



December 4, 2020

Doug Hartnett, P.E.
Highpoint Engineering Inc.
Canton Corporate Place
45 Dan Road, Suite 140
Canton, MA 02021

Re: King Devens, LLC – 45 Jackson Road Level II Unified Permit Application (#D20-094)

Dear Mr. Hartnett,

We have completed our initial review of the above referenced application. Below are the comments from the DEC and MassDevelopment. Review comments on the site plan, stormwater, landscaping, and traffic study from our peer review engineers are being provided in separate letters.

Please Note: The applicant is encouraged to submit a response to comments using this electronic file. Responses should be added after each comment as individual paragraphs with italicized colored text. Responding in this manner will improve clarity and context of responses and will expedite review time.

Devens Engineering Comments:

General:

1. Need to add truck turning plan. Turning movements need to include ingress and egress to/from the site at all driveways entrances (both from Jackson Road and Lake George Street), from Jackson Road in/out of the Jackson Place driveway as well as use of proposed hammer head lot. Provide turning templates for various trucks to utilize the site as well as Devens fire and emergency vehicles. Turning movement plan should be prepared using worst case vehicle. If different vehicles are deemed “worst case” at various locations, all identified vehicles should be shown. Ingress and egress from loading docks should utilize the worst case vehicle anticipated to use each dock. Include access/egress to/from Hospital Road via Oak Hill and both site driveways.
2. .

Sheet C100

1. I am extremely concerned with the number and spacing of the curb cuts proposed for this project. Bearing in mind that Jackson Road could be expanded to a 4-lane boulevard style road MassDevelopment cannot guarantee future access to all driveways if constructed as proposed. I would recommend that the developer make reasonable efforts to negotiate a revised configuration of the access easement which currently serves 53 & 57 Jackson Road, that the access drive in the middle of the 45 Jackson Road site be relocated to coincide with the common access to 53/57 and that the secondary access to 75 Jackson Road be off of Givry Street.

Sheet C200

1. Proposed Lot 1 boundary line should be shown on this plan.

Sheet C300

1. If project trailers are to have utility services they may want to be closer to the source of water/electric and sanitary services. Recommend coordinating actual location with the Devens utility department.

Sheet C400

1. The reuse plan identifies the potential expansion of Jackson Road to a 4-lane, boulevard style roadway in the area. MassDevelopment cannot guarantee that all driveways will be accessible to traffic in both directions in the event that Jackson Road needs to be widened to accommodate future traffic volumes.
2. Add transition curb at end of VGC radius curb where the driveway connects to the existing SGC along Jackson Road.
3. Why does the existing common driveway between 45 & 27 Jackson need to be relocated? Need to provide plan/narrative showing how you are going to maintain access to 27 Jackson Road during construction.

Sheet C401

1. Need to adjust connection to existing pavement on Lake George – cannot have a jog as is shown.
2. Missing the 330 contour line to the west of the “hammer-head”.
3. Proposed 332 contour needs to connect to existing on east side of road.
4. Transition at connection to existing pavement needs to be smooth – no vertical angle points will be accepted.

Sheet C500

1. Add notes to Grading Notes:
 - a. “No soil is to be removed from the site without the prior approval of the Devens Environmental Engineer (978-784-2917).”
 - b. Prior to initiating any ground disturbing activities all site personnel shall attend a UXO/MEC presentation by the Devens Fire Department.
2. Prior to initiating ANY work on the municipal drain line relocation:
 - a. At DMH 59 – contractor to verify size & invert of existing pipe at the proposed connection point in the field.
 - b. At “ex. DMH #2” (ST-3102), verify clearance between proposed drain line and existing sewer line.
 - c. Provide comparison of flow capacity for each segment on the existing line and each segment on the proposed relocated line to verify that the relocated line will not introduce any reduction in the overall capacity of the line.
 - d. Provide calculations showing sufficient separation between the 30” pipe between DMH 6 & 7 and the 15” pipe from WQ7 to SWM5.
3. Provide blow-up of grading plan at end of southerly driveway where it ties into the access road leading to the municipal stormwater pond.

4. Northerly edge of pavement on driveway from Jackson Place should have a more rounded connection to the proposed new driveway.
5. Provide existing pavement elevations at CL & curb line of any new driveways connection to Jackson Road.
6. Add access MH to the outlet pipe from SWM05 which can be used to block the discharge of flows to the municipal system in the event that the discharge is determined to be in violation of the terms of the Devens MS4 NPDES permit.

Sheet C600

1. If utilities has not already commented they need to confirm if the proposed E/T/C connections to the existing MH's on Jackson Road can come out of the southerly ends of the MH's or if they'll need to come out of the westerly sides of the MH's.
2. Move proposed TMH to west side of CB #15 to reduce impacts on relocated municipal drain line.
3. Prepare a profile of the relocated municipal drain line and show the proposed ground elevation along the centerline as well as the elevation, size and material of ALL utility crossings (including site drainage lines).

Additional comments may be provided following continued review, response to comments or provision of additional material. Failure to identify any items during this review which do not conform to applicable MassDevelopment Engineering standards does not relieve the owner, engineer or contractor from such requirements.

