Surf Thru Car Wash at OVVC
Conditional Use Permit
Application Package

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OV Project No. 2201105

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The WLB Group Inc. WLB

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A. Project Narrative

Nature of Project and Reason for CUP Request

This project is a proposed automated car wash located at the southwest corner of Oracle Road and Water Harvest Way in the Oro Valley Village Center, Oro Valley, AZ. The project site consists of 1.62 acres. The proposed use requires a CUP per the existing Rancho Vistoso PAD Regional Commercial C-2 Zoning District.

Project Narrative

1. Details about the type of proposed operation (including hours of operation).

    - The proposed use is an automated car wash.
    - The height of the single-story car wash building is 32'-10".
    - Thirty-four (34) vehicle stacking spaces are provided for cars entering the car wash building to ensure customer cars will not be stacked outside of the site while waiting to be washed.
    - 10 under-canopy vacuum stalls will be provided (one handicap accessible).
    - Twelve employee parking spaces are provided.
    - 27 total parking spaces and a bicycle storage kiosk will be provided.
    - Also provided are entirely enclosed (five-sided) solid waste and recycling dumpsters with self-closing gates.
    - Hours of operation are 8 am to 8 pm, seven days a week.

2. Square footage.

    The proposed building measures 5,490 square feet of gross floor area.

3. Type of site improvements required.

    The following site improvements are required for the proposed facility:

    - Car wash building.
    - Vehicular access drive into the car wash building.
    - Parking stalls and access lanes.
    - Vacuum bays.
    - Trash enclosure.
    - Landscaping.
    - Drainage infrastructure, including basins and storm drain.
    - Utilities, including water, sewer, electric and communications.
    - Sidewalks.

4. Criteria for evaluating Conditional Use Permits per Section 22.5 of the Zoning Code.

In granting a CUP, the Town Council must find:

A.1. That the granting of such CUP will not be materially detrimental to the public health, safety, or welfare. In arriving at this determination, the factors which shall be considered shall include the following:

a. Damage or nuisance arising from noise, smoke, odor, dust, vibration or illumination.

Hours of operation will be limited to 8 am to 8 pm, seven days a week. The Noise Impact Study completed for this project indicates this project will meet the Town's noise ordinance. The project will not generate smoke or dust. Odors and vibration will not extend beyond the car wash building. The facility will comply with the Oro Valley Outdoor Lighting Code. Given the above and the existing separation from off-site uses, the proposed automated car wash will not cause damage or nuisance. The Noise Impact Study prepared for this site dated March 8, 2022, is provided with this application.

b. Hazard to persons and property from possible explosion, contamination, fire or flood.

The car wash building will comply with local fire and building codes. A minimum of 70% of water used on site is recycled and contained on site. Wastewater systems will be compliant with Pima County Wastewater Reclamation requirements and the site will comply with applicable floodplain ordinances.

c. Unusual volume or character of traffic.

The In-N-Out Burger driveway location and queuing plans are being prepared under separate permit by a separate firm.

A.2. That the characteristics of the use proposed in such use permit are reasonably compatible with the types of uses permitted in the surrounding area.

The proposed automated car wash is located within the existing 114-acre Oro Valley Village Center (OVVC) shopping center and is highly compatible with the existing retail and commercial developments and the extensive roadway and driveway systems that serve the area and the site. The location and design provide ample mitigation measures including onsite stacking areas for customer cars, landscaping, screening, buffering and significant separation from surrounding uses.

Water Harvest Way is located to the north of the site and provides access to the site. The site is adjacent to Oracle Road, an arterial/state highway currently carrying over 33,000 vehicles past this site daily. To the south is the south end of the OVVC shopping center with an existing In-N-Out Burger with drive-through service.

The nearest existing residential units are over 900 feet to the west and west of Big Wash. A multi-family residential project is proposed to the north of the site. The northern boundary of the site is located approximately 300 feet from the southern boundary of the proposed multi-family residential project.

A.3. That the proposed use is consistent with the goals and policies of the general plan.

See "General Plan Compliance" on page 5 of this application package.

A.4. That the hours of operation of the proposed use will not adversely impact neighboring properties.

Hours of operation are 8 am to 8 pm, seven days a week consistent with Section 25.1.B.32.

5. If subject property is located in the Oracle Road Scenic Corridor Overlay District (ORSCOD) or Tangerine Scenic Corridor Overlay District (TRSCOD), the submittal must address the regulations and restrictions as set forth in Scenic Resources (Section 27.10.D.3.f)

Response to the Oracle Road Scenic Corridor Overlay District Requirements

27.10.D.3.f.iv. *Viewshed and Vegetation Analysis*

Construction of the proposed building will not have any significant impact on off-site scenic resources. Views from Oracle Road will not be significantly impacted because of the small scale of the building, the grade differential, existing similar development to the south, existing off-site mature vegetation east and west of the site and the nature of the scenic views which are to the east, away from and above the site. The impact on views of the mountains from the homes to the west will be minimal due to their distance from the site and the fact the site is situated at a lower elevation than the homes.

Views from the Big Wash Shared Use Path will not be obstructed due to the preservation of view corridors in compliance with 27.10.D.3.f.vi a.3.c.v and as shown on the Final Site Plan.

In consideration of the above, any further viewshed and vegetation analysis of this site, including viewshed evaluation and vegetation identification, would be of no benefit to the Town. Therefore, we respectfully request that Section 27.10.D.3.f.iv, including a View Preservation Plan (VPP) and identification of corridor character vegetation (CCV) be waived as permitted in Section 27.10.D.3.f.iv.a, and 27.10.D.3.f.iv.b.1.

27.10.D.3.f.v. *Vegetation and Landscape Treatment*

Compliance with 27.10.D.3.f.v. will be demonstrated on the Final Landscape Plan (FLP) with the understanding that no CCV preservation zone is required as noted in Section 27.10.D.3.f.v.a.4.

27.10.D.3.f.vi. *Site Development*

Compliance with the site development standards of Section 27.10.D.3.f.vi IS demonstrated on the Final Site Plan and Private Sewer, Grading and Paving Improvement Plans for Surf Thru Car Wash (FSP).

Code requirements for Convenience Uses

The proposed development meets the standards for Convenience Uses with the exception of 25.1.B.6.a.I.b), the 500-foot setback from any public park or school.

25.1.B.6. Convenience Uses

a. Standards for All Convenience Uses

i. Locational Requirement

b) Convenience uses shall be a minimum of five hundred (500) feet from any public park or school.

The western boundary of Catalina State Park is approximately 420 feet from the subject site boundary. The nearest active use area of Catalina State Park (the pay station/gift shop) is over 2,400 feet from the subject site and the primary recreation areas of the park are located significantly east of the pay station. As such, the proposed use will not have any negative impacts of the recreational experiences of users of Catalina State Park. Also, Oracle Road is an arterial roadway with six lanes of through traffic carrying more than 33,000 ADT (ADOT 2019) and is a major barrier between the park and the subject site. There are no other parks within 500 feet of the site.

Compliance with code requirements for vehicle washes is demonstrated on the Final Site Plan and Private Sewer, Grading and Paving Improvement Plans for Surf Thru Car Wash.

B. General Plan Compliance

As required per Oro Valley Zoning Code Section 22.5.A.3, the proposed automated car wash is consistent with the goals and policies of the General Plan. Specifically:

Development Goal U
Conservation of natural and cultural resources through effective land use and transportation planning, design, construction and management.

The proposed project is located adjacent to Oro Valley's most heavily traveled roadway on an existing pad in an existing shopping center. The proposed development is limited to previously disturbed areas which conserves natural and cultural resources.

Development Goal V
Neighborhoods that include access and effective transitions to open space, recreation, and schools and that are supported by shopping and services which meet daily needs.

Development of the car wash on a vacant pad in an existing shopping center improves the viability of the center which provides shopping and services which meet everyday needs.

Development Goal X
Effective transitions between differing land uses and intensities in the community

Oracle Road provides a physical separation and an effective transition between the car wash site and Catalina State Park. At approximately 900 feet wide, Big Wash is an effective transition between the moderate intensity nature of the car wash and the low intensity nature of the single-family homes beyond.

Development Goal Y
Development opportunities and a diverse transportation network that balance support for a growing economy with conservation of open space, water and natural resources and energy consumption.

The proposed project provides a valued service and conserves water compared to a car washed at home with a hose. The location on an existing pad in an existing shopping center conserves open space.

C. Final Site Plan and Private Sewer, Grading and Paving Improvement Plans

To ensure the information required for the CUP is provided for staff review, this Conditional Use Permit (CUP) application is being submitted concurrently with the Final Site Plan/Improvement Plan (FSP/IP), Final Landscape Plan (FLP), Traffic Study, and Geotechnical Report.

D. Public Outreach Report

The Oro Valley Community and Economic Development Department staff has indicated that a neighborhood meeting is not required for this CUP request.

E. Noise Impact Study

Please refer to separate report.

Surf Thru Car Wash–Oro Valley

Noise Impact Study

Town of Oro Valley, AZ

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1.0 Executive Summary

This report has been prepared to provide the calculated noise projections from the proposed Surf Thru Express Car Wash project at the southwest corner of the Oracle Road and Water Harvest Way intersection, in the Town of Oro Valley, AZ. All noise projections were compared to the Town of Oro Valley noise ordinance as well as the existing ambient condition.

1.1 Findings and Conclusions

The Town of Oro Valley requires to provide an acoustic analysis to demonstrate the noise generated by this project will meet Section 25.1.A.3.a from the Zoning Code. This study compares the project's operational noise levels for two (2) different noise assessment scenarios: 1) Project only operational noise level projections, 2) Project plus ambient noise level projections. Table 1 below shows the comparison between the measured sound levels and the allowed sound levels.

Project operational noise levels are anticipated to range between 47 to 58 dBA Leq, depending on the location of the commercial receptors. The "project only" noise projections received by the adjacent land uses are below the code limits for residential and commercial as outlined within the noise ordinance (see Section 25.1.A.3).

Project plus ambient noise level projections are anticipated to range between 62 to 63 dBA at adjacent receptors. This assessment evaluates the baseline noise condition and compares the project's worst-case operational noise level to the existing noise levels (during the project's proposed hours of operation). The "project plus ambient" noise projections received by the adjacent uses are below the Town's 65 dBA commercial limit as outlined within the Town's noise ordinance (see Section 25.1.A.3).

The project as designed meets the Town's noise ordinance, and no additional noise mitigation measures are required.

Table 1: Allowed Sound Levels and Worst-Case Predicted Operational Noise Levels (dBA)[1]

Receptor[1]	Existing Ambient Noise Level (dBA, Leq)[2]	Project Noise Level (dBA, Leq)[3]	Total Combined Noise Level (dBA, Leq)	Town's Daytime Limit (dBA, Leq)
1	62	58	63	65.0
2	62	51	62	
3	62	47	62	

Notes:
1. Receptors R1 – R3 represent Commercial receptors.
2. Existing measured ambient noise level.
3. See Exhibit E for the operational noise level projections at said receptors.

2.0 Introduction

2.1 Purpose of Analysis and Study Objectives

The purpose of this noise impact study is to evaluate the potential noise impacts for the project study area and to recommend noise mitigation measures, if necessary, to minimize the potential noise impacts. Consistent with the Town's Noise Guidelines, the project must demonstrate compliance to the applicable noise zoning ordinance and sound attenuation requirements.

The following is provided in this report:

- A description of the study area and the proposed project
- Information regarding the fundamentals of noise
- A description of the local noise guidelines and standards
- An evaluation of the existing ambient noise environment
- An analysis of stationary noise impact (e.g. blowers and vacuums) from the project site to adjacent land uses

2.2 Site Location and Study Area

The project site is approximately 1.62 acres and is located on the southwest corner of Oracle Road and Water Harvest Way in Oro Valley, AZ as shown in Exhibit A. The land uses directly surrounding the project site include commercial to the north and south, and open space to the west and east. Additionally, residential land uses are located east of the project site, across the Oracle Road.

2.3 Proposed Project Description

The project proposes to develop a 5,490 square foot of gross floor area for the automatic car wash building, including approximately 19 vacuum bays and 118 feet long tunnel. Per the Town's requirement, a noise study has been prepared which identifies the project's potential impact to the adjacent uses and compares the noise level projections to the Town's applicable noise ordinance. The site plan used for this is illustrated in Exhibit B.

