TARGET STORE #T198 CULVER CITY
UTILITIES NIGHT WORK

Noise & Lighting Technical Report

Prepared for
Target Corporation
1000 Nicollet Mall-TPN-12K
Minneapolis MN 55403

June 2019

ESA

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EXECUTIVE SUMMARY

Target Corporation (Target), owner of Target store #T198 located at 10820 Jefferson Boulevard in Culver City (City), has completed the installation of solar power equipment on the store's building rooftop, and has approximately 3 to 5 hours of work remaining to integrate the solar electrical system into the Target store electrical system. The required work has to be performed after store operating hours, because the power to the store has to be shut off for the solar conductors to be tied into the building's electrical power system (utilities night work). The City's Municipal Code, Noise Ordinance limits construction activities to daytime hours; however, for construction activities that need to occur outside of the City's allowable construction hours (i.e., off-hours), the City may grant a variance based on review of a project's potential noise and lighting impacts. Target is submitting an application to City to obtain a temporary use permit (TUP) for the proposed utilities night work at Target store #T198, that functions as a variance to the City's noise ordinance, allowing construction activities outside of the City's allowable construction hours.

This noise and lighting technical report demonstrates that the proposed off-hours night work would generate minimal short-term noise levels over several hours during the nighttime (after 10:00 p.m.) on one given weeknight, and would not exceed applicable City night noise standards, or substantially increase existing ambient noise levels during night hours at the noise sensitive receptors (i.e., adjacent residences) nearest the proposed utilities night work. The night work would be limited to hand-held flashlights along the rear of the store near the control panel in the service drive. However, the existing light standards along the store property line, approximately 80-feet on center, stay on all night for security purposes, and the store has the security lights over the building doors on all night. Therefore, Project night work lighting would not generate any additional light trespass and/or glare on the project site, and the night work lighting will not be visible at the residence.

ESA has conducted a noise and lighting impact analysis of the noise generated by proposed night work. The results of this analysis are documented in this technical report for review by the City for consideration of issuing a TUP permit to allow the night work to be conducted off hours. With ESA's noise technical report as support, Target is requesting that the City allow Target to proceed with the final stage of the utilities work and issue a permit to allow Target's contractor, SunPower, to schedule and perform the work, as outlined in the following Noise Technical Report.

1. Introduction

Target proposes three to five hours of utility work on one night (after 10 p.m.) at the exterior of Target Store #T198 (Project) in Culver City (City), California. The proposed night work is related to connecting the new solar panel system on the store's rooftop with the control panel at the service alley, requiring the store's electrical power source to be turned off during the utility work, with a portable generator to be brought in to provide essential power to the store. Therefore, the night work must occur after the store closes for the day (i.e., 10:00 p.m.). The City's Municipal Code, Noise Ordinance, limits general construction activities to daytime hours. As a result, the

proposed night work would occur outside of the City's allowable construction hours (from approximately 10:00 pm to 2:00 a.m.) on a given weekday night (to be determined – the day and month of the night work is not defined until notified that a permit will be issued; after which, a specific weeknight for the nigh work would be scheduled).

Target is submitting an application to City to obtain a temporary use permit (TUP) for the proposed utilities night work at Target store #T198, that functions as a variance to the City's noise ordinance, allowing construction activities outside of the City's allowable construction hours. Last fall, Target had discussions with Ms. Gabriela Silva in the City's Planning Department in the hope of obtaining a permit due to the minimal amount of work to be undertaken, however, the City determined without a noise study or documentation, a permit would not be issued to allow for the completion of the work.

