LS3P

AIKEN COUNTY
PUBLIC SCHOOLS

HIGHLAND SPRINGS ELEMENTARY / MIDDLE SCHOOL

LS3P Commission No. 2201-183850

DESIGN DEVELOPMENT SUBMITTAL
APRIL 2021

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HIGHLAND SPRINGS ELEMENTARY / MIDDLE SCHOOL

The Mission of Aiken County Public Schools, the emerging premier school district, is to cultivate future-ready students to serve our evolving community and world through an innovative, literacy-focused school system distinguished by

- rigorous, personalized learning opportunities
- highly effective, service-driven professionals; and
- mutually beneficial partnerships.

DESIGN STATEMENT

Our project scope is to develop a new elementary and middle school facility serving Area 2 that will house a core capacity of 1,250 students (500 elementary students and 750 middle school students) on a newly-developed site. The project is being divided up into two phases with the possibility of adding a future addition to Phase 2 to bring the core capacity up to 1500: 750 ES/750 MS).

Phase 1 will be the construction of a roughly 134,000 SF two-story Middle School which will include: Middle School Classrooms, Gym, and some shared facilities such as: Administration, ES/MS Media Centers, ES/MS Dining, and Food Service.

Phase 2 will include the construction of a roughly 61,500 two-story Elementary School which will include: Elementary school classrooms and physical education space.

This project will incorporate sustainable design solutions with a goal of achieving Designed to Earn the Energy Star.

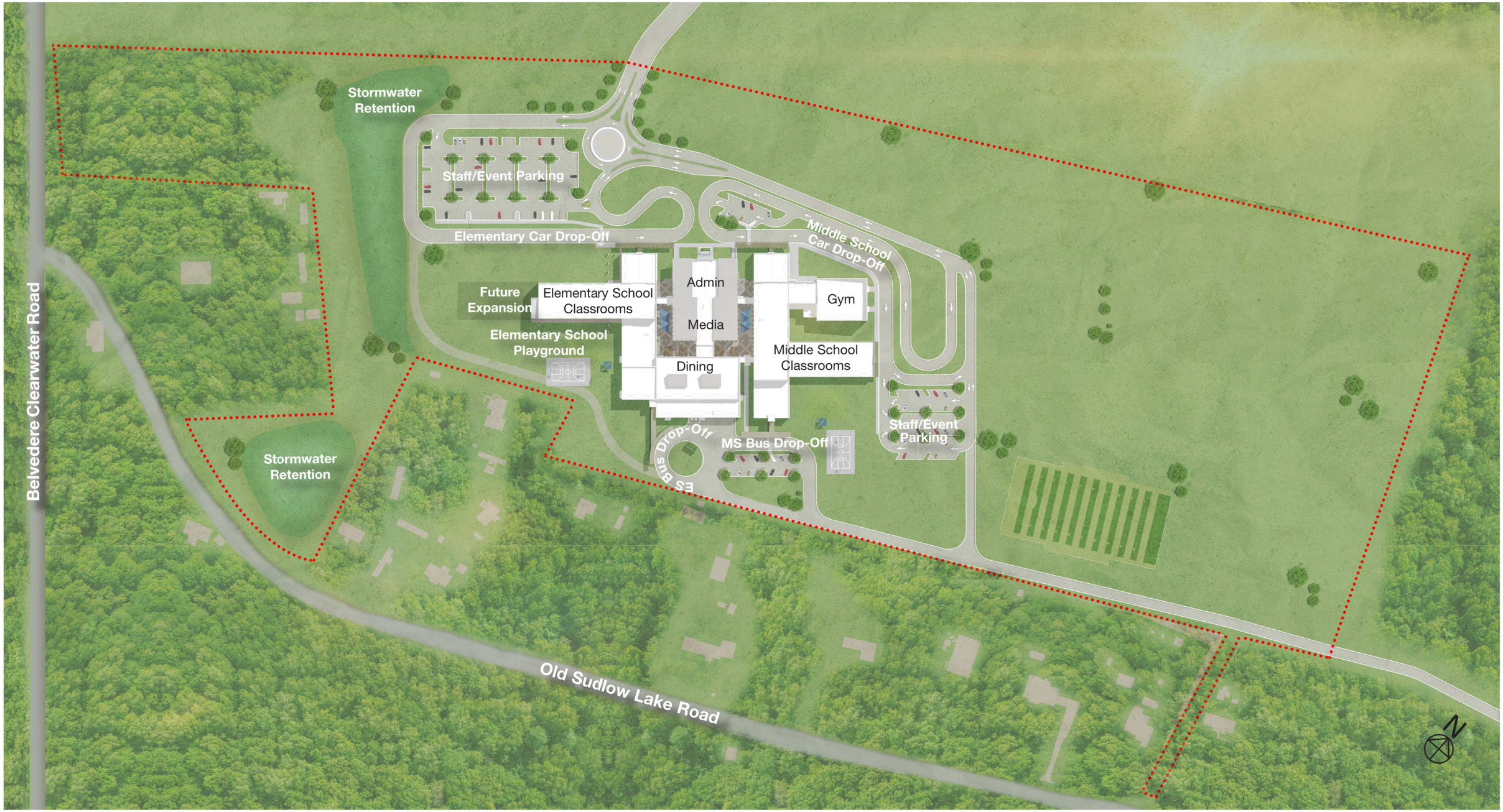
EXISTING SITE PLAN

The site near Belvedere Clearwater Road and Old Sudlow Lake Road to the northeast of downtown North Augusta is being jointly developed by Aiken County Public Schools and the developer of the proposed Highland Springs community. Access to the site of the new school facility will be provided by a new boulevard that will serve both the school and eventually other amenities in the Highland Springs community.

