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Petition No. 1540
ReNew Developers, LLC
234 Riverside Avenue
Bristol, Connecticut
Staff Report
December 2, 2022

Introduction

On September 21, 2022, the Connecticut Siting Council (Council) received a petition from ReNew Developers, LLC (ReNew) for a declaratory ruling, pursuant to Connecticut General Statutes (CGS) §4-176 and §16-50k, for the installation of a customer-side 4.0 megawatt (MW) fuel cell facility and associated equipment to be constructed concurrently with a data center (Connecticut Data Park) at 234 Riverside Avenue in Bristol, Connecticut (Petition or Project).

On September 1, 2022, ReNew met with City of Bristol (City) officials to discuss the project. On September 21, 2022, ReNew provided notice of the Petition to abutting property owners, City officials and required state agencies and officials. No comments were received.

On September 23, 2022, the Council sent correspondence to the City stating that the Council has received the Petition and invited the municipality to contact the Council with any questions or comments by October 21, 2022. No comments were received.

Also on September 23, 2022, pursuant to Regulations of Connecticut State Agencies (RCSA) §16-50j-40, the Council notified all state agencies listed therein, requesting comments regarding the proposed Project be submitted to the Council by October 21, 2022. The Council on Environmental Quality[1] submitted comments on September 28, 2022 related to wetlands and education of construction personnel.

While the Council is obligated to consult with and solicit comments from state agencies by statute, the Council is not required to abide by the comments from state agencies.[2]

The Council issued interrogatories to ReNew on October 18, 2022. ReNew provided responses to the Council's interrogatories on November 2, 2022.

Pursuant to CGS §4-176(e) of the Uniform Administrative Procedure Act, an administrative agency is required to take action on a petition within 60 days of receipt. On September 15, 2022, pursuant to CGS §4- 176(e), the Council voted to set the date by which to render a decision on the Petition as no later than March 20, 2023, which is the 180-day statutory deadline for a final decision under CGS §4-176(i).

[1] Council on Environmental Quality Comments, 09/28/22
[2] *Corcoran v. Connecticut Siting Council*, 284 Conn. 455 (2007)

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Public Benefit

The Project would be a "customer-side distributed resources" facility, as defined in CGS § 16-1(a)(49). CGS § 16a-35k establishes the State's energy policy, including the goal to "develop and utilize renewable energy resources…to the maximum practicable extent." The proposed facility is a distributed generation resource and will contribute to fulfilling the State's Renewable Portfolio Standard as a low emission Class I renewable energy source. The facility would be installed, maintained and operated by Bloom Energy (Bloom) under a 25-year contract with ReNew.

The Project is not proposed to be undertaken by state departments, institutions or agencies, and is not to be funded in whole or in part by the state through any contract or grant. Neither Bloom nor ReNew participated in any state or utility-sponsored renewable energy procurement programs for the Project. It is a privately funded Project.

Project Site

The proposed facility is to be located on a 1.62-acre commercial parcel in the City's Business District. It is part of a remediated brownfield that was formerly used as an automobile sales and repair center. The host parcel currently supports a 9,926 square foot building (vacant) and a paved parking area and is bordered by Riverside Avenue to the north, East Street to the east and the Pequabuck River to the south. The fuel cell facility would be installed in the northeastern part of the parcel east of the data center building and west of East Street. The existing building would be removed.

The surrounding area consists of mostly commercial development and the Pequabuck River immediately to the south. Memorial Boulevard and Memorial Boulevard Park are located to the south beyond the Pequabuck River. The nearest residential property line from the proposed facility is approximately 450 feet to the south.

Proposed Project

The facility would consist of ten 325-kW and three 250-kW Bloom Energy ES-5 solid oxide fuel cell Energy Servers and associated equipment, including water deionizers, telemetry cabinets, disconnect switches, two step-up transformers and utility cabinets. The energy servers comprising the fuel cell facility would be installed on individual prefabricated concrete pads in a two-row linear arrangement within the approximately 82-foot long by 115-foot wide gravel surfaced compound. The height of the energy servers would not exceed 7.5 feet.