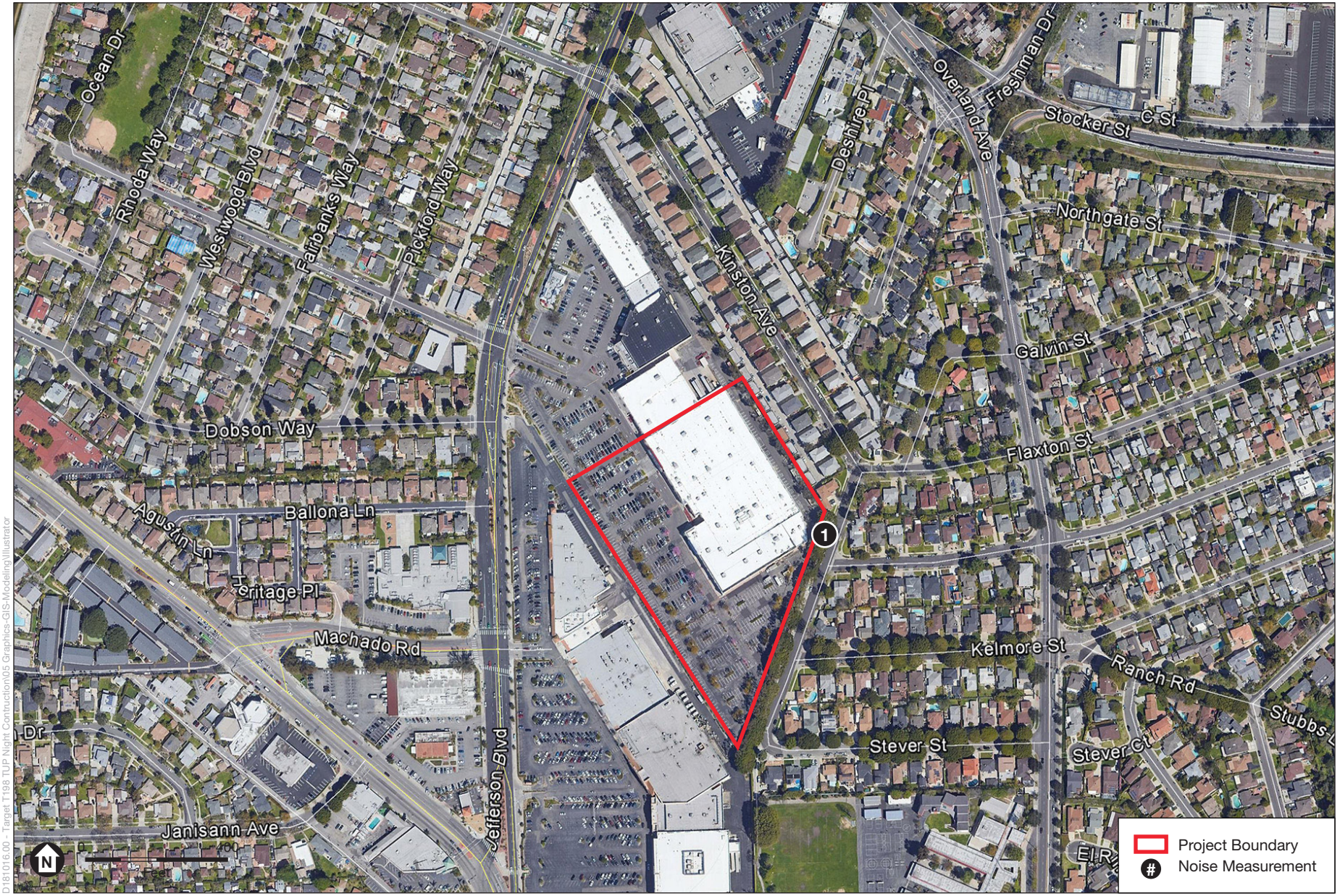
This report has been prepared in support of the City's environmental review process to provide noise analysis and documentation that the several hours of proposed utility night work at Target store T198 would not exceed City night noise standards at nearby noise sensitive receptors (i.e., residences adjacent to the store's service alley); and thereby, allow a variance to the City's noise ordinance. This report identifies applicable City noise regulations, and evaluates potential noise impacts associated with the proposed night work. Where applicable, measures to mitigate or minimize noise impacts associated with the Project are included. Information used to prepare this analysis included the City's General Plan, Noise Element and Municipal Code, Noise Ordinance including correspondence and telephone conversations with representatives of the Culver City Planning Department, Community Development; and data on the utility night work data provided by the applicant's solar contractor (SunPower), and other sources identified herein.

1.1 Project Location and Surrounding Land Uses

The Project site is located at located at 10820 Jefferson Boulevard in Culver City, as shown in **Figure 1**. The Project Site is developed as a retail department store (Target) with surface parking surrounding the store, and a service drive along the rear of the store. The Project site is adjacent to other commercial development, otherwise, surrounded by single-family residential neighborhoods. The Project Site is bounded by Jefferson Boulevard (a 4-lane arterial) to the northwest and west, single-family residential along the back of the store to northwest along Kinston Avenue (residential collector), and Kinston Avenue to the southeast including single-family residential.

1.2 Project Background

Target has installed solar equipment on the store building's rooftop, and has approximately 3 to 5 hours of work left to connect the solar electrical system into to the Target store electrical system. The required utility work has to be performed after store operating hours because the power to the store has to be shut off for the solar conductors to be tied into the building's electrical power system. Therefore, the utility work would need to occur outside of the City's allowable construction hours (i.e., off-hours).



SOURCE: Google, 2018; ESA, 2019

Target Department Store #T198 Night Work Project

Figure 1
Vicinity Location Map and Noise Measurement Location

ESA

A portable backup generator would be brought in to operate to maintain the life safety elements of the store while the power is shut off. Noise would be generated from a utility company truck arriving shutting down the store's electrical power, portable generator operation for the duration of the night work, a hand-held power drill operation for up to 5 minutes, ground-level connectors and wires pulled into the ground-level electrical panel with contractors talking and walking at the rear of the building ground-level only (no rooftop work), utility company truck arriving restoring store's electrical power, and then the back-up generator be turned off.

Last fall, Target had discussions with Ms. Gabriela Silva in the City's Planning Department in the hope of obtaining a permit due to the minimal amount of work to be undertaken, however, the City determined without a noise study or documentation, a permit would not be issued to allow for the completion of the work.

2. Project Description

2.1 Project Understanding

The City has established an off-hours nighttime (10:00 p.m. to 7:00 a.m.) and daytime (7:00 a.m. to 8:00 a.m.) noise level limit of 65 dBA L_{max} and 70 dBA L_{max} , respectively, at the property line of the noise sensitive receptor. The 65 and 70 dBA L_{max} limits are based on the City's operation noise standards in the Noise Element of the City's 1975 General Plan (City 1975), which establishes a nighttime and daytime levels of 65 and 70 dBA L_{eq}, respectively for a duration of one minute (i.e., 65 dBA and 70 dBA L_{max}, respectively), at the property line of the noise sensitive receptor.

