APPENDICES H-N

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Floodplain/Wetlands Assessment

Appendix H. Final
Floodplain and Wetland Assessment

Western Area Power Administration North Area Right-of-Way Maintenance

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Acronyms

BO	Biological Opinion
CFR	Code of Federal Regulations
COTP	California-Oregon Transmission Project
CVP	Central Valley Project
DOE	U.S. Department of Energy
EA	Environmental Assessment
EO	Executive Order
IVM	Integrated Vegetation Management
O&M	Operation and Maintenance
PACI	Pacific AC Intertie
PCM	Project Conservation Measure
ROW	Right-of-Way
USFWS	U.S. Fish and Wildlife Service
Western	Western Area Power Administration

Units of Measure

kV	kilovolt

1.0 INTRODUCTION

1.1 Project Background

Western Area Power Administration (Western) owns, operates, and maintains all or a portion of fifteen 230-kilovolt (kV) transmission lines, one 500-kV transmission line, and one 115-kV transmission line in Modoc, Siskiyou, Shasta, Trinity, Tehama, Butte, Yuba, Glenn, Colusa, and Sutter counties, California, and Klamath County, Oregon (Figure H.1.1-1). These lines include the Central Valley Project (CVP) and the Pacific AC Intertie (PACI) transmission lines. Additionally, Western operates and maintains the California-Oregon Transmission Project (COTP), which is owned by the Transmission Agency of Northern California, and is comprised of a 500-kV transmission line that extends from the Captain Jack Substation in Klamath County, Oregon, to the Tesla Substation in San Joaquin County, California. The Proposed Action includes maintaining reliable operation of these transmission lines and legal access road right-of-ways (ROW); thereby ensuring that Western's maintenance crews have safe and all-weather access to transmission line structures. These objectives are consistent with reliability, safety, and environmental regulations and policies, including the National Electric Safety Code, the Western Systems Coordinating Council, North America Electric Reliability Corporation Reliability Standards (Standard FAC-003-1 – Transmission Vegetation Management Program), and the Western directives for protecting human safety and maintaining system reliability.

The study area includes the transmission line ROW and access roads within Western's Sierra Nevada Region of northern and central California. There are more than 800 miles of transmission line ROW and 250 miles of access roads within the project area. It should be noted that the project area does not include COTP-documented access roads on U.S. Forest Service land.

For clarity, the project area is divided into three sections or regions: Round Mountain/Modoc, Redding/Trinity, and Valley. Refer to Figure H.1.1-1 for an illustration of the following geographical areas. The Round Mountain/Modoc area includes the Malin-Round Mountain, Round Mountain-Cottonwood, and Captain Jack-Olinda transmission lines, the Redding/Trinity area includes Trinity-Carr, Carr-Keswick, Spring Creek-Keswick, Cottonwood-Olinda, Keswick-Airport, Keswick-Olinda, Airport-Cottonwood, Shasta-Cottonwood, Shasta-Flanagan, and Flanagan-Keswick transmission lines, and the Valley area includes the Olinda-O'Banion, Sutter-O'Banion, Cottonwood-Roseville, Olinda-Tracy, and Tracy-Telsa Junction transmission lines.

The ROW passes through rugged and densely vegetated areas in northern and central California, requiring proactive vegetation maintenance. Under the Proposed Action, Western would employ vegetation management practices that would promote low-growing plant communities within the ROW. In order to achieve this, a proactive approach would be implemented that involves intensive work in the short term (as activities are conducted to reduce the occurrence of high-growing vegetation), but diminished work in the long term (as low-growing communities are established). Western's 2007 Integrated Vegetation Management Plan (IVM) (Western 2007) employs an adaptive management approach to follow environmentally proactive vegetation control principles for unwanted vegetation, including cultural/natural control, biological control, physical/mechanical control, and chemical control. Section 2 of the Environmental Assessment (EA) provides additional details on operation and maintenance activities.

Oregon
Nevada
DEL NORTE
SISKIYOU
MODOC
LASSEN
SHASTA
TRINITY
TEHAMA
PLUMAS
BUTTE
GLENN
SIERRA
NEVADA
YUBA
PLACER
MENDOCINO
LAKE
COLUSA
SUTTER
YOLO
EL DORADO
ALPINE
SONOMA
NAPA
SACRAMENTO
AMADOR
SOLANO
CALAVERAS
TUOLUMNE
SAN JOAQUIN
CONTRA COSTA
STANISLAUS
SAN FRANCISCO
ALAMEDA
SAN MATEO

Captain Jack
Malin
Captain Jack - Olinda
Malin - Round Mountain #1
Spring Creek - Keswick
Trinity
Trinity - Carr
Shasta
Shasta - Flanagan
Round Mountain
Carr - Keswick #1 & #2
Carr
Flanagan
Flanagan - Keswick
Whiskeytown Switchyard
Keswick
Whiskeytown
Airport
Round Mountain - Cottonwood #1
Keswick - Olinda #2
Keswick - Airport
Shasta - Cottonwood #1 & #2
Airport - Cottonwood
Cottonwood - Olinda #1 & #2
Olinda
Cottonwood
Keswick - Obanion & Olinda - Obanion
Cottonwood - Roseville
Maxwell
Olinda - Tracy
Obanion
Sutter
Obanion - Sutter
Tracy - Tesla Junction #1 & #2
Tracy 500kV
Tracy 230kV

Legend

- COTP - Round Mountain/Modoc
- COTP - Redding/Trinity
- COTP - Valley
- PACI - Round Mountain/Modoc
- CVP - Redding/Trinity
- CVP - Valley
- Substations
- Communication Facilities
- Counties

0 10 20 40 Miles

Figure H.1.1-1
North Area ROW Maintenance Project Area

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Western's current Operation and Maintenance (O&M) and IVM programs are authorized under a Programmatic Biological Opinion (BO) pursuant to Section 7 of the Federal Endangered Species Act. The May 27, 1998 Programmatic BO from U.S. Fish and Wildlife Service (USFWS) addresses current routine ROW maintenance along Western's CVP transmission ROW.

Western is currently using a vegetation management approach for ROW maintenance that is characterized by identifying target areas during periodic line inspections and conducting appropriate vegetation management or system operation and maintenance activities.

1.2 Regulatory Background

Executive Order (EO) 11988, Floodplain Management (10 CFR Part 1022), directs each Federal agency to issue or amend existing regulations and procedures to ensure that potential effects of any action in a floodplain are evaluated and that planning programs and budget requests reflect consideration of flood hazards and floodplain management. Title 10 CFR Part 1022.11 requires the U.S. Department of Energy (DOE) to use Flood Insurance Rate Maps or Flood Hazard Boundary Maps to determine if a proposed action would be located in the base of a critical-action floodplain. On Federal or state lands where Flood Insurance Rate Maps or Flood Hazard Boundary Maps are not available, DOE is required to seek flood information from the appropriate land-management agency or from agencies with expertise in floodplain analysis.

EO 11990, *Protection of Wetlands* (10 CFR Part 1022), directs all Federal agencies to issue or amend existing procedures to ensure consideration of wetland protection in decision-making and to ensure evaluation of potential impacts of any new construction proposed in a wetland. As required by 10 CFR Part 1022.11 (c), DOE examined the following information with regard to possible wetlands in the study area:

- USFWS National Wetlands inventory. Maps from the National Wetlands Inventory identify many naturally occurring wetlands in the vicinity of the project area ROW.
- U.S. Department of Agriculture, Soil Conservation Service Local Identification Maps.
- U.S. Geological Survey Topographic Maps. Topographic maps in the vicinity show springs, permanent streams, and other indications of wetlands.
- State wetland inventories. There are numerous State of California wetland inventories in the vicinity of the project area ROW.
- Biological surveys conducted between mid-April 2005 and September 30, 2005, with subsequent visits to select areas occurring during the winter and spring of 2006. Meandering pedestrian surveys of the project area recorded the locations of a variety of features of biological importance, including: wetlands and vernal pools, rivers and streams, and other potential habitat for threatened and endangered species.

