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October 20, 2022

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

RE: Nitsch Project #9419
35 Saratoga
Site Plan and Stormwater Review
Devens, MA

Dear Mr. Angus:

Nitsch Engineering received and reviewed the following updated documents:

1. Site Plans (the Plans) entitled, "Proposed Building, 35 Saratoga Boulevard, Devens, Massachusetts," revised October 12, 2022, prepared by Eugene T. Sullivan, Inc.; and
2. Stormwater Drainage Management Report, prepared by Eugene T. Sullivan, Inc., revised October 12, 2022.

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

For clarity, we have provided our initial comments from May 5, 2022 in normal font, the responses from Eugene T. Sullivan Inc. (ETSI) on July 25, 2022 are in **bold** font, Nitsch Engineering's responses on August 24, 2022 are provided in red font, ETSI responses on October 12, 2022 are in highlighted font, and Nitsch responses from October 21, 2022 in blue font.

PROJECT UNDERSTANDING

The property owner is seeking approval to clear the 35 Saratoga Boulevard site and construct a +/-154,000-square-foot new industrial building. The project will include associated grading, landscaping, retaining walls, parking, stormwater, and utility improvements. The proposed tenant is Avantor (Bio-Tech) who currently owns and occupies the adjacent facility at 29 Saratoga Boulevard. This new development would be accessed via Barnum Road and Saratoga Boulevard. The principle entry to the site is proposed off of Saratoga Boulevard via a shared driveway with Ryerson (45 Saratoga Boulevard).

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:

Due to the nature of the comments that may cause significant site plan and/or stormwater management design changes, not all comments may be reflected at this point. Nitsch Engineering will re-evaluate upon site plan and stormwater management updates.

DEC SITE PLAN REVIEW DESIGN STANDARDS

1. **974 CMR 3.04(1)(a)** requires the minimum setbacks of structures from lot lines shall be: Front Yard: 25 feet; Side Yard: 10 feet; and Rear Yard: 25 feet. A retaining wall is considered a structure and must follow the setback requirements. The Applicant should review and address this requirement.

   ETSI Response (07/25/2022): We have removed all retaining walls within the setback along the western property line. We are requesting a waiver for the retaining wall between our site and 29 Saratoga.

   Nitsch Response (08/24/2022): Nitsch Engineering defers to DEC for acceptance of waiver for the retaining wall along the east property edge.

2. The parking space counts within the Parking Calculations Table on Sheet C.2 and Supplemental Filing Information do not appear to be consistent with the parking shown on the plan. The Applicant should review these discrepancies and confirm the proposed number of spaces is in accordance with **974 CMR 3.04(3)(a)1.**

   ETSI Response (07/25/2022): This table has been revised.

   Nitsch Response (08/24/2022): The drawing and table show a total of 283 parking spaces including the standard and accessible spaces. The maximum allowed parking is 280 spaces. The Applicant should address this requirement. Additionally, the reserved parking is not included in this count. Nitsch Engineering recommends not paving the reserve parking areas until the spaces are needed to reduce impervious area.

   ETSI Response (10/12/2022): We reduced the parking to 280 spaces.

   Nitsch Response (10/20/2022): The parking count has been revised to 280 parking spaces (standard, accessible, EV, hybrid/low emitting, and carpool/van pool) with 29 future parking spaces. However, the parking count labels on the Plan and in the Parking Calculations table do not accurately reflect these totals. The Applicant should update the Plan and Parking Calculations table. Comment closed upon correction of parking count labels and Parking Calculations table.

3. **974 CMR 3.04(3)(a)(1)a** requires the following: In cases where buildings in the Rail, Industrial, and Trade Related District are set back 150 feet or more, parking is permitted in the front of the building. In such instances, a landscaped strip between the front lot line and the parking lot, measuring at least 60 feet deep, shall be provided. We note that this site has frontage along both Barnum Road and Saratoga Boulevard. The Applicant should review and address this requirement as the parking on Saratoga Road is within 60 feet of the property line.

   ETSI Response (07/25/2022): The parking has been re-configured to provide a 60' landscaping strip along Saratoga Boulevard.