Devens Utilities Comments:

I have several water and sewer-related comments and questions on the Utility Plan (Dwg C-600).

Water:

1. At connection to existing 8" water main on north side of proposed building, callout says to extend proposed 10" water main with a 10" x 8" tapping sleeve and gate valve. Since an 8" main is being tapped, this would require a 10" x 8" reducer and an 8" x 8" tapping sleeve. But, because the existing 8" main to the south of that connection will be abandoned anyway, we should be able to shut down the 8" main to allow a direct head-on connection between the 10" and 8" pipes using a 10" x 8" reducer, a couple of 45-degree bends and a section of 8" pipe without having to do a wet tap.
2. At the northwest corner of the proposed building, it might be helpful to install an 8" gate valve on the 8" stub that faces north and is intended for future work. This would allow that line to be isolated from the other water mains and not have to potentially shut down the other mains when the future work is done.
3. At the southwest side of the proposed building and in the parking area on the west side of the building, there are two hydrants shown that are not connected to any water mains. Are these hydrants existing hydrants that are to be removed?

Sewer:

1. The proposed east-west sewer line on the south side of the building is 20' deep. As designed the sewer service line would be almost 20' deep where it leaves the building. This line is intended to serve the proposed building and a future building to the south. Is there a reason why this sewer line is so deep. Can it be raised up?
2. On the south side of the building there are two sewer stubs with callouts that say to connect 6" sewer line to existing sewer stubs and to connect 8" sewer line to existing sewer stubs, respectively. What 6" sewer line and what existing sewer stubs are being referred to here? I am not aware of any active sewer pipes or stubs in that immediate area that would need to be connected to.
3. The note at Ex-SMH-2 in Inset A should include language indicating that the 2" force main from 53 Jackson Road that discharges into that SMH must remain in service at all times.
4. At southwest corner of site, where proposed sewer connects to an existing SMH, the existing SMH is denoted as EX SMH 2431. I'm not sure where that number came from. That SMH is Devens SMH 1271. Other existing SMHs appear to also have numbers that don't correspond to Devens number designations. Are those just numbers used for project purposes, say for surveying?

General Comment:

High groundwater concerns. The Army records for this area indicate that underdrains were installed under sewer lines there. Usually this is done because of relatively high groundwater levels. I want the project proponent to be aware of this because it could impact construction.

Devens Environmental Comments:

Page 20, Fourth Bullet Item

Please add/amend items in yellow:

- Soil management including ~~striping~~, stripping, screening, and stockpiling of topsoil from vegetated areas in accordance with the following:
 - Devens Soil Management Policy as amended, January 2020
 - General Excavated Soil Management Plan, Devens Massachusetts, prepared by Haley & Aldrich, Inc. (November 1996), as amended in March 2000
 - Devens Stormwater Pollution Prevention Plan
 - Massachusetts Erosion and Sediment Control Guidelines for Urban and Suburban Areas
 - Various institutional control documents referenced in this report
 - The MCP and all other applicable environmental laws, rules or regulations

Page 20, Fifth Bullet Item

Please add/amend items in yellow:

- General earthwork including cuts, fills, temporary soils stockpiling within the future development areas in accordance with the Geotechnical Engineer’s recommendations and a **Site-Specific Soil Management Plan** in accordance with the following **policy documents**:
 - Devens Soil Management Policy as amended, January 2020
 - **General Excavated Soil Management Plan, Devens Massachusetts, prepared by Haley & Aldrich, Inc. (November 1996), as amended in March 2000**
 - Devens Stormwater Pollution Prevention Plan
 - Massachusetts Erosion and Sediment Control Guidelines for Urban and Suburban Areas
 - Various institutional control documents referenced in this report
 - **The MCP and all other applicable environmental laws, rules or regulations**

Page 33, 974 CMR 4.07 – Earth Removal

Please add/amend items in **yellow**:

Excess topsoil and general fill that is not retained on site will be exported to another **location property within Devens, as identified and selected by** in coordination with MassDevelopment. The quantity of topsoil and general fill to be exported will be communicated to MassDevelopment **in a timely manner. Any export of soil shall be** conducted in accordance with the Land Disposition Agreement (LDA) between the Proponent and the Massachusetts Development Finance Agency dated March 25, 2020 **as well as the following:**

- Devens Soil Management Policy as amended, January 2020
- **General Excavated Soil Management Plan, Devens Massachusetts, prepared by Haley & Aldrich, Inc. (November 1996), as amended in March 2000**
- Devens Stormwater Pollution Prevention Plan
- **Massachusetts Erosion and Sediment Control Guidelines for Urban and Suburban Areas**
- Various institutional control documents referenced in this report
- **The MCP and all other applicable environmental laws, rules or regulations**

Page 33, 974 CMR 4.07 – Earth Removal

Please add the following sentence to this section:

“No soil shall leave the site without the written permission of MassDevelopment and the DEC.”

Appendix E – Soil Reuse Report and Table 1 – “Soil Laboratory Analytical Data Summary”

Consider citing the “Final Soil Arsenic Background Study at Former Fort Devens Massachusetts, US Army Corps of Engineers, March 2004” (attached) to further support the October 30, 2020 BEC Report’s conclusion that “...the arsenic concentrations detected in soil at the Site are representative of background conditions based on multiple lines of evidence and therefore do not represent any reportable condition to MassDEP in accordance with 310 CMR 40.0317(22)...”

