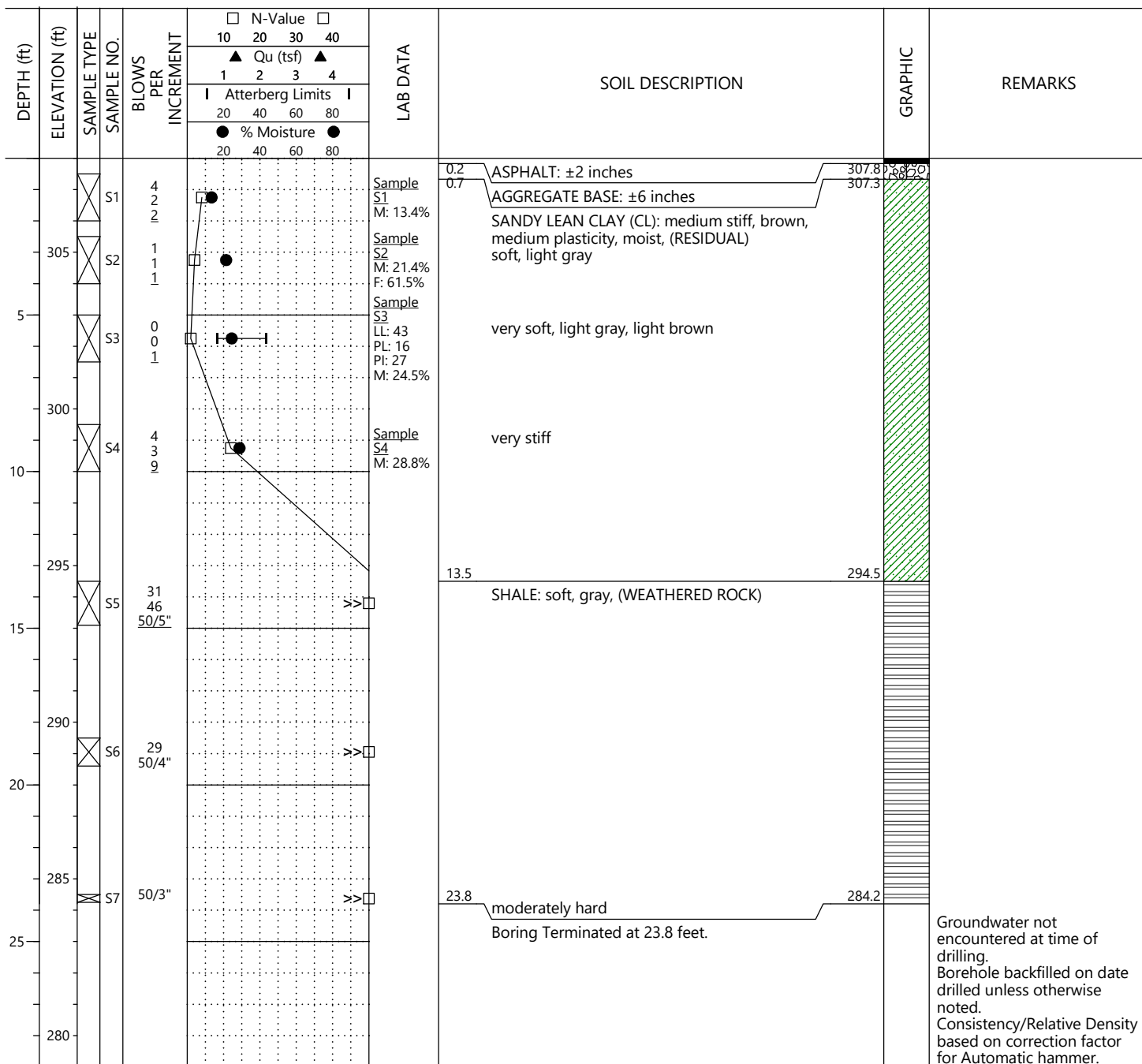
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PL: PLASTIC LIMIT **F:** PERCENT PASSING NO. 200 SIEVE

PI: PLASTICITY INDEX

PROJECT NAME: UCA Multi-Purpose Arena
PROJECT NUMBER: LR260019
DRILLING METHOD: Hollow Stem Auger
EQUIPMENT USED: GeoProbe 7822DT
HAMMER TYPE: Automatic
BORING LOCATION: West End of Building, Center