2.2 Project Description

The Project construction activities of the proposed night work are required for the connection of the photo-voltaic (PV) solar system on the building rooftop into the exterior electrical switch gear box at ground-level of the Target store. **Figure 2** locates the Project utility night work. The connection of the PV solar system will require the power to the building to be shut off, which is why the work needs to be done in the evening/night hours after the store closes. A portable backup generator would be brought in during the daytime, prior to the night work, to operate to maintain the life safety elements of the store while the power is shut off (Note: there is an existing permanent emergency generator for the building with is old, would not be used for the night work). The night work would occur for one 3- to 5-hour period during the nighttime (after 10 pm).

KINSTON AVENUE

MULTI-STORY RESIDENTIAL

ONE-STORY GARAGE

ONE-STORY RESIDENTIAL

Location of store generator, located outside and not enclosed

TARGET STORE

WORK IS TO BE LOCATED IN THIS AREA ONLY
LED LIGHTING TO ILLUMINATE TOWARDS TARGET STORE ONLY
TOOLS USED: DRILL, KNOCK OUT SET (5 MINUTES)
REMAINING SCOPE INVOLVES PULLING WIRE AND TERMINATING, MINIMAL NOISE
SCOPE OF WORK NOT TO EXCEED 4 HOURS
6 PARKING STALLS WILL BE AFFECTED
SCOPE OF WORK IS TO INTERCONNECT SOLAR PV SYSTEM TO (E) SWITCHGEAR

The drilling will take approx. 3 minutes and is drilled directly into the switch gear box which is on the exterior of the building. The knock out is to remove the metal from the new hole in the switch gear box which will take 2 minutes. The electrical circuit to the switch gear has to be turned off before drilling into it. The drilling and knock out can be accomplished at +/- 11:45 pm.

ENTIRE PARKING FIELD TO BE RESTRIPED AFTER COMPLETION OF CONSTRUCTION

ENTIRE PARKING FIELD TO BE RESTRIPED AFTER COMPLETION OF CONSTRUCTION

NOTE: GATE KEEPER TO BE INSTALLED PER LANDLORD & TENANT APPROVED PLAN

TRASH

ICV

CLMN TYP

DI 0.8'=D

2X2 DI

40'+/

55'+/-

20'+/-

KINSTON AVENUE

STOP

SITE NOTES:

1. WALKWAYS AND SIDEWALKS WHICH ARE PART OF THE ADA ACCESSIBLE PATH SHALL BE:
   A.) CONTINUOUSLY ACCESSIBLE,
   B.) HAVE A MAXIMUM 1/2" CHANGE IN ELEVATION,
   C.) HAVE A MINIMUM WIDTH OF 48",
   D.) HAVE A MAXIMUM CROSS-SLOPE OF 2.0% AND
   E.) WHERE NECESSARY TO CHANGE ELEVATION AT A SLOPE EXCEEDING 5.0% SHALL COMPLY WITH UBC REQUIREMENTS FOR PEDESTRIAN RAMPS, INCLUDING BUT NOT LIMITED TO UBC 1133B.5, 1127B AND 1133B.7.
2. AN ACCESSIBLE ROUTE OF TRAVEL SHALL BE PROVIDED TO THE BUILDING FROM:
   A.) PUBLIC TRANSPORTATION STOPS,
   B.) ACCESSIBLE PARKING SPACES,
   C.) ACCESSIBLE PASSENGER LOADING ZONES, AND
   D.) PUBLIC STREETS AND SIDEWALKS.
3. ALL ACCESSIBLE PARKING SPACES SHALL NOT EXCEED THE MAXIMUM PERMITTED SLOPE OF 2.0% IN ANY DIRECTION.
4. SIGNS DISPLAYING THE INTERNATIONAL SYMBOL OF ACCESSIBILITY AND DIRECTION OF TRAVEL (SEE DETAILS) SHALL BE LOCATED AT EVERY MAJOR JUNCTION ALONG OR LEADING TO AN ACCESSIBLE ROUTE OF TRAVEL.
5. THE CONTRACTOR SHALL VERIFY THAT ACCESSIBLE PARKING NOTIFICATION SIGNS (READING "UNAUTHORIZED VEHICLES PARKED IN ACCESSIBLE SPACES...) ARE POSTED CONSPICUOUSLY AT EACH ENTRANCE TO THE SITE. IF MISSING, THE CONTRACTOR SHALL INSTALL NEW NOTIFICATION SIGNS PER THE DETAIL PROVIDED.
6. THE CONTRACTOR SHALL REMOVE EXISTING STRIPING BY SANDBLASTING ALL AREAS TO BE RESTRIPED, PRIOR TO PAINTING NEW STRIPING.
7. THE SIX INCHES OF CURB OR ROADWAY ADJACENT TO ROAD EDGE SHALL BE PAINTED RED ALONG THE ENTIRE LENGTH OF THE FIRE LANE.
8. THE WORDS "FIRE LANE" SHALL BE PAINTED IN WHITE LETTERS AT LEAST EVERY 50 L.F. ON THE ROADWAY EDGE. THE LETTERS SHALL BE A MINIMUM OF FOUR INCHES IN HEIGHT WITH A MINIMUM 1/2 INCH STROKE.
9. SITE LIGHTING IS SHOWN FOR INFORMATION ONLY. PARKING LOT LIGHTS SHALL BE INSTALLED AS SHOWN ON ELECTRICAL PLANS.

GRAPHIC SCALE
(IN FEET)
1 inch = 30 ft.

