NOISE ASSESSMENT

VILLAGE PLACE APARTMENTS
Record ID PDS2015-STP-15-026
Environmental Log No. PDS2015-ER-15-09-007

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GLOSSARY OF TERMS

Sound Pressure Level (SPL): a ratio of one sound pressure to a reference pressure (L_{ref}) of 20 µPa. Because of the dynamic range of the human ear, the ratio is calculated logarithmically by 20 log (L/L_{ref}).

A-weighted Sound Pressure Level (dBA): Some frequencies of noise are more noticeable than others. To compensate for this fact, different sound frequencies are weighted more.

Minimum Sound Level (L_{min}): Minimum SPL or the lowest SPL measured over the time interval using the A-weighted network and slow time weighting.

Maximum Sound Level (L_{max}): Maximum SPL or the highest SPL measured over the time interval the A-weighted network and slow time weighting.

Equivalent sound level (L_{eq}): the true equivalent sound level measured over the run time. Leq is the A-weighted steady sound level that contains the same total acoustical energy as the actual fluctuating sound level.

Day Night Sound Level (LDN): Representing the Day/Night sound level, this measurement is a 24 –hour average sound level where 10 dB is added to all the readings that occur between 10 pm and 7 am. This is primarily used in community noise regulations where there is a 10 dB "Penalty" for nighttime noise. Typically, LDN's are measured using A weighting.

Community Noise Exposure Level (CNEL): The accumulated exposure to sound measured in a 24-hour sampling interval and artificially boosted during certain hours. For CNEL, samples taken between 7 pm and 10 pm are boosted by 5 dB; samples taken between 10 pm and 7 am are boosted by 10 dB.

Octave Band: An octave band is defined as a frequency band whose upper band-edge frequency is twice the lower band frequency.

Third-Octave Band: A third-octave band is defined as a frequency band whose upper band-edge frequency is 1.26 times the lower band frequency.

Response Time (F,S,I): The response time is a standardized exponential time weighting of the input signal according to fast (F), slow (S) or impulse (I) time response relationships. Time response can be described with a time constant. The time constants for fast, slow and impulse responses are 1.0 seconds, 0.125 seconds and 0.35 milliseconds, respectively.

EXECUTIVE SUMMARY

This noise study has been completed to determine the noise impacts associated with the development of the proposed project. The project known as "Village Place Apartments" proposes a 25-unit apartment project within approximately 3.4 acres. The proposed project would provide group usable space which includes a picnic area and children's play area. The project is located at 521 16th Street, west of the intersection of 16th Street and F Street in the Ramona Community Planning Area in San Diego County.

- Construction Noise Analysis

Due to the reduced amount of construction equipment and empirical noise levels, the grading and trenching activities are anticipated not to exceed the County's 75-dBA 8-hour standard and no impacts are anticipated and no mitigation is required to comply with Section 36.409 of the County of San Diego Noise Ordinance.

No rock crushing or blasting is required during any of the grading operations for the project site. Therefore no impulsive noise impacts are anticipated to occur.

- Operational Noise Analysis

Based on noise levels, the distances to the property lines and the proposed building orientations the proposed operations are anticipated to be below the County's Property Lines standards. No impacts are anticipated and no mitigation is required.

1.0 INTRODUCTION

1.1 Project Description

This noise study was completed to determine the noise impacts associated with the development of the proposed Village Place Apartments Residential Project. The project is located at 33° 02′ 4″ N and 116° 52′ 36″ W at 521 16th Street in the Ramona Community Planning Area in San Diego County, CA. The project is generally located approximately 0.2 miles southeast of Main Street (CA-67), west of the intersection of 16th Street and F Street. The general location of the project is shown on the Vicinity Map, Figure 1-A. A general project vicinity map is shown in Figure 1–A on the following page.

The proposed Village Place Apartments is a Site Plan for a 25-unit condominium project within a 5.5 net acre site. Additionally, the proposed development would provide group usable space which includes a basketball court, volleyball court, swimming pool, and picnic area. The proposed site development plan is shown in Figure 1–B of this report.

1.2 Environmental Settings & Existing Conditions

a) Settings & Locations

The project is located west of the intersection of 16th Street and F Street. Access to the project site is provided by Main Street (CA-67) and State Route 78. Existing land uses surrounding the site are primarily residential with nearby commercial along Main Street.