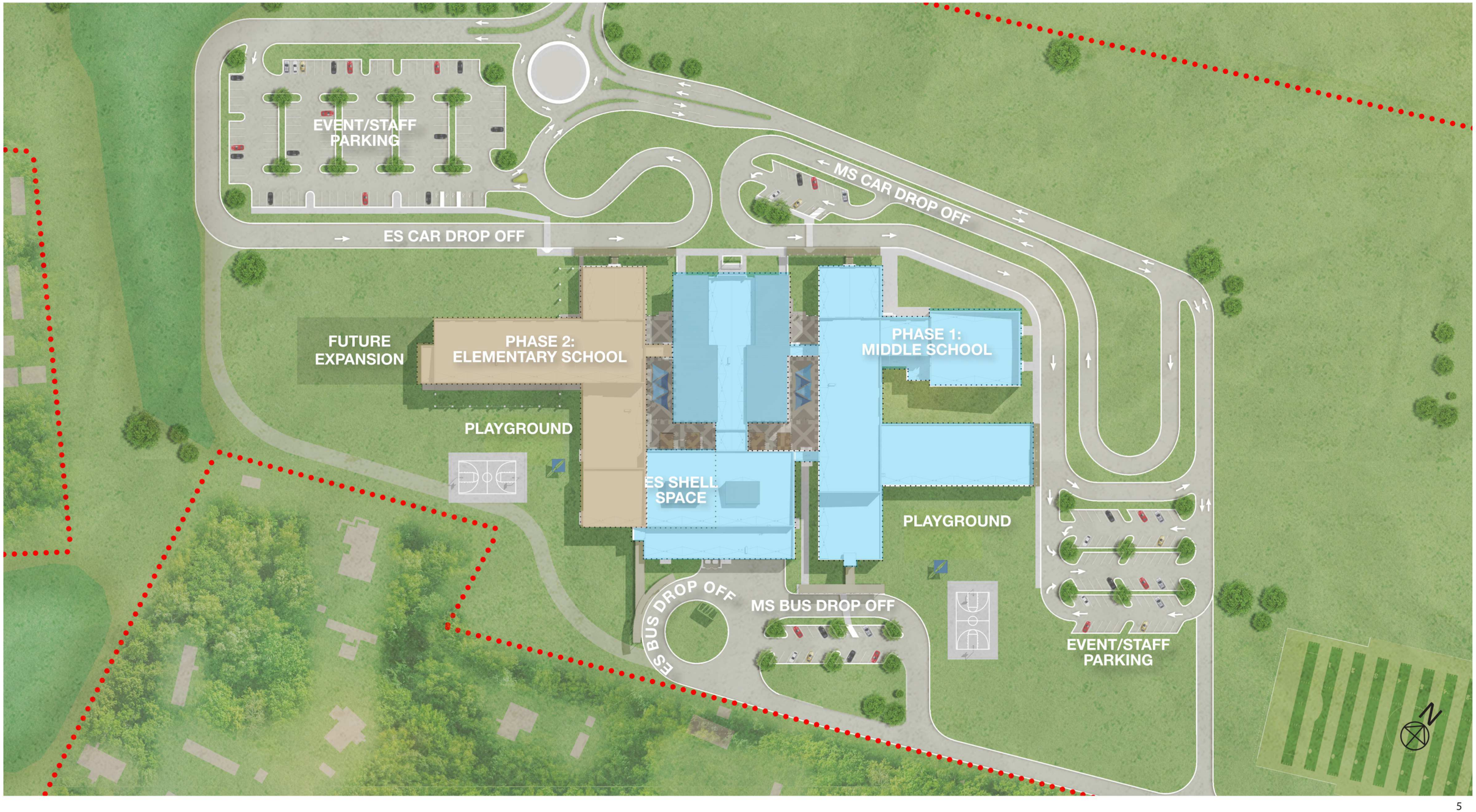
Vehicular circulation at the site will be arranged to provide separate automobile drop-off lanes and canopies for elementary school and middle school students. A single bus drop-off loop will serve two separate drop-off canopies for elementary and middle school students. Pedestrian traffic will be separated as much as possible from vehicular traffic.

The building itself will be oriented on the site to help maximize passive solar strategies, and the site design will seek to minimize the ecological impact on the property.

OVERALL SITE PLAN



ENLARGED SITE PLAN



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1ST FLOOR PLAN - OVERALL

HIGHLAND SPRINGS ES/MS AREA

1st floor

Phase 1 (Middle School): 105,900 SF
Phase 1 (ES Dining Shell Space): 7,900 SF
Phase 2 (Elementary School): 39,500 SF

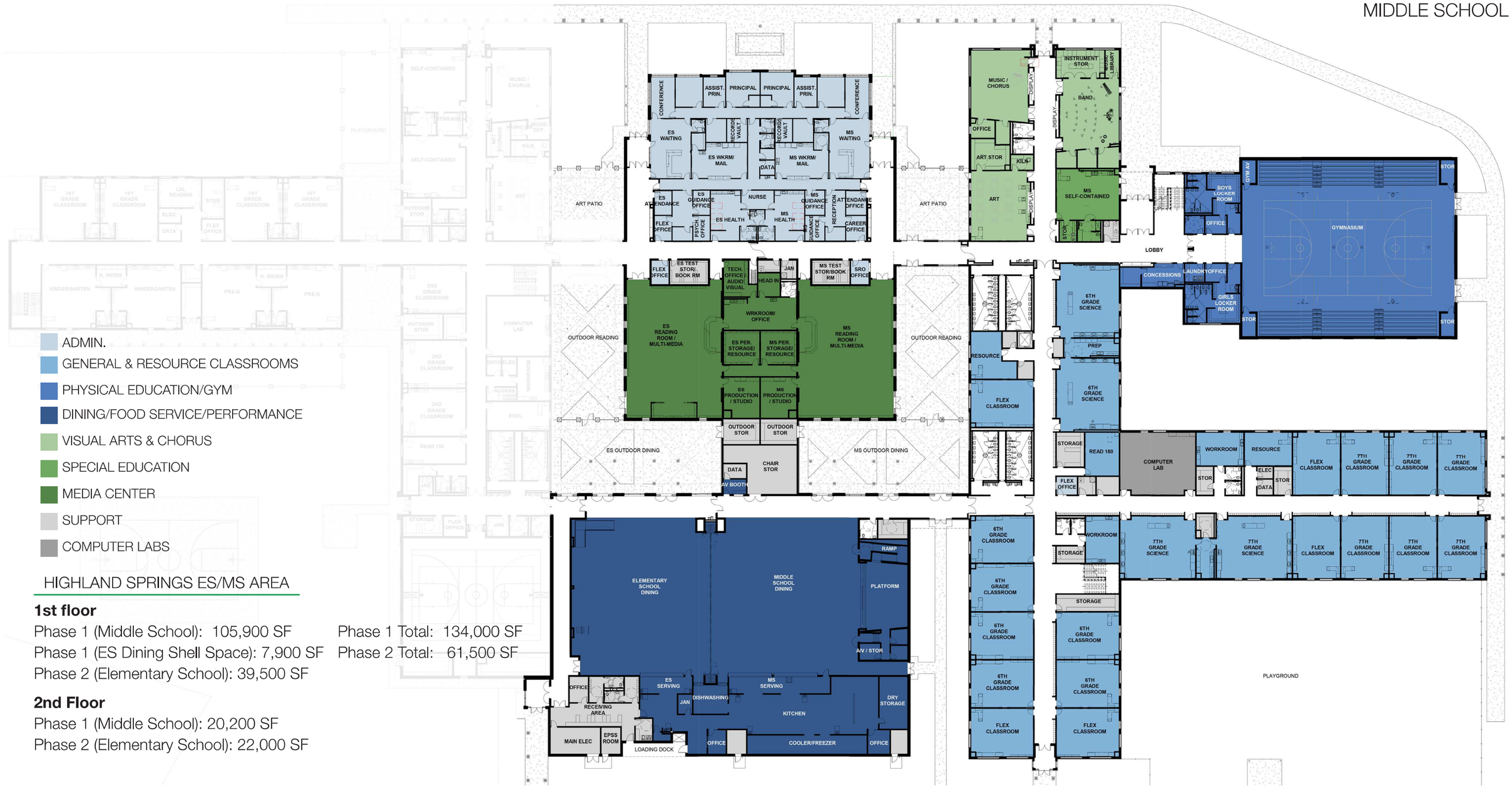
Phase 1 Total: 134,000 SF
Phase 2 Total: 61,500 SF

