Appendix J

SHOPS AT RIVERHEAD PROJECT

NOISE TECHNICAL REPORT

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NOISE TECHNICAL REPORT

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1.0 INTRODUCTION

Noise pollution comes from numerous sources. Some sources include activities essential to the health, safety, and welfare of the Town's inhabitants such as noise from emergency vehicle sirens, garbage collection operations, and construction and maintenance equipment. Other noise producing activities, such as rail and traffic, stem from the movement of people and goods. Such activities are essential to the viability of an area as a place in which to live and do business. Although these and other noise-producing activities are necessary, the noise they produce can be undesirable.

Potential project noise impacts can be divided into primary and secondary noise impacts. Primary noise impacts result directly from operations of the project or from the project site. Examples include on-site stationary equipment like HVAC equipment, loading/unloading activities, delivery truck movements, and back-up alarms from these trucks. Secondary noise impacts result from the increase in roadway traffic to and from the project site.

The on-site operational noise sources that would cause an increase in noise levels of the adjacent land uses are limited. All building mechanical and HVAC equipment will be housed inside buildings or otherwise designed not to have any impact on adjacent noise-sensitive land uses. Therefore, they are excluded from the further environmental noise impact analysis. Two other on-site noise sources with impact potential are the delivery truck movements on-site and the loading or unloading of these delivery trucks. The assessment of these potential primary noise impact caused by the proposed project are present below.

The ambient noise environment in a project area is typically dominated by traffic (USEPA, 1971). The principal noise consequence that would result from the proposed action is the potential increase in noise levels due to the increase in vehicular traffic

on arterial roadway (CR 58) in the study area. This off-site potential noise impact caused by traffic induced by the proposed project is evaluated in this report.

2.0 NOISE FUNDAMENTALS

Sound can be defined as the rapid, small amplitude fluctuation of the instantaneous air pressure, above and below the local barometric pressure. These pressure disturbances may be initiated by a rapidly vibrating solid object, such as a loudspeaker diaphragm or a vibrating plate, or it may be initiated by a turbulent airflow such as that created by a jet aircraft or by a truck exhaust.

Sound propagates through the air as a wave that has a speed of about 1,130 feet per second, and like all waves, can be characterized by its amplitude (in units of pressure) and by its frequency or pitch (in units of cycles per second, or Hertz). Because the range of amplitudes that the human ear can process, from the amplitude threshold of audibility to that of pain, is so huge (about six orders of magnitude), pressure amplitude is an inconvenient descriptor for environmental purposes. The Sound Pressure Level (SPL) with units of decibels (dB) is used instead. This measure (like the scale for earthquakes) is based on the logarithm of the amplitude (i.e., the logarithm of a number is proportional to the exponent or order of magnitude of the number), which, for most purposes varies more manageably, so that the SPL variation is typically between 20 and 140 dB and more usually for environmental noise, between 50 and 80 dB.

This sound pressure level must, however, be modified to take into account the frequency content of the sound. The audible range of frequencies is generally from 20 to 20,000 Hertz for young people, with truncations at both ends of this range for older people. The sensitivity of the human ear to the sound of different frequencies varies greatly, being most sensitive between 1,000 and 4,000 Hertz, and falling rapidly for frequencies outside that range. A common method or procedure for both measurement and computation is to weight frequencies of the raw sound signal so the resulting measure is compatible with the sensation of loudness as perceived by most people. A measurement system that simulates the response of the human ear, the "A-weighted sound level" or "dBA," is used in light of its widespread recognition and

its close correlation with human judgment of loudness and annoyance. In the current study, all measured noise levels are reported as dBAs.

Since environmental noise is composed of sounds from both moving and stationary sources, it varies from moment to moment as well as from place to place. The procedure originally recommended by the USEPA and now adopted both by the American National Standards Institute (ANSI, 1996) and the International Standards Organization (ISO, 1996), for measuring sound is by averaging the acoustic energy (corresponding to the A-weighted SPL) over a measurement period. The resulting measure is called the equivalent energy level (L_{eq}). It is the constant sound level that, for a given situation and time period, conveys the same sound energy as the actual time-varying sound. It is mathematically defined as:

