

Action, except about 1.5 miles in Segment G, would be constructed in existing transmission ROW or parallel and adjacent to existing transmission lines. This, along with the fact the Proposed Action would be sited to minimize conflicts with existing land uses, would help avoid new impacts to incompatible and existing land uses. Incremental impacts to recreation and conservation areas would not be significant. As with agricultural uses, most existing recreation uses could continue within the new and existing ROW where the Proposed Action would be constructed. Recreation and conservation areas are not found within the portion of Segment G that would not be parallel to an existing ROW.

Construction could temporarily interfere with the use of local roadways or driveways. Heavy construction equipment may damage study area roadways or driveways. Western's EPMs would avoid and reduce the magnitude of such impacts. These practices include using detours, limiting the area and duration of traffic impacts by carefully siting staging areas and construction traffic routes, making arrangements with local business owners and residences, and repairing any damage that may occur to roadways or driveways during construction.

Reconductoring would cause minimal impacts to existing land uses during short-term maintenance, including the private school (and associated playground and soccer field) and the private recreation facility (and associated tennis courts) along Segment D (MP 1.0 to 2.0).

4.9.2.4 IMPACTS FROM ALTERNATIVE 1—RECONDUCTORING O'BANION SUBSTATION TO TRACY SUBSTATION

Alternative 1 would not result in long-term impacts to prime farmland. This alternative has the potential to cause land use impacts as described for the Proposed Action. For the same reasons as described for the Proposed Action, none of these impacts are expected to be significant.

4.9.2.5 IMPACTS FROM ALTERNATIVE 2—NEW TRANSMISSION O'BANION SUBSTATION TO ELVERTA SUBSTATION AND REALIGNMENTS

Alternative 2 would remove approximately 6.7 acres of prime farmland from agricultural use (the same as the Proposed Action). All this land would be in Segment A₁. This alternative has the potential to cause the same land use impacts described for the Proposed Action. However, for the same reasons as described for the Proposed Action north of Elverta Substation, none of these impacts are expected to be significant.

4.9.2.6 IMPACTS FROM ALTERNATIVE 3—NEW TRANSMISSION ELK GROVE SUBSTATION TO TRACY SUBSTATION

Alternative 3 would remove approximately 15.2 acres of prime farmland from agricultural use (the most of any of the action alternatives). This alternative may cause the same impacts described for the Proposed Action. However, for the same reasons as described for the Proposed Action, none of these impacts are expected to be significant.

4.9.2.7 IMPACTS FROM THE NO ACTION ALTERNATIVE

No new land use impacts would occur under the No Action Alternative. The No Action Alternative could continue to have periodic impacts on existing land uses during routine maintenance and operations activities on agricultural lands where crops are located in the ROW. These short-term impacts would not be significant. Under the No Action Alternative, and to minimize crop damage in the ROW, Western would continue to work with landowners regarding scheduling of routine maintenance and operation activities.

4.10 NOISE

4.10.1 AFFECTED ENVIRONMENT

This section describes existing conditions and noise impacts that would result from the Proposed Action and alternatives. Noise is sound that is often considered undesirable because it can interfere with speech, communication, or hearing, or is otherwise annoying. It can be intense enough to damage hearing. Noise decreases with distance from the source. The distance at which sound can be heard depends on the intensity of the sound, meteorological conditions, terrain, and background noise levels.

4.10.1.1 RESOURCE STUDY AREA

Approximately 108 miles of linear features make up the Proposed Action and alternatives study area. The study area is within the counties of Sutter, Sacramento, Placer, San Joaquin, Contra Costa, and Alameda. The study area for noise impacts covers the ROW and areas that could be impacted by noise from the ROW.

4.10.1.2 ISSUES OF ENVIRONMENTAL CONCERN

Potential noise impacts of the Proposed Action and alternatives would be from construction and operation of the line.

