

FRIARS DRIVE INDUSTRIAL FACILITY

5 WAY REALTY TRUST SITE PLAN

SITE PLAN APPLICATION #10-21

STAFF REPORT #5

(Please refer to 9/22/21, 10/20/21, 11/10/21 & 12/15/21 reports for earlier comments)

January 26, 2022

SITE: 161 Lowell Road; Map 209 Lot 001-000

ZONING: General (G), Industrial (I): all site work proposed in Industrial Zone

PURPOSE OF PLANS: Site Plan for a 504,000 square foot warehouse building.

PLANS UNDER REVIEW:

Site Plan, Friars Drive, Parcel 209-001-000, @ Sagamore Industrial Park, Hudson, New Hampshire; prepared by the Dubai Group, Inc., 136 Harvey Rd, Bldg B101, Londonderry, NH 03053; prepared for owners: GFI Partners / Lowell Road Property Owner, LLC, 133 Pearl Street #300, Boston, MA 02110 & 5 Way Realty Trust (Peter Horne, Trustee) PO Box 1435, N. Hampton, NH 03862; consisting of 97 sheets (including proposed elevations prepared by aF+S), with general notes 1-10 on Sheet 4; dated August 3, 2021, last revised January 11, 2022.

ATTACHMENTS:

- A. Peer Review of Zoning & Regulations Letter #3 prepared for Town, Fuss & O'Neill, dated December 21, 2021
- B. Applicant response to Attachment A prepared for Applicant, Dubai Group, dated January 11, 2022.
- C. Peer Review of Zoning & Regulations Letter #4 prepared for Town, Fuss & O'Neill, dated January 19, 2022.
- D. Peer Review of Revised Sound Study dated 12/2/21, prepared for Town, HMMH, dated January 19, 2022.
- E. Revised Sound Study, Tech Environmental, dated December 22, 2021.
- F. Final Peer Review of Revised Sound Study dated 12/22/21, prepared for Town, HMMH, dated January 10, 2022.
- G. Revised Right Turn Lane design, TF Moran, dated January 4, 2022.
- H. Public Input received January 5 through January 18, 2022
- I. CAP Fee Worksheet
- J. NHDES Alteration of Terrain Permit Application, Dubai Group, revised November 23, 2021. [provided digitally only]

APPLICATION TRACKING:

- August 3, 2021 – Application received.
- September 7, 2021 - Traffic Impact and Access Study received.
- September 22, 2021 – Public hearing deferred to October 20, 2021.

- September 28, 2021 – Alteration of Terrain/Stormwater Management Report received.
- October 20, 2021 – Application accepted, Public hearing held, continued to November 10, 2021.
- November 6, 2021 – Site Walk conducted
- November 10, 2021 – Deferred to December 15, 2021
- December 15, 2021 – Public hearing held, waiver granted for reduction in parking spaces, continued to January 26, 2022.
- January 5, 2022 – Town Planner & Applicant met with Fox Hollow Board to discuss screening.
- January 26, 2022 – Public hearing scheduled.

COMMENTS

SITE & CIVIL

As noted in **Attachment B**, the Applicant revised their plan once more to address the remaining Peer Review Comments (see **Attachment A**), adding typical locations of construction equipment storage and dumpster units and providing inlet protection for the existing catch basins near the stabilized construction entrance. These items are added to the erosion control plan as well.

Moreover, the Applicant updated the project fencing detailing and locations based on input received from the Fox Hollow condo board – providing an eight foot dark green vinyl coated CLF with privacy slats essentially along the property line. The placement of the fence will have a 10-foot range to jog around trees rather than need to clear them. Any coordinated openings to accommodate wildlife will be determined by NH Fish & Game Department and NHDES.

Lastly, the revised plan also includes protective covenant as coordinated with the Town, as well as signage to direct trucks to a right turn out of the site as well as No Truck Idling signage.

At meetings and in some public input (**Attachment H**), some have asked to restrict southbound truck traffic to be prohibited from turning right onto Friars Drive off of Lowell Road. Staff does not recommend this. Such a prohibition would only serve to keep more trucks on Lowell Road for a longer period of time. The trucks are closest to residents when passing by Fox Hollow on Lowell Road. The entrance to Friars Drive is nearly 1,000 feet from the closest Fox Hollow unit. Additionally, the right turn (deceleration) lane will allow southbound traffic to continue uninterrupted as vehicles turn onto Friars Drive (**Attachment G**).

The right turn lane is an off-site improvement was designed at the request of the Town. This was originally anticipated during the application for multi-family development that completed the planned extension of Friars Drive. This turn lane accommodates traffic seeking access to the proposed industrial development as well as other sites on Friars Drive and Executive Drive. The turn lane will: get traffic off of Lowell Road sooner; allow Lowell Road traffic to flow uninterrupted while vehicles turn onto Friars Drive, and; provide additional safety as southbound traffic goes over the hump that sits just north of Friars Drive. The construction details of this lane will be finalized with the Engineering and Public Works departments.

SOUND

The Peer Reviewer reviewed and found the latest revision of the Sound Study prepared by the Applicant's consultant, Tech Environmental, has demonstrated compliance with the Town's noise ordinance and had no further comments. See **Attachment C** for details.

RECOMMENDATIONS

With all Peer Review comments addressed and Sound Study concluded, Staff finds the site plan application ready for the Board's final decision if no new issues are raised.

DRAFT MOTIONS

CONTINUE the public hearing to a date certain:

I move to continue the public hearing for the site plan application #10-21 for the Friars Drive Industrial Facility at 161 Lowell Road; Map 209 Lot 001-000 to date certain, _____.

Motion by: _____ Second: _____ Carried/Failed: _____

[DRAFT MOTION TO APPROVE IS ON THE FOLLOWING PAGE]

APPROVE the site plan application:

I move to approve Site Plan, Friars Drive, Parcel 209-001-000, @ Sagamore Industrial Park, Hudson, New Hampshire; prepared by the Dubai Group, Inc., 136 Harvey Rd, Bldg B101, Londonderry, NH 03053; prepared for owners: GFI Partners / Lowell Road Property Owner, LLC, 133 Pearl Street #300, Boston, MA 02110 & 5 Way Realty Trust (Peter Horne, Trustee) PO Box 1435, N. Hampton, NH 03862; consisting of 97 sheets (including proposed elevations prepared by aF+S), with general notes 1-10 on Sheet 4; dated August 3, 2021, last revised January 11, 2022; subject to, and revised per, the following stipulations:

1. All stipulations of approval shall be incorporated into the Development Agreement, which shall be recorded at the HCRD, together with the Plan and the protective covenants.
2. All improvements shown on the Plan, including notes 1-10 on Sheet 4, shall be completed in their entirety and at the expense of the applicant or the applicant’s assigns.
3. Prior to the issuance of a final certificate of occupancy, a L/LIS/Certified “as-built” site plan shall be provided to the Town of Hudson Land Use Development, confirming that the site conforms to the Plan approved by the Planning Board.
4. A cost allocation procedure (CAP) amount of \$357,840.00 shall be paid prior to the issuance of a Certificate of Occupancy.
5. Applicant shall provide in depth detail of the right-turn slip lane that exits Lowell Road onto Friars Drive including soil testing and cross section of the slip lane, which will be subject to final approval by Engineering & Public Works Department. The design and construction of this off-site improvement will be completed at the expense of the applicant or the applicant’s assigns. This work shall be completed prior to issuance of a certificate of occupancy.
6. The onsite drainage system shall be constructed and maintained in compliance with NHDES requirements for such systems.
7. Prior to the Planning Board endorsement of the Plan, it shall be subject to final administrative review by Town Planner and Town Engineer.
8. Construction activities involving the subject lot shall be limited to the hours between 7:00 A.M. and 7:00 P.M. No exterior construction activities shall be allowed on Sundays.
9. Hours of refuse removal shall be exclusive to the hours between 7:00 A.M. and 7:00 P.M., Monday through Friday only.

Motion by: _____ Second: _____ Carried/Failed: _____



MEMORANDUM

TO: File

FROM: Steven W. Reichert PE

DATE: December 21, 2021

RE: Town of Hudson Planning Board Review
Friars Drive Industrial Facility Site Plan
Tax Map 209, Lot 1; Acct. #1350-975
Fuss & O'Neill Reference No. 20030249.2060

The following list itemizes the set of documents reviewed related to the Friars Drive Industrial Facility Site Plan, located at 161 Lowell Road in Hudson, New Hampshire.

- Package from the Dubai Group, Inc. received by Fuss & O'Neill on December 7, 2021, including the following:
 1. Copy of a letter from the Dubai Group, Inc., to the Town of Hudson, dated November 23, 2021.
 2. Copy of *NHDES Alteration of Terrain Permit Application & Drainage Analysis, Friars Drive*, prepared by the Dubai Group, Inc., dated October 4, 2021, revised November 23, 2021.
 3. Copy of *Site Plan, Friars Drive, Parcel 209-001-000 @ Sagamore Industrial Park, Hudson, New Hampshire*, prepared by the Dubai Group, Inc., dated August 3, 2021, revised November 23, 2021, unless otherwise noted, including the following:
 - a. *Title Sheet*, Sheet 1.
 - b. *Zoning Ordinance Compliance Notes*, Sheet 2, revised September 28, 2021.
 - c. *Site Regulations Compliance Notes*, Sheet 3.
 - d. *Existing Conditions Overview Plan*, Sheet 4, revised September 20, 2021.
 - e. *Existing Conditions Plan – A to G*, Sheet 5 to 11, revised September 20, 2021.
 - f. *Site Specific Soils Plan*, Sheet 12, dated September 16, 2021, with no revisions noted.
 - g. *Tract Overview Plan*, Sheet 13.
 - h. *Site Overview Plan*, Sheet 14.
 - i. *Site Plan – A*, Sheet 15, with no revisions noted.
 - j. *Site Plan – B to E*, Sheet 16 to 19.
 - k. *Site Plan – F to H*, Sheet 20 to 22, with no revisions noted.
 - l. *Access Summary*, Sheet 23, with no revisions noted.
 - m. *Main Entrance Detail*, Sheet 24, with no revisions noted.
 - n. *Site Circulation Plan*, Sheet 25.
 - o. *Landscape Overview*, Sheet 26.
 - p. *Landscape Plan - A to G*, Sheets 27 to 33.
 - q. *Landscape Plan – H*, Sheet 34, revised October 5, 2021.
 - r. *Landscape Details*, Sheet 35.
 - s. *Parking Compliance & Landscape Summary*, Sheet 36.
 - t. *Site Sections*, Sheet 37.
 - u. *Green Space & Impervious Area Summary*, Sheet 38.
 - v. *Grading & Drainage Overview Plan*, Sheet 39.
 - w. *Cut/Fill Balance Plan*, Sheet 40.
 - x. *Drainage & Grading Plan - A*, Sheets 41, revised October 5, 2021.
 - y. *Drainage & Grading Plan - B to F*, Sheets 42 to 46.



Memo to File

Fuss & O'Neill Reference No. 20030249.2060

December 21, 2021

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- z. *Drainage & Grading Plan* – G to H, Sheets 47 to 48, revised October 5, 2021.
- aa. *Utility Overview Plan*, Sheet 49.
- bb. *Utility Plan* – A, Sheet 50, with no revisions noted.
- cc. *Utility Plan* – B to F, Sheet 51 to 55.
- dd. *Utility Plan* – G to H, Sheet 56 to 57, with no revisions noted.
- ee. *Lighting Overview Plan*, Sheet 58.
- ff. *Lighting Plan* – A, Sheet 59, with no revisions noted.
- gg. *Lighting Plan* – B to C, Sheet 60 to 61.
- hh. *Lighting Plan* – D, Sheet 62, with no revisions noted.
- ii. *Lighting Details*, Sheet 63.
- jj. *Sewer Service Overview Plan*, Sheet 64.
- kk. *Sewer Plan* – A to B, Sheet 65 to 66.
- ll. *Sewer Plan* – C, Sheet 67, revised September 20, 2021.
- mm. *Sewer Profile* – A to B, Sheet 68 to 69.
- nn. *Sewer Profile* – C, Sheet 70, revised September 20, 2021.
- oo. *Sewer Details*, Sheet 71, revised September 20, 2021.
- pp. *Erosion Control Overview Plan*, Sheet 72.
- qq. *Erosion Control Plan* – A, Sheet 73, revised October 5, 2021.
- rr. *Erosion Control Plan* – B to F, Sheet 74 to 78.
- ss. *Erosion Control Plan* – G to H, Sheets 79 to 80, revised October 5, 2021.
- tt. *Site Details* – 1 to 7, Sheet D1 to D7, revised October 5, 2021.
- uu. *Site Details* – 8 to 10, Sheet D8 to D10.
- vv. *Site Details* – 11 to 13, Sheet D11 to D13, revised October 5, 2021.
- ww. *Proposed East and West Elevations*, Sheet A101, prepared by Applied Form +Space, dated August 2, 2021, with no revisions noted.
- xx. *Proposed North and South Elevations*, Sheet A102, prepared by Applied Form +Space, dated August 2, 2021, with no revisions noted.

SWR:elc

cc: Brian Groth – Town of Hudson
Town of Hudson Engineering Division – File



December 21, 2021

Mr. Brian Groth
Town Planner
Town of Hudson
12 School Street
Hudson, NH 03051

Re: Town of Hudson Planning Board Review
Friars Drive Industrial Facility Site Plan, 161 Lowell Road
Tax Map 209 Lot 1; Acct. #1350-975
Reference No. 20030249.2060

Dear Mr. Groth:

Fuss & O'Neill (F&O) has reviewed the third submission of the materials received on December 7, 2021, related to the above-referenced project. A list of items reviewed is enclosed. The scope of our review is based on the Site Plan Review Codes, Stormwater Codes, Driveway Review Codes, Sewer Use Ordinance 77, Zoning Regulations, and criteria outlined in the CLD Consulting Engineers Proposal approved September 16, 2003, revised September 20, 2004, June 4, 2007, September 3, 2008, and October 2015.

The project appears to consist of the development of a 504,000 square foot industrial/warehouse building project on a previously undeveloped site. Proposed improvements to the site also include the construction of a driveway, parking areas, drainage improvements, landscaping, lighting and other associated site improvements. The proposed buildings will be serviced by public water and sewer.

Note that we have removed previously resolved comments from this letter for brevity. Refer to our letter dated October 7, 2021, to see those comments.

The following items have outstanding issues:

1. Site Plan Review Codes (HR 275)

- h. **New Fuss & O'Neill Comment:** HR 275-6.T. The applicant has forwarded concept plans for off-site improvements adjacent to Lowell Road at the Friars Drive intersection. Review of those plans will be performed separately once design drawings have been received from the applicant.

5. Utility Design/Conflicts

- e. *Former Fuss & O'Neill Comment: Town of Hudson Sewer Use Ordinance (SUO) 77. The applicant has noted that there may be an industrial use or uses within the proposed building. Any industrial user discharging to the Town sewer system must be permitted for that discharge. The individual industries will need to coordinate with the Town for this permitting approval.*

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Maine
Massachusetts
New Hampshire
Rhode Island
Vermont



Mr. Brian Groth
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Former/Current Fuss & O'Neill Comment: The applicant has noted that industrial sewer discharges are not anticipated with this permit. The applicant should be aware that if any industry within the building meets the definition of an industrial user in the Hudson Sewer Use Ordinance, then they would be required to participate in the Industrial Pretreatment Program, even if no industrial discharge is anticipated.

6. Drainage Design/Stormwater Management (HR 275-9.A./Chapter 290)

- u. *Former Fuss & O'Neill Comment: Engineering Technical Guidelines and Typical Details (ETGTD) Section 930.13. Although this is not a public roadway cut section, due to some areas of significant cut upon the site (in the range of 10'-15'), the applicant should review the need for underdrain to help prolong the life of the pavement, drainage system, and building structures. The applicant should also comment on how this ground water, soon to be surface stormwater, is accounted for within the drainage calculations.*

Current Fuss & O'Neill Comment: The applicant should keep the town informed with any findings the geotechnical engineer uncovers during their evaluation. The suggestion of the addition of notes/locations of any future underdrains be placed onto the plans with tie in information into catch basins, is an appropriate approach.

- v. *Former Fuss & O'Neill Comment: ETGTD Section 920.4.2. The applicant has not shown equipment storage locations on the plans.*

Current Fuss & O'Neill Comment: The applicant has noted that equipment needs are subject to the tenants of the facility. The intent of our comment is to illustrate the location of construction equipment locations with an emphasis on any potential fueling areas, with respect of potential environmental concerns. We continue to recommend that the applicant provide construction equipment storage location on the plan.

8. Erosion Control/Wetland Impacts

- a. *Former Fuss & O'Neill Comment: The applicant has not included erosion and sedimentation control plans in the current plan review submission. Fuss & O'Neill will review these with a future submission when provided. / The applicant has provided erosion and sediment control plans as part of this review. The applicant should provide inlet protection for the catch basins shown adjacent to the stabilized construction entrance. Please note that additional erosion and sedimentation control review comments may be forthcoming with the review of the drainage plans.*

Current Fuss & O'Neill Comment: We continue to recommend that the applicant should provide inlet protection for the existing catch basins shown adjacent to the stabilized construction entrance.