b) Existing Noise Conditions

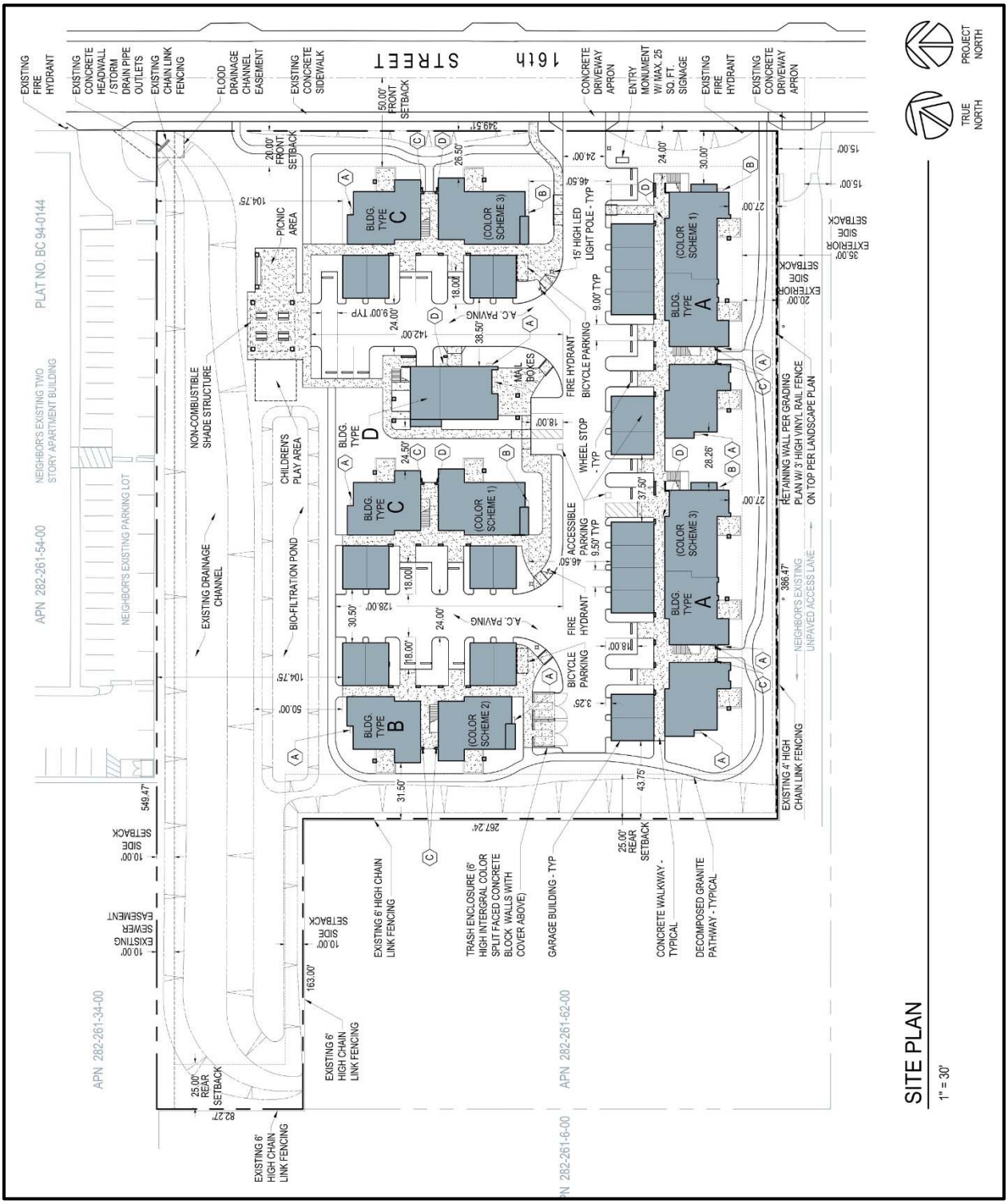
The project is located 800 feet from Main Street which is classified as a Major Road (4.1B) in the County of San Diego's Circulation Element with a posted speed limit of 45 miles per hour (MPH). Adjacent 16th Street is classified as a local public road with a speed limit of 25 MPH and F Street is classified as a residential roadway with a speed limit of 25 MPH. Existing noise occurs mainly from traffic traveling along Main Street and 16th Street.

The project site is primarily surrounded by residential uses. Multi-family uses exist to the north and a school is located northeast of the site. The remainder of the surrounding uses consist of single family uses to the south and west of the site. An aerial of the existing uses is provided in Figure 1-C.

Figure 1-A: Project Vicinity Map

Source: Google Maps, 2017

Figure 1-B: Proposed Project Site Layout



Source: Wildman & Morris, 2017

Figure 1-C: Existing Site and Surrounding Land Uses

Source: Google Earth, 2017

1.3 Methodology

Noise is defined as unwanted or annoying sound which interferes with or disrupts normal activities. Exposure to high noise levels has been demonstrated to cause hearing loss. The individual human response to environmental noise is based on the sensitivity of that individual, the type of noise that occurs and when the noise occurs.

Sound is measured on a logarithmic scale consisting of sound pressure levels known as a decibel (dB). The sounds heard by humans typically do not consist of a single frequency but of a broadband of frequencies having different sound pressure levels. The method for evaluating all the frequencies of the sound is to apply an A-weighting to reflect how the human ear responds to the different sound levels at different frequencies. The A-weighted sound level adequately describes the instantaneous noise whereas the equivalent sound level depicted as Leq represents a steady sound level containing the same total acoustical energy as the actual fluctuating sound level over a given time interval.

The Community Noise Equivalent Level (CNEL) is the 24 hour A-weighted average for sound, with corrections for evening and nighttime hours. The corrections require an addition of 5 decibels to sound levels in the evening hours between 7 p.m. and 10 p.m. and an addition of 10 decibels to sound levels at nighttime hours between 10 p.m. and 7 a.m. These additions are made to account for the increased sensitivity during the evening and nighttime hours when sound appears louder.

Because mobile/traffic noise levels are calculated on a logarithmic scale, a doubling of the traffic noise or acoustical energy results in a noise level increase of 3 dBA. Therefore, the doubling of the traffic volume, without changing the vehicle speeds or mix ratio, results in a noise increase of 3 dBA. Mobile noise levels radiate in an almost oblique fashion from the source and drop off at a rate of 3 dBA for each doubling of distance under hard site conditions and at a rate of 4.5 dBA for soft site conditions. Hard site conditions consist of concrete, asphalt and hard pack dirt while soft site conditions exist in areas having slight grade changes, landscaped areas and vegetation. On the other hand, fixed/point sources radiate outward uniformly as sound travels away from the source. Their sound levels attenuate or drop off at a rate of 6 dBA for each doubling of distance.

The most effective noise reduction methods consist of controlling the noise at the source, blocking the noise transmission with barriers or relocating the receiver. Any or all of these methods may be required to reduce noise levels to an acceptable level.

2.0 CONSTRUCTION ACTIVITIES

2.1 Guidelines for the Determination of Significance

Section 36.409 of the County of San Diego ordinance controls construction equipment noise. Except for emergency work, it shall be unlawful for any person, including the County of San Diego, to operate construction equipment at any construction site, except as outlined in subsections (a) and (b) below:

(a) It shall be unlawful for any person to operate construction equipment between the hours of 7 p.m. of any day and 7 a.m. of the following day.

(b) It shall be unlawful for any person to operate construction equipment on Sundays, and days appointed by the President, Governor, or the Board of Supervisors for a public fast, Thanksgiving, or holiday, but a person may operate construction equipment on the above-specified days between the hours of 10 a.m. and 5 p.m. at his residence or for the purpose of constructing a residence for himself, provided that the average sound level does not exceed 75 decibels during the period of operation and that the operation of construction equipment is not carried out for profit or livelihood.

(c) It shall be unlawful to operate any construction equipment so as to cause at or beyond the property line of any property upon which a legal dwelling unit is located an average sound level greater than 75 decibels between the hours of 7 a.m. and 7 p.m. For temporary activities, the County considers the 75 decibel (A) average to be based on a period of eight hours.