   Nitsch Response (08/24/2022): This comment has been addressed by the Applicant; comment closed.

4. **974 CMR 3.04(3)(a)(1)c** requires 2% of the parking spaces be Americans with Disabilities Act (ADA) compliant. Based on 339 spaces, 2% would be 6.8 spaces, therefore the Applicant should round up to seven (7) spaces. Additionally, all proposed accessible parking spaces are provided in the northern parking lot. The Applicant should confirm that no additional accessible spaces are needed in the eastern parking lot.

ETSI Response (07/25/2022): We have provided a total of 7 ADA spaces. We have relocated 2 spaces to the eastern parking lot.

Nitsch Response (08/24/2022): This comment has been addressed by the Applicant; comment closed. Nitsch Engineering would like to note that with the reduced parking count, only six (6) spaces are now required. However, Nitsch Engineering would recommend that the seventh (7th) Americans with Disabilities Act (ADA) space be maintained to accommodate appropriate ratios if the reserved parking is built out.

ETSI Response (10/12/2022): There are 7 ADA spaces shown on the plan set.

Nitsch Response (10/20/2022): Seven (7) Americans with Disabilities Act (ADA) spaces are provided. Comment closed.

5. **974 CMR 3.04(3)(a)(1)e** requires that parking lots shall extend no more than 180 feet in either length or width without a landscaped island and a pedestrian connection through the parking area and pervious landscape island(s) that is a minimum of 5 feet wide and bordered by 3-inch caliper deciduous shade trees planted a minimum of 40 feet on center. The landscape areas shall be an 18-foot minimum width along intermediate islands, and a 10-foot minimum width for terminal islands and divider islands (see 974 CMR 3.06(2) Figure B). Parking lots measuring less than 180 feet in either length or width shall be divided into bays not greater than 72 feet in length by terminal or intermediate island (see 974 CMR 3.06(2) Figure B). Terminal islands shall be 10 feet in minimum width and intermediate islands shall be 18 feet minimum in width. Portions of the parking lot do not meet these dimensional requirements, and the Applicant should review and address this requirement.

ETSI Response (07/25/2022): The parking area layouts have been modified to meet this requirement.

Nitsch Response (08/24/2022): The Applicant has revised the landscape islands at the north portion of the site to break up the parking spaces into 180-foot sections. However, the parking length at the northeast face of the building is greater than 180 feet. Additionally, the Applicant should further consider pedestrian connectivity throughout the parking lot, for safety particularly, on the northwest side of the building.

ETSI Response (10/12/2022): We have revised the parking along the NE Face and added sidewalks.

Nitsch Response (10/20/2022): The Plan has been revised. Comment closed.

6. **974 CMR 3.04(3)(a)(2)b** requires the portion of the parking lots, loading docks, and driveway subject to truck traffic, truck and container storage, and other railroad related vehicles, shall be constructed of bituminous concrete pavement. The construction specifications shall be as indicated in section **974 CMR 3.04(3)(a)(2)b i-vi**. It appears that the Heavy Duty Pavement Detail provided meets the requirements noted above, however the “New Paved Areas” note provided on the Site Plan Layout does not list the same dimension as the detail. The Applicant should review for consistency. Additionally, the loading dock area is labeled as a concrete apron but this standard applies to areas including the loading dock. As only the Heavy Duty Pavement Detail is provided, it is our understanding that the entire parking lot, with the exception of the porous pavement, will be exposed to truck traffic and Heavy Duty Pavement should be used.

ETSI Response (07/25/2022): The note on C.2 has been revised. All parking with the exception of porous pavement will be per the heavy duty pavement detail.

Nitsch Response (08/24/2022): The loading dock is still shown as concrete on the revised plan. The plans should be revised per the Applicant's response.

ETSI Response (10/12/2022): The loading dock is concrete for the truck landing areas.

Nitsch Response (10/20/2022): Understood. Comment closed.

7. **974 CMR 3.04(3)(a)(2)d** requires parking spaces and striping shall be painted according to the MHDSSHB. Lines shall be located along the sides and unless curbing is present, at the head of parking stalls. Lines shall be a minimum of 4 inches wide and shall be one (1) consistent color, either reflective yellow or reflective white paint. The paint does not appear to be specified on the Site Plan Layout or Site Details Plan. The Applicant should clarify this requirement on the Plans for both ADA and typical spaces.