2nd Floor

Phase 1 (Middle School): 20,200 SF
Phase 2 (Elementary School): 22,000 SF

1ST FLOOR PLAN - PHASE 1

MIDDLE SCHOOL



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1ST FLOOR PLAN - PHASE 1 - AREAS A & B

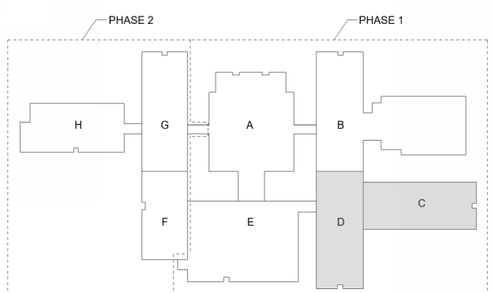
MIDDLE SCHOOL

- ADMIN.
- GENERAL & RESOURCE CLASSROOMS
- PHYSICAL EDUCATION/GYM
- DINING/FOOD SERVICE/PERFORMANCE
- VISUAL ARTS & CHORUS
- SPECIAL EDUCATION
- MEDIA CENTER
- SUPPORT
- COMPUTER LABS

1ST FLOOR PLAN - PHASE 1 - AREAS C & D

MIDDLE SCHOOL

- ADMIN.
- GENERAL & RESOURCE CLASSROOMS
- PHYSICAL EDUCATION/GYM
- DINING/FOOD SERVICE/PERFORMANCE
- VISUAL ARTS & CHORUS
- SPECIAL EDUCATION
- MEDIA CENTER
- SUPPORT
- COMPUTER LABS



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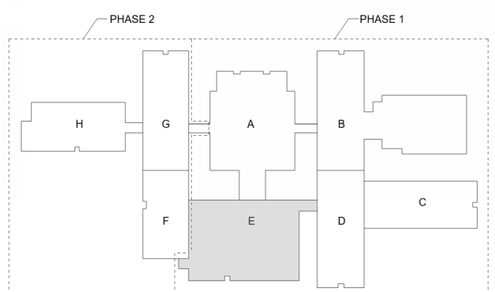
1ST FLOOR PLAN - PHASE 1 - AREA E

MIDDLE AND ELEMENTARY SCHOOL

- ADMIN.
- GENERAL & RESOURCE CLASSROOMS
- PHYSICAL EDUCATION/GYM
- DINING/FOOD SERVICE/PERFORMANCE
- VISUAL ARTS & CHORUS
- SPECIAL EDUCATION
- MEDIA CENTER
- SUPPORT
- COMPUTER LABS



1ST FLOOR PLAN - PHASE 2

ELEMENTARY SCHOOL

- ADMIN.
- GENERAL & RESOURCE CLASSROOMS
- PHYSICAL EDUCATION/GYM
- DINING/FOOD SERVICE/PERFORMANCE
- VISUAL ARTS & CHORUS
- SPECIAL EDUCATION
- MEDIA CENTER
- SUPPORT
- COMPUTER LABS

HIGHLAND SPRINGS ES/MS AREA

1st floor

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Phase 1 Total: 134,000 SF
Phase 2 Total: 61,500 SF

2nd Floor

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Phase 2 (Elementary School): 22,000 SF

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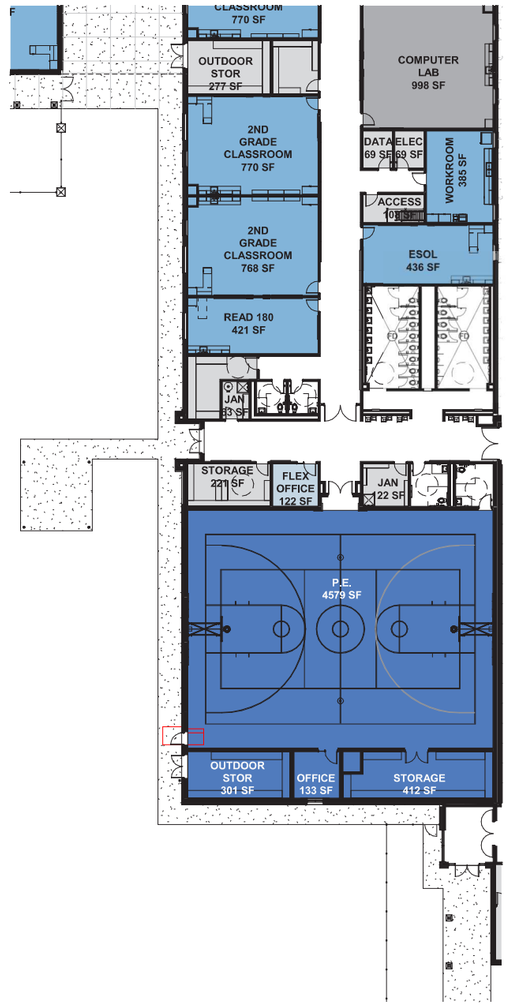
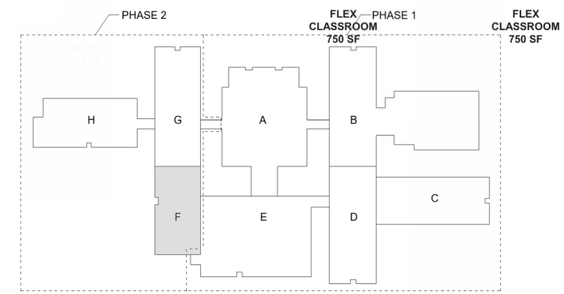
1ST FLOOR PLAN - PHASE 2 - AREA F

ELEMENTARY SCHOOL

- ADMIN.
- GENERAL & RESOURCE CLASSROOMS
- PHYSICAL EDUCATION/GYM
- DINING/FOOD SERVICE/PERFORMANCE
- VISUAL ARTS & CHORUS
- SPECIAL EDUCATION
- MEDIA CENTER
- SUPPORT
- COMPUTER LABS

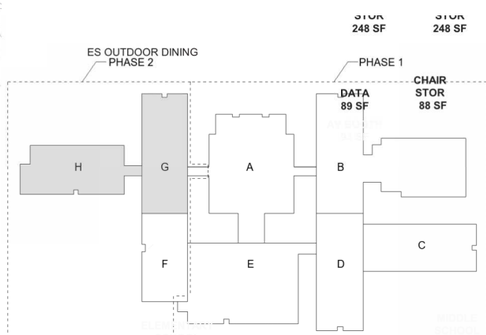




1ST FLOOR PLAN - PHASE 2 - AREAS G & H

ELEMENTARY SCHOOL

- ADMIN.
- GENERAL & RESOURCE CLASSROOMS
- PHYSICAL EDUCATION/GYM
- DINING/FOOD SERVICE/PERFORMANCE
- VISUAL ARTS & CHORUS
- SPECIAL EDUCATION
- MEDIA CENTER
- SUPPORT
- COMPUTER LABS



