

25 November 2025



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1455 Research Boulevard Phase I & II Noise Analysis

Montgomery County, Maryland

Report No. 251125
Project No. PHC2506

For: Pulte Group

By: Matthew Foster

1 EXECUTIVE SUMMARY

Phoenix Noise & Vibration has conducted a Phase I & II Noise Analysis of the proposed residential development to be located at 1455 Research Boulevard in Rockville, Montgomery County, Maryland. Upon completion, the development will consist of 64 condominium units and 134 townhome units. This study assessed future transportation noise impact from I-270, Research Boulevard, and West Montgomery Avenue (28), and included:

- On-site 24-hour noise measurements and monitoring.
- Computerized 3D noise propagation modeling.
- Determination of future noise levels.
- Minimum building construction requirements to achieve interior noise levels not exceeding 45 dBA Ldn.

Noise impact throughout the site will vary with height; therefore, impact has been presented at both the ground level (5 feet above adjacent grade) and upper level (25 feet above adjacent grade). Additionally, noise impact is presented using aerial views within the 3D model, highlighting noise impact upon future building façades. Impact is presented using a color scale indicating future transportation noise levels. The noise levels presented are due only to surrounding roadways and do not account for noise from other sources such as construction, mechanical noise, environmental noise, etc.

Results of the analysis have found that the two condominium buildings and approximately half of the townhomes at the site will be impacted by future transportation noise levels exceeding 65 dBA Ldn, with a maximum noise impact of 82 dBA Ldn upon the condominium units facing I-270. This represents a high degree of noise impact upon the future condominium units, due to their proximity to I-270.

Building Construction Requirements necessary to maintain interior noise levels not exceeding 45 dBA Ldn include full brick exterior cladding on the condominium building north, east, and south façades, in addition to 36 – 41 STC windows and 38 STC patio doors. For the townhomes, mitigation includes windows and doors with upgraded STC ratings, depending on the location and orientation of each façade. Noise impact and building mitigation is presented in the Drawings in the Appendix.

2 NOISE TERMINOLOGY

2.1 dB vs. dBA

While the standard unit of measurement for sound is the decibel (dB), discussions of noise impacting the human ear use “dBA.” The “A” refers to a frequency weighting network used to simulate the human ear’s unequal sensitivity to different frequencies. The A-weighted noise level is therefore more representative of a human’s perception of a noise environment than the unweighted overall noise level in dB and is currently used in most all environmental noise studies.

2.2 Ldn

The day-night average noise level, or Ldn, is the equivalent sound pressure level averaged over a 24-hour period, obtained by adding 10 dB to sound pressure levels measured from 10:00 p.m. to 7:00 a.m. This 10 dB “penalty” accounts for the added sensitivity caused by noise generated during the nighttime hours.

The Ldn is sometimes referred to as the “DNL,” however, both terms represent the same quantity. The Ldn is NOT a measurement of the instantaneous noise level. It is very possible to have several short term events (tractor trailer, emergency vehicle siren, car horn, etc.) which generate a relatively high noise level (e.g. 85 dBA) during a given time period, yet have a more moderate overall Ldn value (e.g. 65 dBA Ldn).

2.3 Summing Noise Levels

Noise levels from multiple sources do not add arithmetically, i.e. when two noise sources generate 60 dB individually, they do not produce 120 dB when combined. Noise levels are measured using a logarithmic scale; therefore, they must be summed logarithmically. In the decibel scale, two identical, non-coherent noise sources having the same noise level produce a 3 dB increase above the condition of one source alone (i.e. two 80 dB lawnmowers running at the same time generates 83 dB).

Similarly, two different noise sources with a difference of 10 dB in their individual levels results in no measurable increase in noise when they are combined. Put another way, the quieter noise source does not increase the overall noise generated by the louder source; i.e. adding an 80 dB lawnmower into a noise environment where a 90 dB lawnmower is already running does not increase the noise level above 90 dB.

3 NOISE REGULATION

Traffic noise impact for proposed residential developments in Montgomery County is governed by Table 2-1 (reprinted in Table 1) on page 8 of the *Staff Guidelines for the Consideration of Transportation Noise Impacts in Land Use Planning and Development* (June 1983).

Accompanying this table is Map 2-1 (see Figure 1), indicating outdoor noise level requirements not to be exceeded throughout the County.

Table 1: Maximum Levels for Exterior Noise & Building Line¹ For Noise Sensitive Land Uses (Table 2-1).

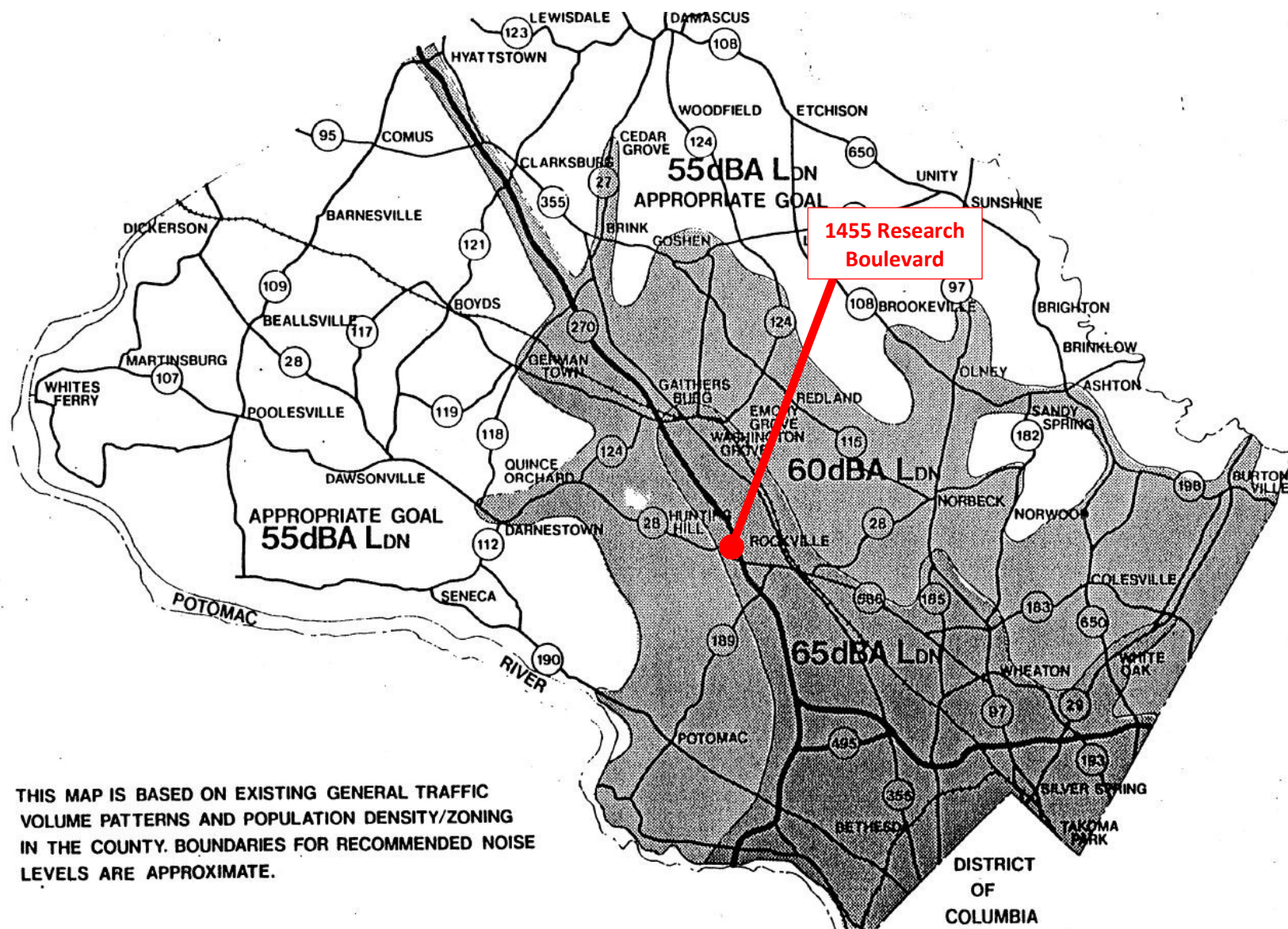
Guideline Value	Area of Application
Ldn = 55 dBA	This guideline is suggested as an appropriate goal in permanent rural areas of the County where residential zoning is for five or more acres per dwelling unit and background levels are low enough to allow maintenance of a 55 dBA Level. This guideline is consistent with Federal, State, and County goals for residential areas.
Ldn = 60 dBA	This is the basic residential noise guideline which will be applied in most areas of the County where suburban densities predominate. Maintenance of this level will protect health and substantially prevent activity interference both interiors and outdoors. Noise attenuation measures will be recommended to allow attainment of this level.
Ldn = 65 dBA	This guideline will generally be applied in the urban ring, freeway, and major highway corridor areas, where ambient levels are such that application of a stricter guideline would be infeasible or inequitable. Significant activity interference will occur outdoors and interiors if windows are partially opened, but available evidence indicates hearing is adequately protected. Noise attenuation measures will be strongly recommended to attain this level.

