



July 11, 2023

Ms. Alana Kenney, Land Use Clerk
Town of Nottingham, 1389 Stage Road
PO Box 114 Nottingham, NH 03290

Re: Nottingham Business Park - Plan Review
Final Drainage and Plan Set Review
GM2 Associates
Map 3, Parcel 10
CMA # 887 Task 160

Dear Members of the Nottingham Planning Board:

At the request of the Town of Nottingham's Land Use Department, CMA Engineers has conducted an independent review of the documents submitted for the proposed 176,000 square foot warehouse with paved access drives, parking areas, domestic water well, and septic system. Our scope of review included primary examination of the design plans, traffic impact analysis, waiver/conditional use requests, initial Town review comments, drainage analysis, and erosion & sediment control plan. This letter presents our review comments.

Background

The proposed 78.2-acre development presented to the Nottingham Planning Board by GM2 Consulting Engineers & Land Surveyors represents a project proposed by Nottingham Business Park, LLC, on behalf of the landowner, Tom Moulton. The development site, which is accessed via an existing dirt driveway off NH Route 4, currently comprises a partially constructed 176,000 square foot building, a groundwater well, two major stormwater basins, and an established wetland replication area. Within the site, there are two potential vernal pools, two existing turtle nesting areas, a cemetery, and multiple wetland areas.

The project area is divided, with half of the parcel within the Residential-Agricultural Zone and the other half within the Commercial-Agriculture Zone. The parcel is adjacent to the County and Town line of Barrington, NH, leading the Planning Board to designate this project as a Development of Regional Impact. The proposed access to the development involves a paved access drive from NH Route 4 and two gravel roads leading to the well and leach fields. The existing well on-site is intended to provide water supply and fire suppression, while two leach fields are planned for the septic system.

A stormwater management system is proposed for the project, incorporating various features such as drainage collection, stormwater piping, level spreaders, and infiltration chambers. We anticipate the submission of an NHDES Alteration of Terrain (AoT) permit at a later stage, which will entail a more detailed review of the drainage components and their performance.

For this evaluation, we reviewed the following materials:

1. *Site Plan Review Application, dated March 2023*
2. *Plan set dated March 30, 2023 (28 sheets)*
3. *Stormwater Analysis dated March 23, 2023*
4. *Town Review Comments dated between May 10th, 2023, and June 7th, 2023*

We conducted a review of the Site Plan Application, Drawing Set, and Stormwater Analysis to assess their compliance with Nottingham's Site Plan Review Regulations 2016, Zoning Ordinance, Master Plan, and State requirements. The proposed stormwater treatment practices were evaluated for consistency with NHDES's Env Wq 1500: Alteration of Terrain New Hampshire Stormwater Manual to ensure conformity with current design guidelines recognized by the State.

GENERAL

1. We note the application does not include a boundary survey that was completed specifically for the proposed project. The boundary survey provided in the plan set was completed by Cammett Engineering in 2005. It is unusual for a boundary survey completed 18 years ago to be included in a Planning Board application. Is this acceptable to the Board?
2. We note the application does not include a ground survey of the subject parcel. On Sheet V1.20, Note #3, the site topography was completed using site-specific aerial LIDAR produced by ARE Corporation. The Applicant notes the data was not ground proofed which is unusual to confirm accuracy. Is this acceptable to the Board?
3. No waivers or C.U.P.'s have been applied for.
4. The Planning Board determined this case to be a Development of Regional Impact
5. Permit needed for septic and fire suppression.
6. The Applicant is showing a water main stub and potential vehicular access to the abutting lot (Map 3, Lot 9). Is there planned future development on the abutting parcel?
7. What type of materials/chemicals will be stored within the building?
8. Building elevations should be included in the plan set.

REVIEW OF ZONING ORDINANCE

Article II – Zoning Districts and District Regulations

C. Residential – Agricultural District

C.2 Requirements

- C.2.c.3 Driveways and accesses, including any apron or curbing, shall be placed a minimum of ten (10) feet from any property line. The Gravel Access Path to the existing well is currently within the 10-ft property setback. Was this done due to the wetland area limits?

E. Commercial/Industrial Zone (Route 4)

E.1 Permitted Uses

- E.1.i By special exception from the Zoning Board of Adjustment, industrial and other uses are permitted utilizing the special exception criteria. Has a special exception been granted by the Town of Nottingham?

