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4.10 NOISE

Would the project:		Potentially Significant Impact	Potentially Significant Unless APMs Incorporated	Less than Significant Impact	No Impact
a.	Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☑	☐
b.	Exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels?	☐	☐	☐	☑
c.	A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☑
d.	A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☑	☐
e.	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☑
f.	For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☑

4.10.1 Introduction

This section of the PEA describes existing conditions and the potential effects of the Proposed Project in relation to noise and vibration. It includes a study of the noise impacts resulting from the construction and operation of the Proposed Project. The study identifies the location of any sensitive receptors and describes the ordinary construction restrictions that would be implemented to minimize noise during both construction and operation of the Proposed Project.

Construction noise-related impacts from the 69kV power line are expected to be short-term at any given location and therefore minimal. Construction noise, while varying according to the equipment in use, will be minimized by the attenuating effect of distance; the intermittent and short lived character of the noise; and the use of functional mufflers on all construction equipment. Further, the nature of construction to be performed for the 69kV power line dictates that construction activities and associated noise levels will move along the corridor and that no one residence will be exposed to significant noise levels for an extended period. When operational, the power line will not generate significant noise, and once completed the noise levels will return to the current conditions.

4.10.2 Methodology

Information regarding the potentially applicable noise standards was obtained from federal, state, regional, and local literature reviews. Evaluation of potential noise impacts from the Proposed Project included examining typical noise levels associated with the proposed construction equipment and resulting construction and operation activities. Data for construction equipment emissions were obtained from the literature. The analysis focuses on the construction and operation of the Proposed Project.

4.10.3 Existing Conditions

4.10.3.1 Regulatory Setting

Federal

There are no federal noise standards that directly regulate the noise from operation of electrical power lines or substation facilities. However, in 1974 the USEPA established guidelines for noise levels in order to protect the general population from any identified effects of noise. These guidelines are summarized in the Table 4.10-1, USEPA Guidelines.

Table 4.10-1: USEPA Guidelines

Sound Level Evaluation	Limit	Purpose of Guideline
L_{eq} (24)	70 dBA	Protect against hearing loss
L_{dn}	55 dBA	Protect against activity interference and annoyance in residential areas, farms, and other outdoors areas where quiet is a basis for use
L_{eq} (24)	55	Protect against outdoor activity interference where limited time is spent (e.g. school yards, playgrounds)
L_{dn}	45 dBA	Protect against indoor activity interference and annoyance in residences
L_{eq} (24)	45 dBA	Protect against indoor activity interference in school yards

These levels are not enforceable standards or regulations. They are provided in order to protect the public health and welfare, and to provide guidelines for the creation and implementation of local noise standards.

The following federal laws have been passed in order to regulate and limit noise levels.

Noise Pollution and Abatement Act of 1970

The Noise Pollution and Abatement Act of 1970 was passed in order to establish the Office of Noise Abatement and Control (ONAC) within the USEPA. ONAC is authorized to conduct investigations of noise, as well as its effect on public health and welfare. These investigations include the identification of noise sources, projected future noise levels, and the effects of the noise on people, property, and animals.

It was concluded in 1981 that noise issues were best handled at the state or local government level. ONAC's funding was phased out in 1982 as the primary responsibility of regulating noise was passed from the federal government to the state and local governments. Despite being defunded, the Noise Control Act of 1972 and the Quiet Communities Act of 1978 have not been rescinded by Congress and remain in effect. These Acts are described below.

Noise Control Act of 1972

The Noise Control Act of 1972 is a statute that initiated a federal program of regulating noise pollution, in order to protect human health and minimize the annoyance of noise to the general public. It set emission standards for virtually every source of noise, and informed local governments to their responsibilities in land use planning in order to address noise.

Quiet Communities Act of 1978

The Quiet Communities Act of 1978 amended the Noise Control Act. It promoted the development of effective state and local noise control programs, and provided funds for research. It also produced educational materials on the harmful effects of noise, and mitigation measures. The FAA, Federal Railroad Administration, DOT, and Department of Labor have since developed their own noise control programs. Each agency has set its own criteria.