¹ Building line as used here refers to habitable structures only. It does not include garages, sheds, or recreational accessory buildings.

According to Map 2-1, 1455 Research Boulevard is located within the 65 dBA Ldn noise zone, indicating that noise levels in the buildings' outdoor activity areas should be maintained at 65 dBA Ldn or less. Any outdoor activity area exposed to future transportation noise levels above 65 dBA Ldn typically requires further analysis to determine the mitigation designs necessary to comply with this requirement.

When outdoor noise levels exceed 65 dBA Ldn, Montgomery County also requires an analysis of interior noise levels in residential buildings. According to Sections 2.2.2 and 2.2.3 of the *Staff Guidelines*, any residential building impacted by noise levels above 65 dBA Ldn must be evaluated to certify that the building structure will be capable of maintaining interior noise levels at or below 45 dBA Ldn.

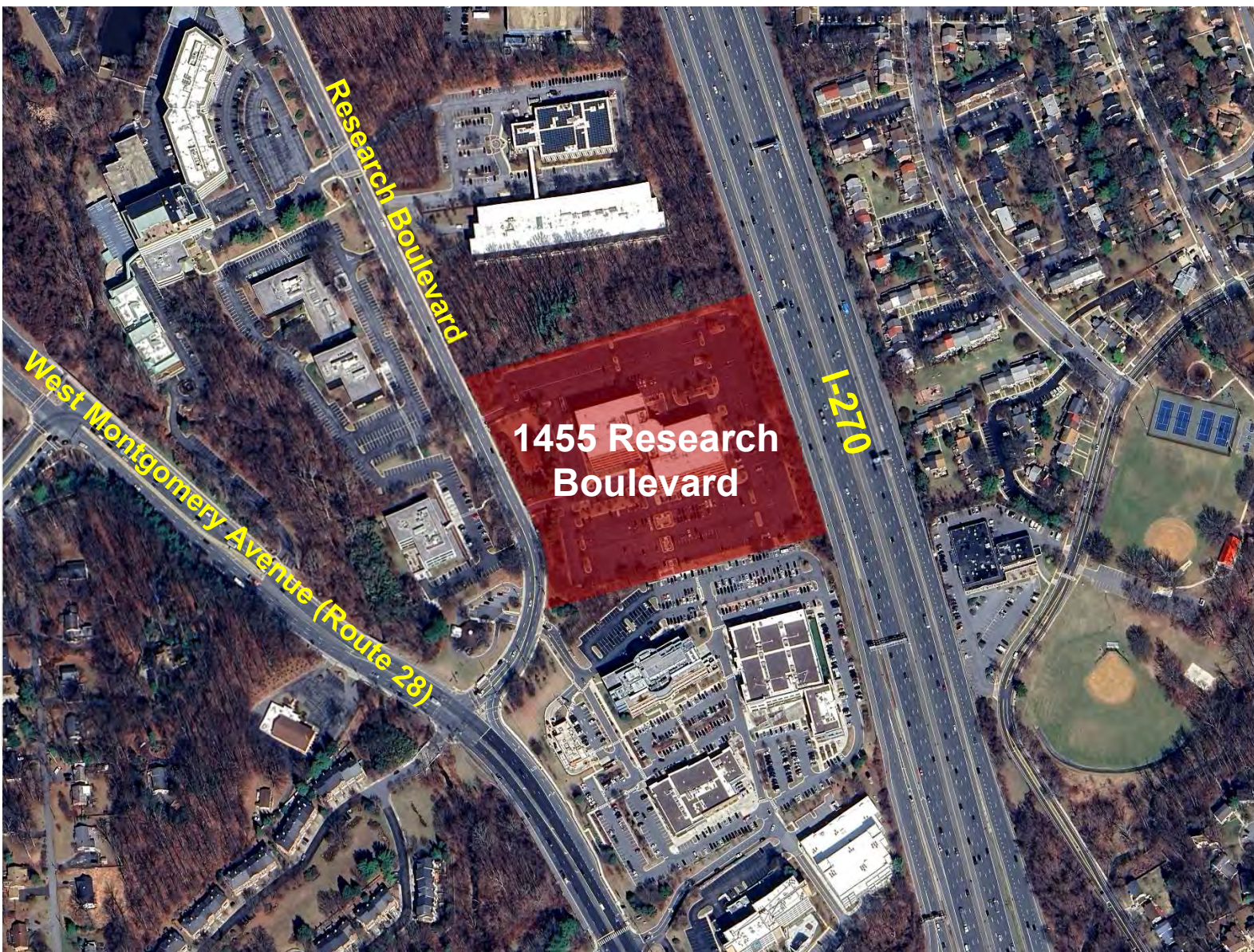
Figure 1: Map 2-1 from *Staff Guidelines for the Consideration of Transportation Noise Impacts in Land Use Planning and Development* (June 1983).



4 SITE DESCRIPTION

1455 Research Boulevard (shown in Figure 2) is located along the west side of I-270, east of the south end of Research Boulevard. West Montgomery Avenue (Route 28) is also located to the west of the site. In the vicinity of the site, Research Boulevard consists of two travel lanes in each direction, and West Montgomery Avenue consists of three travel lanes in each direction. I-270 consists of four lanes plus two local lanes in each direction.

Figure 2: Existing site (site boundary outlined in red) and surroundings. Aerial image dated February 28, 2024, courtesy of Google Earth.



5 NOISE MEASUREMENTS

From July 8th to 9th, 2025, Phoenix Noise & Vibration conducted an on-site noise measurement survey to determine existing transportation noise levels throughout the site. This involved continuous noise level measurements and monitoring for one 24-hour period. Measurements were made using six Norsonic (three Type 139 and three Type 118) Precision Integrating Sound Level Meters. All meters were calibrated prior to the survey traceable to National Institute of Standards and Technology (NIST). Each meter meets the ANSI S1.4 standard for Type 1 sound level meters.

Noise level measurements were made at the locations shown in Drawing 1 of the Appendix. Measurements were made at 5 feet (“ground level”, GL) and 25 feet (“upper level”, UL) above adjacent grade. Measurements at 5 feet represent noise impact in outdoor areas and upon the first story of buildings, while measurements at 25 feet represent noise impact upon upper stories of buildings.

Figure 3 presents the survey results graphically, showing the noise level as measured in five-minute increments throughout the survey. Figure 3 indicates the actual measured values over the 24-hour period. While the 10 dBA nighttime penalty is not shown graphically, it was included in the Ldn calculations.

Note that between 16:00 and 18:30, measured noise levels were affected by rainfall at the site. Because of this, a normalized data set was estimated to represent the noise levels at the site without this aberration by replacing the 16:00 – 18:29 data with the noise levels recorded during the 13:30 – 15:59 time period, while adding 0.5 dBA to be conservative. This resulted in a minimal impact to the overall Ldn at NMLs B and C. The resulting data is presented in Table 2 and Figure 4. This normalized data set was used for calibration of the existing site model.

Table 2: 24-hour noise measurement results.

Measurement Location	Height Above Existing Grade (feet)	Measured Noise Level (dBA Ldn)
A	5	72
	25	81
B	5	63
	25	65
C	5	63
	25	65

Figure 3: Five-minute average noise levels recorded during 24-hour noise survey.