Section 36.410 of the County of San Diego ordinance controls impulsive noise levels. In addition to the general limitations on sound levels in section 36.404 and the limitations on construction equipment in section 36.409, the following additional sound level limitations shall apply:

(a) Except for emergency work or work on a public road project, no person shall produce or cause to be produced an impulsive noise that exceeds the maximum sound level of 82 dBA at residential or civic uses and 85 dBA at agricultural, commercial or industrial uses as described in the County Zoning Ordinance. This is measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is received, for 25 percent of the minutes in the measurement period, as described in Guidelines for Determining Significance for 12 Noise subsection (c) below. The maximum sound level depends on the use being made of the occupied property.

(b) Except for emergency work, no person working on a public road project shall produce or cause to be produced an impulsive noise that exceeds the maximum sound level shown in 85 dBA at residential or civic uses and 90 dBA at agricultural, commercial or industrial uses as

described in the County Zoning Ordinance. This is measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is received, for 25 percent of the minutes in the measurement period, as described in subsection (c) below. The maximum sound level depends on the use being made of the occupied property.

(c) The minimum measurement period for any measurements conducted under this section shall be one hour. During the measurement period a measurement shall be conducted every minute from a fixed location on an occupied property. The measurements shall measure the maximum sound level during each minute of the measurement period. If the sound level caused by construction equipment or the producer of the impulsive noise, exceeds the maximum sound level for any portion of any minute it will deemed that the maximum sound level was exceeded during that minute.

2.2 Potential Property Line Noise Impacts

a) Potential Build Out Noise Conditions

Construction noise represents a short-term impact on the ambient noise levels. Noise generated by construction equipment includes haul trucks, water trucks, graders, dozers, loaders and scrapers can reach relatively high levels. Grading activities typically represent one of the highest potential sources for noise impacts. The most effective method of controlling construction noise is through local control of construction hours and by limiting the hours of construction to normal weekday working hours.

The U.S. Environmental Protection Agency (U.S. EPA) has compiled data regarding the noise generating characteristics of specific types of construction equipment. Noise levels generated by heavy construction equipment can range from 60 dBA to in excess of 100 dBA when measured at 50 feet. However, these noise levels diminish rapidly with distance from the construction site at a rate of approximately 6 dBA per doubling of distance. For example, a noise level of 75 dBA measured at 50 feet from the noise source to the receptor would be reduced to 69 dBA at 100 feet from the source to the receptor, and reduced to 63 dBA at 200 feet from the source.

b) Potential Noise Impact Identification

Using a point-source noise prediction model, calculations of the expected construction noise impacts were completed. The essential model input data for these performance equations include the source levels of each type of equipment, relative source to receiver horizontal and vertical separations, the amount of time the equipment is operating in a given day, also referred to as the duty-cycle and any transmission loss from topography or barriers. To determine the worst-case noise levels for the grading operations no topographic attenuation or

barrier reductions were utilized. The amount of time equipment is operating during a normal work day, referred to as duty-cycle, is utilized in this analysis.

Construction noise analysis for the project was completed based upon construction equipment anticipated for the project pursuant to the noise information provided by the client, project team and the equipment needs on similar projects in the County.

Proposed Grading Operations

Grading of the project will occur all in a single phase with the site being graded using a D4 grader and the building footings will be dug using a single backhoe. No water truck will be required due to the size of the site, access to a water supply line and the fact that the grading operations will only occur for 3 to 4 days. All the grading activities will be completed prior the building and occupancy of any proposed residential units. Additionally, no rock crushing or blasting is required during the grading operations of the project site. Based on noise emissions from empirical data the reference noise level for the dozer is provided in Table 2-1.