Site plan updated 8-29-2018

REV #	BY	DATE	DESCRIPTION
1			
2			
3			
4			

DATE: 06/10/04
SCALE: 1" = 30'
DESIGNED:
DRAWN:
CHECKED:
PROJ. MGR:
FILE PATH: H:\5058\dwg\5-28-04\5058site.dwg

PACIFIC LAND SERVICES
2151 SALVIO STREET, SUITE 250, CONCORD, CA 94520
925-680-6407 FAX 925-680-6406
ENGINEERING SURVEYING ENTITLEMENT LANDSCAPE ARCHITECTURE

SITE PLAN
TARGET, T-198
10820 JEFFERSON BOULEVARD
LOS ANGELES COUNTY CALIFORNIA
CULVER CITY

C-3 OF

5058

PRINTED: Jun 10, 2004 - 2:44 pm
RAH 09/10/04 SUBMIT FOR CDC

Noise from the utility night work would be generated from the following sequences of sources:

1. Utility company truck arriving, then turning off truck, and shutting down the electrical power to the Target store (for the duration of the night work); then
2. The portable generator would be started up (for the duration of the night work); then
3. A hand-held power drill would be operated for 3 to 5 minutes to open a hole into the electrical switch gear panel in the service road adjacent to the building; then
4. Connectors and wires already installed would be pulled to interconnect the solar system electrical system into the electrical switchgear panel;
5. Contractors would be talking and walking between the electrical panel and the rooftop conductors already extending to the rear of the building at ground-level only (no work to be done on the roof during this night work), and
6. When the night work is completed, the Utility Company would turn back on the electrical power to the store, and then the back-up generator would be turned off.

The proposed night work would require temporary artificial lighting at the work areas on the site at the switch gear panel at ground-level, along the rear wall of the store and in the service drive for worker visibility and safety. The artificial lighting will run on battery power (not a source of noise), and be directed at the night work areas directing light toward the building and ground, fully screened away from the adjacent residencies off-site. The lighting would occur for the duration of the night work.

The construction activities of the Project night work are proposed to occur from approximately 10:00 p.m. to 2:00 a.m. on a given weeknight (to be determined once permitted). The night work would occur on the building's rear wall and within the service drive behind the Target store. The focus of the analysis was the potential noise and lighting impacts of the 4-hour work period on the nearest residential properties, which abut the service drive behind the Target store at the property line. The night work would be located approximately 60 feet from the property line of the nearest residences, where the garages of the residences are located, which provides intervening 1-story structures between the night work (at ground-level) and the residences. The actual residential buildings are approximately 45 feet interior to the property line, resulting in a distance of +/- approximately 105 feet from the site work area. There will no excavations, trucks loading or hauling, or use of heavy equipment.

3. Environmental Setting

3.1 Noise Characteristics and Descriptors

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air). Noise is generally defined as unwanted sound (i.e., loud, unexpected, or annoying sound). Acoustics is defined as the physics of sound. In acoustics, the fundamental scientific model consists of a sound (or noise) source, a receiver, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receiver determines the sound level and

characteristics of the noise perceived by the receiver. Acoustics addresses primarily the propagation and control of sound.

Sound, traveling in the form of waves from a source, exerts a sound pressure level (referred to as sound level) that is measured in decibels (dB), which is the standard unit of sound amplitude measurement. The dB scale is a logarithmic scale that describes the physical intensity of the pressure vibrations that make up any sound, with 0 dB corresponding roughly to the threshold of human hearing and 120 to 140 dB corresponding to the threshold of pain. Pressure waves traveling through air exert a force registered by the human ear as sound. Sound pressure fluctuations can be measured in units of hertz (Hz), which correspond to the frequency of a particular sound. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude. When all the audible frequencies of a sound are measured, a sound spectrum is plotted, consisting of a range of frequency from 20 to 20,000 Hz.

The typical human ear is not equally sensitive to all frequencies of the audible sound spectrum. Sound is measured using an electronic filter that deemphasizes the frequencies below 1,000 Hz and above 5,000 Hz in a manner corresponding to the human ear's decreased sensitivity to extremely low and extremely high frequencies. This method of frequency weighting is referred to as A-weighting and is expressed in units of A-weighted decibels (dBA). A-weighting follows an international standard methodology of frequency de-emphasis and is typically applied to community noise measurements.

Noise Exposure and Community Noise

An individual's noise exposure is a measure of noise over a period of time. A noise level is a measure of noise at a given instant in time. The noise levels are representative of measured noise at a given instant in time; however, they rarely persist consistently over a long period of time. Rather, community noise varies continuously over a period of time with respect to the contributing sound sources of the community noise environment. Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise exposure, with the individual contributors unidentifiable. The background noise level changes throughout a typical day, but does so gradually, corresponding with the addition and subtraction of distant noise sources such as traffic. What makes community noise variable throughout a day, besides the slowly changing background noise, is the addition of short-duration, single-event noise sources (e.g., aircraft flyovers, motor vehicles, sirens), which are readily identifiable to the individual.

These successive additions of sound to the community noise environment change the community noise level from instant to instant, requiring the measurement of noise exposure over a period of time to legitimately characterize a community noise environment and evaluate cumulative noise impacts. This time-varying characteristic of environmental noise is described using statistical noise descriptors. The most frequently used noise descriptors are summarized below:

L_{eq}: The equivalent sound level used to describe noise over a specified period of time in terms of a single numerical value; the L_{eq} of a time-varying signal and that of a steady signal are

the same if they deliver the same acoustic energy over a given time. The L_{eq} may also be referred to as the average sound level.