DEC Staff Comments:

General:

1. Masterplan: lot 3 exceeds impervious cover requirement of 75% as it is 80%. Consider installing a vegetated roof as this counts as pervious material for calculating impervious cover.
2. Lighting details – all specific lighting details should be specified - lighting temp/kelvin should be 3000K and fully shielded (including loading dock and building-mounted lighting).

3. 974 CMR 3.04(8)(i)5. requires details for the vegetative roof and walls, for any building walls facing the viewshed that are visible to be vegetated. Please confirm whether or not any portion of the building or appurtenances will be visible (total height not shown on analysis).

Please provide any responses and supporting information by **December 14, 2020**. In the meantime, feel free to contact me with any questions.

Sincerely,



Neil Angus, AICP CEP, LEED AP
Environmental Planner
Devens Enterprise Commission



DEVENS ENTERPRISE COMMISSION
33 Andrews Parkway • Devens, MA 01434 • Phone: (978) 772-8831 • Fax: (978) 772.8831

December 4, 2020

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

RE: Nitsch Project #9419
King Street Properties
Site Plan and Stormwater Review
Devens, MA

Dear Mr. Angus:

Nitsch Engineering received and reviewed the Site Plans (the Plans) entitled, "45 Jackson Road – Lot 1 – Site Development Plan, Devens, Massachusetts", dated November 5, 2020, prepared by Highpoint Engineering, Inc. (HEI). In addition, Nitsch Engineering has received and reviewed the following documents:

1. Application for Level 2 – Unified Permit, Site Plan Review, prepared by HEI, dated November 5, 2020;
2. DRAFT Geotechnical Engineering Report, 45 Jackson Road Devens, Massachusetts, prepared by GZA, dated November 2, 2020;
3. Stormwater Report, prepared by HEI, dated November 5, 2020; and
4. Level 2 – Unified Permit, Checklist for Determination of Completeness, prepared by HEI, dated November 18, 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.

PROJECT UNDERSTANDING

King Devens LLC is seeking a Level 2 – Unified Permit including Site Plan approval and a Wetland Request for Determination of Applicability (RDA) for the construction of a +/- 150,000 gross square foot R&D/manufacturing building and associated site improvements on an easterly 14-acre portion of the ~24 acre parcel of land located at 45 Jackson Road. This application also seeks conceptual approval for the overall campus master plan (general size, location, and layout) for future development phases on 45, 57, 59, and 75 Jackson Road. The overall campus master plan includes a multi-phased five-building, 750,000± GSF biomanufacturing campus to provide facilities for production of medicines and associated life science products.

This project site is part of a larger watershed area that was detailed in a report entitled *Roadway, Utility and Drainage Improvements – Jackson Road – Route 2 Gate to Hospital Road* by MassDevelopment, dated February 2000. A detention pond was constructed as part of this master plan and is located to the northwest of this site. This detention pond was designed with the intention of mitigating runoff from the entire larger watershed area. Therefore, the stormwater management plan for Lot 1 is only required to meet or decrease peak rates of runoff up to the 25-year storm event. Stormwater discharges exceeding the 25-year storm up to and including the 100-year storm and including the 50-year storm can be released to the off-site regional detention pond.

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

1. The Application for Level 2 – Unified Permit, Site Plan Review indicates that the building gross floor area will initially be approximately 100,000 GSF, but that the project is being permitted for a maximum build out of 150,000 GSF. The Zoning Summary Table on Sheet G200 indicates the initial GSF of 100,000, but this number and associated calculations should be updated to reflect the 150,000 GSF as described in the Application.
2. The Existing Conditions Plan (Sheet C200) is not stamped by a Professional Land Surveyor (PLS). As this plan shows property line information, we recommend that it should be stamped by a PLS.
3. The parking space counts within the Application for Level 2 – Unified Permit, Site Plan Review and in the Parking Summary table on Sheet C400 do not appear to be consistent with the parking shown on the plan, including the total number of parking spaces and the number of compact and rideshare spaces. The Applicant should review these discrepancies and confirm the proposed number of spaces is in accordance with **974 CMR 3.04(3)(a)1**.
4. **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 proposed roadway width is currently 26 feet, which exceeds the design widths for both classifications. The Applicant should evaluate the potential to reduce the roadway width and meet the appropriate design standards.
5. **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.
6. **974 CMR 2.07(3)** requires cement concrete or vertical granite curbing (VGC). The Layout and Materials Plan appears to provide precast concrete curb (PCC) and vertical granite curbing. However, details are provided for cape cod berm curbing and VGC. The Applicant should confirm that asphalt berm curbing is not proposed at the site and should provide a detail for the PCC.
7. **974 CMR 2.07(f)** requires that proposed water mains shall be designed to form a continuous loop within the existing system. Based on the existing conditions information, it is unclear if this requirement is being met. Additionally, we recommend that the Applicant consider extending the proposed water tee within the Lot 1 driveway to the existing main in Jackson Road.
8. **974 CMR 3.04(3)(a)1.c** requires six (6) accessible parking spaces when parking totals are between 201 and 500 spaces. For full build-out of Lot 1, the Applicant is providing greater than 200 spaces; however, only five (5) accessible parking spaces are currently provided. The Applicant should review this requirement and provide adequate accessible spaces.
9. **974 CMR 3.04(3)(a)1.h** requires bicycle storage facilities for all developments. The bicycle storage area appears to be located on the southeast corner of the proposed building. However, it should be labeled on sheet C400 and detailed within the Site Details. We note that it appears that eight (8) racks are provided and that they should be covered if the intention is to comply with LEED requirements.
10. **974 CMR 3.04(3)(a)1.d** requires reflective yellow or reflective white paint for parking lot striping. The note in the detail on Sheet C702 should be revised to note that the paint shall be reflective.