The following items require Town evaluation or input:

1. Site Plan Review Codes (HR 275)

- d. *Former Fuss & O'Neill Comment: HR 275-8.C.(2) and Zoning Ordinance (ZO) 334-15.A. The applicant has provided parking calculations on the plan set. The applicant has noted that 840 parking spaces are required based on 1 space per 600 square feet or 0.75 spaces per employee for the 2 largest shifts combined. The applicant has proposed 362 spaces and has noted that a maximum employee count would be controlled by the building owner at 241 employees per shift to meet the 362 spaces. We note that the applicant should update the parking space number for Lot C on Sheet 36 as it appears 51 spaces are*



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provided and 40 spaces are noted./ The applicant has updated the plan note. The applicant should review with the Town the need to submit a waiver request for the number of parking spaces proposed.

Current Fuss & O'Neill Comment: The applicant has revised the parking to show 366 parking spaces and has removed some of the trailer parking slips. The applicant should continue to review with the Town if a waiver is need for the number of parking spaces.

The following items are resolved or have no further Fuss & O'Neill input:

4. Traffic

- a. *Former Fuss & O'Neill Comment:* HR 275-9.B. *The applicant has noted that a full Traffic Study for the site will be completed in the near future. Comments from our review of that Traffic Study will be provided separately. /Traffic Study Review comments were provided separately on September 21, 2021.*
Current Fuss & O'Neill Comment: The applicant responded to our traffic review comments and a second review letter was issued October 26, 2021, stating no outstanding items remain. No further Fuss & O'Neill comment.

6. Drainage Design/Stormwater Management (HR 275-9.A./Chapter 290)

- a. *Former Fuss & O'Neill Comment:* HR 275-9.A. & 290. *Drainage design comments will be provided separately once the design is complete and submitted by the applicant. /We are in receipt of the drainage report and associated plans for the site and will provide review comments separately.*
Current Fuss & O'Neill Comment: The applicant has provided responses to our drainage review letter dated October 15, 2021. Comments are addressed in this letter. No further Fuss & O'Neill comment.
- e. *Former Fuss & O'Neill Comment:* HR 275.9.A.1 and 290.5.A.5. *The applicant provided reasoning for an increase in runoff at Analysis Point #2 within the Drainage Analysis. The applicant should discuss if this project requires a waiver with the Town Engineer as well as the NHDES Alteration of Terrain (AoT) reviewer. F&O takes no exception to the request of a waiver if deemed necessary.*
Current Fuss & O'Neill Comment: The applicant has revised the plans so that there is no increase at Analysis Points. No further Fuss & O'Neill comment.
- f. *Former Fuss & O'Neill Comment:* HR 290-5.A.1 and 290-5.A.3. *The applicant should provide language in the Drainage Analysis Report stating if and how low impact development (LID) strategies for stormwater runoff were evaluated for this project.*
Current Fuss & O'Neill Comment: The applicant has provided information about LID in the write-up. No further Fuss & O'Neill comment.
- g. *Former Fuss & O'Neill Comment:* HR 290-5.A.5. *The northwest property line, representing Analysis Design Point #4, abuts numerous properties along Hickory Street. The applicant should ensure runoff at every property line is analyzed to ensure runoff does not exceed pre-development rates, as is also required by NHDES AoT regulations.*
Current Fuss & O'Neill Comment: The applicant has added a berm and trench to minimize runoff. No further Fuss & O'Neill comment.



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- h. *Former Fuss & O'Neill Comment: HR 290-5.A.10. The applicant should review with NHDES AoT the need for a double row of silt sock along the 50' wetland setback lines.*

Current Fuss & O'Neill Comment: The applicant has added a double row of silt fence. No further Fuss & O'Neill comment.

- i. *Former Fuss & O'Neill Comment: HR 290-5.A.11. The applicant should note upon the plan set the requirement to keep the Town informed of the Soil Testing required for the soil amendment as noted upon the Site Details-9 plan sheet.*

Current Fuss & O'Neill Comment: The applicant has added a note on sheet D-9. No further Fuss & O'Neill comment.

- j. *Former Fuss & O'Neill Comment: HR 290-5.A.11. The applicant should expand upon the required soil amendment and testing, noting the required infiltration rate (or a range) proposed/ required to meet design calculations.*

Current Fuss & O'Neill Comment: The applicant has added the rate and related information. No further Fuss & O'Neill comment.

- k. *Former Fuss & O'Neill Comment: HR 290-5.A.12. The applicant should review with Town if a signed long-term maintenance plan and agreement is required.*

Current Fuss & O'Neill Comment: The applicant has added an Inspection and Maintenance Plan to the report. No further Fuss & O'Neill comment.

- l. *Former Fuss & O'Neill Comment: HR 290-6.A.8. The applicant should add a note to the plan for the requirement to coordinate a pre-construction meeting with the Town Engineer.*

Current Fuss & O'Neill Comment: The applicant has added a note to sheet D-2. No further Fuss & O'Neill comment.

- m. *Former Fuss & O'Neill Comment: HR 290-6.A.9. The applicant should add a note to the plan set regarding the time limits for stabilization of disturbed soil areas*

Current Fuss & O'Neill Comment: The applicant has added a note to sheet D-2. No further Fuss & O'Neill comment.

- n. *Former Fuss & O'Neill Comment: HR 290-7.A.7. The applicant should keep the Town informed of all communication with the local advisory committee (LAC).*

Current Fuss & O'Neill Comment: The applicant agreed to keep the Town informed and believes that that the location may not trigger the LAC. No further Fuss & O'Neill comment.

- o. *Former Fuss & O'Neill Comment: HR 290-7.A.7. The applicant has provided information on the proposed cut and fill volumes of the project. The applicant should confirm that this information has been considered in any potential impacts to traffic and the surrounding Town/ State roads.*

Current Fuss & O'Neill Comment: The applicant has noted that the site has been designed to have as little impact as possible and require the site to only bring in material for selects, concrete and pavement. No further Fuss & O'Neill comment.

- p. *Former Fuss & O'Neill Comment: HR 290-7.A.7. Although the test pits provided within the Infiltration Feasibility Report do not illustrate potential ledge, blasting of ledge may be found to be required*



Mr. Brian Groth
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for this project. If so, the applicant must provide additional information on blasting locations, schedules, and quantities proposed to the Town prior to those events as part of the permitting process. Also, abutting residential property owners will need at a minimum to be provided advanced notice of pending blasting operations, and the applicant will be required to follow all other notification requirements of blasting permits.

Current Fuss & O'Neill Comment: The applicant has agreed to keep the Town and abutters informed. No further Fuss & O'Neill comment.

- q. *Former Fuss & O'Neill Comment: HR 290-7.B.13. The applicant should provide the Site Specific Soils report and mapping required by NHDES AoT upon the plan set as well as documentation within the Drainage Report.*

Current Fuss & O'Neill Comment: The applicant has provided the information within the report. No further Fuss & O'Neill comment.

- r. *Former Fuss & O'Neill Comment: HR 290-8.A.4 & 5. We note the requirement of the applicant to coordinate the need for a Bond or Escrow with the Town Engineer.*

Current Fuss & O'Neill Comment: The applicant has provided this note on the plan set. No further Fuss & O'Neill comment.

- s. *Former Fuss & O'Neill Comment: HR 290-8.A.10.A. The applicant should keep the Town informed of all communication with NHDES in relation to the required Alteration of Terrain and Wetlands Permits being requested to ensure NHDES comments do not alter the drainage design/calculations.*

Current Fuss & O'Neill Comment: The applicant has agreed to keep the Town informed. No further Fuss & O'Neill comment.

- t. *Former Fuss & O'Neill Comment: HR 290-8.A.10.A. We note that additional items will be required for the NHDES AoT Permit, which could potentially affect the stormwater calculations and/or construction of the site. Please provide additional detail on the following items:*
- i. The applicant should review typical NHDES screening layers as well as the NHDES PFAS sampling maps.*
 - ii. We note the phasing of the site will be required to meet the 5-acre disturbed area limit from NHDES Env-1505.03 unless a waiver is requested.*
 - iii. We note the phasing of the site will be required to meet the 1-acre winter disturbed area limit from NHDES Env-1505.06(b)(1) unless a waiver is requested.*

Current Fuss & O'Neill Comment: The applicant as stated that there is no know results of PFAS on site and that they will coordinate with NHDES if the disturbance exceeds five acres or the one-acre winter disturbance. No further Fuss & O'Neill comment.

- w. *Former Fuss & O'Neill Comment: ETGTD Section 930.3. The applicant should provide a detail for outlet structures E and H which illustrate the proposed orifices within the outlet structures.*

Current Fuss & O'Neill Comment: The applicant has provided details. No further Fuss & O'Neill comment.

- x. *Former Fuss & O'Neill Comment: ETGTD Section 930.3. The applicant should provide a detail of the cross section of ponds E and H to coincide with other cross sections provided upon the detail sheet.*



Mr. Brian Groth
December 21, 2021
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Current Fuss & O'Neill Comment: The applicant has provided the detail. No further Fuss & O'Neill comment.

- y. *Former Fuss & O'Neill Comment: ETGTD Section 930.3. The applicant should add the required 4' minimum cover to the "Typical Trench Detail" on the Site Details-10 plan sheet.*

Current Fuss & O'Neill Comment: The applicant has added the requested information. No further Fuss & O'Neill comment.

- z. *Former Fuss & O'Neill Comment: ETGTD Section 930.4. We note that the majority of the stormwater design utilizes pipe slopes of less than the required 2.0%. The applicant should discuss with the Town Engineer if this pipe slope is adequate. F&O takes no exception to the request of a waiver if deemed necessary if the applicant can illustrate the drain line velocities are self-cleaning.*

Current Fuss & O'Neill Comment: The applicant has noted that no waiver is required. No further Fuss & O'Neill comment.

- aa. *Former Fuss & O'Neill Comment: The applicant will be required to comply with all provisions of the Town of Hudson's MS4 permit, including but not limited to annual reporting requirements, construction site stormwater runoff control, and record keeping requirements.*

Current Fuss & O'Neill Comment: The applicant added a note to the plan set. No further Fuss & O'Neill comment.

11. Other

- f. *Former Fuss and O'Neill Comment: The applicant should review the sheet title on sheet 74. It appears an Erosion Control Plan has been labeled as a Landscape Plan.*

Current Fuss & O'Neill Comment: The applicant has revised the plan set. No further Fuss & O'Neill comment.

Please feel free to call if you have any questions.

Very truly yours,

Steven W. Reichert, P.E.

Steven W. Reichert, PE

Digitally signed by Steven W. Reichert, PE
DN: cn=Steven W. Reichert, PE, c=US, o=Fuss & O'Neill, Inc., ou=Fuss & O'Neill, Inc., email=sreichert@fando.com
Date: 2021.12.21 11:36:55 -0500

SWR:

Enclosure

cc: Town of Hudson Engineering Division – File
The Dubay Group – karl@thedubaygroup.com



The Dubai Group, Inc.

136 Harvey Rd Bldg B101

Londonderry, NH 03053

603-458-6462 thedubaygroup.com

MEMORANDUM

To: Brian Groth Date: January 11, 2022

From: Karl Dubay Re: Friars Drive Industrial Facility Site Plan
Revisions for Final Review Comments

We are pleased to submit to you the revised information today, pertaining to the Fuss & O'Neill 12-21-2021 review comments, planning board and staff comments, and fencing solutions coordinated via our client.

Regarding the F&O site comments, the only remaining items were:

- 6.v We provided the typical location of construction equipment storage. Note that the plans had shown typical dumpster unit locations near docks.
- 8.a We provided inlet protection for existing cb's near the stabilized construction entrance.

Both of these items are shown on the erosion control plan.

Regarding the F&O review item pertaining to Town Evaluation Item #1d, we have referenced the waiver that was granted by the board on the parking quantity (see parking summary plan and site regulations notes sheets).

We also updated the project fencing detailing and locations, which are summarized on the landscape plans and detail sheet. Based on input received from abutters, our client is providing an eight foot dark green vinyl coated CLF with privacy slats essentially along the Fox Hollow Condominiums and Friars Court apartment property lines, set approximately ten feet into our property, and installed to avoid significant trees. Any coordinated openings to accommodate wildlife will be determined by NH Fish & Game Department and NHDES.

The plans also include a robust protective covenant package that our client has been coordinating with you, as well as the R4-5 signage keeping exiting trucks in the right only lane and No Truck Idling sign at the facility entrance.



MEMORANDUM

TO: File

FROM: Steven W. Reichert PE

DATE: January 19, 2022

RE: Town of Hudson Planning Board Review
Friars Drive Industrial Facility Site Plan
Tax Map 209, Lot 1; Acct. #1350-975
Fuss & O'Neill Reference No. 20030249.2060

The following list itemizes the set of documents reviewed related to the Friars Drive Industrial Facility Site Plan, located at 161 Lowell Road in Hudson, New Hampshire.

- Letter of Transmittal from TFM to Fuss & O'Neill, dated January 10, 2022, received on January 12, 2022, including the following:
 1. Copy of *Layout Plan, Friars Drive*, Sheet 1 of 2, prepared by TFM, dated December 15, 2021, revised January 4, 2022.
 2. Copy of *Grading, Drainage and Utilities Plan, Friars Drive*, Sheet 2 of 2, prepared by TFM, dated December 15, 2021, revised January 4, 2022.
- Package from the Dubai Group, Inc. received by Fuss & O'Neill on January 11, 2022, including the following:
 1. Copy of a memorandum from the Dubai Group, Inc., to the Town of Hudson, dated January 11, 2022.
 2. Copy of *NHDES Alteration of Terrain Permit Application & Drainage Analysis, Friars Drive*, prepared by the Dubai Group, Inc., dated October 4, 2021, revised November 23, 2021.
 3. Copy of *Site Plan, Friars Drive, Parcel 209-001-000 @ Sagamore Industrial Park, Hudson, New Hampshire*, prepared by the Dubai Group, Inc., dated August 3, 2021, revised January 11, 2022, unless otherwise noted, including the following:
 - a. *Title Sheet*, Sheet 1.
 - b. *Zoning Ordinance Compliance Notes*, Sheet 2, revised September 28, 2021.
 - c. *Site Regulations Compliance Notes*, Sheet 3.
 - d. *Existing Conditions Overview Plan*, Sheet 4, revised September 20, 2021.
 - e. *Existing Conditions Plan – A to G*, Sheet 5 to 11, revised September 20, 2021.
 - f. *Site Specific Soils Plan*, Sheet 12, dated September 16, 2021, with no revisions noted.
 - g. *Tract Overview Plan*, Sheet 13, revised November 23, 2021.
 - h. *Site Overview Plan*, Sheet 14.
 - i. *Site Plan – A*, Sheet 15, with no revisions noted.
 - j. *Site Plan – B to E*, Sheet 16 to 19, revised November 23, 2021.
 - k. *Site Plan – F to H*, Sheet 20 to 22, with no revisions noted.
 - l. *Access Summary*, Sheet 23, with no revisions noted.
 - m. *Main Entrance Detail*, Sheet 24.
 - n. *Site Circulation Plan*, Sheet 25, revised November 23, 2021.
 - o. *Landscape Overview*, Sheet 26.
 - p. *Landscape Plan - A*, Sheets 27.
 - q. *Landscape Plan - B to D*, Sheets 28 to 30, revised November 23, 2021.



