J Noise Study

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NOISE STUDY

Glamis Specific Plan
County of Imperial

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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 analysis has been completed to determine impacts, which may be associated with the construction or operation of the proposed Glamis Specific Plan (GSP) project located on a 142-acre project site located within the designated Glamis Specific Plan Area (GSPA).

The project would maintain similar operations to that of the existing operations though would expand services to the existing seasonal influx of patrons recreating at the Glamis Dunes off-highway vehicle (OHV) areas surrounding the project. The Project's proposed land uses are intended to serve the existing patrons of the dunes and will not operate year-round due to the long distance from population bases and the extreme heat. Operations are expected during the months of October through May or roughly 67% of the year.

Transportation Noise Levels – Onsite

The project proposes primarily commercial uses. Based on the project's traffic study the 2050 traffic volumes along Highway 78 are anticipated to only be 3,360 average daily trips (ADT) near the site. This 2050 traffic volume would equate to the 60 dBA CNEL noise contour being roughly 150 feet from the centerline of Highway 78 and normally acceptable at proposed outdoor uses.

Offsite Project Related Transportation Noise Levels

To determine if direct or cumulative off-site noise level increases associated with the development of the proposed project would create noise impacts. The traffic volumes for the existing conditions were compared with the traffic volume increase of existing plus the proposed project. The project's traffic assessment states that the proposed project site conservatively could generate 470 ADT initially and 1,750 ADT at full buildout (Source: Traffic Analysis for the Glamis Specific Plan – LLG, 2019). The existing ADT volumes adjacent to the project site are 1,920 ADT on Highway 78. Typically, it requires a project to double (or add 100%) to the traffic volumes to have a direct impact of 3 dBA CNEL or be a major contributor to the cumulative traffic volumes. Cumulatively the traffic volumes along the Highway 78 are expected to increase but the project related increase would not double the traffic volumes and therefore no impacts are anticipated.

Construction Noise Levels

Based on the County of Imperial's Noise Element of the General Plan, construction noise from a single piece of equipment or a combination of equipment, shall not exceed 75 dB L_{eq}, when averaged over an eight (8) hour period, and measured at the nearest sensitive receptor. Construction noise is not anticipated to exceed 75 dB L_{eq}, when averaged over an eight (8) hour period at adjacent land uses. Construction equipment operation will also be limited to the hours

of 7 a.m. to 7 p.m., Monday through Friday, and 9 a.m. to 5 p.m. Saturday per the County's requirements. Therefore, a less than significant noise impact would result from construction activities. To further minimize noise from construction activities, the construction equipment should be equipped with properly operating and maintained mufflers. Therefore, a less than significant noise impact would result from construction activities.

Operational Noise Levels

The Property Line Noise Limits listed in Table 9 of the County's General Plan Noise Element and the County's Ordinance, Title 9, Division 7 (Noise Abatement and Control) Section 90702.00 Subsection A provides acceptable Sound level limits based on the property zoning. The existing zoning designation for the project site is Open Space/Preservation (S-2) and a very small area that is General Commercial (C-2). The general area of the Glamis Beach Store (within APN 039-310-029) is zoned as C-2, while the remainder of the project site is zoned as S-2. The project site is surrounded by the Bureau of Land Management (BLM) land uses on all sides. The proposed GSP includes a General Plan Amendment (GPA) and Change of Zone (CZ) for County approval. The GSP proposes the establishment of Commercial/Recreational (CR) designated zoning based upon different levels of allowable land use intensity. Also, the GSP proposes a Change of Zone from S-2 (Open Space/Preservation) to S-1 (Open Space/Recreation) for the approximate 1-acre parcel on the southeast side of the project site.

Based upon the noise levels determined for the Project none of the proposed noise sources exceeds the property line standards at the residential property lines and the operational noise levels will comply with the County's noise standards at surrounding residences. Therefore, a less than significant noise impact would result from operational activities.

1.0 PROJECT INTRODUCTION

The purpose of this Noise study is to determine noise impacts, if any, to the Project from off-site sources (i.e. vehicular traffic along adjacent roadways and the nearby railroad tracks) and impacts from the Project operations (i.e. traffic generated from Project). Should impacts be determined, the intent of this study would be to recommend suitable mitigation measures to reduce impacts to below a level of significance. The project would maintain similar operations to that of the existing operations though would expand services to the existing seasonal influx of patrons recreating at the Glamis Dunes off-highway vehicle (OHV) areas surrounding the project. For this reason, OHVs are not specifically analyzed as it is part of the ambient conditions.