Exhibit A

Location Map

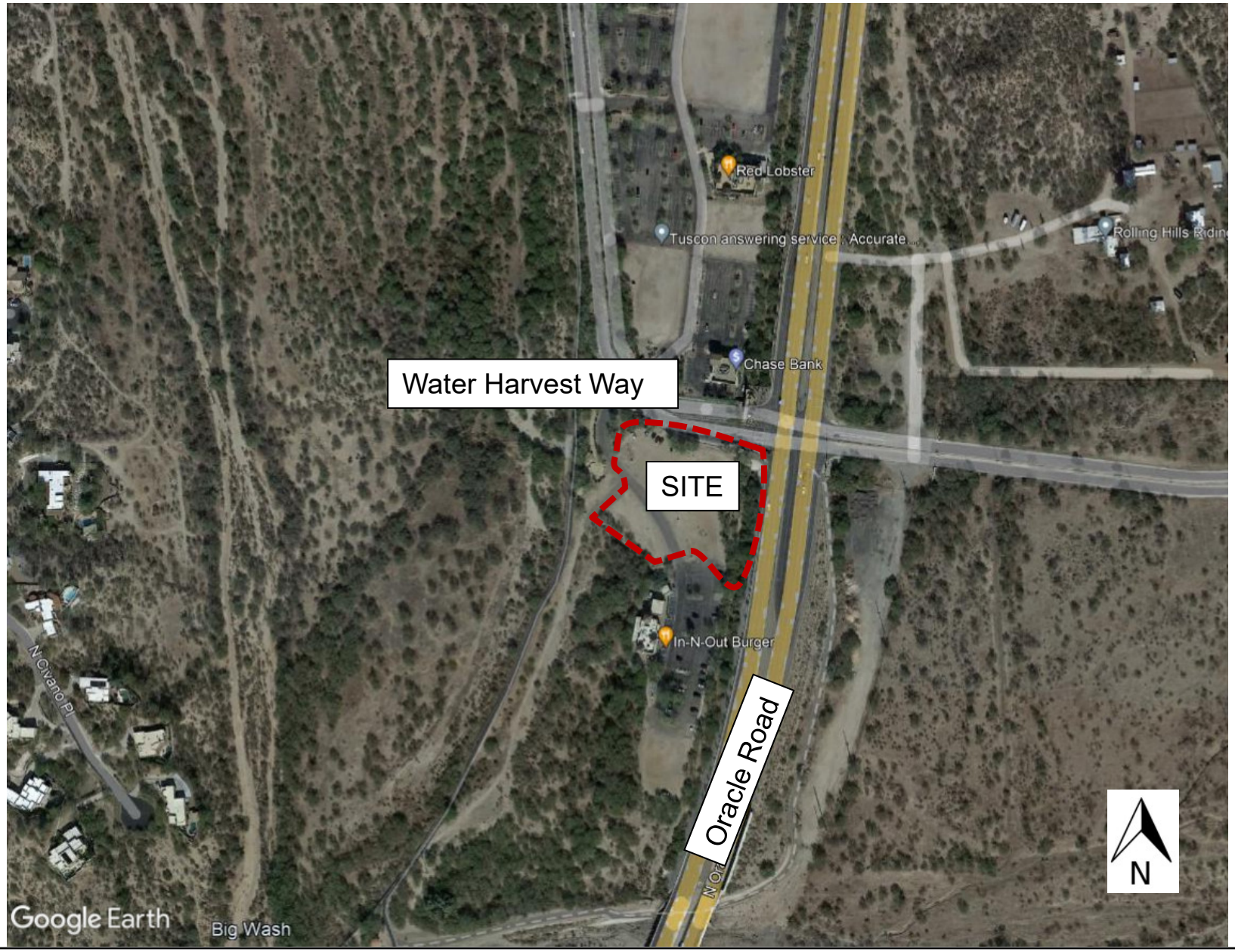
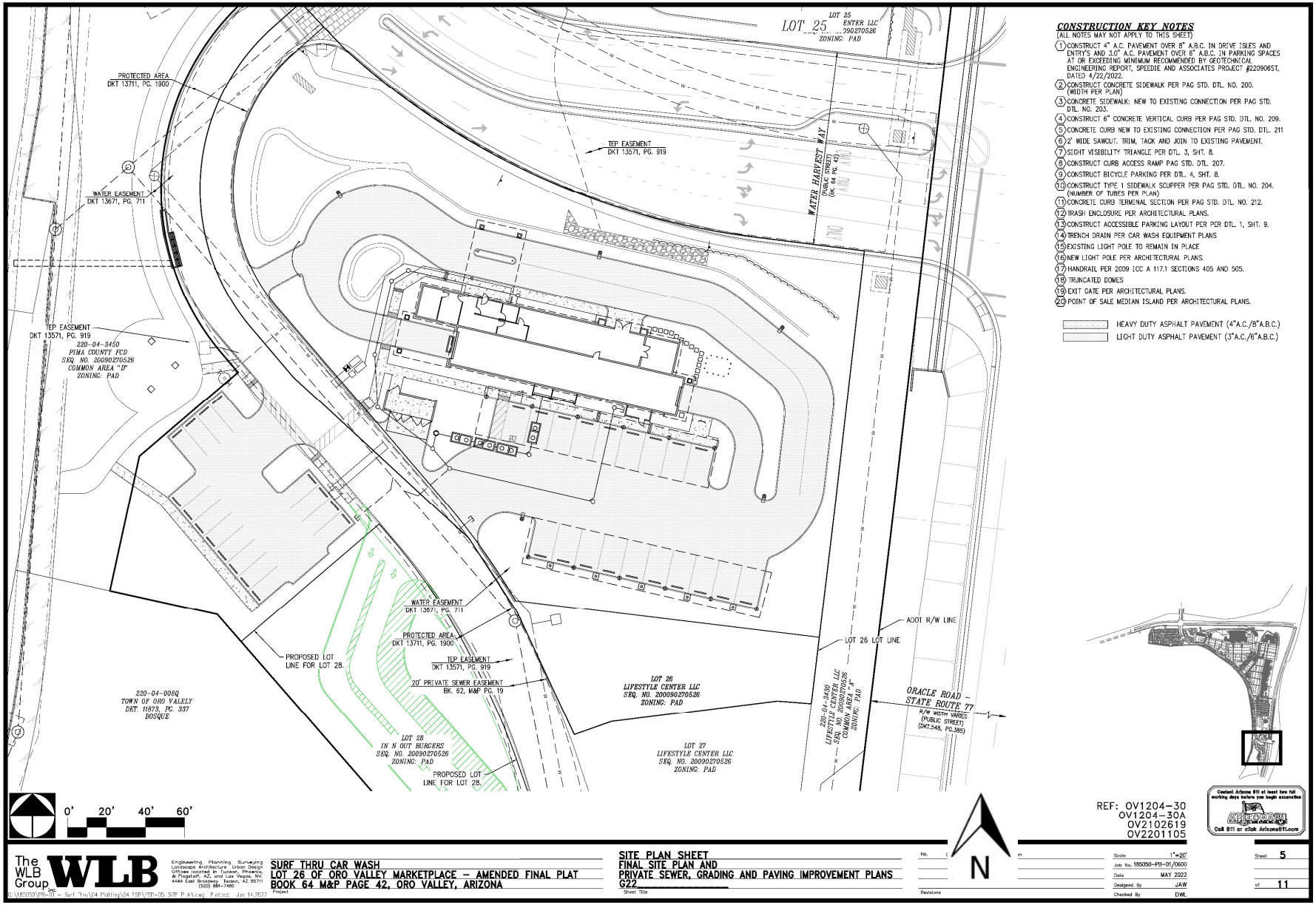


Exhibit B

Site Plan



3.0 Fundamentals of Noise

This section of the report provides basic information about noise and presents some of the terms used within the report.

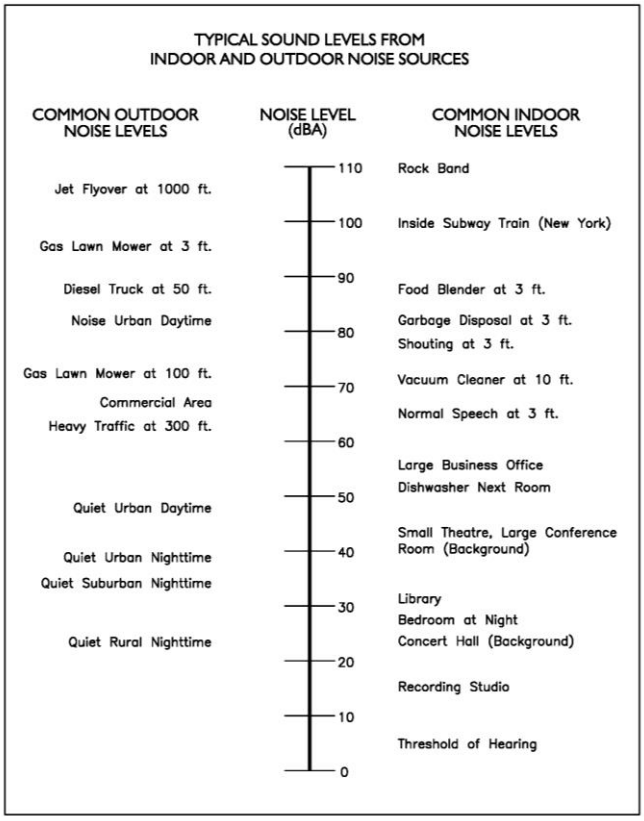
3.1 Sound, Noise and Acoustics

Sound is a disturbance created by a moving or vibrating source and is capable of being detected by the hearing organs. Sound may be thought of as mechanical energy of a moving object transmitted by pressure waves through a medium to a human ear. For traffic, or stationary noise, the medium of concern is air. *Noise* is defined as sound that is loud, unpleasant, unexpected, or unwanted.

3.2 Frequency and Hertz

A continuous sound is described by its *frequency* (pitch) and its *amplitude* (loudness). Frequency relates to the number of pressure oscillations per second. Low-frequency sounds are low in pitch (bass sounding) and high-frequency sounds are high in pitch (squeak). These oscillations per second (cycles) are commonly referred to as Hertz (Hz). The human ear can hear from the bass pitch starting out at 20 Hz all the way to the high pitch of 20,000 Hz.

Exhibit C: Typical A-Weighted Noise Levels



3.3 Sound Pressure Levels and Decibels

The *amplitude* of a sound determines it loudness. The loudness of sound increases or decreases as the amplitude increases or decreases. Sound pressure amplitude is measure in units of micro-Newton per square inch meter (N/m2), also called micro-Pascal (µPa). One µPa is approximately one hundred billionths (0.00000000001) of normal atmospheric pressure. Sound pressure level (SPL or L_p) is used to describe in logarithmic units the ratio of actual sound pressures to a reference pressure squared. These units are called decibels abbreviated dB. Exhibit C illustrates references sound levels for different noise sources.

3.4 Addition of Decibels

Because decibels are on a logarithmic scale, sound pressure levels cannot be added or subtracted by simple plus or minus addition. When two sounds or equal SPL are combined, they will produce an SPL 3 dB greater than the original single SPL. In other words, sound energy must be doubled to produce a 3 dB increase. If two sounds differ by approximately 10 dB, the higher sound level is the predominant sound.

3.5 Human Response to Changes in Noise Levels

In general, the healthy human ear is most sensitive to sounds between 1,000 Hz and 5,000 Hz, (A-weighted scale) and it perceives a sound within that range as being more intense than a sound with a higher or lower frequency with the same magnitude. For purposes of this report as well as with most environmental documents, the A-scale weighting is typically reported in terms of A-weighted decibel (dBA). Typically, the human ear can barely perceive the change in noise level of 3 dB. A change in 5 dB is readily perceptible, and a change in 10 dB is perceived as being twice or half as loud. As previously discussed, a doubling of sound energy results in a 3 dB increase in sound, which means that a doubling of sound energy (e.g. doubling the volume of traffic on a highway) would result in a barely perceptible change in sound level.

3.6 Noise Descriptors

Noise in our daily environment fluctuates over time. Some noise levels occur in regular patterns, others are random. Some noise levels are constant while others are sporadic. Noise descriptors were created to describe the different time-varying noise levels.

A-Weighted Sound Level: The sound pressure level in decibels as measured on a sound level meter using the A-weighted filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the response of the human ear. A numerical method of rating human judgment of loudness.

Ambient Noise Level: The composite of noise from all sources, near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.

Community Noise Equivalent Level (CNEL): The average equivalent A-weighted sound level during a 24-hour day, obtained after addition of five (5) decibels to sound levels in the evening from 7:00 to 10:00 PM and after addition of ten (10) decibels to sound levels in the night before 7:00 AM and after 10:00 PM.

Decibel (dB): A unit for measuring the amplitude of a sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micro-pascals.

dB(A): A-weighted sound level (see definition above).

Equivalent Sound Level (LEQ): The sound level corresponding to a steady noise level over a given sample period with the same amount of acoustic energy as the actual time varying noise level. The energy average noise level during the sample period.

Habitable Room: Any room meeting the requirements of the Uniform Building Code or other applicable regulations which is intended to be used for sleeping, living, cooking or dining purposes, excluding such enclosed spaces as closets, pantries, bath or toilet rooms, service rooms, connecting corridors, laundries, unfinished attics, foyers, storage spaces, cellars, utility rooms and similar spaces.

L(n): The A-weighted sound level exceeded during a certain percentage of the sample time. For example, L10 in the sound level exceeded 10 percent of the sample time. Similarly L50, L90 and L99, etc.

Noise: *A*ny unwanted sound or sound which is undesirable because it interferes with speech and hearing, or is intense enough to damage hearing, or is otherwise annoying. The State Noise Control Act defines noise as "...excessive undesirable sound...".

Outdoor Living Area: Outdoor spaces that are associated with residential land uses typically used for passive recreational activities or other noise-sensitive uses. Such spaces include patio areas, barbecue areas, jacuzzi areas, etc. associated with residential uses; outdoor patient recovery or resting areas associated with hospitals, convalescent hospitals, or rest homes; outdoor areas associated with places of worship which have a significant role in services or other noise-sensitive activities; and outdoor school facilities routinely used for educational purposes which may be adversely impacted by noise. Outdoor areas usually not included in this definition are: front yard areas, driveways, greenbelts, maintenance areas and storage areas associated with residential land uses; exterior areas at hospitals that are not used for patient activities; outdoor areas associated with places of worship and principally used for short-term social gatherings; and, outdoor areas associated with school facilities that are not typically associated with educational uses prone to adverse noise impacts (for example, school play yard areas).

Percent Noise Levels: See L(n).

Sound Level (Noise Level): The weighted sound pressure level obtained by use of a sound level meter having a standard frequency-filter for attenuating part of the sound spectrum.

Sound Level Meter: An instrument, including a microphone, an amplifier, an output meter, and frequency weighting networks for the measurement and determination of noise and sound levels.

Single Event Noise Exposure Level (SENEL): The dB(A) level which, if it lasted for one second, would produce the same A-weighted sound energy as the actual event.

3.7 Traffic Noise Prediction

Noise levels associated with traffic depends on a variety of factors: (1) volume of traffic, (2) speed of traffic, (3) auto, medium truck (2–3 axle) and heavy truck percentage (4 axle and greater), and sound propagation. The greater the volume of traffic, higher speeds and truck percentages equate to a louder volume in noise. A doubling of the Average Daily Traffic (ADT) along a roadway will increase noise levels by approximately 3 dB; reasons for this are discussed in the sections above.

3.8 Sound Propagation

As sound propagates from a source it spreads geometrically. Sound from a small, localized source (i.e., a point source) radiates uniformly outward as it travels away from the source in a spherical pattern. The sound level attenuates at a rate of 6 dB per doubling of distance. The movement of vehicles down a roadway makes the source of the sound appear to propagate from a line (i.e., line source) rather than a point source. This line source results in the noise propagating from a roadway in a cylindrical

spreading versus a spherical spreading that results from a point source. The sound level attenuates for a line source at a rate of 3 dB per doubling of distance.

As noise propagates from the source, it is affected by the ground and atmosphere. Noise models use hard site (reflective surfaces) and soft site (absorptive surfaces) to help calculate predicted noise levels. Hard site conditions assume no excessive ground absorption between the noise source and the receiver. Soft site conditions such as grass, soft dirt or landscaping attenuate noise at a rate of 1.5 dB per doubling of distance. When added to the geometric spreading, the excess ground attenuation results in an overall noise attenuation of 4.5 dB per doubling of distance for a line source and 7.5 dB per doubling of distance for a point source.

Research has demonstrated that atmospheric conditions can have a significant effect on noise levels when noise receivers are located 200 feet from a noise source. Wind, temperature, air humidity and turbulence can further impact have far sound can travel.

4.0 Regulatory Setting

The proposed project is located in the Town of Oro Valley, Arizona and noise regulations are addressed through the efforts of various federal, state and local government agencies. The agencies responsible for regulating noise are discussed below.