Federal Transit Administration

The Federal Transit Administration, under the DOT, created a noise and vibration impact assessment manual. It provides guidance for evaluating construction, roadway, and railway noise sources. The manual also presents techniques for predicting and assessing potential noise and vibration impacts, primarily based on the receptor land use.

Federal Aviation Administration

The FAA has established a 65 decibels (dB) Community Noise Equivalent Level (CNEL) as the noise standard associated with aircraft noise. The CNEL is a time-weighted descriptor that applies penalties of 5 A-weighted sound level (dBA) to the evening hours and 10 dBA to the nighttime hours to account for the increased sensitivity to noise during the periods. The penalty values are added to the hourly equivalent sound levels (L_{eq}) prior to computing the weighted 24-hr CNEL level.

State

California Noise Control Act

The California Noise Control Act states that excessive noise is a serious hazard to public health and welfare. It declares that exposure to certain levels of noise can result in damage, whether it be psychological, physiological, or even economic. This act declares that the State of California is responsible for protecting the health and welfare of its citizens, and must control, prevent, and abate hazardous noise.

California Department of Transportation- and Construction-Induced Vibration Guidance

This regulation provides practical guidance on addressing vibration issues associated with the construction, operation, and maintenance of Caltrans projects. Continuous/frequent intermittent vibration sources are significant when their peak particle velocity (PPV) exceeds 0.1 inch per second. Table 4.10-2, Human Response to Transient Vibration outlines some more specific criteria for human annoyance due to vibration. Though the guidance is non-enforceable, it provides the basis for evaluating potential vibration from the Proposed Project.

Table 4.10-2: Human Response to Transient Vibration

Human Response	PPV (inches/second)
Severe	2.0
Strongly Perceptible	0.9
Distinctly Perceptible	0.24
Barely Perceptible	0.035
Source: Caltrans, 2004	

Local

County of San Diego

The County of San Diego Noise ordinance contains sound level limits and other noise regulations. Normal operation of the power lines and any associated equipment is limited to the noise limits summarized in Table 4.10-3, County of San Diego Sound Level Limits.

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Table 4.10-3: County of San Diego Sound Level Limits

Location	Time	One-Hour Average Sound Level Limits (dBA)
Residential, Agriculture, and Semi-Rural Zones with a General Plan Land Use Designation density of less than 10.9 dwelling units per acre	7 a.m. to 10 p.m.	50
	10 p.m. to 7 a.m.	45
Residential, Agriculture, and Semi-Rural Zones with a General Plan Land Use Designation density of 10.9 or more dwelling units per acre	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
Industrial Zones	Anytime	70-75*
* Varies based on exact designation of zone		
Source: San Diego County Code of Regulatory Ordinances, 2009		

The San Diego County Code provides separate limitations on construction noise, which is not subject to the limits in Table 4.10-3. Construction noise is prohibited outside the hours of 7 a.m. to 7 p.m., and is prohibited on Sundays and holidays. Construction noise is further limited to an average of 75 dB over an eight-hour period, when measured at the boundary line of the property where the noise source is located, or on any occupied property where the noise is being received.

Also provided in the County of San Diego Code are sound level limitations on impulsive noise. The Code limits impulsive noise at the property lines of the receiving occupied property use. These limitations are provided below as L_{25} noise limits. The L_{25} is the noise level exceeded 25 percent of the time; therefore, no impulse noise produced is to exceed the maximum sound level listed in the Table 4.10-4, County of San Diego Impulsive Sound Level Limits for more than 15 minutes in any hour-long measurement period.