1.1 Project Location

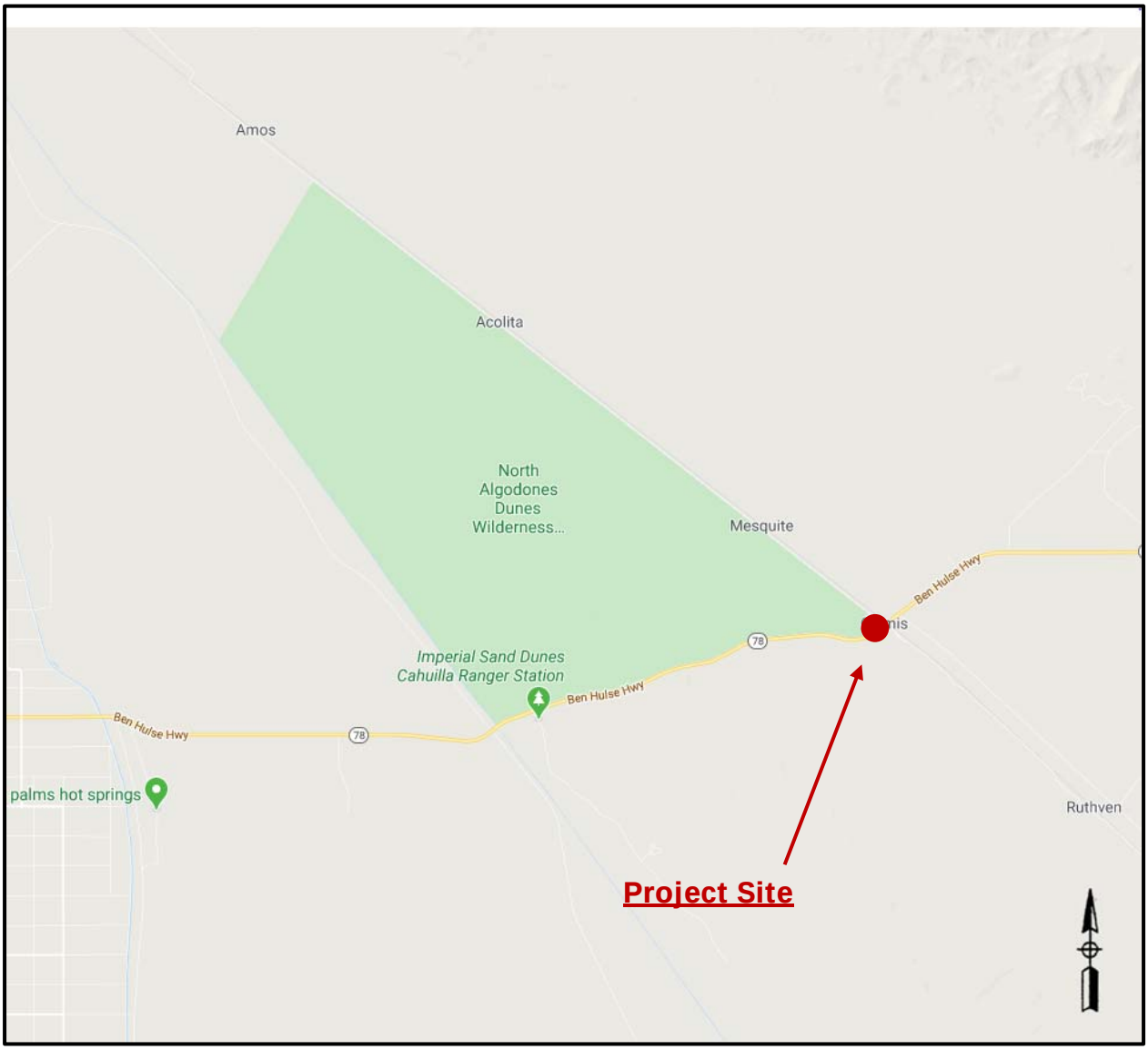
The GSP area is located approximately 27 miles east of Brawley at the intersection of State Route 78 (SR 78) and the Union Pacific Railroad (UPRR) in Imperial County, California. Geographically, the project site is located within the lower Colorado River Sonoran Desert Region in the east central portion of Imperial County (County) within the Salton Sea Air Basin (SSAB). A Project vicinity map and aerial image of the existing site is provided in Figures 1-A of this report.

1.2 Project Description

The approximately 142-acre GSP is located and contained within the County's designated Glamis Specific Plan Area (GSPA). The GSPA allows for the development and creation of a Specific Plan in accordance with GSPA design criteria, objectives and policies as outlined in the County's General Plan Land Use Element. The existing zoning designation for the project site is Open Space/Preservation (S-2) and a very small area that is General Commercial (C-2). The general area of the Glamis Beach Store (within APN 039-310-029) is zoned as C-2, while the remainder of the project site is zoned as S-2. The project site is surrounded by the Bureau of Land Management (BLM) land uses on all sides.

