

January 14, 2021

Devens Enterprise Commission
c/o Mr. Neil Angus, AICP CEP, LEED AP
Environmental Planner
33 Andrews Parkway
Devens, MA 01434

RE: Nitsch Project #9419
Commonwealth Fusion (CFS-2)
Site Plan and Stormwater Review
Devens, MA

Dear Mr. Angus:

This letter is regarding the Commonwealth Fusion Systems Campus Building 2, located at 111 Hospital Road in Devens, Massachusetts. In response to our initial letter issued December 7, 2020, Nitsch Engineering has received and reviewed the following revised documents:

1. Site Plans entitled, "Commonwealth Fusion Systems Campus Building 2, 111 Hospital Road, Devens, MA 01434," prepared by VHB, dated 01/06/2021;
2. Memorandum, CFS Building 2, 111 Hospital Road, Devens MA, prepared by HDR, dated December 31, 2020;
3. Memorandum, Commonwealth Fusion (CFS-2), Site Plan and Stormwater Review, prepared by VHB, dated 01/06/2021; and
4. ATV-1 Plan, WB-67 Truck Turn 1, Commonwealth Fusion Systems Campus Building 2, prepared by VHB, dated 11/05/2020.

Nitsch Engineering is providing comments with respect to Site Plan and Stormwater Management in this letter. Please note that traffic and landscape review are being provided in separate letters.

Nitsch Engineering met with you, VHB, and Peter Lowitt via Zoom on December 23, 2020 to review the outstanding comments and discuss strategies to resolve the comments. The notes from this conversation are referenced within this letter for context.

For clarity, we have provided our initial comments from December 7, 2020 in black font, the VHB responses from December 14, 2020 and January 6, 2021 in **red** font, and our updated responses are provided in **black** font.

DEC REGULATORY CONFORMANCE

Based on Nitsch Engineering's review of the submitted documents and the above-referenced regulations, we offer the following comments for consideration:

DEC SITE PLAN REVIEW DESIGN STANDARDS

VHB Response (12/14/2020): Comments 1-4. The provisions of Chapter 2.00 are under the heading "Subdivisions" and would not seem to apply to internal privately maintained drives within a gated site. Nevertheless, we have responded to the comments.

1. **974 CMR 2.07(2), Table 1** provides design standards by roadway classification. It is unclear if the proposed roadways would be classified as internal driveways or local roads. In either case, the pavement width for roadways on the CFS-1 site ranges between 25 and 45.5 feet, which exceeds the design widths for both classifications. Additionally, the pavement widths on the north, west, and south sides of the buildings is significantly higher (100+ feet in some locations). We understand there are

needs for truck access on all side of the building, however the Applicant should provide additional clarity on the truck routes and turning movements to justify the proposed pavement widths. Throughout the site, the Applicant should evaluate the potential to reduce impervious area and meet the appropriate design standards.

VHB Response (12/14/2020): These are internal driveways. The roadway width is shown as 25 feet to accommodate periodic wide load delivery of manufactured magnets between CFS-1 and CFS-2. The expansion of pavement to 45.5 feet at the north end of CFS-2 is to allow for adequate access into the loading area at that end of the building. The pavement area to the south is to allow for adequate access to both CFS-1 and CFS-2 trash and loading areas. The secured area located west of the building is gated secure industrial equipment yard. The pavement in this area allows for fire truck access, maintenance and access to the equipment that will be located on the concrete pads and is necessary for the operations of CFS-2.

VHB Response (01/06/2021): Pavement widths have been reduced at the north loading area, the south loading area, and the loop road (reduced to 24 feet within CFS-2 property).

Nitsch Response (01/14/2021): The revised design addresses the requirement for 24-foot roadways and provides additional measures (i.e., landscaped islands) to better define the roadway limits and circulation patterns. Comment closed.

2. **974 CMR 2.07(1)f** requires water mains to form a continuous loop. In addition to the proposed water loop to serve the CFS-2 building, we note that the CFS-2 project is proposing a 300+ foot water line extension along the eastern project boundary that will be capped for future use.