2.0 FLOODPLAINS

2.1 Existing Conditions

Floodplains perform the natural, vital function of conveying and dissipating the volume and energy of peak surface runoff flows downstream. Periodic flood flows form and sustain specific habitat types (such as wetland and riparian areas) within the floodplains. Environmental regulations have been developed to preserve unimpaired flood flows through established floodplains, prevent flood-related damage to downstream resources, and protect unique habitat types and species. A base floodplain, also called a 100-year floodplain, is the lowlands adjoining inland and coastal waters, and relatively flat and flood prone areas of offshore islands, with a 1.0 percent chance of flooding in any given year. A critical action floodplain is the 500-year floodplain with a 0.2 percent chance of flooding in any given year (10 CFR 1022.4). Floodplains within the study area were identified by reviewing the Federal Emergency Management Agency maps of delineated floodplains. The likelihood of 100- and 500-year flood occurrence is based on historic hydrology; future flood flows may be more or less frequent.

The existing environment is described in Chapter 3 of the EA. The information below summarizes the more important aspects of the environment that pertain to this floodplain assessment. The floodplain acreage is calculated from the total extent of floodplains crossed by the ROW.

2.1.1 Round Mountain/Modoc

The Captain Jack and Malin-Round Mountain transmission lines run through the foothill and high mountain subregions of the Cascade Range and eventually cross the northwestern corner of the Modoc Plateau. The ROW in this area does not cross any major waters. Both regions are generally defined by their volcanic geomorphology. The ROW in the Round Mountain/Modoc area crosses 3.4 and 1.5 acres of 100- and 500-year floodplains, respectively (see Attachment A, Figure H.2.1-1).

2.1.1 Redding/Trinity

The biogeographical areas characterizing the transmission lines around the Redding area and extending west into the Trinity Alps includes portions of the Cascade Range foothills and the eastern flank of the Klamath Range. The metamorphic foothills surrounding the Redding area consist of blue oak/foothill pine and mixed chaparral. As the transmission line ascends west into the Trinity Alps, pockets of serpentine rock appear and the vegetation type changes to coniferous forests. The floodplains crossed in this area are associated with the Sacramento River and its tributaries. Several water resources in this area are managed by dams and reservoirs, powerplants, major canals, conduits, tunnels, and related facilities as part of the Bureau of Reclamation's CVP. Waters that flow to the Sacramento River from Trinity Lake, Whiskeytown Lake, and Shasta Lake are managed at the Trinity, Whiskeytown, and Shasta dams, respectively. The ROW in the Redding/Trinity area crosses 6.2 and 1.8 acres of 100- and 500-year floodplains, respectively (see Attachment A, Figure H.2.1-1).

2.1.2 Valley

The majority of the project area (excluding the blueoak foothills to the north) follows the east and west perimeters of the Great Central Valley which is clearly defined on all borders by oak/pine woodlands. Transmission lines traverse floodplains associated with the Sacramento River and its tributaries. Additionally, transmission lines from Olinda to Tracy cross floodplains associated with the confluence of the Sacramento and San Joaquin rivers.

Floodplains for the larger tributaries are constrained by levees to prevent extensive overbank flooding and convey peak flows downstream. In some locations the levees have been set back, expanding the area available for flooding to reinstate a more natural local flood regime. The levee setback areas increase the likelihood of interaction with floodplain resources. The ROW in the Valley crosses 131.9 and 6.4 acres of 100- and 500-year floodplains, respectively (see Attachment A, Figure H.2.1-1).

2.2 Impacts to Floodplains

Disturbance within a floodplain can have potential adverse affects not only at the disturbed site, but also in the stream channel and floodplain further downstream. Adverse impacts may include flood damage to structures located within the floodplain and increased flooding due to displacement of water from the normal floodplain by construction and maintenance activities. Impacts can also occur when resources are degraded enough to lessen the ability of the floodplain to dissipate excess water. Access road maintenance could cause minor changes to land contours, which may affect floodwater flow on an insignificant scale. Access road maintenance activities would primarily consist of improvements in water drainage, and activities intended to decrease erosion.

Table H.2.2-1 presents acres of ROW for each project area segment and access roads in 100- and 500-year floodplains. To prevent increased susceptibility to flooding in the project area as a direct result of the Proposed Action, surface restoration would occur in areas where ground disturbance is substantial or where recontouring is required. Excavated soil would be removed from the site and disposed of appropriately. The expanse of available floodplain within and surrounding the area would completely absorb any change resulting from modifications. Negligible changes to the 100- and 500-year floodplain would not alter the capacity of the floodplain to convey and dissipate the volume and energy of peak flows. Therefore, the stage and extent of a flood would not be increased as a result of the Proposed Action.

Potential beneficial effects to floodplains from the Proposed Action would include:

- Prevention of soil erosion due to increase coverage of low-growing vegetation.
- Reduction in the amount of disturbance to floodplains due to maintenance.

Potential adverse effects to floodplains from the Proposed Action would include:

- Increased erosion on the banks and alteration of the natural flow of the watercourse resulting from use of a backhoe, which could temporarily alter vegetative structure.

Table H.2.2-1. Summary of Floodplains within the Project Area			
Segment	**Acres Within 100-Year Floodplain**	**Acres Within 500-Year Floodplain**	**Acres Outside 100- and 500-Year Floodplains**
Round Mountain/Modoc Plateau			
Malin - Round Mountain	0.1	0	203.7
Round Mountain-Cottonwood	1.1	0.6	68.7
Captain Jack-Olinda	2.2	0.9	331.5
Redding/Trinity Area			
Trinity-Carr	0.2	0	24.9
Carr-Whiskeytown	0.2	0	12.8
Whiskeytown-Keswick	0.1	0	8.6
Spring Creek-Keswick	0.4	0	4.3
Keswick-Airport	2.4	0.1	12.4
Keswick-Olinda	1.6	0.1	58.7
Airport-Cottonwood	1.3	1.6	7.7
Shasta-Flanagan	0	0	15.1
Flanagan-Keswick	0	0	22.4
Valley			
Olinda-O'Banion	45.7	6.4	149.7
Sutter-O'Banion	0	3.6	0.0
Cottonwood-Roseville	12.3	0	119.9
Olinda-Cottonwood	0.3	0	22.7
Olinda-Tracy	73.6	0.4	226.1
Tracy-Telsa Junction	0	0	18.2
Total	**141.5**	**13.7**	**1,307.4**

3.0 WETLANDS

3.1 Existing Conditions

A wetland is an area that is inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions, including swamps, marshes, bogs and similar areas (10 CFR 1022.4). Wetlands provide natural flood protection and erosion control, recharge surface and groundwaters, and maintain and improve local water quality. They are among the most productive and biologically diverse ecosystems in the world, providing dynamic, specialized habitat for a wide variety of common and rare plant and animal species. Environmental regulations have been developed to preserve and protect the unique habitat types and species they support including several species of vernal pool fairy and tadpole shrimp, amphibians, as well as rare endemic plants. Freshwater emergent wetlands are dominated by rooted herbaceous hydrophytes. These plants are typically perennial (lasts two seasons or more) and can tolerate water at their base, but they cannot survive long periods in which they are completely submerged. A variety of wetland types occur within the project area including:

- Freshwater emergent wetland
- Riverine
- Lacustrine
- Palustrine
- Vernal pool

Attachment B, Figure H.3.1-1, presents the locations and types of wetlands that occur within the project area. The wetland habitats within the project area were categorized during project surveys using Preliminary Descriptions of the Terrestrial Natural Communities of California (Holland 1986) and the Sawyer and Keeler Wolf system (Sawyer and Keeler Wolf 1995).