11. **974 CMR 3.04(3)(a)1.e** encourages parking lots less than 10,000 square feet in area to utilize an open drainage system rather than a closed drainage system . The front parking lot should be considered under this approach as there appears to be an opportunity to integrate bioretention or similar measures for stormwater treatment. As noted in Comment 14, alternative pavement types including porous asphalt should also be considered for the parking stalls.
12. **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 and curb cuts at Jackson Road to provide adequate signage for traffic safety.
13. **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.

DEC STORMWATER DESIGN STANDARDS

14. **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. There appears to be an unlabeled catch basin in the loading dock; however, it is unclear how this drainage condition will function. Please clarify how the loading dock will be drained and include a post-indicator valve in any drain inlet in the loading dock area.
15. **974 CMR 4.08(2)(c)(ii)** requires irrigation water shall be derived from detained treated stormwater (stormwater harvesting) or roof drainage to the maximum extent feasible. On-site cisterns may be installed to store water for irrigation. Can the Applicant please confirm if irrigation is intended? If so, the Applicant should review and address this requirement.
16. **974 CMR 4.08(2)(c)(vi)** requires that all projects incorporate low impact development (LID) techniques for stormwater management to the maximum extent feasible. The proposed stormwater management design primarily uses a large number of proprietary water quality structures for pretreatment prior to discharging to underground infiltration systems. To comply with this requirement, the Applicant should evaluate incorporating LID techniques throughout the site for pretreatment or provide justification for why this is not feasible. 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.
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 Handbooks. The Applicant should review and address this requirement.
18. **974 CMR 4.08(3)(b)** requires, in addition to compliance with the SMS, 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, 25, 50, and 100-year storm events from any point of discharge on the site. The 50-year storm was not analyzed at all and the 100-year was analyzed but the post-condition HydroCAD report was not included in the appendix. Although it is not necessary to mitigate peak rates for storms larger than the 25-year for this site, it would be helpful to include the calculations in the report in order to verify the stormwater design’s performance on the site. The Applicant should review and address this requirement.

19. **974 CMR 4.08(3)(d)** requires that side slopes above the design water level shall be 3:1 (horizontal to vertical) or flatter and conform to the slope of the existing topography without abrupt or unnatural breaks in slope. The detail for the rain garden shows the side slopes as 2:1. The Applicant should review and address this requirement.
20. **974 CMR 4.08(4)(f)** requires that the bottom of all infiltration structures be a minimum of 4 feet above high groundwater elevation. According to the Geotechnical Report, the design groundwater elevation for Building 1 is 336, which is above the bottom elevation of all five (5) of the underground infiltration systems. The design groundwater elevation does not appear to align with the groundwater information shown on the Test Pit Plan dated November 5, 2020 in the appendices of the Stormwater Report. The Applicant should review and address these inconsistencies.
21. **974 CMR 4.08(4)(g)** requires conducting permeability tests in infiltration basins before the basin design in all infiltration basins. The Geotechnical Report included a permeability test near Building 1. Additional testing should be performed within the footprints of each proposed basin. We note that the infiltration rate utilized within the design calculations (1.02 inches/hour) appears conservative based on the observed permeability rate of approximately 5 inches/hour. We also note that the Hydrologic Soil Group (HSG) is referenced in the Stormwater Report narrative as HSG A but the soil type used in the infiltration calculations is HSG B. The Applicant should review these items for consistency.

STORMWATER DESIGN AND CALCULATIONS

22. The stormwater management report indicates that rainfall data used in the calculations references "TP-40 – Rainfall Frequency Atlas of the United States." Nitsch Engineering recommends using NOAA Atlas 14 Data as it represents the accurate current rainfall.
23. The rain garden/bioretenion basin referenced on Sheets C400 and C500 is not described in the narrative. It is included in the TSS removal calculations but is not described in the watershed descriptions. The bioretention basin should be incorporated into the hydrologic calculations for the site to confirm that the 1-inch water quality storm will be filtered through the basin without bypassing and to confirm that larger storms can be adequately accommodated without damaging the basin.
24. The plans and details refer to the rain gardens as "rain gardens" when the Stormwater Management Report refers to them as "bioretention." Please use one (1) name for clarity and to avoid confusion. As it is proposed for pretreatment, the rain garden/bioretenion basin should include an underdrain and be lined to prevent infiltration. Nitsch Engineering also recommends that the filter fabric be removed from between the mulch and soil in the location shown in the detail on sheet C703, as this has been found to cause clogging. We recommend that the Applicant review the Massachusetts Department of Environmental Protection (MassDEP) Stormwater Handbook and the UNH Stormwater Center bioretention design standards for alternative sections that do not include filter fabric.
25. The naming and numbering of the infiltration basins and the watersheds drain to them is inconsistent between the narrative, drawings, and HydroCAD. Stormwater Management System 1 is labeled as Stormwater Management System 2 in the design plans. In the Post-Development Conditions section of the narrative, it is stated the PR WS-6 discharges to Stormwater Management System 2 when it appears to discharge to Stormwater Management System 3 on the design plans. PR WS-5a and 5b are not described separately in the narrative but are shown as two (2) separate areas on the watershed plan. The Applicant should review these items for consistency.