4.1 Town of Oro Valley Noise Regulations

Oro Valley, AZ Zoning Ordinance Chapter 25 Section 25.1 – Requirements for Specific Uses addresses the noise generated in all non-residential uses in section (A) (3) as follows:

Section 25.1, Letter (A), Number (3) Noise.

a. ***Measurement.*** *Measurement of noise shall be made at the residential property line with a sound level meter and octave band analyzer meeting the standards prescribed by the American Standards Association.*

b. ***Permissible Noise Level.***

(a) *A noise impact study is required as part of conceptual design or tenant improvement for any use which may generate noise beyond the on-site property boundary. Uses which require a study include drive-through restaurants, live entertainment at bars or restaurants, piped-in ambiance music, vehicle repair shops, vehicle washes or other similar uses as determined by the planning and zoning administrator.*

(b) *Any study required in Section 25.1.A.3.a shall demonstrate conformance with the limits established in Table 25-1.A. If sound pressure levels exceed these limits, a noise abatement plan to achieve conformance shall be required.*

<Table 2, next page>

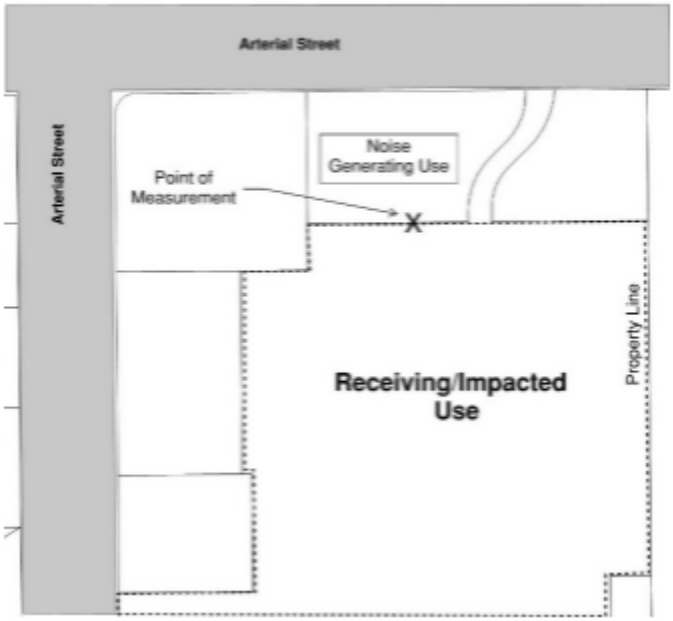
Table 2: Table 25-1.A.

Land Use of Receiving Premises	Time	One Hour Average Limits*	Maximum Sound Limits**	One Minute Limits***
Single-Family Residential	7 am to 7 pm	55	75	65
	7 pm to 10 pm	50	70	65
	10 pm to 7 am	45	65	65
Multifamily Residential	7 am to 7 pm	60	80	65
	7 pm to 10 pm	55	75	65
	10 pm to 7 am	50	70	65
Commercial, Office, Institutional, Schools, Parks and Open Space, Animal Husbandry	all hours	65	85	70
Hospitals, Hotels	7 am to 7 pm	65	85	70
	7 pm to 10 pm	60	80	65
	10 pm to 7 am	55	75	65
Technological Park (Industrial)	all hours	75	90	75

* Measured as one-hour equivalent continuous sound pressure level (dBA).
** Measured as fast exponential time weighted sound pressure level (dBA)
*** Measured as octave band equivalent continuous sound pressure level, unweighted 16, 31.5 and 62 Hz Bands (dB)

(c) All measurements in Table 25-1.A shall be represented at the nearest property boundary of the use receiving sound from the noise source as indicated in Figure 25-1.A.

Figure 25.1.A. Noise Study Measurement Location



Measurements shall be taken from a point no less than twelve (12) feet from the noise source or any structure.

(d) When background sound interferes, the property boundary is not accessible, or higher sound pressure levels occur within the receiving property, an alternative measurement location may be approved as determined by the Planning and Zoning Administrator.

(e) The Planning and Zoning Administrator reserves the right to publish and modify noise abatement technical bulletin establishing protocol for the measurement of noise during the development review process.

(f) A background noise correction in accordance with the Town of Oro Valley noise abatement technical bulletin shall be made if the background sound pressure level is within ten (10) decibels of the ambient sound pressure level.

(g) Noise sources with A-weighted equivalent continuous sound pressure level or octave band equivalent continuous sound pressure level characteristics shall add the adjustments listed in Table 25-1.B. If more than one (1) special characteristic applies to a noise source, only the largest adjustment shall be applied.

Table 3: Table 25-1.B.

Sound Source Characteristic	Adjustment (Decibel)
Regular Impulsive	5
Highly Impulsive	12
Tonal	5

(h) Any mitigation measures identified in a noise abatement plan are required as part of conceptual design or tenant improvement to ensure noise levels are in compliance with Table 25-1.A. Mitigation measures may include:

i. Acoustic insulation;
ii. Enhanced buffer yards and sound walls;
iii. Regulation of operating hours;
iv. Other similar measures as approved by the Planning and Zoning Administrator.

(i) Nothing in this section shall regulate noise or supersede nuisance noise regulations in this code.

(j) Repealed by (O)20-07.

(k) Sound pressure level measurements will be made using a Type I sound level meter (SLM) calibrated in accordance with the manufacturer's specifications as required in the Town of Oro Valley noise abatement technical bulletin.

(l) Exemptions

i. Alerting persons to the existence of an emergency.
ii. Performance of emergency work.
iii. Performance of an activity for which, pursuant to this code, the Planning and Zoning Administrator has expressly given a temporary special use permit.
iv. Aircraft and airport operations.
v. Warning devices required on vehicles by any state or federal laws or regulations.
vi. The lawful operation of motor vehicles on a right-of-way.
vii. The operation of essential service vehicles (e.g., police and fire vehicles, sanitation and stormwater management vehicles).
viii. Noncommercial unamplified public speaking and public assembly activities conducted on any publicly owned property.
ix. Construction activities in accordance with town code.

5.0 Study Method and Procedure

The following section describes the noise modeling procedures and assumptions used for this assessment.

5.1 Noise Measurement Procedure and Criteria

Noise measurements were taken to determine the existing noise levels. A noise receiver or receptor is any location in the noise analysis upon which noise might produce an impact. The following criteria are used to select measurement locations and receptors:

- Locations expected to receive the highest noise impacts, such as first row of houses
- Locations that are acoustically representative and equivalent of the area of concern
- Human land usage
- Sites clear of major obstruction and contamination

MD conducted the sound level measurements in accordance to the City and the Federal Highway Transportation (FHWA) technical noise specifications. All measurements equipment meets American National Standards Institute (ANSI) specifications for sound level meters (S1.4-1983 identified in Chapter 19.68.020.AA). The following gives a brief description of the Technical Noise Supplement procedures for sound level measurements:

- Microphones for sound level meters were placed 5-feet above the ground for all measurements
- Sound level meters were calibrated (Larson Davis CAL 200) before and after each measurement
- Following the calibration of equipment, a wind screen was placed over the microphone
- Frequency weighting was set on “A” and slow response
- Results of the long-term noise measurements were recorded on field data sheets
- Temperature and sky conditions were observed and documented

5.2 Noise Measurement Locations

Noise monitoring locations were selected based on the distance of the project’s stationary noise sources to the nearest sensitive receptors. Two (2) short-term 15-min noise measurements were conducted near the project site and represents the noise level from the existing conditions and is illustrated in Exhibit D. Appendix A includes photos, field sheet, and measured noise data.

5.3 Stationary Noise Modeling

SoundPLAN (SP) acoustical modeling software was utilized to model future worst-case stationary noise impacts to the adjacent land uses. SP is capable of evaluating multiple stationary noise source impacts at various receiver locations. SP’s software utilizes algorithms (based on the inverse square law and reference equipment noise level data) to calculate noise level projections. The software allows the user to input specific noise sources, spectral content, sound barriers, building placement, topography, and sensitive receptor locations.

The future worst-case noise level projections were modeled using referenced sound level data for the various stationary on-site sources (vacuums, vacuum turbine motors and car wash blowers at the exit).

The blowers (a total of 10 IDC Stealth Blowers) were modeled at 10 feet high as point sources. The IDC Blowers will be located approximately 5 to 10 feet inside the exit of the tunnel. The reference equipment sound level data is provided in Appendix B.

The SP model (see Situation 1, Appendix C) assumes a total of 20 vacuums and the dryer system are operating simultaneously (worst-case scenario), when in actuality the noise will be intermittent and lower in noise level. The project proposes to house the vacuum turbine motor inside a 4-sided 8-foot tall CMU enclosure with a roof. The reference vacuum equipment sound level data is provided in Appendix B.

All other noise producing equipment (e.g., compressors, pumps) will be housed within mechanical equipment rooms.

Exhibit D

Measurement Location

= Short-Term Monitoring Location

6.0 Existing Noise Environment

Two (2) short-term 15-min noise measurements were conducted near the project site and represents the noise level from the existing conditions. Each measurement measured the 15-min Leq, Lmin, Lmax and other statistical data (e.g. L2, L8…). The noise measurement was taken to determine the existing ambient noise levels. Noise data indicates that traffic along Oracle Road and Water Harvest Way, and wind are the primary sources of noise impacting the site and the adjacent uses. This assessment utilizes the ambient noise data as a basis and compares project operational levels to said data.

6.1 Short-Term Noise Measurement Results

The results of the short-term noise data at location ST-1 (see Exhibit D) is presented in Table 4.

Table 4: Short-Term Noise Measurement Data (dBA)[1]

Date	ST Location	Time	1-Hour dB(A)							
			L_{EQ}	L_{MAX}	L_{MIN}	L_2	L_8	L_{25}	L_{50}	L_{90}
3/4/2022	ST1	1:19PM-1:34PM	61.6	71.2	52.7	67.3	65.3	62.4	60.1	56.4
6/8/2022	ST2	3:01PM-3:16PM	49.5	60.9	38.5	56.6	53.7	50	47	42.1

Notes:
[1.] Short-term noise monitoring locations (ST1 & ST2) are illustrated in Exhibit D.

Noise data indicates the ambient noise level ranged from 50 to 62 dBA near project site and surrounding area. Maximum levels reached 71.2 dBA as a result of traffic along Oracle Road. Additional field notes and photographs are provided in Appendix A.

For this evaluation, MD has utilized the existing ambient level and has compared the project's projected noise levels to the said ambient levels.

7.0 Future Noise Environment Impacts and Mitigation

This assessment analyzes future noise impacts as a result of the project. The analysis details the estimated exterior noise levels. Stationary noise impacts are analyzed from the noise sources on-site such as dryers/blowers and vacuums/compressed air systems. The analysis details the estimated exterior noise levels.

7.1 Stationary Source Noise

The following outlines the exterior noise levels associated with the proposed project.

7.1.1 Noise Impacts to Off-Site Receptors Due to Stationary Sources

Sensitive receptors that may be affected by project operational noise include existing commercial buildings to the north and south, and residencies to the west and east of Oracle Road. The worst-case stationary noise was modeled using SoundPLAN acoustical modeling software. Worst-case assumes the blowers, vacuums and equipment are always operational when in reality the noise will be intermittent and cycle on/off depending on the customer usage. In addition, the modeling takes into account the proposed enclosure for the vacuum turbines. Project operations are assumed to occur within the Town's allowable daytime (sunrise to sunset) hours.

A total of three (3) receptors R1 – R3 were modeled to evaluate the proposed project's operational impact to the nearest receptors to the project site. A receptor is denoted by a yellow dot. All yellow dots represent either a property line or a sensitive receptor such as an outdoor sensitive area (e.g. courtyard, patio, backyard, etc). Residences to the west across wash area, as well as the residences to the east across Oracle Road are beyond the noise impact for this project since operational noise level for those areas are estimated to be below 35 dBA which would be masked by any ambient level.

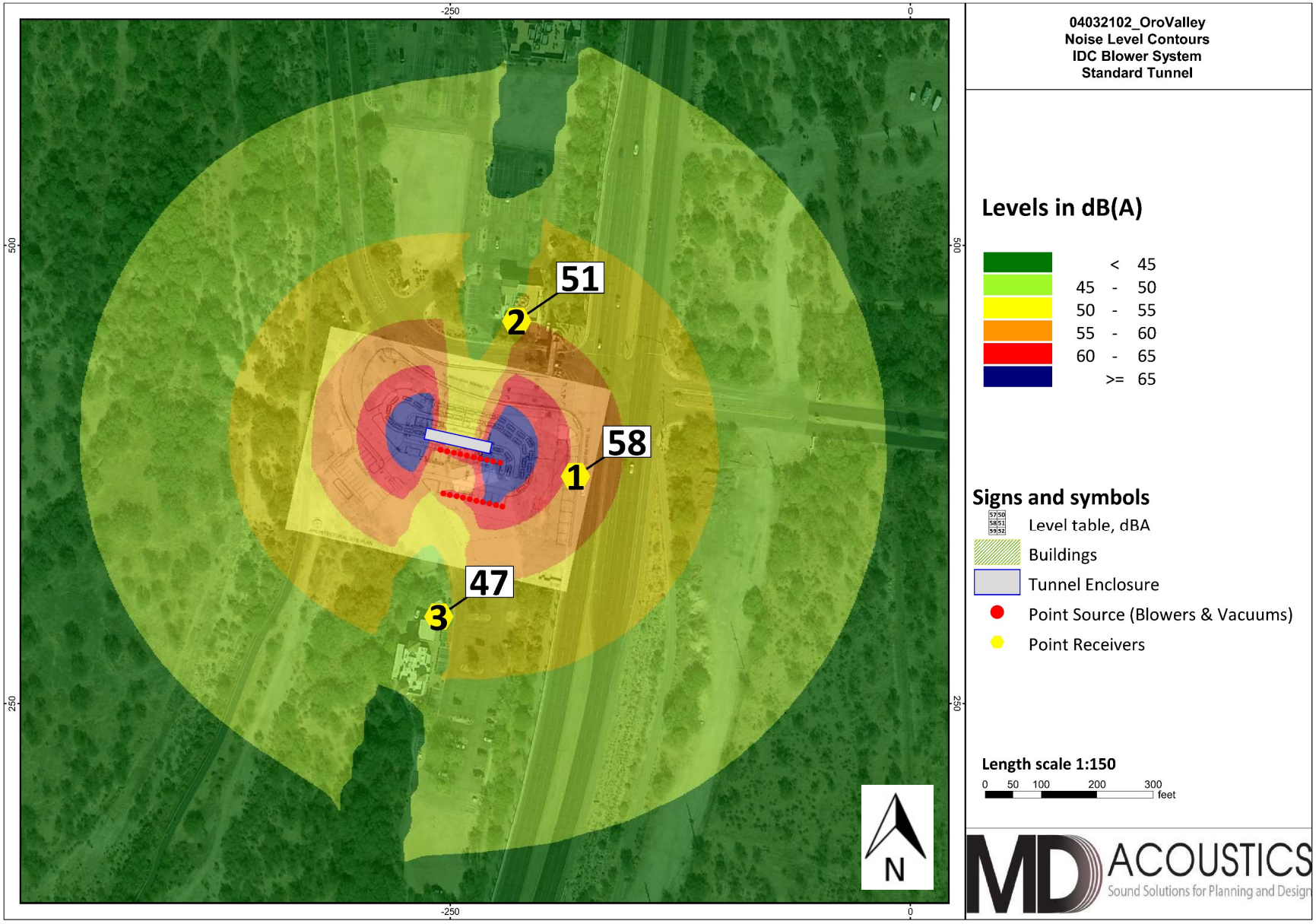
This study compares the project's operational noise levels for two (2) different noise assessment scenarios: 1) Project Only operational noise level projections, 2) Project plus ambient noise level projections.

Project Operational Noise Levels
Exhibit E shows the "project only" operational noise levels at the property lines and/or sensitive receptor area. Operational noise levels are anticipated to range between 47 dBA to 58 dBA Leq hourly at adjacent uses (depending on the location). Exhibit C (page 5) provides a scale which illustrates loudness associated with common noise levels. According to the scale, the car wash would approximately sound like a commercial area with heavy traffic at 300 feet away (at the nearest commercial unit).

The "project only" noise projections to the adjacent uses are below the Town's 65 dBA hourly commercial limit as outlined within the Town's noise ordinance (see Section 4.1).