2ND FLOOR PLAN - OVERALL

ELEMENTARY SCHOOL

MIDDLE SCHOOL

- ADMIN.
- GENERAL & RESOURCE CLASSROOMS
- PHYSICAL EDUCATION/GYM
- DINING/FOOD SERVICE/PERFORMANCE
- VISUAL ARTS & CHORUS
- SPECIAL EDUCATION
- MEDIA CENTER
- SUPPORT
- COMPUTER LABS

HIGHLAND SPRINGS ES/MS AREA

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2nd Floor

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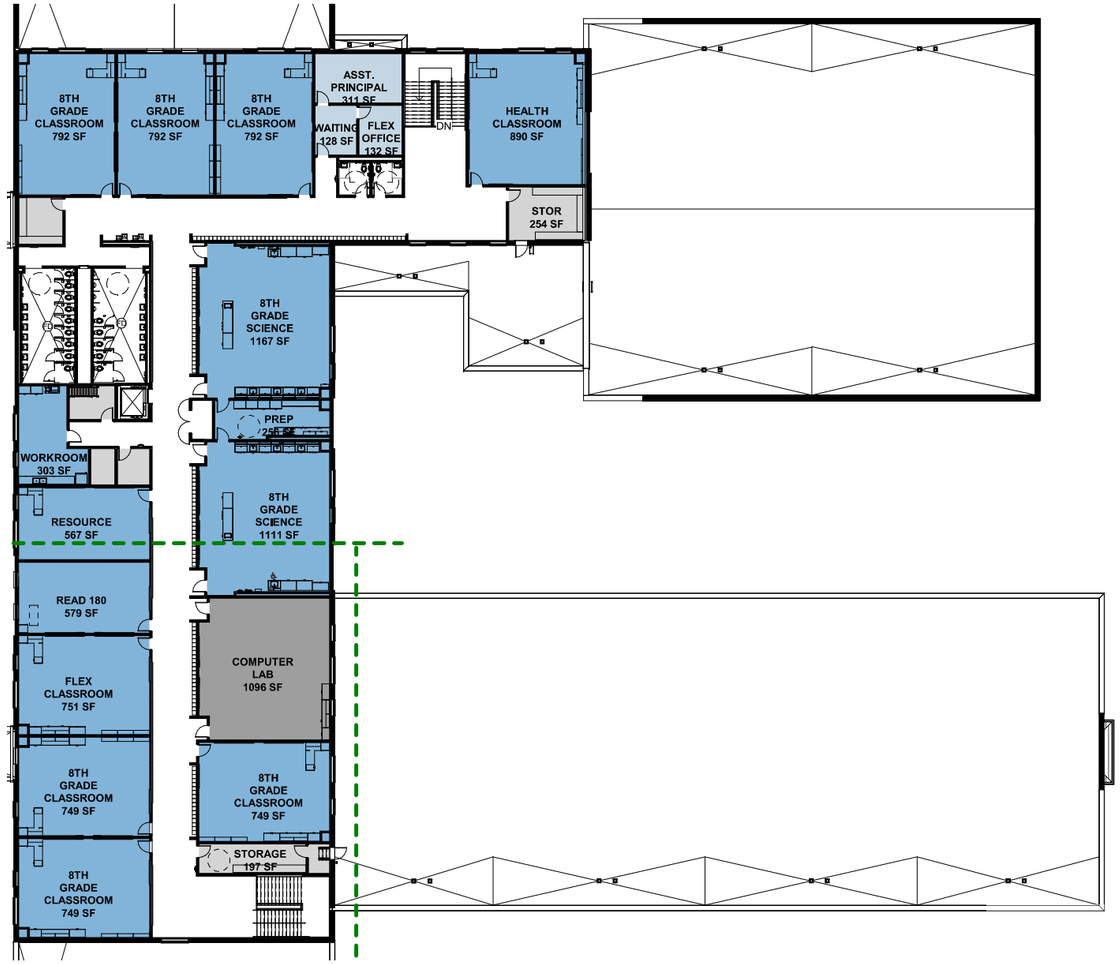
2ND FLOOR PLAN - PHASE 1

MIDDLE SCHOOL



- ADMIN.
- GENERAL & RESOURCE CLASSROOMS
- PHYSICAL EDUCATION/GYM
- DINING/FOOD SERVICE/PERFORMANCE
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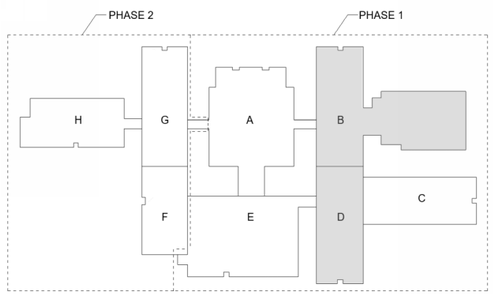

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2ND FLOOR PLAN - PHASE 2

ELEMENTARY SCHOOL

- ADMIN.
- GENERAL & RESOURCE CLASSROOMS
- PHYSICAL EDUCATION/GYM
- DINING/FOOD SERVICE/PERFORMANCE
- VISUAL ARTS & CHORUS
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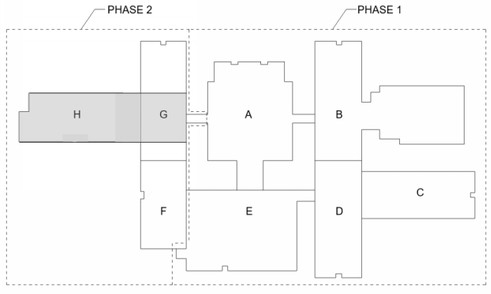