The facility would be installed within a 9,423 square foot (.22 acres) area enclosed by an 8-foot tall chain link fence to the east of the proposed data center (see Figure 2 Site Overview). The limits of disturbance would be about 19,580 square feet (0.45 acres). Access to the facility would extend from East Street via a proposed gravel drive located at the southeastern corner of the property. Two 6-foot wide double swing access gates would be installed at the northwestern and southwestern ends of the compound.

The natural gas interconnection would extend underground from a proposed gas meter on a concrete pad to a gas main located on East Street. Electrical utility connections would extend underground to a newly proposed utility pole east of the facility on East Street. A water connection would extend underground from a water service box to a water main also located on East Street.

The proposed facility would be a customer-side, distributed resources project, designed only to provide electricity. The proposed facility would operate in parallel with the utility grid and provide about 99 percent of the data center's base load. Capacity from the fuel cell facility would be used to provide uninterrupted

power to the data center. The facility would not operate as an emergency generating device or as part of a demand response program. ReNew proposes to interconnect the fuel cell facility to a new utility pole (#4795S) on East Street for emergency backup power. The interconnection application was submitted to Eversource on February 8, 2022 for review and amended on October 5, 2022.

The proposed Bloom fuel cell units are designed to optimize the electrical efficiency alone rather than operate as combined heat and power units. Heat generated by the proposed facilities is used internally to increase the electrical efficiency of the fuel cells, and consequently there is no useful waste heat generated.

The fuel cell facility would have an operational life of 25 years. The solid oxide fuel cell media would be changed at five-year intervals. At the end of the 25-year contract, ReNew may renew the contract or terminate. If the contract is terminated, the fuel cell units and associated equipment and components, concrete pads, gravel and fencing would be dismantled and removed. All utility connections would be disconnected, and the site would be restored as nearly as practicable to its original condition.

ReNew anticipates construction to start in September of 2023 and would occur over a nine-month period. Construction hours would be Monday-Friday, 7AM – 7 PM and, if required, 9 AM – 6PM on weekends. ReNew intends to commence construction of the data center at the same time as the proposed fuel cell facility.

The estimated cost of the facility is approximately $16,000,000.

Environmental Effects and Mitigation

The fuel cell facility would comply with all applicable DEEP water quality standards as no water would be consumed or discharged once the facility is operational. The proposed fuel cell facility would operate without water discharge under normal operating conditions. Water consumption of about 1,248 gallons would only occur at system start and restart operations.

The ground water classification at the site is designated as GB.[3] Class GB designated uses include industrial process water and cooling waters and base flow for hydraulically connected surface water bodies. The Project would not impact groundwater quality. The site is not located within a Public Water Supply Watershed. The nearest mapped surface waterbody is the Pequabuck River,[4] located approximately 43.2 feet south of the facility.

Air emissions produced during fuel cell operation would not trigger any regulatory thresholds and are shown below.

Fuel Cell Facility	
Compound	lbs/MWh
NOx	0.01
CO_2*	679-833

*DEEP amended its regulations in 2016 to eliminate the CO2 permit requirements from the New Source Review and Title V Programs as a result of a United States Supreme Court decision that overturned states' regulatory CO2 permit requirements (*Utility Air Regulatory Group v. U.S. Environmental Protection Agency*, 573 U.S. 302 (2014)

[3] According to DEEP classifications, groundwater within the area must be treated before consumption.
[4] DEEP classifies the Pequabuck River as a Class B water body with designated uses that include habitat for fish and other aquatic life and wildlife; recreation; navigation; and water supply for industry and agriculture.

The proposed facility would emit no methane (CH_4), sulfur hexafluoride (SF_6), hydrofluorocarbons (HFCs) or perfluorocarbons (PFCs), which are greenhouse gases defined in RCSA §22a-174-1(49), and would emit negligible amounts of sulfur oxides, volatile organic compounds and particulate matter.

The fuel cell desulfurization system would remove sulfur that is used as an odorant in natural gas because it is a fuel cell system contaminant. Sulfur compounds would be collected within a desulfurization unit (desulf unit) using a filter media – a composite copper catalyst. The U.S. Department of Transportation has certified the desulf unit as an acceptable form of transport for the desulfurization material that meets hazardous waste shipment standards. When a desulf unit is taken out of service, it is transported by a Bloom contractor to an out of state facility where the composite copper catalyst within the unit is removed, and the copper is used for other products. The empty desulf units are the refurbished for reuse at other Bloom fuel cell locations.

