

DRAFT

Petition No. 1533A
Bloom Energy Corporation
42 Old Amston Road, Colchester, Connecticut

Staff Report
November 3, 2023

Introduction

Petition 1533

On July 29, 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 4.99 megawatt (MW) fuel cell facility and associated equipment to be constructed concurrently with a data center (Connecticut Data Park) at 42 Old Amston Road in Colchester, Connecticut (Petition 1533).

On October 14, 2022, the Council issued a Declaratory Ruling for the 4.99 MW fuel cell facility and associated equipment in Petition 1533. The approved fuel cell facility would provide about 99 percent of Connecticut Data Park's base load.

Construction of the approved fuel cell facility has not yet commenced. Pursuant to Condition No. 12 of the Declaratory Ruling, the deadline for construction is October 14, 2025 unless a written request for an extension is granted.

Petition 1533A

On June 12, 2023, pursuant to CGS §4-181a(b), ReNew submitted a Motion to Reopen and Modify the Council's October 14, 2022 Declaratory Ruling based on changed conditions along with supporting documentation for the proposed installation of an additional 18 MW fuel cell facility and associated equipment to be constructed concurrently with a second data center at 42 Old Amston Road in Colchester (Motion to Reopen). In its Motion to Reopen, if the Council approves the proposed additional facility, ReNew requests the deadline for construction of the approved facility be coextensive with the deadline for construction of the proposed additional facility.

Pursuant to Regulations of Connecticut State Agencies (RCSA) §16-50j-40, on or about June 12, 2023, ReNew provided notice of the Motion to Reopen to the Town of Colchester (Town), Town of Hebron¹ (collectively, the municipalities), abutting property owners and state officials and agencies. No comments were received.

At a public meeting held on July 20, 2023, the Council voted to grant ReNew's Motion to Reopen.

On July 21, 2023, the Council sent correspondence to the municipalities stating that the Council had granted the Motion to Reopen and invited the municipalities to contact the Council with any questions or comments by August 19, 2023. The Town submitted a letter of support for the proposed additional facility to the Council on February 2, 2023. No other comments were received.

¹ The Town of Hebron is located within 2,500 feet of the proposed additional facility site.

Also, on July 21, 2023, pursuant to RCSA §16-50j40, the Council notified all state agencies listed therein, requesting comments regarding the proposed additional facility be submitted to the Council by August 19, 2023.

On July 26, 2023, the Council on Environmental Quality submitted comments on the proposed additional facility related to wetlands, wildlife and stormwater management.²

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.³

The Council submitted interrogatories to ReNew on August 17, 2023. ReNew submitted responses to the Council's interrogatories on September 6, 2023.

Pursuant to CGS §4-176(e) of the Uniform Administrative Procedure Act, an administrative agency is required to take action on a petition for a declaratory ruling within 60 days of receipt. During a regular meeting held on September 14, 2023, pursuant to CGS §4-176(e), the Council voted to set the date by which to render a decision on the reopened petition as no later than January 16, 2024, which is the 180-day statutory deadline for a final decision under CGS §4-176(i).

Public Benefit

The proposed additional facility 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 additional 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.

In addition to the approved facility, Bloom Energy (Bloom) would install, maintain and operate the proposed additional facility under a 25-year contract with ReNew.

The proposed additional facility 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 proposed additional facility. It is a privately funded project.

Proposed Site

Pursuant to CGS §16-50x, the Council has exclusive jurisdiction over the proposed additional fuel cell facility “site.” Under RCSA §16-50j-2a(29), “site” means a contiguous parcel of property with specified boundaries, including, but not limited to, the leased area, right-of-way, access and easements on which a facility and associated equipment is located, shall be located or is proposed to be located. The Council does not have jurisdiction or authority over any portion of the host parcel beyond the boundaries of the “site.” This includes portions of the host parcel retained by the landowner and portions of the host parcel the landowner may lease to third parties. Once a facility is decommissioned, the Council no longer has jurisdiction or authority over the “site.”

The host parcel is located in the Town’s Suburban Zoning District and is a remediated brownfield that was formerly used as an automotive salvage yard. It is comprised of two adjoining/subdivided parcels. The

² https://portal.ct.gov/-/media/CSC/3_Petitions-medialibrary/Petitions_MediaLibrary/MediaPetitionNos1501-1600/PE1533A/ProceduralCorrespondence/PE1533A_CEQCommentsRecd_a.pdf

³ *Corcoran v. Conn. Siting Council*, 284 Conn. 455 (2007).

approved fuel cell facility and the Connecticut Data Park are located within an approximately 0.88-acre site on the 1.15-acre northern parcel. The proposed additional facility and the associated second data center are to be located within an approximately 3.03-acre site on the 16.16-acre southern parcel.