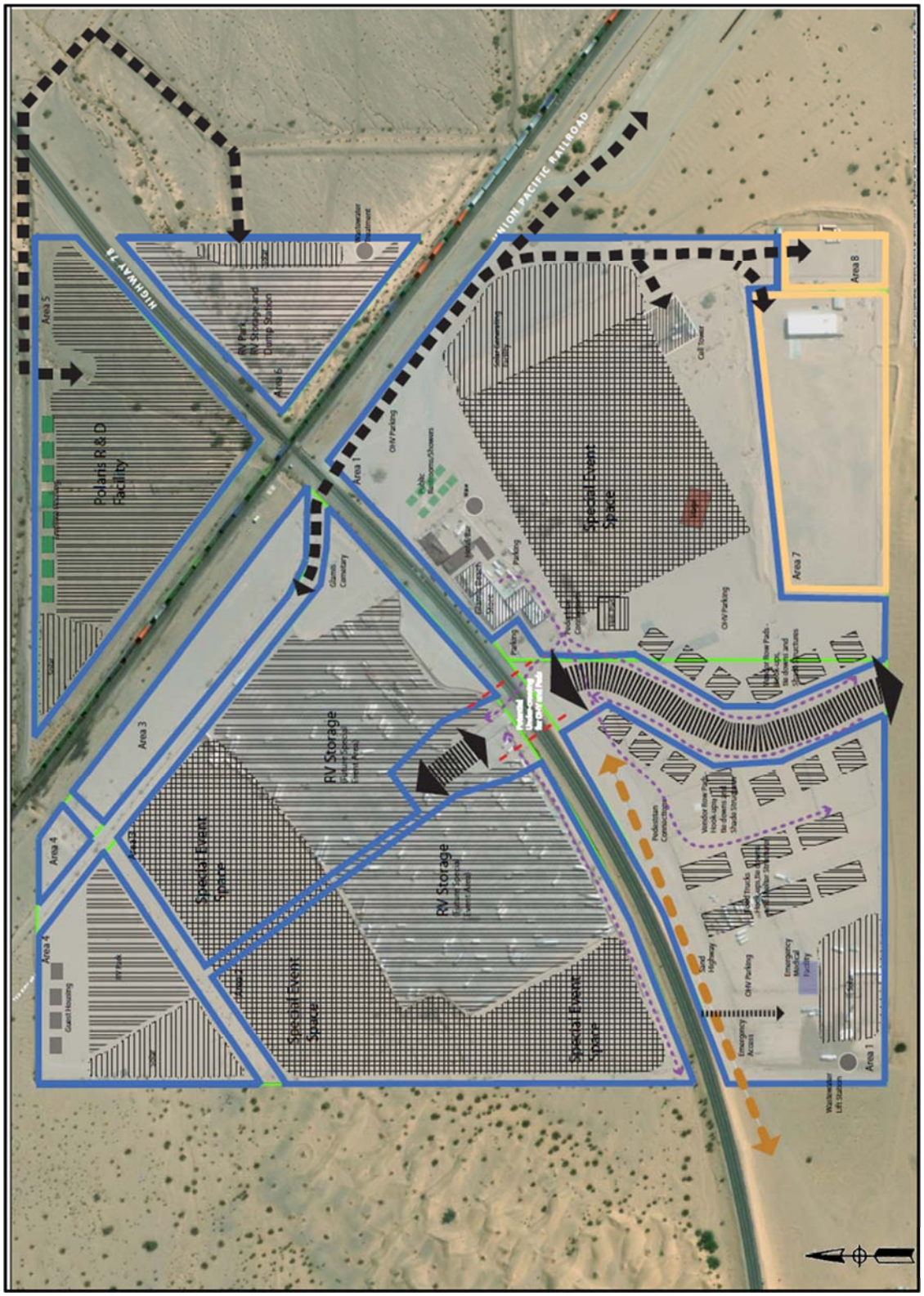
The proposed GSP includes a General Plan Amendment (GPA) and Change of Zone (CZ) for County approval. The GSP proposes the establishment of Commercial/Recreational (CR) designated zoning based upon different levels of allowable land use intensity. Also, the GSP proposes a Change of Zone from S-2 (Open Space/Preservation) to S-1 (Open Space/Recreation) for the approximate 1-acre parcel on the southeast side of the project site. The phasing plan component of the GSP would phase the development so that more intense land uses are developed incrementally over time within the various proposed zones. Figure 1-B depicts the Conceptual Site Plan.

Figure 1-A: Project Vicinity Map and Project Footprint



Source: Google Maps, 2020

Figure 1-B: Project Area Overview Map



Source: (The Altum Group, 2019)

Project Phasing

Development within the GSP is intended to occur over a span of approximately 20 to 50 years and will depend on market conditions, availability of supporting infrastructure, and other factors. Four (4) phases of development are proposed though do not specifically call for any detailed development scheme but offer a general guideline on construction precedence. Given this, the primary purpose of the GSP is to modify the allowable land uses on the site, not to establish a detailed parcel by parcel development scheme. The general phasing is shown below.

Phase One

Phase One would permit uses which could include restaurant(s), bar(s), repair shop(s), a vendor row area and event area. Additionally, the site could be developed with a possible research and development (R&D) facility an RV park and some employee housing. Phase One would also include the construction of water infrastructure to include both potable water treatment to treat ground water as well as a wastewater treatment facility and upgrades to the electrical system which would include connection to power lines located 7.2 miles from the project site and some additional renewable energy to reduce GHG emissions or construction of a fully islanded 100% renewable energy microgrid (wind or PV including battery backup). The existing site uses diesel generators which would be phased out once electrical services are updated.

Phase Two

Phase Two would most likely be within Land Use Area 1, immediately west of Phase One. Phase Two development would serve as an extension to development occurring within Phase One by incorporating land uses permitted under the CR Zone similar to those permitted in Phase One. Phase Two would incorporate the Glamis Mainstreet to serve as a circulation corridor for Off- Highway Vehicle (OHV) traffic to and from the dunes and to Phase Four (Areas 2, 3, and 4) located directly north of SR 78.