LOCATION: Conway, Arkansas
DATE DRILLED: 4/22/26
WEATHER: Cloudy
ELEVATION: 308
DRILL CREW: Building & Earth
LOGGED BY: T. Tollett



SAMPLE TYPE ☒ Split Spoon

N-VALUE STANDARD PENETRATION RESISTANCE (AASHTO T-206)

% MOISTURE PERCENT NATURAL MOISTURE CONTENT

☒ GROUNDWATER LEVEL IN THE BOREHOLE AT TIME OF DRILLING

☒ STABILIZED GROUNDWATER LEVEL

REC RECOVERY

RQD ROCK QUALITY DESIGNATION

UD UNDISTURBED

Qu POCKET PENETROMETER UNCONFINED COMPRESSIVE STRENGTH

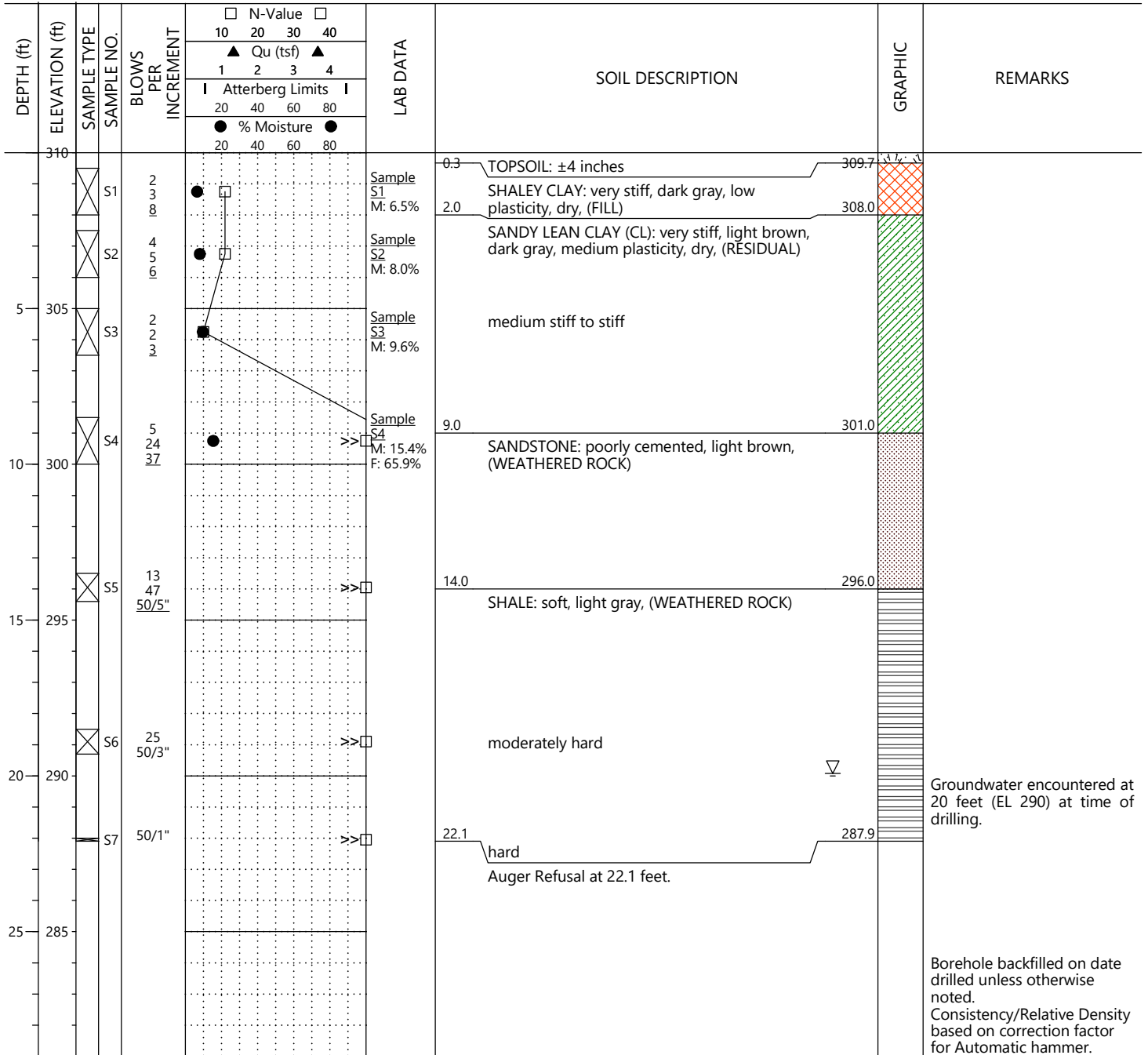
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PL: PLASTIC LIMIT **F:** PERCENT PASSING NO. 200 SIEVE