   ETSI Response (07/25/2022): The note has been revised on C.2.

   Nitsch Response (08/24/2022): A note regarding striping has been added to the plans; however, the Applicant should clarify pavement marking line width more specifically or provide a detail. Additionally, a detail should be provided for ADA striping and stencil.

   Nitsch Response (10/20/2022): The Applicant has provided clarity within the note regarding the standard parking striping. However, a detail/note has not been provided for ADA striping and stencil.

8. **974 CMR 3.04(3)(a)(4)d** requires that Commercial, Industrial, and Multi-Family Residential driveway widths shall be no greater than 24 feet for a two-way (2-way) driveway and 14 feet for a one-way (1-way) driveway. The proposed driveways range from 24 to 35 feet wide.

   ETSI Response (07/25/2022): The driveway from Saratoga Boulevard is existing and we are not proposing any changes. The trucking driveway is larger to accommodate the turning radius of the tractor trailers.

   Nitsch Response (08/24/2022): Nitsch Engineering has received a snapshot of the turning movement and the pavement widths appear to be justified. A Turning Movement Plan should be provided. Comment closed upon plan receipt.

   Nitsch Response (10/20/2022): The driveway and parking lot geometry from Barnum has changed in the most recent submittal. A Turning Movement Plan should be provided to justify pavement widths.

   ***Update: Turning movements have since been provided on 10/20/2022. However, the movements do not indicate a need for the large radius on the east side of the Barnum Road driveway from the driveway into the site. The Applicant should provide justification or reduce the pavement expanse.

9. **974 CMR 3.04(3)(a)(4)g** requires standard "STOP" at the intersection of driveways with streets and roads. The Applicant should evaluate the intersections of the internal driveways and curb cut at Saratoga Boulevard to provide adequate signage for traffic safety. We note that there is no separation between the stop bar and the Barnum Road travel lane; this should be reevaluated for safety and sight distance.

   ETSI Response (07/25/2022): A stop sign and stop line have been added at the Saratoga entrance and also out of the office parking area near the main drive entrance.

Nitsch Response (08/24/2022): The Applicant has addressed this comment at all exterior driveways. Comment closed. The Applicant should consider internal STOP lines for all entrances to the main drive isle from parking areas.

ETSI Response (10/12/2022): Internal stop signs have been added.

Nitsch Response (10/20/2022): Stop bars have been added at the internal driveways prior to the main drive. Comment closed.

10. **974 CMR 3.04(3)(a)(5)** requires that the Applicant shall obtain a letter from the Fire Chief stating there is adequate access for fire equipment. This should be provided to the DEC.

ETSI Response (07/25/2022): The Fire Chief has reviewed the plan previously, we will request that the Chief provide the memo to the DEC.

Nitsch Response (08/24/2022): Comment closed pending receipt of DEC receiving the Fire Chief's memo.

ETSI Response (10/12/2022): We have reviewed the new driveway/fire access with the Chief and he was satisfied.

Nitsch Response (10/20/2022): Record of the meeting with the Fire Chief should be submitted to DEC. Comment closed pending receipt of meeting record.

11. **974 CMR 3.04(3)(a)(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. We note that the Applicant has provided five (5) parking spaces for electric vehicles and four (4) spaces for carpool, both of which are approximately 1% of the total parking count. The Applicant should review and address this requirement and add these calculations to the Parking Calculations Table on the Site Plan Layout.

ETSI Response (07/25/2022): We have provided [4] parking spaces reserved for electric vehicles and [4] spaces for carpooling/vanpooling adjacent to the main entrance.

Nitsch Response (08/24/2022): The Applicant should increase the number of parking spaces allocated to ridesharing, hybrid or zero/low-emitting vehicles, and hybrid/electrical vehicle plug-in/recharge stations so that each type of space provided is 5% of the total parking.

ETSI Response (10/12/2022): This has been done per comments.