The existing environment is described in Chapter 3 of the EA. The information below summarizes the existing environmental conditions that pertain to this wetlands assessment. The wetland acreage is calculated from the total extent of wetlands crossed by the ROW.

3.1.1 Round Mountain/Modoc

The southern section of the COTP and PACI transmission lines between Round Mountain and Cottonwood substations share similar habitats with the Redding area including chaparral woodlands and vernal pool grassland. North of Round Mountain Substation, transmission lines ascend into the mountains then descend onto the Modoc Plateau north of Highway 89. The transmission lines near the Oregon border traverse primarily open alkali flatlands.

The Round Mountain/Modoc portion of the project area contains 4.6 acres of vernal pools. Vernal pools were generally not observed in the mountainous areas between the Round Mountain Substation and Highway 89. As the ROW descends onto the Modoc Plateau, isolated northern basalt flow vernal pools appear in open meadows within the ponderosa pine and mixed coniferous forests.

Sagebrush scrub and juniper woodland habitat are typical of the Great Basin flora and dominate the northern part of the project area. Low precipitation and temperature extremes permit the survival of only the hardiest xeric vegetation. Wetland habitats, including riparian areas, total 9.4 acres.

3.1.2 Redding/Trinity

The Redding/Trinity area and the Valley share many of the same habitats including vernal pools, freshwater wetlands, and riparian forests. The main differences between these two areas are the lack of large expanses of open grassland and the presence of extensive chaparral woodlands in the Redding/Trinity area. The project area near Redding traverses approximately 0.5 acre of vernal pools including isolated and high density vernal pool annual grassland.

The Redding/Trinity area contains 4.0 acres of riparian forest and 2.7 acres of wetlands, including seeps and springs, seasonal wetlands, freshwater and salt water marshes, meadows, man-made waters, ponds, and lakes.

3.1.3 Valley

Virtually all Central Valley lands have been altered by urban development, agriculture, and flood control. The once extensive riparian corridors and vernal pool grasslands have been severely fragmented producing isolated pockets of sensitive habitats and special-status species. Rare habitats of

concern requiring special protection in the Valley include vernal pools, freshwater and saltwater wetlands, perennial grasslands, and great valley riparian forests.

The Valley portion of the project area crosses 43.4 acres of vernal pools including isolated and high density vernal pool annual grassland. The northern reaches of the transmission lines traverse riparian woodlands, valley oak savannah, and annual grasslands. The annual grasslands include the highest concentration of vernal pools within the project area. While several vernal pool species require protection, Western's aim is to preserve the habitat as a whole.

The ROW crosses 23.7 acres of wetland habitats in the Valley including seeps and springs, seasonal wetlands, freshwater and salt water marshes, meadows, man-made waters, and ponds and lakes. The ROW crosses 7.1 acres of great valley riparian forest and scrub including willow scrub, cottonwood riparian, mixed riparian forest, and oak riparian forest.

3.2 Impacts to Wetlands

If operation and maintenance specifications identify that wetland areas cannot be avoided, Western would conduct wetland delineation in consultation with the U.S. Army Corps of Engineers and USFWS. Western would mitigate impacts to wetlands that cannot be avoided. In addition, a California Department of Fish and Game 1602 Streambed Alteration Agreement, Section 401 and 404 Regional Water Quality Control Board Certification permits may be required before maintenance activities begin. Potential direct impacts on flora and fauna in wetlands and vernal pools could be caused by mowing, blading, cutting, chopping, flailing of woody vegetation, topping and trimming of trees, hand pulling and hoeing of noxious weeds, and inhibiting growth of vegetation by using geotextile barriers within sensitive areas. Rutting from vehicle traffic can also impact wetlands.

Installation of access roads could allow easier public access to wetland areas. Project activities would comply with any stipulations required by permits to deter human access into these areas.

Maintenance within water bodies or riparian corridors could result in increased erosion and sedimentation, which may adversely affect water quality. Construction equipment would not cross the water bodies when water is present. Sedimentation control measures would be used to prevent increased erosion and sedimentation of soils that would violate water quality standards for discharge to a wetland habitat.

Changes in topography that would disturb hydrologic patterns or violate water quality standards for discharge to a wetland habitat would be avoided by restricting all construction vehicle movement outside of the ROW to predesignated access, contractor-acquired access, or public roads. The use of herbicides, petroleum, oil, lubricants, and other hazardous materials during maintenance would be strictly controlled by using best management practices. A fuel spill could be a short- or long-term impact, depending on material spilled, response time, and quality of the clean up. Spills could be minimized or avoided by Western and their contractors by complying with PCMs.

Western's project activities would comply with environmental laws, regulations, and permits. Through participation with consulting agencies and other conservation and mitigation efforts, these losses would be minimized to less than significant.

Potential beneficial effects to wetlands from the Proposed Action would include:

- Western would establish low-growing vegetation that would not interfere with transmission lines or facilities or hamper access to the transmission line. This would reduce the amount of disturbance to wetlands due to maintenance.
- Control the spread of noxious weeds in wetlands.

Potential adverse effects to wetlands from the Proposed Action would include:

- Careless application of herbicides that can kill or damage non-targeted wetland vegetation and other sensitive habitats. The degree to which a habitat is impacted depends on selectivity of the herbicide, application treatment, and accidental contact.
- Alteration of drainage patterns or compaction of soils within the wetlands caused by replacement of minor structures and placing fill around existing structures.
- Permanent loss of wetland vegetation and habitat caused by activities including installation of access roads, culverts, water diversion bars, vegetation removal by bulldozer or grader, and re-contouring a watercourse.

4.0 ALTERNATIVES

4.1 No Action Alternative

Under the No Action Alternative, Western would continue its need-driven management approach using current methods for ROW maintenance. The threat of fires and the destruction to the environment or loss of human life would continue to be a major concern. Under a need-driven management approach, Western would trim, mow, clear, remove, and dispose of vegetation along ROW segments as control needs are identified through periodic line patrols. Without the Proposed Action, no changes to existing facilities or alignment would occur and no new impacts to wetlands or the active floodplain would be expected. Western would perform vegetation management using the current mix of manual and mechanical methods to control vegetation on transmission line and access road ROWs. The No Action Alternative also includes the current practice of spot application of glyphosate-based herbicides. Access road repairs would be performed as needed. Transmission system maintenance activities would consist of regular aerial and ground patrols to locate problems, repairs to correct problems, and preventative maintenance. These are all authorized under the Programmatic Biological Opinion published in May 1998.