VHB Response (12/14/2020): In subsequent phases of this project, the water line stubs located to serve future development will be connected and will also form a continuous loop. We do not believe there is any benefit to loop the stubs together for an interim phase at this time.

VHB Response (01/06/2021): Hydrants have been added at the ends of the water line extensions for flushing purposes. Additionally, notes have been added for the gates serving those extensions to be closed until needed for future development.

Nitsch Response (01/14/2021): The revised plans address the initial comment by provided hydrants for flushing. Comment closed.

3. **974 CMR 2.07(3)** requires traffic calming measures to be integrated into roadways. The Applicant should provide traffic calming measures accordingly, including reduced roadway width, raised intersections, signalized/raised crosswalks or speed humps. Given the wide expanses of paved areas around the CFS-2 facility, traffic calming measures along with appropriate striping and signage, will be critical for clear definition of pedestrian, bicycle, and vehicular circulation patterns.

VHB Response (12/14/2020): Vehicular and bicycle circulation around CFS-2 will be minimal. We believe that the sidewalk layout and crosswalk striping as shown is adequate to define the pedestrian circulation between buildings. Given the infrequent vehicular travel between CFS-1 and CFS-2, a raised crosswalk or intersection is not appropriate (nor applicable).

VHB Response (01/06/2021): The applicant will revisit/re-evaluate the need for speed humps and raised crosswalks in future development phases.

Nitsch Response (01/14/2021): As the roadways entering the CFS-2 area are gated, we acknowledge that these will serve to reduce speeds around the development. We concur that traffic calming measures should continue to be evaluated and implemented as the campus continues to be developed. Comment closed.

4. **974 CMR 2.07(3)** requires cement concrete or vertical granite curbing (VGC). The Layout and Materials Plan specifies bituminous berm (BB) in the eastern portion of the site. The Applicant should review and address this requirement.

VHB Response (12/14/2020): Section 3.04(6)(a)2.a says sloped granite curb, vertical granite curb, cement concrete curb and bituminous Cape Cod berm are allowed in all Districts.

Nitsch Response (01/14/2021): Comment closed.

5. **974 CMR 3.04(3)(a)1.h** requires bicycle storage facilities for all developments. The Applicant has requested a waiver from this requirement, noting that bicycle storage parking is provided at the CFS-1 building. We note that there appear to be 15 proposed racks near the northwest corner of the CFS-1 building (Sheet L.100 of the CFS-1 plan set). Additional information is needed to determine if the number of bicycle storage spaces is adequate to serve both buildings.

VHB Response (12/14/2020): Noted. Refer to CFS-1 responses.

Nitsch Response (01/14/2021): Comment closed.

6. **974 CMR 3.04(3)(a)1.d** requires reflective yellow or reflective white paint for parking lot striping. We note that the accessible parking space paint is proposed to be blue per the detail on Sheet C-8.02. A detail should be added for the standard spaces. The striping details should be provided/updated for compliance with the requirements of 974 CMR 3.04(3)(a)1.d.

VHB Response (12/14/2020): Detail will be revised.

VHB Response (01/06/2021): Detail has been revised, please see detail sheet 8.02.

Nitsch Response (01/14/2021): Comment closed.

7. **974 CMR 3.04(4)(g)** requires standard "STOP" at the intersection of driveways with streets and roads. The Applicant should evaluate the intersections of the internal driveways to provide adequate signage for traffic safety.

VHB Response (12/14/2020): Stop signs are unnecessary and will only add visual clutter. Vehicular traffic within the limits of the CFS-2 improvements is minimal. Most activity will be foot traffic between CFS-1 and CFS-2 via the walks provided along the campus green.

VHB Response (01/06/2021): Applicant will revisit/re-evaluate the need for stop signs and other traffic calming measures in future development phases.

Nitsch Response (01/14/2021): We note that "STOP" signs were added at the Hospital Road intersections in the CFS-1 plans. We concur that additional signage and traffic controls may be necessary as the campus expands. Comment closed.

8. **974 CMR 3.04(5)** requires that the Applicant shall obtain a letter from Fire Chief stating there is adequate access for fire equipment. This should be provided to the DEC.

VHB Response (12/14/2020): Noted. We will provide.