No trees would be removed to construct the facility. Visual impact from the proposed Project would be minimal. Views of the facility would be limited to the immediate vicinity from Riverside Avenue to the north and East Street to the east of the site parcel. Views of the facility from the west would be screened by the data center building and by existing trees and vegetation from the south. Most views from Memorial Boulevard and Memorial Boulevard Park would be screened by existing mature vegetation. A landscaping plan would be developed for the data center building and would include the fuel cell facility.

The proposed site is not located within a DEEP-designated Aquifer Protection Area. No wetlands, forest or prime farmland soils would be disturbed by the proposed Project. Erosion and sedimentation controls for the proposed facility would comply with the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control*.

The nearest wetland is the Pequabuck River. The closest construction activity to the river would be the replacement of the existing pavement with a pervious gravel surface. Invasive species identified along the forested edges of the Pequabuck River indicate signs of previous disturbance. ReNew would implement a Resource Protection Plan that includes contractor education for wetlands, wildlife habitats and species of concern; installation of erosion controls; petroleum materials storage and spill prevention; herbicide, pesticide, and salt restrictions; and reporting.

Development of the proposed Project area is less than one acre and therefore would not require a DEEP General Permit for Discharge of Stormwater and Dewatering Wastewaters for Construction Activities. ReNew would install stormwater management controls in accordance with the *2002 Connecticut Guidelines for Erosion and Sediment Control* and the *2004 Connecticut Stormwater Quality Manual*. ReNew would also locate its soil stockpile in the northeastern corner of the host parcel and install a grass lined buffer between the river and the Project area.

The site is not within a Federal Emergency Management Agency-designated flood zone. The site is not located within a DEEP Natural Diversity Database buffer area. A United States Fish and Wildlife Services determination letter dated July 19, 2022, indicates that there are no critical habitats located within the Project area.

The site is previously disturbed and not expected to impact cultural resources. An Archeological Assessment identified Bristol High School located about 1,164.6 feet (0.22 miles) southwest of the proposed facility as the nearest property listed on the National Register of Historic Places.

Public Safety

Before commissioning the proposed facility, Bloom would use nitrogen as pipe cleaning media in accordance with Public Act 11-101, An Act Adopting Certain Safety Recommendations of the Thomas Commission.

The fuel cell facility has internal and remote 24/7 operational monitoring. Abnormal operation would cause the facility to automatically shut down. The facility can also be shut down through a remote operations center as well as manually. The fuel cell facility is designed in accordance with American National Standards Institute and Canadian Standards Association (ANSI/CSA) America FC 1-2004 and the National Fire Protection Association, Inc. Standard 853 for stationary fuel cell power systems and includes extensive safety control systems, including both automatic and manual shutdown mechanisms that comply with pertinent engineering standards.

The facility would be enclosed by an 8-foot tall chain link fence with anti-climb features and both gates would be locked with padlocks. Access would be restricted to authorized personnel only. An emergency response plan (ERP) for the facility is included within the Petition. ReNew would submit the ERP to the Bristol Fire Marshal and would provide on-site training to local officials. The fuel cells are tamper proof and can only be accessed by essential personnel with a unique access key. Site lighting would be used at night for security purposes.

The fuel cell system is controlled electronically and has internal sensors that continuously measure system operation. If safety circuits detect a condition outside normal operating parameters, the fuel supply is stopped, and individual system components are automatically shut down. In addition, manual emergency shut down push buttons would be located at the site.

Noise associated with the construction of this Project would be temporary and exempt from DEEP Noise Control Regulations. Operation of the facility is expected to produce noise emissions no greater than 55 dBA at the property boundaries and no greater than 42 dBA at the nearest residential receptor located approximately 450 feet to the south of the site and would comply with DEEP Noise Control Regulations. The fuel cells would have a noise dampening foam material at the doors and exhaust of the fuel cell to lower its noise emissions by up to 5 dBA.

Conclusion

The Project is a distributed energy resource with a capacity of not more than sixty-five megawatts, meets air and water quality standards of the DEEP, and would not have a substantial adverse environmental effect. It would reduce the emission of air pollutants that contribute to smog and acid rain, and to a lesser extent, global climate change, and furthers the State's energy policy by developing and utilizing renewable energy resources and distributed energy resources.