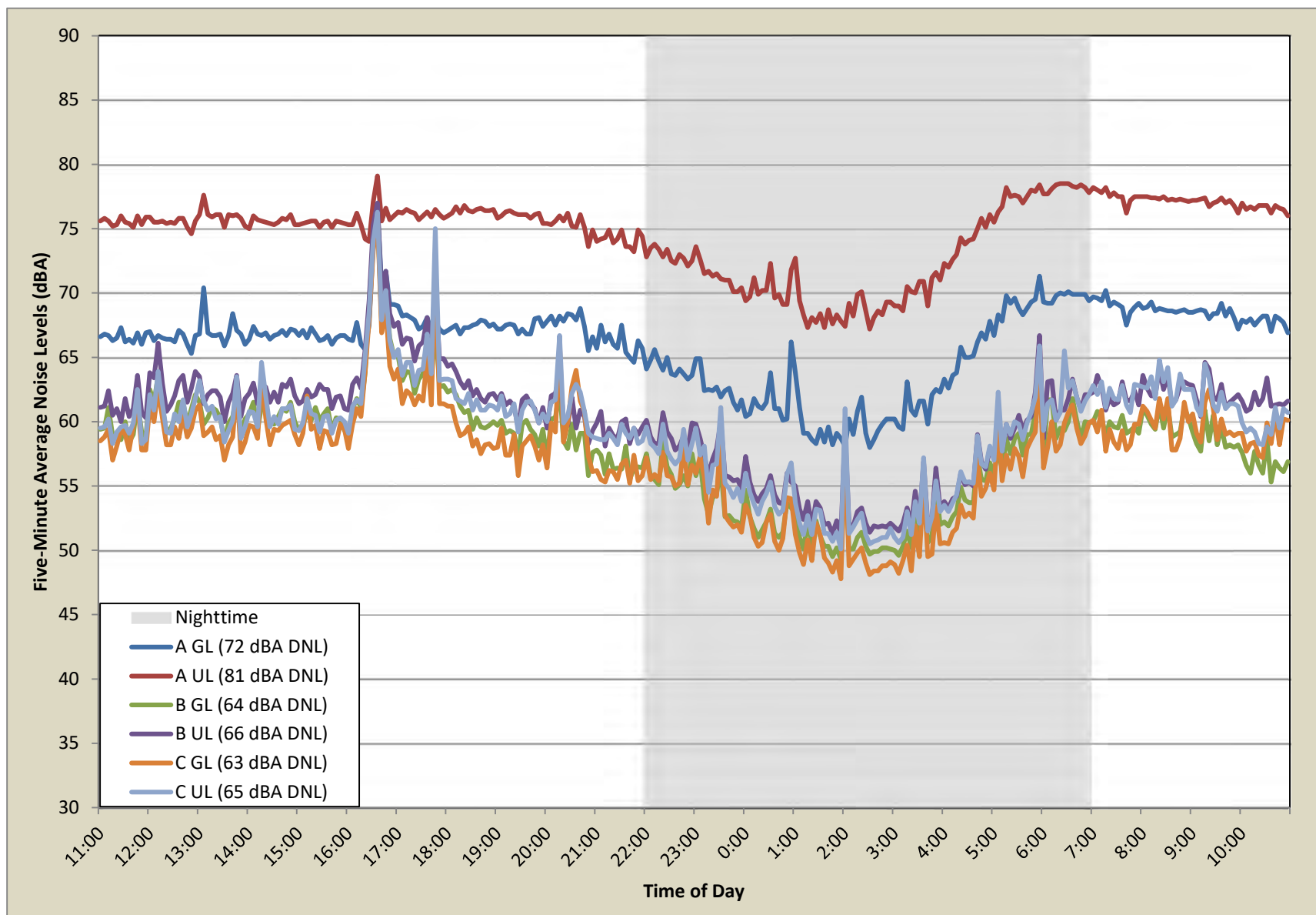
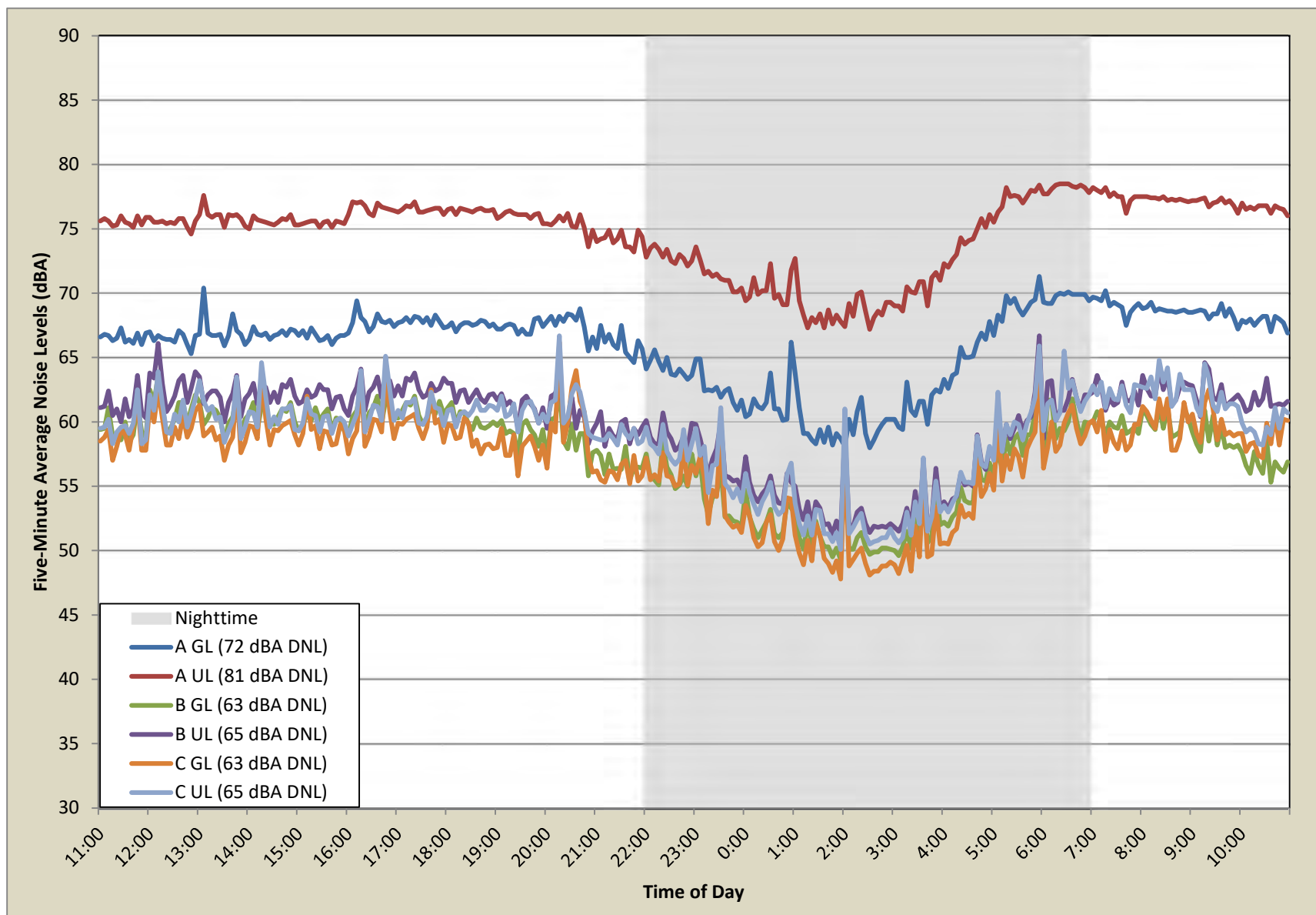


Figure 4: Estimated noise levels with the removal of rainfall noise.



6 COMPUTER MODELING

The existing and future sites were computer modeled using the CadnaA software program, a three-dimensional noise propagation model capable of determining the noise level impact from multiple noise sources across vertical and horizontal surfaces while accounting for complex factors such as topography, surface reflections, significant structures, and roadway data (traffic volumes, speeds, and vehicle classifications, etc.). Noise levels can be presented either in spot locations or as noise contours of equal value throughout a defined surface area.

6.1 Existing Model

An existing model was developed to simulate the existing site and its surroundings using information obtained from Google Earth, Montgomery County GIS, and data collected during the 24-hour measurement survey by inputting existing topography, roadway alignments, and buildings. The modeled roadway noise output was validated using the on-site noise measurements, confirming that the modeled input produced a modeled noise level output which matched the measured values.

6.2 Future Model

A future model was then developed by altering the calibrated existing model to include projected roadway data and the future site buildings and topography.¹ The future model calculated noise levels throughout the site at both the ground level and upper level as shown on Drawings 2 and 3 of the Appendix, respectively. Noise levels are calculated in the presence of future site buildings and topography, as well as all existing surrounding buildings, topography, and significant structures (not including the existing building at 1455 Research Boulevard to be demolished). Calculated future noise levels account for the effect of buildings and other significant structures in reducing and reflecting roadway noise.

6.3 Roadway Data

Average annual weekday traffic (AAWDT) volumes, for the roadways were based upon the most recent data published by the Maryland State Highway Administration (MDSHA). MDSHA does not typically provide future traffic data; therefore, a conservative, 2% increase in traffic compounded annually until 2045 was assumed.² In cases where the data was not available from the state (vehicle class percentages, nighttime percentages, etc.), this information was estimated based on national averages and/or information collected during the on-site noise survey. All necessary traffic data is provided in Table 3.

¹ Provided by Pulte Homes in AutoCAD format on 27 October 2025.

²Montgomery County typically requires that roadway noise impact studies be conducted using the projected traffic volumes 20 years from the date of the study.

Table 3: Roadway data used in the analysis.

Roadway	Existing AAWDT (Year)	2045 AAWDT	Nighttime Volume %	Truck %	Speed Limit (mph)
I-270	231,841 (2024)	351,394	16%	4%	55
West Montgomery Avenue (Route 28)	49,810 (2024)	75,495	9%	5%*	45
Research Boulevard	12,395 (2022)	19,546	6%	5%*	30
Note: Values marked with a “*” were not available from MDSHA and were estimated based on national averages or information collected during the on-site noise survey.					

6.4 Future Noise Impact

The future model calculated noise levels throughout the site and across all future building façades in the presence of future site buildings and topography, as well as all existing surrounding buildings, topography, and significant structures (not including the existing building at 1455 Research Boulevard to be demolished). Drawing 2 of the Appendix presents the future ground-level noise contours, while Drawing 3 presents the future upper-level noise contours. Additionally, Drawing 4 presents to future noise impact upon the façades of all future residential buildings using aerial views within the 3D computer model of the site.