VHB Response (01/06/2021): We are meeting with the Fire Chief on Friday 1/8.

Nitsch Response (01/14/2021): Comment closed pending the submittal of the letter to the DEC.

9. **974 CMR 3.04(10)** requires that all proposed developments shall demonstrate that they have made reasonable efforts to consider and implement transportation demand management strategies early in the site planning and layout process. These include providing 5% of total parking spaces for each of the following: ridesharing, hybrid or zero/low-emitting vehicles, and hybrid/electrical vehicle plug-in/recharge stations. Understanding that limited parking is proposed on-site, the Applicant should clarify if designated spaces as noted above will be provided.

VHB Response (12/14/2020): As noted within our application narrative there are no full-time employee workstations within CFS-2. Employees who perform tasks periodically within the building will be stationed in the offices within CFS-1, and parking for these employees (and typically also visitors) has been accounted for in the CFS-1 parking supply. The 24-spaces in the surface lot near the entrance to the building are for convenience at times when employees, visitors, vendors and/or service providers want to, or need to, park at the building. Preferential parking spaces at this location are meaningless from the perspective of TDM; therefore none are proposed.

Nitsch Response (01/14/2021): Understanding the limited staff and visitors to the CFS-2 building, the response is sufficient. We note that CFS-1 has designated spaces for ride sharing and electric vehicles. Comment closed.

10. The existing Spruce Street continues beyond the proposed CFS-2 development in the northeast corner of the project site. The Applicant should clarify the proposed approach to coordinate with the existing road, including the limit of pavement removal and revegetation.

VHB Response (12/14/2020): There are no plans to do anything with the road. We are now aware that DPW may need access to portions of the remnant road for access to utilities and this will be explored further. Demolition of the road will be deferred to future development phases of the campus.

Nitsch Response (01/14/2021): Understood. Comment closed.

11. The project requires significant earth moving including two large mounds in the northern and eastern portions of the project site that are 10-15 feet tall in some locations to accommodate the excess cut on the site. The Applicant should clarify the intended use of these mounds (i.e. passive recreation or other), the timeline for their use with respect to phasing, and evaluate how the scale will be reduced through grading or vegetation.

VHB Response (12/14/2020): Correct, the project involves significant earth moving and we have to maintain all excess soils on site. Both of the areas will be graded out and used for construction staging and logistics, and at the appropriate time will be covered with topsoil from stripping activities, and planted as shown on the landscape plans. While these may appear as mounds, please notice that soils will be placed generally in a large depression, and the final grades are within 3-feet of the grade at the front door of CFS-2. Yes, they may serve as passive recreation.

Nitsch Response (01/14/2021): Understood. The higher portions of these areas are with respect to the rear (northernmost) portion of the site, which will continue to be modified by potential future phases of the project. Comment closed.

12. The construction of modular block retaining wall in a “cut” situation will require over-excavation for the geosynthetic reinforcement. The Applicant should review the required limit of disturbance related to the construction wall to reflect the limit of work on the grading plan. The plans indicate a tree line directly adjacent to the wall; this should be updated as required to reflect the over-excavation.

VHB Response (12/14/2020): Yes, we will review this and adjust the plan as needed.

VHB Response (01/06/2021): At this location it is not likely that a modular block wall be constructed. It will likely be a less intrusive excavation such as a soil nail wall. This wall will be designed by a geotechnical engineer and will be a site-specific design. The geotechnical engineer is aware of the constraints present at this location (impact area and existing utility pole), and the wall will be designed in such a manner that its excavation and construction will not negatively impact these constraints. Earthwork operations will not excavate beyond the erosion control barrier shown on the plans.

Nitsch Response (01/14/2021): The final plans should include details for the revised design of the proposed wall. Comment closed pending inclusion of this information.

13. The soils on-site are noted as loamy sand/sand soils and therefore it will be critical to provide adequate slope stabilization during and immediately following construction. The Applicant should provide additional detail on how the proposed slopes will be stabilized/protected until the slope is fully vegetated (final stabilization).