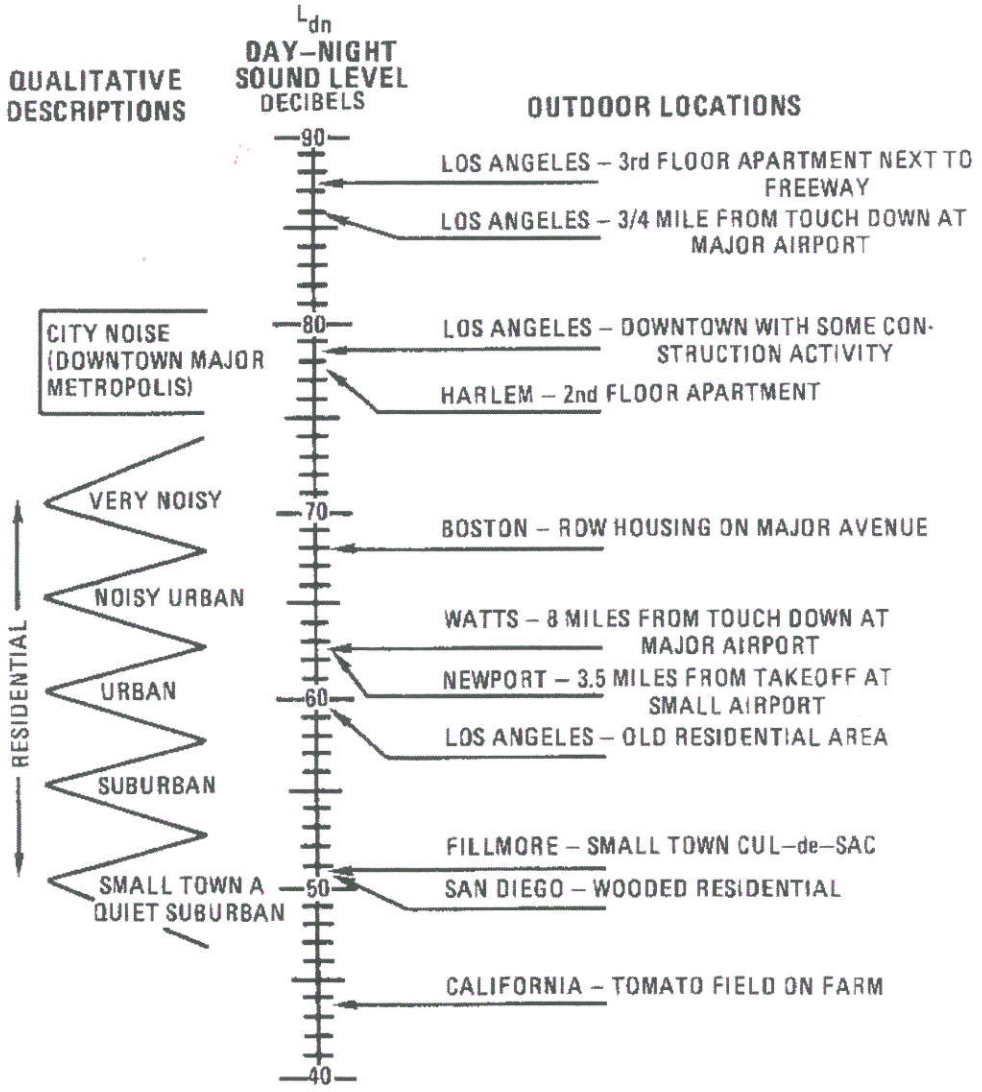
$$L_{eq} = 10 \log_{10} \left[\frac{1}{(t_2 - t_1)} \int_{t_1}^{t_2} \left(\frac{p^2}{p_o^2} \right) d\,t \right]$$

Where $(t_2 - t_1)$ is the time period over which the sound pressure (p) was measured.

A few general relationships may be helpful in understanding the decibel scale. Doubling of the noise energy produces a 3-dBA increase in sound pressure level, (SPL). Doubling of the traffic volume on a roadway, keeping all other traffic characteristics fixed (i.e., speed, vehicle mix, and geometry) will produce a doubling of energy, and hence a 3 dBA increase. A 3-dBA increase in SPL is, however, just barely perceptible to the average human ear. A 10-dBA increase in SPL corresponds to a 10-fold increase in sound energy, but to only a doubling of perceived loudness.

Typical noise levels, which a person may encounter in his or her daily activities, are presented in Figure 1 (USEPA, 1974).