As shown on Drawing 4 of the Appendix, the maximum noise impact at the site is 82 dBA Ldn upon the future condominium façades facing I-270. Upon the future townhomes, the maximum noise impact is 77 dBA Ldn upon Lot 20 of Parcel E, Block A. Following the townhomes at the southern boundary of the site, impact is reduced with increasing distance from I-270, but extends to the southwest corner of the site. Along the northern boundary of the site, noise impact above 65 dBA Ldn extends approximately halfway between I-270 and Research Boulevard. Additionally, some noise impact above 65 dBA Ldn extends further into the site behind the condominium buildings and southern row of townhomes.

7 INTERIOR MITIGATION

When a residential structure is impacted by transportation noise levels which exceed a governing threshold (65 dBA Ldn), further analysis (a “building shell analysis”) is required to determine if proposed building structures will be capable of reducing exterior noise levels to the required interior level, as required by Montgomery County’s noise regulations for residential development.

7.1 Building Shell Analysis

Drawing 4 of the Appendix presents future noise impact across the future building facades. The drawing indicates that all of the living units located on the north, east, and south building elevations of both condominium buildings will be exposed to future transportation noise levels greater than 65 dBA Ldn, with maximum impact up to 82 dBA Ldn. These impacted living units, as well as the impacted townhomes require further analysis to determine whether the proposed building construction will be capable of maintaining interior noise levels at or below 45 dBA Ldn, or whether modifications will be required to do so.

This evaluation, or “building shell analysis”, calculates the noise reduction provided by an exterior building partition (i.e. the composite assembly of the wall and any windows and doors) and the resulting indoor noise level when impacted by a specific outdoor noise level. The noise reduction provided by an exterior partition is dependent upon the surface area each building element composing the partition occupies and the STC rating³ of the individual elements.

A floor-by-floor building shell analysis was completed for the various unit types throughout the development, including condominium units, alley-loaded townhome units, and stacked townhome units. The analysis was conducted using the exterior noise level specific to each residential unit (as determined by the computer model) and each room’s interior dimensions, exterior wall and window/door dimensions, and exterior wall finish. Using the architectural information available at this time,⁴ window and door STC ratings were adjusted until the interior noise level in each room was at or below 45 dBA Ldn.

7.2 STC Ratings

The exterior noise impact upon each residential unit was first evaluated using the proposed standard building construction (shown in Table 4) to determine if modifications (increased window and/or door STC ratings, exterior wall construction) will be required to maintain interior noise levels at or below 45 dBA Ldn. The standard window rating of 26 STC and standard sliding glass and balcony door ratings of 26 STC were used as the baseline for this analysis, along with foyer doors with a baseline rating of 22 STC.

³ The Sound Transmission Class (STC) rating is a single number value which indicates a building element’s (wall, window, door, roof, etc.) ability to reduce noise transmission from one side of the element to the other.

⁴ Providence Stacked TH (Lawrence II/Sydney II) and Frankton II HA TH Architectural sets received from Pulte Homes on 1 August 2025, and Arrowbrook Flats Condominium Architectural set received from Pulte Homes on 14 October 2025.

Table 4: Proposed standard building construction for 1455 Research Boulevard.

Building Element	STC Rating
Exterior Walls	
Brick (est.) 56 STC Partition construction: 3-5/8" brick, air space, exterior wall sheathing, wood studs, R-21 batt insulation, 5/8" gypsum board. Fiber Cement (est.) 45 STC Partition construction: fiber cement paneling, exterior wall sheathing, wood studs, R-21 batt insulation, 5/8" gypsum board.	
Operating & Fixed Windows	26 STC
Balcony Doors	26 STC
Foyer Doors	22 STC

7.2.1 Building Construction Requirements

The minimum window and door STC rating requirements for the impacted living units are presented for the townhomes using a plan view in Drawing 5 of the Appendix, and for the condominiums using elevation views on Drawings AC-201c, AC-202c, and AC-203c, of the Appendix. In particular, note the following:

- Windows and balcony doors with increased STC ratings will be required for all of the living units on the north, east, and south elevations of the condominium buildings. Minimum window STC ratings are 41 STC for the east façades and eastern halves of the north and south façades, and 36 STC for the western halves of the north and south façades. All balcony doors on the eastern façades of condominium buildings have a minimum rating of 38 STC.
- Minimum window STC ratings for townhomes vary between STC 26 and STC 36, depending on the location and orientation of each façade.
- Only two townhomes require exterior door upgrades, as shown in orange and red on Drawing 5.
- Upgrades to the exterior wall construction will be not required for any of the townhome units or for the west elevations of the condominiums.
- Residential units not shown with a specific STC rating requirement may use the proposed standard building construction shown in Table 4.
- The mitigation requirements for both condominium buildings are the same.

- STC ratings apply to the entire window/door unit; i.e. the installed window/door assembly, including all framing elements, mullions, and glazing (operating and fixed), must achieve the specified STC rating.
- The variety of STC ratings. Typically, such a detailed range of STC ratings is not available from a window/door supplier. Instead, suppliers can offer only a few STC ratings (e.g. 26, 28, and 30) within a particular window/door product series. In this case, any window/door that requires an in-between rating must be increased to the next highest rating (e.g. a 29 STC window requirement would take a 30 STC window).
- It is not expected that a window/door supplier be able to exactly match the STC rating requirements shown in the Appendix. These are minimum requirements presented as a guide to the architect or builder when selecting a window/door product series. Calculating minimum STC ratings specific to each room reduces the amount of “overbuilding” (i.e. installing windows/doors with unnecessarily high STC ratings), thereby reducing overall window/door costs.

8 CONCLUSION

Future transportation noise impact at 1455 Research Boulevard will be above 65 dBA Ldn, with noise levels up to 82 dBA Ldn upon the eastern condominium building façades facing I-270. While this noise level represents a high degree of noise impact, compliance with the Montgomery County's 45 dBA Ldn interior noise requirement can be achieved through reasonable modifications to the proposed building design, including upgraded windows with minimum ratings up to 41 STC and balcony doors with minimum STC rating up to 38 STC. Additionally, townhomes nearest to I-270 at the site are impacted by noise levels up to 77 dBA Ldn, and will require windows with ratings of up to 36 STC.

When using the minimum STC rated windows and doors specified individually for each unit, interior noise levels within all living units at 1455 Research Boulevard will be at or below 45 dBA Ldn, as required by Montgomery County's noise regulations for residential development. Residential units not exposed to future transportation noise levels above 65 dBA Ldn require no modifications. Standard windows and balcony doors may be installed in these residential units.

Please note: The results of this Phase I & II Noise Analysis have been based upon the site and architectural information made available at the time of the analysis, including existing topography and roadway alignments, projected roadway traffic volumes, the proposed building footprints and topography, and building architecture provided for the proposed buildings. Should any of this information be altered, additional analysis will be required to determine if the results and recommendations presented herein are capable of reducing interior noise levels to comply with Montgomery County's noise regulations for residential development.

