



August 24, 2022

Ref: 12387.00

Mr. Peter Lowitt  
Land Use Administrator/Director  
Devens Enterprise Commission  
33 Andrews Parkway  
Devens, MA 01434

Re: Design Refinements Commonwealth Fusion Systems, CFS-2  
Level 2 Request to Amend an Approved Plan

Dear Mr. Lowitt,

On behalf of Commonwealth Fusion Systems (CFS), Vanasse Hangen Brustlin, Inc. (VHB) is submitting the accompanying materials to request Level 2 approval to amend the site plans for design refinements to the site and building on the CFS-2 project. We include a completed Level 2 application, certified abutters list, updated stormwater documentation and plan exhibits highlighting the changes for your review.

## Brief Background

The start-up phase of the CFS campus was permitted in early 2021 by two different owner entities on two distinct parcels and is now being constructed concurrently by two different construction teams. The first phase consists of two primary buildings: CFS-1 (a manufacturing building) and CFS-2 (a fusion energy tokamak demonstration building) along with associated shared and separate site improvements consisting of surface parking areas, circulation roads, supporting utilities, and exterior ancillary equipment and amenities.

Unified permitting with the Devens Enterprise Commission (DEC) started while both buildings were at a preliminary design level of completion, and the CFS-2 team made the intentional decision to permit the largest probable building footprint to ensure that the environmental impacts reviewed by the DEC through the Level 2 Permit process would represent a worse case condition.

Design development of the building continued beyond the time the DEC issued the Unified Permit in January 2021. Site clearing, grading and utility work started in late spring of 2021 concurrent with CFS's internal decision to commit to a smaller building footprint and proceed with foundation construction under a limited building permit in the summer of 2021.

101 Walnut Street

PO Box 9151

Watertown, Massachusetts 02471

P 617.924.1770

F 617.924.2286

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For the past year the design team has continued to advance design of the tokamak and all of the highly complex appurtenant supporting systems within and around the building, and these refinements have manifested into inevitable refinements to the site improvements. Since the design team is now at a point where most of the moving parts have stopped moving, we have prepared this application to identify the refinements to the approved project as we know them today at this stage of design and construction.

## Design Refinements

Overall, the building is smaller, and the site improvements were adjusted to match the smaller building footprint. Likewise, the internal and exterior program elements shown on the site plans as placeholders are becoming better defined as to location, number and size.

Please refer to the attached exhibit plans that superimpose the current/refined site plan (black lines) over the permitted site plan (red lines), and provide side-by-side comparisons of the approved and current site designs to note the following:

1. CFS-2 building footprint changes – net reduction in footprint by 3,900 +/- square feet
  - a. North wing reduced by 40 feet
  - b. South wing reduced by 16 feet.
  - c. East wing extended by 8.5 feet
2. Reduction of approximately 3,000 GSF for CFS-2 buildings (181,000 GSF originally permitted, 178,000+/- GSF currently proposed).

Original Level 2 Approvals		
CFS-2	147,000	gsf
CW	3,200	gsf
MG	27,500	gsf
<b>Toal GSF</b>	<b>181,000</b>	

Level 2 Amendment		
CFS-2	145,387	gsf
Switch Enclosure A	806	gsf
MG	27,500	gsf
Pump Building	2,324	gsf
Egen #1	365	gsf
Egen #2	365	gsf
Egen #3	365	gsf
Cylinder Shed	174	gsf
<b>Total GSF</b>	<b>177,286</b>	

3. Reduced pavement in the equipment yard north and west of CFS-2, and reduction in length and height of required site walls.