L_{max}: The maximum, instantaneous noise level experienced during a given period of time.

CNEL: The Community Noise Equivalent Level, is the average A-weighted noise level during a 24-hour day that is obtained after an addition of 5 dB to measured noise levels between the hours of 7:00 a.m. to 10:00 p.m. and after an addition of 10 dB to noise levels between the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively.

Noise Effects on People

Noise is generally loud, unpleasant, unexpected, or undesired sound that is typically associated with human activity that is a nuisance or disruptive. The effects of noise on people can be placed into four general categories:

- Subjective effects (e.g., dissatisfaction, annoyance);
- Interference effects (e.g., communication, sleep, and learning interference);
- Physiological effects (e.g., startle response); and
- Physical effects (e.g., hearing loss).

Although exposure to high noise levels has been demonstrated to cause physical and physiological effects, the principal human responses to typical environmental noise exposure are related to subjective effects and interference with activities. Interference effects of environmental noise refer to those effects that interrupt daily activities and include interference with human communication activities, such as normal conversations, watching television, telephone conversations, and interference with sleep. Sleep interference effects can include both awakening and arousal to a lesser state of sleep. With regard to the subjective effects, the responses of individuals to similar noise events are diverse and are influenced by many factors, including the type of noise, the perceived importance of the noise, the appropriateness of the noise to the setting, the duration of the noise, the time of day and the type of activity during which the noise occurs, and individual noise sensitivity.

Overall, there is no completely satisfactory way to measure the subjective effects of noise, or the corresponding reactions of annoyance and dissatisfaction on people. A wide variation in individual thresholds of annoyance exists, and different tolerances to noise tend to develop based on an individual's past experiences with noise. Thus, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted (i.e., comparison to the ambient noise environment). In general, the more a new noise level exceeds the previously existing ambient noise level, the less acceptable the new noise level will be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships generally occur:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived;

- Outside of the laboratory, a 3 dBA change in noise levels is considered to be a barely perceivable difference;
- A change in noise levels of 5 dBA is considered to be a readily perceivable difference; and
- A change in noise levels of 10 dBA is subjectively heard as doubling of the perceived loudness.

These relationships occur in part because of the logarithmic nature of sound and the dB scale. The human ear perceives sound in a non-linear fashion hence the dB was developed. Because the dB scale is based on logarithms, two noise sources do not combine in a simple additive fashion, but rather logarithmically. Under the dB scale, a doubling of sound energy corresponds to a 3 dBA increase. In other words, when two sources are each producing sound of the same loudness, the resulting sound level at a given distance would be approximately 3 dBA higher than one of the sources under the same conditions. For example, if two identical noise sources produce noise levels of 50 dBA, the combined sound level would be 53 dBA, not 100 dBA. Under the dB scale, three sources of equal loudness together produce a sound level of approximately 5 dBA louder than one source, and ten sources of equal loudness together produce a sound level of approximately 10 dBA louder than the single source.

Noise Attenuation

When noise propagates over a distance, it changes in level and frequency content. The manner in which noise reduces with distance depends on factors such as the type of noise source and the propagation path. Noise from a localized source (i.e., point source) propagates uniformly outward in a spherical pattern; therefore, this type of propagation is referred to as "spherical spreading." Stationary point sources of noise, including stationary mobile sources such as idling vehicles, attenuate (lessen) at a rate between 6 dBA for acoustically "hard" sites and 7.5 dBA for acoustically "soft" sites for each doubling of distance from the reference measurement as their energy is continuously spread out over a spherical surface. Hard sites are those with a reflective surface between the source and the receiver, such as asphalt or concrete surfaces or smooth bodies of water. No excess ground attenuation is assumed for hard sites and the changes in noise levels with distance (drop-off rate) is simply the geometric spreading of the noise from the source. Soft sites have an absorptive ground surface such as soft dirt, grass, or scattered bushes and trees. In addition to geometric spreading, an excess ground attenuation value of 1.5 dBA (per doubling distance) is normally assumed for soft sites.

Roadways and highways consist of several localized noise sources on a defined path, and hence are treated as "line" sources, which approximate the effect of several point sources. Noise from a line source propagates over a cylindrical surface, often referred to as "cylindrical spreading." Line sources (e.g., traffic noise from vehicles) attenuate at a rate between 3 dBA for hard sites and 4.5 dBA for soft sites for each doubling of distance from the reference measurement.[1] Therefore, noise due to a line source attenuates less with distance than that of a point source with increased distance.

[1] California Department of Transportation (Caltrans), *Technical Noise Supplement* (TeNS). September, 2013.

Additionally, receptors located downwind from a noise source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound levels can be increased at large distances (e.g., more than 500 feet) due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects.

3.2 Existing Conditions

The Project Site is developed as a retail department store (Target) with surface parking surrounding the store, and a service drive along the rear of the store, where the off-hours construction work would occur (see Figure 2). The Project Site is adjacent to other commercial development, otherwise, surrounded by single-family residential neighborhoods. The Project Site is bounded by Jefferson Boulevard (a 4-lane arterial) to the northwest and west, single-family residential along the rear of the store (off-hours work area) to northwest along Kinston Avenue (residential collector), and Kinston Avenue to the southeast including single-family residential, as shown in Figure 2.