Table 4.10-4: County of San Diego Impulsive Sound Level Limits

Occupied Property Use	Decibels (dBA)
Residential, village zoning or civic use	82
Agricultural, commercial or industrial use	85

In the event certain projects cannot conform to the requirements of the County noise ordinance, the County of San Diego Code expressly authorizes the County noise control officer to grant a variance to allow temporary deviations from those requirements. The variance process is outlined in Section 36.423 of the County Code and expressly applies to non-emergency work on a public utility facility. An application for a variance may be made to the county noise control

officer, who evaluates the request and determines if a variance will be issued. The evaluation includes review if the potential impact the noise may have on each property that would be affected, the value to the community of the work being done, and other factors.

San Diego County Noise Element

The San Diego County Noise Element addresses the County's need to enforce California noise standards, the need for a land use and transportation planning program, and includes recommendations for reducing unnecessary noise in the acoustical environment. The majority of the element focuses on transportation noise. It also gives guidance on acceptable sound levels for new development. The noise element does not specifically address construction related noise.

4.10.3.2 Noise Setting

Overall Project Setting

The Proposed Project involves the replacement of existing wood poles with new weatherized steel poles along a 14-mile segment of TL 637. TL 637 is a 69kV, mostly single circuit power line located in the unincorporated communities of Ramona and Santa Ysabel, in San Diego County, California. It passes through densely vegetated and fire-prone areas, on public and private lands. This includes lands managed by the County of San Diego, BLM, and Cleveland National Forest.

Summary of Noise-Sensitive Receptors

The majority of the power line passes through rural residential and undeveloped areas, with some residences in close proximity to the Proposed Project on the western portion of the Proposed Project. Noise sensitive areas are considered to be any areas where there are dwelling units, or sites where frequent human uses occur. This includes residences, schools, libraries, hospitals, and public parks.

4.10.4 Potential Impacts

4.10.4.1 Significance Criteria

Thresholds of impact significance were derived from Appendix G of the *CEQA Guidelines*. Under these guidelines, the Proposed Project could have a potentially significant impact regarding noise if it would result in:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;

b) Exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels;

c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;

d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;

e) Exposure of people residing or working in the project area to excessive noise levels for a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public-use airport; or

f) Exposure of people residing or working in the project area to excessive noise levels for a project within the vicinity of a private airstrip.

4.10.4.2 Question 10a – Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

Construction – Less Than Significant Impact

Power Line

Construction of the Proposed Project is expected to take approximately nine months to complete. However, each pole installation site can be considered a separate construction site. Construction at each site will include clearing of the sites, foundation excavation, concrete placement, steel pole installation, and wire stringing. The existing wood poles will be completely removed, and the holes backfilled with soil from the pole replacement, except where pole removal will impact sensitive resources. Construction will require the temporary use of noise-generating equipment. The construction equipment to be used is similar to that used during typical public works projects. Typical noise levels from these construction sources are provided in Table 4.10-5, Typical Construction Sound Levels, for a reference distance of 50 feet.

Table 4.10-5: Typical Construction Sound Levels

Equipment	Maximum Noise Level at 50 feet (dBA)
Air Compressor	80 (1)
Auger	85 (1)
Wire Pulling Machine	80 (2)
Mower	88 (2)
Drill Rig	85 (1)
Grader	85 (1)
Hydraulic Rock-Splitting/Drilling Equipment	89 (3)
Truck	85 (1)
Helicopter at Takeoff	90 (4)

(1) Massachusetts Big Dig Noise Control
(2) Ebasco, 1989
(3) Federal Highway Administration, 2006
(4) TRC, 2001

It is important to note that the equipment presented will not generally be operated continuously, nor will the equipment always operate simultaneously. There will therefore be times when no

equipment is operating and noise will be at ambient levels. Typical usage factors for this type of construction equipment were applied to the above sound levels in order to arrive at the average sound level that may occur during a typical 8-hour workday. The usage factors account for the fact that equipment are not always operated at full throttle conditions, and are not used for an entire 8-hour workday. Table 4.10-6, Construction Sound Levels Adjusted for 8-Hour Day provides the construction sound levels, adjusted to reflect a typical eight hour day. Table 4.10-6 also provides the sound levels expected at various distances from any pole site, from 50 feet out to 1,000 feet.