Exhibit E

Operational Noise Level Projections



Project Plus Ambient Operational Noise Levels

Table 5 demonstrates the project plus the ambient noise levels. Project plus ambient noise level projections are anticipated to range between 62 and 63 dBA Leq hourly at commercial receptors (R1, R2 & R3). The "project plus ambient" noise projections to the adjacent uses are below the Town's 65 dBA Leq hourly limit as outlined within the Town's noise ordinance and no mitigation measures will be needed.

Table 5: Worst-Case Predicted Operational Noise Levels (dBA)[1]

Receptor[1]	Existing Ambient Noise Level (dBA, Leq)[2]	Project Noise Level (dBA, Leq)[3]	Total Combined Noise Level (dBA, Leq)	Town's Daytime Limit (dBA, Leq)	Exceeds Standard (?)	Change in Noise Level as Result of Project
1	62	58	63	65.0	No	1.5
2	62	51	62		No	0.3
3	62	47	62		No	0.1

Notes:
1. Receptors R1 – R3 represent Commercial receptors.
2. Existing measured ambient noise level.
3. See Exhibit E for the operational noise level projections at said receptors.

In addition, Table 5 provides the anticipated change in noise level as a result of the proposed project. As shown in Table 5, the existing noise levels are anticipated to change of between 0.1 to 1.5 dBA, Leq at adjacent land uses.

Table 6 provides the characteristics associated with changes in noise levels.

Table 6: Change in Noise Level Characteristics[1]

Changes in Intensity Level, dBA	Changes in Apparent Loudness
1	Not perceptible
3	Just perceptible
5	Clearly noticeable
10	Twice (or half) as loud

https://www.fhwa.dot.gov/environMent/noise/regulations_and_guidance/polguide/polguide02.cfm

At the receptor's locations, the change in noise level would be "Not Perceptible" according to Table 6.

8.0 References

Oro Valley, AZ Zoning Code – Chapter 25, Section 25.1.A.3.-Noise

Federal Highway Administration. Noise Barrier Design Handbook. June 2017.

Federal Transit Administration. Transit Noise and Vibration Impact Assessment Manual. September 2018.

Appendix A:

Photographs and Field Measurement Data

MD ACOUSTICS
Sound Solutions for Planning and Design
www.mdacoustics.com

AZ Office
4960 S. Gilbert Rd, Ste 1-461
Chandler, AZ 85249

CA Office
1197 E Los Angeles Ave, C-256
Simi Valley, CA 93065

15-Minute Continuous Noise Measurement Datasheet

Project: Surf Thru Car Wash Oro Valley

Site Address/Location: Southwest corner of Oracle Road and Innovation, Oro Valley AZ

Date: 3/4/2022

Field Tech/Engineer: Shon Baldwin/Francisco Irarrazabal

Site Observations: Scatter clouds, strong winds. The measurement was performed at the south & north lot lines. Ambient noise consisted of traffic along Oracle Road and Innovation Market Drive.

General Location: Unpaved lot, sourrounded by access roads and the Highway

Sound Meter: NTi XL2
SN: A2A-16164-EO

Settings: A-weighted, slow, 1-sec, 15-minute interval

Meteorological Con.: 70 degrees F, 31 mph wind, southwest direction

Site ID: ST-1

Site Topo: Flat

Ground Type: Soft site, unpaved parking lot

Noise Source(s) w/ Distance:
1 -meter is approx 280' from Oracle Road CL.

Figure 1: Monitoring Locations

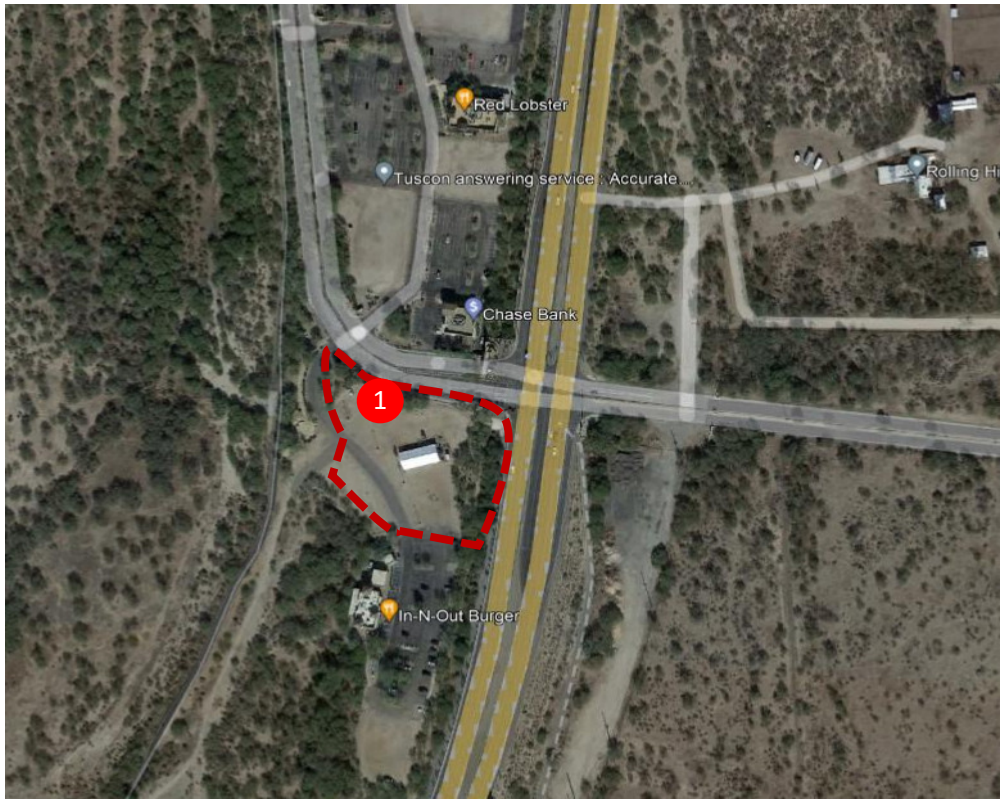


Figure 2: ST-1 Photo

Figure 3: ST-1 Photo

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AZ Office
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Chandler, AZ 85249

CA Office
1197 E Los Angeles Ave, C-256
Simi Valley, CA 93065

15-Minute Continuous Noise Measurement Datasheet - Cont.

Project: Surf Thru Car Wash Oro Valley
Site Address/Location: Southwest corner of Oracle Road and Innovation, Oro Valley AZ
Site ID: ST-1

Figure 4: ST-1 Photo

Figure 5: ST-1 Photo

Table 1: 15-Min Baseline Noise Measurement Summary

Location	Start	Stop	Leq	Lmax	Lmin	L2	L8	L25	L50	L90
1	1:19 PM	1:34 PM	61.6	71.2	52.7	67.3	65.3	62.4	60.1	56.4

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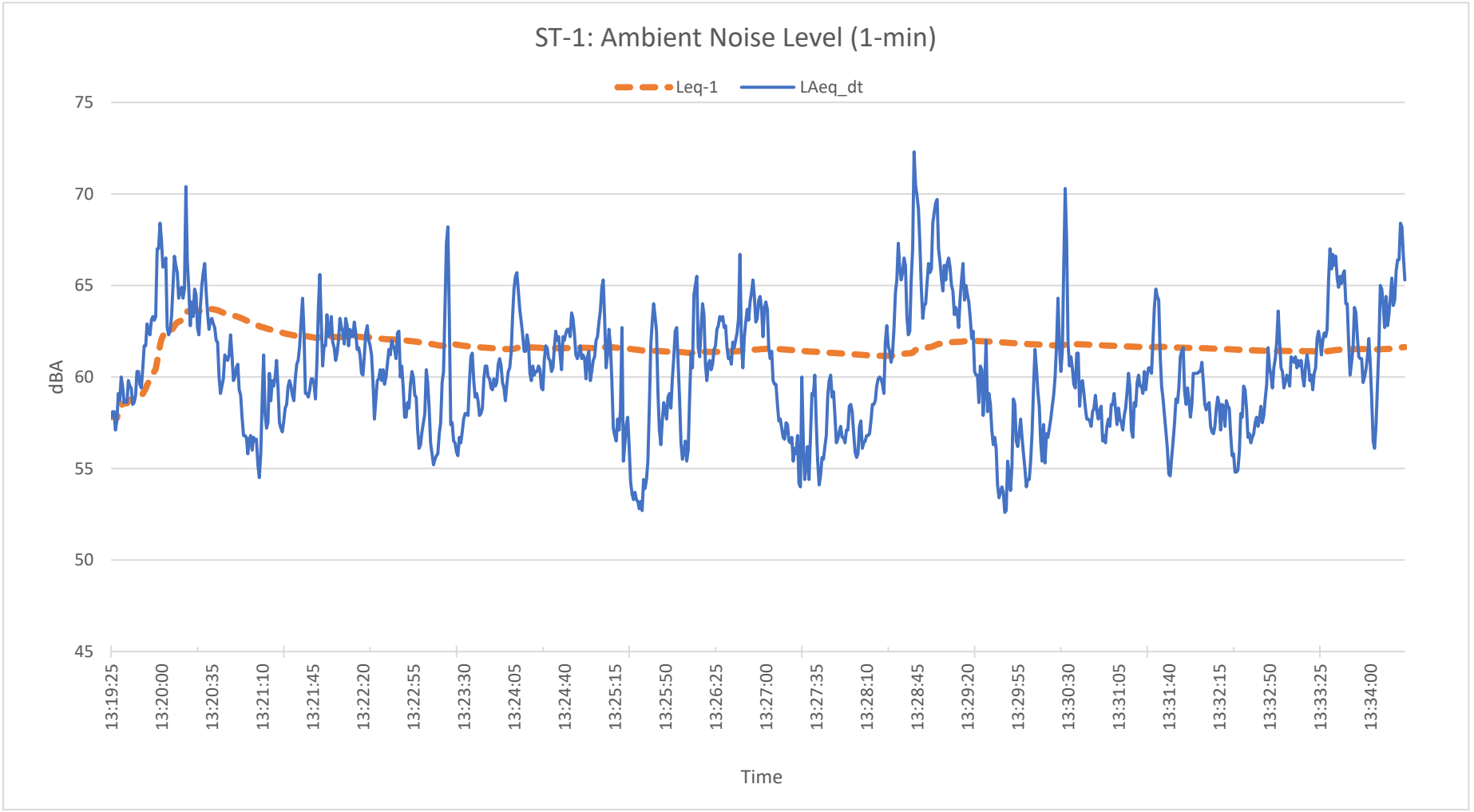
Simi Valley, CA 93065

15-Minute Continuous Noise Measurement Datasheet - Cont.

Site Address/Location: Southwest corner of Oracle Road and Innovation, Oro Valley AZ

Site ID: ST-1



15-Minute Continuous Noise Measurement Datasheet

Project Name:	Surf Thru Car Wash Oro Valley
Project: #/Name:	0403-2021-002
Site Address/Location:	11595 N. Oracle Road, Tucson, AZ
Date:	06/08/2022
Field Tech/Engineer:	Claire Pincock

Site Observations:

Bike trail on the border of a wash area. Trees and bushes landscape. The main sources of noise are the Oracle Road and wind.

Sound Meter:	831C, Larson Davis **SN:** 10569
Settings:	A-weighted, slow, 1-sec, 15-minute interval
Site Id:	ST2

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15-Minute Continuous Noise Measurement Datasheet - Cont.

Project Name: Surf Thru Car Wash Oro Valley

Site Address/Location: 11595 N. Oracle Road, Tucson, AZ

Site Id: ST2

Figure 1: ST2 - Looking East

Figure 2: ST2 - Looking North

Figure 3: ST2 - Looking South

Figure 4: ST2 - Looking West

15-Minute Continuous Noise Measurement Datasheet - Cont.

Project Name: Surf Thru Car Wash Oro Valley

Site Address/Location: 11595 N. Oracle Road, Tucson, AZ

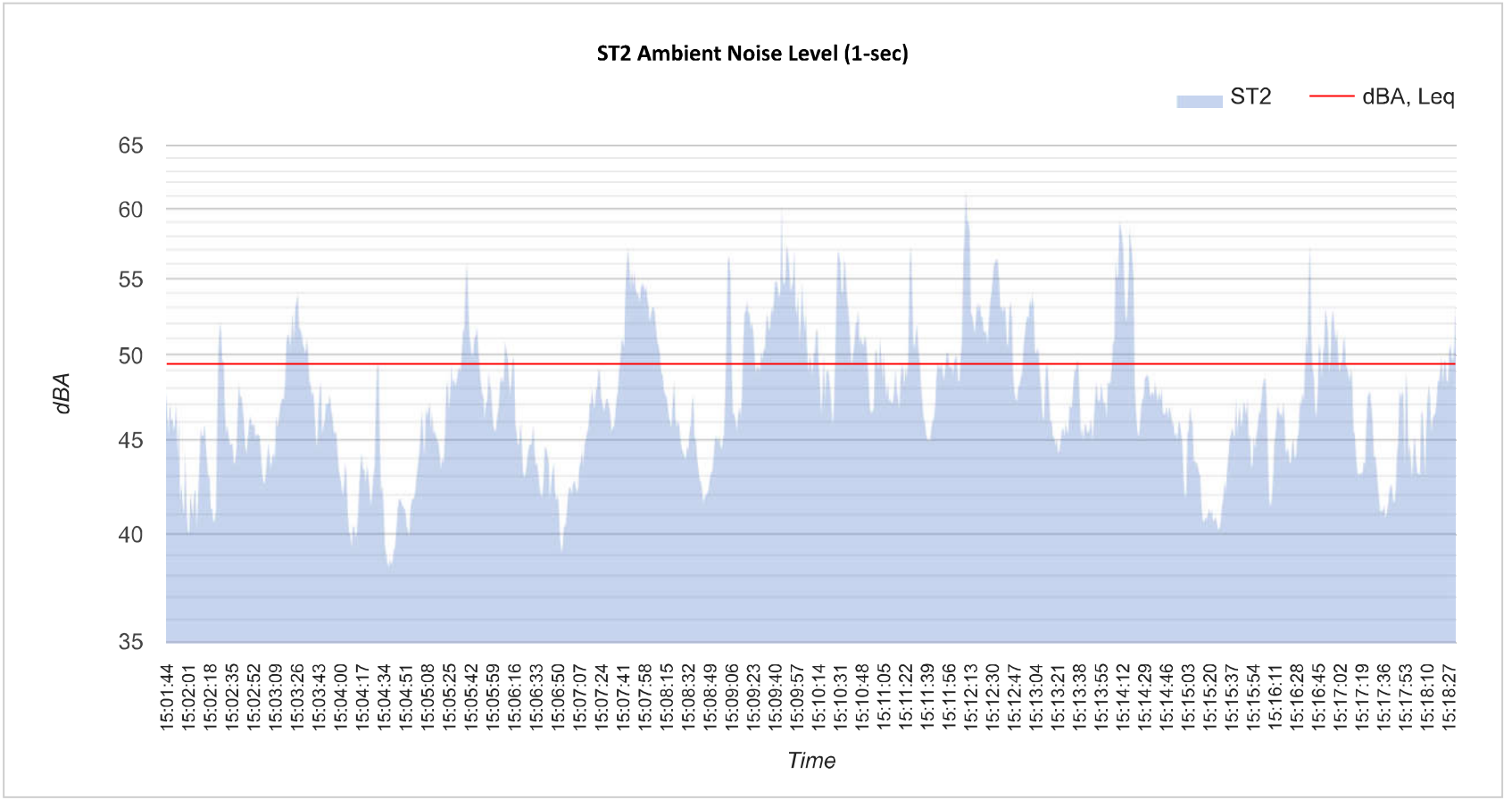
Site Id: ST2

Table 1: Baseline Noise Measurement Summary

Location	Start	Stop	Leq	Lmax	Lmin	L2	L8	L25	L50	L90
ST2	3:01 PM	3:18 PM	49.5	60.9	38.5	56.6	53.7	50	47	42.1

15-Minute Continuous Noise Measurement Datasheet - Cont.