If approved, staff recommends the following conditions:

1. Approval of any Project changes be delegated to Council staff;
2. Provide contact information for the spill response contractor prior to the commencement of construction including the phone numbers for the City and other agencies listed in the Petroleum Materials Storage and Spill Prevention section of the Resources Protection Plan;
3. Provide a copy of the Fuel Cell Emergency Response Plan to local emergency responders prior to facility operation, and provide emergency response training; and
4. Comply with the state ban on the use of Class B firefighting foam containing perfluoroalkyl or polyfluoroalkyl substances (PFAS) under Public Act 21-191.

Figure 1: Site Location and surrounding features

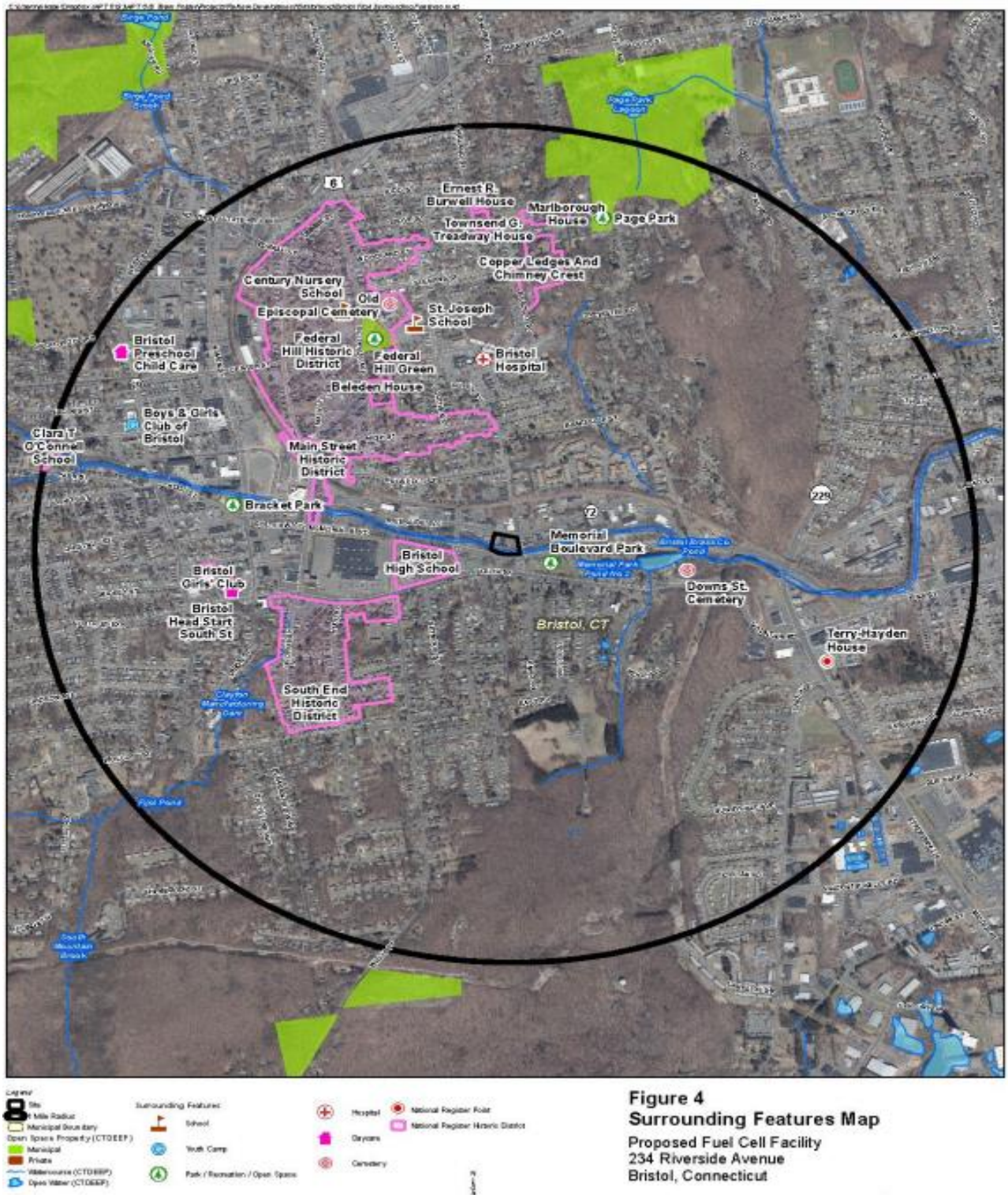

Figure 4
Surrounding Features Map
Proposed Fuel Cell Facility
234 Riverside Avenue
Bristol, Connecticut