PI: PLASTICITY INDEX

PROJECT NAME: UCA Multi-Purpose Arena
PROJECT NUMBER: LR260019
DRILLING METHOD: Hollow Stem Auger
EQUIPMENT USED: GeoProbe 7822DT
HAMMER TYPE: Automatic
BORING LOCATION: Southeast Corner of West Portion

LOCATION: Conway, Arkansas
DATE DRILLED: 4/22/26
WEATHER: Cloudy
ELEVATION: 310
DRILL CREW: Building & Earth
LOGGED BY: T. Tollett



SAMPLE TYPE ☒ Split Spoon

N-VALUE STANDARD PENETRATION RESISTANCE (AASHTO T-206)

% MOISTURE PERCENT NATURAL MOISTURE CONTENT

☒ GROUNDWATER LEVEL IN THE BOREHOLE AT TIME OF DRILLING

☒ STABILIZED GROUNDWATER LEVEL

REC RECOVERY

RQD ROCK QUALITY DESIGNATION

UD UNDISTURBED

Qu POCKET PENETROMETER UNCONFINED COMPRESSIVE STRENGTH

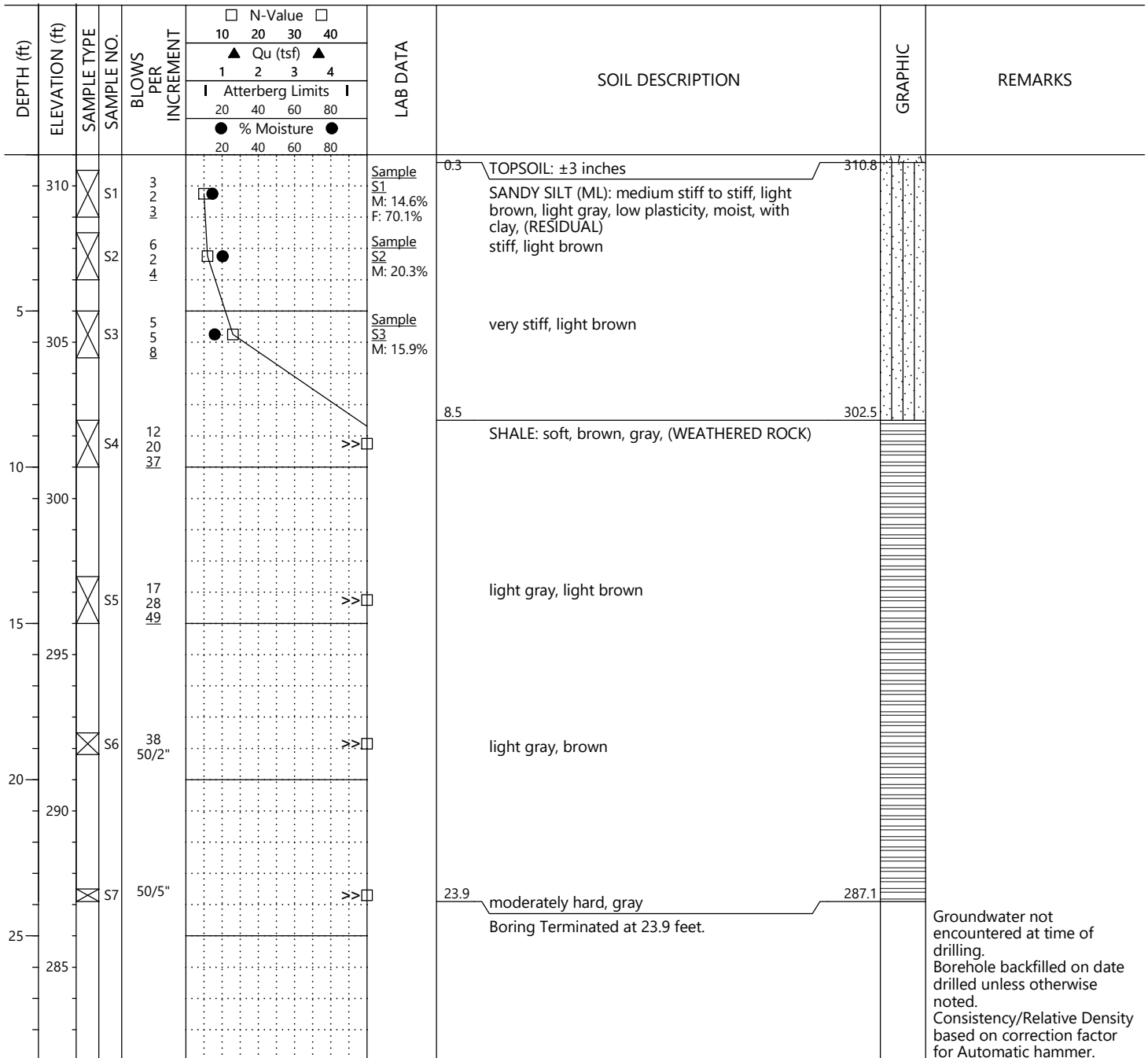
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PL: PLASTIC LIMIT **F:** PERCENT PASSING NO. 200 SIEVE