Table 4.10-6: Construction Sound Levels Adjusted for 8-Hour Day

Equipment	Adjusted Noise Level for 8-hour Day (dBA)				
	50 feet	100 feet	200 feet	500 feet	1,000 feet
Air Compressor	73	67	61	53	47
Auger	78	72	66	58	52
Wire Pulling Machine	74	68	62	54	48
Mower	75	69	63	55	49
Drill Rig	78	72	66	58	52
Grader	75	69	63	55	49
Hydraulic Rock-Splitting/Drilling Equipment	75	69	63	55	49
Truck	77	71	65	57	51

The County of San Diego noise code exempts construction noise from the limits in Table 4.10-3, provided that construction occurs between the hours of 7 a.m. to 7 p.m., and, when measured over an eight hour day, to less than 75 dBA at an adjoining property line. Although daily construction activities cannot be predicted and will vary depending on conditions in the field, the data in Table 4.10-6 above reveals that it is possible that construction sound levels may exceed the 75 dBA limit at the few noise sensitive area (NSA) locations where construction will occur within 50 feet of a residential property line. NSAs along a majority of the route are much further away from where construction will occur, and construction noise levels in these areas will be much lower as shown in Table 4.10-6 above. Nonetheless, in the event construction noise is anticipated to exceed 75d BA at adjacent properties with NSAs located within 50 feet of construction activities, SDG&E will meet and confer with the County to discuss temporarily deviating from the requirements of the Noise Code, as described in the construction noise variance process (Code Section 36.423). This meet and confer process is an ordinary construction restriction. If requested by the County, SDG&E will evaluate the potential re-location of residents and/or the use of portable noise barriers.

Work in the proximity of any single general location on the power line will likely last no more than a few days to one week, as construction activities move along the corridor. Therefore, no single receptor will be exposed to significant noise levels for an extended period.

The noise levels presented in Tables 4.10-5 and 4.10-6 are those that would be experienced by people outdoors. A building will provide significant attenuation of associated construction noise impacts. For instance, sound levels can be expected to be up to 27 dBA lower indoors

with windows closed. Even in homes with the windows open, indoor sound levels can be reduced by up to 17 dBA.

Hydraulic rock drilling or rock blasting may be used to minimize the drilling time. Rock blasting, if utilized, would substantially reduce construction time at any one location as extensive digging in hard rock would not be required. Blasting would therefore have the effect of reducing potential noise impacts. Noise associated with these activities would occur intermittently, over short periods of time. Rock blasting, if used, is typically performed only once per day and would therefore not exceed the County's impulsive noise standards. In addition, should blasting be determined to be required, a noise and vibration calculation will be prepared and submitted to SDG&E Environmental Programs for review before blasting at each site. The construction contractor will be required to comply with all relevant local, state, and federal regulations relating to blasting activities.

As an additional ordinary construction restriction, functional mufflers will be maintained on all equipment minimize noise levels.

Staging Areas

In addition to the pole construction sites, there will be four staging areas in use during the Proposed Project. Staging areas will be used for refueling construction vehicles, pole assemblage, open storage of material and equipment, trailers, portable restrooms, parking, and lighting. Staging areas may also be utilized for helicopter landing zones. Noise generated at these sites will be intermittent, and typically associated with periodic movement of equipment in and out of the staging area. No construction will occur in the staging area. The staging areas and the distance to the nearest NSA for each are listed in Table 4.10-7, Project Staging Areas.

Table 4.10-7: Project Staging Areas

Staging Area	Distance/Direction to Nearest NSA
Warnock	125 feet / E
Creelman	650 feet / SW
Woodlot	650 feet / W
Santa Ysabel	100 feet / N

Sound levels associated with staging area use are anticipated to be below the County noise limits at nearby NSAs. Construction activities would not occur in the staging areas and therefore, the construction noise levels presented (refer to Tables 4.10-5 and 4.10-6) would not be generated. No noise impacts are anticipated to be associated with staging area use.