Memo to File

Fuss & O'Neill Reference No. 20030249.2060

January 19, 2022

Page 2 of 2

- r. *Landscape Plan* – E to H, Sheets 31 to 34.
- s. *Landscape Details*, Sheet 35, revised November 23, 2021.
- t. *Parking Compliance & Landscape Summary*, Sheet 36.
- u. *Site Sections*, Sheet 37.
- v. *Green Space & Impervious Area Summary*, Sheet 38, revised November 23, 2021.
- w. *Grading & Drainage Overview Plan*, Sheet 39, revised November 23, 2021.
- x. *Cut/Fill Balance Plan*, Sheet 40, revised November 23, 2021.
- y. *Drainage & Grading Plan - A*, Sheets 41, revised October 5, 2021.
- z. *Drainage & Grading Plan - B to F*, Sheets 42 to 46, revised November 23, 2021.
- aa. *Drainage & Grading Plan – G to H*, Sheets 47 to 48, revised October 5, 2021.
- bb. *Utility Overview Plan*, Sheet 49, revised November 23, 2021.
- cc. *Utility Plan – A*, Sheet 50, with no revisions noted.
- dd. *Utility Plan – B to F*, Sheet 51 to 55, revised November 23, 2021.
- ee. *Utility Plan – G to H*, Sheet 56 to 57, with no revisions noted.
- ff. *Lighting Overview Plan*, Sheet 58, revised November 23, 2021.
- gg. *Lighting Plan – A*, Sheet 59, with no revisions noted.
- hh. *Lighting Plan – B to C*, Sheet 60 to 61, revised November 23, 2021.
- ii. *Lighting Plan – D*, Sheet 62, with no revisions noted.
- jj. *Lighting Details*, Sheet 63, revised November 23, 2021.
- kk. *Sewer Service Overview Plan*, Sheet 64, revised November 23, 2021.
- ll. *Sewer Plan – A to B*, Sheet 65 to 66, revised November 23, 2021.
- mm. *Sewer Plan – C*, Sheet 67, revised September 20, 2021.
- nn. *Sewer Profile – A to B*, Sheet 68 to 69, revised November 23, 2021.
- oo. *Sewer Profile – C*, Sheet 70, revised September 20, 2021.
- pp. *Sewer Details*, Sheet 71, revised September 20, 2021.
- qq. *Erosion Control Overview Plan*, Sheet 72.
- rr. *Erosion Control Plan – A*, Sheet 73.
- ss. *Erosion Control Plan – B to E*, Sheet 74 to 77, revised November 23, 2021.
- tt. *Erosion Control Plan – F to G*, Sheets 78 to 79.
- uu. *Erosion Control Plan – H*, Sheet 80, revised October 5, 2021.
- vv. *Site Details – 1 to 7*, Sheet D1 to D7, revised October 5, 2021.
- ww. *Site Details – 8 to 10*, Sheet D8 to D10, revised November 23, 2021.
- xx. *Site Details – 11 to 13*, Sheet D11 to D13, revised October 5, 2021.
- yy. *Site Details – 14*, Sheet D14.
- zz. *Restrictive Covenants Plan*, Sheet C1.
- aaa. *Proposed East and West Elevations*, Sheet A101, prepared by Applied Form +Space, dated August 2, 2021, with no revisions noted.
- bbb. *Proposed North and South Elevations*, Sheet A102, prepared by Applied Form +Space, dated August 2, 2021, with no revisions noted.

SWR:elc

cc: Brian Groth – Town of Hudson
Town of Hudson Engineering Division – File



January 19, 2022

Mr. Brian Groth
Town Planner
Town of Hudson
12 School Street
Hudson, NH 03051

Re: Town of Hudson Planning Board Review
Friars Drive Industrial Facility Site Plan, 161 Lowell Road
Tax Map 209 Lot 1; Acct. #1350-975
Reference No. 20030249.2060

Dear Mr. Groth:

Fuss & O'Neill (F&O) has reviewed the fourth submission of the materials received on January 11, 2022, related to the above-referenced project. A list of items reviewed is enclosed. The scope of our review is based on the Site Plan Review Codes, Stormwater Codes, Driveway Review Codes, Sewer Use Ordinance 77, Zoning Regulations, and criteria outlined in the CLD Consulting Engineers Proposal approved September 16, 2003, revised September 20, 2004, June 4, 2007, September 3, 2008, and October 2015.

The project appears to consist of the development of a 504,000 square foot industrial/warehouse building project on a previously undeveloped site. Proposed improvements to the site also include the construction of a driveway, parking areas, drainage improvements, landscaping, lighting and other associated site improvements. The proposed buildings will be serviced by public water and sewer.

Note that we have removed previously resolved comments from this letter for brevity. Refer to our letters dated October 7, 2021 and December 21, 2021, to see those comments.

The following items have outstanding issues:

1. Site Plan Review Codes (HR 275)

h. *New Fuss & O'Neill Comment: HR 275-6.T. The applicant has forwarded concept plans for off-site improvements adjacent to Lowell Road at the Friars Drive intersection. Review of those plans will be performed separately once design drawings have been received from the applicant.*

Current Fuss & O'Neill Comment: The applicant has provided off-site improvements plans for review. Comments are provided below.

i. *New Fuss & O'Neill Comment: HR 275-6.T. The applicant has shown an easement right-of-way for the improvements. We note that the relocated utility pole is outside of that easement. The applicant should review the need for a separate utility easement for the pole and anchor.*

j. *New Fuss & O'Neill Comment: HR 275-6.T. The applicant should review the need to relocate CB-13 against the proposed curb line. The current layout appears to put the catch*

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Massachusetts
New Hampshire
Rhode Island
Vermont



Mr. Brian Groth
January 19, 2022
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basin in the wheel path of vehicles.

- k. New Fuss & O'Neill Comment: HR 275-6.T. The applicant did not include the off-site improvements within the site plan set. We note that if it is meant to be a standalone plan then details should be added for the pavement, curb and utility relocations.

The following items require Town evaluation or input:

6. Drainage Design/Stormwater Management (HR 275-9.A./Chapter 290)

- u. *Former Fuss & O'Neill Comment: Engineering Technical Guidelines and Typical Details (ETGTD) Section 930.13. Although this is not a public roadway cut section, due to some areas of significant cut upon the site (in the range of 10'-15'), the applicant should review the need for underdrain to help prolong the life of the pavement, drainage system, and building structures. The applicant should also comment on how this ground water, soon to be surface stormwater, is accounted for within the drainage calculations.*

Current/Former Fuss & O'Neill Comment: The applicant should keep the town informed with any findings the geotechnical engineer uncovers during their evaluation. The suggestion of the addition of notes/locations of any future underdrains be placed onto the plans with tie in information into catch basins, is an appropriate approach.

The following items are resolved or have no further Fuss & O'Neill input:

1. Site Plan Review Codes (HR 275)

- d. *Former Fuss & O'Neill Comment: HR 275-8.C.(2) and Zoning Ordinance (ZO) 334-15.A. The applicant has provided parking calculations on the plan set. The applicant has noted that 840 parking spaces are required based on 1 space per 600 square feet or 0.75 spaces per employee for the 2 largest shifts combined. The applicant has proposed 362 spaces and has noted that a maximum employee count would be controlled by the building owner at 241 employees per shift to meet the 362 spaces. We note that the applicant should update the parking space number for Lot C on Sheet 36 as it appears 51 spaces are provided and 40 spaces are noted./ The applicant has updated the plan note. The applicant should review with the Town the need to submit a waiver request for the number of parking spaces proposed. / The applicant has revised the parking to show 366 parking spaces and has removed some of the trailer parking slips. The applicant should continue to review with the Town if a waiver is need for the number of parking spaces.*

Current Fuss & O'Neill Comment: The applicant has received a waiver from the Town. No further Fuss & O'Neill comment.

5. Utility Design/Conflicts

- e. *Former Fuss & O'Neill Comment: Town of Hudson Sewer Use Ordinance (SUO) 77. The applicant has noted that there may be an industrial use or uses within the proposed building. Any industrial user discharging to the Town sewer system must be permitted for that discharge. The individual industries will need to coordinate with the Town for this permitting approval.*

Former/Current Fuss & O'Neill Comment: The applicant has noted that industrial sewer discharges are not anticipated with this permit. The applicant should be aware that if any industry within the building meets the definition of an industrial user in the Hudson Sewer



Mr. Brian Groth
January 19, 2022
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Use Ordinance, then they would be required to participate in the Industrial Pretreatment Program, even if no industrial discharge is anticipated. No further Fuss & O'Neill comment.

6. Drainage Design/Stormwater Management (HR 275-9.A./Chapter 290)

- v. *Former Fuss & O'Neill Comment: ETGTD Section 920.4.2. The applicant has not shown equipment storage locations on the plans. /The applicant has noted that equipment needs are subject to the tenants of the facility. The intent of our comment is to illustrate the location of construction equipment locations with an emphasis on any potential fueling areas, with respect of potential environmental concerns. We continue to recommend that the applicant provide construction equipment storage location on the plan.*

Current Fuss & O'Neill Comment: The applicant has added the information on the erosion control plan. No further Fuss & O'Neill comment.

8. Erosion Control/Wetland Impacts

- a. *Former Fuss & O'Neill Comment: The applicant has not included erosion and sedimentation control plans in the current plan review submission. Fuss & O'Neill will review these with a future submission when provided. / The applicant has provided erosion and sediment control plans as part of this review. The applicant should provide inlet protection for the catch basins shown adjacent to the stabilized construction entrance. Please note that additional erosion and sedimentation control review comments may be forthcoming with the review of the drainage plans. /We continue to recommend that the applicant should provide inlet protection for the existing catch basins shown adjacent to the stabilized construction entrance.*

Current Fuss & O'Neill Comment: The applicant as added inlet protection to the Erosion Control Plan. No further Fuss & O'Neill comment.

Please feel free to call if you have any questions.

Very truly yours,

Steven W. Reichert, P.E.

SWR:

Enclosure

cc: Town of Hudson Engineering Division – File
The Dubay Group – karl@thedubaygroup.com

12/21/2021

Steven Reichert, P.E.
Fuss & O'Neill, Inc.
The Gateway Building
50 Commercial Street, Unit 25
Manchester, NH 03101

Transmitted via email to: SReichert@fando.com

Re: Peer Review of the Updated Sound Study (dated 12/2/2021) for the Proposed Lowell Road Warehouse Facility in Hudson, New Hampshire

Reference: HMMH Project No. 312910

Dear Mr. Reichert,

Harris Miller Miller & Hanson Inc. (HMMH) was retained by Fuss & O'Neill, Inc. (F&O) to review and provide our professional opinion on the updated sound study prepared by Tech Environmental for the proposed industrial facility on Friars Drive/Lowell Road in Hudson, New Hampshire. This review was undertaken on behalf of the Planning Board of the Town of Hudson. As part of this undertaking, I reviewed the following documents:

- "Sound Study of 161 Lowell Road, Hudson, NH," prepared by Marc C. Wallace, Ref 4686, December 2, 2021, i.e. the "Updated Report".
- The Code of the Town of Hudson, NH, Part II: General Legislation, Chapter 249 Noise (accessed at <https://ecode360.com/14323784>), i.e. the "Noise Ordinance".

Based on my review of the Updated Report, Tech Environmental has addressed Comments 2 through 5 in my prior review that as dated 11/30/2021. However, the Updated Report still may underestimate the sound level contribution from trucks in motion.

In my prior review, I noted that the sound power level for idling medium and heavy trucks would range from 100 to 106 dBA based on the reference energy-mean emission levels in the Federal Highway Administration Traffic Noise Model. The figure on the next page is an excerpt from the "FHWA Traffic Noise Model, Version 1.0, Technical Manual" that shows the A-weighted vehicle noise emission levels as a function of speed under cruise conditions.¹ At low speeds, below about 15 mph, the noise emission level from a heavy truck is constant and essentially consists of engine noise only. At speeds above about 15 mph, the effect of tire/pavement noise begins to contribute to the emission level of a heavy truck.

Appendix A of the Updated Report shows the reference sound power levels used in the modeling of the proposed facility. The sound power level for idling trucks used in the model is 106 dBA; however, the sound power level for truck traffic used in the model is 100 dBA. In my opinion, the sound power level for a truck moving at a speed of 15 mph should be at least as high as that of a truck at idle.

¹ Menge, Christopher W., et al, "FHWA Traffic Noise Model (FHWA TNM®) Technical Manual," U.S. Department of Transportation, Federal Highway Administration, Final Report, FHWA-PD-96-010, DOT-VNTSC-FHWA-98-2, February 1998. Available at: https://www.fhwa.dot.gov/environment/noise/traffic_noise_model/old_versions/tnm_version_10/tech_manual/index.cfm

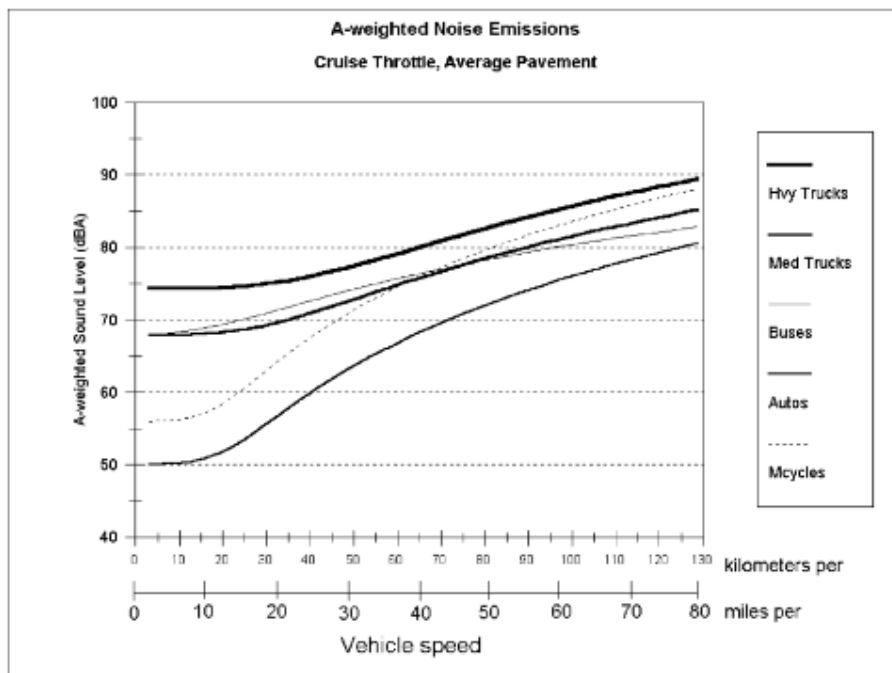


Figure 2. A-Weighted Vehicle Noise Emission Levels under Cruise Conditions

I also offer the following observation, which was admittedly missed during prior reviews:

- On page 9, the Report states that offsite topography was based on digital terrain models from MassGIS. I was not aware that the Commonwealth of Massachusetts provided coverage beyond its borders. I was not able to access information about the digital terrain models at the URL provided in footnote 9 of the Updated Report. If the digital terrain models were indeed accessed from MassGIS, does MassGIS have any statements about the accuracy of the data – especially beyond its borders?

Please let me know if you have any questions.

Sincerely yours,

Harris Miller Miller & Hanson Inc.

Christopher Bajdek, INCE
Principal Consultant

cc:





December 22, 2021

Lowell Road Property Owner, LLC
c/o GFI Partners, LLC
Attn: Hayley Palazola
133 Pearl Street, Suite 300
Braintree, MA 02110

Re: HMMH Peer Review of Sound Study of 161 Lowell Road, Hudson, NH

Ref 4686

Dear Hayley:

Tech Environmental, Inc. (Tech) is pleased to provide this response to the comments and findings of a “Peer Review of the Updated Sound Study (dated 12/2/2021) for the Proposed Lowell Road Warehouse Facility in Hudson, New Hampshire” prepared by Harris Miller & Hanson, Inc. (HMMH) and dated December 21, 2021. And, attached is a revised Sound Study of 161 Lowell Road, Hudson, NH, which addresses the comments of HMMH.

The primary HMMH comment is in regard to the reference sound power level used for truck traffic, which is referenced to as 100 dBA. Truck traffic moving in and out of the site is not a continuous sound source, but an intermittent one, that is most appropriately modeled as a line source containing a “moving point source” with the “PWL-Pt” option in the CandaA model. The line source in the model accounting for truck traffic assumes that one (1) heavy truck is traveling around the site at 15 miles per hour (mph) (24.1 km/hr), and a maximum of four and a half (4.5) times per hour. The intermittent emission from the truck is assumed to be 106 dBA, which is consistent with the Federal Highway Administration (FHWA) Traffic Noise Model (TNM) reference sound levels for medium and heavy trucks. And the distance around the site roadway is 4,439 feet (1,353 meters). The resulting sound level for the line source representing the heavy truck traffic is 100 dBA per the following equation:

$$100 \text{ dBA} = 106 \text{ dBA} + 10 \log\left(4.5 \frac{\text{trips}}{\text{hr}}\right) + 10 \log(1,353 \text{ meters}) - 10 \log\left(24.1 \frac{\text{km}}{\text{hr}}\right) - 30 \text{ dB}$$

We have added language to the revised report to better explain that the truck traffic has been modeled as a line source containing a moving point source.

The final HMMH comment questions the use of Massachusetts GIS offsite topography data and its accuracy. Massachusetts GIS data was not used for the modeling and was a typo in our report. Offsite topography was actually determined using digital terrain models from New Hampshire's Statewide Geographic Information System (GIS) Clearinghouse (NH GRANIT), which is an appropriate source for offsite topography data for the project site. This language has been corrected in our revised report.

Meeting Date: 1/26/22

Lowell Road Property Owner, LLC

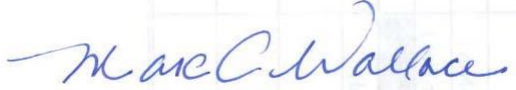
SP #10-21 - Friars Drive Industrial Facility - Attachment E

December 22, 2021

If you have any questions, please call me at 781-890-2220.

Sincerely,

TECH ENVIRONMENTAL, INC.