4. Reduced length of campus loop road (and impervious pavement area) due to alignment adjustment.
5. Motor Generator Building footprint change – 2,540 square feet enlargement. (Note – the motor generator building is not yet finalized. The motor generator equipment has been selected but final design of this ancillary equipment building does not kick-off until Q3 of this year.)
6. Refinement of building main entrance area and relocation of parking area to northeast corner of CFS-2 building. This was a decision made around aesthetics and foot traffic. Positioning the parking north of the main entrance reduces the visual impact and reduces the automobile/pedestrian encounters for visitors and employees walking back and forth between CFS-1 and CFS-2 buildings. Electric vehicle parking/charging stations were added in the parking area. Change of +1 in the number of parking spaces provided.
7. Addition of raised table along CFS-2 frontage, allowing for a better connection between the building entrance and the courtyard. This raised table will also act as a speed deterrent for vehicles driving along the loop road adjacent to the CFS-2 building.
8. Adjustment to islands in the loading area south of CFS-2 (Note – this configuration may change again as we better define our truck maneuvering space needs based on inputs from bulk gas providers.)
9. Equipment Located on west side of the main entrance drive opposite the motor generator building - emergency generators, switch gear, hydrogen tank rack, and gas cylinder shed. This will require an additional retaining wall and a yet to be designed acoustic wall to help with noise mitigation.
10. Rearrangement of equipment, tanks and ancillary buildings within fenced service yard area.
11. Bulk gas storage tanks – there may be as many as twelve 75' tall helium tanks with 3' tall fill and vent piping at the top. Additionally, there will likely be 10 to 15 other tanks of varying but lesser heights.
12. Regrading of meadow area north of development, revised to reflect the actual volume of excess soils to be placed in that area.

Please also note the following:

1. There is a substantial reduction in impervious surface area, which was a goal we discussed with you during permitting for familiar reasons. Approximately 36,000 sf of impervious surface area was reduced from the original Level 2 approval (310,800 sf originally proposed to 274,800 sf currently)
2. There are no material changes in the designed performance of the stormwater collection and management system.
3. No change in the project limit of work.
4. The overall landscape strategy has adapted to the site plan revisions and remained consistent with the original Level 2 approval. Shade trees have been added to the west side of the service area to help mitigate heat island effect.
5. Lighting photometrics plan – site lighting fixtures have necessarily moved around but the revised photometrics plan indicate site lighting levels are similar.



6. An up-to-date utility plan has been included in the application. As expected, underground utilities have shifted around.

## Stormwater Management Revisions

As the building and appurtenant utility support programs were refined, the stormwater management system was revised where necessary to respond to the changes. Overall, the major revisions are limited to:

- Reduction in size of subsurface infiltration system north of CFS-2 – The system was reduced in size in proportion to the reduction in pavement. The system still fully contains the 100-year storm, resulting in no discharge to the Nashua River. This is consistent with the originally approved stormwater system.
- Revisions to rain gardens – We have an overall slight increase. Although we had to eliminate two small islands due to loading and service needs at the south end of CFS-2, only one contained a small lined rain garden. This loss was compensated by increasing the size of RG-1 when we shifted the ancillary parking area to the north face of CFS-2. Revised RG-1 now has a footprint of approximately 2,600 sf, which is an increase in size from the previously approved RG-1 and RG-2 (2,500 sf combined).
- Revisions to perforated roof drain recharge trenches – The size of the roof drain recharge trench in the southeast wing of the CFS-2 building has increased in size from a 15" pipe to an 18" pipe and has increased in length by approximately 20 feet. The recharge trench on the northeast corner of the building maintained size but decreased in length by approximately 20 feet. The northwest recharge trench increased in size from 15" to 24" but decreased in length by approximately 50 feet. Overall, the decreases in length of these recharge trenches were a function of the pavement limits to the north side of the development being drastically pulled in.
- Additional infiltration facility (leaching chamber at southwest building canopy – to manage stormwater coming off the small canopy in the southwest nook of the building, a 1,000 gallon leaching chamber has been introduced.
- WQV TSS Requirements – The WQU units have remained unchanged, still providing the required TSS removal prior to infiltration. Updated stone diaphragm calcs (sediment forebay for RG-1) have been provided. Updated water quality volume calculations have also been provided.

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Please advise if you need any additional information and do not hesitate to contact us if you have any questions. If you think it would be helpful or necessary, we would be happy to meet with you to review and discuss the changes.

Thank you for your consideration.

A handwritten signature in blue ink, appearing to read "C. Quitzau".

Curtis Quitzau, P.E.  
Senior Project Manager

cc: T. Reidy, R. Consalvo