APPENDIX



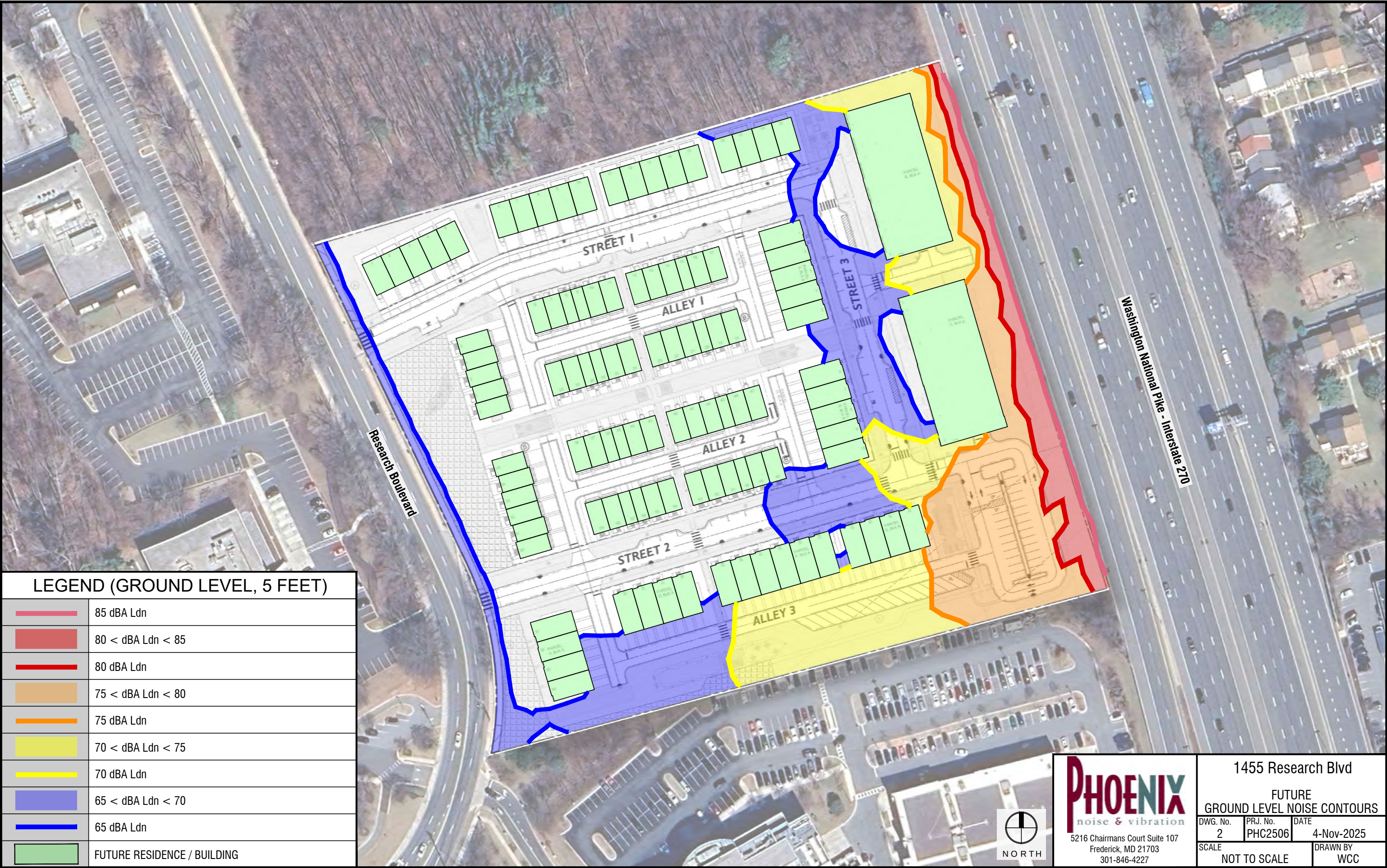
LEGEND

	NOISE MEASUREMENT LOCATION
	FUTURE RESIDENCE / BUILDING



PHOENIX
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Frederick, MD 21703
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1455 Research Blvd NOISE MEASUREMENT LOCATIONS			
DWG. No. 1	PRJ. No. PHC2506	DATE 4-Nov-2025	
SCALE NOT TO SCALE		DRAWN BY WCC	



LEGEND (GROUND LEVEL, 5 FEET)	
	85 dBA Ldn
	80 < dBA Ldn < 85
	80 dBA Ldn
	75 < dBA Ldn < 80
	75 dBA Ldn
	70 < dBA Ldn < 75
	70 dBA Ldn
	65 < dBA Ldn < 70
	65 dBA Ldn
	FUTURE RESIDENCE / BUILDING



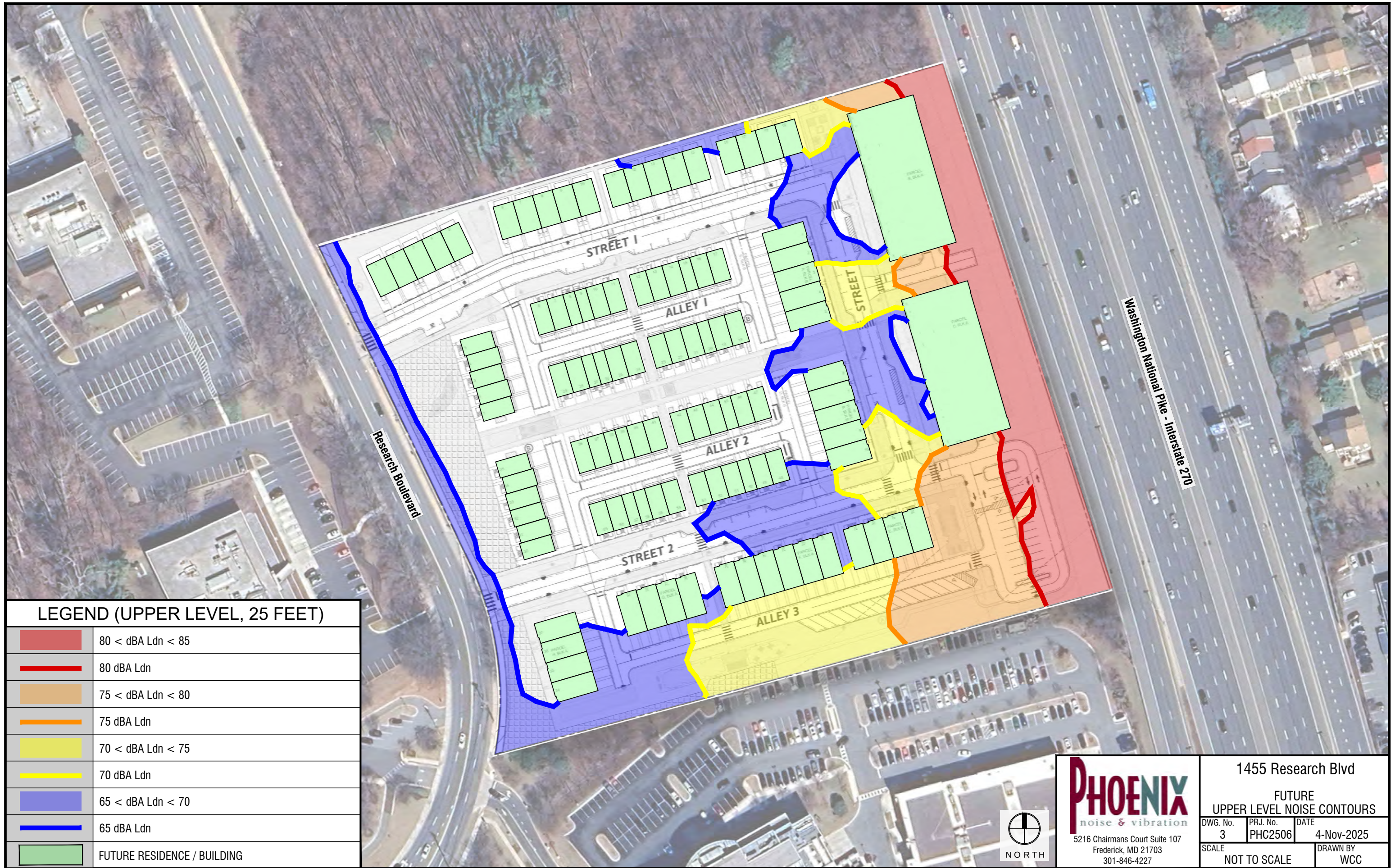
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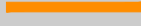
1455 Research Blvd

FUTURE
GROUND LEVEL NOISE CONTOURS

DWG. No. 2	PRJ. No. PHC2506	DATE 4-Nov-2025
SCALE NOT TO SCALE		DRAWN BY WCC



LEGEND (UPPER LEVEL, 25 FEET)

	80 < dBA Ldn < 85
	80 dBA Ldn
	75 < dBA Ldn < 80
	75 dBA Ldn
	70 < dBA Ldn < 75
	70 dBA Ldn
	65 < dBA Ldn < 70
	65 dBA Ldn
	FUTURE RESIDENCE / BUILDING