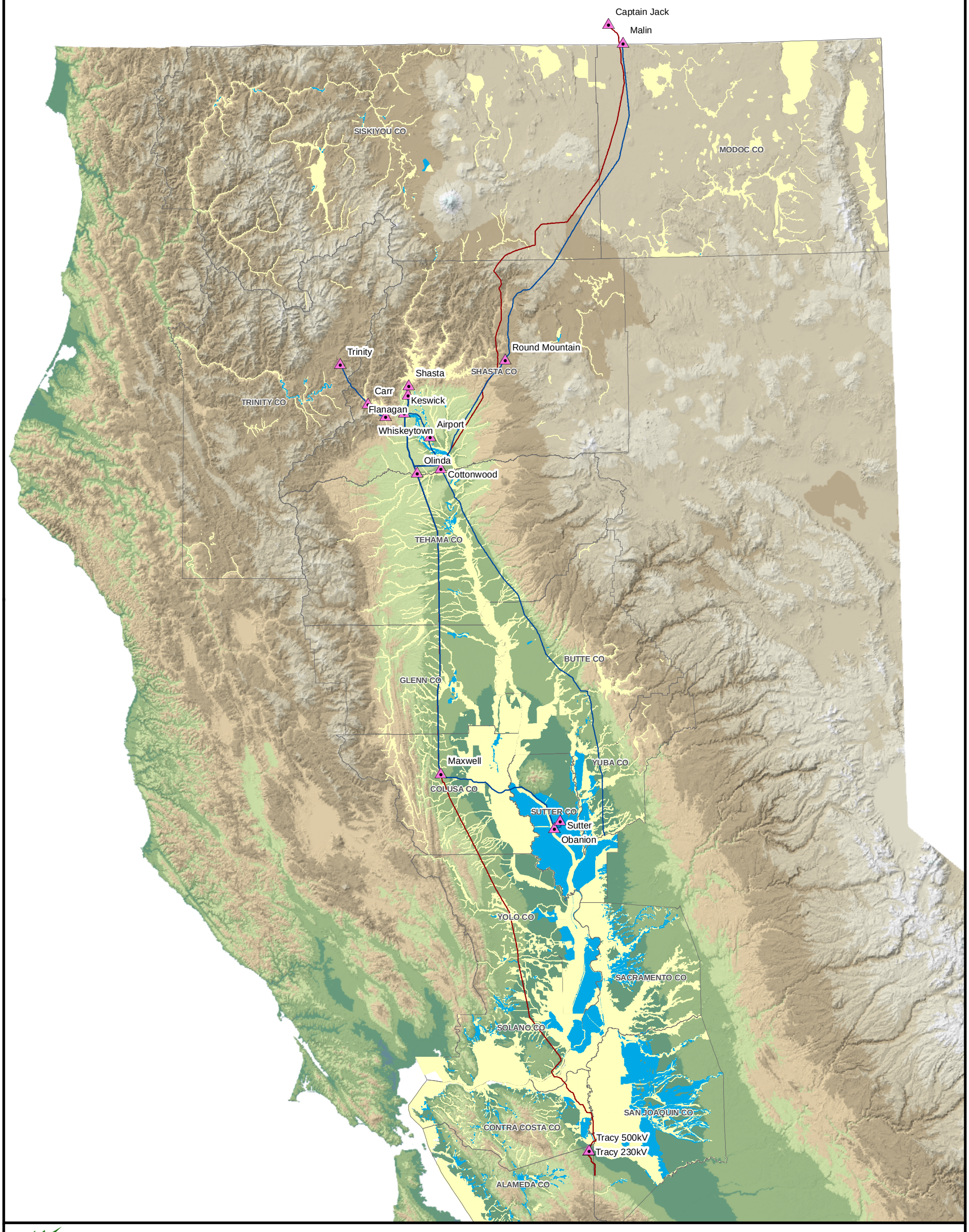
5.0 REFERENCES

10 CFR 1022 ..... Compliance with Floodplain and Wetland Environmental Review Requirements, 10 CFR, pt. 1022 (1992).

Holland 1986 ..... Holland, R. F., "Descriptions of the Terrestrial Natural Communities of California (Preliminary)," The Resources Agency, State of California, Department of Fish and Game.

Sawyer and Keeler-Wolf 1995 ..... Sawyer, Keeler-Wolf. 1995. A Manual of California Vegetation. California Native Plant Society Press: Sacramento, CA.

Western 2007 ..... *Western's Integrated Vegetation Management Environmental Guidance Manual*, Western Area Power Administration, Folsom, California. 2007.



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Source: SNR, GDT

Legend

- Substations
- 100 year flood
- 500 year flood

Western Area Power Administration North Area Floodplains and Wetlands Assessment

Figure H.2.1-1

100- and 500-Year Floodplains

1" = 25 miles

25 12.5 0 25

Miles

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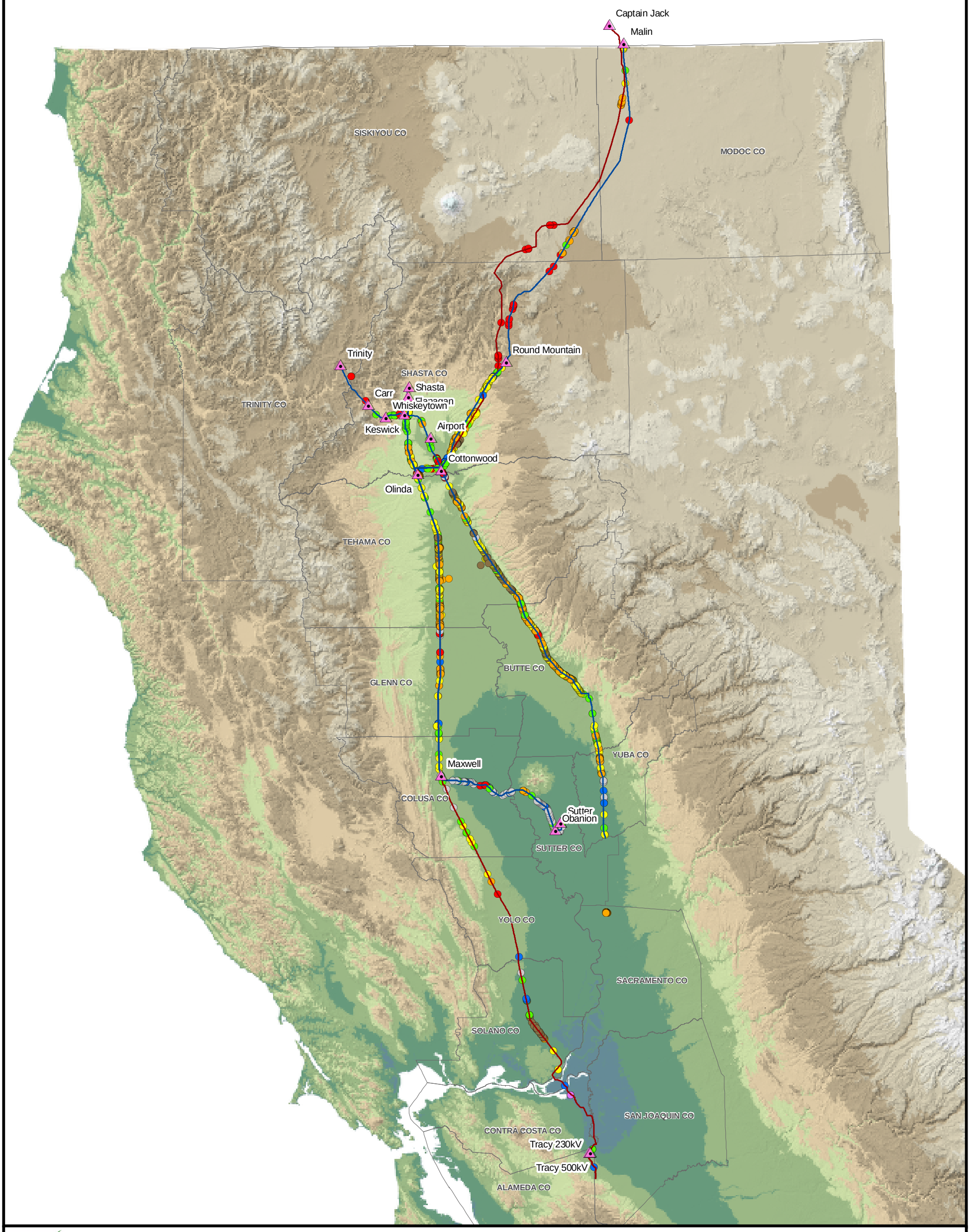

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Legend

- Drainage
- Freshwater Marsh
- Seasonal
- Seasonal Wetland
- Swale
- Vernal Pool (Isolated)
- Vernal Pool Grassland
- Wetland
- Substations

North Area Right-of-Way Maintenance
Floodplain and Wetland Assessment

Figure H.3.1-1

Wetland Map

1" = 25 miles

25 12.5 0 25

Miles

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Appendix I

Noxious Weed Management

APPENDIX I NOXIOUS WEED MANAGEMENT

Summary

Western has prepared an Integrated Vegetation Management Guide and Transmission Vegetation Management Program Report (IVM) (February 2007). This document presents Western's vegetation management program. Section 11 of the report is contained in this appendix. It provides a detailed approach to noxious weed management and includes descriptions (Figures 11-1A to 11-1P) and general treatment information (Table 11-1) for selected noxious weeds. For up-to-date listings of weeds being introduced and spread in California, Western would consult resources provided by the California Invasive Plant Council (www.cal-ipc.org).