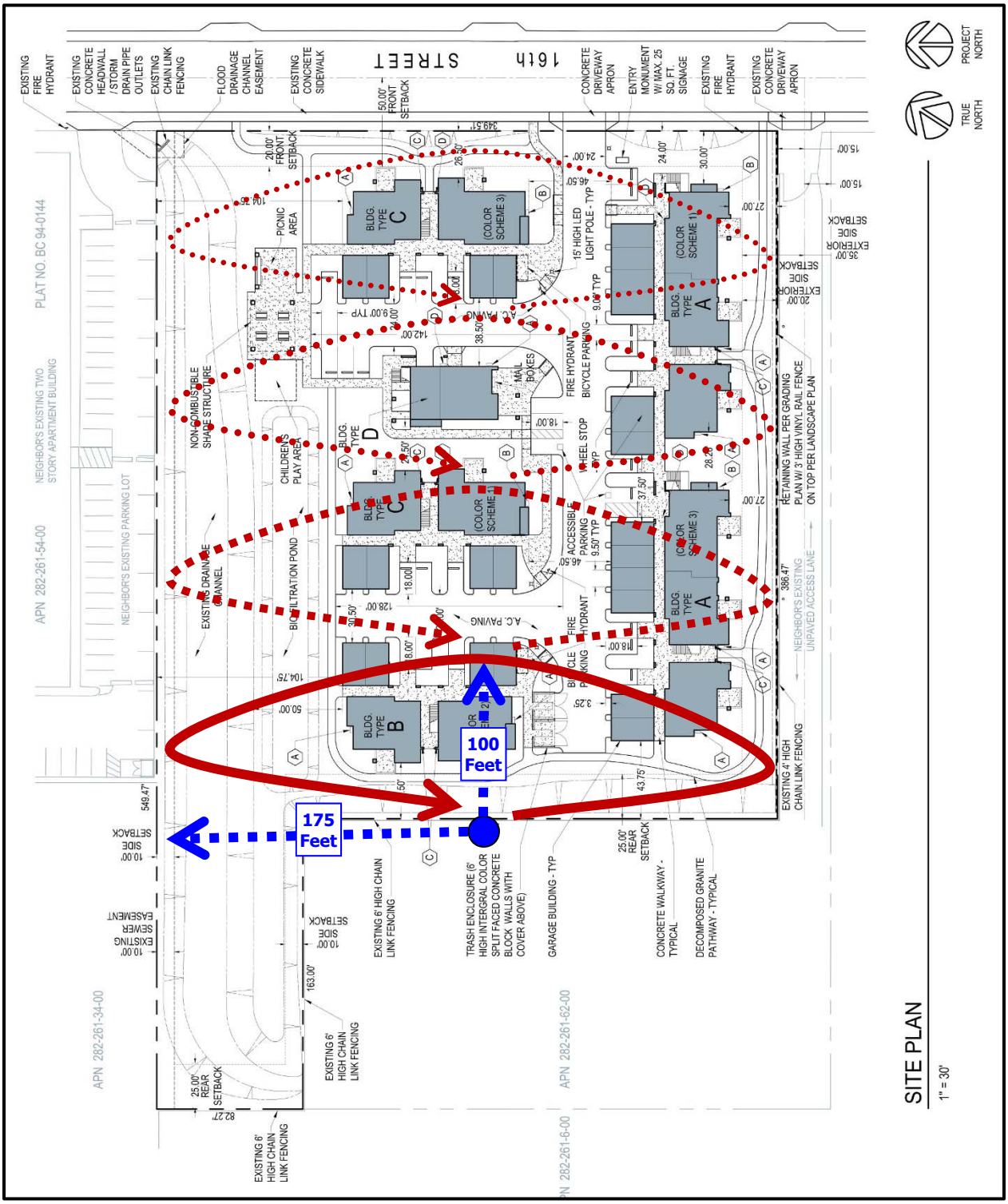
Table 2-1: Grading Noise Levels

Construction Equipment	Quantity	Average Source Level @ 50-Feet (dBA Leq)	Duty Cycle (Hours/Day)
Dozer D4	**1**	**74**	**8**

The grading activities, along the southwestern and southeastern portion of the site adjacent to existing residential uses, would occur closer than 50 feet from property line. The dozer will be moving along the property line and then moving away from the property line as needed to complete the finished site elevations. Therefore, the dozer would be adjacent to property line for only a short period of time and then moving away from that same location by at least 100-150 feet, in a loop or sweeping motion. The acoustical center of the activities would be in between those two distances from the property line. An example of how the dozer would move around the site is provided in Figure 2-A.

The site is relatively flat and the overall grading operation is only anticipated to require 3-4 days to be completed. Based on the reduced equipment list and empirical noise levels for the grading operations, no impacts are anticipated and no mitigation is needed to meet the County's 75-dBA 8-hour standard.

Figure 2-A: Example Equipment Movement during Grading Activities



Proposed Trenching Operations

The trenching operation for the digging of building footings and underground utilities will consist of a single backhoe. Based on the site plan, the proposed buildings are over 25 feet from the property line due to set back requirements. Therefore, the trenching for will occur 25 feet or more from the southwestern and southeastern property lines adjacent to the existing residences. Additionally, it is anticipated that the backhoe will not be operating continuously for 8 hours a day but rather 4-6 hours. Based on empirical data the reference noise level for the backhoe is provided in Table 2-2. Based on the distance separation and duty cycle of the excavator, the noise levels during the trenching operations are anticipated to meet the County's 75 dBA 8-hour standard and no mitigation is required.

Table 2-2: Trenching Noise Levels

Construction Equipment	Quantity	Average Source Level @ 50-Feet (dBA Leq)	Duty Cycle (Hours/Day)
Backhoe	**1**	**72**	**4-6**

2.3 Conclusions

Due to the reduced amount of construction equipment and empirical noise levels, the grading and trenching activities are anticipated not to exceed the County's 75-dBA 8-hour standard and no impacts are anticipated and no mitigation is required to comply with Section 36.409 of the County of San Diego Noise Ordinance.

No rock crushing or blasting is required during any of the grading operations for the project site. Therefore no impulsive noise impacts are anticipated to occur.

3.0 OPERATIONAL ACTIVITIES

3.1 Guidelines for the Determination of Significance

According to Section 36.404 of the County Noise Ordinance, it shall be unlawful for any person to cause or allow the creation of any noise to the extent that the one-hour average sound level, at any point on or beyond the boundaries of the property exceeds the applicable limits on Table 3-1. An impact would occur and mitigation would be needed if the project will generate airborne noise which, together with noise from all sources, will be in excess of either of the following:

Table 3-1: San Diego County Code Section 36.404

SOUND LEVEL LIMITS IN DECIBELS (dBA)

ZONE		APPLICABLE LIMIT ONE-HOUR AVERAGE SOUND LEVEL (DECIBELS)
R-S, R-D, R-R, R-MH, A-70, A-72, S-80, S-81, S-87, S-88, S-90, S-92, R-V, and R-U Use Regulations with a density of less than 11 dwelling units per acre.	7 a.m. to 10 p.m. 10 p.m. to 7 a.m.	50 45
R-RO, R-C, R-M, C-30, S-86, R-V, R-U and V5. Use Regulations with a density of 11 or more dwelling units per acre.	7 a.m. to 10 p.m. 10 p.m. to 7 a.m.	55 50
S-94, V4, and all other commercial zones.	7 a.m. to 10 p.m. 10 p.m. to 7 a.m.	60 55
V1, V2 V1, V2 V1 V2	7 a.m. to 7 p.m. 7 p.m. to 10 p.m. 10 p.m. to 7 a.m. 10 p.m. to 7 a.m.	60 55 55 50
V3	7 a.m. to 10 p.m. 10 p.m. to 7 a.m.	70 65
M-50, M-52, M-54	Anytime	70
S-82, M-58, and all other industrial zones.	Anytime	75