VHB Response (12/14/2020): The underlying soils are loamy sand/sand soils, but these will be covered with topsoil and hydroseeded. If for any reason more aggressive measures are necessary, contractor will utilize common typical slope stabilization measures such as netting, jute mats, and straw.

Nitsch Response (01/14/2021): These additional stabilization measures and areas of steep slopes should be provided in the Stormwater Pollution Prevention Plan (SWPPP) and identified in the plans supporting the SWPPP. This is especially important for areas that are tributary to the Slope Resource Area, such that no earthwork from the project results in concentrated flow causing erosion within the resource area. Comment closed pending this update and submittal of the SWPPP to the DEC.

14. In multiple locations, the proposed utility stubs provided by the CFS-1 site do not appear to be utilized for the CFS-2 project. These include an underground electrical feed, a sewer service connection, and a water service connection. These utility connections should be coordinated.

VHB Response (12/14/2020): We will review these and coordinate with the CFS-1 team so that there are no inconsistencies.

VHB Response (01/06/2021): Utility stubs have been coordinated between the two developments.

Nitsch Response (01/14/2021): The revised plans appear to be coordinated with the revised CFS-1 plans. Comment closed.

DEC STORMWATER DESIGN STANDARDS

15. **974 CMR 3.04(4)(b)** requires Stormwater Management options shall include green infrastructure and LID techniques, including but not limited to vegetated swales, rain gardens, bio-filtration landscape islands, rainwater harvesting, and pervious pavement, where feasible, to achieve infiltration/capture/reuse of stormwater runoff on-site. The proposed stormwater management design primarily uses a proprietary water quality structures for a large majority of the pretreatment prior to discharging to the underground infiltration system. While we appreciate that there is one rain garden and a sediment forebay, the Applicant should further evaluate incorporating LID techniques throughout the site for pretreatment. We note that there appear to be locations on the site where LID techniques may be appropriate, such as porous pavement on sidewalks or parking stalls, roadside swales, and additional bioretention basins in parking islands. The Applicant should review and address this requirement.

VHB Response (12/14/2020): We have satisfied this requirement by incorporating LID applications and techniques into the site design as is feasible and practicable for this project and this site. CFS-2 has only one parking island, and a bioretention area has been placed there. The industrial use in the secured area located west of the building does not lend itself to LID applications and visible pretreatment such as bioretention.

The building design is still evolving at this stage and for permitting purposes a slightly larger building footprint is being utilized, and as design progresses and additional details are designed and vetted, we may have opportunities to incorporate additional LID features to the extent they make sense and are feasible (from both a budgetary and beneficial site design perspective). Porous pavements and permeable sidewalks on this project, for example, are expensive redundancies – the design already puts all collected storm water in the ground such that there are no surface water discharges, and adding these features does not further reduce stormwater runoff nor provide environmental benefits lacking from the proposed design.

Several locations for infiltration were evaluated during the design process. It was decided that to avoid several additional costly and logistically challenging deep excavations as well as additional earthwork spoils generation on site, it would be most efficient to locate a larger subsurface stormwater footprint at a location that works better with existing grades.

VHB Response (01/06/2021): Additional LID features have been incorporated into to the plans. A bioretention area has been introduced in two newly created islands in the loading area. This bio basin will be lined due to being in proximity to the major trucking route but will reduce impervious area and provide additional pretreatment measures. The three roof leaders coming off the CFS-2 building have been made into perforated pipe recharge trenches, which will introduce water back into the ground at less centralized locations. Additionally, pavement has been reduced to 24 feet wide along the loop road.

Nitsch Response (01/14/2021): The Plans have been updated to include the three (3) perforated pipes and the one (1) bioretention island. The HydroCAD model also includes the perforated pipes. The overflow structure in the bioretention basin is labeled as DCB but looks more like an area drain. The Applicant should confirm. Comment closed.

16. **974 CMR 4.08(2)(c)(vi)** requires all projects shall incorporate LID techniques for stormwater management to the maximum extent feasible. For projects proposing traditional closed drainage systems, the Applicant shall demonstrate to the satisfaction of the DEC why LID stormwater

management design methods are not feasible. The Applicant should review and address this requirement.