It should be noted that in 2007 the BLM issued a Record of Decision for the Final Programmatic Environmental Impact Statement on vegetation treatment and fuels reduction, guiding the agency's use of herbicides. The vegetation and fuels reduction guide has been developed for 17 states including California.

11.1 INTRODUCTION

Western's historical vegetation management activities have been restricted primarily to the control of vegetation which poses a fire or safety hazard to transmission facilities. The existing vegetation management control program has now been expanded to be more proactive, with active management toward the desired condition of a low growth community on the right-of-way, as well as the control of noxious or undesirable weeds. The following sections describe Western's Noxious Weed Management Policy and its implementation during all stages of construction and maintenance activities.

11.2 BACKGROUND

Virtually all noxious weed species are non-native plants that have found ideal growing environments in North America. In their native habitats, insects, competing organisms, and soil and moisture conditions combine to keep these weeds in check. But in the western United States, an ideal environment, coupled with the species' prolific reproductive capabilities (seed production) and the lack of natural predators, have allowed noxious weeds to become established and to spread rapidly on both public and private rangeland and farmland. Furthermore, disturbance from human activities and development may enhance the probability of non-native plant establishment. However, few strategies for minimizing the spread of non-native species exist. As a result, crop yields and wildlife

habitat are being reduced, livestock is poisoned, native plants are displaced, and rangeland in good ecological condition is being invaded. The threat to biological diversity and native ecosystems is a critical issue to most parks.

There are several internet sites with useful information on noxious weeds. A selection of these is provided in Appendix H of WAPA's Integrated Vegetation Management Guide and Transmission Vegetation Management Program (IVM), 2007.

11.3 FEDERAL, STATE AND COUNTY LAWS/REGULATIONS

The Federal Noxious Weed Act of 1974, as amended by Sec. 15, Management of Undesirable Plants on Federal Lands, 1990, mandates each Federal land management agency to:

1. Designate a lead office and person trained in the management of undesirable plant species
2. Establish and fund an undesirable plant management program
3. Complete and implement cooperative agreements with State agencies
4. Establish integrated management systems to control undesirable plant species

Federal agencies responsible for the management of public lands have established an interagency committee which agreed to work cooperatively to manage noxious weeds, increase public awareness, support further research, and provide technical assistance on private lands to accomplish an integrated approach to the management of noxious weeds. All Federal land management agencies have a designated weed coordinator or similar position, which can be found on the agency websites.

Western's General Counsel has concluded that language in the act requires Western to take action on lands we own and have jurisdiction over, including easements and rights-of-way. Additionally, the Department of Energy's (DOE) Office of Environmental Guidance has instructed Western to comply with all Federal and State mandates to control undesirable weeds.

Within Western's service area, all states except Texas have passed laws that address noxious weed management and have developed State noxious weed lists (see Appendix B of IVM 2007- State Noxious Weed Lists). Additionally, the majority of State weed management laws allow the governing body of a weed management district (usually the county) to designate additional undesirable plants for management within its jurisdiction. For example, in 1990 the Colorado Legislature passed the Colorado Undesirable Plant Management Act (HB 1175) requiring county governments to develop integrated weed

management plans that would include Federal agency involvement in controlling specific weeds in Colorado. Therefore, **be sure to check with the appropriate County agency** (usually a Weed Management Board) for county-specific requirements.

11.4 FEE-OWNED VERSUS NON-FEE-OWNED LANDS

Western's land management and rights administration fall within two general areas; fee-owned/withdrawn and non-fee-owned (easements, rights-of-way, permits, etc.). Weed management practices, responsibilities, and liabilities for these two situations are quite different. In the fee-owned/withdrawn situation, Western is the property owner/administrator and must assume the burden of full compliance with the weed laws. In the non-fee-owned situation, Western must defer to the landowner or administrator as the responsible party for compliance with Federal and State laws, while ensuring that any actions taken are not detrimental to the rights held by Western.

Implementation of Western's noxious weed policy should be prioritized according to Western's vested interest in the land. First priority for noxious weed control should be on those lands owned by Western in fee. Second priority for control of noxious weeds should be on non-fee-owned Federal lands where transmission facilities either cross or occupy Federal land and where noxious weed infestations occur within permitted areas. Third priority for control of noxious weeds should be on or across non-Federal government lands.

The following sections are proposed guidelines for Western weed management involvement under the two general areas described above.

11.4.1 Western Fee-Owned/Withdrawn Property

Western shall be responsible for the inventory, treatment, and control of those weed species identified by State and/or county noxious weed laws. While current weed control practices generally involve the eradication of all vegetation within controlled sites, such as substations, other fee-owned property, such as buffer zones, receive minimal weed management effort. Given Western's responsible and liability under the Federal law, Western has looked to State law for coordination and compliance requirements, including the identification of target undesirable plants. Western shall be responsible for the inventory, treatment, and control of those weed species identified by State and/or county noxious weed laws. Where necessary, the Western Regional Office will notify the County Agent or County Board of Western's weed management activities.

Where chemical (herbicide) control is carried out by Western personnel, all spray crew personnel should be familiar with the identification of noxious weed species targeted for management by the state/county. Figures 11-1A through 11-1P provide photos of some common noxious weed species. After targeted weed species are identified, Western-approved herbicides can be selectively applied to remove the undesirable species, while maintaining and encouraging the development of desirable shrubs and grasses. Table 11-1 lists the most common noxious weeds expected to be encountered in Western's service area and the herbicides recommended for each weed. For problem weed infestations such as Canada and musk thistle, knapweeds, and ragweeds outside the substation or yard, the herbicide Transline® provides excellent control. The active ingredient is clopyralid. It is registered for selective control of broadleaf weeds in non-cropland areas, industrial manufacturing and storage sites and rights-of-way. By removing only unwanted weeds and brush, Transline® allows grass to live, thus preserving a grassy ground cover which prevents erosion.

Where vegetation management activities on Western fee-owned land involve contractor application of herbicides, language in statements of work should instruct the contractor to not only control weed growth within the security fence, but also to selectively control the growth of state/county targeted weed species on nearby Western fee-owned land. These fee-owned lands generally include substations and buffer zones, access roads, and electric transmission line approaches.

Noxious Weeds
SCOTCH THISTLE *(Onopordum acanthium)*
(Source: The British Columbia Ministry of Agriculture and Food)

GROWTH HABIT: Biennial, sometimes annual, erect, up to 8 ft. tall. **Rosette formed first year, flowering stem elongates second year**.

LEAVES: Large, coarsely lobed, **hairy on both sides, velvety gray appearance**. Margins lined with sharp conspicuous spines. Basal leaves up to 2 ft. long and 1 ft. wide.

STEMS: Erect, branching, **spiny leaf wings extend down onto stem**, covered with dense fine hairs.