Table 4.10-1. Sound Levels for Some Typical Outdoor Noise Sources

Noise Level Decibels (dBA)	Outdoor Noise
110	Jet flyover at 1,000 feet
100	Gas lawn mower at 3 feet
90	Diesel truck at 50 feet
80	Urban daytime noise
70	Gas lawn mower at 100 feet
60	Heavy traffic at 300 feet
50	Quiet urban daytime
40	Quiet urban night time
30	Quiet rural night time
20	Rustling leaves
10	Mosquito at 3 feet

Source: Original 2002

4.10.1.3 CHARACTERIZATION

Sound levels are stated in decibels (dB), a measure of sound pressure compared to a reference sound pressure. Sound levels calculated as decibel, A-weighted sound levels (dBA), approximate the frequency response of the human ear. Table 4.10-1 provides noise levels for typical noise sources.

The study area passes through or near urban areas, mixed agricultural, commercial, industrial, and residential developments, and major freeways and highways. OSHA and the *California Noise Control Act* (California Health and Safety Code Sections 46000-46080) apply to the generation of and exposure to noise. Counties and local governments set noise regulations to protect communities against nuisance noises.

The average day-to-night noise level (L_{dn}), is used as a standard of regulation, and is calculated by adding a 10 dB penalty to sound levels in the night (10 p.m. to 7 a.m.) to compensate for the increased sensitivity to noise during the quieter evening and nighttime hours. The counties along the study area have established a day-to-night standard from the source to residence of 65 dBA L_{dn} that they consider compatible with residential land uses. The EPA has published an outdoor noise level guideline of 55 dBA averaged over 24 hours.

The study area would traverse areas ranging from sparsely inhabited rural and agricultural to metropolitan. Activities near the study area that generate noise above background levels of 30 to 50 dBA would include motor vehicle traffic along the interstates and state routes. Freeway traffic levels can be up to 90 dBA and local

traffic noise can be up to 80 dBA. Industrial activities and construction in the Sacramento metropolitan vicinity, trains traveling along the Southern Pacific, Western Pacific, and Central California tracks, agricultural activities, and aircraft flying in and out of Sacramento International Airport and local airstrips also contribute to noise levels near the study area. Interstates 5, 80, and Business 80, and Highways 99, 113, 70, 50, 12, and 4 are other major sources of noise.

4.10.2 ENVIRONMENTAL CONSEQUENCES**4.10.2.1 STANDARDS OF SIGNIFICANCE**

A significant effect from noise would result in

- Exposure of persons to, or generation of, noise levels in excess of standards established in the local noise ordinance, or applicable standards of regulatory agencies,
- Exposure of persons to, or generation of, excessive groundborne vibration or groundborne noise levels where they live, work, or recreate,
- A substantial permanent increase in ambient noise levels in the study area vicinity above levels existing without the study area, or
- Exceeding the regulatory levels of 65 dBA L_{dn} or 55 dBA averaged over 24 hours.

4.10.2.2 ENVIRONMENTAL PROTECTION MEASURES

The EPM for noise resources from Table 3-4 states that all vehicles and equipment would be equipped with required exhaust noise abatement suppression devices.

4.10.2.3 IMPACTS FROM PROPOSED ACTION—NEW TRANSMISSION O'BANION SUBSTATION TO ELVERTA SUBSTATION; REALIGNMENTS; RECONDUCTORING ELVERTA SUBSTATION TO TRACY SUBSTATION

The Proposed Action and alternatives would require the use of several kinds of construction equipment. Sound levels from typical construction equipment are shown in Table 4.10-2.

Construction activities require various types of work. Reconductoring can be divided into the phases of site preparation and excavation, wire pulling, installation, and cleanup. Construction of new transmission lines is divided into the phases of site preparation and excavation, foundation and concrete pouring, pole erection, wire pulling and installation, and cleanup. Realignment follows the same phases of new construction with the addition of pole and foundation removal and cleanup. Table 4.10-3 shows sound levels from various kinds of construction activities.