Helicopter Landing Zones

Helicopters may be required in order to remove the existing wood poles, install the replacement steel poles, and to string the new wires. The helicopters will utilize two landing zones, and potentially the four staging areas, for take-offs and landings. A typical helicopter noise level is 90 dBA at 50 feet (refer to Table 4.10-5). The proposed landing zones and staging areas are listed in Table 4.10-8, Project Helicopter Landing Zones and Associated Sound Levels, along

with the distance to the nearest NSA and the maximum sound levels that could be expected at the NSA.

Table 4.10-8: Project Helicopter Landing Zones and Associated Sound Levels

Helicopter Landing Zone	Distance/Direction to Nearest Noise Sensitive Area	Helicopter Noise Level
Mount Gower	1350 feet / NW	61 dBA
Littlepage Road	2150 feet / W	56 dBA
Warnock	400 feet / E (1)	71 dBA
Creelman	650 feet / SW	67 dBA
Woodlot	650 feet / W	67 dBA
Santa Ysabel	400 feet / N (1)	71 dBA

(1) Center of staging area would be used for helicopter takeoff and landing.

Calculated helicopter noise levels at the nearest NSAs are shown in Table 4.10-8 to be well below the County noise ordinance limit. Takeoffs and landings at the Santa Ysabel and Warnock Staging Areas, if they are utilized, would be limited to the center of the staging area in order to reduce noise levels at the nearest NSAs. No noise impacts are anticipated to occur for helicopter landing zone use. Helicopter usage for Proposed Project construction will be limited to those hours deemed acceptable for construction activities by the County of San Diego Noise Code (7 a.m. to 7 p.m.).

Operation & Maintenance – No Impact

The Proposed Project will not increase the voltage of the power lines over the existing condition. As such, any minimal corona noise levels would not change. Under normal circumstances, 69kV power lines do not produce a discernible noise. Modern power lines have been designed, and are constructed and maintained, to generate a minimum of corona-related noise. Under certain rain or fog conditions, corona noise can increase. Typical noise levels, under these conditions, should be less than 32 dBA at 50 feet. Under very heavy rainfall, the corona noise may increase to 44 dBA at 50 feet. However, this noise is generally masked by the sound of falling rain. Also, in most cases, people are indoors where the sound would be inaudible during these times.

Noise levels associated with the operation of the Proposed Project will not exceed the San Diego County noise ordinance. Short-term operational noise may be generated when regular or emergency maintenance is needed. However, this is consistent with the existing conditions, as periodic maintenance is currently conducted for the existing power line.

4.10.4.3 Question 10b – Exposure of persons to or generation of excessive ground borne vibration or groundborne noise levels.

Construction – No Impact

Construction activities have the potential to generate groundborne vibration and groundborne noise, depending on the type of construction equipment in use and the distance to the receiver.

The County of San Diego noise ordinance limits groundborne vibration; however, short-term construction is exempt from the standards.

The human response thresholds for vibration (refer to Table 4.10-2), indicate that vibration is barely perceptible with a PPV of 0.035. Table 4.10-9, Vibration Source Levels for Construction Equipment at 50 feet provides vibration source levels for some construction equipment, which have been normalized to a reference distance of 50 feet, which is approximately the closest any one single residence would be to any pole site.

Table 4.10-9: Vibration Source Levels for Construction Equipment at 50 Feet

Equipment	PPV at 50 Feet
Caisson Drill	0.031
Loaded Truck	0.027
Small Bulldozer	0.001
Source: FTA, 2006	

Referring to the data in Table 4.10-9, vibration levels would be below the barely perceptible response level. Because the closest residences are 50 feet or more away from where any construction would occur, no impacts are anticipated.

Vibration levels associated with rock blasting, if conducted, are site-specific and are dependent on soil/rock conditions at the site, the amount of explosive used, and the depth that the blasting occurs. In the unlikely event that rock blasting is used during construction, SDG&E will implement ordinary construction restrictions to ensure that any blasting activities comply with applicable laws, regulations, and ordinances; and that potential adverse effects from blasting activities located near NSAs will remain less than significant.