26. The post-development watershed areas are inconsistent between Table 4 in the narrative and the proposed condition HydroCAD model. The description of Table 4 also states that times of concentration are included in the table when they are not. The Applicant should review these items for consistency.
27. Catch Basin #7 appears to be used as both an inlet and an outlet for SWM-01. There is some concern about this design. First, stormwater flowing backwards through a water quality structure could cause problems. Second, the catch basin is in the driveway and if it overflows this would be a significant amount of overland flow over this impervious area. This could lead to ponding, icing, or flooding. We recommend either piping the overflow from SWM-01 to SWM-02 or rerouting the catch basins that discharge to SWM-01 into SWM-02 instead.
28. Many of the subsurface infiltration systems do not have a specified overflow. In the event of a surcharge condition, the Applicant should evaluate where the water would overflow to confirm that it will not impact the buildings or abutting properties.
29. SWM-04 and Catch Basin #1 discharge at the edge of the limit of work onto the adjacent parcel which is a significant distance away from the existing detention pond. Draining onto the parcel could cause problems with the development of the adjacent site in the future. We recommend piping directly to the detention pond rather than assuming it will reach the pond via overland flow.
30. In the post-condition HydroCAD model, Pr-WS 9 and Stormwater Management System 5 do not discharge to one (1) of the two (2) identified points of analysis (POA). If this area discharges to the proposed storm drain main, it needs to be identified as another POA in both the existing or proposed condition or it needs to route to one (1) of the already identified POAs so that the pre- and post-runoff comparisons are accurate.
31. Stormwater Management System 5 has no outlet shown in the HydroCAD other than infiltration. The plans show it discharging to the 30-inch storm drain line south of the site, however it is not routed to any of the design points for comparison in the existing and proposed conditions. This should be reviewed and updated as necessary so that all stormwater is accounted for at the design points.
32. Sheet G100 includes a note regarding use of basins during construction. We note that all basins proposed are infiltrating – not detention – and are not recommended for use during construction.
33. The Application for Level 2 – Unified Permit, Site Plan Review mentions a GrassPave area on-site. The GrassPave area should be called out on the plans and included in the details.

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:

34. **Standard 2** requires stormwater management systems shall be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates. The post-development rates are greater than the pre-development rates for the 100-year storm. However, we understand that the Applicant is only required to mitigate up to the 25-year design storm prior to discharge to the regional basin.

35. **Standard 3** requires that the project provide adequate groundwater recharge consistent with MassDEP methodology. The recharge volume calculation in the Stormwater Report states that the total volume provided by the basins is 89,385 cubic feet. This appears to be approximately the entire volume of each of the systems and surrounding stone. The recharge volume should be revised so that it only includes the storage volume below the outlet of each of the systems.
36. **Standard 3** requires that infiltration structures must be able to drain fully within 72 hours. Please provide drawdown calculations for the underground infiltration chambers.
37. **Standard 3** requires that a mounding analysis be provided if the separation between the bottom of the infiltration chambers and seasonal high groundwater is less than 4 feet. According to the geotechnical report, the design groundwater elevation for building one is 336, which is above the bottom of all five (5) of the underground infiltration systems. The design groundwater elevation does not appear to align with the groundwater information shown on the Test Pit Plan dated November 5, 2020 in the appendices of the stormwater report. The Applicant should review and address these inconsistencies.
38. **Standard 4** requires that at least 44% of the TSS must be removed prior to discharge to the infiltration structure if the discharge is within an area with a rapid infiltration rate (greater than 2.4 inches per hour). The narrative indicates that the soils on site are A soils and have a rapid infiltration rate. Please provide calculations showing that the bioretention/rain garden provides this level of treatment.
39. **Standard 4** also requires that stormwater management systems be designed to remove 80% of the average annual post-construction load of total suspended solids. The treatment trains utilized on-site for TSS removal are not described in the narrative or related specifically to the watershed areas making it difficult to understand if the TSS removal requirement is met for the entire site. There appears to be a portion of impervious area in watershed PR WS-10 that drains directly offsite without pretreatment. Runoff from this area should be treated before discharging offsite.
40. **Standard 4** also requires a Long-Term Pollution Prevention Plan, which was not provided with this submission.
41. **Standard 8** is covered by a National Pollutant Discharge Elimination System (NPDES) Construction General Permit, but no Stormwater Pollution Prevention Plan (SWPPP) has been submitted. A SWPPP should be submitted to the DEC before land disturbance begins.
42. **Standard 10** prohibits illicit discharges to the stormwater management systems. The Illicit Discharge Statement should be provided and signed by the engineer of record before construction.