E.2 Requirements

E.2.b.2.iii The ordinance requires driveways and accesses to be placed a minimum of 10 feet to the property lines. The Overall Site Plan shows a vehicle turn around that extends to the property line (STA 8+52) and an access road to the water supply well that abuts the property line. Is a waiver required, and if so, has one been submitted.

E.2.h Building Height - Maximum building height shall be 34 feet measured from grade. What is the proposed building height?

Article III - Overlay Districts

B Wetland Conservation Areas

B.3 Vegetative Buffers

B.3.a The Ordinance requires a 25-foot no-disturb vegetative buffer around vernal pools as defined by a certified wetland scientist. The 25-ft buffer shall be shown on the plans for clarity.

B.3.b There shall be a 25-foot no-disturb vegetative buffer around wetlands as defined by a certified wetland scientist. Plot 25' buffer around wetlands throughout plan set. The driveway from Route 4, the retaining wall at the southwest corner of the building, and the northwest warehouse wall are within the 25-ft wetlands buffer. Has a Conditional Use Permit (CUP) been submitted and approved?

Article IV – General Provisions

L Sanitary Protection – Sheet C1.21 shows what appears to be an existing septic leachfield (not labelled) and a proposed septic leachfield. Sheet C1.22 shows a series of septic tanks near the existing building, and both sheets reference a separate sheet for the septic design plans; however, this sheet(s) was not included in the plan set. Please provide this additional information. The Ordinance requires septic designs to be consistent with RSA 485 and NHDES Env-Wq 1000.

N Signs

Does the applicant intend to install a sign at the driveway entrance? If so, the sign shall meet the requirements of this section.

Q Outdoor Lighting

Q.2.a Control of Glare – Luminaire Design Factors

Q.2.a.1 “Any luminaire with a lamp or lamps rated at a total of more than 1800 lumens, and all flood or spot luminaires with a lamp or lamps rated at a total of more than 900 lumens shall not emit any direct light above a horizontal plane through the lowest direct-light-emitting part of the luminaire.” Include light fixture lumens in the lighting table on Sheet C1.50.

On Sheet C1.50, the General Lighting Notes states that additional wall mounted lights are proposed at each loading dock and at each building exterior access point, but the size/type to be determined. These lights should be included in the lighting plan.

REVIEW OF SITE PLAN REGULATIONS

Based on our review, we offer the following comments for consideration:

Article 8 – Plan Requirements

8.3 Specific Plan Information – Existing Site Conditions

8.3.5 The Regulation states “Surveyed property lines including angles or bearings, distances, monument locations and size of entire parcel. Said plan must be attested to and stamped by a Licensed Land Surveyor licensed in the State of New Hampshire, seal, and license number shall be legible and included on the plan.” The plan set includes a Plan of Land, completed by Cammett Engineering, and stamped by a licensed land surveyor; however, this was completed in 2005 and is not specific to the current project. Additionally, Sheet V1.20, Note #1 states “No boundary survey was completed for this project.” The project should have a current property boundary survey included in the plan set and stamped by a NH licensed land surveyor.

8.3.6 The Regulation requires the site’s existing grades and topographic contours at intervals not exceeding two feet with spot elevations where the grade is less than five percent. It appears that portions of the parcel have areas of grades that are less than five percent, and spot grades are not included. Spot grades should be added to the Existing Conditions Plans.

8.3.7 The Regulation requires the location and condition of existing drainage systems (including culverts), structures, and drainage easements, if any, be shown. Is there any existing drainage infrastructure other than the stormwater basins? (pipes, culverts, etc)

8.4 Specific Plan Information – Proposed Site Conditions

8.4.3 “The location for, and pertinent date on, at least two (2) test pits, information shall include at least the following: the location of the test pits, an outline of the four thousand (4000) contiguous sq. ft. area reserved for the location of the leach field area. All test pits must be witnessed by the Code Administrator.” Provide test pit data for the proposed leach field.

8.4.4 The Regulation requires the radii of driveways, access ways, curbing, and sidewalks to be shown.

8.4.8 The Regulation requires parking calculations to be included showing how the number of required regular/handicapped parking spaces are required, and how many parking spaces are provided. Please include calculations.

8.4.18 Applicant to confirm that all requirements within this section are included in the application.

8.4.19 The Regulation requires a plan note stating that the site plan falls under the Nottingham Impact Fee Ordinance.” Please include note in plan set.