Figure 2: Site Overview

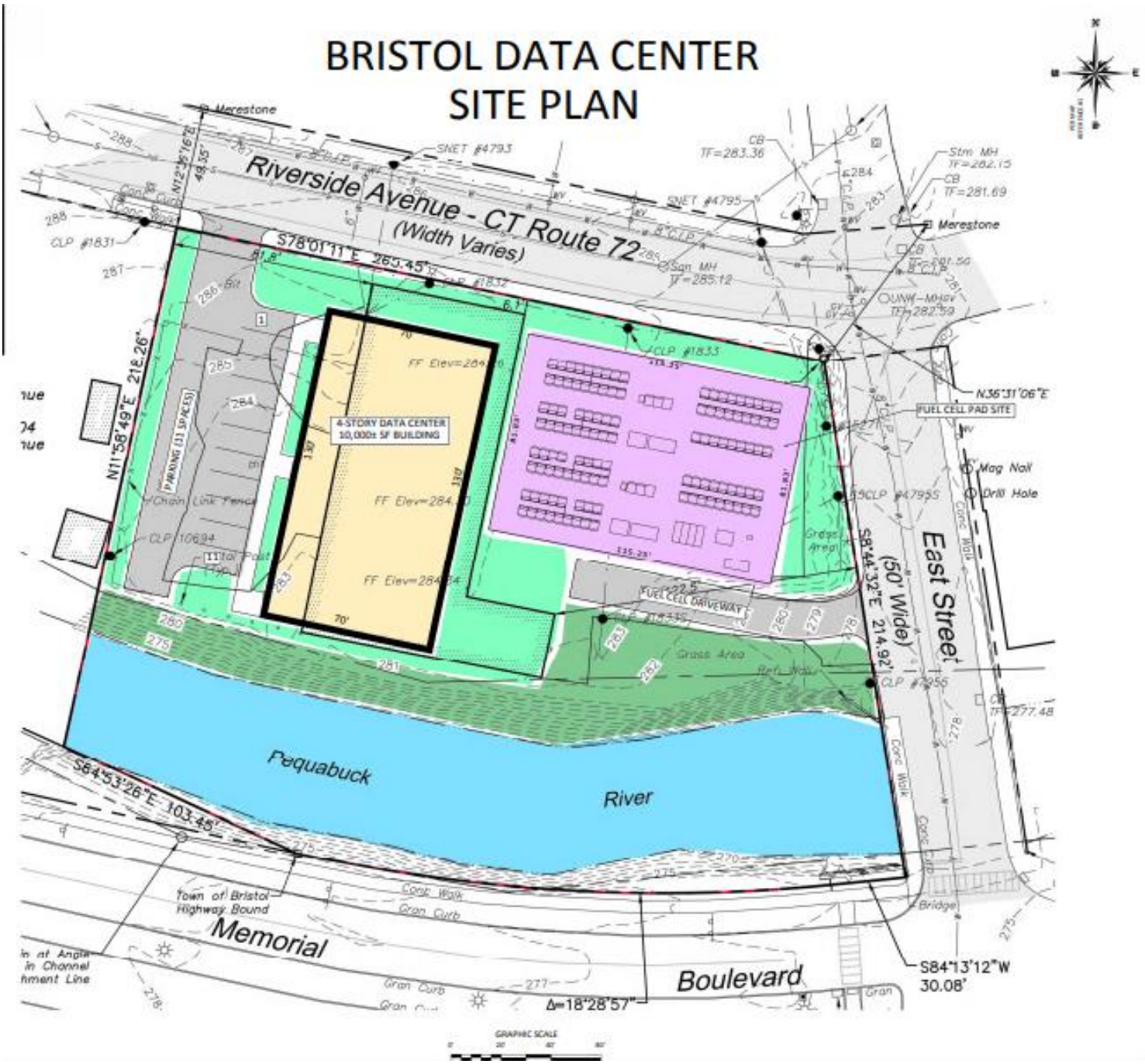

Figure 3: Site Plan

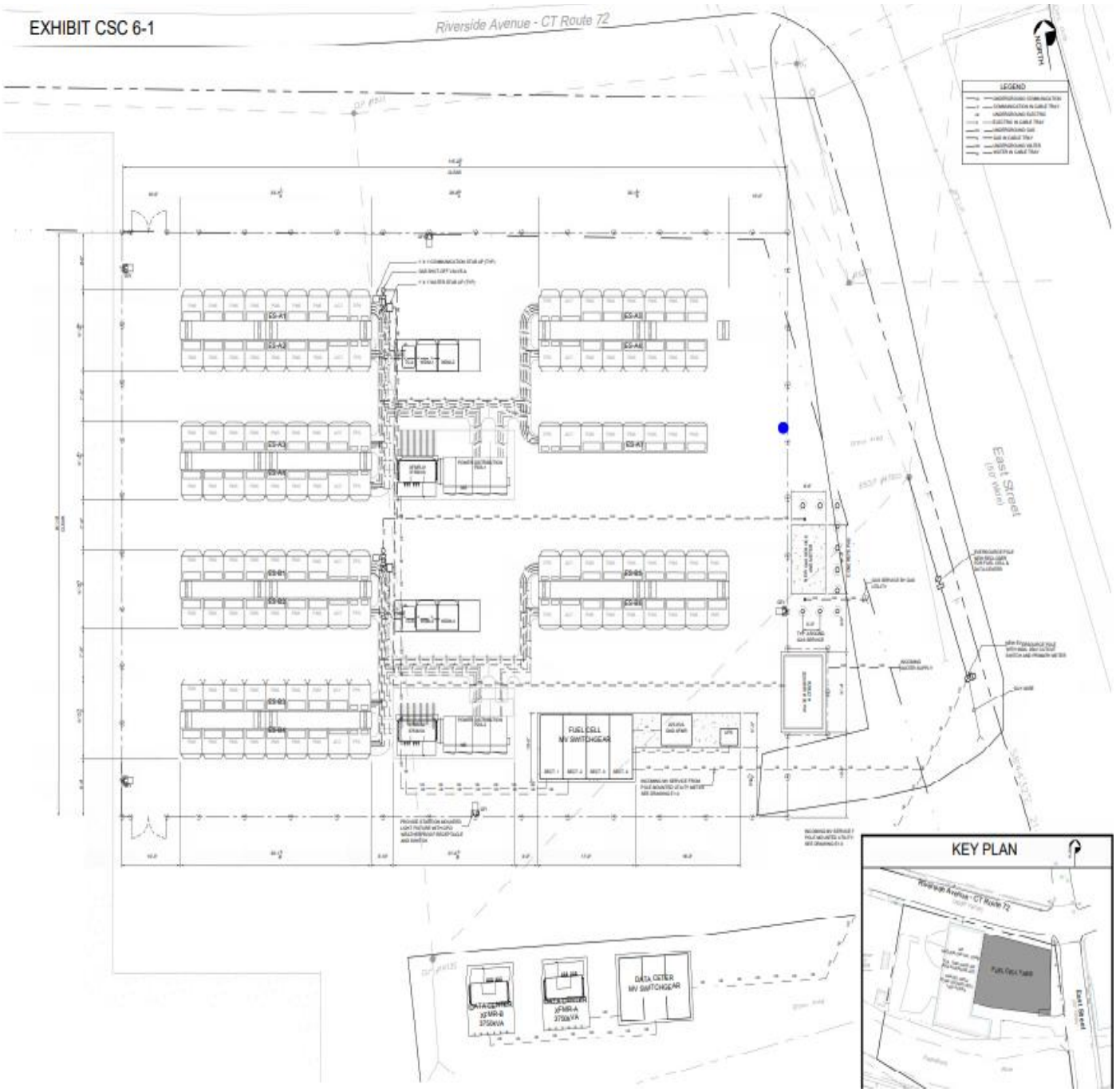

Figure 4: Existing Site Conditions

Figure 5: Proposed Site Conditions

Figure 6: Proposed Conditions