Figure 1 - Typical Noise Levels



3.0 NOISE STANDARDS AND CRITERIA

There is no federal or state noise regulation directly applicable to the proposed project. The following is a compilation of local regulation and state and federal agency guidelines that have been used to quantify noise impacts and the significance of potential increases in noise levels of the proposed project.

3.1 TOWN OF RIVERHEAD

Town Noise Control Code - §81-5 L(2) (a) and (b) and L(3) states:

L(2). Continuous sound-in-air which has crossed the property line of such sound source site and enters property zoned for residential use or property within a noise-sensitive zone shall not exceed either of the following levels:

(a) During the hours of 7:00 a.m. and 8:00 p.m.:
[1]. A sound level in excess of sixty-five (65) dBA measured with the slow response of a sound-level meter.
[2]. An L_{10} in excess of sixty (60) dBA.
(b) During the hours of 8:00 p.m. and 7:00 a.m.:
[1]. A sound level in excess of fifty (50) dBA measured with the slow response of a sound-level meter.
[2]. An L_{10} in excess of forty-five (45) dBA.

L(3). Continuous sound-in-air which has crossed the property line of a sound source site and enters property which is zoned for business or property where the public in general congregates, except property zoned for industrial use, shall not exceed either of the following levels:

(a) A sound level in excess of sixty-five (65) dBA measured with the slow response of sound-level meter.
(b) An L_{10} in excess of sixty (60) dBA.

3.2 NEW YORK STATE STANDARDS

New York State does not have any regulations that limit sound levels from facilities such as the proposed development. However, the New York State Department of Environmental Conservation (NYSDEC) has a relative noise guideline that it uses to indicate whether a receptor is impacted. Substantial relative noise impacts occur when

predicted future noise levels increase by 6 decibels or more above existing noise levels (NYSDEC, 2001).

The New York State Department of Transportation (NYSDOT) has noise criteria that it uses for highway projects subject to its jurisdiction. NYSDOT has adopted the noise criteria (23CFR772) of the Federal Highway Administration (FHWA). These have two components: "fixed" noise criteria and "relative" noise criterion. The fixed noise criterion consists of the FHWA Noise Abatement Criteria (NAC), which is provided in Table 1. The relative criterion is consistent with NYSDEC's noise guidelines.

Table 1 - NYSDOT/FHWA Noise Criteria

Fixed Criteria		
Activity Category	Hourly Leq	Description of Activity Category
A	57 (Exterior)	Land for which serenity and quiet are of extraordinary significance and serves an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (Exterior)	Developed lands, properties or activities not included in Categories A or B above.
D	--	Undeveloped land.
E	52 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

Relative Criteria

The second type of FHWA criterion is relative to existing noise levels. Substantial relative noise impacts occur when predicted traffic-noise levels increase by 6 decibels or more above existing noise levels. To achieve an increase in noise level of this magnitude, it takes more than a threefold increase in traffic volume.

The FHWA developed the Traffic Noise Model 2.5 (TNM 2.5) for studying noise from highways and roadways. This model allows the determination of absolute noise levels for a variety of conditions, including the effects of barriers and other roadway

noise attenuation measures. This model was utilized in this study for determining project impacts.

3.3 FEDERAL STANDARDS AND GUIDELINES

3.3.1 EPA

In 1974, EPA published a report (USEPA, 1974) that identified noise level goals for public health and welfare (see Table 2). The noise descriptors used by the EPA are the 24-hour equivalent sound, $L_{eq(24)}$, and the day-night sound level, L_{dn}, a descriptor that contains a weighting penalty of 10 dBA which is added to the nighttime hourly equivalent levels (L_{eq}) from 10 PM to 7 AM before computing the 24-hour energy average. These recommended EPA levels are goals and do not represent enforceable federal regulations or standards; they do not provide criteria for evaluating the significance of changes caused by projects or actions.

Table 2 - EPA Recommended Noise Level Goals Identified to Protect Public Health and Welfare

Effect	Level	Area
Hearing loss	$L_{eq(24)} \leq 70$ dB	All areas.
Outdoor activity interference	$L_{dn} \leq 55$ dB	Outdoors in residential areas and farms, and other outdoor areas where people spend widely varying amounts of time and other places in which quiet is a basis for use.
	$L_{eq(24)} \leq 55$ dB	Outdoor areas where people spend limited amounts of time, such as school yards, playgrounds, etc.
Indoor activity interference and annoyance	$L_{dn} \leq 45$ dB	Indoor residential areas.
	$L_{eq(24)} \leq 45$ dB	Other indoor areas with human activities, such as schools, etc.