Nitsch Response (10/20/2022): The revised plan provides 10 Electric Vehicle spaces (3.6% of total), nine (9) Hybrid/Low Emitting (3.2% of total), and eight (8) Carpool/Vanpool (2.9% of total), a combined total of 9.6% of the 280 parking space count. We note that this is an improvement upon the previous design but does not fully meet the requirement. The Applicant should fully meet this requirement by providing 5% of each space type for the total parking count including the reserved spaces (if the intent is to pave/build the reserved spaces at the time of initial construction).

12. **974 CMR 3.04(6)(a)(2)a** requires vertical granite curb or cement concrete curb is required at all driveway entrance roundings to the point of rounding tangency. Proposed curbing should tie into

existing curbing and, in areas where there is no curbing, have transition curbing to tie into ground level. The Applicant should address this requirement at both the Saratoga Boulevard and Barnum Road entrances.

ETSI Response (07/25/2022): The curbing has been revised at the drive entrances.

Nitsch Response (08/24/2022): This comment has been addressed by the Applicant; comment closed.

13. The Applicant should provide turning movements to clarify the need for the pavement expanses throughout the site and specifically within the loading dock. Where feasible, pavement area should be minimized. This may provide additional area to enable some retaining walls to be pulled back out of the setbacks.

ETSI Response (07/25/2022): This has been provided to the DEC.

Nitsch Response (08/24/2022): Nitsch Engineering has received a snapshot of the turning movement and the pavement widths appear to be justified. A Turning Movement Plan should be provided. Comment closed upon plan receipt.

14. There are six (6) unprotected parking spaces located immediately adjacent to the loading dock. The design of these spaces should be reviewed as they appear at-risk for collision with trucks accessing the loading docks.

ETSI Response (07/25/2022): The three unprotected spaces have been removed.

Nitsch Response (08/24/2022): It appears that the six (6) spaces have been removed; comment closed. The Applicant should consider reducing the pavement in that area as it appears, based on the turning movements, that the pavement is not needed.

ETSI Response (10/12/2022): Pavement has been greatly reduced since the previous submittal

Nitsch Response (10/20/2022): The driveway layout on Barnum Road has changed significantly since the last submission. There still appears to be a large expanse of impervious. Turning movements should be provided to justify the proposed layout.

***Update: Turning movements have since been provided on 10/20/2022. However, the movements do not indicate a need for the large radius on the east side of the Barnum Road driveway from the driveway into the site. The Applicant should provide justification or reduce the pavement expanse.

15. The Applicant should complete all information in the Zoning Requirements Table on the Site Plan Layout.

ETSI Response (07/25/2022): The Zoning table has been updated.

Nitsch Response (08/24/2022): This comment has been addressed by the Applicant; comment closed.

16. Please add the north arrow to the Site Plan Layout.

ETSI Response (07/25/2022): The North Arrow has been added.

Nitsch Response (08/24/2022): This comment has been addressed by the Applicant; comment closed.

17. The Applicant should review the top and bottom of wall elevations listed on the Site Plan Layout and confirm that all elevations/contours are accounted for. There appears to be instances where a contour is skipped or not tied into the existing condition.

    ETSI Response (07/25/2022): This has been revised.

    Nitsch Response (08/24/2022): This comment has been addressed by the Applicant; comment closed. Nitsch Engineering would like to note that it appears that the contours switch to 2-foot intervals at a 2:1 slope on the southeast side of the building. Nitsch Engineering would recommend maintaining the same contour interval throughout the site for clarity and constructability.

    ETSI Response (10/12/2022): This has been revised.

    Nitsch Response (10/20/2022): The contours on the southeast side of the building have been updated to 1-foot intervals. Comment closed.