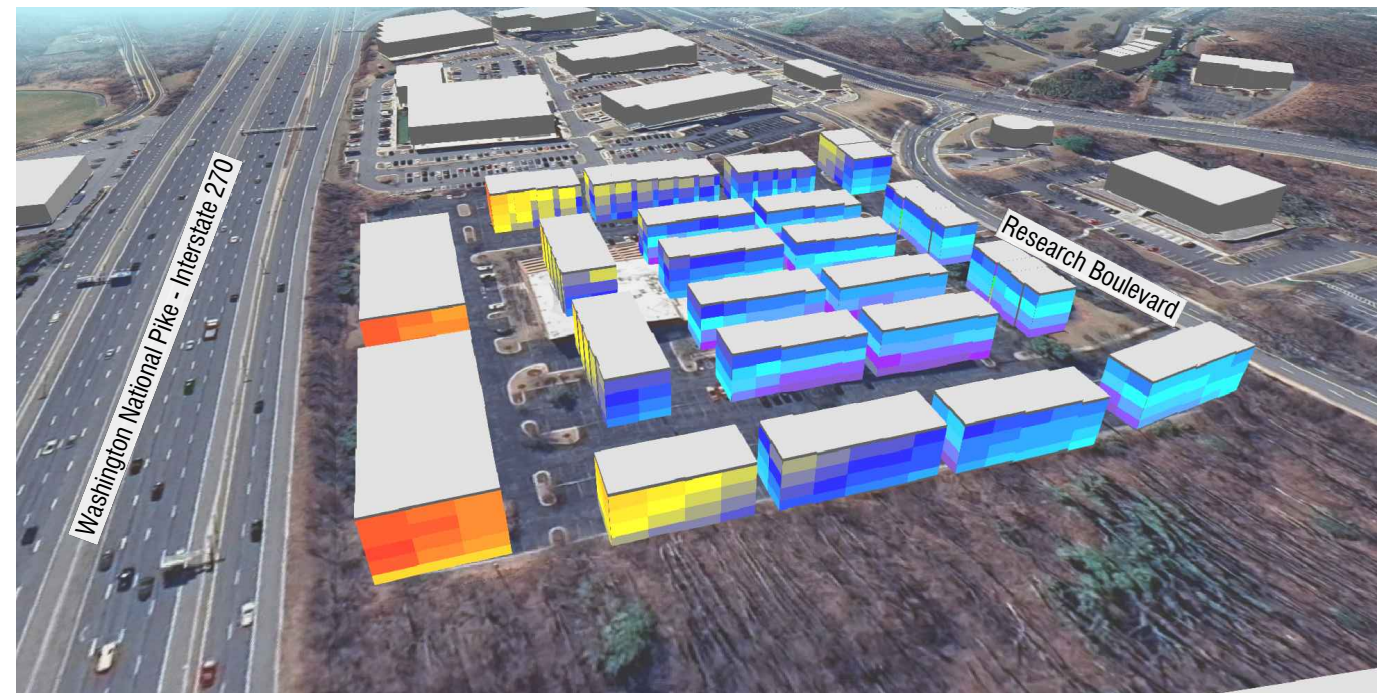


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1455 Research Blvd		
FUTURE UPPER LEVEL NOISE CONTOURS		
DWG. No. 3	PRJ. No. PHC2506	DATE 4-Nov-2025
SCALE NOT TO SCALE		DRAWN BY WCC



① Looking North



② Looking South

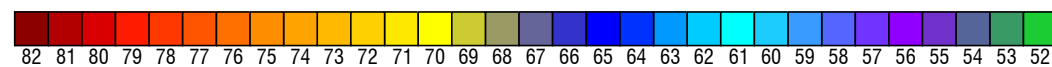


③ Looking East

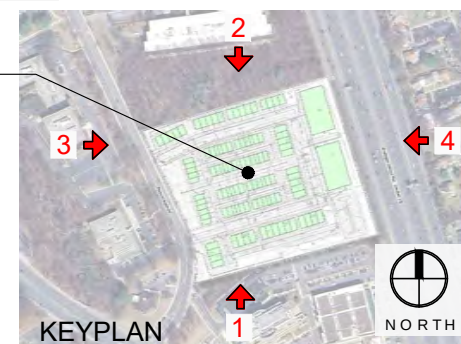


④ Looking West

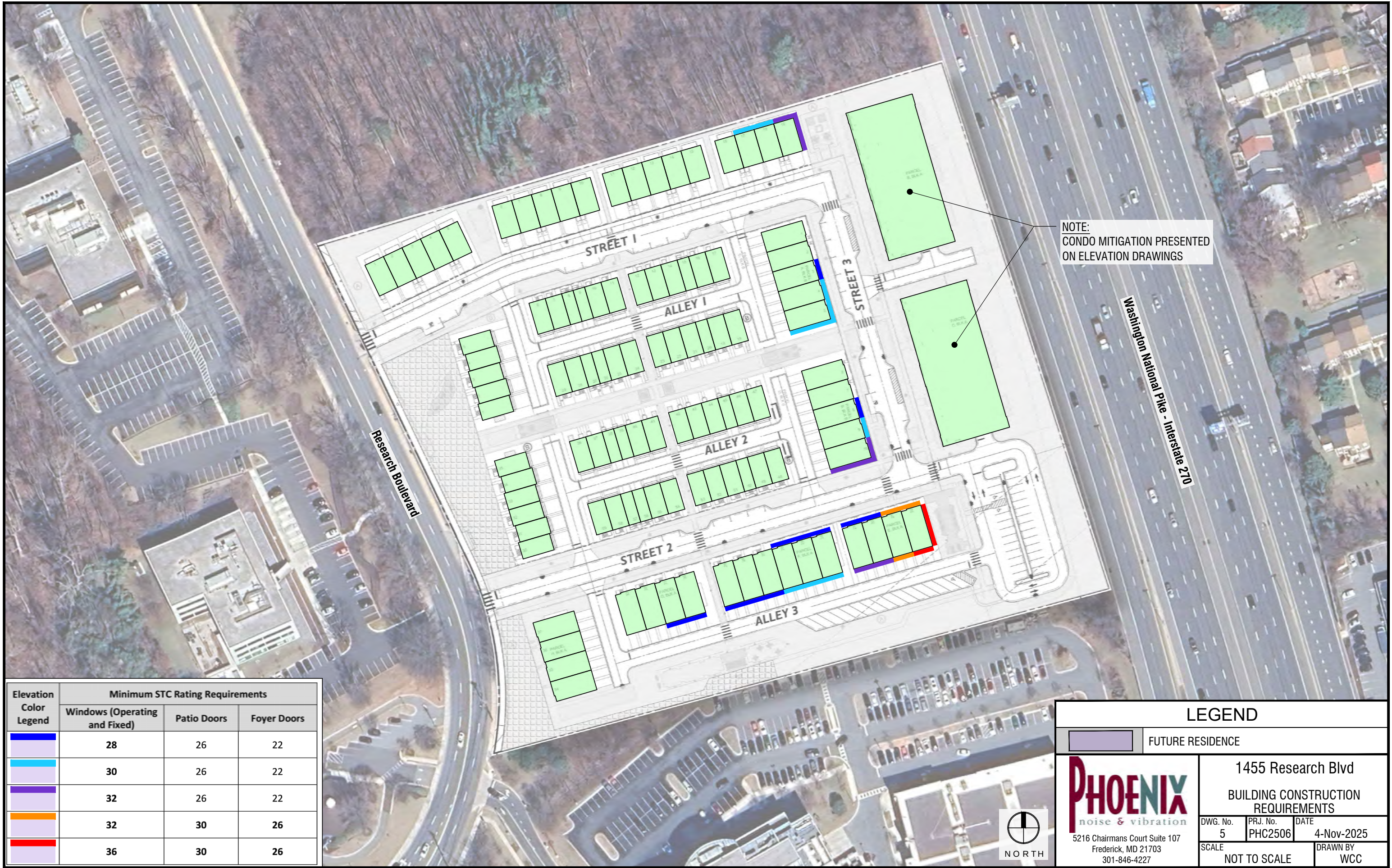
Future Transportation Noise Levels (dBA DNL)



1455 Research Boulevard



PHOENIX noise & vibration 5216 Chairmans Court Suite 107 Frederick, MD 21703 301-846-4227			1455 Research Blvd FUTURE TRANSPORTATION NOISE IMPACT		
DWG. No.	PRJ. No.	DATE			
4	PHC2506	4-Nov-2025			
SCALE			NOT TO SCALE	DRAWN BY	WCC



Elevation Color Legend	Minimum STC Rating Requirements		
	Windows (Operating and Fixed)	Patio Doors	Foyer Doors
	28	26	22
	30	26	22
	32	26	22
	32	30	26
	36	30	26

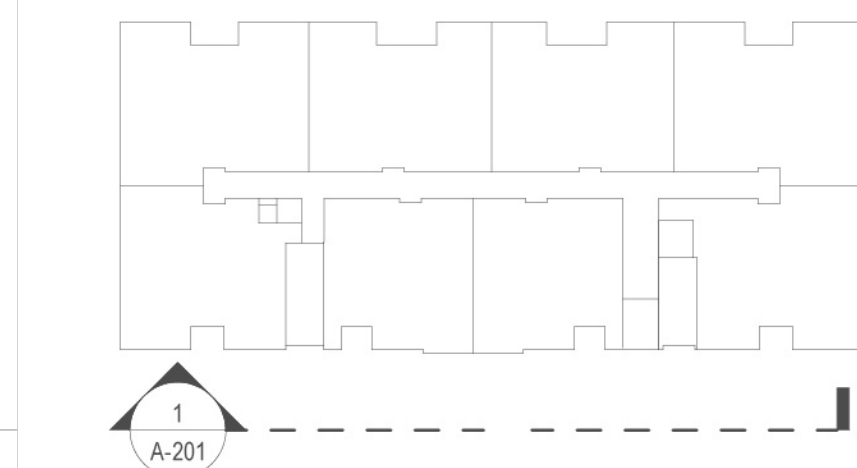
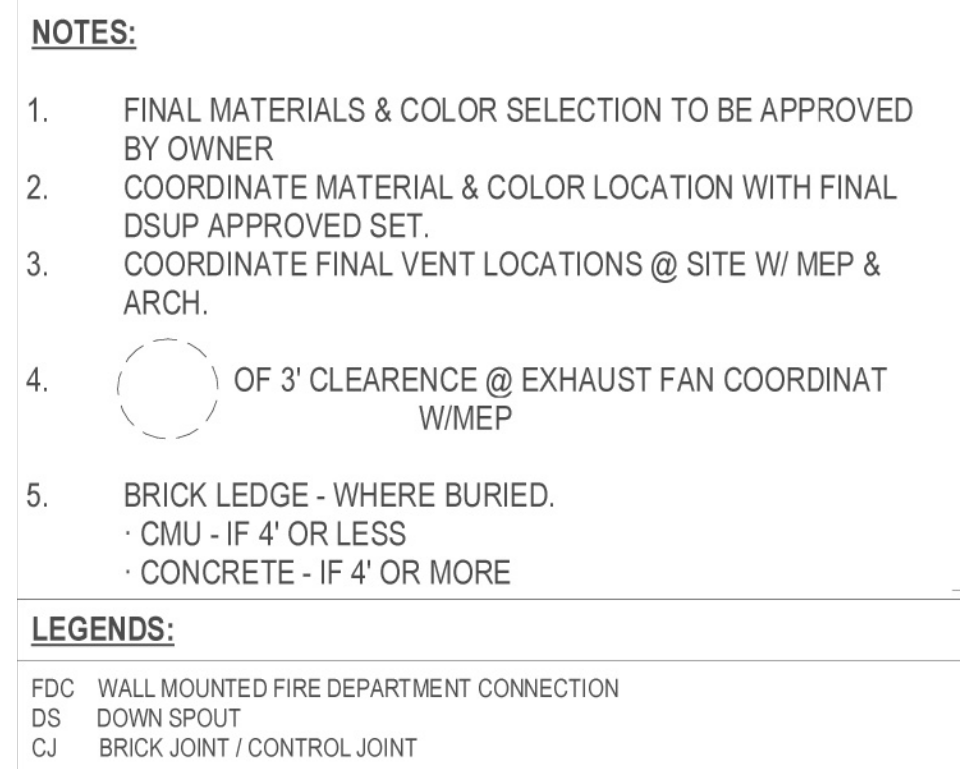
PARAPET / ROOF LEGEND	
TYPE	HEIGHT
	10' 11" ABOVE T.O. PLATE
	8' 7" ABOVE T.O. PLATE
	6' 3" ABOVE T.O. PLATE