Project Name:	Surf Thru Car Wash Oro Valley	**Site Topo:**	Flat	**Noise Source(s) w/ Distance:**	
Site Address/Location:	11595 N. Oracle Road, Tucson, AZ	**Meteorological Cond.:**	105°F, scatter, winds 3 mph N direction		512ft from Oracle Rd CL
Site Id:	ST2	**Ground Type:**	Soft Site, vegetation covered		



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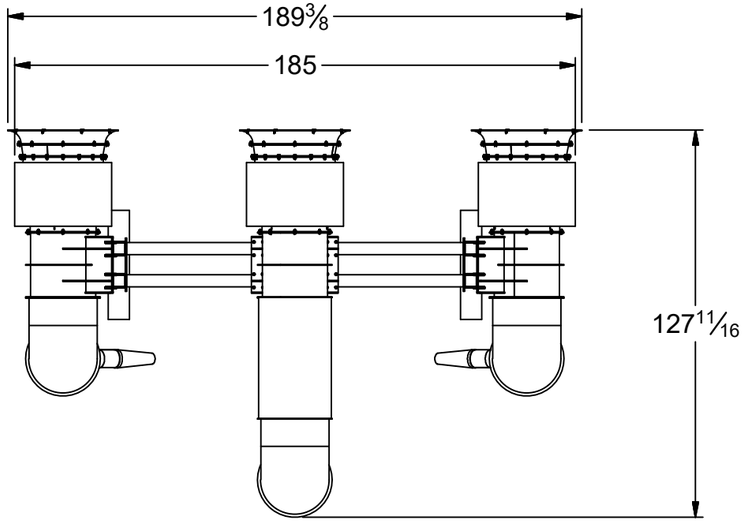
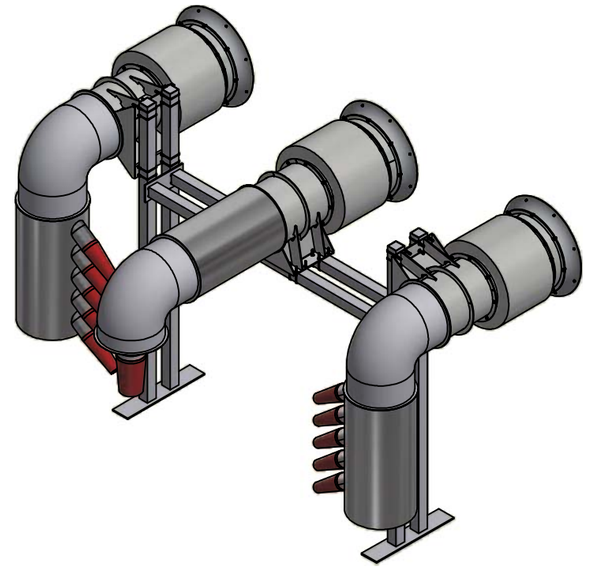
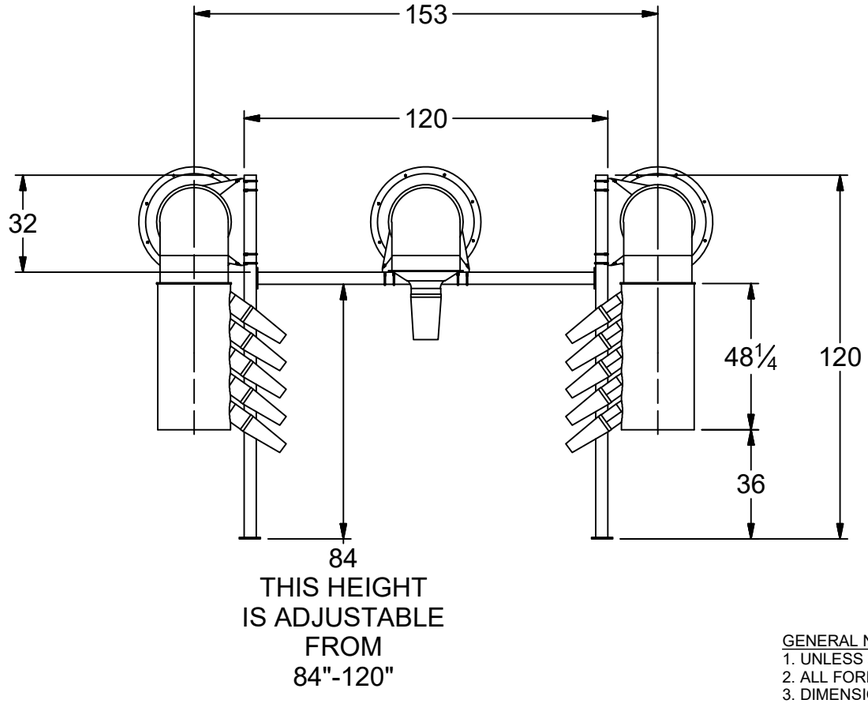
Appendix B:

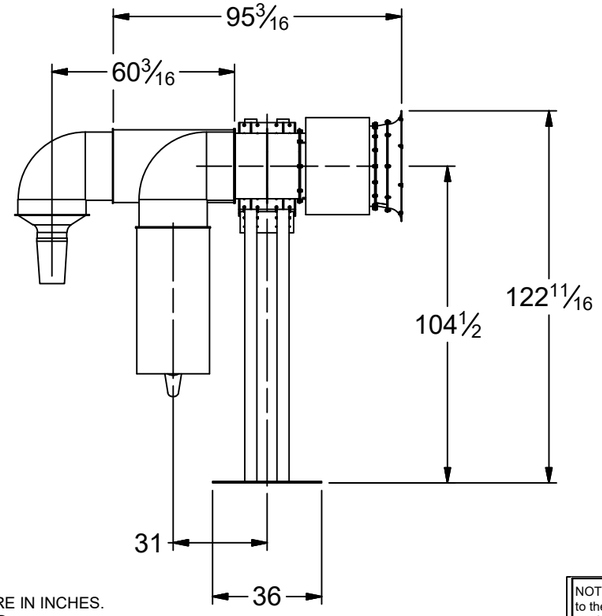
Reference Sound Level Data & Manufacturers Cut Sheet

SYM.	DATE	ECN	SIG.	DESCRIPTION	ENG.









GENERAL NOTES:
1. UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN INCHES.
2. ALL FORMS ARE UP, UNLESS OTHER WISE SPECIFIED.
3. DIMENSIONS IN ( ) ARE FOR REFERENCE ONLY.

DESCRIPTION:

PROJECT:

FILE NUMBER:
SEQUENCE:
DRAWN BY: bogucki
DRAWN DATE: 1/31/2018
ENGINEER:
SCALE:

International Drying Corporation
2510 IL Route 176, Suite G
Prairie Grove, IL 60014
Phone (800) 736-6412
Art@InternationalDrying.com

PART NUMBER
WSP II-10
WITH ARCHES

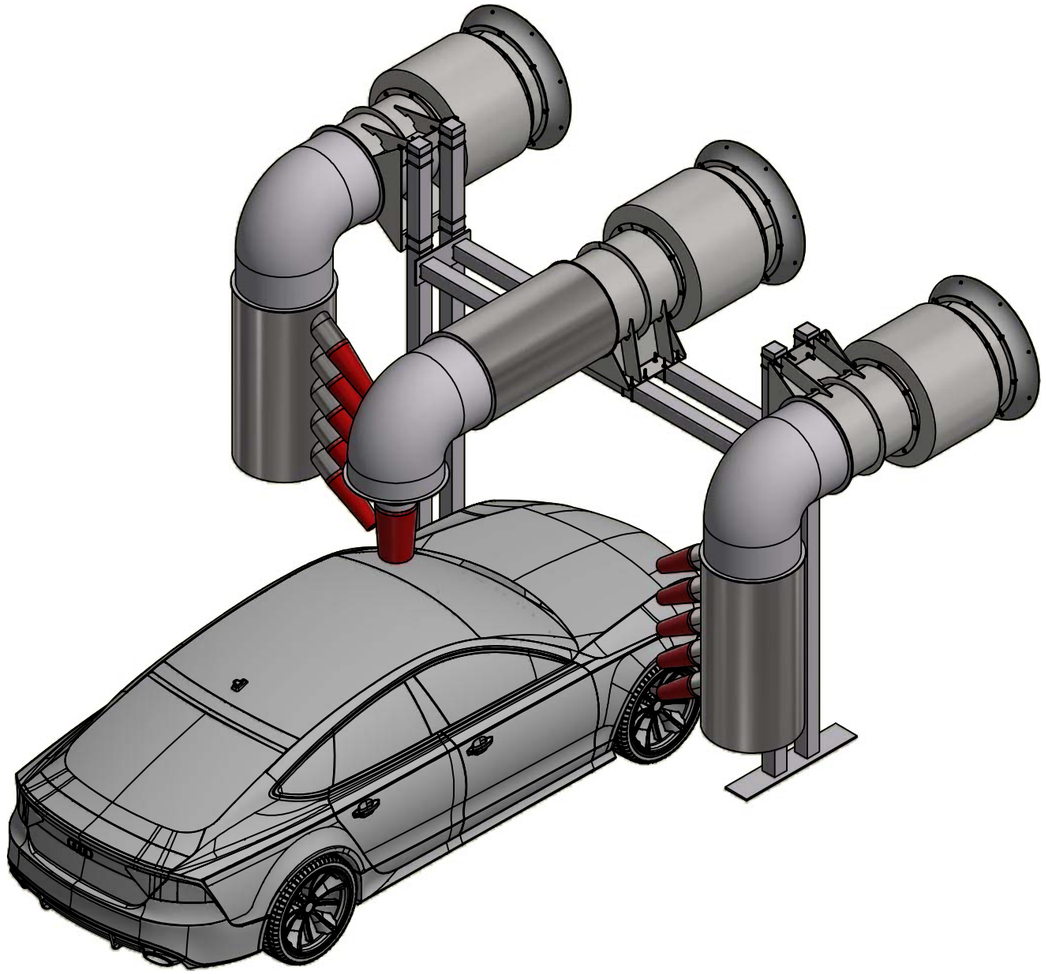
DWG. SIZE: B

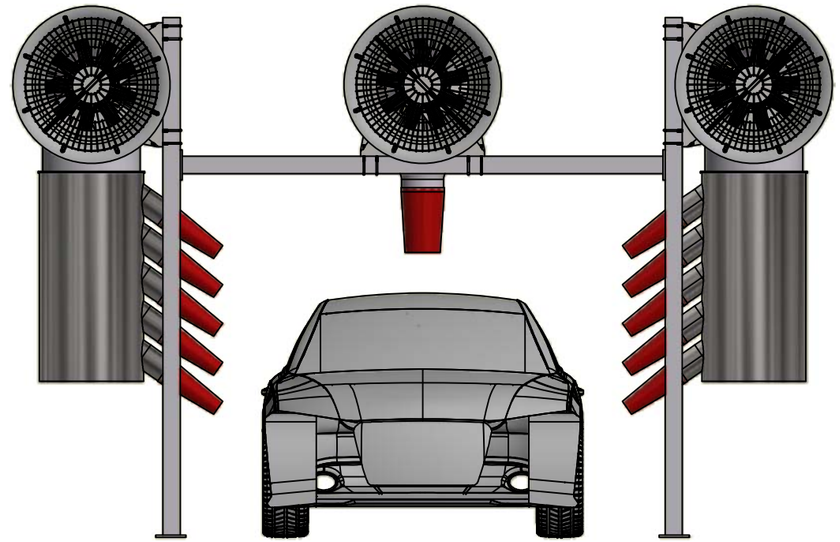
MAT'L:

TOL: ± MASS: 2875.7 lbmass

REV.: A

SYM.	DATE	ECN	SIG.	DESCRIPTION	ENG.





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DESCRIPTION:

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FILE NUMBER:
SEQUENCE:
DRAWN BY: bogucki
DRAWN DATE: 1/31/2018
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SCALE:

International Drying Corporation
2510 IL Route 176, Suite G
Prairie Grove, IL 60014
Phone (800) 736-6412
Art@InternationalDrying.com

PART NUMBER
WSP II-10
WITH ARCHES

DWG. SIZE: B

MAT'L:

TOL: ± MASS: 2875.7 lbmass

REV.: A

Stealth High Powered Quiet Drying System Specifications

Center Band Sound Frequency	63 Hz	125Hz	250 Hz	500 Hz	1,000Hz	2,000 Hz	4,000 Hz	8,000 Hz	**Total Sound** 60 Hz Results	
Final Sound Pressure Level	55.3	60.4	71.9	80.3	78.5	76.7	72.5	65.4	84.2	dBA at Q=1, 5 feet
Final Sound Pressure Level	49.3	54.4	65.9	74.3	72.5	70.7	66.5	59.4	78.2	dBA at Q=1, 10 feet
Final Sound Pressure Level	45.8	50.9	62.4	70.8	69	67.2	63	55.9	74.7	dBA at Q=1, 15 feet
Final Sound Pressure Level	43.3	48.4	59.9	68.3	66.5	64.7	60.5	53.4	72.2	dBA at Q=1, 20 feet
Final Sound Pressure Level	41.3	46.4	57.9	66.3	64.5	62.7	58.5	51.4	70.2	dBA at Q=1, 25 feet
Final Sound Pressure Level	39.8	44.9	56.4	64.8	63	61.2	57	49.9	68.7	dBA at Q=1, 30 feet
Final Sound Pressure Level	38.4	43.5	55	63.4	61.6	59.8	55.6	48.5	67.3	dBA at Q=1, 35 feet
Final Sound Pressure Level	37.3	42.4	53.9	62.3	60.5	58.7	54.5	47.4	66.2	dBA at Q=1, 40 feet
Final Sound Pressure Level	36.2	41.3	52.8	61.2	59.4	57.6	53.4	46.3	65.1	dBA at Q=1, 45 feet
Final Sound Pressure Level	35.3	40.4	51.9	60.3	58.5	56.7	52.5	45.4	64.2	dBA at Q=1, 50 feet
Final Sound Pressure Level	34.5	39.6	51.1	59.5	57.7	55.9	51.7	44.6	63.4	dBA at Q=1, 55 feet

Sound pressure values are approximated from AMCA 300 Reverberant sound room total sound power values

* all information provided through ***the new york blower company*** via tests performed in their La Port IN sound lab, January 15th 2018

SOUND LEVEL METER READINGS

MODEL: FT-DD-T340HP4 (40hp VACSTAR TURBINE VACUUM PRODUCER)

READING ONE: 43 DB-A, 3 FEET FROM TURBINE @ 45° ANGLE
AND NO BACKGROUND NOISE OR OUTSIDE INTERFERENCE.