Marc C. Wallace, QEP, INCE
Vice President



December 2, 2021

Lowell Road Property Owner, LLC
c/o GFI Partners, LLC
Attn: Hayley Palazola
133 Pearl Street, Suite 300
Braintree, MA 02110

Re: Sound Study of 161 Lowell Road, Hudson, NH

Ref 4686

Dear Hayley:

Tech Environmental, Inc. (Tech) is pleased to provide this letter report summarizing the results of an acoustic modeling study of the proposed 161 Lowell Road warehouse facility in Hudson, New Hampshire. The goal of this work was to demonstrate that the proposed warehouse development will comply with sound limits in Chapter 249 of the Town of Hudson General Code (herein referred to as Noise Ordinance).

This letter report summarizes the modeling analysis performed for this study. Section 1.0 provides an introduction to the common measures of environmental sound. Section 2.0 presents ambient sound monitoring results, Section 3.0 presents the applicable noise regulations, and Section 4.0 presents the acoustic modeling approach and results. The study concludes that the proposed warehouse development will generate sound level impacts that fully comply with the Town of Hudson Noise Ordinance.

1.0 Common Measures of Environmental Sound

Noise is defined as "unwanted sound", which implies sound pressure levels that are annoying or disrupt activities that people are engaged in. The human sense of hearing is subjective and highly variable between individuals. Noise regulations and guidelines set quantitative limits to the sound pressure level (measured with sound analyzers and predicted with computer models) in order to protect people from sound exposures that most would judge to be annoying or disruptive.

The loudness of a sound is dependent on the radiated energy of the sound source and the propagation and attenuation characteristics of the air. The standard unit of sound pressure level (L_p) is the decibel (dB). A property of the decibel scale is that the sound pressure levels of two separate sounds are not directly additive. For example, if a sound of 40 dB is added to another sound of 40 dB, the total is only a 3 dB increase, not a doubling to 80 dB. For broadband sounds, a 3 dB change is the minimum change perceptible to the human ear. Table 1 presents the perceived change in loudness of different changes in sound pressure levels.

There are various measures of sound pressure designed for different purposes. To establish the background ambient sound level in an area, the L_{90} metric, which is the sound level exceeded 90 percent of the time, is typically used. The L_{90} can also be thought of as the level representing the quietest 10 percent of any time period. The L_{eq} , or equivalent sound level, is the steady-state sound level over a period of time that

has the same acoustic energy as the fluctuating sounds that actually occurred during that same period. It is commonly referred to as the average sound level. The L_{max} , or maximum sound level, represents the one second peak level experienced during a given time period.

TABLE 1
SUBJECTIVE EFFECT OF CHANGES IN SOUND PRESSURE LEVELS

Change in Sound Pressure Level	Perceived Change in Loudness
3 dB	Just perceptible
5 dB	Noticeable
10 dB	Twice (or half) as loud

The acoustic environment in a suburban commercial/residential area, such as that surrounding 161 Lowell Road in Hudson, primarily results from motor vehicle traffic on Route 3 and local roadways. Typical sound levels associated with various activities and environments are presented in Table 2.¹

TABLE 2
COMMON SOUND LEVELS

Sound Level (dBA)	Common Indoor Sounds	Common Outdoor Sounds
110	Rock Band	Jet Takeoff at 1000'
100	Inside NYC Subway Train	Chain Saw at 3'
90	Food Blender at 3'	Impact Hammer (Hoe Ram) at 50'
80	Garbage Disposal at 3'	Diesel Truck at 100'
70	Vacuum Cleaner at 10'	Lawn Mower at 100'
60	Normal Speech at 3'	Auto (40 mph) at 100'
50	Dishwasher in Next Room	Busy Suburban Area at night
40	Empty Conference Room	Quiet Suburban Area at night
25	Empty Concert Hall	Rural Area at night

¹ U.S. DOT, FHWA, Noise Fundamentals Training Document, Highway Noise Fundamentals, September, 1980.

2.0 Existing Sound Levels

2.1 Long-term Monitoring

To identify the lowest L_{90} background level of the nearest residential areas surrounding the proposed warehouse development, a long-term sound analyzer was used to measure hourly sound levels over a seven-day period, including a weekend, to provide a complete picture of 24-hour sound conditions at the site. The location of the long-term sound level measurements are presented in Figure 1. The long-term sound analyzer measured hourly sound levels and octave band levels from Tuesday, October 5, 2021 through Wednesday, October 13, 2021.

The long-term measurements were collected with a Larson Davis 831 sound level analyzer. This analyzer is equipped with a 1/2" precision condenser microphone and has an operating range of 5 dB to 140 dB, and an overall frequency range of 3.5 to 20,000 Hz. This analyzer meets or exceeds all requirements set forth in the American National Standards Institute (ANSI) Type 1 Standards for quality and accuracy. Prior to and immediately following the measurement session, the sound analyzer was calibrated (no level adjustment was required, therefore it was monitoring accurately) with an ANSI Type 1 calibrator, which has an accuracy traceable to the National Institute of Standards and Technology (NIST). For the measurement sessions, the microphone was fitted with a 7-inch windscreen to negate the effect of air movement across microphone diaphragm. All data were downloaded to a computer following the measurement session for the purposes of storage and further analysis. Sound measurements that included high-frequency natural sounds, such as from insects and birds, were removed and broadband L_{90} sound levels were recalculated.²

A summary of the long-term sound measurement results are provided in Table 3. One-hour background levels (L_{90}) ranged from 39 to 52 dBA. The overall sound levels measured are typical of a suburban area located near busy roads. For the long-term measurements the lowest one-hour L_{90} levels of 39 dBA were selected as the existing background sound level at the site. This sound level was measured on Sunday October 10, 2021 between 1:00 a.m. and 6:00 a.m.

² Acoustical Society of America, American National Standard ANSI/ASA S3/SC1.100-2014 and ANSI/ASA S12.100 "Methods to Define and Measure the Residual Sound in Protected Natural and Quiet Residential Areas", 2014.

TABLE 3

**SUMMARY OF LONG-TERM BASELINE SOUND LEVELS (L₉₀, dBA)
Tuesday, October 5, 2021 to Wednesday, October 13, 2021**

Hour Starting	Measured L ₉₀ Broadband Hourly Sound Levels (dBA)								
	Tues 10/5/21	Wed 10/6/21	Thurs 10/7/21	Fri 10/8/21	Sat 10/9/21	Sun 10/10/21	Mon 10/11/21	Tues 10/12/21	Wed 10/13/21
Midnight	--	40	42	44	41	40	41	40	42
1 a.m.	--	41	42	44	40	39	41	40	42
2 a.m.	--	40	42	44	40	39	41	40	41
3 a.m.	--	41	41	43	40	39	41	40	42
4 a.m.	--	40	41	43	40	39	41	41	43
5 a.m.	--	44	44	44	41	39	42	44	47
6 a.m.	--	46	45	46	41	41	43	45	49
7 a.m.	--	47	47	47	41	42	44	48	51
8 a.m.	--	46	43	46	42	42	42	45	49
9 a.m.	--	43	44	44	43	41	42	47	47
10 a.m.	--	42	43	45	43	42	42	45	45
11 a.m.	--	41	42	44	43	44	44	44	--
Noon	--	41	43	45	42	44	43	48	--
1 p.m.	--	42	43	46	43	44	43	44	--
2 p.m.	--	43	46	46	45	45	47	44	--
3 p.m.	44	44	52	46	45	45	43	44	--
4 p.m.	42	45	46	46	44	44	43	46	--
5 p.m.	42	45	46	46	43	43	43	46	--
6 p.m.	42	47	48	44	43	42	44	48	--
7 p.m.	43	47	47	43	42	42	44	47	--
8 p.m.	41	47	47	42	42	42	43	45	--
9 p.m.	41	45	47	41	41	42	43	45	--
10 p.m.	41	44	46	41	42	41	42	44	--
11 p.m.	41	43	46	41	41	41	41	43	--

* Lowest hourly sound level was measured on Sunday, October 10, 2021 between 1:00 a.m. and 6:00 a.m.

2.2 Short-term Monitoring

Short-term baseline sound levels were measured during the late night hours (12:00 a.m. to 1:56 a.m.) on Wednesday, October 13, 2021 at four (4) additional monitoring locations. Skies were clear with no precipitation; the temperature was 57°F, and wind speeds were calm. The approximate locations of the short-term sound level measurements are presented in Figure 1. One (1) set of sound level measurements, of 20 minutes in duration, was conducted at each of these locations during the late night hours. Broadband A-weighted maximum (L_{max}), average (L_{eq}) and background (L₉₀) sound levels were measured at each location to provide a complete picture of sound conditions in the residential areas surrounding the site.

All short-term (20-minute) sound level measurements were collected by an acoustic engineer using a Brüel & Kjær Model 2250 ANSI Type 1 (high precision) real-time sound level analyzer, which was equipped with a precision condenser microphone, windscreen, and frequency analyzers. This analyzer is equipped with a 1/2" precision condenser microphone and have an operating range of 5 dB to 140 dB, and an overall frequency range of 3.5 to 20,000 Hz. This analyzer meets or exceeds all requirements set forth in the American National Standards Institute (ANSI) Type 1 Standards for quality and accuracy. Prior to, and immediately following, each measurement session, the sound analyzer was calibrated (no level adjustment was required, therefore it was monitoring accurately) with an ANSI Type 1 calibrator, which has an accuracy traceable to NIST. For each measurement session, the microphone was fitted with a 7-inch windscreen to negate the effect of air movement across microphone diaphragm. All data were downloaded to a computer following the measurement session for the purposes of storage and further analysis. Concurrent observations of audible activity from sound-producing sources was recorded by the acoustic engineers. Sound measurements that included high-frequency natural sounds witnessed by Tech, such as from insects and birds, were removed and broadband L_{90} sound levels were recalculated.³

A summary of the short-term sound level measurement results is provided in Table 4. The background levels (L_{90}) ranged from 34 to 37 dBA in the late night hours. The dominant sources of sound were distant and local traffic and natural sounds such as birds and insects. The overall sound levels measured are typical of a suburban area located near busy roads.

TABLE 4
SUMMARY OF LATE NIGHT SHORT-TERM SOUND LEVELS (dBA)
SURROUNDING THE PROJECT SITE
Wednesday, October 13, 2021, 12:00 a.m. to 1:34 a.m.

Measured Broadband Sound Levels (dBA)	Location #1: 800 Fox Hollow Drive	Location #2: 500 Fox Hollow Drive	Location #3: Hickory Street & Locust Street	Location #4: Hickory Street & Juniper Street
	12:00 a.m. – 12:20 a.m.	12:24 a.m. – 12:44 a.m.	12:44 a.m. – 1:14 a.m.	1:26 a.m. – 1:56 a.m.
Baseline Sound Level (L_{90})	34	35	37	36

Ambient (L_{90}) sound levels concurrently collected at the long-term monitoring location were not consistent with the short-term monitoring results, presented above. That is, the sound level measured at the long-term monitoring location, during the same time period (42 dBA), was eight (8) dBA more than at Location #1 (800 Fox Hollow Drive, 34 dBA), was seven (7) dBA more than at Location #2 (500 Fox Hollow Drive, 35 dBA), was five (5) dBA more than at Location #3 (Hickory Street & Locus Street, 37 dBA) and was six (6) dBA more than at Location #4 (Hickory Street & Juniper Street, 36 dBA). This is not surprising given that the monitoring locations are varying distances from Route 3 and Route 3A, which are the principal sources of continuous sound in the area.

³ Acoustical Society of America, American National Standard ANSI/ASA S3/SC1.100-2014 and ANSI/ASA S12.100 "Methods to Define and Measure the Residual Sound in Protected Natural and Quiet Residential Areas", 2014.

Furthermore, the lowest one-hour L_{90} level measured by the long-term monitor of 39 dBA (see Section 2.1) was three (3) dBA less than the sound level measured by the meter during the short-term monitoring. Thus, sound levels measured at the short-term monitoring locations could have been three (3) dBA less if measured on the quietest night (i.e. 10/10/21 at 1:00 a.m.). Thus, this analysis assumes that the lowest ambient sound levels at each of the nearest sensitive locations are three (3) dBA less than was measured during the late night short-term sound monitoring (i.e. 31 dBA at Location #1, 32 dBA at Location #2, 34 dBA at Location #3 and 33 dBA at Location #4).

3.0 Noise Regulations

3.1 New Hampshire

The State of New Hampshire has not established regulations that set community noise exposure criteria. It is up to each individual community to establish noise regulations through community by-laws. Many local communities have some form of community noise ordinance.

3.2 Hudson Noise Ordinance

Noise is regulated under Chapter 249 Noise in the Town's general code. A summary of the applicable quantitative sound limits is presented below.

Under § 249-4. Prohibited noise emissions and conditions, no person or persons owning, leasing or controlling the operations of any source or sources of noise shall willfully, negligently or through failure to provide necessary equipment or facilities or through failure to take necessary precautions make or permit the emission of noise levels or conditions exceeding the following noise limits for the applicable land use:

B. Noise Limit 2: Continuous sound-level limits. No person shall cause the continuous sound level to exceed the following limits, as measured at the applicable locations in accordance with the provisions of § 249-3D(5) of this chapter:

Continuous L_{eq} (One-Hour³) Sound Limits (dBA)

Receptor Land Use Category	Daytime	Nighttime
Residential/Rural/Institutional ¹	55	50
Business/Recreational ²	65	55
Industrial	75	75

¹ Hospitals, schools, places of worship, libraries, public parklands, etc.

² Public playgrounds, swimming pools, athletic fields, golf courses, etc.

³ Where the offending source of noise is nearly constant over a one-hour period, a measurement sampling period of less than one hour, but no less than five minutes, is permitted. This measurement shall be made with the sound-level meter set to slow A-weighting responses.

Note the ordinance defines ambient sound level as the hourly energy-equivalent noise level that is produced by transportation vehicles, natural phenomena and distant activity which is not related to an offending sound source.

C. Noise Limit 3: Impulsive sound-level limits. No person shall cause an impulsive sound level that exceeds the following limits, as measured at the applicable locations in accordance with the provisions of § 249-3D(5) of this chapter:

Impulsive Sound Limits (dBC fast)

Receptor Land Use Category	Daytime	Nighttime
Residential/Rural/Institutional ¹	67	62
Business/Recreational ²	77	67
Industrial	87	87

¹Hospitals, schools, places of worship, libraries, public parklands, etc.

²Public playgrounds, swimming pools, athletic fields, golf courses, etc.

D. Noise Limit 4: Background referenced sound level. No person shall cause the background noise level, as defined in § 249-2 of this chapter, to increase by more than 10 dBA in any receptor area at any time of day.

Note the ordinance defines background noise as the highest A-weighted sound-pressure level which is exceeded 90% of the time period during which measurement is taken.

E. Noise Level 5: Pure-tone conditions. No person shall produce a pure-tone condition at the nearest receptor buildings or activity areas in rural/residential/institutional or business/recreational/industrial zoned property.

Note the ordinance defines a "pure tone" condition occurs when any octave band sound pressure level exceeds both of the two adjacent octave band sound pressure levels by 3 dB or more.

F. Noise Level 6: High noise-level areas. In areas where the ambient sound level is already as high as or higher than three dB below the sound-level limits of Noise Limit 2, no person shall cause the noise level in any area to increase by more than three dB. This limit is in lieu of Noise Limit 2, but shall not supersede any other noise limit as defined in this chapter.

The Noise Ordinance limits for continuous sounds from the project are 55 dBA during daytime hours and 50 dBA during nighttime hours. Continuous sound level impacts from the proposed warehouse development may not exceed those levels. The Noise Ordinance limits for background sounds are 49 dBA in the areas off of Lowell Road and Friars Drive, 41 dBA in the area of Location #1 (800 Fox Hollow Drive), 42 dBA in the area of Location #2 (500 Fox Hollow Drive), 44 dBA in the area of Location #3 (Hickory Street & Locust Street), and 43 dBA in the area of Location #4 (Hickory Street & Juniper Street). Background sound level impacts from the proposed warehouse development may not exceed those levels. The Noise Ordinance limits for impulsive sounds from the project are 67 dBC during daytime hours and 62 dBC during nighttime hours. A "pure tone" condition occurs when any octave band sound pressure level exceeds both of the two adjacent octave band sound pressure levels by 3 dB or more.

4.0 Modeling Assumptions and Results

This section describes the modeling approach and assumptions included in our acoustic modeling analysis, and predicted sound levels at the residences nearest to the proposed warehouse development.