VHB Response (12/14/2020): See response to comment 15 above.

Nitsch Response (01/14/2021): Comment closed.

17. **974 CMR 4.08(3)(a)** requires that biofiltration basins shall be the preferred method to reduce curbing, piping and structures and provide additional overland treatment and recharge. They shall be designed in accordance with the Handbook. The majority of the site is curbed with closed drainage, although there appear to be alternatives for reducing the curbing and utilizing adjacent vegetated areas for stormwater management. The Applicant should review and address this requirement.

VHB Response (12/14/2020): See response to comment 15 above.

Nitsch Response (01/14/2021): Comment closed.

18. **974 CMR 4.08(3)(b)** requires the post-development peak rate of stormwater discharge off-site shall not be greater than the pre-development peak rate of stormwater discharge for the 2-, 10-, 2-5, 50-, and 100-year storm events from any point of discharge on the site. The Applicant should provide a comparison summary table for all drainage areas.

VHB Response (12/14/2020): After initial review of the existing conditions topography, soils and cover types, we determined that there is negligible stormwater leaving the site under existing conditions. Therefore, our basis of design is that no water will leave the site. The CFS-2 drainage system has been designed to collect, retain and infiltrate stormwater runoff from all proposed pavement areas, completely mitigating up to and including the 100-year storm on site. Proposed pervious areas within the limit of work that are not draining to proposed stormwater management systems will be returned to a cover type that matches the CN value for existing conditions (see response to comment 19 below). Therefore, it can be reasonably assumed that the peak discharge rates for both the existing conditions and proposed conditions will be zero. A table with 0 cfs discharges for all entries can be added to the stormwater report if requested.

VHB Response (01/06/2021): A comparison table has been provided within a supplemental technical memo.

Nitsch Response (01/14/2021): The comparison table indicates a negligible increase (0.01 CFS) in the peak rate for the 50- and 100-year storm. Comment closed.

STORMWATER DESIGN AND CALCULATIONS

19. The Proposed Drainage Conditions (Figure 2) provides the watershed delineations for the proposed project. However, the extents of the drainage areas do not fully cover the limit of work. The drainage analysis should be updated to include all disturbed areas for the CFS-2 project, including the perimeter areas to the north and west that are proposed for significant earthwork. The HydroCAD model should also be updated as needed.

VHB Response (12/14/2020): The extents of the HydroCAD model cover the areas which will drain to the proposed stormwater management system. Based on reasoning explained in the stormwater report

and below, VHB believes that the modeling extent provided is adequate, and going through the process of modeling the additional requested areas will not provide additional insight worth investigating.

HydroCAD modeling was not included for the earthwork spoils area located to the north of the site because that area will be proposed to be reseeded with meadow mix. Both meadow and good condition woods share a CN value of 30 for areas comprised of HSG A, therefore the volume and rate of runoff from this area in the proposed conditions will not exceed that of the existing conditions.

HydroCAD modeling was not included for the transmission line access area west of the development because the grading and alignment of this section has not been yet approved by the MassDevelopment Utilities Department. VHB has discussed the required access considerations to these poles and believes that a low maintenance meadow mix cover type for this area will be sufficient for their access needs. As with the earthwork spoils area, it is assumed that the proposed conditions runoff will not exceed that of existing with matching CN values. If the final design of this access area deviates from what is shown on the plans and then requires the need for further stormwater design, additional HydroCAD modeling will be provided.

VHB Response (01/06/2021): See revised figures attached to the technical memo also included with this resubmission. Subcatchments have been expanded to include all disturbed areas.

Nitsch Response (01/14/2021): The drainage area map has been revised to include all disturbed areas and included in the Site Plan and Stormwater Review Memo. Comment closed.

20. The proposed condition HydroCAD model did not provided a Routing Diagram or the detailed report for the 10-, 25-, and 50-year storm events. This information should be provided for additional review of the model results.

VHB Response (12/14/2020): A HydroCAD routing diagram and additional detailed reporting will be provided.

VHB Response (01/06/2021): A detailed HydroCAD report is attached to the technical memo.