3.3.2 Department of Housing and Urban Development (HUD)

HUD standards (24CFR51) apply to federally assisted projects and are intended to ensure that activities assisted by HUD will achieve the goal of a suitable living

environment (see Table 3). The noise descriptors used by HUD is the day-night sound level, L_{dn}, a descriptor that contains a weighting penalty of 10 dBA, which is added to the nighttime hourly equivalent levels (L_{eq}) from 10 PM to 7 AM before computing the 24-hour energy average. The proposed project is not subject to HUD guidelines and these standards. More importantly, these HUD levels do not provide criteria for evaluating the significance of changes caused by projects or actions. For projects of the type evaluated in this EIS, changes in noise levels are better indicators of impacts than absolute levels or standards.

Table 3 - HUD Site Acceptability Standards

	Outdoor L_{dn}(dBA)
Acceptable	Not Exceeding 65
Normally Unacceptable	65 to 75
Unacceptable	Above 65

3.4 Human Perception and the Human Response to Changes in Noise Levels

Human response to changes in noise levels depends on a number of factors, including the quality of the sound, the magnitude of the changes, the time of day at which the changes take place, whether the noise is continuous or intermittent, and the individual's ability to perceive the changes. Human ability to perceive changes in noise levels varies widely with the individual, as does the response to the perceived changes. However, the average ability of an individual to perceive changes in noise levels is well documented (see Table 4). Generally, changes in noise levels less than 3 dBA will be barely perceptible to most listeners, whereas a 10 dBA change is normally perceived as a doubling (or halving) of noise levels (BBN, 1973). These guidelines permit direct estimation of an individual's probable perception of changes in noise levels.

Table 4 - Average Ability to Perceive Changes in Noise Levels

Human Perception of Sound	Change (dBA)
Barely perceptible	2-3
Readily noticeable	5
A doubling of the loudness of sound	10
A dramatic change	20
Difference between a faintly audible and a loud sound	40

Various government and research institutions have proposed criteria that attempt to relate changes in noise levels to community response. One commonly applied criterion for estimating response is incorporated into the community response scale proposed by the International Standards Organization (ISO, 1969) of the United Nations (see Table 5). This scale relates changes in noise level to the degree of community response and permits direct estimation of the probable response of a community to predicted change in noise level.

Table 5 - Community Response to Increases in Noise Levels

Change (dBA)	Category	Description
0	None	No observed reaction
5	Little	Sporadic complaint
10	Medium	Widespread complaints
15	Strong	Threat of community action
20	Very Strong	Vigorous community action

Source: ISO, 1969.

3.5 NOISE IMPACT ASSESSMENT METHODOLOGY

The methodology used to assess the noise impacts of the proposed development on adjacent noise-sensitive receptors included the following steps:

- Identifying sensitive and representative receptor locations which have the greatest potential for being adversely affected by noise from project-generated traffic;
- Determining existing noise levels through field measurements;

- Determining future noise levels, both with and without the proposed development;
- Determining project impacts by comparing predicted Build noise levels with No Build noise levels, and project impact criteria; and
- Where necessary, examining and evaluating noise abatement measures for reducing or eliminating significant adverse noise impacts.

The TNM noise model used for this project's on-site truck traffic and induced roadway traffic noise analyses is the standard roadway noise model used throughout the country for traffic noise analysis. The model utilizes a number of factors, including traffic volumes and classifications, vehicle operating speeds, roadway alignment and grade, and physical barriers, in calculating noise levels.

4.0 EXISTING CONDITIONS

Figure 2 shows the area around the project site. Commercial and light industrial land-uses line both sides of Old Country Road (CR 58). A strip mall and CR 58 are located immediately south of the project site. The seasonal Riverhead Raceway is also located immediately south of CR 58. The land-use immediately to the west is light industrial. Residences can be found to the north and east. Also to the east is a seasonal recreational facility with batting cages. The Tanger Outlet Stores are located less than one half mile to the west. In general, traffic noise generated on CR 58 dominates the ambient noise environment immediately adjacent to the proposed site.