EXTERIOR PERSPECTIVE

MAIN ENTRY PERSPECTIVE

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EXTERIOR PERSPECTIVES

MIDDLE SCHOOL GYMNASIUM PERSPECTIVE

EXTERIOR PERSPECTIVES

MIDDLE SCHOOL CAR DROP OFF

MIDDLE SCHOOL BUS DROP OFF

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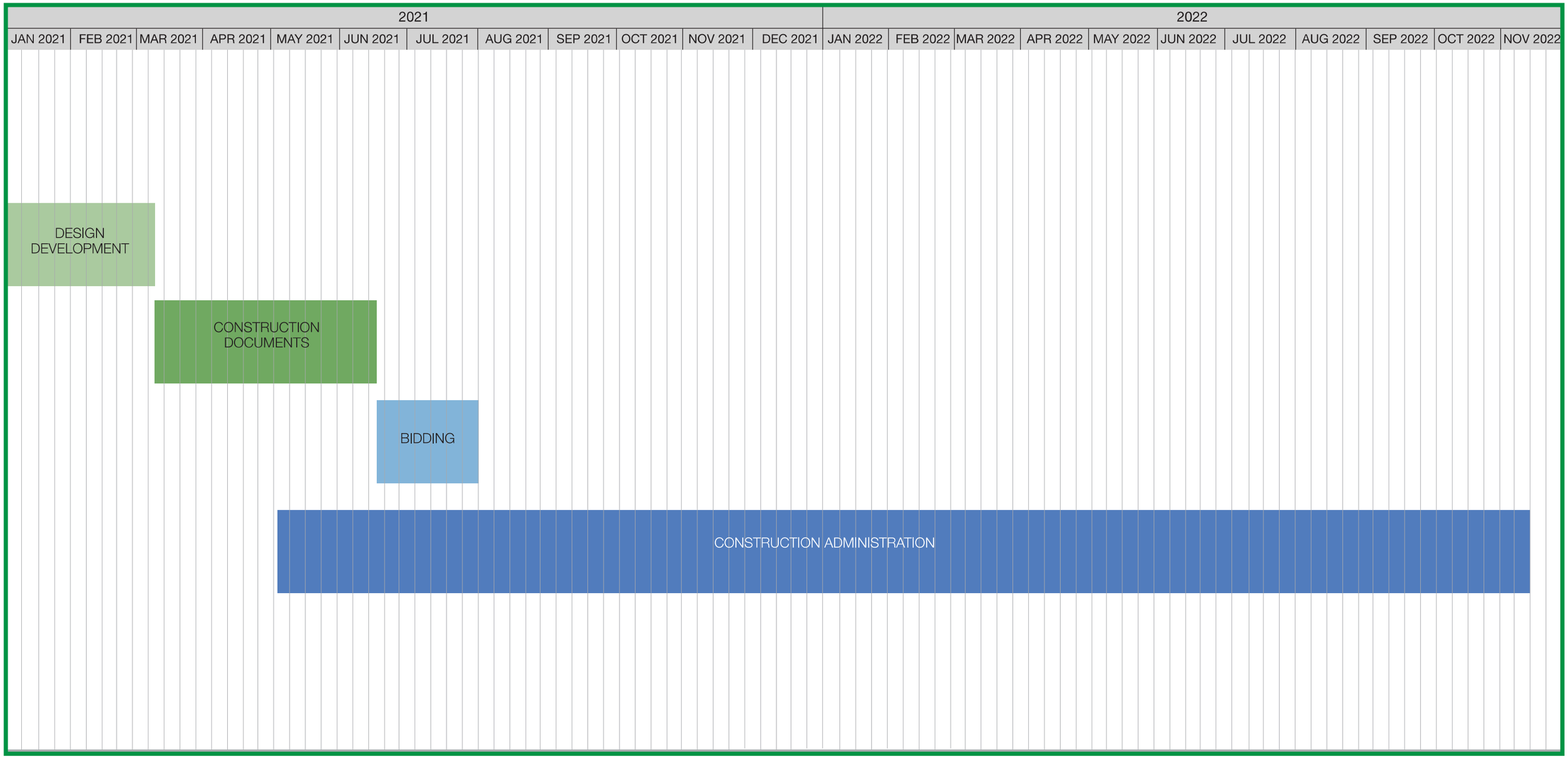
SCHEDULE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JUL 2022
AUG 2022
SEP 2022
OCT 2022
NOV 2022
DESIGN DEVELOPMENT
CONSTRUCTION DOCUMENTS
BIDDING
CONSTRUCTION ADMINISTRATION

Updated 4/20/2021

PRELIMINARY PROJECT BUDGET SUMMARY ESTIMATE

Aiken County School District

LS3P Commission No.: 2201-183850

Highland Springs Elementary & Middle Phase 1 - 750 Middle Students / 134,000 SF Phase 2 - 500 Elementary Student / 61,500 SF TOTAL 1250 Students / 195,500 SF	***Notes***			**Design Development Phase Estimated Costs**
Description		**GSF**	**$/GSF**	**Totals**
Estimated Construction Costs (MS) - Phase 1				
Sitework				*$4,700,000*
Retaining Walls				*$1,000,000*
Offsite Road Widening	*Extent TBD*			$825,000
Site Sub-total				***$6,525,000***
Building - New Construction Middle School + some Elementary Shell		***134,000***	***$241***	$32,265,000
Phase 1 Construction Sub-total				***$38,790,000***
Design/Estimate Contingency		*2.5%*		$969,750
Estimated Total Base Bid Construction Costs				**$39,759,750**
Project Soft Costs (A/E, Chapter 1 &17, FF&E + Technology)				
Estimated Total Soft Costs				$9,741,139
Estimated Total Hard / Construction Costs - Phase 1				**$49,500,889**
District Overall Project Contingency		3.0%		$1,485,027
ESTIMATED TOTAL PROJECT COSTS - Phase 1				**$50,985,915**
Estimated Construction Costs (ES) - Phase 2				
Balance of Elementary School Building (in today's $)		***61,500***	***$243***	$14,930,000
Design/Estimate Contingency		*2.5%*		$373,250
Estimated Total Base Bid Construction Costs				***$15,303,250***
Project Soft Costs (A/E, Chapter 1 &17, FF&E + Technology)				
Estimated Total Soft Costs				$3,978,845
Estimated Total Hard / Construction Costs - Phase 2				**$19,282,095**
District Overall Project Contingency		3.0%		$578,463
ESTIMATED TOTAL PROJECT COSTS - Phase 2				**$19,860,558**
ESTIMATED TOTAL PROJECT COSTS - PHASES 1 & 2		**195,500**		**$70,846,473**

A. STRUCTURAL SYSTEM

General Structural Description
1. Applicable Building Code: 2018 IBC and ASCE 7-10 for wind, seismic and gravity loadings.
2. Structure: The building will be a one-story structure with exterior and interior load-bearing CMU walls.
3. Seismic Design Category: Although the soils investigation for this project has not been completed yet, preliminary indications from the geotechnical firm are that the building will be classified as Seismic Site Class C. This will result in a classification of Seismic Design Category C for the building in accordance with the 2018 International Building Code.

Foundations and Slabs-On-Grade
1. Floor Slab: Floor slab will be a 4” slab on grade reinforced with wire fabric over a vapor retarder and 4” granular base.
2. Foundations: Although the soils investigation for this project has not been done yet, the foundation system will likely consist of conventional wall footings for exterior walls and spread footings for columns. Tops of exterior footings will typically be at 2’-0” below finish floor and tops of interior footings will typically be at 1’-4” below finish floor.
3. Concrete: Concrete for foundations and floor slabs on grade will be 3000 psi normal weight concrete.

Roof System
1. Typical Areas: Roof structural system for the majority of the building will be galvanized steel deck on open web steel joists.
2. Gymnasium: Roof structural system at the gymnasium will be longspan steel joists with acoustical galvanized and prime painted steel deck.
3. Mechanical Units: Concrete slabs will not be provided for rooftop mechanical units. Units will be supported on the typical bar joist and metal deck system, with steel beams added where required.

Wall System
Masonry Walls: walls, and interior load-bearing walls, and interior partition walls will be lightweight CMU. Exterior walls will have brick veneer in some locations. All CMU walls will be reinforced and grouted at reinforced cells. CMU walls will function both as load-bearing elements to support the roofs and as shear walls to laterally brace the buildings to resist wind and seismic loads. CMU wall thickness will be 8” at typical conditions and 12” at two-story high spaces such as the gymnasium. Fire walls will be 12” CMU walls grouted solid.