Operation & Maintenance – No Impact

SDG&E currently maintains and operates extensive existing electric power, distribution and substation facilities throughout the Proposed Project site, and the Proposed Project is the reconstruction of existing electric facilities within existing SDG&E ROW and substation property. SDG&E's existing facilities and operations and maintenance activities are included in the baseline for evaluating the impacts of the Proposed Project. Operations and maintenance activities for the Proposed Project would decrease slightly compared to baseline conditions due to the increased reliability of the new power line components included in a typical wood to steel replacement project, the installation of fewer poles along the alignment, and the relocation of poles outside of jurisdictional features. Any future potential maintenance-related construction projects would be evaluated under G.O. 131-D and CEQA for purposes of assessing whether further CPUC approval is required. Therefore, no impacts due to vibration from operation and maintenance would occur.

4.10.4.4 Question 10c – A substantial permanent increase in ambient noise levels in the project vicinity above levels without the project.

Construction – No Impact

Construction activities will be a temporary feature, performed over nine to eleven months. Therefore, no permanent increase in ambient noise levels would occur, and there would be no impact.

Operation & Maintenance – No Impact

As described in the response to Question 10a, the Proposed Project will not increase the voltage rating of the existing power line. As such, any minimal corona noise that currently occurs will not increase, and no noise impact would occur.

SDG&E currently maintains and operates extensive existing electric power, distribution and substation facilities throughout the Proposed Project site, and the Proposed Project is the reconstruction of existing electric facilities within existing SDG&E ROW and substation property. SDG&E's existing facilities and operations and maintenance activities are included in the baseline for evaluating the impacts of the Proposed Project. Operations and maintenance activities for the Proposed Project would decrease slightly compared to baseline conditions due to the increased reliability of the new power line components included in a typical wood to steel replacement project, the installation of fewer poles along the alignment, and the relocation of poles outside of jurisdictional features. Any future potential maintenance-related construction projects would be evaluated under G.O. 131-D and CEQA for purposes of assessing whether further CPUC approval is required. Therefore, no impacts due to noise from operation and maintenance would occur.

4.10.4.5 Question 10d – A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

Construction – Less Than Significant Impacts

Impacts during construction have been outlined in the response to Question 10a. Construction activities along the power line will result in potential periodic noise impacts. However, such impacts will be temporary, localized, and intermittent. Ordinary construction restrictions (refer to Section 3.8, Project Design Features and Construction/Operation Restrictions) will be utilized in order to minimize noise impacts that occur during construction. Therefore, impacts would be less than significant.

Operation & Maintenance– No Impact

Impacts during operation and maintenance of the Proposed Project have been outlined in the responses to Questions 10a and 10c. No substantial temporary or periodic increases in ambient noise levels are expected; therefore, there would be no impact.

4.10.4.6 Question 10e – For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels.

Construction, Operation & Maintenance – No Impact

The Proposed Project is not located within two miles of a public airport. The nearest public airport is Ramona Airport, located approximately 3.1 miles from the Creelman Substation. The Proposed Project would not use this airport for construction, operation or maintenance. No impacts would occur.

4.10.4.7 Question 10f – For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels.

Construction, Operation & Maintenance – No Impact

The Proposed Project area is located within the vicinity of private airstrips. The Proposed Project would not use these airstrips for construction, operation or maintenance. No impacts would occur.

4.10.5 Project Design Features and Ordinary Construction/Operating Restrictions

With implementation of the ordinary construction restrictions (as outlined within Section 3.8) potential impacts relating to construction-generated noise will remain less than significant and the Proposed Project will comply with local noise ordinances.

4.10.6 Applicant Proposed Measures

The Proposed Project has no significant impacts relating to noise; therefore, no APMs are proposed.

4.10.7 Detailed Discussion of Significant Impacts

Based upon the preceding analysis, no significant impacts relating to noise are anticipated from the Proposed Project.

4.10.8 References

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