4.1 Modeling Assumptions

Future sound levels of the proposed warehouse development were calculated with the CadnaA acoustic model assuming both continuous and background sources associated with the facility. The assumptions in our noise modeling analysis are as follows:

1. The location of the proposed warehouse development and associated grading was based on revised site plans by The Dubay Group, Inc.⁴ The plans show the proposed location of the warehouse building in the center of the lot, with loading docks to the north and south, and with car and trailer parking stalls in all directions surrounding the building. The location of the building and loading docks are unchanged in the revised site plans, however the buffer between the parking areas and the property lines have been increased. Furthermore, the revised site plans include a raised berm to the west of the warehouse development.
2. The primary sources of continuous operational sounds are rooftop-mounted heating, ventilation, and air conditioning (HVAC) equipment, and rooftop units (RTUs) on top of the building. Other sound sources assumed to be continuous are heavy trucks traveling to and from the facility, and four (4) trucks idling in the loading dock areas prior to leaving the facility. The modeling assumes that each idling truck will be limited to ten (10) minutes per the Hudson Town Code^{5,6}. Heavy trucks traveling to and from the facility have been modeled as a line source containing a moving point source (106 dBA) with a volume of 4.5 trucks per hour and an operating speed of 15 miles per hour (mph).
3. The primary sources of background operational sounds are rooftop-mounted heating, ventilation, and air conditioning (HVAC) equipment, and rooftop units (RTUs) on top of the building.
4. The primary sources of impulsive operational sounds are backup alarms in the loading dock areas when trucks are arriving to the facility.
5. The proposed warehouse development will operate up to 24 hours per day, seven days per week.

4.2 Future Sound Levels

Cadna-A is a sophisticated 3-D model for sound propagation and attenuation based on International Standard ISO 9613.⁷ Atmospheric absorption is the process by which sound energy is absorbed by the air

⁴ Friars Drive, Tax Map 209, Lot 001-000, 161 Lowell Road, Hudson, NH, Project #475. August 3, 2021, Revision November 23, 2021.

⁵ Hudson Town Code Chapter 249 (Noise), §249-4(J)(2) prohibits a vehicle from idling in excess of 10 minutes.

⁶ The modeling assumes an acoustical usage factor of 17% for the idling trucks, assuming each idles no more than 10 minutes in an hour.

⁷ International Standard, ISO 9613-2, Acoustics – Attenuation of Sound During Propagation Outdoors, -- Part 2 General Method of Calculation.

and was calculated using ANSI S1.26-1995.⁸ Absorption of sound assumed standard conditions and is significant at large distances and at high frequencies. ISO 9613 was used to calculate propagation and attenuation of sound energy by hemispherical divergence with distance, surface reflection, ground, and shielding effects by barriers, buildings, and ground topography. Offsite topography was determined using digital terrain models from New Hampshire's Statewide Geographic Information System (GIS) Clearinghouse (NH GRANIT).⁹ The residential modeling locations are illustrated in Figure 2.

The predicted maximum sound levels are conservative because:

1. The model assumes a ground-based temperature inversion, such as may occur on a clear, calm night when sound propagation is at a maximum. This worst-case condition is infrequent.
2. The model assumes that all rooftop equipment operate at maximum load simultaneously (a worst-case condition not likely to occur).
3. The model assumes that truck traffic occurs at all hours of the day and night, although the Town of Hudson currently limits commercial truck traffic from any Town road after 7:00 pm and until 6:00 am, except by special permit.¹⁰ This is a conservative approach.
4. The model assumes that all trucks are heavy trucks, although it is our understanding that both medium trucks and heavy trucks will access the site. This is a conservative approach.

Sound levels were predicted for the continuous operation of HVAC equipment and RTUs on top of the building, as well as heavy trucks traveling to and from the facility, trucks idling at the loading docks and backup alarms at the loading docks when trucks arrive at the facility. The reference sound levels for all sound sources are presented in Appendix A. The locations of the sound sources are illustrated as graphical inputs in Appendix B.

Continuous Sound Levels

Table 5 summarizes the modeling results for the continuous sound level impacts from the warehouse development. The primary sources of continuous sounds are HVAC equipment, RTUs, and heavy trucks. Those impacts range from 29 dBA to 45 dBA at the nearest residential property lines. The sound level impacts of the warehouse development at locations further away would be even less. Furthermore, the modeled sound level impact at the nearest residences does not demonstrate the presence of a pure tone condition. Table 5 confirms that the proposed warehouse development will comply with the Hudson Noise Ordinance limits for continuous sounds (i.e. 55 dBA daytime/50 dBA nighttime). Graphics that show sound level contours for continuous sounds are illustrated in Appendix C. Furthermore, a table of predicted octave band sound levels to demonstrate compliance with the pure tone condition of the Noise Ordinance are presented in Appendix E.

⁸ American National Standards Institute, ANSI S1.26-1995, American National Standard Method for the Calculation of the Absorption of Sound by the Atmosphere, 1995.

⁹ <https://granit.unh.edu/>

¹⁰ Chapter 317 Trucks, commercial vehicles and heavy vehicles in the Town's general code (§ 317-13(B)).

TABLE 5
CONTINUOUS SOUND LEVELS FROM THE WAREHOUSE DEVELOPMENT

Sensitive Receptor Location	Sound Level Impact of Project	Hudson Limit (Day/Night)	Complies?
7 Juniper Street	29 dBA	55/50 dBA	Yes
26 Hickory Street	30 dBA	55/50 dBA	Yes
24 Hickory Street	30 dBA	55/50 dBA	Yes
22 Hickory Street	30 dBA	55/50 dBA	Yes
20 Hickory Street	31 dBA	55/50 dBA	Yes
18 Hickory Street	32 dBA	55/50 dBA	Yes
16 Hickory Street	33 dBA	55/50 dBA	Yes
14 Hickory Street	34 dBA	55/50 dBA	Yes
12 Hickory Street	34 dBA	55/50 dBA	Yes
10 Hickory Street	35 dBA	55/50 dBA	Yes
8 Hickory Street	35 dBA	55/50 dBA	Yes
Fox Hollow Apartments	32 to 45 dBA	55/50 dBA	Yes
145 Lowell Road	33 dBA	55/50 dBA	Yes
149 Lowell Road	37 dBA	55/50 dBA	Yes
153 Lowell Road	43 dBA	55/50 dBA	Yes
155 Lowell Road	42 dBA	55/50 dBA	Yes
Friars Court Apartments	44 to 45 dBA	55/50 dBA	Yes
171 Lowell Road	45 dBA	55/50 dBA	Yes
173 Lowell Road	43 dBA	55/50 dBA	Yes

Background Sound Levels

Table 6 summarizes the modeling results for the background sound level impacts from the warehouse development. The primary sources of background sounds are HVAC equipment, and RTUs. Those impacts range from 24 dBA to 35 dBA at the nearest residential property lines. The sound level impacts of the warehouse development at locations further away would be even less. These projected sound levels are greater than the existing lowest ambient sound levels of 31 dBA to 39 dBA (see Section 2.0). The predicted total sound level during the quietest late night and early morning periods would therefore range from 32 dBA to 40 dBA. And, the resulting change in sound level would range from approximately + 0 dBA to + 2 dBA, which are less than the Hudson Noise Ordinance limit of + 10 dBA. Furthermore, the modeled sound level impact at the nearest residences does not demonstrate the presence of a pure tone condition. Table 6 confirms that the proposed warehouse development will comply with the Hudson Noise Ordinance limits for background sounds (i.e. less than a 10 dBA increase). Graphics that show sound level contours for background sounds are illustrated in Appendix D. Furthermore, a table of predicted octave band sound levels to demonstrate compliance with the pure tone condition of the Noise Ordinance are presented in Appendix E.

TABLE 6

BACKGROUND SOUND LEVELS FROM THE WAREHOUSE DEVELOPMENT

Sensitive Receptor Location	Lowest Ambient Sound Level	Sound Level Impact of Project	Total Future Sound Level	Sound Level Increase
7 Juniper Street	33 dBA	24 dBA	34 dBA	+ 1 dBA
26 Hickory Street	33 dBA	26 dBA	34 dBA	+ 1 dBA
24 Hickory Street	33 dBA	26 dBA	34 dBA	+ 1 dBA
22 Hickory Street	33 dBA	28 dBA	34 dBA	+ 1 dBA
20 Hickory Street	33 dBA	28 dBA	34 dBA	+ 1 dBA
18 Hickory Street	33 dBA	30 dBA	35 dBA	+ 2 dBA
16 Hickory Street	34 dBA	31 dBA	36 dBA	+ 2 dBA
14 Hickory Street	34 dBA	31 dBA	36 dBA	+ 2 dBA
12 Hickory Street	34 dBA	30 dBA	36 dBA	+ 2 dBA
10 Hickory Street	34 dBA	29 dBA	35 dBA	+ 1 dBA
8 Hickory Street	34 dBA	27 dBA	35 dBA	+ 1 dBA
Fox Hollow Apartments	31 to 32 dBA	25 to 30 dBA	32 to 34 dBA	+ 1 to + 2 dBA
145 Lowell Road	39 dBA	27 dBA	39 dBA	+ 0 dBA
149 Lowell Road	39 dBA	28 dBA	40 dBA	+ 1 dBA
153 Lowell Road	39 dBA	32 dBA	40 dBA	+ 1 dBA
155 Lowell Road	39 dBA	33 dBA	40 dBA	+ 1 dBA
Friars Court Apartments	39 dBA	35 dBA	40 dBA	+ 1 dBA
171 Lowell Road	39 dBA	30 dBA	40 dBA	+ 1 dBA
173 Lowell Road	39 dBA	29 dBA	39 dBA	+ 0 dBA

Impulsive Sound Levels

Table 7 summarizes the modeling results for the impulsive sound level impacts from the warehouse development. The primary sources of impulsive operational sounds are backup alarms in the loading dock areas when trucks are arriving to the facility. Those impacts range from 25 dBA to 53 dBC at the nearest residential property lines. The sound level impacts of the warehouse development at locations further away would be even less. Furthermore, the modeled sound level impact at the nearest residences does not demonstrate the presence of a pure tone condition. Table 7 confirms that the proposed warehouse development will comply with the Hudson Noise Ordinance limits for impulsive sounds (i.e. 67 dBC daytime/62 dBC nighttime). Furthermore, a table of predicted octave band sound levels to demonstrate compliance with the pure tone condition of the Noise Ordinance are presented in Appendix E.

TABLE 7

IMPULSIVE SOUND LEVELS FROM THE WAREHOUSE DEVELOPMENT

Sensitive Receptor Location	Sound Level Impact of Project	Hudson Limit (Day/Night)	Complies?
7 Juniper Street	34 dBC	67/62 dBC	Yes
26 Hickory Street	33 dBC	67/62 dBC	Yes
24 Hickory Street	31 dBC	67/62 dBC	Yes
22 Hickory Street	29 dBC	67/62 dBC	Yes
20 Hickory Street	25 dBC	67/62 dBC	Yes
18 Hickory Street	26 dBC	67/62 dBC	Yes
16 Hickory Street	30 dBC	67/62 dBC	Yes
14 Hickory Street	35 dBC	67/62 dBC	Yes
12 Hickory Street	37 dBC	67/62 dBC	Yes
10 Hickory Street	38 dBC	67/62 dBC	Yes
8 Hickory Street	38 dBC	67/62 dBC	Yes
Fox Hollow Apartments	39 to 53 dBC	67/62 dBC	Yes
145 Lowell Road	39 dBC	67/62 dBC	Yes
149 Lowell Road	41 dBC	67/62 dBC	Yes
153 Lowell Road	45 dBC	67/62 dBC	Yes
155 Lowell Road	44 dBC	67/62 dBC	Yes
Friars Court Apartments	29 to 30 dBC	67/62 dBC	Yes
171 Lowell Road	49 dBC	67/62 dBC	Yes
173 Lowell Road	48 dBC	67/62 dBC	Yes

4.3 Conclusions

An acoustic modeling study was performed revealing that the proposed 161 Lowell Road warehouse development in Hudson, New Hampshire will not create a noise nuisance condition and will fully comply with the Hudson Noise Ordinance.

If you have any questions, please call me at 781-890-2220.

Sincerely,

TECH ENVIRONMENTAL, INC.



Marc C. Wallace, QEP, INCE
Vice President

4686/161 Lowell Road Sound Study rev 12-22-2021



Figure 1
Sound Monitoring Locations
161 Lowell Road Warehouse Development, Hudson, NH





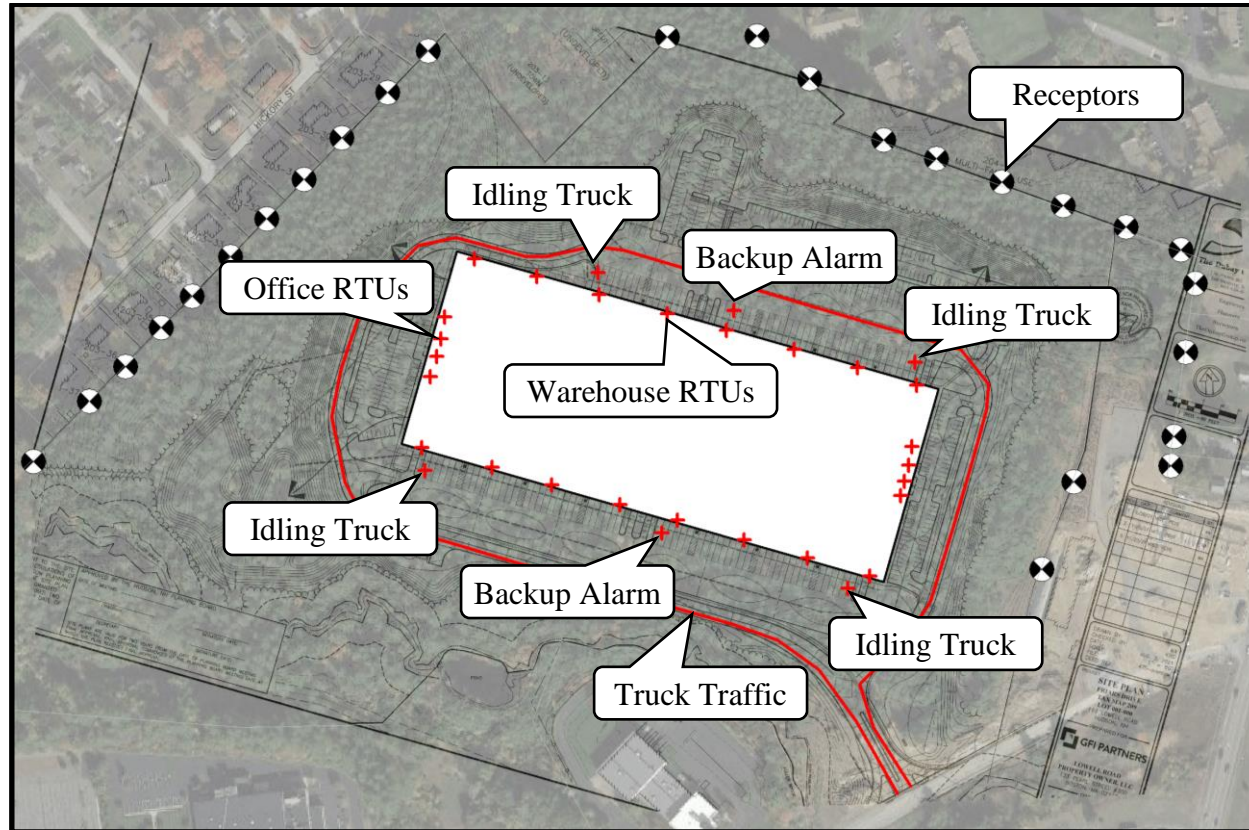
Figure 2
Residential Modeling Locations
161 Lowell Road Warehouse Development, Hudson, NH



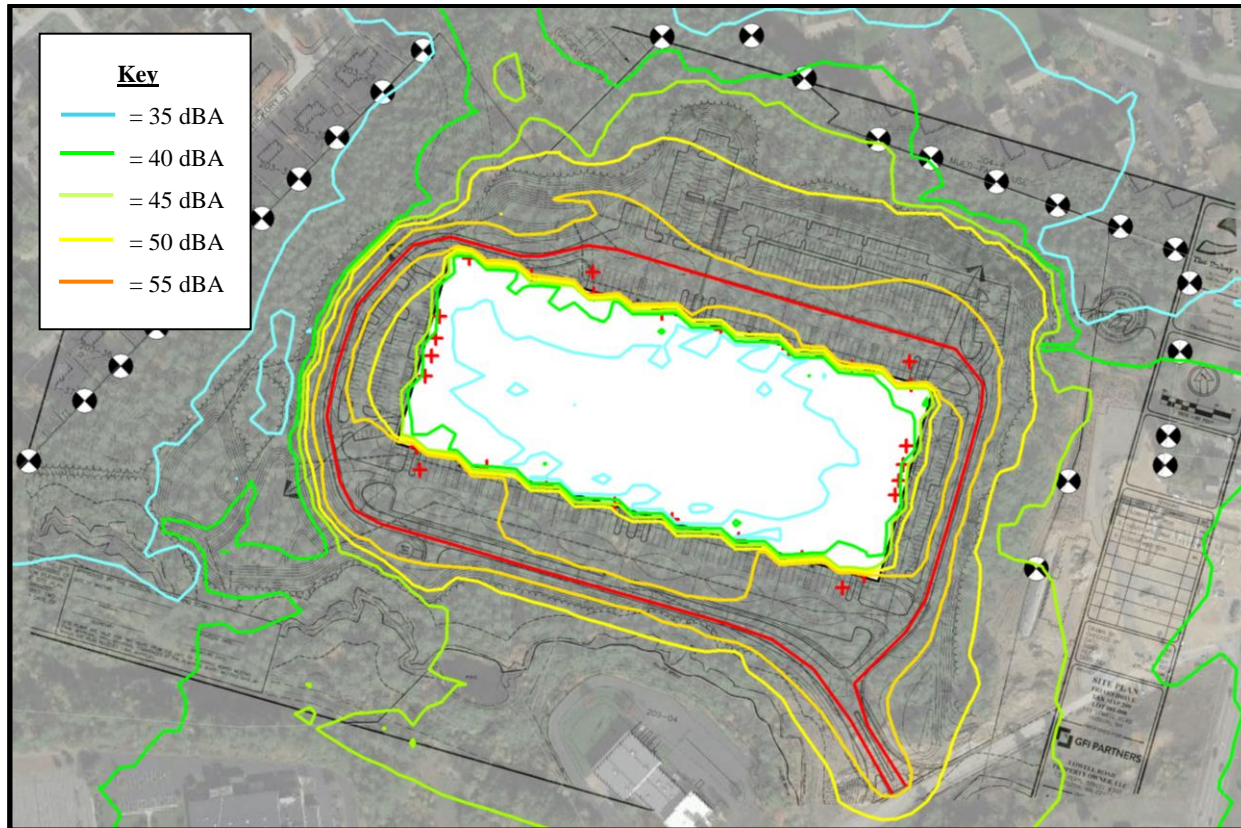
APPENDIX A – REFERENCE SOUND POWER LEVELS (L_w, dB)