DEC STORMWATER DESIGN STANDARDS

18. **974 CMR 3.04(4)(a)(3)** requires low Impact Development (LID) Stormwater Management design shall be incorporated into the site plan to allow for the full utilization of the property while maintaining the pre-development characteristics of the site as though it were a "green field" (volume, frequency, peak runoff rate) to the maximum extent feasible. Maximizing the use of pervious areas minimizes stormwater runoff from a site, improves stormwater quality, and increases groundwater recharge. While we understand that 6.2 acres of site area is accounted for in the Southeast Quadrant Detention Pond, the green field requirements still must be met for the remainder of the site. The HydroCAD model and Section 3.0 of the Stormwater Report indicate that only 75% of the 6.2 acres can be accounted for as impervious, allowing 4.65 acres of impervious area to overflow to the existing basin. The HydroCAD model indicates that 5.62 acres of impervious area (proposed roof and parking, not including porous pavement) overflow to the existing basin. Additionally, when comparing the existing to proposed for the remainder of the site, the existing condition should be modeled as a green field. The Applicant should review and address this requirement.

    ETSI Response (07/25/2022): The HydroCAD model has been revised to reflect the existing conditions as a "green field". Calculations have been provided showing that even though the proposed impervious area is greater than what was originally accounted for, both peak rates and volumes have been reduced for all design storms through the use of stormwater best management practices.

    Nitsch Response (08/24/2022): The Applicant has updated the existing HydroCAD to reflect the green field condition in the areas that drain offsite. Additionally, the Applicant reflects in the HydroCAD model that the existing area that drains to the Southeast Quadrant is 4.65 acres of impervious. While the Applicant is directing more than 4.65 acres of impervious to the Southeast Quadrant design point in the proposed condition, the runoff rates are being reduced due to the BMPs. Comment closed.

19. **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.

a. While we appreciate the use of the porous pavement, there is some unclarity on how this system will function. Much of the porous pavement system is at 3% slope or greater. The HydroCAD model indicates only one (1) elevation for the entire system, but there is an 11-foot grade change between one (1) end of the porous pavement and the other. No overflow is indicated in the HydroCAD model or plans, and this area is not accounted for in the overflow volume to the Southeast Quadrant Detention System. Due to the significant grade change, water may seep out of the pavement at the lower elevations; the bottom of the system elevation at the southwest side of the parking lot will be above the pavement elevation at the northeast side of the parking lot. While we encourage LID, this system should be evaluated to consider the significant grade change as well as any potential overflows. The Applicant may consider making the system tiered or adding subsurface check dams.

ETSI Response (07/25/2022): At a 3% slope the pervious pavement should function, as designed. Tiered systems and/or subsurface check dams are not required for slopes less than 5%.

Nitsch Response (08/24/2022): We acknowledge that if the soils have a high infiltrative capacity, the significant elevation change and slope is less of a concern as the water should not build up in the reservoir course. We have asked for additional clarification on subsurface conditions; refer to Comments 19b and 32 below. Comment closed upon receipt of geotechnical information.

ETSI Response (10/12/2022): Additional subsurface information has been added to SW Report.

Nitsch Response (10/20/2022): Boring logs were added to the stormwater report. However, a plan was not provided to locate the borings. Additionally, the locations of test pits SWM-1-3 are only shown on the Existing Conditions Plan. These locations are difficult to translate to the proposed condition. It would be helpful if all test pit and boring locations could be overlayed on the proposed plan for ease of locating/reviewing.

***Update: The plan has since been provided on 10/20/2022. DEC issuing a condition.

b. Additionally, there is a parking area to the northwest of the proposed building that appears to be excluded from truck traffic and has less significant grade change. The Applicant may consider this parking lot as an additional opportunity for porous pavement.

ETSI Response (07/25/2022): Due to the existing of bedrock in the area of the northwest parking area, this area of the project is not a good candidate for porous pavement. Porous pavement was proposed in all areas where stormwater test pits have been conducted indicating deep sandy natural soils.

Nitsch Response (08/24/2022): The plan indicates that the parking area to the northwest of the building has been converted to porous pavement. The Applicant should clarify response. Refer to Comment 32 below.

ETSI Response (10/12/2022): We have added a note to the porous pavement detail to overbalst 4’ below these NE area and provide clean sand below. Additionally there is a catch basin that area if needed.

Nitsch Response (10/20/2022): A note has been added to the Porous Pavement Detail and an overflow catch basin has been added. Comment closed.

20. **974 CMR 3.04(4)(b)(4)** requires that catch basins or other drainage features in loading/unloading and/or fueling areas shall be equipped with post-indicator valves (which are to remain in the closed position) on the outlets for containment in the event of any spills. The Applicant should review and address this requirement.