OWNER:

PHOENIX
noise & vibration

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FRONT ELEVATION BUILDING CONSTRUCTION REQUIREMENTS



BUILDING 4 - FRONT ELEVATION

PHC2506_251105 (WCC)

C:\Users\Julia\Documents\PLU030a - Arrowbrook - Main Model_Building 4_Arrowbrook.rvt



1 BUILDING 4 - REAR ELEVATION
Scale: 1/8" = 1'-0"

MATERIAL SCHEDULE		
MATERIAL	MANUF. / COLOR / FINISH	
01	Brick A	General Shale - Hamilton with WR103WS mortar (Grapevine Mortar Joint)
	1 brick coursing, 1a soldier course, 1b rowlock course	
02	Brick B	General Shale - Clayton Falls with WR2368 mortar (Grapevine Mortar Joint)
	2 brick coursing, 2a soldier course, 2b rowlock course	
03	Fiber Cement Panel	James Hardie - Night Grey
	Flashing for Hardie Panel	
03a	Recessed Fiber Cement Panel	James Hardie - Night Grey
03b	Fiber Cement Panel Inset - 14"x14"	James Hardie - Pearl Gray
04	Square Precast Decorative Inset - 14"x14"	Clayton Falls
05	Decorative Bracket - 15"x12"	SW Night Gray
06	Exterior Trim - Trim	SW Gray
07	Exterior balcony and plaza metall rails	Black
08	Channel - Painted Aluminum	Dark Bronze
09a	Cast Stone Window Header	Hamilton (To Match)
09b	Cast Stone Window Header	Clayton Falls (To Match)
10	Downspout	Dark Bronze
10a	Overflow Scupper	Dark Bronze
11	Vents	Paint to match adjacent material
12	Precast Sill	Hamilton (Sim.)
13	Garage Door	Overhead Door RAL 6022
14	Storefront Doors	Kawneer Classic Bronze
15	Vinyl windows / doors	MI Bronze
	Brick Mould	Match Bronze Window color
16	Exterior Light Fixture Kichler 49120 Camden 2 light 20" wide outdoor wall sconce with etched glass shade	Black
17	Decorative Metal Grill at garage	SW 7020 Black
18	Fascia Board	Smooth - Night Gray
19	Relief angle with throughwall flashing and weepholes, coordinate size with structural	Paint to match adjacent material
20	Pre-finished Aluminum Coping	Pac-Clad Charcoal
21	Exterior Trim - Trim	Cobblestone (Match to Hamilton)

PARAPET / ROOF LEGEND	
TYPE	HEIGHT
A	10' 11" ABOVE T.O. PLATE
B	8' 7" ABOVE T.O. PLATE
C	6' 3" ABOVE T.O. PLATE

LEGEND

WINDOW - MINIMUM REQUIRED STC RATING

DOOR - MINIMUM REQUIRED STC RATING

STC RATINGS

W	D
41	38

NOTES:

- RESIDENTIAL UNITS NOT INDICATED WITH A WINDOW/DOOR STC RATING REQUIREMENT CAN BE CONSTRUCTED WITH A MINIMUM RATING OF 26 STC OR 22 STC FOR FOYER DOORS.
- STC RATINGS APPLY TO THE ENTIRE WINDOW/DOOR UNIT: I.E. THE INSTALLED WINDOW / DOOR ASSEMBLY, INCLUDING ALL FRAMING ELEMENTS AND GLAZING (OPERATING AND FIXED), MUST ACHIEVE THE SPECIFIC STC RATING.

- NOTES:**
- FINAL MATERIALS & COLOR SELECTION TO BE APPROVED BY OWNER
 - COORDINATE MATERIAL & COLOR LOCATION WITH FINAL DSUP APPROVED SET.
 - COORDINATE FINAL VENT LOCATIONS @ SITE W/ MEP & ARCH.
 - OF 3' CLEARANCE @ EXHAUST FAN COORDINAT W/MEP
 - BRICK LEDGE - WHERE BURIED.
· CMU - IF 4' OR LESS
· CONCRETE - IF 4' OR MORE

LEGENDS:

FDC WALL MOUNTED FIRE DEPARTMENT CONNECTION
DS DOWN SPOUT
CJ BRICK JOINT CONTROL JOINT



KEY PLAN

ARCHITECT:



lessard
DESIGN

8521 Leesburg Pike | Suite 700 | Vienna, VA 22182
P: 571.830.1800 | F: 571.830.1801
www.LessardDesign.com

SEAL & SIGNATURE:

OWNER:

PULTE HOME COMPANY
9302, LEE HIGHWAY, SUITE 1000
FAIRFAX, VA 22031
TEL: 703.216.0110



PHOENIX CONSTRUCTION

ARROWBROOK FLATS
HERNDON, VA

REAR ELEVATIONS
BUILDING CONSTRUCTION
REQUIREMENTS

BUILDING 4 IPC SET		11/01/2021
BUILDING 4 ADDITION		09/03/2021
CONSTRUCTION DOCUMENTS		04/29/2021
NO.	DESCRIPTION	DATE
PROJECT No:	PUL-030A.100	
DRAWN BY:	LD	
CHECKED BY:	LD	
PLOT DATE:	10/29/2021 6:13:39 PM	
FILE NAME:		

AC-202c

PHC2506_251105 (WCC)

This architectural elevation drawing shows the facade of a building with five floors above the garage level. The facade is divided into two main color-coded sections: a red section on the left and a purple section on the right. The red section contains window units labeled '36' and the purple section contains window units labeled '41'. The floors are labeled on the left side: T.O. PLATE (52'-6 3/4"), 4TH SUB FLOOR (43'-5 5/8"), 3RD SUB FLOOR (32'-9 3/4"), 2ND SUB FLOOR (22'-1 7/8"), and 1ST FIN FLOOR (11'-6"). The garage level (G1) is at 0' - 0". The drawing includes various structural details, such as window frames, sills, and lintels, and is annotated with dimensions and elevations. A note on the right side indicates 'FLASHING @ FLOOR BREAK AROUND ENTIRE BLDG (TYP)'. The drawing is also annotated with various callouts and dimensions, including '1 A-301' at the top, '05', '04', '03', '02', and '01' in circles, and 'B4 - AVG. GRADE 369.66'' at the bottom right.

This architectural elevation drawing illustrates the facade of a building, detailing its vertical structure and horizontal dimensions. The drawing is organized into five vertical bays, numbered 01 through 05 at the top. The vertical levels are indicated on the left side, starting from the ground level (G1 GARAGE) at 0' - 0" and moving upwards through the 1ST FIN FLOOR (11' - 6"), 2ND SUB FLOOR (22' - 1 7/8"), 3RD SUB FLOOR (32' - 9 3/4"), 4TH SUB FLOOR (43' - 5 5/8"), and T.O. PLATE (52' - 6 3/4").

The facade features a variety of window types and sizes, many of which are labeled with numbers inside hexagons (e.g., 41, 36, 38, 39, 40, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100). The windows are arranged in a grid-like pattern, with some larger windows on the upper floors and smaller ones on the lower floors. The drawing also shows structural elements such as columns, beams, and a screened area on the ground floor.