Devens Enterprise Commission: Nitsch Project #9419
December 4, 2020
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If the Commission has any questions, please call.

Very truly yours,

Nitsch Engineering, Inc.



Anna Murphy, PE
Project Engineer

Approved By:



Jennifer Johnson, PE, CFM[®], CPSWQ, LEED AP
Project Manager

AMM/JLJ/ajc

December 3, 2020

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

RE: Nitsch Project #9419
King Street Properties
Bio-Manufacturing Campus
45 Jackson Road
Traffic Review Comments
Devens, MA

Dear Mr. Angus:

Nitsch Engineering has received copies of the Application For Level 2 – Unified Permit and associated Site Plans for the proposed Bio-Manufacturing Building at 45 Jackson Road in Devens, Massachusetts, dated November 5, 2020, prepared by Highpoint Engineering, Inc. This letter summarizes our review of the traffic elements of those documents, particularly the Access and Circulation section of the application; the Traffic Impact and Access Study, dated November 2020, prepared by VHB; and the traffic elements of the Site Plans.

Based on Nitsch Engineering's review of the submitted documents, we have determined that the traffic study and method of analysis comply with industry practices and current transportation engineering standards in addressing the following key elements:

- Traffic Counts;
- Crash Analysis;
- 7-Year Build Horizon;
- Annual Background Growth Rate;
- Traffic Generated by Other Developments;
- Site-Generated Trips;
- HCM Capacity Analysis with delay, Level of Service (LOS), v/c ratios, and 50th and 95th percentile queues;
- Sight Distance Evaluation; and
- Transportation Demand Management.

However, based on Nitsch Engineering's review of the documents, we offer the following comments for consideration:

1. In describing the existing roadways, please include the functional classification. Also, per the MassDOT Road Inventory, none of the roadways in the study area are under local jurisdiction ("Unaccepted by city or town"). Please correct this information in the Roadways section.
2. The descriptions of the intersections of Jackson Road at St. Barbara Street / American Superconductor Driveway and Jackson Road at Lake George Street (North) both state that Jackson Road runs in a northeast-southwest direction, which is inconsistent with the Jackson Road at Patton Road / Lake George Street intersection description and the directionalities used for those intersections in the Capacity Analysis (north-south direction). Please correct this information.
3. Please remove the third sentence in the description of the intersection of Jackson Road at Lake George Street (North).
4. Were the adjustments to the 2020 count data for the COVID-19 pandemic (+23.7% in the AM, +9.4% in the PM, and +17.4% for ADT) calculated based on the 2015 count data *after* adjustment from 2015 to 2019 per the MassDOT Yearly Growth Rates table and adjustment for seasonal factor? Also, which Group was used for the yearly growth rates? Based on the MassDOT Road Inventory, these roadways

fit the U4-U7 group since they are considered within an urbanized area (Boston), resulting in a cumulative adjustment of +7.9% from 2015 to 2019. For the same reason, the seasonal factors should use the U4-U7 group, which would indicate that April 2015 counts were above average, not below. Please clarify whether adjustments were made to the 2015 data prior to comparison with the 2020 data, and please use the U4-U7 group for seasonal factors and yearly growth.

5. In the crash analysis, please indicate the average statewide crash rates, and please provide comparisons with the calculated intersection crash rates.
6. Please consider showing in the appendix the trip assignment at the study intersections for trips generated by other developments that was used in developing the No-Build condition traffic volumes.
7. Traffic Volume Data section states that “The weekday morning and evening peak periods are consistent with typical peak commuter traffic periods and coincide with the expected peak periods for traffic entering and exiting the proposed site.” However, for trip generation, the peak hour of adjacent street traffic was used for the morning and evening peak hours, rather than the peak hour of the generator. Using the peak hour of the generator would result in significantly higher numbers of trips and a more conservative analysis. Please explain why the peak hour of adjacent street traffic was used for the morning and evening peak hours, or update the trip generation using the peak hour of the generator.
8. In Table 3 (Trip Generation), please update the Weekday Evening Peak Hour exiting vehicles to 63, which is the number indicated by the ITE Trip Generation web portal for this land use and size, and it also results in the correct total for entering and exiting during that peak hour.
9. Please consider discussing mode share for site-generated trips, even if only to state that all trips were assumed to be vehicular.
10. Please consider including a figure showing the site-generated trip assignment at the study intersections.
11. Why was the HCM 2010 used for the capacity analyses instead of the HCM 6? Also, please ensure the footnote (2) matches the HCM edition used.
12. Please mention that Synchro was used for the capacity analyses and note which version.
13. Please consider including a table showing LOS designations for signalized and unsignalized intersections.
14. Please explain in the capacity analysis narrative that all PHFs were set to 0.92 for future (No-Build and Build) conditions per MassDOT guidelines. Also, please fix the PHFs for northbound and southbound at the site driveway for the 2027 Build Morning Peak Hour.
15. References to the primary driveway, the secondary driveway, and the alternative driveway are inconsistent throughout the document. For example, footnote 4 discusses a “potential secondary driveway,” though it is describing the location of the alternative driveway. Likewise, the paragraph after Table 7 refers to “the existing, secondary, and alternative driveway locations.” In the Site Access Improvements section, it says that the curb cuts were discussed in Chapter 3, but no such discussion is provided. It should be explicitly stated that the location of the secondary driveway is at the existing St. Barbara Street. If the potential alternative driveway is built, would Lake George Street (North) be closed? Please provide clear descriptions of the two proposed driveways and the third potential driveway early in the document, and please use consistent terminology throughout.
16. Please describe the proposed lane configuration of the site driveways. Also, please show on the plans the proposed pavement markings, including centerlines and stop bars, for the primary and secondary driveways.