The proposed additional fuel cell facility would be located in the southeastern corner of the southern host parcel. The surrounding area consists of vacant land with residential development to the west and the Air Line State Park Trail to the east. Eversource's Judd Brook Substation and an existing fuel cell facility⁴ are located to the northeast of the proposed additional facility site. The Colchester Dog Park and Town transfer station are located to the north across Old Amston Road. The nearest residential property line from the proposed additional facility site is 18 Old Amston Road, approximately 300 feet to the west.

Proposed Additional Facility and Associated Equipment

The proposed additional facility would consist of forty 325-kW and twenty 250-kW Bloom Energy ES5 solid oxide fuel cell Energy Servers and associated equipment, including water deionizers, telemetry cabinets, disconnect switches, a transformer and utility cabinets.

The fuel cell facility would be installed on individual prefabricated concrete pads within an approximately 125.75-foot long by 347.75-foot wide gravel surfaced compound. The height of the energy servers would not exceed 10 feet.

The facility compound would be enclosed by an 8-foot tall chain link fence, located south of the associated second data center (see Figure 2 Site Plan). The total limits of disturbance would be approximately 3.03 acres. Access to the facility would extend approximately 725 feet south, from Old Amston Road via an existing gravel drive located along the eastern property line to a proposed gravel access road leading up to the northern boundary of the fenced compound.

Six 3000 kVA transformers and other associated electrical equipment would be installed on concrete pads along the western boundary of the proposed access drive. Bollards would be installed to protect this equipment. Two 6-foot wide double swing access gates would be installed at the northeastern and northwestern ends of the facility compound.

The proposed additional facility would not impact gas and water supply to the other two fuel cell facilities. It would be supplied by a new dedicated gas main. The natural gas interconnection would extend underground from a proposed gas meter on a concrete pad to a proposed gas main located about 80-feet east of the additional facility. Electrical utility connections would extend underground along the proposed and existing gravel drive to a new utility pole 500 feet north of the facility on Old Amston Road. This utility pole would be separate from the utility pole referenced in the originally approved 4.99 MW fuel cell facility. ReNew proposes to interconnect the additional fuel cell facility to the existing distribution line on Old Amston Road. A water connection would extend underground from a water service box to an existing water main located about 90-feet east of the additional facility.

The proposed additional 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 second data center's base load. Capacity from the fuel cell facility would be used to provide uninterrupted power to the data center.

⁴ The Council approved Bloom Energy's 10 megawatt fuel cell facility at 160 Old Amston Road in Petition No. 1387.

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 Eversource Energy's (Eversource) circuit at the northeast corner of the host parcel or directly to Eversource's Judd Brook Substation. An interconnection application will be submitted to Eversource if the proposed additional fuel cell facility is approved by the Council. The proposed additional facility will include a Microgrid Islanding Circuit Breaker that would isolate the second data center in the event of an outage or under certain voltage and frequency conditions. The fuel cell facility-enabled microgrid would provide backup power exclusively for the second data center and would not support a community microgrid.

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.

Bloom anticipates construction to start in the fourth quarter of 2024 and would occur over a period of twelve months. Construction days/hours would be Monday-Friday, 7AM – 7 PM. ReNew intends to commence construction of the second data center at the same time as the proposed additional fuel cell facility.

The estimated cost of the facility is \$80,000,000.

Environmental Effects and Mitigation Measures

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 18,000 gallons would only occur at system fill and during restart operations.

The ground water classification at the site is designated as GA/GAA⁵. Class GA/GAA designated uses are for existing private and existing or potential public or private water supplies suitable for drinking without treatment. The nearest mapped surface waterbody is Judd Brook located approximately 195-feet west of the proposed additional facility site⁶.

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

Fuel Cell Facility	
Compound	lbs/MWh
NO _x	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))

⁵ According to DEEP classifications groundwater within the area may be degraded and not meet current standards.

⁶ DEEP classifies Judd Brook as a Class A waterbody with designated uses which include potential drinking water supply, fish and wildlife habitat, recreational use, agricultural and industrial supply and other legitimate uses including navigation.