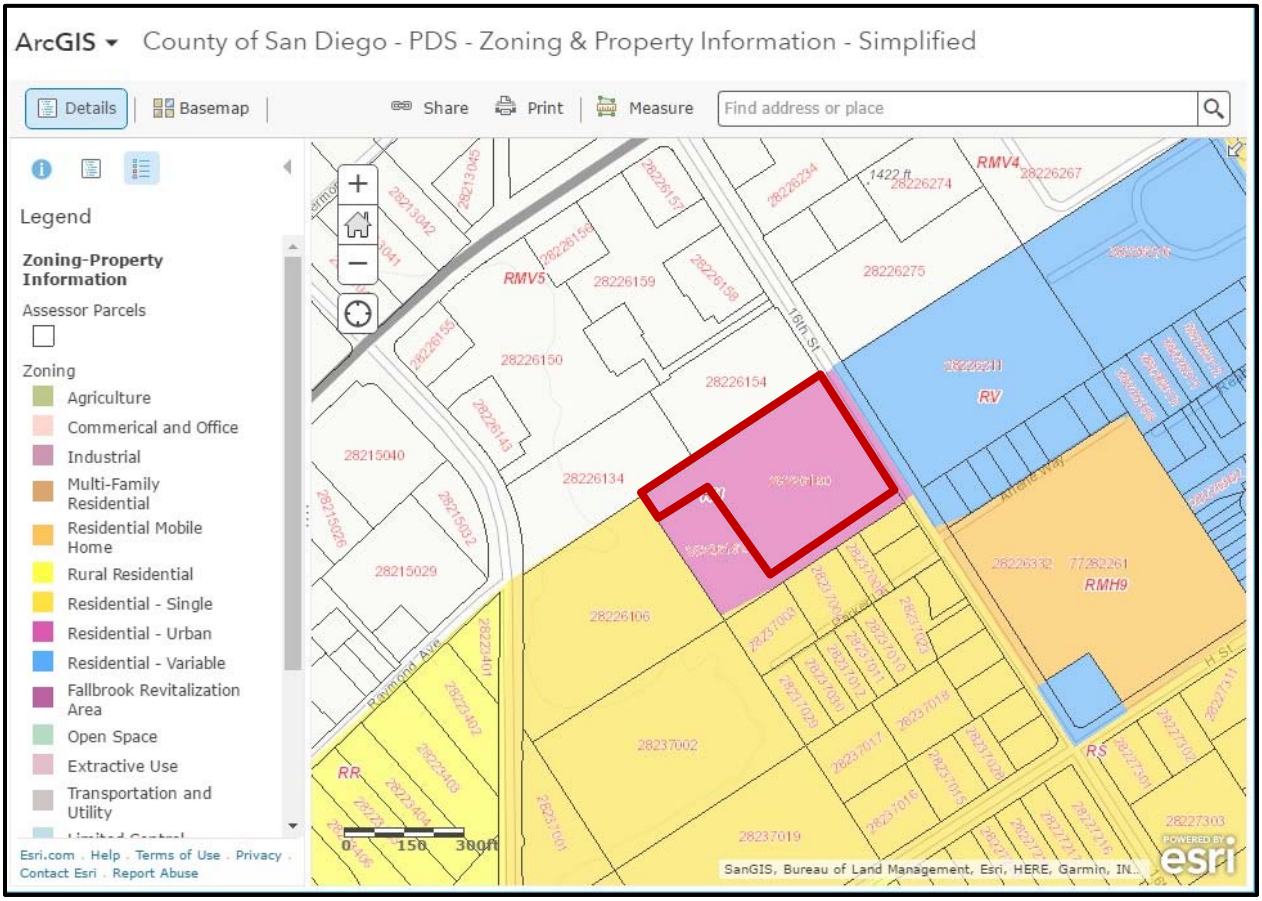
(a) If the measured ambient level exceeds the applicable limit noted above, the allowable one hour average sound level shall be the ambient noise level, plus three decibels. The ambient noise level shall be measured when the alleged noise violation source is not operating.

(b) The sound level limit at a location on a boundary between two zones is the arithmetic mean of the respective limits for the two zones; provided however, that the one-hour average sound level limit applicable to extractive industries, including but not limited to borrow pits and mines, shall be 75 decibels at the property line regardless of the zone which the extractive industry is actually located.

The applicant's property is zoned RU and all surrounding properties are zoned RS, RV, and RM-V5. According to Section 36.404 of the County of San Diego Noise Ordinance, the southern portion of the site and the properties to the north are zoned RS and have a most restrictive property line standard of 50 dBA Leq for the daytime hours of 7 a.m. to 10 p.m. and 45 dBA Leq for the nighttime hours of 10 p.m. to 7 a.m. The properties to the west, south and east, directly adjacent to the proposed residents are zoned RV or RM-V4 and have a most restrictive property line standard of 55 dBA Leq for the daytime hours of 7 a.m. to 10 p.m. and 50 dBA Leq for the nighttime hours of 10 p.m. to 7 a.m.

The sound level limit at a location on a boundary between two zones is the arithmetic mean of the respective limits for the two zones. Onsite noise generation due to the proposed residential development project would primarily consist of normal residential activities and HVAC units. The zoning and land uses surrounding the site is shown in Figure 3-A.

Figure 3-A: Zoning and Land Uses Surrounding the Site



3.2 Methodology and Equipment

Sound is measured on a logarithmic scale consisting of sound pressure levels known as a decibel. The sounds heard by humans typically do not consist of a single frequency but of a broadband of frequencies having different sound pressure levels. The method for evaluating all the frequencies of the sound is to apply an A-weighting to reflect how the human ear responds to the different sound levels at different frequencies. The A-weighted sound level adequately describes the instantaneous noise whereas the equivalent sound level depicted as Leq represents a steady sound level containing the same total acoustical energy.