The predominant existing noise source in the vicinity of the Project Site is vehicle traffic noise from roadways adjacent to the Project Site including Jefferson Boulevard and Kinston Avenue. Secondary noise sources include general commercial-related activities, such as loading dock/delivery truck activities, trash compaction, refuse service activities, vehicle and customer noise in the surface parking lot; and residential-related activities, such as, landscaping and home improvement activities.

Noise Sensitive Receptors

Noise sensitive receptors are defined as those specific land uses that have associated indoor and/or outdoor human activities that may be subject to stress and/or significant interference from noise produced by community sound sources. Typically, residences, hospitals, and schools are considered noise sensitive, as their land uses of sleeping, recuperation, and concentration, can be adversely affected by noise.

The noise sensitive land use closest to the off-hours work area of the Project site are the two-story, multi-family residence buildings that abut the northwestern Project Site boundary along the service road at the back of the store. The residential property line is approximately 70 feet from the back of the store across the service road. These residences front along Kinston Avenue, which terminates as a cul-des-sac near the intersection of Flaxon Street with the continuation of Kinston Avenue to the south, and one-story parking garages for each multi-family building abut the tree-lined property line/Project Site boundary. These multi-family residences represent the nearest sensitive receptor (i.e., residence) to the Project site, and, therefore, illustrates the worst-case scenario for potential noise and lighting impacts from the construction activities of the Project night work during the off-hours of the City's construction hours.

Existing Ambient Noise Levels

Ambient noise measurements were conducted at one location, representing the nearest noise sensitive land use (i.e., multi-family residences) in the vicinity of the night work on the project

site to establish an estimate of ambient noise levels during the evening/night hours when the proposed night work would occur. The measurement location, along with proposed night work location and existing nearby residential development, are shown on Figure 1. The ambient noise measurement was conducted overnight over a 9-hour period, beginning on at 10:00 p.m. on Tuesday, January 22, 2019 and continuing until 7:00 a.m. on Wednesday, January 23, 2019.

The ambient noise measurement was conducted using the Larson-Davis 824 Precision Integrated Sound Level Meter ("SLM"). The Larson-Davis 824 SLM is a Type 1 standard instrument, as defined in the American National Standard Institute S1.4. All instruments were factory and field calibrated, and operated according to the applicable manufacturer specification. The SLM was set up at a secure, discreet location, activated, and left unmanned overnight, as typically done for overnight measurements. The SLM microphone was placed at a height of 5 feet above the local grade, at the measurement location 1, multi-family residential uses along Kinston Avenue, as shown in Figure 1. A summary of noise measurement data is provided in **Table 1**.

TABLE 1
SUMMARY OF AMBIENT NOISE MEASUREMENTS

Location, Day of the Week, Date, and Hours	Average Night Noise Levels, dBA L_{eq}
R1 Tuesday Night, 1/22/19 to Wednesday Morning, 1/23/19	
10:00 p.m. to 11:00 p.m.	45.7
11:00 p.m. to 12:00 p.m.	46.4
12:00 p.m. to 1:00 a.m.	44.3
1:00 a.m. to 2:00 a.m.	49.3
10:00 p.m. to 2:00 a.m. (4-hour work period)	46.4

SOURCE: ESA, 2019.

As shown in Table 1, the existing hourly average ambient noise levels, during the estimated start and end hours of the proposed night work (10:00 p.m. to 2:00 a.m.) ranged from approximately 46 dBA L_{eq} to 49 dBA L_{eq} at location 1 (near the closest residence), averaging 46.4 dBA L_{eq} over this 4-hour period). The quietest hour from 12:00 to 1:00 a.m. was measured at 44.3 dBA L_{eq}.

3.3 Regulatory Setting

Culver City General Plan Noise Element

The Noise Element of the General Plan identifies noise-sensitive land uses and noise sources, defines areas of noise impact, and establishes goals, policies, and programs to ensure that City residents are protected from excessive noise (Culver City 1995). The noise goals and policies of the Noise Element applicable to the Project's off-hours construction includes:

Policy 2.A Create a comprehensive ordinance establishing noise regulation criteria, and standards for noise sources and receptors to include but not be limited to the following:

– Noise reduction features during site planning to mitigate anticipated noise impacts on affected noise sensitive land uses, such as schools, hospitals, convalescent homes, and libraries.

- Temporary sound barrier installation at construction site if construction noise is impacting nearby noise sensitive land uses.
- Noise abatement and acoustical design criteria for construction and operation of any new development.

The City's noise standards are contained in the City's 1995 General Plan Noise Element, which establishes a daytime (7:00 a.m. to 10:00 p.m.) level of 55 dBA Leq and a nighttime (10:00 p.m. to 7:00 a.m.) level of 50 dBA Leq for a duration of 30 minutes; and 70 dBA Leq (daytime) and 65 dBA Leq (nighttime) for a duration of one minute at the property line of the noise sensitive receptor, as shown in **bold** in **Table 2** (City 1995).