FLOWER: Solitary, terminal, 1 to 2 inches in diameter violet to reddish colored. Bracts spine tipped.

ROOTS: **Large fleshy taproot**.

SEEDS: Deep brown to black, distinctly wrinkled, 3/16 in. long.

OTHER: **Reproduce by seed only**. Dense stands may be impenetrable to livestock.

FIG. 11-1A

Noxious Weeds
DIFFUSE KNAPWEED *(Centaurea diffusa)*
(Source: The British Columbia Ministry of Agriculture and Food)

Bolting plant

GROWTH HABIT: Annual or biennial, bushy, up to 2 ft. tall. **Rosette formed first year flowering stalk elongates second year**.

LEAVES: **Greyish-green**, alternate, basal leaves whorled, **upper leaves much reduced. Covered with fine hair**.

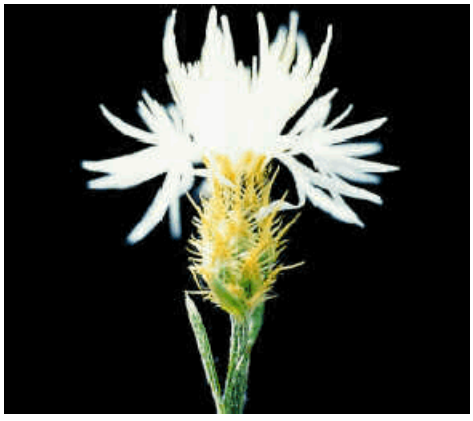
STEM: **Hairy**, erect, **single main stem** from a rootstock, branched near or above the base.

FLOWER: Solitary, usually white, sometimes pink, rose or lavender; **seedhead bracts end as sharp, rigid spines**.

ROOTS: Elongated taproot.

SEEDS: Oblong, dark brown or grey with **longitudinal lines**.

OTHER: May seriously reduce productive potential of infested rangelands.



Rigid spines on tips of flower bracts

FIG. 11-1B

Noxious Weeds
MUSK THISTLE *(Carduus nutans)*
(Source: The British Columbia Ministry of Agriculture and Food)

Large flowers with spine-tipped bracts "nod" at maturity

GROWTH HABIT: Biennial, or winter annual, erect up to 7' tall. Freely branching. **Rosette formed 1st year, flowering stem elongates 2nd year**.

LEAVES: **Dark green with light midrib, hairless on both sides**, long sharp spines.

STEM: **Hairless**.

FLOWER: Solitary, terminal, **nodding heads 1 1/2" to 3" diameter, deep rose to violet to purple**.

ROOTS: Fleshy **tap root**, hollow near ground surface.

SEEDS: Can be in excess of 20,000 per plan with 90% viable. Ninety percent may germinate in first 2 years. Seeds may germinate after 10 years in soil.

OTHER: **Reproduce by seed only**.

FIG. 11-1C

Noxious Weeds
HOARY CRESS *(Cardaria draba)*
(Source: The British Columbia Ministry of Agriculture and Food)

Heart-shaped seedpods

"White-top" infestation

GROWTH HABIT: Perennial herb, up to 24' tall, erect, **becoming lodged with age**.

LEAVES: Alternate, lance-shaped and slightly irregular, **greyish-green, base of upper leaves clasping stem**.

STEMS: Stoutish, branched toward top.

FLOWERS: Small, white, 4 petals; numerous flower branches and dense flowers give plant a **dense, white, flat-topped appearance**. Numerous white flowers produced at the top of the plant gives rise to its other common name of "white-top".

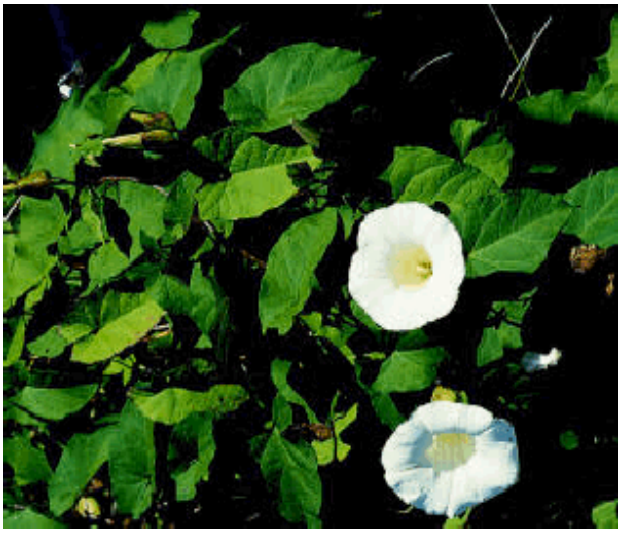
ROOTS: **Extensive** horizontally and vertically **frequent shoots arising from root stocks**.

SEEDS: Reddish-brown, granular, egg-shaped, contained in heart-shaped pods.

OTHER: **Flowers early** (April and May), **reproduces by seeds, root stocks and creeping roots**.

FIG. 11-1D

Noxious Weeds
FIELD BINDWEED *(Convolvulus arvensis)*
(Source: The British Columbia Ministry of Agriculture and Food)



GROWTH HABIT: Perennial **vine**, reproducing from seeds and roots.

LEAVES: Alternate, simple, **arrowhead-shaped, rounded or blunt tipped**.

STEM: **Prostrate, twining and mat-forming**, up to 10 ft. long.

FLOWER: **Funnel-shaped**, pale pink to white, up to 1 in. wide; **two small scale-like bracts** attached below flower on flower stem.

ROOTS: **Creeping rhizomes**, extensive.

SEEDS: Four per capsule, dark grey to reddish brown, three sided.

OTHER: Seeds viable over 60 years. **Often confused with wild buckwheat which has heart-shaped sharp pointed leaves and tiny inconspicuous flowers**.

FIG. 11-1E

Noxious Weeds
SPOTTED KNAPWEED *(Centaurea maculosa)*
(Source: The British Columbia Ministry of Agriculture and Food)

Flowerhead bracts with black-tipped fringe giving head a "spotted" appearance

GROWTH HABIT: Biennial or short lived perennial, up to 3 ft. tall. **Rosette formed first year flowering stalk elongates second year**.

LEAVES: Long and divided below, **short and narrow above. Covered with fine hair**.

STEM: Erect with slender wiry branches. **Covered with fine hair**.

FLOWER: Seed heads mostly on branch tips solitary, to 1" diameter. **Pink to purple, rarely white. Seed head bracts are black tipped**, with 5 to 7 pairs of short feathery appendages.

ROOTS: Taproot not well developed.

SEEDS: Brownish, 1/8" long, notched on one side of base, short tuft of bristles at tip end.

OTHER: Very aggressive, can infest large areas quickly, offers very little big game or livestock forage value.

FIG. 11-1F

Noxious Weeds
PLUMELESS THISTLE *(Carduus acanthoides)*
(Source: The British Columbia Ministry of Agriculture and Food)

Spiny winged stems

GROWTH HABIT: Biennial, sometimes annual, erect, up to 8 ft. tall. **Rosette formed first year, flowering stem elongates second year**.

LEAVES: **Dark green with a light midrib, hair only on the underside, leaf margin with sharp spines**.

STEMS: To 4 ft. tall, erect, **winged to flowering heads**.

FLOWER: Solitary, terminal or clusters of 2 to 5. Narrow seedhead bracts spine tipped. **Reddish-purple blooms 1/2 to 1 inch diameter**.

ROOTS: Stout fleshy taproot.

SEEDS: Striped lengthwise, slightly curved, with a protrusion at one end.

OTHER: **Reproduce by seed only**.

FIG. 11-1G

Noxious Weeds
RUSSIAN THISTLE *(Salsola kali)*
(Source: The British Columbia Ministry of Agriculture and Food)

Spine-tipped leaves

Seedling

GROWTH HABIT: Annual which reproduces by seed.