Steel Framing
1. Steel Frame: A steel frame will be provided in some areas which have extensive glass areas in exterior walls as required to support the roof and floor. Steel tube girts and wind columns may also be required for backup of large curtain wall areas. Resistance to wind and seismic lateral loads in these areas will be provided either by moment frames, braced frames or concrete block shear walls, or a combination of these elements.
2. Steel Materials: steel wide flange shapes will be ASTM A992, 50 ksi. Steel tubes will be ASTM A500, Grade B. Steel pipe will be ASTM A53, Grade B. All other structural steel will be ASTM A36. Lintels in exterior walls will be hot-dipped galvanized.

B. ROOFING

The insulation system within the new roof system assemblies will consist of polyisocyanurate roof insulation and perlite roof insulation with a minimum R-value of 30.

The roofing membrane on the low sloped roof areas will consist of three (3) plies of fiberglass felts adhered in hot asphalt and a Cool Roof Rating Council rated granule surfaced modified bitumen cap sheet adhered in cold adhesive or torch applied. A two (2) year Contractor’s Warranty and a twenty (20) year NDL Manufacturer’s Warranty will be provided for the low sloped roofing sys-tem.

The steep sloped roof areas will consist of a pre-finished, minimum 24 gage galvalume, metal roof panel system. A two (2) year Contractor’s Warranty and a twenty (20) year Weathertightness War-ranty will be provided for the steep sloped roofing system.

All sheet metal components for both roofing system types will consist of pre-finished, minimum 24 gage Galvalume. Other specific flashing details will require other appropriate metal types.

The roofing systems will comply with the 2018 IBC and ACPS requirements.

C. EXTERIOR AND INTERIOR WALLS

The exterior facade of the school will consist of masonry and metal panels with aluminum windows. The majority of the interior wall surfaces will be painted concrete block.

D. DOORS AND WINDOWS

Exterior doors will be painted hollow metal (steel) while interior doors will typically be stained solid core wood. All door frames will be hollow metal (steel). Classroom windows will typically be aluminum, triple-glazed, with integral blinds. Aluminum storefront windows will be used at selected locations.

E. WALL FINISHES

All interior walls will be primed and will have a minimum of two finish coats of paint applied. Waterbourne epoxy paint will be used on all concrete block walls.

F. FLOOR FINISHES

Vinyl composition tile will be used at the classrooms, labs, and corridors. The group toilets will feature an epoxy flooring. The middle school gym will have wood flooring and the elementary school multipurpose room will have resilient sports flooring. Epoxy flooring will be used at the locker rooms. Floors will be painted with waterbourne epoxy floor paint in janitor, electrical, data, mechanical, and fire riser rooms.

G. CEILINGS

Acoustical ceiling tile (2'x2') will typically be provided throughout corridor and classroom spaces. Hard ceilings will be used in toilet and shower areas. No ceilings will typically be installed in janitor, electrical, data, mechanical, or fire riser rooms.

H. ACCESSORIES AND SPECIALTIES

Marker and tack boards will be provided in all classroom and teaching areas. Signage will be provided to identify each space. Rough-ins will be provided for District-installed Smart Boards.

I. CASEWORK AND MILLWORK

Durable grade plastic laminate cabinets will be typically provided throughout. Display cabinets will be provided, as will reception desks and media center circulation desks.

J. FOOD SERVICE

A full service kitchen will be designed to provide meals to the combined elementary and middle school. The total FTE to be served is 1500 (assuming future Elementary School expansion). The kitchen will be designed with commercial grade equipment.

The kitchen will be designed to be visually open from the office to the wall separating the serving lines from the kitchen. Walls, if required with in the kitchen, will be 54" half height walls. This allows the manager to have full view of the production and cooking area and open communication between the staff when working in the kitchen.

The dish room will be in a separated room to keep water and humidity within the space. Pass thru windows from each serving area will extend into the kitchen and

MATERIALS AND SYSTEMS

cafeteria and have ample space for the students/staff to place their trays/dishes on the soiled dish table.

The office will have views of the kitchen and receiving area thru glazing in the walls. As an added security measure the delivery door needs to be provided with a “peephole”.

Lockers and unisex restroom will be provided for the kitchen staff off the delivery corrido, and a separate washer/dryer room will be provided off the receiving area for kitchen linens. A mop closet with a sink basin will be provided as well. Chemical storage, brooms, mops, and buckets will be stored in this area.

A Fly Fan will be provided over the delivery door. The fan will be provided with a limit switch actuator at the door to turn the fan on when the door is opened and off when the door is closed.

The storage area of the kitchen will include both dry and refrigerated spaces. The dry storage room will have wire shelving and dunnage racks. The refrigerated storage or walk-in cooler and freezer will comprise of foamed in-place, high efficient aluminum panels. The panels, walls, ceilings, and floors will be held together by means of three or more cam locks per panel. Each panel locks to those adjacent to form a tight seal preventing the transfer of air and water. The walk-ins will have insulated floors, finish (either quarry tile or diamond tread aluminum) to be coordinated during design. The refrigeration system will use CFC free refrigeration, R404 or similar. All walk-in doors will have triple pane windows with safety release inside latch. Lighting will be LED units manufactured for -40 degree operation.

The finishes in the kitchen will be designed to be easily cleanable and meet current codes.

Foodservice equipment will be specified in adherence to Energy Star criteria and Net Zero energy use. The following are key equipment design characteristics:
All Energy Star Rated (where applicable).

1. Low flow water spray nozzles and faucets.
2. Low water flow dish washing systems.
3. Where applicable, the equipment will be manufactured within 500 mile radius of the job site. Equipment for the multi-cultural food preparation will be selected based upon the respective cooking styles and techniques.
4. Equipment specified will have local authorized service and maintenance facilities in addition to local manufacturer representation.
5. A utility distribution system (UDS) will be specified in between and/or behind the cooking equipment. An advantage of a UDS is the reduced stub-ups required to connect to each item, making it easier to clean the floors and space behind the equipment. An additional advantage of a UDS is to make it easier to move equipment in and out of the kitchen or to rearrange equipment underneath the hood.

The exhaust hoods will be provided with Variable speed exhaust fans. This system will automatically reduce the CFMs being exhausted when cooking is not taking place. The design team will review and provide analysis to determine ROI.

There will be an emphasis on fresh vegetables and fruits. Most foods will be prepared on-site, fresh every day. Food preparation will be mostly from scratch, with some pre-made or pre-prepared items. Preparation equipment will include: Automatic Slicer, 30 quart Mixer with attachments, and vertical cutter.mixer. Additional items include: Work Tables, Sinks, Heated Cabinets, Refrigerators, Utility Carts, Racks, Shelving, Hand Sinks, and Hose Reels.

The Cooking equipment will include: Exhaust Hood, Utility Distribution System, Double Stacked Convection Ovens, Double Stacked Combi Ovens, 30 Gallon Tilt Skillet, Floor Trough, 20 Gallon Kettle with Stand, and 2 Burner Range. The equipment will be both electric and/or gas heated. No direct steam equipment is to be used.