Horizontal dimensions are provided at the bottom of the drawing, indicating the spacing between the vertical bays. These dimensions include 5'-5 9/256", 5'-0 49/64", 5'-0 49/64", 28'-10 87/256", 14'-10 1/2", 7'-5 1/4", and 13'-4 11/256". The drawing also includes a note for the B4 - AVG. GRADE at 369.66'.

MATERIAL SCHEDULE		
	MATERIAL	MANUF. / COLOR / FINISH
01	Brick A	General Shale : Hamilton with WR103WS mortar (Grapevine : Mortar Joint)
	1 brick coursing, 1a soldier course, 1b twolock course	
02	Brick B	General Shale : Clayton Falls with WR2368 mortar (Grapevine : Mortar Joint)
	2 brick coursing, 2a soldier course, 2b twolock course	
03	Fiber Cement Panel	James Hardie - Night Gray
	Flashing for Hardie Panel	
03a	Recessed Fiber Cement Panel	James Hardie - Night Gray
03b	Fiber Cement Panel	James Hardie - Pearl Gray
04	Square Precast Decorative Inset - 15"x15"	Clayton Falls
05	Decorative Bracket - 15"x12"	SW Night Gray
06	Exterior Trim - Trim	SW Gray
07	Exterior balcony and plate metal railing	Black
08	Channel - Painted Aluminum	Dark Bronze
09a	Cast Stone Window Header	Hamilton (To Match)
09b	Cast Stone Window Header	Clayton Falls (To Match)
10	Downspout	Dark Bronze
10a	Overflow Scupper	Dark Bronze
11	Vents	Paint to match adjacent material
12	Precast Sill	Hamilton (Sim.)
13	Garage Door	Overhead Door RAL 6022
14	Storefront Doors	Exterior Classic Bronze
15	Wind windows / doors	Mt. Bronze
	Brick Mould	Clayton Falls Window color
	Exterior Light Fixture Kichler 49120 Camden 2 light 20" wide outdoor wall sconce with etched glass shade	Black
17	Decorative Metal Grail at garage	SW 7020 Black
18	Passa Board	Smooth - Night Gray
	Patel style with throughwall flashing and weepholes, coordinate size with structural	Paint to match adjacent material
19	Post-Installed Aluminum Coping	Pac-Clad Charcoal
21	Exterior Entry - Trim	Cobblestone (Match to Hamilton)

PARAPET / ROOF LEGEND	
TYPE	HEIGHT
	10' 11" ABOVE T.O. PLATE
	8' 7" ABOVE T.O. PLATE
	6' 3" ABOVE T.O. PLATE

WINDOW - MINIMUM REQUIRED STC RATING

DOOR - MINIMUM REQUIRED STC RATING

STC RATINGS

NOTES:

1. RESIDENTIAL UNITS NOT INDICATED WITH A WINDOW/DOOR STC RATING REQUIREMENT CAN BE CONSTRUCTED WITH A MINIMUM RATING OF 26 STC OR 22 STC FOR FOYER DOORS.
2. STC RATINGS APPLY TO THE ENTIRE WINDOW/DOOR UNIT: I.E. THE INSTALLED WINDOW / DOOR ASSEMBLY, INCLUDING ALL FRAMING ELEMENTS AND GLAZING (OPERATING AND FIXED), MUST ACHIEVE THE SPECIFIC STC RATING.

1. FINAL MATERIALS & COLOR SELECTION TO BE APPROVED BY OWNER
2. COORDINATE MATERIAL & COLOR LOCATION WITH FINAL DSUP APPROVED SET.
3. COORDINATE FINAL VENT LOCATIONS @ SITE W/ MEP & ARCH.
4. OF 3' CLEARANCE @ EXHAUST FAN COORDINAT W/MEP
5. BRICK LEDGE - WHERE BURIED.
 - CMU - IF 4' OR LESS
 - CONCRETE - IF 4' OR MORE

FDC	WALL MOUNTED FIRE DEPARTMENT CONNECTION
DS	DOWN SPOUT
CJ	BRICK JOINT / CONTROL JOINT



lessard
DESIGN

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5218 CHARMANS COURT, SUITE 1
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ARROWBROOK FLATS

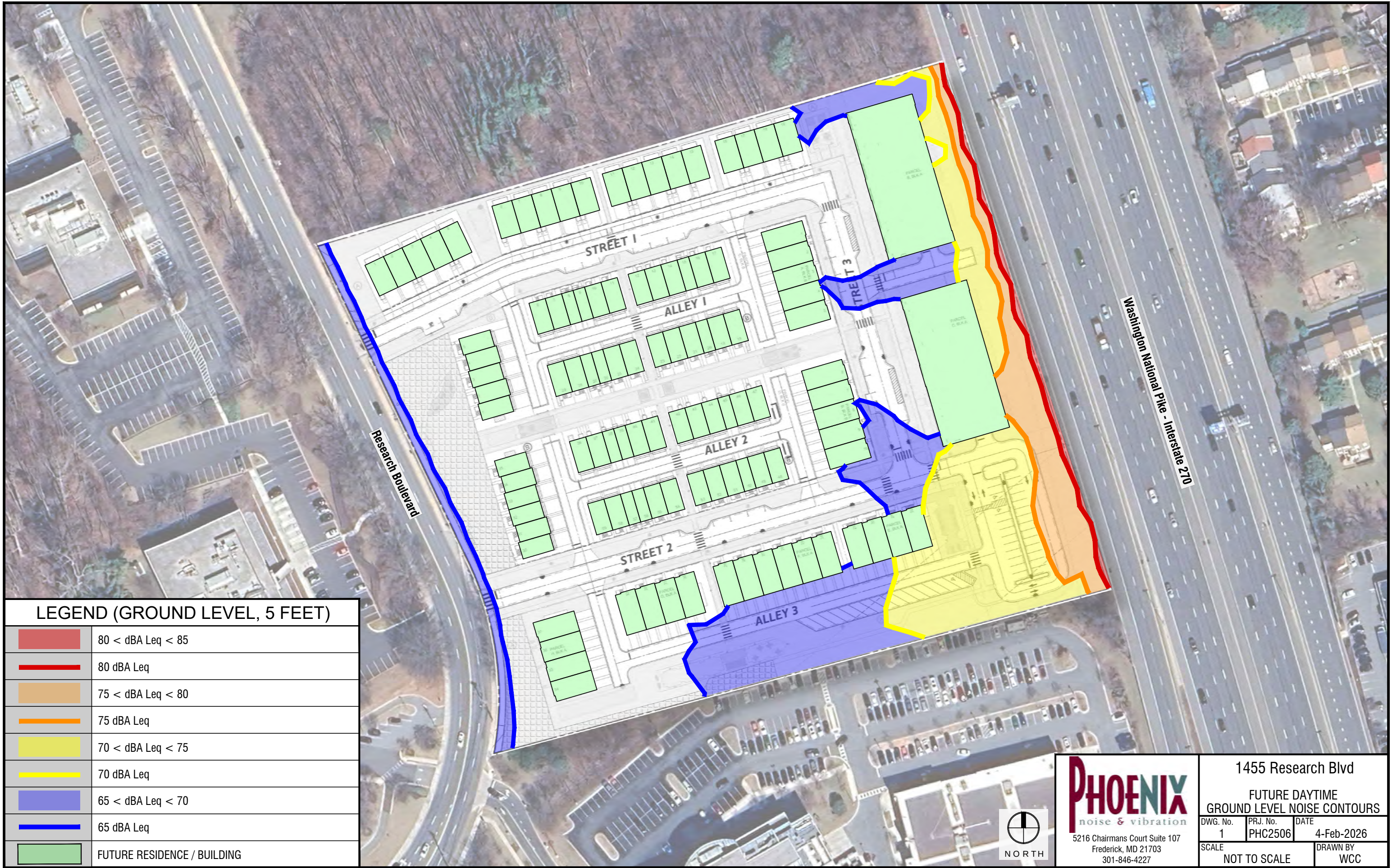
HERNDON, VA

RIGHT AND LEFT ELEVATIONS BUILDING CONSTRUCTION REQUIREMENTS

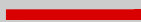
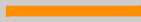
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NO.	DESCRIPTION	DATE
PROJECT No:		PUL-030A-10
DRAWN BY:		LD
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PLOT DATE:		10/29/2021 6:14:12 PM
FILE NAME:		

AC-203c

PHC2506 251105 (WCC)



LEGEND (GROUND LEVEL, 5 FEET)

	80 < dBA Leq < 85
	80 dBA Leq
	75 < dBA Leq < 80
	75 dBA Leq
	70 < dBA Leq < 75
	70 dBA Leq
	65 < dBA Leq < 70
	65 dBA Leq
	FUTURE RESIDENCE / BUILDING





5216 Chairmans Court Suite 107
Frederick, MD 21703
301-846-4227

1455 Research Blvd

FUTURE DAYTIME
GROUND LEVEL NOISE CONTOURS

DWG. No. 1	PRJ. No. PHC2506	DATE 4-Feb-2026
SCALE NOT TO SCALE		DRAWN BY WCC