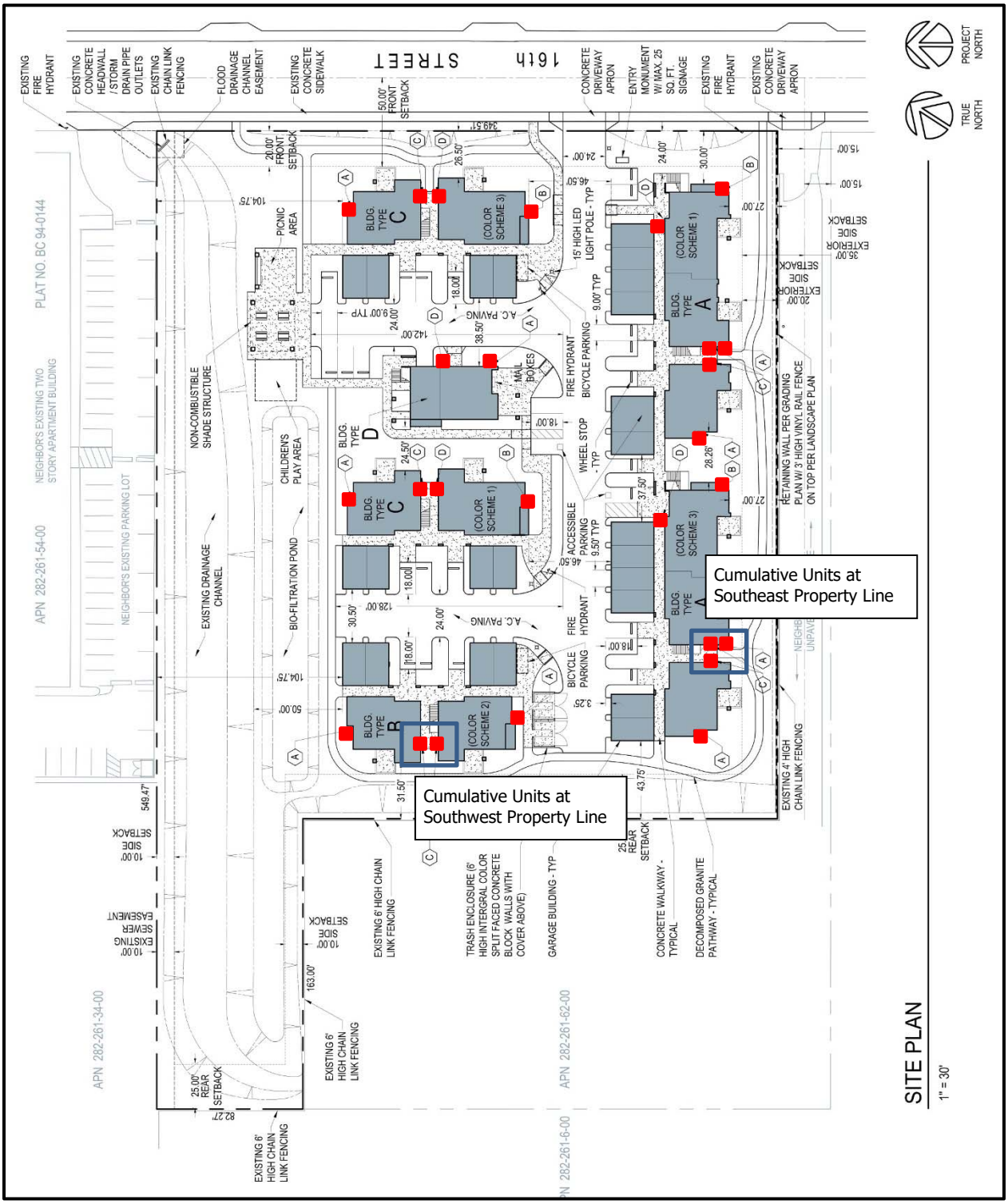
Fixed or point sources radiate outward uniformly as sound travels away from the source. Their sound levels attenuate or drop off at a rate of 6 dBA for each doubling of distance. Using a point-source noise prediction model, calculations of the expected operational noise impacts were completed. The essential model input data for these performance equations include the source levels of each type of equipment, relative source to receiver horizontal and vertical separations, the amount of time the equipment is operating in a given day (also referred to as the duty-cycle) and any transmission loss from topography or barriers. Noise levels drop 3 decibels each time the duration of the source is reduced in half. Therefore, an hourly noise level over a 15 minute period would be reduced by 6 decibels based on the limited time of operation.

Air Conditioning Units

Mini Split Air Conditioner and Heat Pump systems will be installed at the proposed homes. These systems will consist of an indoor air handler as well as a ground or balcony deck mounted outdoor condenser. The project proponent has specified Mitsubishi outdoor condenser units (Model T119D-H236 for 2-bedroom units and Model T121Q-H263 for 3-bedroom units) with a worst case reference noise level of 65 dBA at 3-feet *(Source: Mitsubishi Outdoor Condenser Unit Specifications – Retrieved February, 2017)*. The manufacturer's specifications and noise levels are provided in ***Attachment A***.

It is possible to calculate the cumulative noise levels from the proposed project along the southwestern and southeastern property lines from the proposed condensers. Although not all the noise sources are close enough to each other in distance or sound level to create a cumulative effect this method is considered ultra conservative in determining impact potential. For that reason, the cumulative noise levels were calculated based on the worst-case grouping of condensers for each property line. The locations of the proposed condensers are shown in Figure 3-B along with the locations of worst-case groupings that would create a cumulative effect.

Figure 3-B: Locations of the proposed HVAC Units



Source: Wildman & Morris, 2017

3.3 Potential Noise Impacts

The measured noise levels from the existing facility were amortized over an hour and propagated to the nearest property lines. The HVAC units may operate during the nighttime hours of 10:00 pm and 7:00 am.

The noise levels for each source along with the calculated cumulative noise levels are based upon a conservative approach that all the noise producing equipment is operating at the same time. The southwestern and southeastern property lines are the closest to the noise sources and considered to be the areas for potential impacts. The zoning for the southwestern and southeastern property lines have the same thresholds as the proposed project. The property line standards are provided in Table 3-2 below.

Table 3-2: Property Line Sound Level Limits in Decibels (dBA)

Land Use Zone	Time of Day	Property Line Standard
RS and RU	7 am. to 10 pm.	**50**
	10 pm. to 7 am.	**45**

Using a point-source noise prediction model, calculations of the expected operational noise impacts were completed. The HVAC units are located at least 43 feet from the southwestern property line and 52 feet from the southeastern property line as shown in Figure 3-B above. The reference noise levels provided by the manufacturer are measured at a distance of 3-feet directly in front of the condenser units. Balcony deck mounted condenser units located nearest the project boundaries will be positioned at a 90-degree angle to the noise sensitive receptors and may also be partially shielded by the proposed buildings. No additional reductions was taken for the orientation or shielidng from the building.

Noise levels drop 3 decibels each time the duration of the source is reduced in half. The condenser units will cycle on and off throughout the day and are designed to provide cooling during the peak summer daytime periods. Therefore, it is unlikely that all the units will be operating continuously. To be conservative, it was assumed that the HVAC units would operate for the entire hour.

The noise level projections were calculated based on the site plan provided by Wildman & Morris, dated February 3, 2017, showing the location of the proposed equipment and the property lines. The results of the propagated noise levels for the southwestern and southeastern property lines are shown in Table 3-3 and Table 3-4. The reductions from the equipment run times were incorporated into the reference noise levels. The operational noise levels are in compliance with both the daytime and nighttime property line thresholds and no impacts are anticipated.