The proposed additional facility would emit no methane (CH₄), sulfur hexafluoride (SF₆), 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. It would be equipped with carbon capture technology that is capable of reducing carbon dioxide emissions by 95%.

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 then refurbished for reuse at other Bloom fuel cell locations.

Five trees would be removed to construct the additional facility. Approximately 0.1 acre of edge forest clearing would be required. No core forest or forested habitats are located within the site. Visual impact from the proposed additional facility would be minimal. The proposed additional facility would be visible from certain vantage points along Old Amston Road north of the site and the Air Line State Park Trail to the east. Views of the facility from the west and south would be screened by existing trees and vegetation.

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 additional facility would comply with the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control*.

The nearest wetland is a large floodplain system located 33-feet west of the fenced compound and extends west draining into Judd Brook. The northern edge of the wetland shows signs of previous disturbance including two existing drainage swales. A block retaining wall would be installed along the southwestern corner of the site to act as a buffer between the wetlands and the proposed facility. The retaining wall would be approximately 21-feet from the wetland at its nearest point.

The nearest construction activity would be about 1.5-feet from the wetland and would involve temporary impacts such as excavation, grading, dewatering and associated erosion and sedimentation perimeter controls. 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 facility site would disturb more than one acre and therefore, would require a DEEP General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (General Permit). The General Permit requires implementation of a Stormwater Pollution Control Plan to prevent the movement of sediments off construction sites into nearby bodies of water and to address the impacts of stormwater discharges from a project after construction is completed. The General Permit authorizes the discharge of stormwater at a site with a total disturbance of one acre or more of land area. The project entails site disturbance in excess of one acre. A DEEP issued General Permit for Stormwater Management is required prior to commencement of construction. ReNew anticipates that an application for a Stormwater Permit will be submitted six months prior to the commencement of construction.

To account for increased impervious area, ReNew would install a grass-lined stormwater management basin on the western boundary of the fenced compound. The basin would have a low flow orifice with a 12 foot discharge pipe and a rip rap lined overflow weir. Existing grade for the proposed site is 0.5% to 1% sloping east to west. The equipment compound would be graded to direct water to the stormwater management basin. The stormwater management basin would require periodic maintenance to remove accumulated sediment from the basin. The basin would be located 22 feet east of the wetland at its nearest point.

A stormwater analysis comparing pre-developed and post developed stormwater runoff indicates that peak storm runoff (measured in cubic feet per second) would be 27% less for the 2-year and 25-year storm events and 28% and 19% less for the 50-year and 100-year storm events, respectively.

ReNew would also implement a stormwater pollution control plan for the proposed additional facility.

The site is not within a Federal Emergency Management Agency-designated flood zone nor within an Aquifer Protection Area (APA). The 100-year flood zone would be approximately 21 feet from the retaining wall at its closest point. The dewatering area is within the 100-year flood zone.

The site is located within a DEEP Natural Diversity Database buffer area. In a determination letter dated April 11, 2023, DEEP provided recommendations and mitigation measures to protect two state listed species of special concern – the spotted turtle and the wood turtle - which may occur within the proposed site. ReNew would include the DEEP-recommended turtle protection measures in its Resource Protection Plan.

The site is within the range of the northern long-eared bat (NLEB), a federally-listed and state-listed endangered species. There are no known NLEB hibernacula or known maternity roost trees within 0.25 miles and 150-feet, respectively, of the proposed additional facility.

The site is previously disturbed. By letter dated April 25, 2023, the State Historic Preservation Office determined no historic properties will be affected by the proposed additional facility.

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. Nitrogen cylinders would not be stored on the proposed additional facility site.

An emergency response plan for the facility would be submitted to the Town Fire Department. Bloom would provide training to emergency responders related to fire safety at the site.

The fuel cell facility has internal sensors and remote 24/7 operational monitoring. Abnormal operation would cause the facility to automatically shut down. 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.

The facility would be enclosed by an 8-foot tall chain link fence with anti-climb features and the gate would be locked with a Knox padlock. 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 Colchester 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. No lighting would be installed at the facility.

The construction or operation of the proposed facility will not impact or interfere with any existing utilities or infrastructure within the surrounding area.

Noise associated with the construction of the proposed additional facility would be temporary and exempt from DEEP Noise Control Regulations. A noise analysis that accounts for existing ambient noise, including operation of the two existing fuel cell facilities, determined that operation of the facility, together with the two existing fuel cells, is expected to produce noise emissions no greater than 50 dBA at the nearest residential receptor located approximately 300 feet west of the site and comply with DEEP Noise Control Regulations.