The elementary school and middle school will have their own dedicated serving space. Each serving area will have separate Serving lines with separate entrance and exits. Each line to have a POS. Serving Lines to include: 4-well hot food counter, 3-well cold food counter, a flat counter, milk cooler, and cashier counters. Data Cabling will be required at the POS. The Food Guards for the Hot Food Counters will be designed to not allow the students access for the first two wells as this is normally the protein section of the counter. The Food Guards for the remaining two wells can be adjustable for service or self-serve operation. The Cold Food Counter will have Food Guards that are designed for self-serve operation. The milk Cooler will sit at the beginning of the serving line. A hand sink will be included in the Serving Area.

The scullery or dish room will be designed to withstand the water, heat, and humidity produced by the equipment. All equipment will be stainless steel, including stainless panels on the walls where required. The students will pass the trays thru a window or door opening and set on the soiled dish table. The staff will dump waste from the trays into a trash can and stack the trays in the dish rack. A mobile silver soak sink may be used if the students are using stainless flatware.

The racks will be pre-flushed and fed into a conveyor dishwasher with a built in booster heater. The dishwasher will automatically push the trays onto the clean dish table to dry.
A three compartment sink will be provided for pot and utensil washing. The equipment in the scullery will include: Pot & Pan Sink, Pot Shelf, Soiled Dish Table, Condensate Ducts, Dishwasher with Booster Heater, Clean Dish Table, Hand Sinks, and Hose Reels.

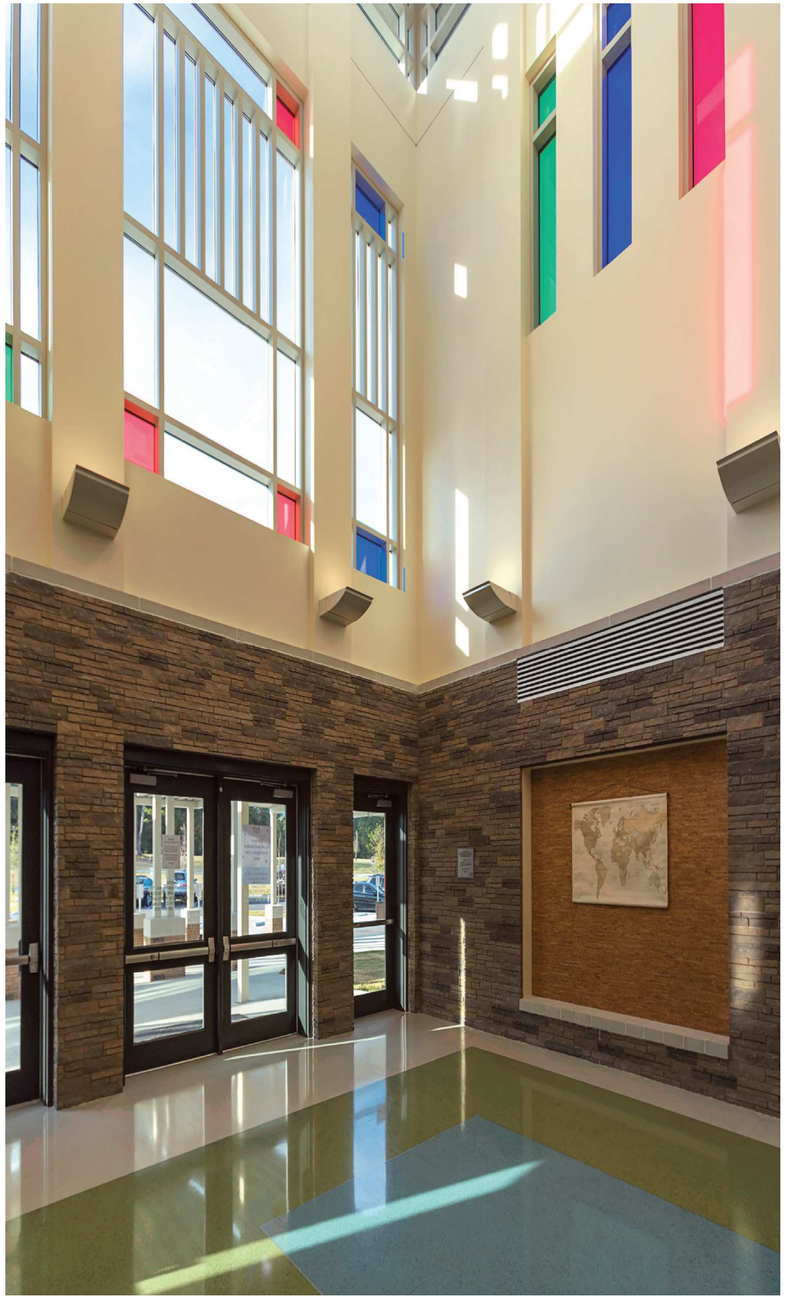
Hand Sinks will be provided with Wrist Handle operation. Hose Reels will be provided in the Kitchen and Dish room.

K. FIRE PROTECTION

- The building will be protected throughout with an automatic fire sprinkler system. The fire sprinkler system shall be split into 5 zones.
- Piping shall be a combination of schedule 10 and schedule 40 steel piping with grooved couplings, welded outlets, and threaded fittings.
- The computer labs, mechanical rooms, electrical rooms, science rooms, storage areas, janitor rooms and water heater rooms shall be designed for Ordinary Hazard Group I occupancy. The Records Vault shall be designed for Ordinary Hazard Group II occupancy. The remainder of the building shall be designed for Light Hazard Occupancy.
- Concealed sprinklers will be provided in all areas with finished ceilings.
- Upright sprinklers will be installed in mechanical rooms, electrical rooms, storage rooms, and similar rooms and any other space without ceilings.
- The loading dock shall be provided with dry sidewall sprinklers.

L. PLUMBING SYSTEM

- Large demand usage areas (i.e., kitchen, showers, etc.) will be provided with natural gas fired instantaneous water heaters. Water heaters for smaller loads shall be electric storage tank type water heaters. A hot water recirculation system shall be provided with the water heater when the hot water system piping exceeds 100 feet from water heater to last fixture.
- Sanitary sewer shall be collected inside the building and extend 5'-0" outside the building for connection to the site sanitary sewer system.
- Water closets shall be floor mounted with flush valves. Urinals shall be wall hung with flush valves. Flush valves installed in group restrooms shall be self-powered, sensor type.
- Except for lavatories in adult restrooms, lavatories shall be wall hung, enameled cast iron fixtures with sensor type hot and cold water faucets. Group restroom lavatories shall have sensor type cold water faucets only. Faucets shall be self-powered type. Lavatories in single adult restrooms shall have manual faucet with gooseneck and 4" wrist blades.
- Art Room sinks shall be 302 stainless steel, 18 gauge type with hot water and cold water. Art Room sinks will be provided with above floor sediment traps. Classroom sinks shall be 302 stainless steel, 18 gauge type with hot and cold water.
- Water coolers shall be stainless steel, wall hung, vandal resistant type. There shall be one water cooler with bottle filling station on each floor.
- Wall hydrants will be surface mounted, loose key, anti-freeze with backflow preventer. Hydrants shall be located at approximately 100-ft. intervals around perimeter of the building. Roof hydrants will be provided at rooftop equipment for wash down and maintenance purposes. Hose bibb with loose key and vacuum breaker will be located in all toilets with floor drains and in mechanical rooms.
- Water piping located above ground shall be type "L" copper and water piping located below grade shall be type "K" copper. All waste and storm drain piping located below grade shall be schedule 40 PVC piping. All waste, vent, and storm drain piping located above ground shall be No-hub type cast iron piping with heavy duty stainless steel coupling. All gas piping located above ground shall be either corrugated stainless steel piping by Tracpipe or schedule 40 black steel. All gas piping located below grade shall be corrugated stainless steel piping by Tracpipe.
- If sufficient water pressure is not available on the site, a duplex booster pump shall boost the water pressure of the entire campus. The water service to the building shall be protected with a backflow preventer.