Figure 2 - Project Location and Noise Monitoring Sites

4.1 NOISE MONITORING PROGRAM

An ambient noise measurement program was conducted at three (3) noise monitoring sites as shown in Figure 2. The purpose of the monitoring program was to: (1) determine the existing noise levels at locations where the proposed project has the

greatest potential for having significant noise increases, and (2) as a basis for projecting future noise levels.

As mentioned above, noise monitoring locations were chosen based on noise-sensitive land uses, proximity to the proposed site, and the potential for noise impacts. The representative noise monitoring locations and land use types are listed in Table 6.

Table 6 -Noise Monitoring Sites

Monitor Site	Site Location	Immediate and Adjacent Land Use
N1	Southwest corner of Millbrook Community	Residential/Commercial
N2	CR 58 and Glenwood	Residential/Commercial
N3	Foxwood Village Community southern boundary	Residential

Monitoring Location N1 was situated near the southwest corner of the Millbrook Community, a trailer park community. The project site is located immediately to the west. This site is also the northwest corner of an outdoor seasonal recreational facility. At the time of the monitoring program, the recreational facility was not open. This site represents the nearest noise sensitive receptors to the project site and to the section of CR 58 with the greatest increase in project-induced traffic.

Location N2 is situated at the Glenwood Village entrance, a trailer park community, at Glenwood and CR 58. Actual residences are located approximately 700 feet to the south of CR 58. Land-uses immediately adjacent to this site are commercial. A hotel is located approximately 250 feet to the west. This site was selected to assess the potential increase in traffic noise due to project.

Location N3 is situated along the southern property boundary of the Foxwood Village residential development. Residences adjacent to this location are over 1,500 feet from CR 58 to the south and over 1,300 feet from Mill Road to the east. Land-uses immediately adjacent to this site are residential. This site supplements the other two monitoring locations.

Continuous monitoring at 10-minute intervals was conducted at two locations for a 24-hour period from midday Tuesday, February 27 to Wednesday, February 28, 2007. In addition, monitoring was conducted during the midday hours of Saturday, March 3, 2007. Supplemental monitoring was conducted at an additional monitoring location from Monday, November 19 to Tuesday, November 20, 2007 and during the midday hours on Saturday, November 17, 2007. The following instrumentation were used for this monitoring:

Metrosonics db-308 Metrologger with wind screen
Rion NC-73 Sound Level Calibrator
Quest Noise Pro DLX Sound Level Meters
8.5 mm Bruel & Kjaer Condenser Microphone and Pre-Amp
Quest WS-5 Wind Screen
Quest QC-10 Calibrator

The instruments were calibrated before and after each measurement period and operated according to manufacturer's instructions.

Meteorological data during the monitoring period was acquired from local weather service. The weather during the 24-hour monitoring period in the early afternoon Tuesday, February 27, 2007 featured overcast skies and clearing during the early morning hours on Wednesday. Temperatures ranged from the high 30's to low-40's degree Fahrenheit during the day to the low-30's degree Fahrenheit during the overnight period. Winds were calm on Tuesday, but increased to approximately 12 mph shortly after dawn. Humidity stayed in a narrow range between 80% and 95% until approximately 8 AM Wednesday, when it began dropping to 45% by early afternoon. Barometric pressure was 29.94 inches on Tuesday, rising to 30.09 inches by noontime Wednesday. The weather during the midday of Saturday March 3, 2007 was clear with temperatures around 50^0F, winds between 10 and 20 mph from the southwest, and relative humidity between 45% and 50%. Barometric pressure was 29.55 inches.

The supplemental 24-hour monitoring period began in the late morning of Monday, November 19, 2007. Temperatures were in the mid-40's degree Fahrenheit during the

day, dropping to near freezing overnight. Cloud coverage varied between clear and overcast until the very early morning of Tuesday when the skies became overcast. Northeast winds varied between 10 to 16 mph until the late afternoon when the wind speed became light from the east-northeast. Humidity was around 50% Tuesday, increasing to 90% by early Tuesday morning. This monitoring period started with barometric pressure at 30.47 inches, dropping to 30.18 inches by the conclusion of the monitoring period. Weather during the Saturday, November 17, 2007 midday hours was clear with temperatures in the mid-40's Fahrenheit, winds around 10 mph from the west, humidity around 43%, and barometric pressure at 30.03 These conditions satisfy the meteorological requirements for the measurement of ambient noise per ANSI S1.2 (ANSI, 1962).