    ETSI Response (07/25/2022): The plans have been revised to include a Waterman C8U ditch gate valve prior to the CDS Unit.
    Nitsch Response (08/24/2022): The post indicator valve is intended to separate water from the loading docks in the event of a spill. The Applicant should relocate the PIV to stop flow closer to the loading docks before it mixes with other site stormwater. Nitsch Engineering takes no objection to leaving the PIV in the open position with signage that directs the operator to close the valve in the event of a spill.

    ETSI Response (10/12/2022): This has been revised

    Nitsch Response (10/20/2022): An additional gate valve has been added upstream, closer to the loading dock. Comment closed.

21. **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. While we appreciate the use of the porous pavement, the site does not make an effort to replicate natural conditions of infiltration, evapotranspiration, and runoff. The majority of the site is strung together by a series of catch basins and manholes discharging water at the far end of the site, not promoting decentralized stormwater management systems or modeling natural hydrologic features and infiltration practices that facilitate local groundwater recharge. The Applicant may consider creating additional opportunities for LID and decentralized stormwater management throughout the site by grading towards the parking lot islands and considering rain gardens or bioretention basins. The Applicant should review and address this requirement.

    ETSI Response (07/25/2022): LID stormwater management design methods have been utilized to the maximum extent practicable for the project.

    Nitsch Response (08/24/2022): The Applicant does not appear to have made modifications to address this comment.

22. **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 Applicant should review and address this requirement.

    ETSI Response (07/25/2022): Based on the underlying existing soils located on site, as well as limitations due to the slope of the site, biofiltration basins were not practical for this project.

    Nitsch Response (08/24/2022): This response is confusing given the other soils/subsurface information provided by the Applicant. For example, the Applicant has noted Hydrologic Soil Group A soils, which are highly infiltrative and suitable for bioretention. The Applicant should clarify and be consistent with geotechnical information and stormwater design across the site. Refer to Comment 32 below.

23. **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 two – (2-), 10-, 25-, 50-, and 100-year storm events from any point of discharge on the site. It appears the stormwater report

does not include the analysis for the 50-year storm. The Applicant should review and address this requirement.

ETSI Response (07/25/2022): The HydroCAD model has been revised to include the 50-year storm.

Nitsch Response (08/24/2022): In the revised existing HydroCAD, the Applicant has addressed this requirement. The Applicant should remove the outdated existing conditions HydroCAD from the report to avoid confusion; comment closed.

24. **974 CMR 4.08(3)(g)** recommends post-construction erosion control methods include geotextile and/or biodegradable erosion control fabrics staked or anchored to the slope, with loose weave to allow vegetative cover to be established. Vegetative cover shall consist of native woody plant species installed as live brush or nursery stock, or native grasses. The Applicant should update Sheet EC.1 to show the locations of slope stabilization. Additionally, Sheet EC.1 should be updated to include the proposed condition as there will be significant site regrading that will require stabilization.

ETSI Response (07/25/2022): Slope stabilization is not anticipated to be necessary as slopes are 2:1 or greater except where blasted rock faces will remain post construction.

Nitsch Response (08/24/2022): All slopes 3:1 or steeper will require stabilization. Additionally, the Applicant should clarify which locations will be exposed rock faces.

ETSI Response (10/12/2022): Exposed rock faces have been identified on the plans

Nitsch Response (10/20/2022): The Applicant has identified the blasted rock slopes on the south portion of the site. There are additional site areas at 2:1 slope on the north, northwest, and east portions of the site that are not blasted rock face. These areas should be immediately stabilized as noted in on Sheet EC.1, Note #9. Comment closed. We recommend that the Applicant provide additional language and/or construction notes on stabilizing the rock face as it is unknown what the subsurface rock conditions will be after blasting.

25. **974 CMR 4.08(3)(i)** requires that stormwater management systems be designed to meet an average annual pollutant removal equivalent to 90% of the average annual load of Total Suspended Solids (TSS) related to the total post-construction impervious area on the site and 60% of the average annual load of Total Phosphorus (TP) related to the total post-construction area on the site. The treatment train provided does not meet the 90% TSS removal calculation and does also not indicate what water quality volume is being treated. The Applicant should review and address this requirement.