Nitsch Response (01/14/2021): The routing diagram and detailed report for 10-, 25-, and 50-year storms have been included in the Site Plan and Stormwater Review Memo. Comment closed.

21. In addition to the site stormwater management plan, the CFS-1 and CFS-2 projects provide the relocation of an existing 30" dia. storm drainage pipe that is presumed to extend into the site from Hospital Road. In the CFS-1 application materials, the Applicant has noted that there is limited information about this drainage main and is concerned about the adequacy of the existing system. We concur with the Applicant the Hospital Road drainage system be cleaned, video-inspected, and dye-tested prior to construction to verify if drainage does discharge to the Property, and the limits of the contributing watershed to verify drainage pipe carrying capacity. This analysis may impact the size of the drainage line within the CFS-2 property boundary.

VHB Response (12/14/2020): Noted. CFS-1 and CFS-2 plans will be updated following further research into this existing drain line, confirming the size needed for the relocated drain line.

VHB Response (01/06/2021): In coordination with MassDevelopment Utilities Department, it has been requested that the relocated pipe be 24" RCP. This relocation and analysis will be coordinated with MassDevelopment.

Nitsch Response (01/14/2021): Understood. Comment closed.

22. The invert out of DMH-702 is 4-foot higher than the invert to the structure. This should be reviewed and revised to provide positive drainage.

VHB Response (12/14/2020): Noted. This will be updated.

VHB Response (01/06/2021): Inverts have been revised.

Nitsch Response (01/14/2021): The Plans have been updated. Comment closed.

23. The detail for the proposed subsurface infiltration system indicates that the system will be comprised of StormTrap Double Trap chambers, which are stacked concrete chambers. It is unclear from the detail how this system will promote infiltration, only noting "infiltration opening in interior module only." The Applicant should clarify how this system will function and confirm that the HydroCAD modeling for the infiltration is appropriate for the system (i.e. infiltration footprint matches actual area for infiltration from Double Trap detail).

VHB Response (12/14/2020): The interior concrete chambers will have a 24" diameter opening cast into the chamber bottom which will allow flows through and into the stone base below, which serves as the infiltration footprint. Based on HydroCAD modeling, there will be 78 interior chambers. The flow rate through 78-24" diameter openings exceeds that of infiltration (2.6 cfs of infiltration per HydroCAD), therefore the 24" diameter openings will not be a constraint.

Nitsch Response (01/14/2021): Understood. Comment closed.

24. Roof water from the Motor Gen Building, the south portion of the CFS-2 building, and rain garden overflow do not require pre-treatment but are being treated by WQU-1. This is likely increasing the size of the water quality unit. The Applicant should evaluate alternative locations to infiltrate on-site closer to these sources to better align with the LID design requirements, reduce the size of the subsurface infiltration system, and reduce the size of the water quality unit.

VHB Response (12/14/2020): See response to comment 15.

Nitsch Response (01/14/2021): We note that Comment 15 relates to the additional infiltration measures for other roof drains, but not the Motor Gen Building. However, we understand that there are limited opportunities to infiltrate the Motor Gen Building roof. Therefore, this comment has been addressed. Comment closed.

25. As the rain garden/bioretenion is proposed for pretreatment, they should include an underdrain and be lined to prevent infiltration. Infiltration at the rain garden should not be accounted for in the HydroCAD model.

VHB Response (12/14/2020): VHB believes that the rain garden can be used for treatment. The stone diaphragm will provide pretreatment, and then the filtration provided through the bioretention soil will provide additional TSS removal to get above and beyond the TSS removal requirement prior to infiltration into the soils beneath the bioretention footprint.

VHB Response (01/06/2021): As agreed during our comment review meeting, this basin will remain unlined. The TSS removal to meet the pretreatment requirement occurs within the biosoil, before infiltrating below the media mixture.

Nitsch Response (01/14/2021): Understood. Comment closed.

26. The outlet of the overflow of the subsurface infiltration system appears to be above the elevation of the system. Also, the invert at the flared end section appears to be 5 feet higher than the proposed grade. Appropriate sediment and erosion protection should be provided for the flared end section and the extents of the rip rap shown in the detail should also be shown on the plans. It seems that the design of the flared end section could be altered to better align with the proposed grade and slope.