4.2 MEASURED NOISE LEVELS

Table 7 summarizes the noise levels monitored. The ambient noise levels surrounding the site generally range from the high-40s in dBA in locations away from major roadways, to the low-70s near CR 58. Vehicular traffic is the principal noise source throughout the project area and noise levels are generally dependent on the proximity to roadways and volume of traffic.

Table 7 - Day-Night Level and Hourly L_{eq} Noise Levels (dBA)

	L_{dn}	L_{eq}		
Location		**AM**	**PM**	**Sat**
N1	60	55	54	53
N2	71	70	68	68
N3	51	50	49	48

Location N1 is a quiet area as evidenced by the low noise levels recorded in the mid 50's. Distant traffic on CR 58, approximately 550 feet to the south, was a major noise contributor to the ambient environment. Other less distinctive noise sources include activities within the Millbrook Community, birds and occasional parking lot activity from the medical center to the east.

Traffic on CR 58 dominated the noise environment at Location N2. Traffic on Glenwood is light in comparison to the traffic on CR 58. Noise levels during the AM, PM, and Midday Saturday period ranged from 68 dBA to 70 dBA.

The dominant noises at Location N3 are both natural and man-made at this remote and quiet location. With the major roadways a quarter-mile or more away, dominant sounds include the wind and the rustle of foliage as well as the drone of distant traffic to the south and southwest with the infrequent noise of cars in the Foxwood gated community to the north. Noise levels were similar during the AM, PM, and Midday Saturday period, ranging from 48 dBA to 50 dBA.

4.3 Comparison of Measured and Model Predicted Noise Levels

Table 8 compares the measured L_{eq} values and predicted traffic generated L_{eq} values for the design hour traffic periods. There is very good agreement, less than 2 dBA, between the predicted and the measured noise levels, at Location N2 where traffic obviously dominates the noise environment.

Table 8 - Comparison of Measured and Predicted L_{eq} (dBA)

Site Location	Period	Measured	Predicted	"Other Noise Contributions"
N1	AM	55	48	54
	PM	54	49	53
	Saturday	53	49	51
N2	AM	70	69	-
	PM	68	69	-
	Saturday	68	70	-
N3	AM	50	39	50
	PM	49	40	48
	Saturday	48	41	47

At Location N1, which is approximately 550 feet away from CR 58, the noise environment composed of other local noise contributions such as activities in the

parking lot and nearby trailer park. Measured noise levels were 4 to 7 dBA higher than the traffic noise predicted by the model. At Location N3, a ¼-mile or more away from major roadways, measured noise levels were 7 to 11 dBA higher than predicted local traffic noise. These "other" noise contributions are labeled as "Other Noise Contributions" in Table 8 and include very distant traffic, parking lot activities, the occasional aircraft overflights, and natural noises for locations more distant from man-made noise sources. Incorporation of these "Other Noise Contributions" levels with the TNM predicted levels should yield an accurate representation of the total noise environment at this location.

5.0 FUTURE CONDITION

The future conditions assumes that no change to the Existing noise environment other than the operation of the Proposed Project.

5.1 PRIMARY NOISE SOURCES

Primary noise sources with the potential for noise impacts include HVAC equipment, loading/unloading activities, movement of delivery trucks to and from the loading bays/docks, and the delivery truck back-up alarm.

5.1.1 HVAC Machinery and Equipment

All building mechanical and HVAC equipment will be housed inside buildings or designed to have no impact on adjacent noise-sensitive land uses.

5.1.2 Loading/Unloading Activity

All the loading bays are of the flush design where the truck/trailer is backed up flush against the loading bay. The flush design practically eliminates the loading/unloading noise associated with the older open platform designs as these activities are effectively enclosed inside the building. Consequently, noise from the loading or unloading of goods is expected to be inconsequential.

5.1.3 Delivery Truck Movements

Onsite delivery truck routes are located along the perimeter of the site, along the southern half of the western property line, along the entire eastern property line, and the eastern third of the northern property line. Residential land uses are adjacent to the northern property line (Foxwood Village community) and a portion of the eastern property line (Millbrook community). The noise conditions at these locations are represented by noise monitoring Locations N3 and N1 respectively. Of particular concern are the semi-tractor trailer trucks during the more sensitive nighttime hours. Predicted maximum hourly noise levels (L_{eq}) and maximum noise levels (L_{max}) are

presented in Table 9 at Locations N1 and N3 with the ambient maximum hourly nighttime noise levels and the maximum noise levels during the nighttime hours.