Table 4.10-2. Sound Levels from Typical Construction Equipment

Equipment	Average Sound (dBA)	Comments
Dump trucks	91	At 50 feet
Heavy trucks	91	At 50 feet
Welding Machine	73	At 50 feet
Backhoe (0.75 yd ³)	85	At 50 feet
Loader	78	At 50 feet
Grader	87	At 50 feet
Concrete mixer	85	At 50 feet
Movable crane	88	At 50 feet
Generator	78	At 50 feet
Pneumatic tools	85	At 30 feet
Compressor	86	At 50 feet
Trencher	72	At 25 feet
Side boom	80	At 25 feet
Cat tractor	93	At 25 feet
Jackhammer	88	At 50 feet
Hand grinder	82	At 5 feet

Source: US EPA 1971. Noise from Construction Equipment and Operations, US Building Equipment and Home Appliances. Prepared BY Bolt, Beranek, and Newman for US EPA Office of Noise Abatement and Control, Washington D.C.
 dBA: decibel, A-weighted sound levels
 yd³: cubic yard

New transmission system construction, removal of transmission structures, access road construction, reconductoring, and pulling operations all generate noise. Estimated maximum noise levels during peak construction at the edge of ROW for the Proposed Action would not exceed 92 dBA. Noise generated at the pulling sites would be about 90 dBA. Commercial businesses and residences would be close enough to the Proposed Action that noise from construction would be noticeable.

Because the work would be of short duration, with intermittent noise only during daylight hours, the limits for day-to-night average noise (65 dBA L_{dn}) and 24-hour average noise (55 dBA $Leq_{(24)}$) would not likely be exceeded beyond the edge of the ROW. At most locations, work would not exceed two to three days at any one location. In addition, feasible noise abatement measures would be implemented. Therefore, noise impacts would be considered insignificant.

Corona discharges at the conductor surface resulting from the electrical breakdown of air into charged particles cause operational noises of transmission lines. Noise would mainly occur during wet weather, with noise

Table 4.10-3. Sound Levels from Typical Construction Activities

Activity	Loudest Construction Equipment	Equipment Noise Level (dBA)	Composite Site Noise Level at 50 feet from Source (dBA)
Site preparation and excavation	Dump truck Backhoe	91 85	92
Foundation and concrete pouring	Heavy truck Concrete mixer	91 85	92
Pole erection	Moveable crane Jackhammer	88 88	91
Wire pulling and installation	Moveable crane Heavy truck	88 86	90
Cleanup	Heavy truck Grader	91 87	92

Source: Original 2002
 dBA: decibel, A-weighted sound levels

levels low enough to blend into the background and not be noticeable beyond the edge of the ROW.

Maintenance of the transmission line would result in the noise of routine inspection vehicles or aircraft periodically during the year. If repairs need to be made, noise would result from vehicles, equipment, and tools.

4.10.2.4 IMPACTS FROM ALTERNATIVE 1—RECONDUCTORING O'BANION SUBSTATION TO TRACY SUBSTATION

Alternative 1 would generate overall less noise than the Proposed Action because only reconductoring would occur. Under Alternative 1, forty percent fewer structures would be constructed and 85 percent less short-term disturbed acreage would result than under the Proposed Action. Therefore, noise impacts would be considered insignificant.

4.10.2.5 IMPACTS FROM ALTERNATIVE 2—NEW TRANSMISSION O'BANION SUBSTATION TO ELVERTA SUBSTATION AND REALIGNMENTS

Alternative 2 would generate the same level of noise as the Proposed Action between the O'Banion Substation and Elverta Substation. Reconductoring between Elverta Substation and Tracy Substation would not be conducted, thereby decreasing the relative duration of overall noise impacts. Therefore, noise impacts would be considered insignificant.

4.10.2.6 IMPACTS FROM ALTERNATIVE 3— NEW TRANSMISSION ELK GROVE SUBSTATION TO TRACY SUBSTATION

Alternative 3 would generate less overall noise than the Proposed Action because construction would be confined between Elk Grove Substation and Tracy Substation. Therefore, noise impacts would be considered insignificant.