M. MECHANICAL SYSTEM

- The HVAC systems will be designed and constructed according to the 2018 International Mechanical Code, and the ASHRAE 90.1-2007 and ASHRAE 62.1-2013 standards.
- Group toilets, custodial closets, nurse, science classrooms, art classrooms, science and art storage rooms, locker rooms, laundry rooms, kitchen, etc., will be generally ventilated with either suspended inline or rooftop exhaust fans. Private toilets and shower rooms will generally be ventilated with ceiling exhaust fans that discharge to louvers or relief hoods on the roof. Science classrooms, prep rooms, and storage rooms do not have chemical fume hoods and will be served by general exhaust systems in lieu of hazardous laboratory exhaust systems.
- Refrigerant piping for ductless split system air conditioners for main data closets will be Tyle L copper. Indoor and outdoor cooling coil condensate drain piping will be Type L copper.
- Concealed ducts will be galvanized sheet metal unless specified otherwise. Exposed dual wall spiral ductwork with perforated liner will be utilized in the office area open corridors, media centers, gymnasium, P.E. room, and dining and stage areas. Grease exhaust ductwork and dishmachine exhaust ductwork will be continuously welded steel. The dishmachine exhaust ductwork will be stainless steel.
- Insulation for concealed supply and return duct will be 2” FSK fiberglass insulation. Transfer ductwork will be internally lined with 1” fiberglass insulation. Sound attenuating acoustical barrier will be used on main supply and return ductwork crossing above classroom ceilings. Refrigerant and condensate drain pipe insulation will be elastomeric.
- HVAC systems will be controlled by a web-based Automated Logic control system. Most exhaust fans will be controlled by occupancy schedules. Some will be controlled by wall switches. Space humidity sensors will be provided at various locations to monitor humidity and control dehumidification sequences.
- Unless noted otherwise, all mechanical system components will be restrained as required by the required Seismic Design Category and Wind Design Speed, Risk Category Group III. Seismic submittals will include calculations by a South Carolina registered professional engineer.
- HVAC systems will be provided unit mounted needlepoint bipolar ionization systems.
- HVAC systems will be designed for 2” MERV 13 level of filtration.
- Outside air for all systems will be sourced directly at each unit (i.e., there will be no dedicated outside air systems).
- Ceiling diffusers will be louvered face type. High induction directional diffusers will be utilized in classrooms and corridors.
- Unless noted otherwise, all classroom wings (including music, chorus, art, band, science, computer labs, etc.) will be served by multiple multi-zone VAV, packaged DX, rooftop air conditioners with SCR electric heat, each coupled with multiple air terminal units with SCR electric reheat.
- The main admin area and media center support spaces will be served by a multi-zone VAV, packaged DX, rooftop air conditioner with SCR electric heat, coupled with multiple air terminal units with SCR electric reheat.
- The media centers, gymnasium, dining, kitchen receiving and support spaces, kitchen, and P.E. room will each be served by single zone, CAV, packaged DX, rooftop heat pumps with SCR electric heat and modulating hot gas reheat for humidity control.
- The kitchen Type 1 grease hood is to be served by a rooftop 100% outside air makeup air unit with gas preheat and a rooftop grease exhaust fan. The grease exhaust fan system will be VAV; hood controls provided by food service in the hood package.
- The dishmachine will be served by a rooftop dishmachine exhaust fan interlocked with dishmachine controls.
- The kitchen offices will be served by dedicated ductless, split system, DX heat pump. The indoor air handlers will be wall-mounted above the doors, and the condensing units will be located directly above on the roof.
- Electrical, fire protection, and domestic water riser rooms will be heated with wall-mounted electric unit heaters. In some rooms, ventilation may be provided.
- First floors of stairwells will be miscellaneously heated with recessed electric wall heaters. Corridor and exterior door entryways will be heated with ceiling mounted electric heaters.
- The main data room will be served by a wall-mounted, ductless split system air-conditioner. The condensing unit will be located directly above on the roof. Satellite data rooms will be ventilated with inline suspended transfer fans.

N. ELECTRICAL SYSTEM

- Electrical service for the new school will be obtained from a pad-mount transformer fed by Dominion Energy. Service voltage will be 277/480V 3 phase 4 wire. Nominal service size will be 4000A. Surge protective devices (SPD) will be provided for the new electrical service and downstream distribution equipment.
- Emergency power will be derived from an outdoor diesel generator set in a sound attenuated weatherproof enclosure. Nominal size required for the campus is estimated to be 150 kW at 480Y/277 3 phase 4 wire. The standby generator power system will provide emergency power for the emergency lighting, fire pump and communications systems as well as standby power for food service refrigeration equipment and elevator(s).
- Interior lighting will generally consist of specification grade LED lay-in lighting fixtures. Lighting levels in classrooms will be controlled via simple 0-10V dimming, inherent in contemporary LED driver design, and shall provide separate control for teaching wall.
- Exterior lighting will consist of building mounted LED architectural cut-off security fixtures.
- Occupancy sensors for lighting control and energy savings will be used as much as possible. Commons areas such as corridors and exterior lighting will be controlled by the building automation system.
- An addressable fire alarm system will be provided. The system will be a voice-evacuation type utilizing strobes, speakers, and pre-recorded voice messages to notify occupants. The fire alarm system will report automatically to a Central Receiving Station.
- Emergency Responder Radio Coverage will be provided to enhance radio reception for first responders.
- A premises wiring system, including fiber optic backbone with CAT 6 copper drops, will be provided as part of the construction contract. This will include a conduit and/or cable tray system for support of IT technology.
- Cable tray system shall be for the sole low voltage wiring for IT, security, CCTV, and school intercom system. Cable tray shall be aluminum center rail type tray.
- Conduit pathway shall be provided within instructional spaces to support multi-media applications between the instructor's station, display equipment and in-classroom sound reinforcement. Those multi-media systems are to be FFE items.
- A two-way school intercom system shall be provided for calls to instructional areas and for general paging through the building. Call-back buttons shall be provided in classrooms and selected locations. Administration phone handsets shall be provided announcements at the main reception desk, principal's office, and the guidance reception desk.
- Security systems will consist of building access control and intrusion detection systems (burglar). These systems will be included as part of the construction contract.
- Video surveillance system will be provided by ACPS as an FFE item. The premises wiring system will provide wiring for the CCTV via POE (power over Ethernet) cabling.
- Sound reinforcement systems will be provided in the gymnasium and cafeteria.