17. Please explain why only one site driveway was used in the capacity analyses even though at least two site driveways along Jackson Road are proposed. Furthermore, since the proposed secondary driveway is the existing St. Barbara Street, please consider assigning some of the site-generated trips to that entry. Also, since the proposed parking area connects to the existing Lake George Street, please consider assigning some of the site-generated trips to Lake George Street at the intersection of Jackson Road at Patton Road / Lake George Street.
18. In the first paragraph on page 30, the number of peak hour vehicles on the northwest-bound approach at the Jackson Road at Givry Street intersection should be 9 per Table 6, not 37. Please correct this information.
19. In Table 7, please correct the desirable ISD South of Site Driveway to be 500 feet.
20. The second paragraph the Site Access Improvements section should refer to Figure 2, not Figure 1. Also, please ensure the referenced page numbers for discussion on sight distance measurements are correct.
21. In the Traffic Monitoring Program section, the last sentence of the first paragraph references "both driveways." Please revise this to say "all driveways" to include the potential third (alternative) driveway.
22. The Master Planning section lists the size of Building 5 as 178,800 square feet, though Figure 3 shows it as 178,600 square feet. Furthermore, the total Phase 2 size is inconsistent between the Project Description section of the report (576 KSF) and the trip generation table in the appendix (574.80 KSF). Also, the first paragraph of the Conclusion indicates the size of potential future development to be 725,000 sf instead of 726,000 sf. Please correct these sizes and, if needed, update the trip generation.

We recommend that the Applicant review these comments and make appropriate revisions or additions prior to Devens Enterprise Commission approval of the traffic study.

We are available to discuss this review in person with the Applicant. If the Commission has any questions, please call.

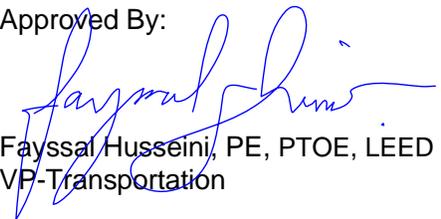
Very truly yours,

Nitsch Engineering, Inc.



Adina Alpert, PE, ENV SP, PTOE
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December 2, 2020

Mr. Neil Angus
 Devens Enterprise Commission
 33 Andrews Parkway
 Devens, MA 01434

Re: King Street Properties
 Nitsch Project #9419 Task 36

Dear Neil,

IBI Placemaking has reviewed the landscape plans and site lighting for the King Street Properties Unified Permit submission. In general, the plans are in good compliance with the requirements. The following comments are offered.

3.0: SITE PLAN

3.02: REQUIREMENTS

- 3.02 (3) (b) 6 (a) states that “All existing landscape features, especially existing trees and woodland to remain, shall be shown on ALL site plan sheets.**

The existing tree line to remain is not indicated and limit of protection is not clearly marked on each of the plans. Per **3.04 (8) (d) 7**, tree protection fencing is to be 12” beyond the dripline of the trees to be protected. Straw wattle and orange caution fence noted on plans can be considered tree protection fence on the west edge of the property since it will deter construction activities. However, the orange caution fence would need to remain in place and be maintained for the duration of construction activity, not removed following tree clearing as noted on the plan. Appropriate tree protection fencing for individual trees to be protected should be shown and identified on each of the plans.

3.04: DESIGN STANDARDS

- 3.04 (3) describes the requirements for site lighting levels and fixtures.**

The light fixture placement and heights are appropriate. The color of site lighting fixtures and poles is not apparent; indicate the color selection on the submission so that its compliance with the “dark earthtone” palette can be verified. Indicate if any lighting is proposed to be set for the 11pm to 7am timeframe. Provide information regarding energy efficiency measures such as timers and sensors that are proposed for incorporation into the lighting system.

- 3.04 (8) (c) 2 calls for native plants.**

While the proposed plant list is predominantly comprised of native species, some non-natives are used where native counterparts are available and preferable—*Platanus x acerifolia*, *Syringa reticulata* and “Bloomerang”, *Juniperus chinensis*, *Cotoneaster dammeri*, as well as grasses and perennials. In addition, the reliance on native cultivars in general does not offer the genetic diversity and associated resilience that the straight species bring to the

species and ecosystem. Unless the native cultivar provides improved disease resistance as in the case of *Cornus florida*, or provides a columnar form where space is limited, as along the building face, or shorter height, as in the planting islands, the straight native species should be used. While the proposal to establish a meadow over much of the site in lieu of mown lawn is appropriate, the specified Northeastern Region Wildflower Mix by L.D. Oliver unfortunately includes only two or three native perennials out of the nineteen listed. In addition, no grasses are included in the mix. Provide an alternate mix with native forbs and grasses that includes a recommended maintenance plan for sustaining the meadow.

