

Re: TBI De'Greun Frazier Crime Lab Addition and Renovation – Project Summary
SBC No.: 000-01-2019
Commission No. 237065

PROJECT PROGRAM SUMMARY

Project Introduction

The Special Agent De'Greun Reshun Frazier TBI Crime Lab & Regional Headquarters is a 46,513 square foot (sf) regional consolidated facility, located at 350 Smith Lane in Jackson, TN. The facility allows for efficient services to law enforcement agencies in the 21 counties the Tennessee Bureau of Investigation (TBI) serves in West Tennessee. The single-story structure includes five laboratory units: Firearms, including a test range and projectile recovery tank, Drug Chemistry, Toxicology/Blood Alcohol, Forensic Biology, and CODIS which supports the processing of DNA samples that are part of a federal database. The facility also includes offices and work rooms for the field investigations team in Jackson, a training room, and on-site evidence processing and storage that serves TBI and other local law enforcement agencies.

This project will require approximately 2,500 sf of renovation and 3,500 sf of new addition to the existing facility. New and renovated space to include expanded DNA processing lab and new office suite. Along with the building addition, the parking lot layout will be modified and expanded to accommodate larger investigatory vehicles and to improve access to the current impound lot. Phasing may be required to ensure continuous facility operation.

Architectural Summary

The addition and renovation will include the expansion of offices and conference rooms and replacement of lab benches, fume hoods, and other laboratory equipment for approximately 4,504 SF of the forensic biology space. The addition will include expanding the building envelope, with exterior materials designed to match the existing building's corrugated and flat metal panels. Offices and conference rooms will follow STREAM Workspace Standards and other associated guidelines. Laboratory spaces will include gowning and de-gowning rooms and forensic biology laboratories. Removing and replacing lab benches, fume hoods, and eye wash/emergency showers are included in the project scope along with associated building system upgrades.

Structural Summary

Structure for the one-story addition is anticipated to be steel framed with 1-1/2" type B (galvanized) metal deck supported by steel joists at 6'-0" on center (maximum spacing), steel wide flange girders, and steel wide flange columns. The facility appears to be in Seismic Design Category "D;" therefore, lateral resistance will be provided by Steel Special Moment Frames. Foundations are anticipated to be shallow spread and strip footings pending results from a geotechnical survey. The floor slab is anticipated to be 4" slab on grade reinforced with 6x6-W2.9xW2.9 WWF over 15 mil vapor barrier and 4" compacted drainage fill. The floor slab will turn down atop a strip footing along the perimeter of the addition. Slab on grade control joints will be cut along a grid pattern not to exceed 12'-0" on center.

Civil Summary

Site improvements associated with the proposed addition include the following: parking expansion and relocation, concrete curbs, asphalt parking and drives with concrete sidewalks, site fencing, utility relocation, grading, and stormwater management areas. The existing facility has 139 parking spaces on campus and incorporates various uses including an impound lot and oversized vehicle parking. The proposed layout has 203 parking spaces. Two cantilever sliding gates on each end of the impound lot will be added and each gate shall be motorized and lockable. The existing irrigation system will require some modifications due to the building and parking expansion.

Mechanical Summary

The facility is currently served by two 100% outside air AHUs supported by two air cooled chillers and two condensing hot water boilers. The specific lab areas to be renovated are located at or near the open office spaces on the plan south side. This open lab area is served similarly to the surrounding lab spaces with air valves and exhaust valves. This was designed for anticipation of a need to convert it to lab spaces.

A VRF System like the open office area mechanical system in the plan West portion of the building is needed. The open cubicle area shall be served by two new concealed VRF fan coil units. The VRF system shall be of the heat recovery type, approximately 10 tons. The proposed lab spaces will be served by new supply and exhaust air valves. The supply main from AHU-1 shall be upsized from the open office area to the new lab area to accommodate the increase in air flow. Sash sensors are to be provided for each hood to control exhaust and maintain recommended face velocities at the sashes. Air valves shall connect to the new upsized main. New diffusers and grilles shall match existing. Air pressure monitors are required at Gown and Extractions doorways. Hot water piping from the existing open lab area to the new lab addition will need to be extended and upsized.

Electrical Summary

The entire facility's electrical system has been operating for less than two years and the equipment is in a like-new condition. Normal power is served from an existing 2500 Amp, 480/277 Volt, 3-phase Main Switchboard 'MSB'. A 1000kW standby diesel generator located in the parking lot provides backup power to emergency & life safety systems, main chillers, and select critical loads throughout the facility. The genset 3,400-gallon fuel tank provides approximately 48hrs of runtime at full load. An automatic throwover transfer switch in the MSB seamlessly transfers from normal to standby generator power after a utility power loss event.

New branch circuits will be required for lab equipment, ventilation hoods, lighting, and exit signage from the nearest panel. Existing circuits should be extended, and new branch circuits provided for HVAC system components replaced with VRF fan coil units. Provide new local disconnects, branch circuit wiring and raceways, and the integration of controls will need to be provided with the anticipated 208V/1ph power feeds.

The existing security camera system shall be extended to adequately cover the expanded parking areas. Cameras will be mounted to site light poles, like the existing installation.

Technology Summary

In coordination with the State of Tennessee's technology vendor, the design team will prepare drawings and specification for the low voltage systems that require State of Tennessee interface. Electrical engineering drawings will provide back boxes and pathways (conduit) to provide systems device location intent.

J Hooks will be provided throughout for wire management. Each individual voice/data outlet will include an outlet box with 3/4" conduit stubbed out of the wall to structure or above ceiling. Where multiple outlets are served (furniture groupings) a 1 1/4" C shall be provided to the location nearest the furniture system wire management distribution. The outlet box and conduit up to above the ceiling will be roughed in for data connections as directed by the Owner.

The security system will be expanded as needed, including card readers, keypads, and magnetic door contacts. Access cards will be compatible with the existing TBI facilities.

Plumbing Summary

Existing domestic cold and hot water mains should be extended for new plumbing fixture connections. The new roof will include both roof drains and overflow drains. Primary drains to be routed under-slab and connected to nearest main. Secondary drains shall be routed to an exterior wall and spill to grade.

Fire Protection Summary

The new addition shall be fully sprinklered per NFPA 13. The existing 2-1/2" fire main shall be extended to the new construction area. New heads shall be fully coordinated with the ceiling design, including diffusers and lighting.