ETSI Response (07/25/2022): The proposed roof and proposed porous pavement are both being recharged into the ground in order to help promote the removal of phosphorus. The remainder of the impervious area is being directed towards the Southeast Quadrant Detention Pond, which also provides phosphorus removal in compliance with the MS4 Permit.

Nitsch Response (08/24/2022): The TSS treatment train has been updated to indicate greater than 90% TSS removal, however the train listed does not appear to be reflective of the design. Documentation is included to indicate that that the WQS is sized for a 1-inch water quality volume. The Applicant should provide documentation on phosphorous removal.

ETSI Response (10/12/2022): Phosphorous removal calculations have been added to the SW Report.

Nitsch Response (10/20/2022): Phosphorus removal calculations have been added to the Stormwater Report. Overall, the phosphorus removal requirement appears to have been met through the use of green infrastructure and infiltration. However, the calculation provided does not appear to be consistent with the methodology from the Massachusetts Small MS4 Permit (*https://www3.epa.gov/region1/npdes/stormwater/ma/2016fpd/appendix-f-attach-3-2016-ma-sms4-gp-mod.pdf*). The loading rate for the impervious pavement area does not appear to be accurate. The static storage volume of the subsurface infiltration, wet pond, and porous pavement should be documented so that the percent removal can be verified using the provided charts. Additionally, the porous pavement areas may need to be separated in the removal calculation if the static storage varies per system.

26. **974 CMR 4.08(3)(j)** requires that all best management practices (BMPs) must be optimized for the removal of phosphorus to support compliance with the MS4 Permit. The justification and design of such BMPs must also include a methodology for assessing BMP performance. Pollutant removal shall be consistent with EPA Region 1's evaluation tool. The Applicant should review and address this requirement.

    ETSI Response (07/25/2022): The proposed roof and proposed porous pavement are both being recharged into the ground in order to help promote the removal of phosphorus. The remainder of the impervious area is being directed towards the Southeast Quadrant Detention Pond, which also provides phosphorus removal in compliance with the MS4 Permit.

    Nitsch Response (08/24/2022): The Applicant should provide documentation on phosphorous removal.

    ETSI Response (10/12/2022): Phosphorous removal calculations have been added to the SW Report.

    Nitsch Response (10/20/2022): Refer to Comment #25.

STORMWATER DESIGN AND CALCULATIONS

27. The Cultec Detail provided indicates that the maximum cover allowable above the chamber is 8.3 feet. It appears that there will be approximately 9 feet or greater of cover above the southwest portion of the Cultec Infiltration System. The Applicant should review this condition and ensure that the maximum and minimum cover depths are met.

    ETSI Response (07/25/2022): The design of the underground infiltration system has been revised to provide less than 8.3 feet of cover over the chambers.

    Nitsch Response (08/24/2022): The southwest corner still appears to be greater than 8.3 feet of cover. The Applicant should review this requirement.

    ETSI Response (10/12/2022): The top of stone is elevation 263. The proposed grade at the highest elevation is 268.50.

    Nitsch Response (10/20/2022): The elevation of the infiltration system has been raised. Comment closed.

28. The invert out of the Infiltration System is labeled as elevation 258.00 feet in the plans but modeled as 257.25 feet in the HydroCAD, the Applicant should review and address for consistency.

ETSI Response (07/25/2022): The plans and the HydroCAD model have been revised for consistency.

Nitsch Response (08/24/2022): The subsurface infiltration system elevation and outlet pipe inverts as shown on the plans do not match the HydroCAD model. The Applicant should review and address this.

ETSI Response (10/12/2022): This has been revised

Nitsch Response (10/20/2022): The outlet invert elevation on the Plan and HydroCAD have been updated to match. The Applicant should also match the pipe length/slope. Comment closed.

29. The details provide a Permeable Paver Detail but the location of permeable pavers is not located on the Site Plan Layout. The Applicant should review and address for consistency.

ETSI Response (07/25/2022): The plans have been revised to remove the Permeable Paver Detail.