PI: PLASTICITY INDEX

PROJECT NAME: UCA Multi-Purpose Arena
PROJECT NUMBER: LR260019
DRILLING METHOD: Hollow Stem Auger
EQUIPMENT USED: GeoProbe 7822DT
HAMMER TYPE: Automatic
BORING LOCATION: Southeast Corner of Building

LOCATION: Conway, Arkansas
DATE DRILLED: 4/9/26
WEATHER: Partly Cloudy
ELEVATION: 311
DRILL CREW: Building & Earth
LOGGED BY: T. Tollett



SAMPLE TYPE ☒ Split Spoon

N-VALUE STANDARD PENETRATION RESISTANCE (AASHTO T-206)

% MOISTURE PERCENT NATURAL MOISTURE CONTENT

☒ GROUNDWATER LEVEL IN THE BOREHOLE AT TIME OF DRILLING

☒ STABILIZED GROUNDWATER LEVEL

REC RECOVERY

RQD ROCK QUALITY DESIGNATION

UD UNDISTURBED

Qu POCKET PENETROMETER UNCONFINED COMPRESSIVE STRENGTH

LL: LIQUID LIMIT **M:** NATURAL MOISTURE CONTENT

PL: PLASTIC LIMIT **F:** PERCENT PASSING NO. 200 SIEVE

PI: PLASTICITY INDEX

LABORATORY TEST PROCEDURES

A brief description of the laboratory tests performed is provided in the following sections.

DESCRIPTION OF SOILS (VISUAL-MANUAL PROCEDURE) (ASTM D2488)

The soil samples were visually examined by our engineer and soil descriptions were provided. Representative samples were then selected and tested in accordance with the aforementioned laboratory-testing program to determine soil classifications and engineering properties. This data was used to correlate our visual descriptions with the Unified Soil Classification System (USCS).

NATURAL MOISTURE CONTENT (ASTM D2216)

Natural moisture contents (M%) were determined on selected samples. The natural moisture content is the ratio, expressed as a percentage, of the weight of water in a given amount of soil to the weight of solid particles.

ATTERBERG LIMITS (ASTM D4318)

The Atterberg Limits test was performed to evaluate the soil's plasticity characteristics. The soil Plasticity Index (PI) is representative of this characteristic and is bracketed by the Liquid Limit (LL) and the Plastic Limit (PL). The Liquid Limit is the moisture content at which the soil will flow as a heavy viscous fluid. The Plastic Limit is the moisture content at which the soil is between "plastic" and the semi-solid stage. The Plasticity Index ($PI = LL - PL$) is a frequently used indicator for a soil's potential for volume change. Typically, a soil's potential for volume change increases with higher plasticity indices.

MATERIAL FINER THAN NO. 200 SIEVE BY WASHING (ASTM D1140)

Grain-size tests were performed to determine the partial soil particle size distribution. The amount of material finer than the openings on the No. 200 sieve (0.075 mm) was determined by washing soil over the No. 200 sieve. The results of wash #200 tests are presented on the boring logs included in this report and in the table of laboratory test results.

LABORATORY TEST RESULTS

The results of the laboratory testing are presented in the following tables.

LABORATORY TEST RESULTS

The results of the laboratory testing are presented in the following tables.