Sound Source	31 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1K Hz	2K Hz	4K Hz	8K Hz	Total (dBA)
Office RTUs	89	89	85	82	80	77	74	71	66	83
Warehouse RTUs	96	88	80	77	72	72	69	67	63	78
Idling Trucks	78	87	96	100	100	101	100	98	93	106
Truck Traffic	72	81	90	94	94	95	94	92	87	100
Backup Alarms	0	0	0	0	104	105	104	0	0	109

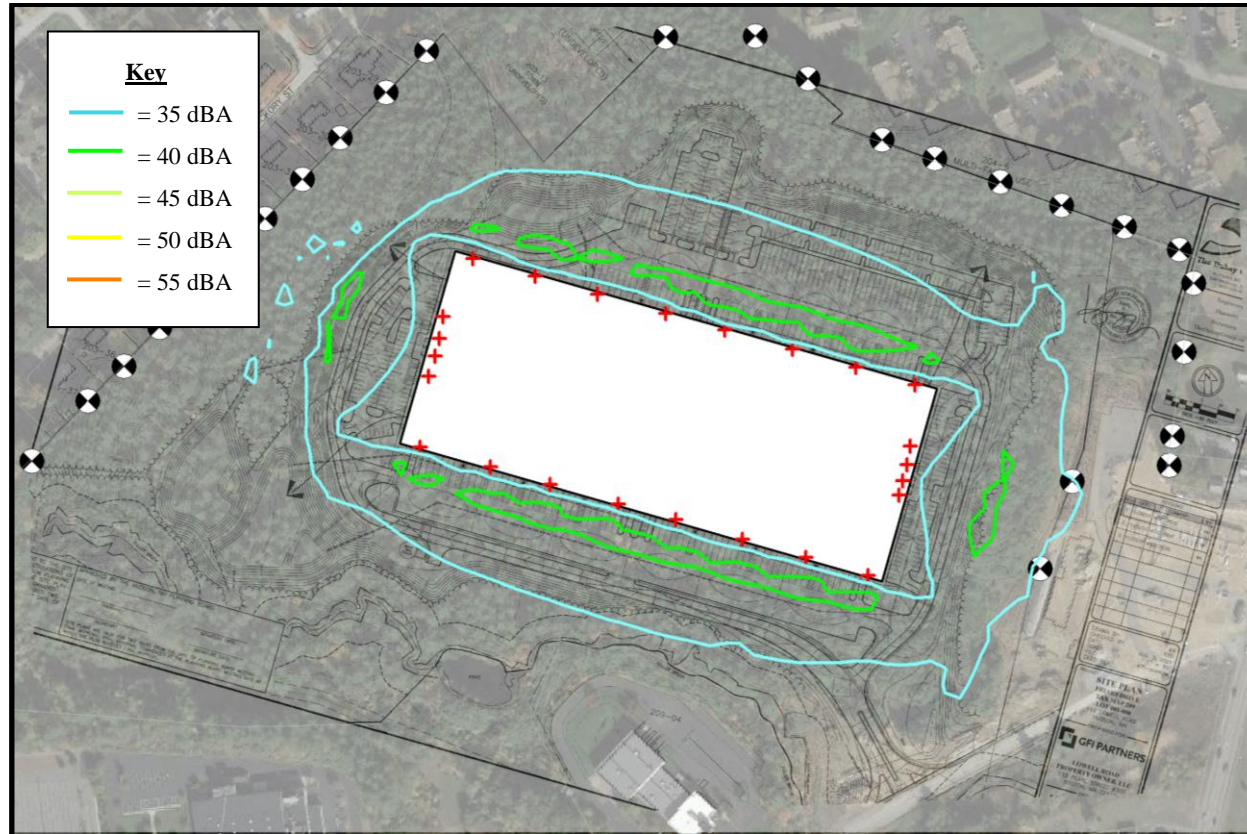
APPENDIX B – GRAPHICAL INPUTS OF ACOUSTIC MODEL



APPENDIX C – GRAPHICAL OUTPUT OF ACOUSTIC MODEL FOR CONTINUOUS SOUNDS



APPENDIX D – GRAPHICAL OUTPUT OF ACOUSTIC MODEL FOR BACKGROUND SOUNDS



APPENDIX E – OCTAVE BAND RESULTS & PURE TONE ASSESSMENTS (dB)**Continuous Sound Level Impacts of Project (i.e. Modeling Results)**

Sensitive Receptor Location	31 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1K Hz	2K Hz	4K Hz	8K Hz	Total (dBA)
7 Juniper Street	44	39	31	29	27	25	19	7	0	29
26 Hickory Street	46	40	33	29	27	26	21	11	0	30
24 Hickory Street	44	40	33	30	27	25	19	10	0	30
22 Hickory Street	45	41	34	30	28	26	19	11	0	30
20 Hickory Street	44	41	35	31	28	26	20	12	0	31
18 Hickory Street	45	42	36	32	29	28	22	14	0	32
16 Hickory Street	46	43	37	33	30	29	23	15	0	33
14 Hickory Street	48	44	37	33	31	29	24	16	0	34
12 Hickory Street	50	44	37	33	31	30	25	17	0	34
10 Hickory Street	50	43	36	33	31	31	27	19	0	35
8 Hickory Street	49	42	34	32	31	31	27	19	0	35
Fox Hollow Apartments #1	50	43	35	34	33	34	31	23	0	38
Fox Hollow Apartments #2	49	41	33	31	29	29	24	15	0	33
Fox Hollow Apartments #3	50	42	34	33	32	32	28	20	0	36
Fox Hollow Apartments #4	51	43	38	35	37	39	36	29	6	43
Fox Hollow Apartments #5	52	44	39	37	38	41	39	32	12	45
Fox Hollow Apartments #6	51	44	36	37	36	36	33	27	8	40
Fox Hollow Apartments #7	51	43	36	35	33	32	28	19	0	36
Fox Hollow Apartments #8	50	43	36	35	34	33	28	19	0	37
Fox Hollow Apartments #9	49	43	35	33	31	30	24	14	0	34
Fox Hollow Apartments #10	47	41	34	32	30	29	23	13	0	32
145 Lowell Road	48	42	35	32	30	30	25	16	0	33
149 Lowell Road	49	44	37	34	33	34	30	23	1	37
153 Lowell Road	50	45	39	35	36	39	37	29	8	43
155 Lowell Road	49	44	39	35	36	39	36	29	8	42
Friars Court Apartments #1	51	47	41	37	38	41	38	33	18	44
Friars Court Apartments #2	50	46	42	38	39	42	39	34	19	45
171 Lowell Road	49	43	38	36	38	42	40	33	16	45
173 Lowell Road	48	41	36	34	36	40	37	29	6	43

APPENDIX E – OCTAVE BAND RESULTS & PURE TONE ASSESSMENTS (dB)**Assumed Background Sound Level***

Measured L ₉₀ Hourly Sound Level	31 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1K Hz	2K Hz	4K Hz	8K Hz	Pure Tone?
Sunday, 10/10/2021, 1:00 am	62	56	50	43	37	31	25	27	18	No

* The sound level measured by the long term meter at the quietest hour of the seven-day monitoring period. Background sound levels at other times were higher. This is a conservative approach for demonstrating compliance with the pure tone restriction.

Estimated Total Continuous Sound Levels & Pure Tone Assessment

Sensitive Receptor Location	31 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1K Hz	2K Hz	4K Hz	8K Hz	Pure Tone?
7 Juniper Street	62	56	50	43	37	32	26	27	18	No
26 Hickory Street	62	56	50	43	37	32	26	27	18	No
24 Hickory Street	62	56	50	43	37	32	26	27	18	No
22 Hickory Street	62	56	50	43	37	32	26	27	18	No
20 Hickory Street	62	56	50	43	37	32	26	27	18	No
18 Hickory Street	62	56	50	43	37	33	27	27	18	No
16 Hickory Street	62	56	50	43	38	33	27	27	18	No
14 Hickory Street	62	56	50	43	38	33	28	27	18	No
12 Hickory Street	62	56	50	43	38	34	28	27	18	No
10 Hickory Street	62	56	50	43	38	34	29	28	18	No
8 Hickory Street	62	56	50	43	38	34	29	28	18	No
Fox Hollow Apartments #1	62	56	50	43	38	36	32	28	18	No
Fox Hollow Apartments #2	62	56	50	43	37	33	28	27	18	No
Fox Hollow Apartments #3	62	56	50	43	38	34	30	28	18	No
Fox Hollow Apartments #4	62	56	50	44	40	40	37	31	18	No
Fox Hollow Apartments #5	62	56	50	44	41	42	39	33	19	No
Fox Hollow Apartments #6	62	56	50	44	39	37	34	30	18	No
Fox Hollow Apartments #7	62	56	50	44	38	35	30	28	18	No
Fox Hollow Apartments #8	62	56	50	44	38	35	30	28	18	No
Fox Hollow Apartments #9	62	56	50	43	38	33	28	27	18	No
Fox Hollow Apartments #10	62	56	50	43	38	33	27	27	18	No
145 Lowell Road	62	56	50	43	38	33	28	27	18	No
149 Lowell Road	62	56	50	43	38	36	31	28	18	No
153 Lowell Road	62	56	50	44	40	40	37	31	18	No
155 Lowell Road	62	56	50	44	39	39	36	31	18	No
Friars Court Apartments #1	62	56	50	44	41	41	38	34	21	No
Friars Court Apartments #2	62	56	50	44	41	42	39	35	21	No
171 Lowell Road	62	56	50	44	41	42	40	34	20	No
173 Lowell Road	62	56	50	43	39	40	37	31	18	No

APPENDIX E – OCTAVE BAND RESULTS & PURE TONE ASSESSMENTS (dB)**Background Sound Level Impacts of Project (i.e. Modeling Results)**

Sensitive Receptor Location	31 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1K Hz	2K Hz	4K Hz	8K Hz	Total (dBA)
7 Juniper Street	44	39	31	24	21	20	13	3	0	24
26 Hickory Street	46	40	32	25	23	22	16	6	0	26
24 Hickory Street	44	40	33	26	23	22	16	7	0	26
22 Hickory Street	45	41	34	27	24	23	17	9	0	28
20 Hickory Street	44	41	34	28	25	24	18	10	0	28
18 Hickory Street	45	42	36	29	27	26	20	13	0	30
16 Hickory Street	46	43	36	30	28	27	21	14	0	31
14 Hickory Street	48	44	37	30	28	27	22	15	0	31
12 Hickory Street	50	44	36	30	27	26	21	14	0	30
10 Hickory Street	50	43	35	28	25	24	18	11	0	29
8 Hickory Street	49	42	33	27	23	22	16	8	0	27
Fox Hollow Apartments #1	50	43	33	27	23	23	17	9	0	27
Fox Hollow Apartments #2	49	41	31	25	21	20	14	5	0	25
Fox Hollow Apartments #3	50	42	32	26	22	22	16	8	0	26
Fox Hollow Apartments #4	51	43	33	28	24	23	18	10	0	28
Fox Hollow Apartments #5	52	44	34	29	25	25	20	13	0	29
Fox Hollow Apartments #6	51	44	34	29	25	25	20	13	0	29
Fox Hollow Apartments #7	51	43	34	28	25	24	19	12	0	29
Fox Hollow Apartments #8	50	43	35	29	26	26	21	13	0	30
Fox Hollow Apartments #9	49	43	34	28	25	24	18	10	0	28
Fox Hollow Apartments #10	47	41	33	26	23	22	16	7	0	27
145 Lowell Road	48	42	33	27	24	23	18	9	0	28
149 Lowell Road	49	44	36	30	28	28	23	15	0	32
153 Lowell Road	50	44	37	31	29	29	25	17	0	33
155 Lowell Road	49	44	37	31	29	29	25	17	0	33
Friars Court Apartments #1	51	46	40	33	31	31	26	20	5	35
Friars Court Apartments #2	50	46	40	33	31	30	26	20	5	35
171 Lowell Road	49	42	34	29	26	26	22	13	0	30
173 Lowell Road	48	41	33	27	25	25	20	9	0	29

APPENDIX E – OCTAVE BAND RESULTS & PURE TONE ASSESSMENTS (dB)

Assumed Background Sound Level*

Measured L ₉₀ Hourly Sound Level	31 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1K Hz	2K Hz	4K Hz	8K Hz	Pure Tone?
Sunday, 10/10/2021, 1:00 am	62	56	50	43	37	31	25	27	18	No

* The sound level measured by the long term meter at the quietest hour of the seven-day monitoring period. Background sound levels at other times were higher. This is a conservative approach for demonstrating compliance with the pure tone restriction.

Estimated Total Background Sound Levels & Pure Tone Assessment

Sensitive Receptor Location	31 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1K Hz	2K Hz	4K Hz	8K Hz	Pure Tone?
7 Juniper Street	62	56	50	43	37	31	25	27	18	No
26 Hickory Street	62	56	50	43	37	31	25	27	18	No
24 Hickory Street	62	56	50	43	37	31	26	27	18	No
22 Hickory Street	62	56	50	43	37	32	26	27	18	No
20 Hickory Street	62	56	50	43	37	32	26	27	18	No
18 Hickory Street	62	56	50	43	37	32	26	27	18	No
16 Hickory Street	62	56	50	43	37	32	27	27	18	No
14 Hickory Street	62	56	50	43	37	32	27	27	18	No
12 Hickory Street	62	56	50	43	37	32	26	27	18	No
10 Hickory Street	62	56	50	43	37	32	26	27	18	No
8 Hickory Street	62	56	50	43	37	31	26	27	18	No
Fox Hollow Apartments #1	62	56	50	43	37	32	26	27	18	No
Fox Hollow Apartments #2	62	56	50	43	37	31	25	27	18	No
Fox Hollow Apartments #3	62	56	50	43	37	31	26	27	18	No
Fox Hollow Apartments #4	62	56	50	43	37	32	26	27	18	No
Fox Hollow Apartments #5	62	56	50	43	37	32	26	27	18	No
Fox Hollow Apartments #6	62	56	50	43	37	32	26	27	18	No
Fox Hollow Apartments #7	62	56	50	43	37	32	26	27	18	No
Fox Hollow Apartments #8	62	56	50	43	37	32	26	27	18	No
Fox Hollow Apartments #9	62	56	50	43	37	32	26	27	18	No
Fox Hollow Apartments #10	62	56	50	43	37	31	26	27	18	No
145 Lowell Road	62	56	50	43	37	32	26	27	18	No
149 Lowell Road	62	56	50	43	37	33	27	27	18	No
153 Lowell Road	62	56	50	43	37	33	28	27	18	No
155 Lowell Road	62	56	50	43	37	33	28	27	18	No
Friars Court Apartments #1	62	56	50	43	38	34	29	28	18	No
Friars Court Apartments #2	62	56	50	43	38	34	29	28	18	No
171 Lowell Road	62	56	50	43	37	32	27	27	18	No
173 Lowell Road	62	56	50	43	37	32	26	27	18	No

APPENDIX E – OCTAVE BAND RESULTS & PURE TONE ASSESSMENTS (dB)**Impulsive Sound Level Impacts of Project (i.e. Modeling Results)**