4.10.2.7 IMPACTS FROM THE NO ACTION ALTERNATIVE

Under the No Action Alternative, maintenance and line inspection activities would continue on the existing lines. There would be periodic noise from inspection aircraft and vehicles, with the associated noise of equipment and tools and the noise would be short term and insignificant.

4.11 PALEONTOLOGICAL RESOURCES

4.11.1 AFFECTED ENVIRONMENT

Paleontological resources are fossilized remains or imprints of multicellular animals and plants (36 CFR Part 261.2). A fossil is the remnant or trace of an organism of a past geologic age, such as a skeleton or leaf imprint, embedded and preserved in the earth's crust. The significance of paleontological resources is subjectively ranked based on the presumed scientific value of proven fossil content. Vertebrate fossils are typically less abundant than invertebrate fossils, and are usually rated more significant. However, well-preserved soft-bodied organisms, including worms, insects, spiders, or rare invertebrate fossils, may be considered highly significant.

Activities affecting paleontological resources on Federal lands would fall under the Federal *Land Policy and Management Act* of 1976 (43 USC 1701 et seq.), which requires public lands to be managed in a manner that protects “scientific qualities” and other values of resources. The *Antiquities Act of 1906* (16 USC 431-433) requires Federal protection for significant paleontological resources on Federally owned lands.

4.11.1.1 RESOURCE STUDY AREA

The study area for paleontological resources is the width of one mile from the ROW centerline. The excavation depth for footings would depend on soil characteristics at each structure location; however, a depth of 10 feet has been assumed for similar projects.

4.11.1.2 ISSUES OF ENVIRONMENTAL CONCERN

The issue of environmental concern for paleontological resources is the potential destruction of significant fossils in the study area. Potential impacts to paleontological

resources would be confined to construction activities. The likelihood of impacts from reconductoring would be low because ground disturbance would take place in areas that have already been disturbed when replacing structures. Construction of a new transmission line would necessitate excavation of potentially undisturbed ground and require extensive use of heavy equipment for new structures. Excavation for structures covers largely disturbed agricultural regions north and south of the Sacramento metropolitan area.

4.11.1.3 CHARACTERIZATION

Paleontological resources are defined by the geologic units in which they are found. Fossils are found in sedimentary rocks, which are typically classified into lithostratigraphic units, units of stratified, mainly sedimentary, rocks grouped based on lithology, rather than biologic characteristics or age.

As discussed in Section 4.7 (Geology), three types of geologic formations exist along the transmission corridor between the O'Banion Substation and Tracy Substation (see Figure 4-3), including:

- ***Quaternary Floodbasin (Qb)***—Floodbasin deposits, associated with flood stage on major streams,
- ***Quaternary River Deposit (Qr)***—River deposits, associated with river channels, floodplains, and natural levees, and
- ***Quaternary Continental deposit (QTc)***—Continental deposits (older alluvium, fanglomerates, and sedimentary formations).

The river and floodbasin deposits are Holocene (since the last ice age within the last 11,000 years), and the continental deposits are Pliocene to Holocene. The Pliocene (5.4 - 2.4 million years ago) represents the final stages of a global cooling trend that led up to the ice ages.

In general, the fossil potential for the river deposits is low because this is primarily an erosional environment, whereas the fossil potential for the floodbasin and continental deposits is high, since they are depositional environments. An example of the fossil potential of these units is excavation of bones from a giant ground sloth, bison, and camel, and mammoth tusks at the Arco Arena in 1989 (Butler 2001, Hilton 2002). Arco Arena is about 2 miles west of Segment C MP 6.0, outside the study area. These fossils were found at a depth of 12 to 15 feet and date between 600,000 and 15,000 years old in continental deposits. This was a massive excavation with a much greater likelihood of encountering fossils, when compared to excavations necessary for structure footings.

The Proposed Action and alternatives are in the central portion of California's Central Valley. Literature review