READING TWO: 36 DB-A, 10 FEET FROM TURBINE @ 45° ANGLE
AND NO BACKGROUND NOISE OR OUTSIDE INTERFERENCE.

READING THREE: 24 DB-A, 20 FEET FROM TURBINE @ 45° ANGLE
AND NO BACKGROUND NOISE OR OUTSIDE INTERFERENCE.

READING FOUR: 12 DB-A, 30 FEET FROM TURBINE @ 45° ANGLE
AND NO BACKGROUND NOISE OR OUTSIDE INTERFERENCE.

NOTE: THESE READINGS WERE TAKEN OUTSIDE OF 8'x10'x8' CINDER BLOCK ENCLOSURE WITH CONCRETE SLAB AND WOOD JOIST ROOF.

SOUND LEVEL METER USED:

SIMPSON MODEL #40003 – MSHA APPROVED.
MEETS OSHA & WALSH-HEALY REQUIREMENTS FOR NOISE CONTROL.
CONFORMS TO ANSI S1.4-1983, IEC 651 SPECS FOR METER TYPE.

Vacutech
1350 Hi-Tech Drive, Sheridan WY, 82801
PHONE: (800) 917-9444 FAX: (303) 675-1988
EMAIL: info@vacutechllc
WEB SITE: vacutechllc.com

Project: Sound Library

Job Number: 0000-2020-02

Site Address/Location: 1555 W Warner Rd, Gilbert, AZ 85233

Date: 04/05/2020

Field Tech/Engineer: Robert Pearson

Source/System: Vacutec System Averaged

General Location: Measured @ 1.5'

Sound Meter: NTi XL2 **SN:** A2A-05967-E0

Settings: A-weighted, slow, 1-sec, 10-sec duration

Meteorological Cond.: 80 degrees, 2 mph wind

Site Observations:

Clear sky, measurements were performed within 1.5ft of source. Measurements were performed while the vacuum was positioned at three (3) different positions. Holstered, upholstered and inside a car. This data is utilized for acoustic modeling purposes and represents an average sound level at a vacuum station.

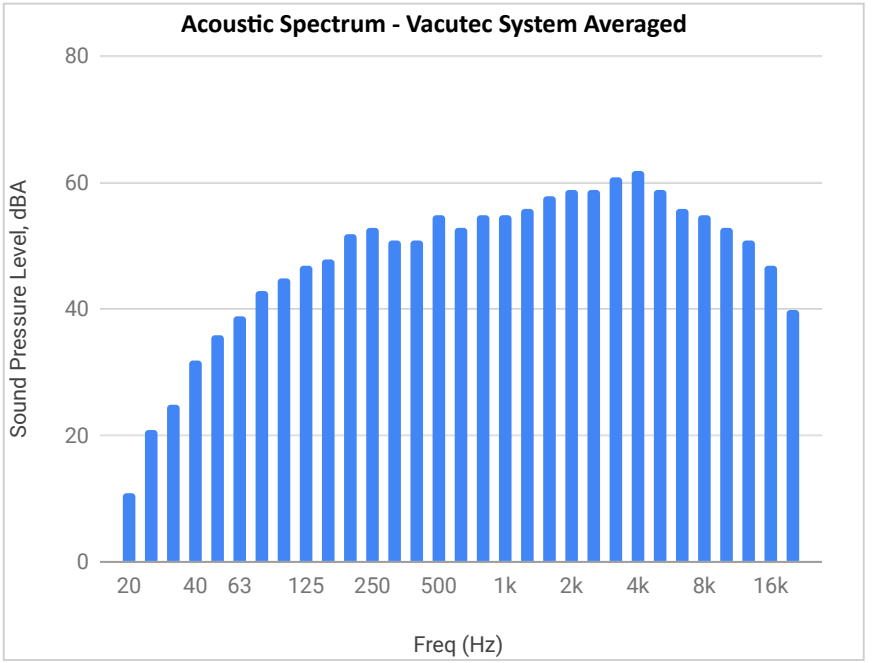
Leq	Lmin	Lmax
71.2	71.2	71.2

Ln 2	Ln 8	Ln 25	Ln 50	Ln 90	Ln 99
0.0	0.0	0.0	0.0	0.0	0.0

Table 1: Summary Measurement Data

Source/System	Overall Source	Overall dB(A)	3rd Octave Band Data (dBA)																														
			20	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1k	12.5	1.6k	2k	2.5k	3.15	4k	5k	6.3k	8k	10k	12.5	16k	20k
Vacutec System Averaged	Car Wash Vacuu	71.2	11.0	21.0	25.0	32.0	36.0	39.0	43.0	45.0	47.0	48.0	52.0	53.0	51.0	51.0	55.0	53.0	55.0	55.0	56.0	58.0	59.0	59.0	61.0	62.0	59.0	56.0	55.0	53.0	51.0	47.0	40.0

Figure 1: Vacutec System Averaged



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Chandler, AZ 85249
p. (602) 774-1950

CA Office
1197 Los Angeles Ave, Ste C-256
Simi Valley, CA 93065
p. (805) 426-4477

Project: SuperStar Car Wash Chula Vista
Site Location: 1555 W Warner Rd, Gilbert, AZ 85233
Date: 4/5/2018
Field Tech/Engineer: Robert Pearson
Source/System: Vacutec System

Location: Vac Bay 1
Sound Meter: NTi XL2 **SN:** A2A-05967-E0
Settings: A-weighted, slow, 1-sec, 10-sec duration
Meteorological Cond.: 80 degrees F, 2 mph wind

Site Observations:
Clear sky, measurements were performed within 1.5ft of source. Measurements were performed while the vacuum was positiioned at threee (3) different positions. Holstered, unholstered and inside a car. This data is utilized for acoustic modeling purposes and represents an average sound level at a vacuum station.

Table 1: Summary Measurement Data

Source	System	Overall dB(A)	3rd Octave Band Data (dBA)																														
			20	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1K	1.25K	1.6K	2K	2.5K	3.15K	4K	5K	6.3K	8K	10K	12.5K	16K	20K
Vacutech (Holstered)	Vacuum	63.3	9	17	22	29	31	35	40	41	44	43	46	48	47	49	51	51	51	52	53	52	52	50	52	53	50	47	47	48	45	39	30
Vacutech (Un Holstered)	Vacuum	80.7	6	19	22	28	34	37	40	43	47	46	48	48	48	49	54	55	58	58	62	65	68	70	74	75	73	69	67	65	63	60	55
Vacutech (Inside Car)	Vacuum	69.6	16	28	31	38	42	45	49	51	52	55	60	61	57	55	59	53	55	56	54	57	57	57	57	57	55	54	51	48	46	42	36
Arth. Average Level*	Vacuum	71.2	11	21	25	32	36	39	43	45	47	48	52	53	51	51	55	53	55	55	56	58	59	59	61	62	59	56	55	53	51	47	40

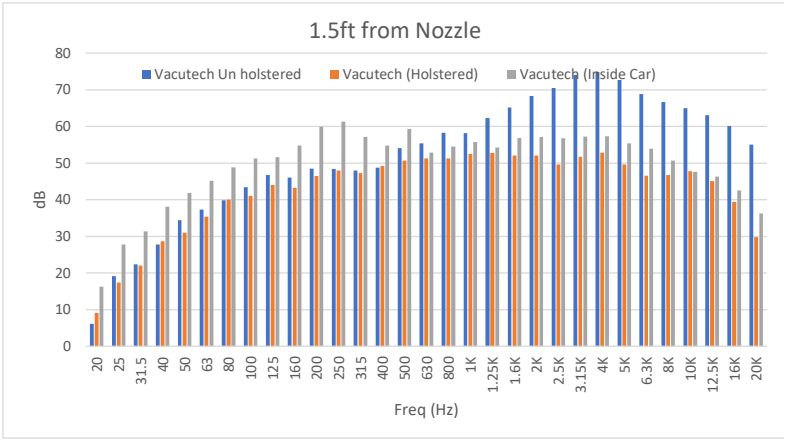
* Refers to the arthitmetic average of all measurements. This measurement represents an average of the multiple vacuum positions.

Figure 1: Example Measurement Position

Figure 1: Holstered

Figure 2: Un Holstered

Figure 3: Inside Car



Vacutech sound levels

Appendix C:

SoundPlan Input/Output

OroValley
Octave spectra of the sources in dB(A) - 001 - IDC Blower - Standard: Outdoor SP

Name	Source type	I or A	Li	R'w	L'w	Lw	KI	KT	LwMax	DO-Wall	Time histogram	Emission spectrum	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	16kHz
		m,m²	dB(A)	dB	dB(A)	dB(A)	dB	dB	dB(A)	dB			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
001 - IDC Blower - Standard Tunnel-Facade 01	Area	163.85	89.9	57.0	36.5	58.6	0.0	0.0		3	100%/24h	23_Facade 01_	48.7	44.2	53.5	55.3	47.5	36.9	31.1	26.0	
001 - IDC Blower - Standard Tunnel-Facade 02	Area	16.12	91.0	57.0	37.2	49.3	0.0	0.0		3	100%/24h	24_Facade 02_	39.3	34.9	44.1	46.0	38.6	28.5	23.0	19.5	
001 - IDC Blower - Standard Tunnel-Facade 03	Area	163.85	89.9	57.0	36.5	58.6	0.0	0.0		3	100%/24h	25_Facade 03_	48.7	44.2	53.5	55.3	47.5	36.9	31.0	26.0	
001 - IDC Blower - Standard Tunnel-Facade 04	Area	16.12	89.5	57.0	36.2	48.3	0.0	0.0		3	100%/24h	26_Facade 04_	38.4	34.0	43.1	45.0	37.1	26.5	20.4	14.0	
001 - IDC Blower - Standard Tunnel-Roof 01	Area	220.68	89.6	57.0	36.3	59.7	0.0	0.0		0	100%/24h	21_Roof 01_	50.0	45.5	54.7	56.4	48.4	37.9	32.1	27.2	
001 - IDC Blower - Standard Tunnel-Transmissive area 01	Area	11.15	89.4	0.0	89.4	99.9	0.0	0.0		3	100%/24h	27_Transmissive area 01_	66.6	76.1	87.4	95.1	96.3	89.9	86.8	78.6	
001 - IDC Blower - Standard Tunnel-Transmissive area 01	Area	11.15	90.6	0.0	90.6	101.1	0.0	0.0		3	100%/24h	28_Transmissive area 01_	67.4	76.9	88.1	96.0	97.6	91.5	89.1	83.5	
Vac	Point				73.8	73.8	0.0	0.0		0	100%/24h	Vacutech - in car	55.2	62.0	68.6	65.4	64.0	66.0	65.4	60.6	51.9
Vac	Point				73.8	73.8	0.0	0.0		0	100%/24h	Vacutech - in car	55.2	62.0	68.6	65.4	64.0	66.0	65.4	60.6	51.9
Vac	Point				73.8	73.8	0.0	0.0		0	100%/24h	Vacutech - in car	55.2	62.0	68.6	65.4	64.0	66.0	65.4	60.6	51.9
Vac	Point				73.8	73.8	0.0	0.0		0	100%/24h	Vacutech - in car	55.2	62.0	68.6	65.4	64.0	66.0	65.4	60.6	51.9
Vac	Point				73.8	73.8	0.0	0.0		0	100%/24h	Vacutech - in car	55.2	62.0	68.6	65.4	64.0	66.0	65.4	60.6	51.9
Vac	Point				73.8	73.8	0.0	0.0		0	100%/24h	Vacutech - in car	55.2	62.0	68.6	65.4	64.0	66.0	65.4	60.6	51.9
Vac	Point				73.8	73.8	0.0	0.0		0	100%/24h	Vacutech - in car	55.2	62.0	68.6	65.4	64.0	66.0	65.4	60.6	51.9
Vac	Point				73.8	73.8	0.0	0.0		0	100%/24h	Vacutech - in car	55.2	62.0	68.6	65.4	64.0	66.0	65.4	60.6	51.9
Vac	Point				73.8	73.8	0.0	0.0		0	100%/24h	Vacutech - in car	55.2	62.0	68.6	65.4	64.0	66.0	65.4	60.6	51.9
Vac	Point				73.8	73.8	0.0	0.0		0	100%/24h	Vacutech - in car	55.2	62.0	68.6	65.4	64.0	66.0	65.4	60.6	51.9
Vac	Point				73.8	73.8	0.0	0.0		0	100%/24h	Vacutech - in car	55.2	62.0	68.6	65.4	64.0	66.0	65.4	60.6	51.9
Vac	Point				73.8	73.8	0.0	0.0		0	100%/24h	Vacutech - in car	55.2	62.0	68.6	65.4	64.0	66.0	65.4	60.6	51.9
Vac	Point				73.8	73.8	0.0	0.0		0	100%/24h	Vacutech - in car	55.2	62.0	68.6	65.4	64.0	66.0	65.4	60.6	51.9
Vac	Point				73.8	73.8	0.0	0.0		0	100%/24h	Vacutech - in car	55.2	62.0	68.6	65.4	64.0	66.0	65.4	60.6	51.9
Vac	Point				73.8	73.8	0.0	0.0		0	100%/24h	Vacutech - in car	55.2	62.0	68.6	65.4	64.0	66.0	65.4	60.6	51.9
Vac	Point				73.8	73.8	0.0	0.0		0	100%/24h	Vacutech - in car	55.2	62.0	68.6	65.4	64.0	66.0	65.4	60.6	51.9
Vac	Point				73.8	73.8	0.0	0.0		0	100%/24h	Vacutech - in car	55.2	62.0	68.6	65.4	64.0	66.0	65.4	60.6	51.9

OroValley
Octave spectra of the sources in dB(A) - 001 - IDC Blower - Standard: Outdoor SP

Name	Source type	I or A m,m²	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)	16kHz dB(A)
Vac	Point				73.8	73.8	0.0	0.0		0	100%/24h	Vacutech - in car	55.2	62.0	68.6	65.4	64.0	66.0	65.4	60.6	51.9
Vac	Point				73.8	73.8	0.0	0.0		0	100%/24h	Vacutech - in car	55.2	62.0	68.6	65.4	64.0	66.0	65.4	60.6	51.9
Vac	Point				73.8	73.8	0.0	0.0		0	100%/24h	Vacutech - in car	55.2	62.0	68.6	65.4	64.0	66.0	65.4	60.6	51.9