TABLE 2
CULVER CITY NOISE STANDARDS

Daytime levels 7:00 AM – 10:00 PM	Nighttime Levels 10:00 PM – 7:00 AM	Duration
55 dBA - Leq	**50 dBA - Leq**	**30 minute**
60 dBA - Leq	55 dBA - Leq	15 minute
65 dBA - Leq	60 dBA - Leq	5 minute
70 dBA - Leq	**65 dBA - Leq**	**1 minute**
75 dBA - Leq	70 dBA - Leq	Never

Source: City 1995.

Based on these noise standards in Table 2, the City has established maximum noise level limits of 70 dBA L_{max} and 65 dBA L_{max} for off-hours construction noise during off-hour daytime and nighttime periods, respectively. (i.e. 70 and 65 dBA L_{max} at the property line of the nearest residence).

Culver City Municipal Code

Chapter 9.07 of the City of Culver City Municipal Code (CCMC) provides specific noise restrictions and exemptions for noise sources within Culver City. Culver City's noise regulations state that construction activity shall be prohibited, except between the hours of 8:00 A.M. and 8:00 P.M. Mondays through Fridays; 9:00 A.M. and 7:00 P.M. Saturdays; 10:00 A.M. and 7:00 P.M. Sundays.

4. Impacts and Mitigation Measures

This section describes the impact analysis relating to noise impacts for the Project including the methodology, applicable impact thresholds used to determine the impacts of the Project including potential cumulative noise impacts associated with other off-hours construction projects in the vicinity of the Project site. Where impacts are identified, mitigation measures are proposed, if any to reduce noise impacts.

4.1 Methodology

Project construction noise levels were estimated using the FHWA's Roadway Construction Noise Model (RCNM) and other sources of reference noise levels, and the proposed night work scenario (schedule, equipment, and location, etc) provided by Target. Potential noise levels from the activities of the night work on Project site were identified at the nearest sensitive receptor, located offsite, based on their respective distance from the Project Site (results of calculations shown in Appendix A). The reference noise levels at the source of each activity (e.g., powering up of the portable generator) were provided from various sources. The resultant noise levels were calculated at the nearest residence using RCNM for the number and type of equipment operating separately based on their location within the work area to the residence. The estimated construction noise levels of the Project night work at the nearest residence were then compared against the City's nighttime noise standards to determine whether an exceedance of City's allowable nighttime noise levels would occur. If so, mitigation measures are provided.

4.2 Impact Thresholds

The maximum noise level (L_{max}) of the construction activities of the Project night work, estimated at the property line of the nearest noise sensitive receptor, shall not exceed 65 dBA L_{max} during the nighttime period of 10:00 p.m. – 7:00 a.m. In addition, the average noise (L_{eq}) of the construction activities of the Project night work, estimated at the property line of the nearest noise sensitive receptor, shall not exceed the City's nighttime (10:00 p.m. to 7:00 a.m.) level of 50 dBA L_{eq} (City 1995).

4.3 Project Impact Analysis

The proposed construction activities of the Project night work in the service alley would include the operation duration and approximately time of day:

- utility company truck (for 3 to 5 minutes at the start and end of the night work),
- a portable generator (for the duration of the night work, approximately 3-4 hours),
- a hand-held power drill (for 3 to 5 minutes as early as possible at the start of the night work), and
- installing of connectors with contractors talking and walking (for the duration of the night work) along the rear of the store in the service drive.

As such, noise levels of construction activities of the night work on the Project Site and at the nearest receptor would vary depending on the particular type, number, duration, and location (distance and elevation) of the noise sources. The noise levels of the construction activities of the

Project night work at the source, are estimated in **Table 3**, which shows the activity, reference noise level, usage factor, and distance to the property line of the nearest off-site residence.

TABLE 3
CONSTRUCTION EQUIPMENT NOISE LEVELS AT SOURCE AND DISTANCE TO RESIDENTIAL PROPERTY LINE

Construction Activity Equipment Type	No. of Equip.	Reference Noise Level at 50ft, L_{max}	Acoustical Usage Factor (%)	Distance (ft) to property line
Diesel Truck	1	80*	5	60
Portable Generator	1	85**	100	60
Electric Hand Drill	1	66*	5	60

Source: *University of Michigan 2015, **FHWA 2006, ESA 2019.

During the Project night work, the nearest offsite noise sensitive receptor that would be exposed to the Project's night work noise would be the residences located directly northeast of the Project site. The highest noise levels would be generated when multiple pieces of construction equipment are being operated simultaneously. The Project's estimated construction noise levels were calculated for the maximum equipment required to operate simultaneously within a phase, as shown in **Table 4** (i.e., the worst-case scenario). The estimated noise levels at the offsite sensitive receptors were calculated using FHWA's RCNM, and the overall results are shown Table 4, and detailed in Appendix A.

Therefore, the following noise reduction measures that shall be implemented to reduce maximum and hourly average construction noise levels during off-hours Project night work at the nearest residences:

> **Noise Reduction Measure NOISE-1:** A temporary sound barrier shall be erected at the off-hours area adjacent to the construction equipment (utility truck and power drill) at least 10 feet in height and long enough to block the line-of-sight between the equipment (utility truck and power drill) and the residence, with a performance standard of achieving a minimum 15 dBA noise level reduction. In addition, a temporary sound enclosure (four-sided with a roof) with a performance standard of achieving a minimum 20 dBA noise level reduction, shall be erected over the temporary generator.
>
> **Noise Reduction Measure NOISE-2**: All construction equipment operating at the Project site (i.e., the utility truck) shall be equipped with properly operating engine mufflers and not allowed to idle when not in use (i.e., if idling not needed during the store power shutdown and start-up).