BORING NO.	DEPTH	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	% PASSING #200 SIEVE	CLASSIFICATION
B-01	0.5 - 2.0	21.0					
B-01	2.5 - 4.0	23.2	29	26	3		
B-01	5.0 - 6.5	21.1					
B-01	8.5 - 10.0	21.4					
B-01	13.5 - 15.0	9.1					
B-02	0.5 - 2.0	16.6					
B-02	2.5 - 4.0	23.3					
B-02	5.0 - 6.5	19.1					
B-02	8.5 - 10.0	19.2					
B-02	13.5 - 15.0	12.2					
B-03	0.5 - 2.0	20.8					
B-03	2.5 - 4.0	19.5					
B-03	5.0 - 6.5	16.0				60	
B-03	8.5 - 10.0	12.2					
B-04	0.5 - 2.0	9.8					
B-04	2.5 - 4.0	27.2					
B-04	5.0 - 6.5	26.2					
B-04	8.5 - 10.0	21.1	33	19	14		
B-08	0.5 - 2.0	15.3	25	17	8		
B-08	2.5 - 4.0	19.2					
B-08	5.0 - 6.5	23.1				54	
B-09	0.5 - 2.0	13.4					
B-09	2.5 - 4.0	21.4				62	
B-09	5.0 - 6.5	24.5	43	16	27		
B-09	8.5 - 10.0	28.8					
B-10	0.5 - 2.0	6.5					
B-10	2.5 - 4.0	8.0					
B-10	5.0 - 6.5	9.6					
B-10	8.5 - 10.0	15.4				66	
B-11	0.5 - 2.0	14.6				70	
B-11	2.5 - 4.0	20.3					

TABLE L-1: General Soil Classification Test Results

Soils with a Liquid Limit (LL) greater than 50 and Plasticity Index (PI) greater than 25 usually exhibit significant volume change with varying moisture content and are considered to be highly plastic

⁽¹⁾ Indicates visual classification. WR indicates weathered rock.

LABORATORY TEST RESULTS

The results of the laboratory testing are presented in the following tables.

[illegible]

TABLE L-1: General Soil Classification Test Results

Soils with a Liquid Limit (LL) greater than 50 and Plasticity Index (PI) greater than 25 usually exhibit significant volume change with varying moisture content and are considered to be highly plastic

⁽¹⁾ Indicates visual classification. WR indicates weathered rock.

Important Information about This Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a civil engineer may not fulfill the needs of a constructor — a construction contractor — or even another civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. No one except you should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you — should apply this report for any purpose or project except the one originally contemplated.*

Read the Full Report

Serious problems have occurred because those relying on a geotechnical-engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

Geotechnical Engineers Base Each Report on a Unique Set of Project-Specific Factors

Geotechnical engineers consider many unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk-management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical-engineering report that was:

- not prepared for you;
- not prepared for your project;
- not prepared for the specific site explored; or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical-engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an

assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical-engineering report is based on conditions that existed at the time the geotechnical engineer performed the study. *Do not rely on a geotechnical-engineering report whose adequacy may have been affected by:* the passage of time; man-made events, such as construction on or adjacent to the site; or natural events, such as floods, droughts, earthquakes, or groundwater fluctuations. *Contact the geotechnical engineer before applying this report to determine if it is still reliable.* A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ — sometimes significantly — from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide geotechnical-construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are Not Final

Do not overrely on the confirmation-dependent recommendations included in your report. *Confirmation-dependent recommendations are not final*, because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations *only* by observing actual subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's confirmation-dependent recommendations if that engineer does not perform the geotechnical-construction observation required to confirm the recommendations' applicability.*

A Geotechnical-Engineering Report Is Subject to Misinterpretation

Other design-team members' misinterpretation of geotechnical-engineering reports has resulted in costly

problems. Confront that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Constructors can also misinterpret a geotechnical-engineering report. Confront that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing geotechnical construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical-engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make constructors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give constructors the complete geotechnical-engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise constructors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure constructors have sufficient time to perform additional study.* Only then might you be in a position to give constructors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and constructors fail to recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help

others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Environmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform an *environmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold-prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, many mold- prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical- engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; *none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.*

Rely, on Your GBC-Member Geotechnical Engineer for Additional Assistance

Membership in the Geotechnical Business Council of the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your GBC-Member geotechnical engineer for more information.



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