OroValley
Contribution level - 001 - IDC Blower - Standard: Outdoor SP

Source	Source group	Source ty	Tr. lane	LrD dB(A)	A dB	
Receiver -182,374 Fl G LrD,lim dB(A) LrD 58.1 dB(A) Sigma(LrD) 0.0 dB(A)						
Vac	Default industrial noise	Point		23.4	0.0	
Vac	Default industrial noise	Point		23.8	0.0	
Vac	Default industrial noise	Point		24.3	0.0	
Vac	Default industrial noise	Point		24.8	0.0	
Vac	Default industrial noise	Point		25.4	0.0	
Vac	Default industrial noise	Point		26.0	0.0	
Vac	Default industrial noise	Point		26.6	0.0	
Vac	Default industrial noise	Point		27.3	0.0	
Vac	Default industrial noise	Point		28.1	0.0	
Vac	Default industrial noise	Point		29.0	0.0	
Vac	Default industrial noise	Point		23.7	0.0	
Vac	Default industrial noise	Point		24.1	0.0	
Vac	Default industrial noise	Point		24.6	0.0	
Vac	Default industrial noise	Point		25.1	0.0	
Vac	Default industrial noise	Point		25.6	0.0	
Vac	Default industrial noise	Point		26.1	0.0	
Vac	Default industrial noise	Point		26.7	0.0	
Vac	Default industrial noise	Point		27.3	0.0	
Vac	Default industrial noise	Point		28.0	0.0	
Vac	Default industrial noise	Point		28.7	0.0	
001 - IDC Blower - Standard Tunnel-Roof 01	Default industrial noise	Area		7.8	0.0	
001 - IDC Blower - Standard Tunnel-Facade 01	Default industrial noise	Area		12.4	0.0	
001 - IDC Blower - Standard Tunnel-Facade 02	Default industrial noise	Area		6.1	0.0	
001 - IDC Blower - Standard Tunnel-Transmissive area 01	Default industrial noise	Area		58.1	0.0	
001 - IDC Blower - Standard Tunnel-Facade 03	Default industrial noise	Area		6.9	0.0	
001 - IDC Blower - Standard Tunnel-Facade 04	Default industrial noise	Area		-8.8	0.0	
001 - IDC Blower - Standard Tunnel-Transmissive area 01	Default industrial noise	Area		33.0	0.0	
Receiver -214,459 Fl G LrD,lim dB(A) LrD 50.9 dB(A) Sigma(LrD) 0.0 dB(A)						
Vac	Default industrial noise	Point		8.5	0.0	
Vac	Default industrial noise	Point		8.6	0.0	
Vac	Default industrial noise	Point		8.6	0.0	
Vac	Default industrial noise	Point		8.7	0.0	
Vac	Default industrial noise	Point		8.9	0.0	
Vac	Default industrial noise	Point		9.1	0.0	
Vac	Default industrial noise	Point		10.0	0.0	
Vac	Default industrial noise	Point		14.6	0.0	
Vac	Default industrial noise	Point		23.0	0.0	

Source	Source group	Source ty	Tr. lane	LrD dB(A)	A dB	
Vac	Default industrial noise	Point		23.0	0.0	
Vac	Default industrial noise	Point		11.9	0.0	
Vac	Default industrial noise	Point		12.0	0.0	
Vac	Default industrial noise	Point		12.1	0.0	
Vac	Default industrial noise	Point		12.4	0.0	
Vac	Default industrial noise	Point		13.1	0.0	
Vac	Default industrial noise	Point		14.7	0.0	
Vac	Default industrial noise	Point		20.6	0.0	
Vac	Default industrial noise	Point		20.6	0.0	
Vac	Default industrial noise	Point		20.6	0.0	
Vac	Default industrial noise	Point		20.5	0.0	
001 - IDC Blower - Standard Tunnel-Roof 01	Default industrial noise	Area		7.2	0.0	
001 - IDC Blower - Standard Tunnel-Facade 01	Default industrial noise	Area		0.4	0.0	
001 - IDC Blower - Standard Tunnel-Facade 02	Default industrial noise	Area		-0.3	0.0	
001 - IDC Blower - Standard Tunnel-Transmissive area 01	Default industrial noise	Area		50.5	0.0	
001 - IDC Blower - Standard Tunnel-Facade 03	Default industrial noise	Area		12.2	0.0	
001 - IDC Blower - Standard Tunnel-Facade 04	Default industrial noise	Area		-5.2	0.0	
001 - IDC Blower - Standard Tunnel-Transmissive area 01	Default industrial noise	Area		40.4	0.0	
Receiver R4 Fl G LrD,lim dB(A) LrD 47.4 dB(A) Sigma(LrD) 0.0 dB(A)						
Vac	Default industrial noise	Point		23.5	0.0	
Vac	Default industrial noise	Point		23.6	0.0	
Vac	Default industrial noise	Point		23.7	0.0	
Vac	Default industrial noise	Point		23.7	0.0	
Vac	Default industrial noise	Point		23.8	0.0	
Vac	Default industrial noise	Point		23.8	0.0	
Vac	Default industrial noise	Point		23.8	0.0	
Vac	Default industrial noise	Point		23.7	0.0	
Vac	Default industrial noise	Point		21.7	0.0	
Vac	Default industrial noise	Point		21.6	0.0	
Vac	Default industrial noise	Point		24.9	0.0	
Vac	Default industrial noise	Point		25.0	0.0	
Vac	Default industrial noise	Point		25.0	0.0	
Vac	Default industrial noise	Point		25.1	0.0	
Vac	Default industrial noise	Point		25.0	0.0	
Vac	Default industrial noise	Point		25.0	0.0	
Vac	Default industrial noise	Point		25.0	0.0	
Vac	Default industrial noise	Point		24.3	0.0	
Vac	Default industrial noise	Point		24.2	0.0	

Source	Source group	Source ty	Tr. lane	LrD dB(A)	A dB	
Vac	Default industrial noise	Point		24.1	0.0	
001 - IDC Blower - Standard Tunnel-Roof 01	Default industrial noise	Area		4.6	0.0	
001 - IDC Blower - Standard Tunnel-Facade 01	Default industrial noise	Area		8.7	0.0	
001 - IDC Blower - Standard Tunnel-Facade 02	Default industrial noise	Area		-4.0	0.0	
001 - IDC Blower - Standard Tunnel-Transmissive area 01	Default industrial noise	Area		46.0	0.0	
001 - IDC Blower - Standard Tunnel-Facade 03	Default industrial noise	Area		-1.9	0.0	
001 - IDC Blower - Standard Tunnel-Facade 04	Default industrial noise	Area		-6.6	0.0	
001 - IDC Blower - Standard Tunnel-Transmissive area 01	Default industrial noise	Area		40.0	0.0	

OroValley
Contribution spectra - 001 - IDC Blower - Standard: Outdoor SP

Source	Time slice	Sum	25Hz	31.5Hz	40Hz	50Hz	63Hz	80Hz	100Hz	125Hz	160Hz	200Hz	250Hz	315Hz	400Hz	500Hz	630Hz	800Hz	1kHz	1.25kHz	1.6kHz	2kHz	2.5kHz	3.15kHz	4kHz	5kHz	6.3kHz	8kHz	10kHz
		dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
Receiver -182,374 Fl G LrD,lim dB(A) LrD 58.1 dB(A) Sigma(LrD) 0.0 dB(A)																													
001 - IDC Blower - Standard Tunnel-Facade 01	LrD	12.4					7.7			0.6			5.0			6.9			3.0			-6.5			-13.9			-24.0	
001 - IDC Blower - Standard Tunnel-Facade 02	LrD	6.1					0.7			-6.4			-1.0			1.1			-3.2			-12.4			-19.1			-26.7	
001 - IDC Blower - Standard Tunnel-Facade 03	LrD	6.9					3.7			-4.5			-0.4			0.0			-6.2			-17.6			-26.9			-38.7	
001 - IDC Blower - Standard Tunnel-Facade 04	LrD	-8.8					-10.8			-20.8			-17.1			-17.9			-26.3			-38.6			-48.8			-63.9	
001 - IDC Blower - Standard Tunnel-Roof 01	LrD	7.8					1.2			-6.5			2.4			3.8			-4.6			-15.3			-23.7			-34.8	
001 - IDC Blower - Standard Tunnel-Transmissive area 01	LrD	33.0					15.7			19.1			22.8			27.5			29.5			22.4			16.0			-0.3	
001 - IDC Blower - Standard Tunnel-Transmissive area 01	LrD	58.1					28.7			35.9			42.1			50.0			55.5			50.5			47.0			37.3	
Vac	LrD	26.7	-10.2	-7.2	-0.2	3.8	6.8	10.8	10.7	11.7	14.6	13.8	14.8	10.8	7.5	11.5	5.5	13.1	14.0	12.0	16.7	16.5	16.3	15.9	15.3	12.4	10.0	4.9	-1.1
Vac	LrD	26.1	-10.6	-7.6	-0.6	3.4	6.3	10.3	10.1	11.1	14.1	13.1	14.1	10.0	6.8	10.8	4.7	12.5	13.4	11.4	16.2	16.0	15.7	15.3	14.7	11.8	9.3	4.1	-2.2
Vac	LrD	25.6	-11.0	-8.0	-1.0	3.0	6.0	10.0	9.7	10.7	13.7	12.4	13.4	9.4	6.1	10.1	4.1	12.0	12.9	10.9	15.7	15.5	15.3	14.8	14.2	11.1	8.6	3.2	-3.2
Vac	LrD	28.7	-8.5	-5.5	1.5	5.5	8.5	12.5	12.4	13.4	16.4	16.2	17.2	13.2	10.1	14.1	8.1	15.0	16.0	13.9	18.5	18.3	18.1	17.8	17.3	14.6	12.4	7.7	2.2
Vac	LrD	28.0	-9.0	-6.0	1.0	5.0	8.0	12.0	11.8	12.8	15.8	15.4	16.4	12.4	9.2	13.2	7.2	14.3	15.3	13.2	17.9	17.7	17.5	17.2	16.7	13.9	11.6	6.8	1.1
Vac	LrD	27.3	-9.6	-6.6	0.4	4.4	7.4	11.4	11.2	12.2	15.2	14.6	15.6	11.6	8.4	12.4	6.3	13.7	14.7	12.6	17.3	17.1	16.9	16.5	16.0	13.1	10.8	5.9	0.0
Vac	LrD	25.1	-11.3	-8.3	-1.3	2.7	5.7	9.7	9.2	10.2	13.2	11.8	12.8	8.8	5.4	9.4	3.4	11.5	12.4	10.4	15.3	15.1	14.8	14.3	13.6	10.5	7.9	2.4	-4.2
Vac	LrD	24.8	-11.5	-8.5	-1.5	2.5	5.5	9.5	9.0	10.0	13.0	11.5	12.5	8.5	5.1	9.1	3.1	11.3	12.2	10.1	15.1	14.9	14.6	14.1	13.4	10.3	7.6	2.0	-4.7
Vac	LrD	25.4	-11.1	-8.1	-1.1	2.9	5.9	9.9	9.5	10.5	13.5	12.2	13.2	9.1	5.8	9.8	3.8	11.8	12.7	10.7	15.5	15.3	15.1	14.6	14.0	10.9	8.3	2.9	-3.6
Vac	LrD	26.0	-10.7	-7.7	-0.7	3.3	6.3	10.3	10.0	11.0	14.0	12.9	13.9	9.9	6.6	10.6	4.6	12.4	13.3	11.2	16.1	15.9	15.6	15.2	14.6	11.6	9.1	3.9	-2.4
Vac	LrD	23.4	-12.5	-9.5	-2.5	1.5	4.5	8.5	7.8	8.8	11.7	9.8	10.8	6.7	3.3	7.2	1.2	9.9	10.8	8.7	13.8	13.5	13.2	12.7	11.8	8.5	5.5	-0.5	-7.8
Vac	LrD	23.8	-12.1	-9.1	-2.1	1.8	4.8	8.8	8.2	9.2	12.1	10.3	11.3	7.3	3.9	7.8	1.8	10.3	11.2	9.2	14.2	14.0	13.6	13.1	12.3	9.1	6.2	0.3	-6.8
Vac	LrD	24.3	-11.8	-8.8	-1.8	2.2	5.2	9.2	8.6	9.6	12.6	10.9	11.9	7.9	4.5	8.5	2.4	10.8	11.7	9.6	14.6	14.4	14.1	13.6	12.9	9.7	6.9	1.2	-5.7
Vac	LrD	26.6	-10.2	-7.2	-0.2	3.8	6.8	10.8	10.6	11.6	14.6	13.7	14.7	10.7	7.5	11.4	5.4	13.0	14.0	11.9	16.6	16.5	16.2	15.9	15.3	12.3	9.9	4.8	-1.2
Vac	LrD	23.7	-12.3	-9.3	-2.3	1.7	4.7	8.7	8.0	9.0	12.0	10.1	11.1	7.1	3.6	7.6	1.6	10.1	11.1	9.0	14.0	13.8	13.5	13.0	12.1	8.9	5.9	0.1	-7.2
Vac	LrD	24.1	-12.0	-9.0	-2.0	2.0	5.0	9.0	8.4	9.4	12.4	10.7	11.6	7.6	4.2	8.2	2.2	10.6	11.5	9.4	14.4	14.2	13.9	13.4	12.6	9.4	6.6	0.8	-6.2
Vac	LrD	24.6	-11.6	-8.6	-1.6	2.4	5.4	9.4	8.8	9.8	12.8	11.2	12.2	8.2	4.8	8.8	2.8	11.0	12.0	9.9	14.8	14.6	14.3	13.9	13.1	10.0	7.2	1.6	-5.2
Vac	LrD	27.3	-9.6	-6.6	0.4	4.4	7.4	11.4	11.2	12.2	15.2	14.6	15.6	11.6	8.4	12.4	6.3	13.7	14.7	12.6	17.3	17.1	16.9	16.6	16.0	13.1	10.8	5.9	0.0
Vac	LrD	28.1	-9.0	-6.0	1.0	5.0	8.0	12.0	11.9	12.9	15.9	15.5	16.5	12.5	9.3	13.3	7.3	14.4	15.4	13.3	17.9	17.8	17.6	17.3	16.8	14.0	11.7	6.9	1.3
Vac	LrD	29.0	-8.2	-5.2	1.8	5.8	8.8	12.8	12.7	13.7	16.7	16.6	17.6	13.6	10.5	14.5	8.5	15.3	16.3	14.2	18.8	18.6	18.4	18.1	17.7	15.0	12.8	8.2	2.8
Receiver -214,459 Fl G LrD,lim dB(A) LrD 50.9 dB(A) Sigma(LrD) 0.0 dB(A)																													