Article 10 – Additional Information and Studies

10.5 Traffic Impact Analysis

The Applicant states a traffic study will likely be required by NHDOT, and it will be submitted to the Planning Board when complete.

10.6 Environmental Impact Study

A significant portion of the property is existing wetlands and are poorly drained soils. Also, the survey notes existing turtle nesting management areas and potential vernal pools. Due to these potentially environmentally sensitive areas, is an Environmental Impact Study warranted?

10.7 Hydrogeological Study

The property includes an existing high volume water supply well with a proposed 8-inch water main connecting the well to the building. What is the proposed building's anticipated water supply needs and is a Hydrogeological Study warranted?

Article 11 – Action on Applications

11.4 Off-Site Improvements

11.4.1 Since the project will be constructing a driveway onto NH Route 4, and discharging stormwater within the State right-of-way, has the applicant submitted a Driveway Permit to NHDOT, and are off-site improvements required by NHDOT?

11.9 Monumentation

“Proper and complete survey monumentation shall be installed on the properties as a condition to final approval of the application. Granite bounds shall be set at all property line corners and angles, and at all points of curvature and points tangency. Monuments for the lot being developed shall be placed not more than 300 feet apart in any straight line. Any drill holes shall be filled with an aluminum surveyor's disk.” Applicant shall install monumentation as required.

Article 13 – General Design Standards

13.4 Fire Protection

The application describes using the existing on-site water supply well as a fire suppression source. If so, how will this be accomplished? Additionally, the proposed fire suppression plan shall be reviewed by the Nottingham Fire Department and included in the application. Also, emergency access shall be provided around the entire building. See comment in Section 14.4.4.1.

13.10 Off-Street Parking and Loading

13.10.3.d “Provision shall be made on-site for the storage of snow which is removed from the parking and loading areas.” Applicant shall show snow storage area(s) on the site plan drawings.

13.10.4 The Applicant is proposing 119 parking spaces, which does not appear to meet the amount required for a 172,000 square foot (s.f.) warehouse/light industrial manufacturing building. Applicant shall provide parking calculations for the building's intended use.

13.11 Signs

13.11.2 Is the applicant planning to provide on-site signage? If so, they shall conform to the requirements of the Zoning Ordinance.

13.12 Landscaping

- 13.12.2.a "A landscaped buffer zone shall be required wherever a commercial or industrial development abuts an adjacent residential property." A 10' buffer zone cannot be built between the end of the road and the property line at the north corner of the building. Has a waiver been applied for?
- 13.12.2.b "Every development shall include landscaping to enhance the appearance of structures, to screen parking, loading, storage areas and waste disposal facilities to improve the visual character of the immediate area." Include your proposed landscaping plan in the application.

Article 14 – Road & Driveway Design & Construction Standards

14.1 – General Requirements

Is the Applicant intending to have the proposed development's driveway connect to Map 3, Lot 9?

14.4.3 Related Improvements

- 14.4.3.2 "Off-site improvements may be required, such as, but not limited to, increasing pavement width or adding deceleration lanes, curbing and signaling devices, in order to mitigate hazardous impacts that are generated by the particular needs and impacts of the site." See comment in Section 11.4 – Off-Site Improvements.

14.4.4 Safety Requirements

- 14.4.4.1 "Traffic circulation, pedestrian access, parking and any loading facilities, and emergency access shall be designed and located in a manner that ensures maximum safety in the development." For emergency access, there should be vehicular access around the entire building. As proposed, the southern and western sides of the building are inaccessible and present a safety hazard.
- 14.4.5 Access to State Highways – "Driveways and access onto State highways shall be designed in accordance with the New Hampshire Department of Transportation's Administrative Rules 302, as amended, and receive from NH DOT written approval there under prior to final Town approval of the subdivision plan." Has approval from NHDOT been received?

Article 15 – Drainage, Erosion & Sedimentation Control Standards

15.3.2 Final Plan Requirements

- 15.3.2.1.f Provide extent of 100-year flood plain boundary, or if not applicable, state this.

15.3.2.2 Narrative Section

In the Narrative, include the construction schedule, earth movement schedule, seed specs, inspection/maintenance schedule, and responsibility for continued maintenance.

15.8 Other Required Permits

Is an AOT required by the State for this project? If so, submit to the Planning Board the application, supporting documents, and the approved permit.