Phase Three

Phase Three, located on the northeast side of the UPRR and bisected by SR 78, would be located within Land Use Area 5 and Land Use Area 6. No major public use facilities would be considered for development within these two APNs to discourage OHV traffic from crossing the UPPR to access these areas. Phase Three however, would serve for the development of uses relevant to employee housing, RV park, and/or an R&D facility and possible PV Solar array system.

Phase Four

Phase Four, located on the north side of SR 78, would be located within Land Use Areas 2, 3 and 4. The Glamis Mainstreet corridor is proposed to provide an optional circulation interconnection between Phase One and Phase Four. All Phasing as proposed will be impacted by possible requirements that Caltrans may impose along SR 78 and for crossing the UPRR. The Imperial County Transportation Commission (ICTC) is currently conducting a feasibility study for a safe crossing over UPRR for off road vehicles either at SR 78 or Wash 10 or some other location, and additional information will be provided once the feasibility study is complete. Overall, the primary objective of the GSP is to formalize the site and provide services and amenities.

Special Events

The GSP area and greater Imperial Sand Dunes area has been historically utilized for OHV recreational events and activities. The applicant has been operating a special recreational event named "Camp RZR" since 2007 that attracts as many as 20,000 visitors each year. This event usually occurs during the weekend before Halloween. In 2008, the County of Imperial issued a Conditional Use Permit (CUP) to the applicant to operate a "seasonal event area" for special events such as Camp RZR on their private property within the ISDRA. Since 2008, the applicant has coordinated with the County, BLM, Imperial County Fire Department, Imperial County Sherriff's Office, California Highway Patrol and other affected public agencies to ensure that proper special event protocols and procedures are enforced to address key issues such as traffic, safety, emergency procedures, restrooms, and other related special event factors.

The GSP will include provisions for additional special events to be held in addition to the longstanding Camp RZR. In concert with the existing operational protocols, procedures and guidelines for special events, the GSP will provide performance standards that will meet the guidelines/requirements of the affected public agencies (i.e., Imperial County Fire Department and Sheriff's Office) to address and ensure compliance with key special event-related issues. Furthermore, the GSP's performance standards will incorporate the BLM's Special Recreation Permit Event Operations Plan Checklist to ensure that operations of the proposed special annual events comply with the special event guidelines of the BLM. Special events that may be held at this site can be sponsored by the owner or by other entities provided they are first approved by the owner. Events can vary and be combined with off-site activities where portions of the event are on site while the remainder is on adjacent BLM lands. These events may include concerts, races, social gatherings, sporting activities, educational activities, training activities, and may include pyrotechnics and other entertainment venues.

Construction

Construction activities for Phase 1 through Phase 4 would occur within a timeframe of 20 to 50 years. The project description calls for the construction of a solar or wind farm development with a battery backup system for power reliability and an option to receive power from as far as 7.2 miles away. For power stability the connection the utility provider would be the most reliable.

Operations

Full buildout operations of the GSP is intended to occur over a span of approximately 20 to 50 years. However, in order to provide a conservative assessment, the entire Project was assumed and added to baseline conditions and was assumed to be built out by 2024.

The project would maintain similar operations to that of the existing operations though would expand services to the existing seasonal influx of patrons recreating at the Glamis Dunes off-highway vehicle (OHV) areas surrounding the project. The project traffic study indicated that the buildout condition would generate roughly 1,750 ADT (LLG Engineers, 2019) over existing operations from this seasonal community. Also, it should be noted that the due to the historic travel patterns, the bulk of the traffic would be Friday through Monday. Therefore, higher noise levels are expected from weekend traffic volumes.
The Project's proposed land uses are intended to serve the existing patrons of the dunes and will not operate year-round due to the long distance from population bases and the extreme heat.

2.0 ACOUSTICAL FUNDAMENTALS

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.

A vehicles noise level is a combination of the noise produced by a vehicle's engine, exhaust, and tires. The cumulative traffic noise levels along a roadway segment are based on three primary factors: the amount of traffic, the travel speed of the traffic, and the vehicle mix ratio or number of medium and heavy trucks. The intensity of traffic noise is increased by higher traffic volumes, greater speeds, and increased number of trucks.

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. Alternately, fixed/point sources radiate outward uniformly as it travels away from the source. Their sound levels attenuate or drop off at a rate of 6 dBA for each doubling of distance.

3.0 SIGNIFICANCE THRESHOLDS AND STANDARDS

3.1 Operational Standards

The Property Line Noise Limits listed in Table 9 of the County's General Plan Noise Element and the County's Ordinance, Title 9, Division 7 (Noise Abatement and Control) Section 90702.00 Subsection A provides acceptable Sound level limits based on the property zoning. The applicable property line sound level limits are provided in Table 3-1 below and shall apply to noise generation from one property to an adjacent property. The standards imply the existence of a sensitive receptor on the adjacent, or receiving, property. In the absence of a sensitive receptor, an exception or variance to the standards may be appropriate. These standards do not apply to construction noise.