LEAVES: Alternate with the first ones being dark green, soft, slender, and 1 to 2 1/2 inches long. These drop off and later leaves are short, stiff, spiny, with two sharp-pointed bracts at the base.

STEM: Rounded, bushy, much branched, annual growth to 1.2 meters in height; stem usually red or purple striped.

FLOWER: Inconspicuous, green with 2 spiny-tipped stiff bracts.

SEEDS: Can produce over 200,000 seeds per plant.

OTHER: Nicknamed "tumbleweed" when mature plants blow on the wind.

FIG. 11-1H

Noxious Weeds

KOCHIA *(Kochia scoparia)*

(Source: The British Columbia Ministry of Agriculture and Food)

Seedling

Flower clusters

GROWTH HABIT: Annual, erect, up to 6 ft. tall, spreading by seeds.

LEAVES: Narrow, bright green, hairy, numerous and attached directly to the stem. The upper leaves are narrow. Entire margins often turn purple in autumn.

STEM: Erect, round, slender, pale green, much branched. Main stem often tinged with red.

FLOWER: Inconspicuous in the axils of upper leaves.

OTHER: Also called Fireweed or Mexican burning bush.

FIG. 11-1I

Noxious Weeds

CANADA THISTLE *(Cirsium arvense)*

(Source: The British Columbia Ministry of Agriculture and Food)

Flowerheads with spineless bracts

Seedling

Young rosette

GROWTH HABIT: Perennial, erect, up to 4 ft. tall.

LEAVES: Varies from **light to dark green, oblong or lance-shaped**, deeply cut, spiny toothed margins (some may be smooth), slightly hairy below. Tremendous leaf variability.

STEM: Smooth to **slightly hairy**, branched at top.

FLOWER: **Small bristly clusters, 3/8 to 5/8 inch in diameter**, light lavender to deep rose purple. Plants are male or female.

ROOTS: Extensive, fleshy, **creeping root stocks**.

SEEDS: Smooth, light to dark brown, tipped by a cupped conical point, approx. 1/8" long.

OTHER: Reproduces by seed and creeping rootstocks.

FIG. 11-1J

Noxious Weeds
LEAFY SPURGE *(Euphorbia esula)*
(Source: The British Columbia Ministry of Agriculture and Food)

Greenish-yellow flower clusters and bracts

Creeping rootstocks

GROWTH HABIT: Perennial, erect, up to 3 ft. tall, spreading by seed or **creeping roots**.

LEAVES: Alternate, **long**, **narrow**, 1/4" wide and 2" long, usually drooping.

STEMS: Branched near top, hairless, **entire plant contains milky sap**.

FLOWERS: Inconspicuous, surrounded by **large heart-shaped floral leaves** which turn **yellow-green** near maturity.

ROOTS: **Brown, numerous pink buds**, deep spreading, very persistent.

OTHER: Grows in nearly all soil types and habitats. Seed is thrown to 20' by exploding seed capsule. All parts of the plant contain a white milky latex that can irritate skin of livestock and humans.

FIG. 11-1K

Noxious Weeds
DALMATIAN TOADFLAX *(Linaria dalmatica)*
(Source: The British Columbia Ministry of Agriculture and Food)

Snapdragon-like flowers

Waxy leaves clasp the stem

GROWTH HABIT: Perennial, often over 3 ft. tall, erect.

LEAVES: Light green, alternate, **broad, heart-shaped**, clasping the stem.

STEM: Branching, light green, smooth, and **leafy**.

FLOWERS: Snapdragon type, **bright yellow**, tinged with orange, **to 1 1/2" long with long spur**, born in upper leaf axils.

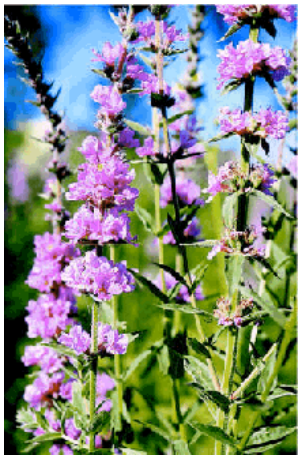
ROOTS: Vigorous, deep and extensive, **creeping roots**.

SEEDS: Numerous, irregularly angled.

OTHER: Spread by seed and creeping roots. Likely introduced to North America as an ornamental.

FIG. 11-1L

Noxious Weeds
PURPLE LOOSESTRIFE *(Lythrum salicaria)*
(Source: The British Columbia Ministry of Agriculture and Food)



Purple flowers produced on terminal spikes

Seed-bearing spikes

GROWTH HABIT: Wetland perennial, 1 1/2 to 8 ft. tall in height.

LEAVES: Opposite or sometimes whorled stalkless leaves.

STEM: Stiff, four-sided stem.

FLOWERS: Purple flowers in a dense terminal spike.

ROOTS: Woody taproot and branching fibrous root system.

SEEDS: Can produce over 2.5 million seeds annually.

OTHER: Sometimes confused with fireweed *(Epilobium angustifolium)*, many infestations have resulted from escape of ornamental varieties. Highly aggressive invader species. If left unchecked, a wetland will eventually become a monoculture of loosestrife. This plant poses a severe threat to waterfowl habitat.

Fireweed

FIG. 11-1M

Noxious Weeds

RUSSIAN KNAPWEED *(Acroptilon repens)*

(Source: The British Columbia Ministry of Agriculture and Food)

Purple flower with papery margined bracts

Creeping roots produce dense infestations

GROWTH HABIT: Perennial herb, up to 3 ft. tall, erect, may be in dense clumps. Greyish color.

LEAVES: Alternate, simple, of **several types**:
Upper leaves - small, narrow, unbroken edge;
Stem leaves - intermediate in size, slight toothed margins;
Basal leaves - deeply notched.

STEM: Numerous branched, each ending with a single flower.

FLOWER HEAD: Single, **terminal, lavender, thistle-like, scaly seed head**.

ROOTS: **Dark brown to black and heavily scaled**.

SEEDS: Flattened, ivory-colored, **retained in cup-shaped seed heads**.

OTHER: Leaves and stems covered with short stiff hairs giving **plant an appearance of knap**. Spreads by seeds and creeping rootstocks. It is very poisonous to horses.

FIG. 11-1N

Noxious Weeds

YELLOW STARTHISTLE (*Centaurea solstitialis*)

(Source: California Department of Food and Agriculture)

Flower

Infestation

Rosettes

GROWTH HABIT: Annual, sometimes biennial, erect, to 6 feet tall.

LEAVES: Alternate, mostly linear and somewhat narrowly oblong to oblanceolate.

STEM: Stiff, openly branched from rear or above the base. Leaf bases extend down stems, giving a winged appearance.

FLOWER: Heads ovoid, spiny, solitary on step tips, consisting of numerous yellow disk flowers.

ROOTS: Tap roots grow vigorously early in the season to depths of 3 feet or more.

SEEDS: Barrel-shaped, about 2 – 3 mm long, with broad bases; laterally notched at the base.

OTHER: Usually senesces in late summer or early fall.

FIG. 11-1O

Noxious Weeds

SCOTCH BROOM (*Cytisus scoparius*)

(Source: California Department of Food and Agriculture)

Flower

Infestation

Full view of plant

GROWTH HABIT: Shrubs, up to 7 feet tall.

LEAVES: Alternate, compound, 3 leaflets; sometimes single on new twigs. About 5 - 20 mm long, oblong to obviate.

STEM: Erect, dense, green; sharply 5-angled or ridged, and star-shaped in cross section, often with few leaves.