Table 9 - Predicted Nighttime Truck Movement Noise Levels (dBA)

Site Location	Delivery Trucks		Existing Ambient	
	Max Hourly L_{eq}	L_{max}	Max Hourly L_{eq}	L_{max}
N1	48	73	54	81
N3	50	73	47	86

Estimates of maximum noise levels were made using heavy truck maximum pass by noise level data in TNM, and L_{eq} noise levels were estimated using TNM 2.0. The developer conservatively estimates that up to four heavy trucks and two medium trucks in a one-hour period will be making deliveries to the stores along the eastern section of the site, moving at a speed of 15 mph. While most deliveries are expected to occur during the daytime hours, it is nonetheless assumed that deliveries may be made sometime during the nighttime hours. Noise levels from delivery trucks are expected to be 48 dBA at N1 and 50 dBA at N3. The maximum ambient hourly noise levels were 54 dBA and 47 dBA at the corresponding locations. The estimated maximum delivery truck noise level is expected to be 73 dBA for both locations. Maximum noise levels of 81 dBA and 86 dBA have been observed during the nighttime hours at Locations N1 and N3 respectively.

5.1.4 Truck Back-up Safety Alarm

Backup alarms are required safety devices under federal motor carrier and OSHA regulations. A property or store owner may run afoul of the safety requirement in mandating or regulating the loudness level or operation of a backup alarm. The alarm is readily and unmistakably audible at 15 feet by design (industry advocates 10 dB above ambient noise level) to alert anyone behind the truck that it is backing up. Since noise levels of back-up alarms vary greatly from truck to truck, estimates of the resulting noise levels at receptor locations are therefore infeasible.

5.2 SECONDARY NOISE SOURCES

The major source of noise affecting the community noise environment from the proposed development is the additional traffic introduced by the project. Since the resulting total traffic volumes for the two (2) project alternatives considered – As - of-Right and the Proposed Action – are the same, analysis results and findings presented below apply to either Build alternative. Table 10 summarizes the peak traffic hourly L_{eq} noise levels that can be expected with the additional traffic as a result of the Shops at Riverhead under the Build and No Build Alternatives. In general, the project site under the Build Alternative is expected to have no significant changes from the No Build noise levels.

Table 10 - Future Noise Levels by Location (dBA)

Location	AM		PM		Weekend	
	Build	No Build	Build	No Build	Build	No Build
N1	55	55	55	55	55	54
N2	70	69	72	71	73	72
N3	50	50	49	49	49	48

It can be seen from Table 10, increases in noise levels due to the proposed project are expected to be 1 dBA or less. Therefore, the Proposed Project is not expected to significantly change the noise environment in the adjacent community.

6.0 NOISE IMPACTS

Of the primary noise sources, building mechanical and HVAC equipment and loading bay activities are not expected have any impacts. All building mechanical and HVAC equipment will be enclosed within buildings or otherwise designed to satisfy the Town noise ordinances and building permit requirements. The flush design of the loading bays greatly attenuates the noise from the loading and unloading activities, effectively enclosing the operation.