Table 3-1: Property Line Noise Level Limits

Zone	Time	Applicable Limit One-hour Average Sound Level (Decibels)
Residential Zones	7 a.m. to 10 p.m.	50
	10 p.m. to 7 a.m.	45
Multi-residential Zones	7 a.m. to 10 p.m.	55
	10 p.m. to 7 a.m.	50
Commercial Zones	7 a.m. to 10 p.m.	60
	10 p.m. to 7 a.m.	55
Light Industrial/Industrial Park Zones	Anytime	70
General Industrial Zones	Anytime	75
When the noise-generating property and the receiving property have different uses, the more restrictive standard shall apply. When the ambient noise level is equal to or exceeds the Property Line noise standard, the increase of the existing or proposed noise shall not exceed 3 dB L_{eq}. The sound level limit between two zoning districts (different land uses) shall be measured at the property line between the properties. Fixed-location public utility distribution or transmission facilities located on or adjacent to a property line shall be subject to the noise level limits of subsection A of this section, measured at or beyond six feet from the boundary of the easement upon which the equipment is located. This section does not apply to noise generated by helicopters at heliports or helistops authorized by a conditional use permit. This section does not apply to noise generated by standard agricultural field operating practices such as planting and harvesting of crops. The County of Imperial has a Right to Farm Ordinance (1031) which serves as recognition to agricultural practices to new development. Agricultural/industrial operations shall comply with the noise levels prescribed under the general industrial zones.		

Source: County of Imperial Ordinance, Title 9, Division 7 (Noise Abatement and Control)

These standards are enforced through the County's code enforcement program on the basis of complaints received from persons impacted by excessive noise. It must be acknowledged that a noise nuisance may occur even though an objective measurement with a sound level meter is not available. In such cases, the County may act to restrict disturbing, excessive, or offensive noise which causes discomfort or annoyance to reasonable persons of normal sensitivity residing in an area.

3.2 Construction Noise Standards

Based on the County of Imperial's Noise Element of the General Plan, construction noise from a single piece of equipment or a combination of equipment, shall not exceed 75 dB L_{eq}, when averaged over an eight (8) hour period, and measured at the nearest sensitive receptor. This standard assumes a construction period, relative to an individual sensitive receptor of days or weeks. In cases of extended length construction times, the standard may be tightened so as not to exceed 75 dB L_{eq} when averaged over a one (1) hour period.

Construction equipment operation shall be limited to the hours of 7 a.m. to 7 p.m., Monday through Friday, and 9 a.m. to 5 p.m. Saturday. No commercial construction operations are permitted on Sunday or holidays. In cases of a person constructing or modifying a residence for himself/herself, and if the work is not being performed as a business, construction equipment operations may be performed on Sundays and holidays between the hours of 9 a.m. and 5 p.m. Such non-commercial construction activities may be further restricted where disturbing, excessive, or offensive noise causes discomfort or annoyance to reasonable persons of normal sensitivity residing in an area.

3.3 Significant Increase of Ambient Noise Levels

The Noise/Land Use Compatibility Guidelines are not intended to allow the increase of ambient noise levels up to the maximum without consideration of feasible noise reduction measures. The following guidelines are established by the County of Imperial for the evaluation of significant noise impact.

a. If the future noise level after the Project is completed will be within the "normally acceptable" noise levels shown in the Noise/Land Use Compatibility Guidelines, but will result in an increase of 5 dB CNEL or greater, the Project will have a potentially significant noise impact and mitigation measures must be considered.

b. If the future noise level after the Project is completed will be greater than the "normally acceptable" noise levels shown in the Noise/Land Use Compatibility Guidelines, a noise increase of 3 dB CNEL or greater shall be considered a potentially significant noise impact and mitigation measures must be considered.

4.0 NOISE ENVIRONMENT

4.1 Existing Noise Environment Onsite

Noise measurements were taken June 6, 2019 using a Larson-Davis Model LxT Type 1 precision sound level meter, programmed, in "slow" mode, to record noise levels in "A" weighted form. The sound level meter and microphone were mounted on a tripod, five feet above the ground and equipped with a windscreen during all measurements. The sound level meter was calibrated before and after the monitoring using a Larson-Davis calibrator, Model CAL 200.