Skis Airport in Colchester is located approximately 2.3 miles to the southeast of the site. The proposed additional facility will not impact aviation safety in the area.

Conclusion

The Project is a customer-side 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 granting the request for an extension of the construction deadline for the approved facility to be coextensive with the construction deadline for the proposed additional facility and the following conditions:

1. Approval of any Project changes be delegated to Council staff;
2. Provide final plans for the location of the facility interconnection point prior to the commencement of construction;
3. Implement the Resource Protection Plan;
4. Provide contact information for the spill response contractor prior to the commencement of construction including the phone numbers for the Town and other agencies listed in the Petroleum Materials Storage and Spill Prevention section of the Resources Protection Plan; and
5. Provide a copy of the Fuel Cell Emergency Response Plan to local emergency responders prior to facility operation and provide emergency response training that includes an itemized list of necessary fire suppression equipment.

Figure 1: Fuel Cell Site Location

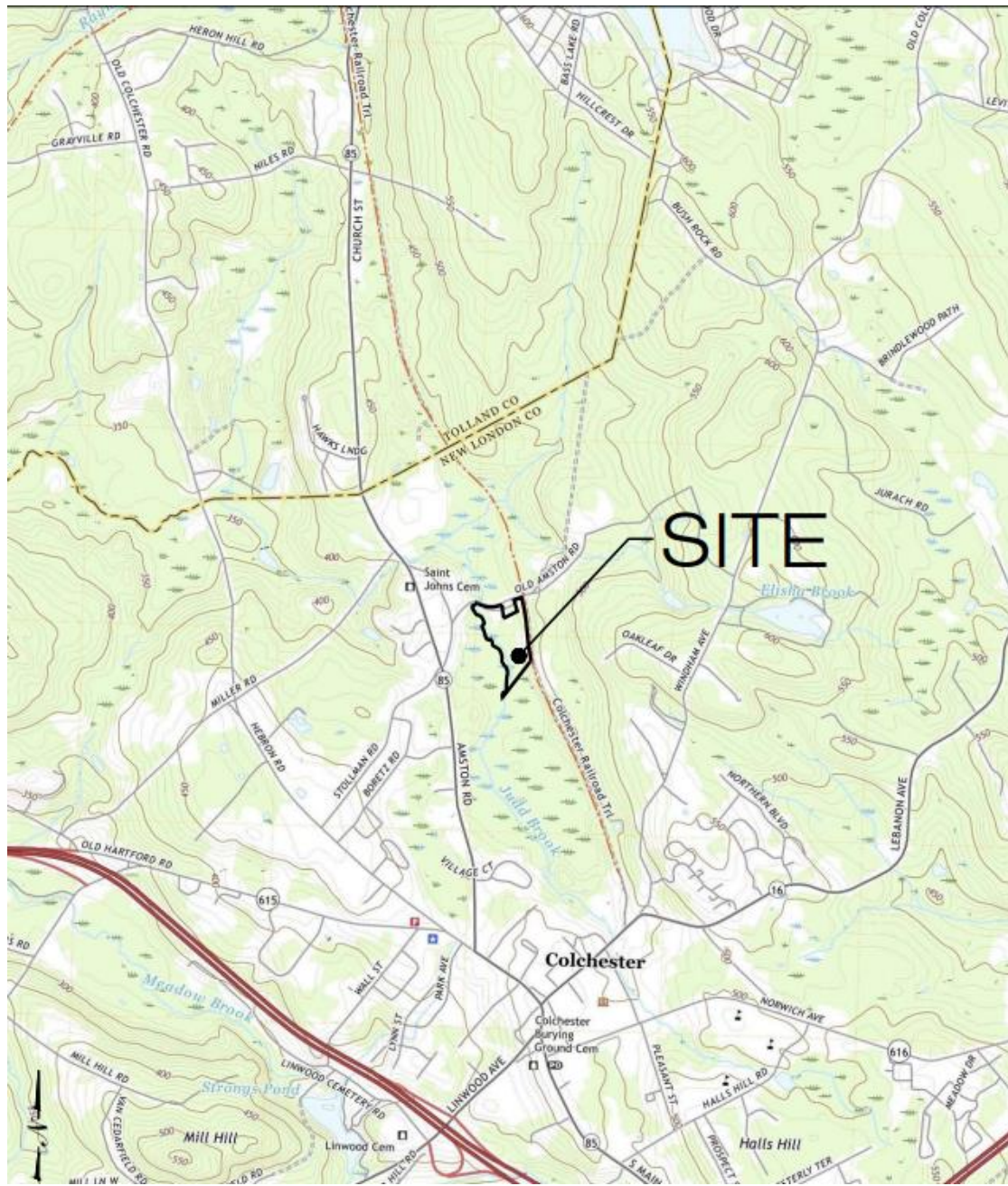


Figure 2: Fuel Cell Site Plan

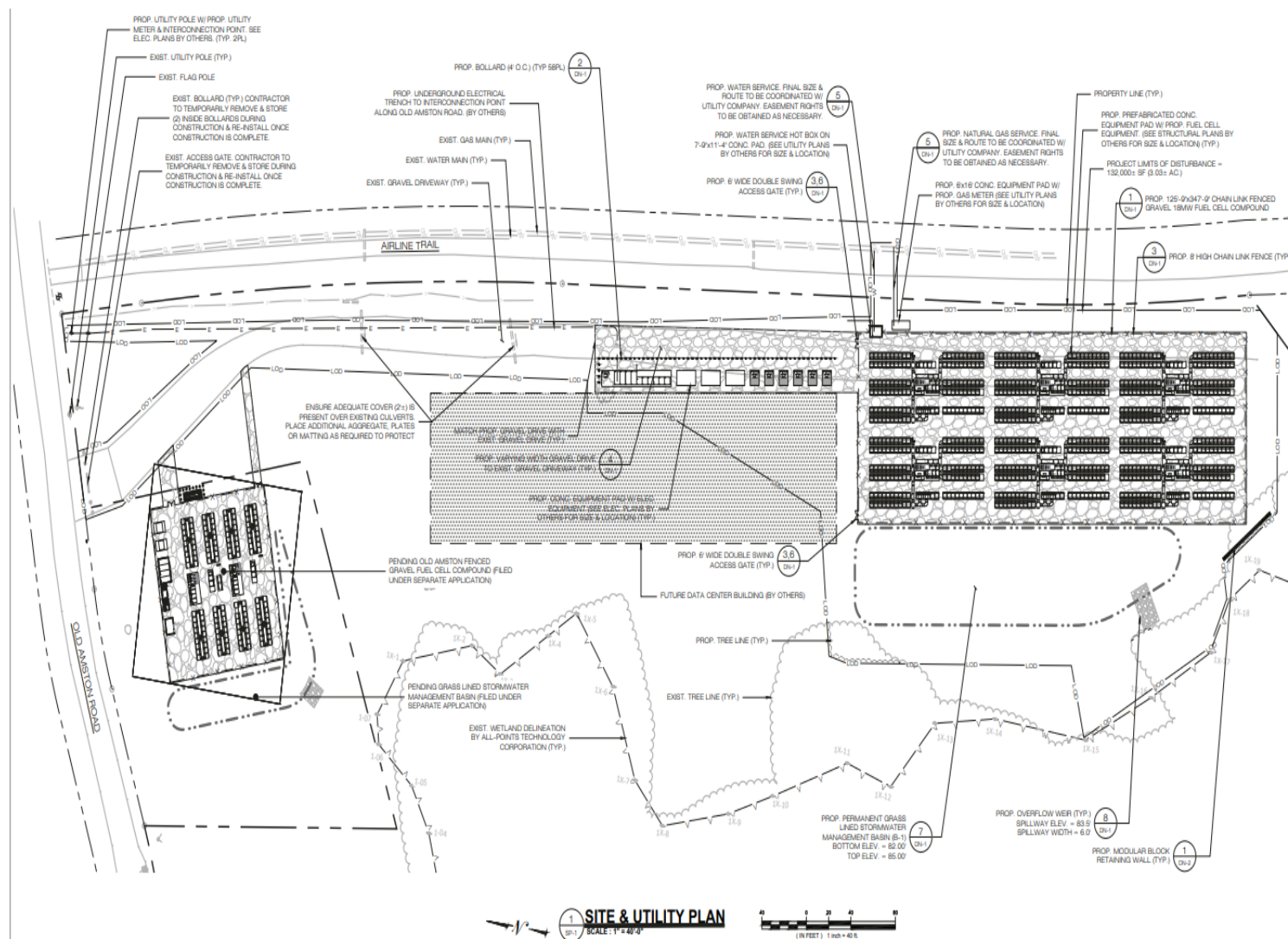


Figure 3: Proposed Conditions