Table 3-3: Operational Noise Levels (Southwest Property Line)

Source	Distance To Observer Location (Feet)	Hourly Reference Noise Level (dBA) *	Noise Source Reference Distance (Feet)	Noise Reduction Due To Distance (dBA)	Noise Level at Property Line for each unit (dBA)	Quantity	Property Line Cumulative Noise Level (dBA)
AC Units	43	65.0	3	-23.1	38.9	2	**42**
					Combined Cumulative Noise Level at Property Line:		**42**
*Noise level based on Mitsubishi Outdoor Condenser Unit Specifications provided in Attachment A							

Table 3-4: Operational Noise Levels (Southeast Property Line)

Source	Distance To Observer Location (Feet)	Hourly Reference Noise Level (dBA) *	Noise Source Reference Distance (Feet)	Noise Reduction Due To Distance (dBA)	Noise Level at Property Line for each unit (dBA)	Quantity	Property Line Cumulative Noise Level (dBA)
AC Units	58	65.0	3	-25.7	39.3	2	**42**
AC Units	52	65.0	3	-24.8	40.2	1	**40**
					Combined Cumulative Noise Level at Property Line:		**44**
*Noise level based on Mitsubishi Outdoor Condenser Unit Specifications provided in Attachment A							

3.4 Conclusions

Based on noise levels, the distances to the property lines, and the unit duty-cycle, the proposed operations are anticipated to be below the County's Property Lines standards. Additionally, the proposed architectural features and HVAC orientation would provide additional noise reduction that were not included in the noise calculations. Therefore, no impacts are anticipated and no mitigation is required.

4.0 SUMMARY OF PROJECT IMPACTS, MITIGATION & CONCLUSIONS

Construction Noise Analysis

The construction activities would result in an anticipated worst-case eight-hour average combined noise level of less than 75 dBA at the property line. Given this and the spatial separation of the equipment over the site, the noise levels from the grading are anticipated to comply with the County of San Diego's 75 dBA standard per Section 36.409 of the Noise Ordinance at all Project property lines.

No blasting or rock crushing is anticipated during the grading operations. Therefore, no impulsive noise sources are expected and the Project will comply with Section 36.410 of the County Noise Ordinance.

Operational Noise Analysis

Based on noise levels, the distances to the property lines, and the unit duty-cycle, the proposed operations are anticipated to be below the County's Property Lines standards. Additionally, the proposed architectural features and HVAC orientation would provide additional noise reduction that were not included in the noise calculations. Therefore, no impacts are anticipated and no mitigation is required.

5.0 CERTIFICATIONS

The contents of this report represent an accurate depiction of the future acoustical environment and impacts within and surrounding the Village Place Apartments development. This report was prepared utilizing the latest guidelines and reduction methodologies. This report was prepared by Jeremy Louden; a County approved CEQA Consultant for Acoustics.

DRAFT

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Date August 21, 2017

ATTACHMENT A

HVAC NOISE LEVELS AND SPECIFICATIONS

48000 BTU Quint Zone AC-Heat

9k + 9k + 9k + 9k + 12k

SYSTEM

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Indoor Units: Air Handlers

Remotes

Outdoor Unit: Condens

Installation Kit

System Includes:

- **48000 BTU Cooling: *9k + 9k + 9k + 9k + 12k***
- **48000 BTU Heating: *9k + 9k + 9k + 9k + 12k***
- 21 SEER - R410A PreCharge - INVERTER DC
- Install Kits (copper piping, remotes) **x 5**
- 1 Year Part - 5 Year Compressor Warranty >>>

48000 BTU Quint: 9k x 4 + 12k

Price: $3944.45

FREE Shipping

BUY NOW

FEATURES

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Top Line Features:

- 21 SEER - 10.0 HSPF - ENERGY STAR
- Pre-Charged w/ Eco-friendly R410A Refrigerant
- Certified by AHRI, ETL and C-ETL
- Quint Air Handlers for Multi-Zone Placement.
- Compatible with 5 Filtration Medias
- Follow-Me Function Tracks Remote Location
- Low Ambient Temperature Operation (5° F)
- Two-direction Air vane Evenly Distributes Air
- Restart IC: Settings restored Following Outage
- Self-Diagnosis System Monitors Operations

PARTICLE FILTER  Included	The particle filter or "pre-filter" removes dust and other air-borne pathogens before pushing the air through additional filtration medias and the refrigeration coil array. This filter is washable and comes factory installed with every ductless air conditioner system.

3M HAF FILTER  Optional	The open channel construction of the 3M High Air Flow (HAF) filter offers low initial airflow resistance, while its unique microstructure and electrostatic charge provides effective particle capture and retention. This translates into fewer filter change outs and reduced coil cleaning. CLICK TO PURCHASE >>>

SILV-ION FILTER  Optional	The anti-microbial effect of silver ionic technology kills allergy causing bacteria by destroying the inner configuration elements of the cell body. The nano-silver attached to the filter screen constantly releases silver ions which directly eliminates and prohibits bacteria from replicating. CLICK TO PURCHASE >>>

VIT-C FILTER  Optional	The Vitamin C Filtration media releases Vitamin C into the air which softens skin and reduces stress among other therapeutic benefits. A good choice for those wanting to add some invigoration to their indoor air environment. Filter lasts over 2 years. CLICK TO PURCHASE >>>

CARBON FILTER  Optional	Eliminates odors such as ammonia and deactivates harmful chemicals has such as formaldehyde. By forming positive positions on the filter surface, Electrostatic Fiber traps small dust particles, smoke and pet dander to prevent allergic reactions and neutralize odor in the air. CLICK TO PURCHASE >>>

SPECIFICATIONS

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9000 BTU Indoor Unit specs CLICK FOR FULL SPEC SHEET

Model Number	T1-OS209-EW
Capacity	9000 BTU
Air Flow (Hi/M/Lo)	440/380/260 cfm
Power Supply	230 V / 60 Hz / 1Ph
Noise Output (Hi/M/Lo)	43/37/31 dBA
Liquid / Gas	1/4" x 3/8"
Weight	17.6 lbs
Dimensions (W x D x H)	32.9" × 7.8" × 11" inches
VIEW FULL AIR HANDLER SPECIFICATION SHEET >>>	