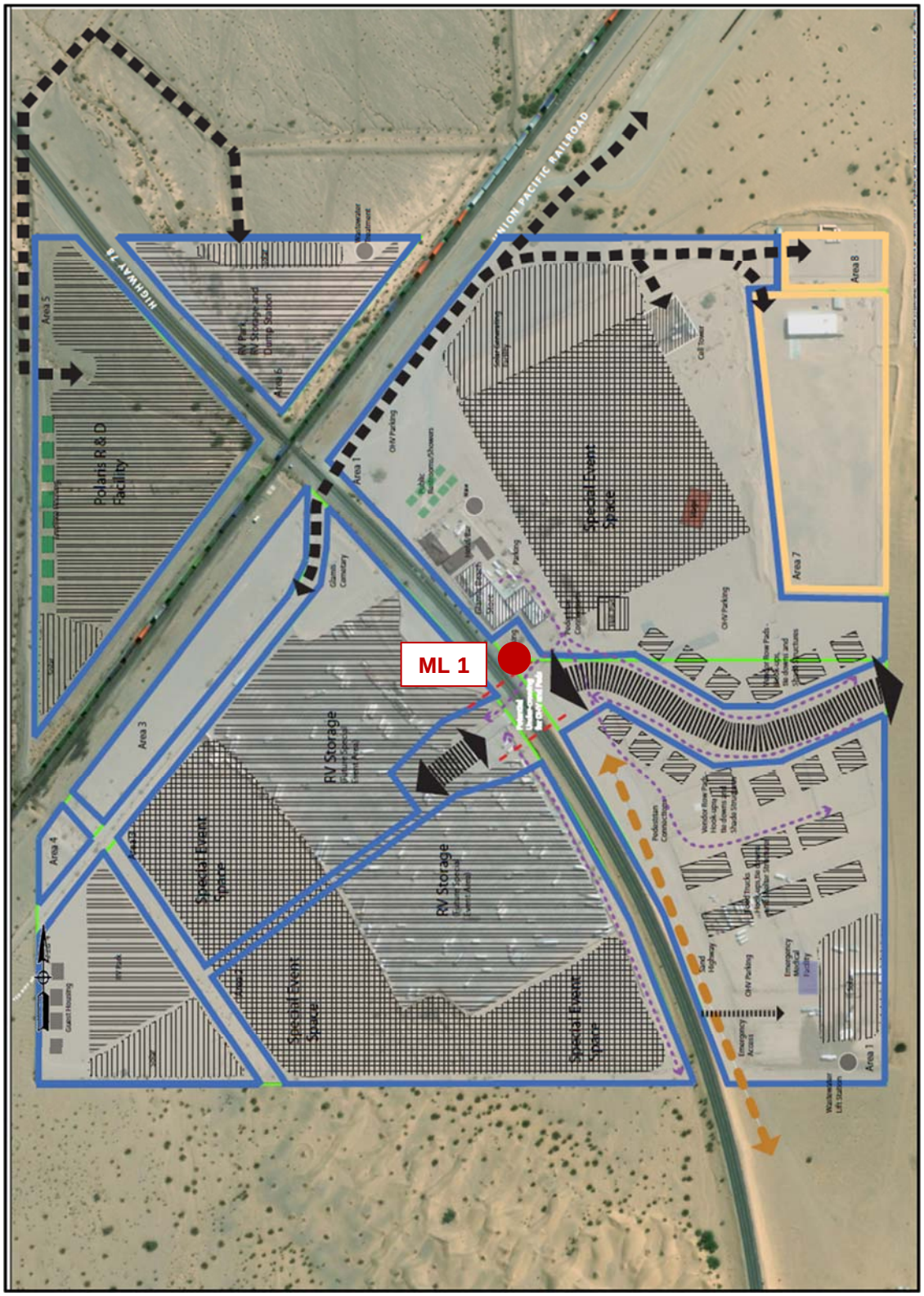
Due to site constraints and fencing, monitoring location 1 (ML1) was located along Highway 78. The result of the noise level measurements are presented in Table 4-1. The noise measurement was monitored for a time period of 15 minutes. The existing noise levels in the project area consisted primarily of traffic from adjacent Highway 78. The ambient Leq noise level measured in the area of the project during the morning hours was found to be roughly 48 dBA Leq. The statistical indicators Lmax, Lmin, L10, L50 and L90, are given for the monitoring location. As can be seen from the L90 data, 90% of the time the noise level is 43 dBA. The traffic volumes consisted of several dozen passenger vehicles and 4 larger trucks along Highway 78 and no OHV activities were occurring due to the time of the year but there were some gusty wind conditions that increased the ambient noise levels. The noise monitoring location is provided graphically in Figure 4-A on the following page.

Table 4-1: Measured Ambient Noise Levels

Measurement Identification	Location	Time	Noise Levels (dBA)					
			Leq	Lmin	Lmax	L10	L50	L90
M1	Along East Broadway	3:15–3:30 p.m.	48.2	41.9	72.7	48.5	44.4	42.5
Source: Ldn Consulting, Inc. June 6, 2019								

A noise study and survey were conducted for the Final Environmental Impact Report Heber Dunes SVRA General Plan, December 2011 by AECOM. The survey was conducted between Friday, April 17 and Sunday, April 19, 2009, to document the existing noise environment at various locations in the vicinity. During the survey, average daytime hourly noise levels within the project area ranged from approximately 55 dBA to 63 dBA Leq, with maximum noise levels that ranged from 60 dBA to 88 dBA Lmax. Additional information is provided below.

Figure 4-A: Ambient Noise Monitoring Location



According to the Final Environmental Impact Report Heber Dunes SVRA, the primary noise sources at the noise measurement locations for the Heber Dunes SVRA were OHV operations for measurement locations on the project site and adjacent to the Heber Dunes SRVA boundary. At the time of the measurements, OHV use was moderate and it is estimated that peak use would be approximately double the activity at the time the measurements were conducted; thus, hourly noise levels during peak activity would likely be 3 dBA higher than the measured noise levels. Maximum noise levels, as they are associated with individual events, would not likely increase with the increased activity.

