



## **Richmond WWTP Administration Building** 1400 Brander Street, Richmond, VA 23224

### **Project Narrative**

#### [Purpose of the project](#)

Provide the City of Richmond Wastewater Treatment Plant with a new Administration Building that is safe, efficient, and resilient while meeting requirements for public perception and branding.

#### [Project Background](#)

As the plant's facilities have expanded over the years to address the growing demand, the administration building has remained unchanged since it entered operations. Several alterations have been done to solve localized needs, but the building is undersized and does not functionally address the current needs.

A study was conducted to determine if it was feasible to remodel the existing building, make it accessible and include the spaces needed to address the public outreach the plant is looking for in the coming years; concluded that it was more economical to build a new administration building.

Through a series of interviews and workshops, key City stakeholders contributed to the development of the new Administration Building's preliminary design and functional program which was developed further to create the building submitted for approval.

#### [Project Budget and Funding Sources](#)

\$27,350,000 funded from DPU Wastewater Utility CIP

#### [Construction Program Estimated Construction Start Date](#)

[To be provided by DPU]

## Description of the work

The new administration building will be a three-story building located within the campus of the City of Richmond Wastewater Treatment Plant on an open area available north of the existing administration building.

The Richmond Wastewater Treatment Plant is located on the west bank of the James River and south of downtown. The Plant was opened in 1958, and over the years several new buildings have been added, upgraded, or updated to respond to growing demand or environmental regulations.

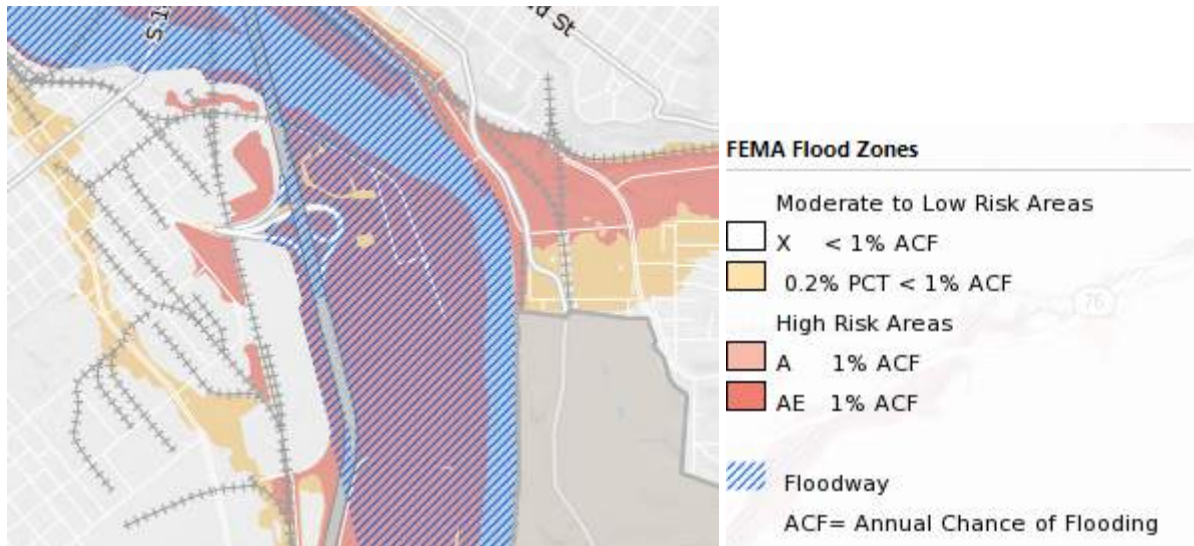






The site of the new Administration building is surrounded by process facilities consisting of both tanks or buildings. Almost all the building present in the plant are square brick boxes that vary in size depending on the process or equipment they house. The tanks are either circular or rectangular, above grade or buried.

Given its proximity to the James River the plant is at high risk of flooding and according to FEMA (Federal Emergency Management Agency) it falls under the river's floodway, and it is located within the 1% chance of annual flood zone.



FEMA recently raised the flood levels for the city of Richmond in general which puts the new building in a high risk of flooding. To minimize damage to the installations and interruption of operations, the building is raised one story above grade and the parking spaces are located underneath on the first floor.

### Building Layout Description

The new Administration Building will be a three stories office building with the parking spaces, building entrance lobby and exit stairs discharge are located on the ground floor; private and open offices,

conference room, and employee's break room located on the second floor and the remainder of the needed private and open offices, and the map room located on the third floor. The HVAC air handling unit and the photovoltaic solar panels are located on the roof of the building.

The three stories are interconnected by a hydraulic elevator and two emergency exit stairs located on opposite corners of the building provide safe access to grade.

### Architectural Language

In contrast to the brick box looking buildings predominant in the plant, the new Administration Building will be a light and open metal panel clad building, that projects a fresh image that breaks away from the 1950's architecture language present across the facility.

Ample floor to ceiling ribbon windows provide opportunities for day lighting, panoramic views of the facility on the four cardinal directions and gives a transparency and light weight feeling to what would have been another brick box with punched windows in the campus if the same existing language had been used.

### Heating and Cooling Systems

One outdoor air-handler rooftop unit (RTU) shall provide heating, ventilation, and air conditioning to the Administration Building. The unit shall be a variable air volume (VAV), packaged unit with electric heating and direct expansion (DX) cooling. The ventilation system shall be provided with VAV terminal units with electric reheat to offer occupant comfort in all areas. Minimum ventilation rates and demand control ventilation (DCV) shall be provided in accordance with the 2018 Virginia Mechanical and Energy Codes as part of occupancy sensor system for lighting controls. Restrooms and janitors' closets will be provided with dedicated continuous exhaust ventilation according to Code. Normally unoccupied areas will be provided with radiant heating only. All HVAC equipment efficiencies shall be better than ASHRAE 90.1 minimum reported efficiencies and Energy Conservation Code. Preliminary calculations indicate that a 30-Ton RTU will be required to serve the building.

### Fire Protection system summary:

The Administration Building will be provided with a sprinkler system. The sprinkler system will be dry type for the unheated garage and wet type for heated floors.

### Plumbing system summary:

Potable cold water will be provided for the Administration Building from an extension of the 8-inch site potable water main loop. The building's water service will be a 2-inch line extended from the 6-inch combined service line for domestic and fire protection systems. The water service complete with a water meter and reduced pressure zone backflow preventer will provide distribution of water to plumbing fixtures, water heater, hose bibbs and equipment requiring water via mains and risers. The water service will be extended to all Toilet Rooms, Service Rooms, Kitchens, and wall hydrants. The existing water pressure is sufficient to provide the required minimum pressure at the top of the Administration Building.

### Electrical system

The new Administration Building will be supplied from the same switchgear that is currently feeding the existing administration building. This supply has enough capacity to attend the needs of the new electrical distribution system for lighting and power for the building. The distribution system will consist of a 480V distribution panel and a 80KW photovoltaic system that feeds back into the system. The photovoltaic panels will be located on the roof of the building. The almost east-west building's orientation facilitates the optimum use of the panels year round.

<b>Attachments</b>	<b>Title</b>
<b>A</b>	Site Plan
<b>B</b>	Floor Plans
<b>C</b>	Building Elevations
<b>D</b>	Landscaping Plan
<b>E</b>	Site Lighting Plan and Specification
<b>F</b>	Exterior Materials
<b>G</b>	Interior Materials