VHB Response (12/14/2020): The outlet of the overflow is above the top of the chamber and is included only as a belt and suspenders emergency release valve for storms that may exceed a 100-year storm event. The alignment of the flared end section will be shifted to better align with the proposed grade and outlet invert noted on the plan. Because the outlet is only expected to see flows for storms in excess of a 100-year event, we are not proposing to provide stone or riprap at the outlet.

VHB Response (01/06/2021): The alignment of the flared end section has been slightly adjusted. Additionally, the plans call for erosion control fabric to be placed along that entire slope, so in the unlikely event that there is any flow coming from that structure (>100-year event), there would be adequate protection.

Nitsch Response (01/14/2021): The overflow/flared end section and erosion control fabric have been updated on the Plans. Comment closed.

27. Please provided a detail for the sediment forebay. We note that the sediment forebay should be lined to prevent infiltration and achieve the required pre-treatment.

VHB Response (12/14/2020): A lined sediment forebay detail will be included in the plans.

VHB Response (01/06/2021): A note to include an impermeable liner in the forebay has been added to the detail sheet.

Nitsch Response (01/14/2021): A detail has been added to the Plans. Comment closed.

28. Please provided a detail of the swale at the north edge of the site.

VHB Response (12/14/2020): A detail will be added to the plans.

VHB Response (01/06/2021): A swale detail has been added to the plans.

Nitsch Response (01/14/2021): A swale detail has been added to the plans. Comment closed.

29. The calculation for water quality sizing of the sediment forebay and rain garden do not appear to be in accordance with the requirements of the MA Stormwater Handbook, Volume 2, Chapter 2 which requires at a minimum, the volume of the sediment forebay to hold 0.1-inch/impervious acre to pretreat the water quality volume and rain gardens to capture and treat the required water quality volume (the first 0.5 inch or 1 inch of runoff) if intended to be used for water quality treatment. The Applicant should review and address this requirement.

VHB Response (12/14/2020): The sediment forebay and stone diaphragm have been designed to treat 10% of the 1-inch water quality volume. This is an equivalent amount to the 0.1 inch per impervious acre.

VHB Response (01/06/2021): There were some incorrect units shown on the pretreatment calcs, which have been fixed. The volume required and provided however, did not change. The sediment forebays still meet the pretreatment requirement.

Nitsch Response (01/14/2021): The calculations have been updated for clarity. Comment closed.

30. Please provide documentation of the two (2) foot separation to ground water at Infiltration Basin 2. TP-22 appears to be in the location of Infiltration Basin 2 but only provides information to Elevation 261.5 ft. The bottom of the basin is at Elevation 260 ft.

VHB Response (12/14/2020): Additional documentation for Test Pit 23 will be included in a revised stormwater report. This test pit shows no groundwater observed, down to elevation 249.9. Additionally, Test Pit 20 shows no groundwater observed down to elevation 250.2. If these nearby test pits do not suffice, an additional test pit can be dug within the infiltration basin footprint during construction to confirm separation from groundwater.

VHB Response (01/06/2021): See test pit information in our technical memo.

Nitsch Response (01/14/2021): Understood. Comment closed.

31. The Master Plan Stormwater documentation was received for record but will require a separate submittal for each site for approval.

VHB Response (12/14/2020): Noted.

Nitsch Response (01/14/2021): Comment closed.

CONFORMANCE WITH THE MASSDEP STORMWATER STANDARDS

In accordance with **974 CMR 4.08(2)(a)**, Nitsch Engineering reviewed the stormwater design and calculations for general conformance with the MassDEP Stormwater Standards. Based on this review, Nitsch Engineering offers the following comments:

32. **Standard 3** requires that the annual recharge from the post-development site shall approximate the annual recharge from pre-development conditions based on soil type. This Standard is met when the stormwater management system is designed to infiltrate the required recharge volume as determined in accordance with the Massachusetts Stormwater Handbook. Based on Hydraulic Soil Group (HSG) A soils, a recharge volume of 0.6 inches over the impervious area is required for the CFS-2 site. Although we believe there is likely enough recharge volume being provided to meet this requirement, the Applicant currently uses a combination of HSG A and B soils in the recharge calculation. The calculation should be updated to reflect the recharge volume requirement for HSG A soils.