Sensitive Receptor Location	31 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1K Hz	2K Hz	4K Hz	8K Hz	Total (dBC)
7 Juniper Street	0	0	0	0	31	30	24	0	0	34
26 Hickory Street	0	0	0	0	31	29	22	0	0	33
24 Hickory Street	0	0	0	0	29	26	18	0	0	31
22 Hickory Street	0	0	0	0	26	25	17	0	0	29
20 Hickory Street	0	0	0	0	22	20	14	0	0	25
18 Hickory Street	0	0	0	0	24	22	17	0	0	26
16 Hickory Street	0	0	0	0	28	26	19	0	0	30
14 Hickory Street	0	0	0	0	32	31	25	0	0	35
12 Hickory Street	0	0	0	0	33	33	28	0	0	37
10 Hickory Street	0	0	0	0	34	34	29	0	0	38
8 Hickory Street	0	0	0	0	34	34	29	0	0	38
Fox Hollow Apartments #1	0	0	0	0	42	41	38	0	0	45
Fox Hollow Apartments #2	0	0	0	0	39	38	33	0	0	42
Fox Hollow Apartments #3	0	0	0	0	41	40	36	0	0	44
Fox Hollow Apartments #4	0	0	0	0	42	48	46	0	0	50
Fox Hollow Apartments #5	0	0	0	0	44	50	49	0	0	53
Fox Hollow Apartments #6	0	0	0	0	43	43	41	0	0	47
Fox Hollow Apartments #7	0	0	0	0	41	41	36	0	0	45
Fox Hollow Apartments #8	0	0	0	0	39	38	33	0	0	42
Fox Hollow Apartments #9	0	0	0	0	38	37	32	0	0	41
Fox Hollow Apartments #10	0	0	0	0	36	35	30	0	0	39
145 Lowell Road	0	0	0	0	36	35	29	0	0	39
149 Lowell Road	0	0	0	0	37	37	33	0	0	41
153 Lowell Road	0	0	0	0	36	42	40	0	0	45
155 Lowell Road	0	0	0	0	36	42	40	0	0	44
Friars Court Apartments #1	0	0	0	0	25	25	21	0	0	29
Friars Court Apartments #2	0	0	0	0	26	26	22	0	0	30
171 Lowell Road	0	0	0	0	40	46	45	0	0	49
173 Lowell Road	0	0	0	0	39	45	43	0	0	48

APPENDIX E – OCTAVE BAND RESULTS & PURE TONE ASSESSMENTS (dB)

Assumed Background Sound Level*

Measured L ₉₀ Hourly Sound Level	31 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1K Hz	2K Hz	4K Hz	8K Hz	Pure Tone?
Sunday, 10/10/2021, 1:00 am	62	56	50	43	37	31	25	27	18	No

* The sound level measured by the long term meter at the quietest hour of the seven-day monitoring period. Background sound levels at other times were higher. This is a conservative approach for demonstrating compliance with the pure tone restriction.

Estimated Total Impulsive Sound Levels & Pure Tone Assessment

Sensitive Receptor Location	31 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1K Hz	2K Hz	4K Hz	8K Hz	Pure Tone?
7 Juniper Street	62	56	50	43	38	33	27	27	18	No
26 Hickory Street	62	56	50	43	38	33	27	27	18	No
24 Hickory Street	62	56	50	43	37	32	26	27	18	No
22 Hickory Street	62	56	50	43	37	32	26	27	18	No
20 Hickory Street	62	56	50	43	37	31	25	27	18	No
18 Hickory Street	62	56	50	43	37	31	26	27	18	No
16 Hickory Street	62	56	50	43	37	32	26	27	18	No
14 Hickory Street	62	56	50	43	38	34	28	27	18	No
12 Hickory Street	62	56	50	43	38	35	30	27	18	No
10 Hickory Street	62	56	50	43	39	36	31	27	18	No
8 Hickory Street	62	56	50	43	39	36	31	27	18	No
Fox Hollow Apartments #1	62	56	50	43	43	42	38	27	18	No
Fox Hollow Apartments #2	62	56	50	43	41	39	34	27	18	No
Fox Hollow Apartments #3	62	56	50	43	42	41	36	27	18	No
Fox Hollow Apartments #4	62	56	50	43	43	48	46	27	18	No
Fox Hollow Apartments #5	62	56	50	43	45	50	49	27	18	No
Fox Hollow Apartments #6	62	56	50	43	44	44	41	27	18	No
Fox Hollow Apartments #7	62	56	50	43	42	41	37	27	18	No
Fox Hollow Apartments #8	62	56	50	43	41	39	34	27	18	No
Fox Hollow Apartments #9	62	56	50	43	40	38	33	27	18	No
Fox Hollow Apartments #10	62	56	50	43	39	36	31	27	18	No
145 Lowell Road	62	56	50	43	39	36	31	27	18	No
149 Lowell Road	62	56	50	43	40	38	33	27	18	No
153 Lowell Road	62	56	50	43	40	43	40	27	18	No
155 Lowell Road	62	56	50	43	39	42	40	27	18	No
Friars Court Apartments #1	62	56	50	43	37	32	26	27	18	No
Friars Court Apartments #2	62	56	50	43	37	32	27	27	18	No
171 Lowell Road	62	56	50	43	42	47	45	27	18	No
173 Lowell Road	62	56	50	43	41	45	43	27	18	No

1/10/2022

Steven Reichert, P.E.
Fuss & O'Neill, Inc.
The Gateway Building
50 Commercial Street, Unit 25
Manchester, NH 03101

Transmitted via email to: SReichert@fando.com

Re: Peer Review of the Updated Sound Study (dated 12/22/2021) for the Proposed Lowell Road Warehouse Facility in Hudson, New Hampshire

Reference: HMMH Project No. 312910

Dear Mr. Reichert,

Harris Miller Miller & Hanson Inc. (HMMH) was retained by Fuss & O'Neill, Inc. (F&O) to review and provide our professional opinion on the updated sound study prepared by Tech Environmental for the proposed industrial facility on Friars Drive/Lowell Road in Hudson, New Hampshire. This review was undertaken on behalf of the Planning Board of the Town of Hudson. As part of this undertaking, I reviewed the following documents:

- "HMMH Peer Review of Sound Study of 161 Lowell Road, Hudson, NH," prepared by Marc C. Wallace, Ref 4686, December 22, 2021, i.e. the "Updated Report".
- DataKustik, "Cadna-A State-of-the-art noise prediction software, Reference Manual Release 3.8."¹

Based on my review of the Updated Report, Tech Environmental has addressed both of the comments in my prior review that was dated 12/21/2021. In my prior review, I noted that the sound power level for idling medium and heavy trucks would range from 100 to 106 dBA based on the reference energy-mean emission levels in the Federal Highway Administration Traffic Noise Model.² The sound power levels that I referenced are based on "point-source" geometry. Based on the clarification offered by Mr. Wallace in the Updated Report, the sound power level of 100 dBA for truck traffic is consistent with the sound power level for a line source.

Tech Environmental also noted that the reference to Massachusetts GIS was a typographic error. Off-site topography was determined using digital terrain models from New Hampshire's Statewide Geographic Information System (GIS) Clearinghouse (NH GRANIT).

Based on the clarifications and methodology in Tech Environmental's Updated Report dated 12/22/2021, they have demonstrated compliance with the Town's noise ordinance. At this time, I have no further comments on the sound study report.

¹ Available at: http://download.datakustik.com/download/CadnaA_Englisch_3_8_TEST.pdf

² Menge, Christopher W., et al, "FHWA Traffic Noise Model (FHWA TNM®) Technical Manual," U.S. Department of Transportation, Federal Highway Administration, Final Report, FHWA-PD-96-010, DOT-VNTSC-FHWA-98-2, February 1998. Available at: https://www.fhwa.dot.gov/environment/noise/traffic_noise_model/old_versions/tnm_version_10/tech_manual/index.cfm

Please let me know if you have any questions.

Sincerely yours,

Harris Miller Miller & Hanson Inc.

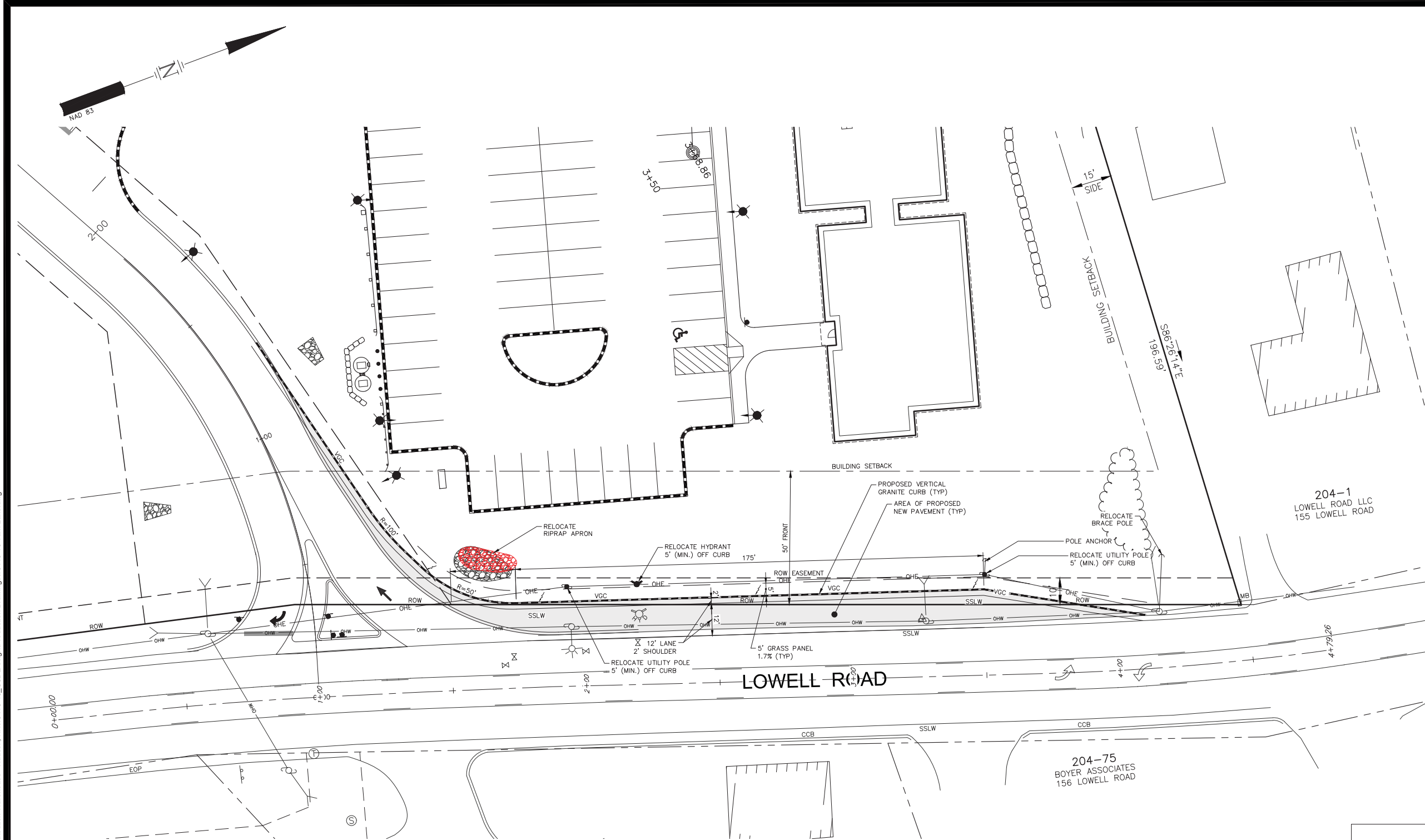


Christopher Bajdek, INCE
Principal Consultant

cc:



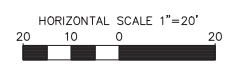
Jan 04, 2022 - 3:08pm F:\TFM\Projects\16415-16-Press\16415-16-LowellRoadProp - Site Plan Distribution Warehouse - Hudson, NH\16415-16_C3D\Design\Production Drawings\16415-16 Turn Lane.dwg



SHEET INDEX	
1.	LAYOUT PLAN
2.	GRADING, DRAINAGE AND UTILITIES PLAN

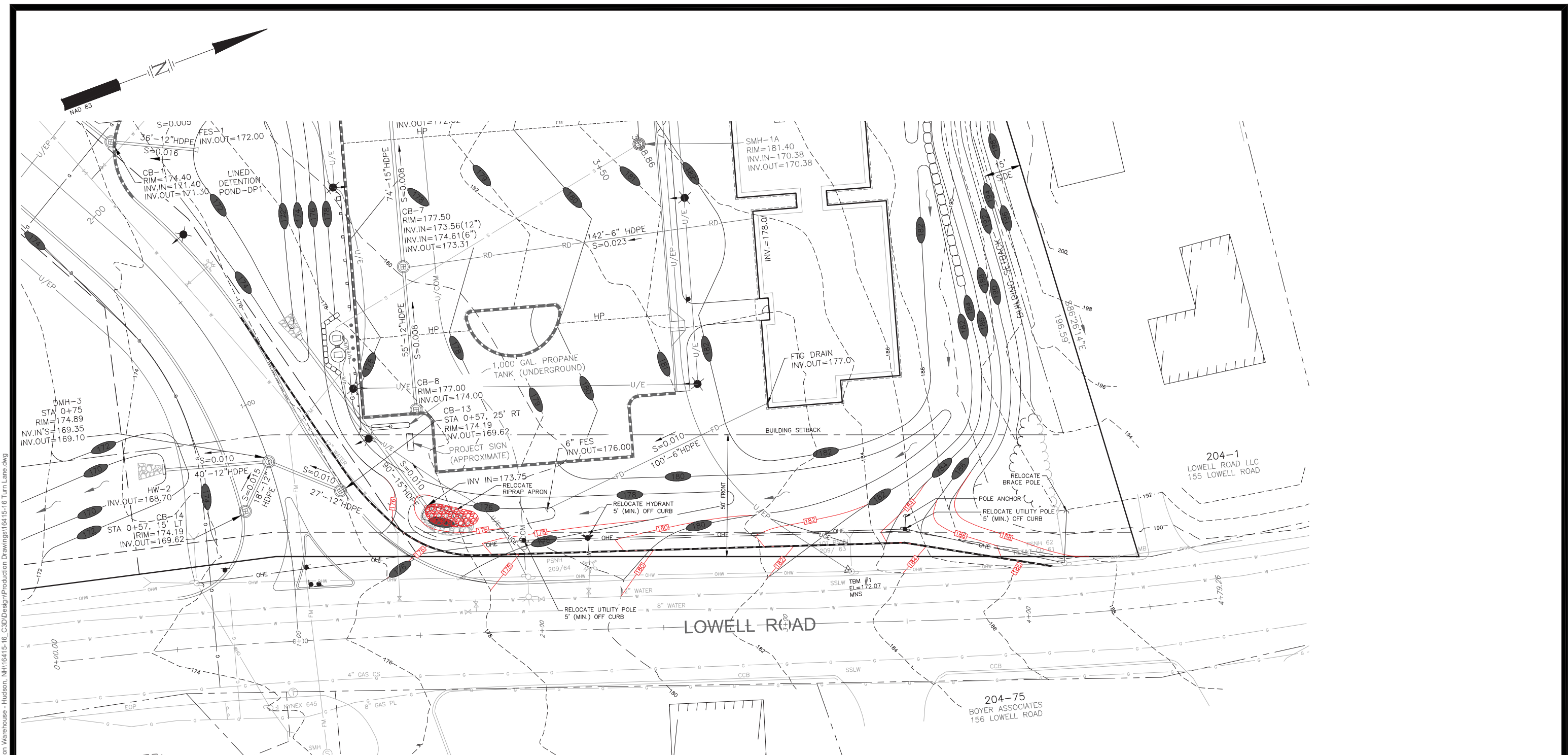
TAX MAP 209 LOT 1
LAYOUT PLAN
FRIARS DRIVE
HUDSON, NH
 OWNED BY
5 WAY REALTY TRUST
 PREPARED FOR
LOWELL ROAD PROPERTY OWNER, LLC
 SCALE: 1"=20' DECEMBER 15, 2021

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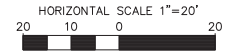
REV	DATE	DESCRIPTION	SRP	RD
1	1/4/2022	REVISE PER TOWN COMMENTS	DR	CK

	Civil Engineers Structural Engineers Traffic Engineers Land Surveyors Landscape Architects Scientists			48 Constitution Drive Bedford, NH 03110 Phone (603) 472-4488 Fax (603) 472-9747 www.tfmoran.com
	16415.16	DR CK	SRP RD	
SHEET 1 OF 2				16415-16 TURN LANE



Jan 04, 2022 - 3:08pm F:\TFM\Projects\16415-16-Press\16415-16-Press\16415-16-Press\16415-16-Press.dwg

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REV	DATE	DESCRIPTION	SRP	RD
1	1/4/2022	REVISE PER TOWN COMMENTS	SRP	RD

TAX MAP 209 LOT 1
GRADING, DRAINAGE AND UTILITIES PLAN
FRIARS DRIVE
HUDSON, NH
 OWNED BY
5 WAY REALTY TRUST
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 SCALE: 1"=20'
 DECEMBER 15, 2021

	Civil Engineers Structural Engineers Traffic Engineers Land Surveyors Landscape Architects Scientists			48 Constitution Drive Bedford, NH 03110 Phone (603) 472-4488 Fax (603) 472-9747 www.tfmoran.com
	16415.16	DR CK	SRP RD	FB CADFILE

January 15, 2022

Timothy Malley, Chairman
Town of Hudson Planning Board
12 School Street
Hudson NH 03051

RE: Friar Drive Project SP# 10-21 Map 209/Lot 001-000

Dear Planning Board:

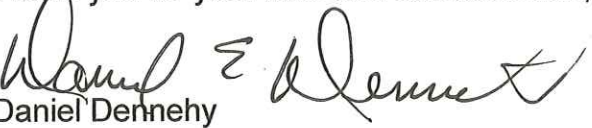
I would like to thank the Planning Board for encouraging and considering public input on The Friar Drive Project. If the Board approves this project, I would like to encourage the Board to prevent direct truck access from Lowell Road to Friar Drive.