4.2 Offsite Project Related Transportation Noise Levels

To determine if direct or cumulative off-site noise level increases associated with the development of the proposed project would create noise impacts. The traffic volumes for the existing conditions were compared with the traffic volume increase of existing plus the proposed project. The project's traffic assessment states that the proposed project site conservatively could generate 470 average daily trips (ADT) initially and 1,750 ADT at full buildout (Source: Traffic Analysis for the Glamis Specific Plan – LLG, 2019). The existing ADT volumes adjacent to the project site are 1,920 ADT on Highway 78. Typically, it requires a project to double (or add 100%) to the traffic volumes to have a direct impact of 3 dBA CNEL or be a major contributor to the cumulative traffic volumes. Cumulatively the traffic volumes along the Highway 78 are expected to increase but the project related increase would not double the traffic volumes and therefore no impacts are anticipated. It should be noted: there are no existing sensitive uses located near the project site. The nearest use, is a residence, located approximately 15 miles to the west along Highway 78.

4.3 Transportation Related Onsite Noise

The project proposes primarily commercial uses. Based on the project's traffic study the 2050 traffic volumes along Highway 78 are anticipated to only be 3,360 ADT near the site. This 2050 traffic volume would equate to the 60 dBA CNEL noise contour being roughly 150 feet from the centerline of Highway 78, which is normally acceptable at sensitive outdoor uses. Additionally, the Southern Pacific Railway is the primary source of railroad transportation noise in the County. The main line right-of-way runs from the Riverside County border, just east of the Salton Sea, southeast to Niland. From Niland, the main line continues southeast to Yuma, Arizona.

Based on the County General Plan, the railway noise levels could be 74 dBA CNEL at 100 feet and 60 dBA CNLE at 700 feet. The County normally acceptable noise standards are 60 dBA CNEL for residential and hotel uses. The County has a conditionally acceptable threshold of 70 dBA CNEL for residential uses and 75 dBA CNEL for hotels uses.

The Union Pacific railroad bisects the site, and the site is surround by OHV uses. If sensitive uses, hotels for example are developed, a site specific noise study should be performed to determine if noise reductions are needed at proposed outdoor use areas to comply with the above stated standards and what noise reductions are needed to reduce interior noise to an acceptable level of 45 dBA CNEL.

5.0 CONSTRUCTION NOISE LEVELS

5.1 County of Imperial Construction Standards

Construction noise, from a single piece of equipment or a combination of equipment, shall not exceed 75 dB L_{eq}, when averaged over an eight (8) hour period, and measured at the nearest sensitive receptor. This standard assumes a construction period, relative to an individual sensitive receptor of days or weeks. In cases of extended length construction times, the standard may be tightened so as not to exceed 75 dB L_{eq} when averaged over a one (1) hour period. Construction equipment operation shall be limited to the hours of 7 a.m. to 7 p.m., Monday through Friday, and 9 a.m. to 5 p.m. Saturday. No commercial construction operations are permitted on Sunday or holidays.

5.2 Project Construction Noise

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 and 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.

Construction activities for Phase 1 through Phase 4 would occur within a timeframe of 20 to 50 years. The construction scenario includes construction of a conceptual scenario which includes multiple uses to include a water/wastewater infrastructure, potentially a hotel use, retail uses, additional employee residential uses, research and development uses, renewables such as photovoltaics or wind turbines to offset electrical usage and additional recreational vehicle parking.

The noise levels utilized in this analysis for the mass grading are based upon the anticipated list of equipment proved by the Project Applicant and is shown in Table 5-1 below. Most of the construction activities for Phases will consist of clearing and grubbing the site and the

trenching of utilities. The equipment is anticipated to be spread out over the entire site of each Phase with some equipment potentially operating at or near the property line while the rest of the equipment may be located over 500 feet from the same property line. This would result in an acoustical center for the grading operation of more than 200 feet from the nearest property line. It should be noted: no sensitive uses existing adjacent to or near the site. Construction activities from subsequent Phases may potentially elevate noise levels at the previous Phases if constructed with sensitive uses (i.e., employee housing).

Table 5-1: Construction Grading Noise Levels

Construction Equipment	Quantity	Duty Cycle (Hours/Day)	Source Level @ 50-Feet (dBA)	Cumulative Noise Level @ 50-Feet (dBA Leq-8h)
Rubber Tired Dozers	3	6.8	72	76.1
Excavators	2	6.8	73	75.3
Graders	2	6.8	74	73.3
Scrapers	1	6.8	74	76.3
Tractors/Loaders/Backhoes	2	6.8	73	77.1
			Cumulative Levels @ 50 Feet (dBA)	82.8
			Average Distance to Property Line	200
			Noise Reduction Due to Distance	-12.0
			PROPERTY LINE NOISE LEVEL	70.8
			County of Imperial Threshold	75
			IMPACT?	**NO**

As can be seen in Table 5-1, if all the equipment was operating in the same location, which is not physically possible, at an average distance of 200 feet from the nearest property line a noise level of less than 75 dBA over an 8-hour period at the property line is anticipated. Given this and the spatial separation of the equipment, the noise levels will comply with the County of Imperial's 75 dBA standard at all Project property lines of each Phase and no impacts are anticipated.