3. **3.04 (8) (c) 3 prohibits the planting of plants that are recognized by IPANE as invasive.**
Carex morrowii is included in the IPANE list and 'Ice Dance' is cited elsewhere as invasive.
4. **3.04 (8) (c) 8 calls for trees within 20' of a road or paved area to be salt tolerant.**
Replacement of proposed *Acer rubrum*, *Acer x freemanii*, and *Quercus palustris* should be considered.
5. **3.04 (8) (d) 4-7 describes in depth the care to be taken to ensure the survival of existing trees.**
Clear identification of the trees to remain and be protected and a description of the excavation methods within rootzones of trees to remain must be clearly defined to ensure survival of existing trees. A clearly defined tree protection fence located 12" beyond the drip-line of the trees to be protected is needed to help ensure that this is achieved.
6. **3.04 (8) (e) describes soil testing for existing soils.**
The regulation is included in the "Additional Landscape Notes" verbatim along with other regulations. For clarity, provide direction to the contractor to ensure that the regulation is adhered to.
7. **3.04 (8) (f) 2 requires the coverage of all unpaved areas.**
The planting of the 1:3 slope on the west edge of the property for both the Building #1 and #2 sites has not been indicated.
8. **3.04 (8) (f) 3 requires any unpaved areas steeper than 1:3 to be planted with shrubs or groundcovers with fibrous root systems.**
A meadow wildflower mix (see comment **3.04 (8) (c) 2** regarding the mix) is called for in a few areas where slopes are graded at 1:2—on the north edge of the site, on a few portions of the east edge of the front parking area, and on a small mound on the south side of the Building #2 site. A 1:2 slope is too steep to maintain with the annual mowing required by meadows.
9. **3.04 (8) (f) 6 describes the limiting of construction activities to prevent soil compaction in future landscaped/natural areas.**
The northern temporary sediment basin is located where future landscape is proposed and tree preservation might be possible (future grading is unknown). Adjustment of the location is suggested if tree preservation is possible.
10. **3.04 (8) (g) 3 & 4 describe screening requirements.**
The parking and loading dock areas on the north edge of the site (Nestal Dr) west of Lake George St are not screened with year-round visually impermeable screening when viewed from the main entry of the adjacent building at 57 Jackson Road, the Saba University School of Medicine. Additional year-round visually impermeable screening may also be needed with the completion of Building #2 and the construction of the loading dock, to ensure adequate screening from Wachusett Community College.
11. **3.04 (8) (g) 6 describes screening for parking areas to be visually impermeable year -round at a height of 6'.**
From the 339 contour southward on Jackson Road, the landforms and planting do not achieve the 6' screening height. In addition, the proposed landforms to the south in front of the future Building #2 from about the 344 contour southward, will need to be supplemented

with year-round visually impermeable planting to achieve the required 6' screening height once the building and parking area is constructed.

12. 3.04 (8) (h) 2 calls for shade trees at the perimeter of parking areas.

The southern portion of the front parking area is inadequately planting with shade trees; three are required for every 50' lineal feet of parking perimeter, due to the visibility of the parking area from Jackson Road. The northern edge of the rear parking area has inadequate shade trees; three are required for every 50' lineal feet of parking perimeter. The western edge of the rear parking area has inadequate shade trees; one is required for every 25' lineal feet of parking perimeter.

13. 3.04 (8) (h) 3 calls for trees to be set back at least 5' minimum from the face of the curb.

Where the width of the easternmost divider island at the rear of the site tapers from a 10'-width to 8', the island is of inadequate width to provide the minimum 5' setback. Survival of the trees in the 8' wide island can be enhanced with an 18" depth of planting soil for the length of the island.

14. 3.04 (8) (n) Maintenance

Landscape maintenance or water management plans are not called for in planting notes. Consider an addition to the planting notes directing the contractor to submit these documents per the requirements. A snow removal/management plan would be helpful as well due to the large amount of pavement on the north side and the limited landscape space available for snow storage and to ensure that plantings in snow storage areas are tolerant of road salt.

15. 3.04 (8) (n) 2., g., calls for the applicant to identify invasive plant species on the parcel and means and methods for removal and long-term maintenance.

The DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Forms prepared by EcoTec, Inc. indicated the presence of several species in plot A15 that are included on the list of invasive plants compiled by the Massachusetts Invasive Plants Advisory Group—Tatarian honeysuckle, *Lonicera tatarica*, Oriental bitter-sweet, *Celastrus orbiculata*, Tree-of-Heaven, *Ailanthus altissima*, and Multiflora rose, *Rosa multiflora*. Means and methods for the removal, treatment, disposal, and monitoring of these invasive species for their long-term maintenance needs to be identified.

Sincerely,



John N. Amodio, ASLA, LEED AP B+C