Nitsch Response (08/24/2022): This comment has been addressed by the Applicant; comment closed.

30. The Applicant should be mindful of trees on top of the infiltration system. The Applicant should review species and root penetration depths.

ETSI Response (07/25/2022): The proposed landscaping has been revised to remove trees from the top of the infiltration system.

Nitsch Response (08/24/2022): There appears to be trees located above the northeast portion of the subsurface chambers. The Applicant should confirm species and root penetration depths. The Applicant should also consider moving the trees to the opposite side of the infiltration system where there is significant cover.

ETSI Response (10/12/2022): This has been revised on the Landscaping plan.

Nitsch Response (10/20/2022): The Landscape Plan indicates no trees on top of the infiltration system. Comment closed.

31. There appears to be multiple catch basins with 3 feet from rim to invert. The Applicant should confirm constructability of the shallow connection and provide a shallow catch basin detail if required.

ETSI Response (07/25/2022): The proposed catch basins and pipe depths have been reviewed. In our professional opinion, shallow catch basins will not be required on site.

Nitsch Response (08/24/2022): In our experience, catch basins with 3 feet from rim to invert require a shallow catch basin structure. However, the Applicant and Contractor will be responsible for reviewing and determining constructability; 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 Massachusetts Department of Environmental Protection (MassDEP) Stormwater Standards. Based on this review, Nitsch Engineering offers the following comments:

32. **Standard 3** requires 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. A Recharge Volume Calculation is provided in Section 7.0 of the Stormwater Report. However, the Applicant appears to using a 'B' soil to calculate the required infiltration volume but is using a 'A' soil infiltration rate in the HydroCAD model. The Applicant should use a consistent soil group for both the required recharge volume and infiltration rate.

    ETSI Response (07/25/2022): The HydroCAD model and the stormwater calculations have been revised to use 'A' soils throughout the entire site.

    Nitsch Response (08/24/2022): The Web Soil Survey provided indicates that the site is HSG B soils, while the HydroCAD and recharge volume refer to HSG A soils. Additionally, the Applicant has indicated bedrock or poor underlying soils in multiple locations. The Applicant should further clarify the infiltrative capacity of the site based on the soil types and extents of bedrock. Test pits should be provided within the footprints of the porous pavement and infiltration chambers to confirm stormwater design and infiltration feasibility.

    ETSI Response (10/12/2022): Additional soils testing has been added to the SW Report

    Nitsch Response (10/20/2022): Refer to Comment #19a.

33. **Standard 4** required stormwater management systems shall be designed to remove 80% of the average annual post-construction load of TSS. A Treatment Train was provided however, the Applicant should provide documentation on the water quality volume being treated. Refer to Comment 25 (which was previously Comment 38) as Devens 4.08 General: Stormwater Management Regulations require 90% TSS removal.

    ETSI Response (07/25/2022): The Contech CDS Unit has been sized based on the flow capacity of a 1" equivalent water quality flow rate.

    Nitsch Response (08/24/2022): This comment has been addressed by the Applicant; comment closed.

34. **Standard 8** requires a plan to control construction-related impacts including erosion, sedimentation, and other pollutant sources during construction and land disturbance activities (construction period erosion, sedimentation, and pollution prevention plan) shall be developed and implemented. An Erosion Controls Plan has been included with this submission (Sheet EC.1) however this plan does not indicate any erosion controls in the proposes condition such as inlet protection or slope stabilization.

    ETSI Response (07/25/2022): Inlet Protection has been added to EC.1. Slope stabilization is not anticipated to be necessary as slopes are 2:1 or greater except where blasted rock faces will remain post-construction.

    Nitsch Response (08/24/2022): An inlet protection detail and note has been indicated on the plans. The Applicant should clarify that the inlet protection note applies to all proposed inlets; comment closed upon updated note.

    ETSI Response (10/12/2022): This note has been revised.

    Nitsch Response (10/20/2022): The note has been revised. Comment closed.

If the Commission has any questions, please call.

Very truly yours,

Nitsch Engineering, Inc.

Approved by:

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Senior Project Engineer

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Deputy Director of Planning

PES/JLJ/ajc

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