The project may also include the installation of off-site utility infrastructure which will generate temporary noise. Unlike construction associated with on-site development, utility construction is linear and usually extends roughly 300 feet along the alignment. Excavation and utility equipment would be limited due to alignment and work area constraints. Based on a construction area of approximately 50 feet by 300 feet, the average hourly off site construction

noise levels would be approximately 75 dBA Leq at the edge of the right-a-way and 72 dBA Leq 8 hour or lower at 50 feet from the edge of construction. No sensitive uses are located along the utility alignment and no impacts are anticipated.

To further minimize noise from construction activities, the construction equipment should be equipped with properly operating and maintained mufflers. Therefore, a less than significant noise impact would result from construction activities.

6.0 OPERATIONAL NOISE LEVELS

6.1 County of Imperial Operational Standards

The existing zoning designation for the project site is Open Space/Preservation (S-2) and a very small area that is General Commercial (C-2). The general area of the Glamis Beach Store (within APN 039-310-029) is zoned as C-2, while the remainder of the project site is zoned as S-2. The project site is surrounded by the Bureau of Land Management (BLM) land uses on all sides. The proposed GSP includes a General Plan Amendment (GPA) and Change of Zone (CZ) for County approval. The GSP proposes the establishment of Commercial/Recreational (CR) designated zoning based upon different levels of allowable land use intensity. Also, the GSP proposes a Change of Zone from S-2 (Open Space/Preservation) to S-1 (Open Space/Recreation) for the approximate 1-acre parcel on the southeast side of the project site.

6.2 Project Operational Noise

Section 90702.00 of the Noise Ordinance will be applied to accommodate the planning of not just existing but potential future uses that could be adjacent to the proposed project. Section 90702.00 of the Noise Ordinance sets a sound level limit of 60 dBA Leq for daytime hours of 7 a.m. to 10 p.m. and 55 dBA Leq during the noise sensitive nighttime hours of 10 p.m. to 7 a.m. for commercial noise sensitive land uses. Most of the proposed Project components will only operate during the daytime hours but a few may operate during nighttime or early morning hours and therefore the most restrictive and conservative approach is to apply the 55 dBA Leq nighttime standard at the property lines. When the noise-generating property and the receiving property have different uses, the more restrictive standard shall apply. When the ambient noise level is equal to or exceeds the Property Line noise standard, the increase of the existing or proposed noise shall not exceed 3 dB Leq. Due to the location of the project site and the surrounding OHV area, ambient noise levels may be elevated above the Property Line noise standard during the seasonal uses from the OHV area.

This section examines the potential stationary noise source levels associated with the development and operation of the proposed project. Noise from a fixed or point source drops off at a rate of 6 dBA for each doubling of distance. Which means a noise level of 70 dBA at 5-feet would be 64 dBA at 10-feet and 58 dBA at 20-feet.

A review of the proposed project indicates that noise sources such as deliveries, parking lot activities and mechanical ventilation system (HVAC) are the primary sources of stationary noise from the project. This section provides a description and reference noise level measurement results.

Deliveries

The proposed project includes commercial uses that would involve occasional truck deliveries. Typically, trucks used to make deliveries can generate a maximum noise level of 70-75 dBA at a distance of 50 feet depending on the size of the truck. The proposed project is not anticipated to require a significant number of truck deliveries or the need for larger trucks. The deliveries for the proposed project would consist of smaller deliveries in smaller trucks and/or step side vans and would be somewhat infrequent. The noise associated with one large truck delivery and smaller truck would not result in a significant number of truck trips to significantly increase noise within the project area. Therefore, truck deliveries would not be intrusive or result in substantially greater noise levels than currently exist and impacts would be less than significant.

Parking Lots

Traffic associated with parking lots is typically not of sufficient volume to exceed community noise standards, which are based on a time-averaged scale. However, the instantaneous sound levels generated by a car door slamming and engine starting up and acceleration may be an annoyance to adjacent sensitive receptors. The estimated noise levels associated with parking lot activities typically range from 60-65 dBA and are short term. It should be noted that parking lot noise are instantaneous noise levels compared to noise standards in the CNEL scale, which are averaged over time. As a result, actual noise levels over time resulting from parking lot activities would be far lower. Therefore, the proposed parking would not result in substantially greater noise levels than currently exist at the project site and impacts would be less than significant

Mechanical Ventilation

Typically, mechanical equipment (HVAC) noise is 50-55 dBA at 50 feet from the source. HVAC units would be included on the roof of the proposed building and would be shielded by a mechanical screen and/or the roof parapet, which would further reduce the noise. The noise from the HVAC units would meet the County's Noise Standards at the nearest residents. It is important to note that the roof-top mounted mechanical ventilation (HVAC) all occurring at the same time. Additionally, mechanical ventilation system will cycle on and off throughout the day. No sensitive uses existing adjacent to the project and impacts from mechanical equipment would be less than significant.

7.0 CERTIFICATIONS

The contents of this report represent an accurate depiction of the noise environment and impacts within and surrounding the GSP Project. The information contained in this report was based on the best available data at the time of preparation.

DRAFT

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