Noise Reduction Measure NOISE-3: The only noise-generating equipment allowed during the proposed off-hours utility work are as stated herein (i.e., the operation of the utility truck, portable generator, and the hand–held power drill, with the start-up of these activities occurring as soon as possible at the start of the off-hours work (i.e., 10:00 p.m.) before 11:00 p.m., with no additional operation of the power drill required during the off-hours period. The analysis is premised on only these equipment noise sources operating (other than verbal communication between workers, limited to work-related activities).

With the implementation of noise reduction measures NOISE-1 through NOISE-3, off-hours construction noise levels would be reduced, as shown in Table 4.

TABLE 4
MITIGATED OFF-HOURS CONSTRUCTION NOISE LEVELS AT RESIDENTIAL PROPERTY LINE

Construction Phases	Estimated Maximum Construction Noise Levels (dBA L_{max})	Estimated Average Construction Noise Levels (dBA L_{eq})
Utility Truck	63	50
Portable Generator	47	47
Power Hand Tool (drill)	49	29
----------	-------	--------
City Noise Ordinance Off-Hours Noise Standards		
10:00 p.m. to 7:00 a.m.	*65*	
City General Plan Noise Standards		
Nighttime Residential (10:00 p.m. to 7:00 a.m.)		*50*

SOURCE: ESA, 2019.

As shown in Table 4, with the implementation of noise reduction measures NOISE-1 through NOISE-2, the maximum noise levels of the night work at the property line would not exceed the City's maximum noise limits at night of 65 dBA L_{max} and City's hourly average of 50 dBA L_{eq}, respectively.

In addition, the Project's night work noise levels at the residential property line would be approaching or slightly exceeding the measured average ambient noise level of approximately 46.4 dBA L_{eq} over the night work period (10 p.m. – 2:00 a.m.). When combined with the night work noise levels at the property line (47 dBA L_{eq}), the resultant ambient noise level of approximately 50 dBA L_{eq} would be an increase over existing ambient noise levels by approximately 3 dBA, which would be a barely perceivable difference. However, during the quietest hour of 12:00 – 1:00 a.m., the ambient night noise level would be lower, measured at approximately 44.3 dBA L_{eq}. Therefore, the Project's night construction noise (i.e., from the generator) at the residential property line of 47 dBA L_{eq} would be higher than the measured quietest hour ambient level of 44.3 dBA L_{eq}, and when combined, would be approximately 49 dBA L_{eq}, which would be an increase ambient levels of approximately 5 dBA, which would be a readily perceivable difference. Therefore, the night hourly ambient increase would range from

approximately 3 to 5 dBA (barely perceivable to readily perceivable difference) during the continuous operation of the generator during the project night work period.

5. Lighting

In addition to noise, the Project's night work would include the appropriate lighting equipment associated with the night activities, as needed. However, the existing light standards along the property line approximately 80-feet on center stay on all night for security purposes. The store has the security lights over the building doors on all night. Therefore, additional lighting for the night work would be limited to hand-held flashlights along the rear of the store near the control panel in the service drive. Therefore, Project night work lighting would not generate any additional light trespass and/or glare on the project site, and the night work lighting will not be visible at the residence.

6. References

Alice Sutter and Associates, 2002. *Construction Noise: Exposure Effects, and the Potential for Remediation: A Review and Analysis*. Table V. Median 1-min Sound Levels in Leq by Equipment/Tool. AIHA Journal (63), November/December. Available at https://www.osha.gov/SLTC/noisehearingconservation/construction.html.

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Appendix A

Project Utility Night Work Noise Calculations

Project: Target Night Work

Construction Noise Impact on Sensitive Receptors

Parameters

Construction Hours:		Daytime hours (7 am to 7 pm)
		Evening hours (7 pm to 10 pm)
	5	Nighttime hours (10 pm to 7 am)
Leq to L10 factor	3	

				Sensitive Receptor				
Construction Phase **Equipment Type**	**No. of Equip.**	**Reference Noise Level at 50ft, Lmax**	**Acoustical Usage Factor**	**Distance (ft)**	**Lmax**	**Leq**	**L10**	**Estimated Noise Shielding, dBA**
Power Shutdown & Start-up					**63**	***50***		
Utility Truck	1	80	5%	60	63	50	53	15
Portable Power Operation					**47**	***47***		
portable generator	1	69	100%	60	47	47	50	20
Power Tool Operation					**49**	***29***		
Hand held Power Drill	1	66	1%	60	49	29	32	15

Source for Ref. Noise Levels: LA CEQA Guides, 2006 & FHWA RCNM, 2005

Project: Target Night Work

Construction Noise Impact on Sensitive Receptors

Parameters

Construction Hours:		Daytime hours (7 am to 7 pm)
		Evening hours (7 pm to 10 pm)
	5	Nighttime hours (10 pm to 7 am)
Leq to L10 factor	3	

Construction Phase **Equipment Type**	**No. of Equip.**	**Reference Noise Level at 50ft, Lmax**	**Acoustical Usage Factor**
Power Shutdown & Start-up			
Utility Truck	1	80	5%
Portable Power Operation			
portable generator	1	69	100%
Power Tool Operation			
Hand held Power Drill	1	66	1%

Source for Ref. Noise Levels: LA CEQA Guides, 2006 & FHWA RCNM, 2005