At the point of entry onto Friar Drive from Lowell Road the road is single lane (one north and one south) with a "turning lane." Trucks reducing their speed and down shifting to make this right-hand turn will have an impact on the flow of traffic going south. Traffic will need to slow down and allow sufficient time for the truck to make the right-hand turn. I also wanted to note that the "turning lane" is not an option to pass the truck since traffic laws state that "a vehicle shall not be driven in the lane except when preparing for or making a left turn from or onto the roadway."

If trucks were limited to making the right-hand turn onto Executive Drive, their turn would be at a section of Lowell Road that is a two-lane road (two lanes north and two lanes south) and would be at a set of traffic lights. At this point traffic would be able to maneuver around any turning truck. Additionally, it would send a consistent message to all truck drivers for the Friar location that would state: "All trucks entering or leaving the Friar location are required to enter and leave via Executive Drive."

I respectfully request the Board to require all truck traffic enter at the set of traffic lights at the intersection of Lowell Road and Executive Drive.

Thank you for your time and consideration,


Daniel Dennehy
637 Fox Hollow Drive
Hudson NH 03051

CC: **Brian Groth, Town Planner**

Meeting Date: 1/26/22

SP #10-21 - Friars Drive Industrial Facility - Attachment H

Members of the Planning Board,

As my reading of David Attenborough's book, A Life on our Planet comes to a close, his writing seems very appropriate to share with those of you responsible for making decisions around the Town of Hudson's sustainability both as a place where we all live and an integral component of the earth in its entirety.

He talks about how certain events over the course of millions of years changed the earth. Yet in a very short time, only a couple of hundred years, we have rapidly been destroying what's left of the natural resources we need in order to survive. With every movement toward eliminating parts of our natural environment and all its biodiversity, we are creating a place where not only the wildlife can't survive, but we will struggle as well.

"When ecosystems are more diverse, they are better able to perform essential ecosystem services, like carbon sequestration" (Attenborough, 2020). "Forests help to lock away carbon". The carbon emissions in our atmosphere are wreaking havoc on the earth's ability to cool thus causing disrupted weather patterns, warming of ocean waters, melting of polar ice caps, just to name a few.

By eliminating another source of carbon mitigating land by developing it into something that only "takes away" but does not "give", brings us just one more step closer to making the Town of Hudson another urban wasteland. What happens in 20 years when the industrial building and parking lots no longer serve any purpose? They can't regenerate anything that would offer humans, animals and plants life sustaining products as the forested land could in 20 years, 50 years, 100 years etc. if left to regenerate on its own. That's the beauty of the wild if left to perpetuate itself.

I request that you return to look at the 2006 Town of Hudson Master Plan III-35 in the Natural Resources section. It speaks about the New Hampshire legislature recognizing the importance of open space "preservation is in the public interest: It is hereby declared to be in the public interest to encourage the preservation of open space, thus providing a healthful and attractive outdoor environment for work and recreation of the State's citizens, maintaining the character of the State's landscape, and conserving the land, water, forest, agricultural and wildlife resources. ". One bolded section says:

Protecting open space is a high priority in the Town of Hudson.

Places such as the Musquatch Conservation Land, Town Forest off Kimball Rd, Robinson Pond, Parker Wildlife Sanctuary, Alvirne Tree Farm, Ingersoll Farm, etc. are examples of how the town in the past has seen the importance of preserving wild land instead of trying to develop it into something that no longer gives or sustains itself. Please think about what the approval of a project such as the Friars Drive/Sagamore Industrial Facility has to offer the town with regards to its long-term health and well-being. Don't be short sighted. Once the 75 acres is destroyed, by cutting trees, leveling the landscape, displacing, and destroying all wild animals and plants inhabiting the area, blacktopping the surface, there's no going back. It will forever be lost to us and our descendants. Please vote NO on the Sagamore Industrial project on Friars Drive Lot 209-001-000.

Respectfully submitted,

Dana K. and Andrew R. Plank

523 Fox Hollow Drive

Hudson, NH 03051

Groth, Brian

From: Susan Mazzola <susanmazzola@aol.com>
Sent: Monday, January 17, 2022 3:57 PM
To: Groth, Brian; Planning
Subject: GFI Developers - Friars Warehouse - Sagamore Industrial Park

EXTERNAL: Do not open attachments or click links unless you recognize and trust the sender.

To Hudson Planning and Brian Groth.

RE: Friars Drive Warehouse Project; GFI Developers; Sagamore Industrial Revitalization Project

I came to Hudson in 1989 for Hudson's charm, beauty and small town feel next to the river. I never believed the town would be handled in such disregard as to try to save every bit of green space for the greed of money and poor planning by former town officials which is continuing in a similar manner.

I am opposed to the 504,000 square foot warehouse proposed by GFI Developers on the old Friars property.

The following are issues I feel were not handled in proper fashion:

1. This is a REGIONAL issue not a local/abutter issue which the project has been deemed. The surrounding towns will feel impact of an additional 700 vehicles coming across out local roads and roads of surrounding towns such as Litchfield, Tyngsboro, Windham. We will be notifying surrounding towns of the GFI Development. What about our local businesses, have they been notified?
2. Wildlife Study states NO IMPACT on wildlife. Many Owls, Fisher Cats (NH Protected Species), NH White Cottontails (NH Protected Species), Deer, Fox, Coyotes, and many other species on a regular basis, as this is their home. I disagree with the study, and have found additional studies with the same verbiage done by the same person with the same result. We would like an independent Wildlife Study to be paid for by GFI Developers since the information is being contested to be selected by the Hudson Residents.
3. Traffic Study is from 2019, why would Hudson Planning and Town Engineer allow a traffic study that is 3 years old to be utilized for such a high impact to our overcrowded roads? This information is obsolete. We demand GFI Developers pay for an independent Traffic Study to be done which will be selected by the Hudson Residents.
4. TAX INCENTIVE credits for the Sagamore Industrial Revitalization Project are granted by Federal, State, and the town of Hudson. When the application is filed for the tax incentive, it would seem customary to find WHO the occupant of the property would be to receive such grant/tax incentive. Why is the Town Planning Board and Town of Hudson Engineer NOT disclosing who will be utilizing the grant/facility? Why is the town not open and transparent?
5. The Town of Hudson has a truck ordinance of 7pm. Why is GFI Developers thinking they can have "special permit" filed to obliterate the current rule, for them to run trucks on our roads 24 hours a day, 7 days a week? Why would our Planning Board and Town Engineer allow this to happen?
6. The town is thinking of the \$600K in tax money coming in to cover expenses for the failed and mis-managed, overlooked projects in the past. Which would cover the immediate needs. However, did you take into consideration that it will cost the town more than \$600K annually to keep up with the roads, the pollution, emergency personnel and other expenses by having a facility of this size enter into our town?
7. A warehouse of this magnitude **does not belong** in the middle of two quiet residential neighborhoods that interferes with the quiet enjoyment of our homes.

Meeting Date: 1/26/22

SP #10-21 - Friars Drive Industrial Facility - Attachment H

Please take a few steps back to consider the people that have been loyal to the town over the decades.
Please take the residents into consideration.

Thank you for your consideration in advance.
Regards,

Susan Mazzola
SusanMazzola@aol.com
434 Fox Hollow Drive
Hudson, NH.

Groth, Brian

From: Meagan Bruce <meaganbruce@gmail.com>
Sent: Monday, January 17, 2022 4:10 PM
To: Groth, Brian; Planning
Subject: Proposed Warehouse Behind Fox Hollow

EXTERNAL: Do not open attachments or click links unless you recognize and trust the sender.

To Whom It May Concern,

I have been a new homeowner and resident to Hudson, NH since December 2019. The appeal of why I chose to move to my area was mainly because of how nice the area is and how quiet it is. To want to build a monstrosity in a residential area is such a terrible idea. Besides having the constant traffic as it is, it doesn't make sense to already add to that traffic. Also, no one in their right mind wants to hear endless amounts of trees being torn down and trucks, etc going on 24/7. That's absolutely mind numbing! Besides Fox Hollow there's numerous homes and new developments in the area that I'm sure wouldn't want that ruckus in their backyards either. Besides the obvious that I previously stated, the new development would bring down the property value to plenty of homeowners. The nice perk of living in New Hampshire is the land. I have plenty of wild life that I see on a regular basis and putting that development in would cost lots of animals their homes. Due to the unfortunate pandemic and how a few companies have gone out of business, I'm sure there's already vacant buildings in the New England area to use for such things instead of creating more issues. Thank you for your time and happy new year!

Best regards,
Meagan Bruce

Members of the Hudson Planning Board:

Regarding: the GFI project on Friars Drive

I am opposed to the 504,000 square foot warehouse proposed by GFI Developers on the old Friars property behind Fox Hollow.

Recently the Hudson Planning board has heard from multiple builders looking to build very large buildings in the Town of Hudson. The first being the proposed Amazon warehouse on the golf course and the second being the warehouse on Friars Drive. Both projects will have a very large impact in Lowell Road traffic. If both projects are using the same 2019 traffic study, #1, that study is 2 years old and #2, the report does not take into consideration the added traffic from each project. As a town we cannot accept this report while not accounting for the added traffic. Specifically, the Amazon warehouse project has already been accepted by the town and so that traffic should be factored into the traffic study/report done by GFI for the Friars Drive project.

Below is a screenshot taken directly from the NH.gov website. The planning board does have a responsibility to this town and town members to prevent projects and additions that have an adverse effect on its welfare. Large developments that are trying to squeeze in every inch of warehouse onto a plot need to take into consideration it's neighbors. It is requested that at least 400 feet will remain wooded from the edge of Fox Hollow to the proposed parking lot. Additionally, a wooden fence that would help provide some sort of separation and peace is requested. Just because Fox Hollow is a condominium complex and not a housing development doesn't mean we deserve less

§ 32.17 Obligation of Planning Board to Work With Applicant

Once authorized by the local legislative body, planning boards have the right to adopt and enforce a myriad of regulations. They have an obligation to use their best effort to ensure that development in the municipality will not have an adverse effect on the health, safety, and welfare of the community. Planning boards have every right to insist that all legitimate regulations are met¹²² and, in fact, may not waive regulations if the public interest would be adversely affected.

Planning boards nonetheless have an obligation under the New Hampshire Constitution¹²³ to provide assistance to all citizens. The subdivision/site plan process is not a completely adversary process.

<https://www.nh.gov/osi/resource-library/laws-rules-cases/documents/obligation-to-work-with-applicant.pdf>

Meeting Date: 1/26/22

SP #10-21 - Friars Drive Industrial Facility - Attachment H

Sincerely,

Andrea Rooney

937 Fox Hollow Drive

Hudson, NH 03051

Groth, Brian

From: ThomasSullivan <errolvacatnhome@aol.com>
Sent: Tuesday, January 18, 2022 10:57 AM
To: Groth, Brian; Planning
Subject: Friars Dr Warehouse Project

EXTERNAL: Do not open attachments or click links unless you recognize and trust the sender.

Town of Hudson Planning Board,

I am writing in regards to the proposed warehouse on Friars Dr, which abuts the Fox Hollow condominium development.

This project, if constructed, will have direct and negative impacts on the quality of life and potentially lower property values of all units owners in our community. Lighting, noise and increased truck traffic at all hours of the day and night will be a detriment to the Peace, solitude and seclusion for which we bought a home in this neighborhood.

I would encourage you to consider the negative impacts to ALL abutters, when voting to approve this project.

Thank you,

Thomas Sullivan
128 Fox Hollow Dr

[Sent from the all new AOL app for iOS](#)

Groth, Brian

From: Kristine Holzhauser <polarswim@yahoo.com>
Sent: Tuesday, January 18, 2022 10:58 AM
To: Groth, Brian
Subject: friars drive input 1/18/2022

EXTERNAL: Do not open attachments or click links unless you recognize and trust the sender.

Kristine Holzhauser
517 Fox Hollow Drive
Hudson, NH 03051
(603) 459-9072
polarswim@yahoo.com

January 17, 2022

Town of Hudson Planning Board
12 School Street
Hudson, NH 03051

Dear Town of Hudson Planning Board Members,

I am writing again to express more thoughts and concerns regarding GFI Partners' application to build a warehouse in the biodiverse forest abutting Fox Hollow and Hickory Street. While I am still concerned about previously stated issues, I have additional concerns after reviewing the sound study and experiencing traffic issues at non-peak travel times. I maintain my position that approval of the current application would be devastating not only for the wildlife and surrounding wetlands, but also for commuters and all the residents of Hudson.

I recognize that GFI partners have put a lot of time and money into this proposal and I appreciate the efforts GFI has made to try make the facility more tolerable to primarily Hickory Street abutting neighbors. I still hope the Town of Hudson Planning Board and GFI Partners will be open to the residents' ongoing concerns and explore other options for the use of the site in question including, but not limited to avoiding a 24 hour facility, considering a residential use, considering a business more focused on service to our community, and considering a business with noise levels contained within the structure being built.

If other options are not considered, there are concerns about the current plan that I think it would be prudent to re-evaluate. After reviewing the noise study, it appears to address background sound levels at great length, although it specifically states, "instantaneous impulsive sounds are not expected from the proposed warehouse development, thus the impulsive sound limits within the Hudson Noise Ordinance are not applicable." I think it is important to remember that there are residents within earshot who need to be able to sleep at night. The sound effects of the back up alarms from yard jockeys and trucks moving on the property between the trailer storage and loading docks throughout the day and night really should be evaluated. Whether impulsive sounds or another type of sound, a sound study including this type of noise should be required prior to consideration of this application.

At the last planning board meeting, GFI acknowledged the lack of control of the trucking traffic, trucks idling on their property, and what back up alarms will be used by the tenants of the warehouse. This poses a threat to not only the abutters, but all people traveling on Lowell Road throughout the day as evidenced by my own recent experiences with Lowell Road traffic. While sitting in northbound traffic prior to the PMA sign, during

Meeting Date: 1/26/22

SP #10-21 - Friars Drive Industrial Facility - Attachment H

non-peak hours, I witnessed two eighteen wheelers cross the double yellow line to pass traffic, try to catch a green light, and turn left by the Irving Station. Even if there are only 50 more trucks a day doing the same thing, that will significantly increase danger for commuters, shoppers, parents transporting school children, etc. It will also place additional burden on emergency responders, especially police who will be drawn away from other tasks to manage this issue.

In future proposals, I would like to see a special assessment for the New England Cottontail, an increase in the conservation easement/buffer zone to Fox Hollow abutters, the trailer storage parking on the side of the building where there are no residential buildings, a sound barrier between all residential properties and the warehouse property, and an additional sound study including yard jockey and truck back up alarms. Most of all, I would like to see a new proposal for another, just as profitable, use for the land as suggested above.

It is true that GFI Partners is trying to be a good neighbor. Unfortunately, they cannot ensure the continued peace, health, and safety of the surrounding community with the plan of a rented warehouse. I'd like to encourage the board to consider the impact that approval of this plan would have on not only abutting residents and their families' well-being, but also the effects of noise, air quality, and traffic on the wildlife, wetlands, and all residents of the Town of Hudson. Please do not approve GFI Partners' application to replace this vital habitat and pollute the community in which we live, but encourage discussion of a safer, cleaner, and more appreciated project.

Thank you for your consideration.

Sincerely,

Kristine Holzhauser



TOWN OF HUDSON

Planning Board

Timothy Malley, Chairman



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CAP FEE WORKSHEET - 2021

Date: 01-19-22 Zone # 1 Map/Lot: 209/001-000

Friars Drive

Project Name: Friars Drive Industrial/Warehouse Building

Proposed ITE Use #1: Warehousing

Proposed Building Area (square footage): 504,000 S.F.

CAP FEES: (ONE CHECK NEEDED)

1.	(Bank 09) 2070-701	Light Industrial (504,000 s.f @ \$0.71 per s.f)	\$ <u>357,840.00</u>
		Total CAP Fee	\$ <u>357,840.00</u>

Check should be made payable to the Town of Hudson.

Thank you,

Brian Groth

Town Planner