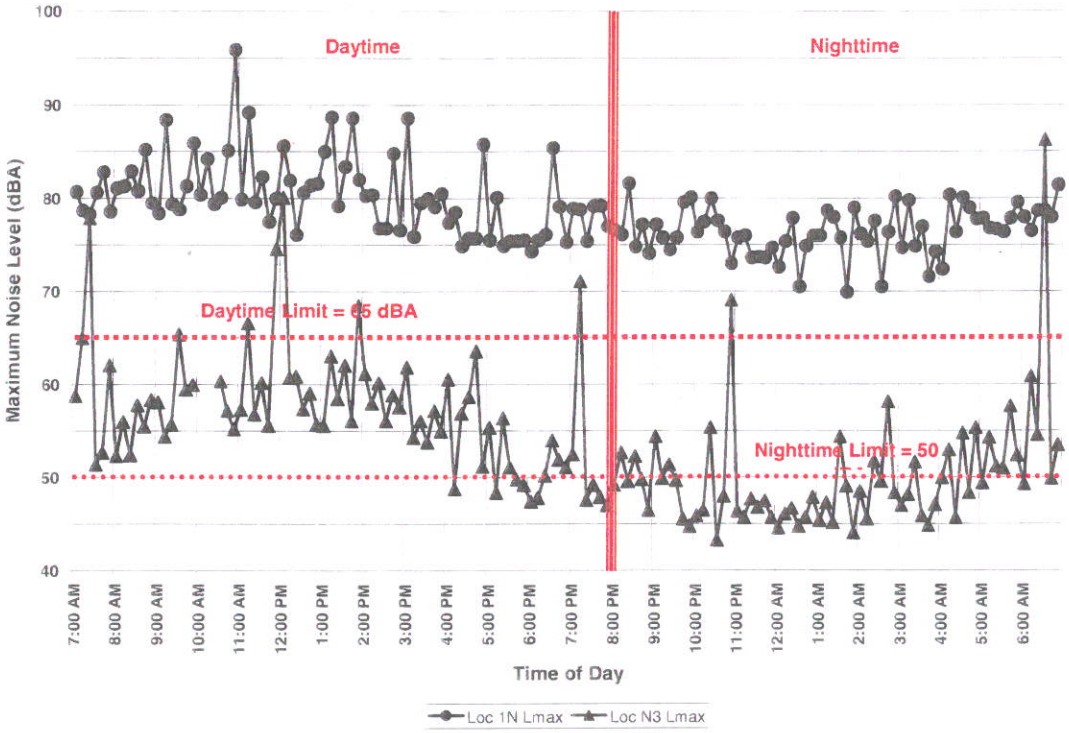
Under the "worst case" nighttime delivery scenario, the hourly noise level (L_{eq}) does not exceed the NYSDOT nor the NYSDEC 6-dBA noise level increase criteria for a noise impact as shown in Table 11. In fact, the delivery truck noise level at Location N1 is expected to be significantly lower than the existing maximum hourly L_{eq}.

Table 11 – Nighttime Truck Delivery Noise Levels (dBA)

	Delivery Trucks		Existing Ambient		Town Noise Limit
Site Location	Max Hourly L_{eq}	L_{max}	Max Hourly L_{eq}	L_{max}	L_{max}
N1	48	73	54	81	50
N3	50	73	47	86	50

The maximum single heavy truck pass-by noise level at Locations N1 and N3 can be expected to exceed the Town's daytime and nighttime maximum noise level limits of 65 and 50 dBA. However, the maximum number of such occurrences in any one hour period is expected to be less than 4 times, each lasting no more than 30 seconds. As shown in Figure 3, existing maximum noise levels at these locations frequently exceed the Town noise limits of 65 dBA for daytime and 50 dBA for nighttime.

Figure 3 – Existing Maximum Noise Levels (L_{max} in dBA)



Vehicle back-up alarms are a required safety device that warns of danger. As is the case in most noise regulations and guidelines, the Town noise ordinance specifically exempts warning and safety devices.

For all three locations, traffic noise levels under the Build condition is expected to increase by 1 dBA or less versus that under the No Build condition, well below the 6 dBA that NYSDEC and NYSDOT consider a significant increase and below the 3 dBA that is considered a perceptible change by most people. Consequently, secondary noise impacts are not expected.

7.0 MITIGATION

Project plans call for a 6-foot wall along parts of the perimeter of the site. The effectiveness of this wall is minimal, resulting in a 5 dBA insertion loss along the northern residential property line and less than 1 dBA insertion loss at the residential property line to the east. For the wall to be effective, it must exceed the height of the semi-tractor trailer's exhaust stack. Such a high noise wall may not be feasible or constructible.

Several advanced models of back-up alarms are on the market. Some of the newer backup alarms emit a less annoying broadband signal instead of the typical tonal signal. Other new back-up alarms emits a "shh-shh" signal that rapidly decays with distance from the source. However, the vehicle owner/operator is responsible for the back-up alarm, and regulation of the back-up alarm at the project site may not be feasible. The Project has reduced the duration of the back-up alarm by facilitating the docking of the trailers and trucks with good docking area designs.

8.0 CONCLUSIONS

In conclusion, with the exception of the occasional heavy delivery truck movements along the eastern property line and the northern eastern property line generating pass-by maximum noise levels exceeding the Town noise level limits as are most existing noise levels, the proposed project is not expected to have significant noise impacts by NYSDEC and NYSDOT noise impact guidelines.

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