VHB Response (12/14/2020): Updated recharge calculation will be provided. The stormwater management system will easily meet the revised recharge requirement.

VHB Response (01/06/2021): See revised recharge information in our technical memo.

Nitsch Response (01/14/2021): The recharge volume calculations have been provided. While we agree that the required recharge volume has been met, there appears to be an inconsistency in the overall area value. The Applicant should review. Comment closed.

33. **Standard 3** also required that to ensure the long-term operation of infiltration BMPs, pretreatment is required before discharge to an infiltration BMP. For infiltration of stormwater runoff from land uses with higher potential pollutant loads, discharges to the ground within an area with a rapid infiltration rate (greater than 2.4 inches per hour), at least 44% of the total suspended solids must be removed prior to discharge to the infiltration structure. The Stone Diaphragm does not meet the pretreatment requirements of 44% prior to infiltration. Therefore, the rain garden must be lined to prevent infiltration.

VHB Response (12/14/2020): You are technically correct by the absolute letter of the law, but there is no realistic expectation of a potentially higher pollutant load from the isolated 24-space surface parking lot, and here is an opportunity for infiltration that is not materially different from porous pavers. If you say we must line the rain garden we will make the revision to the plans.

VHB Response (01/06/2021): As agreed during our comment review meeting, this basin will remain unlined. The TSS removal to meet the pretreatment requirement occurs within the biosoil, before infiltrating below the media mixture.

Nitsch Response (01/14/2021): Understood. Comment closed.

34. **Standard 8** is covered by a NPDES Construction General Permit but no SWPPP has been submitted. A SWPPP should be submitted to the DEC before land disturbance begins. The erosion and sediment control plans provided (Sheets C6.00-C6.03) provides minimal information, only covering a perimeter barrier and tree removal. Given the significant earth moving required for the CFS-2 project, additional detail should be provided on these plans including slope protection, inlet protection, diversion swales and sediment traps, construction entrance(s), and infiltration system footprint protection. We note that these strategies are covered within the notes on Sheet C6.00, but they should be depicted on the plans. Additionally, consideration should be given at the interface between the CFS-1 and CFS-2 project boundaries, as we understand that CFS-1 will be operational prior to the completion of CFS-2.

VHB Response (12/14/2020): The plan we submitted shows perimeter erosion controls and contains extensive notes to identify the contractor's lawful responsibilities under the MA Construction General Permit/EPA NPDES. Specifications outlining the contractor's responsibilities under this program will also be included as contractual obligations in the construction documents. A SWPPP will be submitted by the Contractor to the DEC before land disturbance begins and details for inlet protection, slope protection, silt fence, etc have been provided on the detail sheets for contractor's use. Anything more we illustrate on this plan aside from the perimeter controls trends in the direction of directing contractor means and methods, which we strenuously wish to avoid. VHB believes the notes as clearly stated on the plans is enough to make the contractor aware of the necessary erosion control requirements. Care will be taken in construction phasing to ensure that the construction operations of CFS-2 will not be detrimental to the operations of an in-use CFS-1.

Nitsch Response (01/14/2021): Construction staging and laydown areas, temporary sediment basin locations, and construction staging areas have been incorporated into the Plans. However, some additional consideration should be given for phasing of these controls. For example, the proposed sediment basin is located in the stockpile area. Please also refer to the response to Comment #13. Comment closed pending submission of the SWPPP to the DEC.

35. **Standard 10** prohibits illicit discharges to the stormwater management systems. The Illicit Discharge Statement should be provided and signed by the Engineer of Record.

VHB Response (12/14/2020): In illicit discharge statement will be provided.

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VHB Response (01/06/2021): See illicit discharge statement in our technical memo.

Nitsch Response (01/14/2021): The illicit discharge statement has been included. Comment closed.

If the Commission has any questions, please call.

Very truly yours,

Nitsch Engineering, Inc.



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Approved By:



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Project Manager

JLJ/ajc