12000 BTU Indoor Unit specs CLICK FOR FULL SPEC SHEET

Model Number	T1-OS212-EW
Capacity	12000 BTU
Air Flow (Hi/M/Lo)	440/380/260 cfm
Power Supply	230 V / 60 Hz / 1Ph
Noise Output (Hi/M/Lo)	43/37/31 dBA
Liquid / Gas	1/4" x 3/8"
Weight	18.7 lbs
Dimensions (W x D x H)	32.9" × 7.8" × 11" in.
VIEW FULL AIR HANDLER SPECIFICATION SHEET >>>	

Outdoor Unit (condenser) specs CLICK FOR FULL SPEC SHEET

Model Number	T121Q-H263
Compressor Brand	MITSUBISHI
Rated Capacity	42000 BTU
Maximum AH Capacity	63000 BTU
Air Flow	4240 CFM
Power Supply	230 V / 60 Hz / 1Ph
Input Power	1900W - 6440W
SEER	21
EER	12.5
HSPF4	9.5
Sound Level	**64 dBA**
Moisture Removal	3.9 L/hr
Operating Temp Range	5 - 122 F (cool and heat)
Refrigerant	R410A / 95oz Charge
Liquid / Gas	1/4" x 3/8" (4) - 1/4" x 1/2" (1)
Max Lineset Length (1 zone)	98 ft
Max Lineset Length (all zones)	246 ft
Weight	218.3 lbs
Dimensions (W x D x H)	37 × 15.4 × 53.9 inches
VIEW FULL CONDENSER SPECIFICATION SHEET >>>	

39000 BTU Quad Zone AC - Heat Pump

9k + 9k + 9k + 12k

SYSTEM

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Indoor Units: Air Handlers

Remotes

Outdoor Unit: Condens

Installation Kit

System Includes:

- **39000 BTU Cooling Capacity: *9k* + *9k* + *9k* + *12k***
- **39000 BTU Heat Pump: *9k* + *9k* + *9k* + *12k***
- 19.5 SEER - R410A PreCharge - INVERTER DC
- Install Kits (15 ft Copper Lineset, remote) x 4
- 1 Year Part - 5 Year Compressor Warranty >>>

39000 BTU QUAD: 9k x 3 + 12k

Price: $2759.45

FREE Shipping

BUY NOW

*When all air handlers are running simultaneously at full capacity, the total combined BTU output is limited to that of the outdoor condenser. View Calculation Table in Specification sheet section of listing for more info

FEATURES

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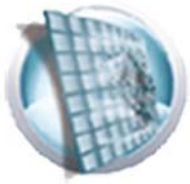
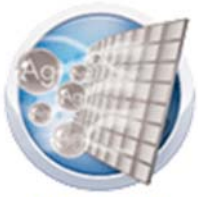
Top Line Features:

- 19.5 SEER - 9.0 HSPF - ENERGY STAR
- Pre-Charged w/ Eco-friendly R410A Refrigerant
- Certified by AHRI, ETL and C-ETL
- Quad Air Handlers for Multi-Zone Placement.
- Compatible with 5 Filtration Medias
- Follow-Me Function Tracks Remote Location
- Low Ambient Temperature Operation (5° F)
- Two-direction Air vane Evenly Distributes Air
- Restart IC: Settings restored Following Outage
- Self-Diagnosis System Monitors Operations

PARTICLE FILTER  Included	The particle filter or "pre-filter" removes dust and other air-borne pathogens before pushing the air through additional filtration medias and the refrigeration coil array. This filter is washable and comes factory installed with every ductless air conditioner system.

3M HAF FILTER  Optional	The open channel construction of the 3M High Air Flow (HAF) filter offers low initial airflow resistance, while its unique microstructure and electrostatic charge provides effective particle capture and retention. This translates into fewer filter change outs and reduced coil cleaning. CLICK TO PURCHASE >>>

SILV-ION FILTER  Optional	The anti-microbial effect of silver ionic technology kills allergy causing bacteria by destroying the inner configuration elements of the cell body. The nano-silver attached to the filter screen constantly releases silver ions which directly eliminates and prohibits bacteria from replicating. CLICK TO PURCHASE >>>

VIT-C FILTER  Optional	The Vitamin C Filtration media releases Vitamin C into the air which softens skin and reduces stress among other therapeutic benefits. A good choice for those wanting to add some invigoration to their indoor air environment. Filter lasts over 2 years. CLICK TO PURCHASE >>>

CARBON FILTER  Optional	Eliminates odors such as ammonia and deactivates harmful chemicals has such as formaldehyde. By forming positive positions on the filter surface, Electrostatic Fiber traps small dust particles, smoke and pet dander to prevent allergic reactions and neutralize odor in the air. CLICK TO PURCHASE >>>

SPECIFICATIONS

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9000 BTU Indoor Unit specs CLICK FOR FULL SPEC SHEET

Model Number	T1-OS209-EW
Capacity	9000 BTU
Air Flow (Hi/M/Lo)	440/380/260 cfm
Power Supply	230 V / 60 Hz / 1Ph
Noise Output (Hi/M/Lo)	43/37/31 dBA
Liquid / Gas	1/4" x 3/8"
Weight	17.6 lbs
Dimensions (W x D x H)	32.9" × 7.8" × 11" inches
VIEW FULL AIR HANDLER SPECIFICATION SHEET >>>	

12000 BTU Indoor Unit specs CLICK FOR FULL SPEC SHEET

Model Number	T1-OS212-EW

Outdoor Unit (condenser) specs CLICK FOR FULL SPEC SHEET

Model Number	T119D-H236
Compressor Brand	MITSUBISHI
Rated Capacity	36000 BTU
Maximum AH Capacity	54000 BTU
Air Flow	2240 CFM
Power Supply	230 V / 60 Hz / 1Ph
Input Power	1300W - 4200W
SEER	19.5
EER	12
HSPF4	9.0
Sound Level	**65 dBA**
Moisture Removal	2.6 L/hr
Operating Temp Range	5 - 122 F (cool and heat)
Refrigerant	R410A / 95oz Charge
Liquid / Gas	1/4" x 3/8" (4)
Max Lineset Length (1	98 ft