OroValley
Contribution spectra - 001 - IDC Blower - Standard: Outdoor SP

Source	Time slice	Sum	25Hz	31.5Hz	40Hz	50Hz	63Hz	80Hz	100Hz	125Hz	160Hz	200Hz	250Hz	315Hz	400Hz	500Hz	630Hz	800Hz	1kHz	1.25kHz	1.6kHz	2kHz	2.5kHz	3.15kHz	4kHz	5kHz	6.3kHz	8kHz	10kHz
		dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
001 - IDC Blower - Standard Tunnel-Facade 01	LrD	0.4					-2.0			-11.7			-6.4			-8.2			-18.6			-31.2			-39.9			-51.9	
001 - IDC Blower - Standard Tunnel-Facade 02	LrD	-0.3					-5.6			-13.4			-7.5			-4.8			-10.4			-20.5			-27.7			-37.4	
001 - IDC Blower - Standard Tunnel-Facade 03	LrD	12.2					6.7			-0.5			4.2			7.9			2.9			-7.5			-15.0			-25.9	
001 - IDC Blower - Standard Tunnel-Facade 04	LrD	-5.2					-8.6			-17.2			-12.3			-11.2			-18.9			-31.6			-41.5			-56.2	
001 - IDC Blower - Standard Tunnel-Roof 01	LrD	7.2					0.3			-7.4			1.6			3.2			-4.0			-14.8			-22.5			-33.8	
001 - IDC Blower - Standard Tunnel-Transmissive area 01	LrD	40.4					18.8			24.2			29.0			35.5			37.3			28.9			21.6			4.6	
001 - IDC Blower - Standard Tunnel-Transmissive area 01	LrD	50.5					21.8			28.3			34.3			43.3			48.0			42.3			38.2			26.5	
Vac	LrD	20.6	-15.0	-12.0	-5.0	-1.0	2.0	6.0	4.9	5.9	8.9	6.9	7.8	3.8	2.1	6.1	0.0	7.9	8.8	6.7	11.0	10.7	10.3	9.6	8.4	4.7	1.0	-6.0	-14.8
Vac	LrD	14.7	-16.9	-14.0	-7.1	-3.2	-0.4	3.4	2.2	2.9	5.5	6.4	6.7	1.9	-1.0	2.0	-5.1	-0.5	-0.6	-3.6	-0.2	-1.5	-2.9	-4.5	-6.6	-11.3	-16.0	-23.9	-33.5
Vac	LrD	13.1	-17.2	-14.4	-7.6	-3.9	-1.2	2.4	1.0	1.4	3.8	5.6	5.7	0.7	-2.5	0.3	-7.0	-4.9	-5.2	-8.4	-5.2	-6.5	-8.0	-9.8	-11.9	-16.6	-21.3	-29.2	-38.3
Vac	LrD	20.5	-15.1	-12.1	-5.1	-1.1	1.9	5.9	4.9	5.8	8.8	6.8	7.7	3.7	2.0	6.0	-0.1	7.8	8.7	6.6	10.9	10.7	10.2	9.5	8.3	4.5	0.8	-6.2	-15.1
Vac	LrD	20.6	-15.0	-12.0	-5.0	-1.0	2.0	5.9	4.9	5.9	8.9	6.8	7.8	3.8	2.0	6.0	0.0	7.8	8.8	6.6	11.0	10.7	10.2	9.5	8.4	4.6	0.9	-6.1	-15.0
Vac	LrD	20.6	-15.0	-12.0	-5.0	-1.0	2.0	6.0	4.9	5.9	8.9	6.8	7.8	3.8	2.1	6.0	0.0	7.9	8.8	6.7	11.0	10.7	10.3	9.5	8.4	4.7	1.0	-6.0	-14.9
Vac	LrD	12.4	-17.7	-15.0	-8.3	-4.6	-2.0	1.6	0.0	0.5	2.8	5.3	5.4	0.3	-2.8	-0.1	-7.4	-6.0	-6.2	-9.5	-6.2	-7.6	-9.1	-10.8	-12.9	-17.7	-22.4	-30.2	-39.3
Vac	LrD	8.7	-19.1	-16.7	-10.3	-7.0	-4.7	-1.5	-2.9	-2.9	-1.0	1.6	1.3	-4.2	-7.6	-5.1	-12.5	-11.4	-11.7	-15.0	-11.3	-11.7	-12.2	-12.8	-13.8	-17.2	-20.3	-26.5	-34.1
Vac	LrD	8.9	-18.9	-16.5	-10.1	-6.8	-4.5	-1.3	-2.7	-2.7	-0.8	1.7	1.4	-4.0	-7.5	-5.0	-12.4	-11.2	-11.5	-14.8	-11.1	-11.5	-12.0	-12.7	-13.6	-17.1	-20.2	-26.4	-34.0
Vac	LrD	9.1	-18.5	-16.0	-9.7	-6.3	-4.1	-0.9	-2.3	-2.3	-0.3	1.8	1.5	-3.9	-7.3	-4.8	-12.3	-10.8	-11.1	-14.4	-10.8	-11.2	-11.7	-12.4	-13.4	-16.9	-20.0	-26.2	-33.8
Vac	LrD	8.5	-19.2	-16.8	-10.4	-7.0	-4.8	-1.5	-3.1	-3.0	-1.1	1.4	1.1	-4.3	-7.8	-5.3	-12.7	-11.5	-11.8	-15.1	-11.6	-12.0	-12.4	-13.1	-14.1	-17.6	-20.8	-27.1	-34.9
Vac	LrD	8.6	-19.3	-16.8	-10.4	-7.1	-4.8	-1.6	-3.1	-3.0	-1.1	1.5	1.2	-4.3	-7.7	-5.2	-12.6	-11.5	-11.8	-15.1	-11.5	-11.9	-12.4	-13.0	-14.0	-17.5	-20.6	-26.9	-34.6
Vac	LrD	8.6	-19.3	-16.8	-10.4	-7.1	-4.8	-1.6	-3.1	-3.0	-1.1	1.5	1.2	-4.3	-7.7	-5.2	-12.6	-11.5	-11.8	-15.1	-11.4	-11.8	-12.3	-12.9	-13.9	-17.3	-20.5	-26.7	-34.3
Vac	LrD	10.0	-17.6	-15.1	-8.6	-5.3	-3.0	0.3	-1.1	-1.1	0.9	2.3	2.0	-3.4	-6.8	-4.3	-11.8	-9.6	-9.9	-13.2	-9.6	-10.3	-11.0	-11.8	-12.9	-16.4	-19.6	-25.9	-33.5
Vac	LrD	11.9	-18.6	-15.9	-9.3	-5.6	-3.0	0.6	-0.9	-0.5	1.9	5.0	5.1	0.1	-3.1	-0.3	-7.6	-6.6	-6.9	-10.1	-6.8	-8.2	-9.7	-11.4	-13.6	-18.3	-23.1	-31.0	-40.0
Vac	LrD	12.0	-18.4	-15.7	-9.1	-5.4	-2.8	0.8	-0.8	-0.3	2.0	5.0	5.2	0.1	-3.0	-0.3	-7.5	-6.5	-6.8	-10.0	-6.7	-8.1	-9.6	-11.3	-13.5	-18.2	-22.9	-30.9	-39.8
Vac	LrD	12.1	-18.1	-15.4	-8.7	-5.1	-2.5	1.1	-0.5	0.0	2.3	5.1	5.2	0.2	-3.0	-0.2	-7.5	-6.4	-6.6	-9.8	-6.6	-7.9	-9.4	-11.2	-13.3	-18.1	-22.7	-30.6	-39.6
Vac	LrD	14.6	-16.1	-13.4	-6.6	-2.8	-0.1	3.6	2.8	3.4	6.0	5.6	5.8	0.9	-1.8	1.2	-5.9	-0.2	-0.3	-3.4	0.0	-1.2	-2.4	-3.8	-5.5	-9.7	-13.5	-20.4	-28.6
Vac	LrD	23.0	-13.4	-10.4	-3.4	0.6	3.6	7.6	7.0	8.0	11.0	9.6	10.5	6.5	4.8	8.7	2.7	10.1	11.0	8.9	13.2	12.9	12.6	12.0	11.1	7.8	4.7	-1.4	-8.9
Vac	LrD	23.0	-13.4	-10.4	-3.4	0.6	3.6	7.6	7.0	8.0	11.0	9.5	10.5	6.5	4.7	8.7	2.7	10.0	11.0	8.9	13.1	12.9	12.6	12.0	11.1	7.8	4.7	-1.4	-9.0
Receiver R4 FI G LrD,lim dB(A) LrD 47.4 dB(A) Sigma(LrD) 0.0 dB(A)																													
001 - IDC Blower - Standard Tunnel-Facade 01	LrD	8.7					4.2			-3.0			0.3			3.4			-0.3			-10.2			-18.3			-31.2	

OroValley
Contribution spectra - 001 - IDC Blower - Standard: Outdoor SP

Source	Time slice	Sum	25Hz	31.5Hz	40Hz	50Hz	63Hz	80Hz	100Hz	125Hz	160Hz	200Hz	250Hz	315Hz	400Hz	500Hz	630Hz	800Hz	1kHz	1.25kHz	1.6kHz	2kHz	2.5kHz	3.15kHz	4kHz	5kHz	6.3kHz	8kHz	10kHz
		dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
001 - IDC Blower - Standard Tunnel-Facade 02	LrD	-4.0					-8.0			-16.1			-11.2			-9.9			-14.3			-24.0			-32.4			-44.9	
001 - IDC Blower - Standard Tunnel-Facade 03	LrD	-1.9					-4.2			-14.1			-8.9			-10.8			-21.8			-33.7			-42.9			-56.9	
001 - IDC Blower - Standard Tunnel-Facade 04	LrD	-6.6					-9.9			-18.3			-13.8			-13.4			-19.7			-31.1			-41.2			-57.7	
001 - IDC Blower - Standard Tunnel-Roof 01	LrD	4.6					-2.2			-9.9			-0.9			0.7			-7.4			-17.4			-25.5			-38.7	
001 - IDC Blower - Standard Tunnel-Transmissive area 01	LrD	40.0					18.1			23.6			27.8			33.5			37.5			30.2			22.3			3.3	
001 - IDC Blower - Standard Tunnel-Transmissive area 01	LrD	46.0					19.7			25.7			30.5			37.5			43.7			38.4			32.8			17.6	
Vac	LrD	25.0	-11.8	-8.8	-1.8	2.2	5.2	9.2	8.7	9.6	12.6	11.0	12.0	8.0	4.6	8.5	2.5	11.8	12.7	10.6	15.6	15.4	15.1	14.5	13.7	10.4	7.4	1.6	-5.5
Vac	LrD	25.0	-11.7	-8.7	-1.7	2.3	5.3	9.3	8.7	9.7	12.7	11.1	12.1	8.0	4.7	8.6	2.6	11.8	12.8	10.7	15.7	15.5	15.1	14.6	13.7	10.4	7.5	1.7	-5.3
Vac	LrD	25.0	-11.7	-8.7	-1.7	2.3	5.3	9.3	8.7	9.7	12.7	11.1	12.1	8.1	4.7	8.7	2.6	11.8	12.8	10.7	15.7	15.5	15.1	14.6	13.7	10.4	7.5	1.7	-5.3
Vac	LrD	24.1	-12.0	-9.0	-2.0	2.0	5.0	9.0	8.4	9.4	12.4	10.6	11.6	7.6	4.2	8.1	2.1	10.5	11.5	9.4	14.4	14.2	13.9	13.4	12.6	9.4	6.5	0.7	-6.3
Vac	LrD	24.2	-11.9	-8.9	-1.9	2.1	5.1	9.1	8.5	9.5	12.5	10.8	11.7	7.7	4.3	8.3	2.3	10.6	11.6	9.5	14.5	14.3	14.0	13.5	12.7	9.5	6.7	0.9	-6.0
Vac	LrD	24.3	-11.8	-8.8	-1.8	2.2	5.2	9.2	8.6	9.6	12.6	10.9	11.9	7.8	4.4	8.4	2.4	10.7	11.7	9.6	14.6	14.4	14.1	13.6	12.8	9.6	6.8	1.1	-5.8
Vac	LrD	25.1	-11.7	-8.7	-1.7	2.3	5.3	9.3	8.7	9.7	12.7	11.1	12.1	8.1	4.7	8.7	2.6	11.8	12.8	10.7	15.7	15.5	15.1	14.6	13.7	10.5	7.5	1.7	-5.3
Vac	LrD	23.7	-13.7	-10.7	-3.7	0.3	3.3	7.3	6.3	9.5	12.5	10.0	11.0	6.9	3.3	7.3	1.3	10.5	11.4	9.3	14.5	14.2	13.8	13.1	12.1	8.5	5.0	-1.7	-10.0
Vac	LrD	23.8	-13.6	-10.6	-3.6	0.4	3.4	7.4	6.3	9.5	12.5	10.0	11.0	7.0	3.4	7.3	1.3	10.5	11.4	9.3	14.5	14.2	13.8	13.2	12.1	8.5	5.1	-1.6	-9.9
Vac	LrD	23.8	-13.6	-10.6	-3.6	0.4	3.4	7.4	6.3	9.5	12.5	10.0	11.0	7.0	3.4	7.4	1.3	10.5	11.4	9.3	14.5	14.3	13.8	13.2	12.1	8.5	5.1	-1.6	-9.9
Vac	LrD	23.5	-13.8	-10.8	-3.8	0.2	3.2	7.2	6.1	7.1	12.4	9.8	10.8	6.8	3.2	7.1	1.1	10.3	11.2	9.1	14.4	14.1	13.6	13.0	11.9	8.3	4.8	-2.0	-10.4
Vac	LrD	23.6	-13.7	-10.7	-3.7	0.3	3.3	7.3	6.2	7.2	12.4	9.9	10.9	6.8	3.2	7.2	1.2	10.4	11.3	9.2	14.4	14.1	13.7	13.0	12.0	8.4	4.9	-1.8	-10.2
Vac	LrD	23.7	-13.7	-10.7	-3.7	0.3	3.3	7.3	6.2	9.5	12.5	9.9	10.9	6.9	3.3	7.3	1.2	10.4	11.4	9.2	14.5	14.2	13.8	13.1	12.0	8.4	5.0	-1.7	-10.1
Vac	LrD	23.8	-13.6	-10.6	-3.6	0.4	3.4	7.4	6.3	9.5	12.5	10.0	11.0	7.0	3.4	7.3	1.3	10.5	11.4	9.3	14.5	14.2	13.8	13.2	12.1	8.5	5.1	-1.6	-9.9
Vac	LrD	24.9	-11.8	-8.8	-1.8	2.2	5.2	9.2	8.6	9.6	12.6	10.9	11.9	7.9	4.5	8.5	2.5	11.7	12.7	10.6	15.6	15.4	15.0	14.5	13.6	10.3	7.3	1.5	-5.6
Vac	LrD	25.0	-11.7	-8.7	-1.8	2.2	5.2	9.2	8.7	9.7	12.7	11.0	12.0	8.0	4.6	8.6	2.6	11.8	12.7	10.6	15.7	15.4	15.1	14.5	13.7	10.4	7.4	1.6	-5.4
Vac	LrD	25.0	-11.7	-8.7	-1.7	2.3	5.3	9.3	8.7	9.7	12.7	11.1	12.1	8.0	4.7	8.6	2.6	11.8	12.8	10.7	15.7	15.5	15.1	14.6	13.7	10.4	7.5	1.7	-5.3
Vac	LrD	23.7	-13.7	-10.7	-3.7	0.3	3.3	7.3	6.3	9.5	12.5	10.0	11.0	6.9	3.3	7.3	1.3	10.5	11.4	9.3	14.5	14.2	13.8	13.1	12.1	8.5	5.0	-1.6	-10.0
Vac	LrD	21.7	-13.7	-10.7	-3.7	0.3	3.3	7.3	6.3	7.2	10.2	7.8	8.8	4.7	1.2	5.1	-0.9	8.2	9.1	7.0	12.2	12.0	11.5	10.9	9.9	6.3	2.9	-3.6	-11.9
Vac	LrD	21.6	-13.7	-10.7	-3.7	0.3	3.3	7.3	6.2	7.2	10.2	7.7	8.7	4.7	1.1	5.0	-1.0	8.1	9.1	7.0	12.2	11.9	11.5	10.8	9.8	6.2	2.8	-3.8	-12.0