Article 17 – Subsurface Sewage System Design Standards

- 17.2 Test Pits** – “Each site or lot proposed for development shall have at least two test pits, separated by at least fifty (50) feet. The test pits shall establish the existence of a contiguous area of 4,000 s.f., or larger per Env-Wq 1014.01, as amended, suitable as a receiving layer for a leaching system. Both test pits and the percolation test area must be located within this area. This area shall be shown on the plan. The entire 4,000 s.f. area must meet or exceed all applicable regulations, local, state or federal, for the installation of a septic system. That is, no portion of the contiguous area must be unavailable for the installation of a septic system for any reason.” Show the 4,000 s.f. leaching area with a minimum of two test pits.
- 17.3 Hydrogeological Study** – “A hydrogeological study, as described in Article 10.7, shall be required for a development where a septic system is being designed to accommodate 2,500 gallons per day, or more.” Provide the Town with your septic design plans and estimated daily sewage rates.
- 17.4 Design Requirements** – Provide the town with your septic design plans.

Article 18 – Water System Design Standards

- 18.2 Hydrogeological Study** – “A Hydrogeological Study, as described in Articles 10.6.6 and 10.7, shall be required for any well or group of wells within a development based on full buildout with a combined withdrawal of over 20,000 gallons per day.” What is the estimated combined daily withdrawal rate from the well? The application mentions the well is existing. Is the current well permit active?

REVIEW OF STORMWATER MANAGEMENT PLAN

Based on our review in accordance with applicable State/Town Regulations, we offer the following comments for consideration:

General Comments

1. Drainage Summary Table
 - a. Include units in the table.
 - b. The Post-Development flows do not match the values in the output reports, and these shall be corrected.
2. The Summary section states that site was modelled for the 50-year storm event; however, data for the 50-year storm event was not included. Please clarify.
3. Stormwater BMP’s and Erosion & Sediment Control shall be designed/constructed to meet the requirements of CHAPTER Env-Wq 1500 Alteration of Terrain, with reference to the NH Stormwater Manual and UNH Stormwater Center. All stormwater BMP’s, both existing and proposed, need to meet the current requirements.
4. Infiltration System
 - a. Require two test pits within the treatment practice area.
 - b. Is the separation to the SWHT requirement met?
 - c. How was the infiltration rate determined?
 - d. What Ksat value was used?
5. Provide cross-sections and construction details of the existing and proposed ponds to confirm they meet current AoT design requirements.
6. Provide the NHDES BMP worksheets for each treatment device.

7. Please include a Pond Summary Table that, at a minimum, includes the max. water elevation, discharge flow rate, and berm height for each pond.
8. Provide an Operation and Maintenance Plan for the stormwater collection and treatment systems.

PLAN SET:

The Plan Set was reviewed for general engineering practice, and the following comments are noted:

1. Sheet C1.40 – Erosion and Sedimentation Plan
 - a. An underground infiltration system is proposed directly behind a concrete block retaining and next to the existing warehouse building.
 - i. With the hydraulic loading directly adjacent to these two structural elements, is this an appropriate location for underground stormwater storage and infiltration?
 - ii. The Shea Retaining Wall System Detail shows a 4-inch perforated drainage tile at the bottom of the wall to prevent water buildup behind the wall. Installation of the drainage tile would defeat the purpose of the infiltration system.
 - iii. Would the excavation required to install the infiltration system compromise the existing building's foundation?
2. Sheet C1.12 – Site Plan
 - a. Do the proposed septic leach fields meet the wetland setback requirements stated in RSA 485-A?
3. Sheet C1.13 – Site Plan
 - a. The proposed driveway terminates at the property line with Map 3, Lot 9. Is a connection to the abutting property proposed, and what is the purpose of this connection?
 - b. See comment in Section 14.4.4.1 regarding access around the entire building.
 - c. Considering the tractor trailer traffic maneuvering in the loading bay area, would concrete be a better driving surface than bituminous pavement?
4. Sheet C1.21 – Grading / Drainage Plan
 - a. A Sediment Forebay is called out, but a detail is not provided.
5. Sheet C5.13 – Misc. Details
 - a. Where is the Infiltration Basin being constructed?

Should you have any questions, please do not hesitate to contact us.

Very truly yours,

CMA ENGINEERS, INC.



Jake D. Hewitt, P.E.
Project Engineer



Josh Bouchard, P.E.
Project Manager

JWB:kao