FLOWER: Bright yellow, pea-like, single or paired in leaf axils. Calyx typically less than 5 mm long, 2-lipped, glabrous.

ROOTS: Taproots deep, branched, associated with nitrogen-fixing bacteria.

SEEDS: Pods mature June – July; are dark brown to black, flattened, about 2 - 5 cm long, densely lined with long silky golden to silvery hairs, and contain an average of 5 - 9 seeds.

OTHER: Tolerate frost, but die back after severe cold. Ants attracted to seed appendages and disperse seed while foraging.

FIG. 11-1P

TABLE 11-1 HERBICIDES FOR NOXIOUS WEED CONTROL

Noxious Weed (Common Name)	Recommended Herbicide(s)	Optimum Treatment Time	Quantity	Notes
Canada Thistle	Vanquish® +2,4-D	End of bud stage or fall	1 quart each/acre	--
	Tordon® +2,4-D		1 quart each/acre	--
	Tordon® +Vanquish®		1 pint each/acre	--
	Curtail® (Clopyralid +2,4-D)	From rosette (6-8 inches) up to pre-bud stage.	2 quarts/acre	--
	Transline®		12-16 ounces/acre	--
	Telar®	Bud to early bloom or fall.	1 ounce/acre	Roadside/non-crop land use
Musk Thistle	Vanquish® +2,4-D	Rosette stage (spring and fall)	1 pint + 1 quart/acre	--
	Tordon® +2,4-D		.5 pint + 1 quart/acre	--
	Tordon® +Vanquish®		.5 pint + 1 pint/acre	--
	Telar®	After bolt up to early flower stage.	1 ounce/acre	--
	Curtail® (Clopyralid +2,4-D)	Rosette (spring or fall) up to pre-bud stage.	2 quarts/acre	--
	Transline®	Rosette stage (spring and fall) to pre-bud stage.	12-16 ounce/acre	--
Leafy Spurge	Tordon® +2,4-D	Spring during true flower stage or fall to regrowth.	1-2 pints + 1 quart/acre	3-4 years consecutive treatment necessary.
	Vanquish® +2,4-D		1-2 quarts + 1 quart/acre	Should combine chemical control with other methods - e.g., chemical or cultural.
	Roundup® +2,4-D	Treat 2-3 times/season with first treatment at true flower stage and subsequent treatments at 30 day intervals.	.5-1 pint + 1-2 pints/acre	Use under trees or combine with reseeding of competitive perennial grass.

Noxious Weed (Common Name)	Recommended Herbicide(s)	Optimum Treatment Time	Quantity	Notes
Russian Knapweed	Tordon® +2,4-D	Bud Stage or fall.	1 quart each/acre	--
	Vanquish® +2,4-D		1-2 quarts + 1 quart/acre	--
	Curtail® (Clopyralid +2,4-D)	Rosette to early flower.	3 quarts/acre	--
	Transline®		18-24 ounces/acre	--
	Telar®	Fall.	1 ounce/acre	--
Diffuse and Spotted Knapweed	Tordon®	Rosette to early bolt.	1 pint/acre	--
	Tordon® +2,4-D		12 ounces + 1 quart/acre	--
	Tordon® + Vanquish®		.5-1 pint +1-2 pints/acre	--
	Vanquish® +2,4-D		1 pint + 1 quart/acre	--
	Curtail® (Clopyralid +2,4-D)		2 quarts/acre	--
Field Bindweed	Vanquish® +2,4-D	During flower stage or fall.	1 quart each/acre	--
	Tordon® +2,4-D		1 quart each/acre	--
	Tordon® +Vanquish®		1 pint each/acre	--
Hoary Cress (Whitetop)	Telar®	Bud to early bloom stage.	.5-1 ounce/acre	Roadside/noncropland
			.5-.75 ounce/acre	Range/pasture
	2,4-D amine	Apply first treatment at early bloom stage, second treatment at mid summer (July), and third treatment to any fall regrowth.	2-3 quarts/acre	--

Noxious Weed (Common Name)	Recommended Herbicide(s)	Optimum Treatment Time	Quantity	Notes
Perennial Pepperweed (Tall Whitetop)	Telar®	Bud to early bloom stage and fall rosette.	1 ounce/acre	Roadside/noncropland
	2,4-D amine	Apply first treatment at early bloom stage, second treatment at mid summer (July), and third treatment to any fall regrowth.	2-3 quarts/acre	--
Yellow and Dalmation Toadflax	Tordon®	Bud to early bloom.	1-2 quarts/acre	When using 1 quart/acre treat for 2-3 conservative years
Kochia	Vista®	Apply to actively growing weeds.	2/3 - 1 1/2 pt/ac	--
Yellow Starthistle	Transline®	Apply from rosette to mid-bolt growth stage.	½ - 1 pint/acre	--
	Roundup®	Apply when actively growing.	1 pound AI/acre	--
	HI-DEP®	Apply to rosette.	1-2 pounds AI/acre if late in season	--

Sources: Colorado Weed Management Association, Dow, and UC Davis website

Western's completed and approved vegetation management guidance can be used as a vehicle for entering into good neighbor Weed Management Plans, when necessary, with Federal, State, or local government entities. This practice will help to ensure consistency throughout Western. The vegetation management guidance includes any or all of the following:

- Site Specific Weed Inventories
- Integrated Approaches for Control
    - Mechanical Control (Manual, Mowing)
    - Biological Control (Introduce Natural Insect Predators, Grazing)
    - Chemical Control (Herbicides, Fertilizers)
- Environmental Protection Requirements and Best Management Practices
- Herbicide Application Certification Requirements
- New Vegetation Control Methods Procedures
- Monitoring and Reporting Procedures

11.4.2 Western Non-fee-Owned Rights

The administration of Western's rights on other than fee-owned land is difficult to assess in terms of responsibility and liability, especially where weed control is at issue. As stated in the assumptions above and pertaining to weed management responsibility, Western will defer compliance with Federal and State weed control laws and regulations to the landowner or administrator. There is a potential liability issue associated with this assumption in terms of "cause and effect". Weed occurrences may have resulted from or may have been accelerated by construction activities associated with transmission line and related facilities installations. Given the relationship of Western as a right-holder on the land and the fact that it is in Western's best interest to develop a good neighbor policy, Western would provide funding support, where deemed appropriate and where funds are made available, to the government entity responsible for compliance with the Federal and State laws.

The following subsections provide a breakdown of Western's activities involving the various landowner/administrator situations.

Rights On or Across Federal Lands

Western is responsible for the development of Interagency Agreements (IA) which includes the management of noxious weeds (see Section 2.4 of IVM 2007). Where there are active county-wide weed management programs, Western will advise the county of its ongoing efforts with other Federal agencies and will support the integration of such efforts when in the best interest of the government to do so.

IAs will be developed with the Federal agency with surface administration jurisdiction, where necessary. As in the case of BLM, an environmental impact statement was finalized in 1991 that specifies their weed control commitment in the Western States, excluding California. BLM assumes the responsibility of weed management planning and implementation on all lands within their administration. If necessary, Western may execute an IA providing for funding support given Western's right-of-way and Western's acceptance of the estimate and availability of funds.

The Colorado River Storage Project Office and the CSO - Office of Environment developed IAs with Colorado western slope Forest Service District Offices in 1994 and 1995. These agreements can serve as examples for other State weed control activities, where necessary.

Executed IAs will be forwarded to the specific County Agent or Board, when applicable, to ensure coordination and as an effort to demonstrate Western's good intentions toward controlling specific weed problems.

Rights On or Across Non-Federal Government Entities (State or Local)

Cooperative agreements will be developed with State or local government entities with surface administration jurisdiction, where necessary. These government entities are responsible for compliance with State laws, as well as the EPA regulations concerning the application of herbicides. The entity would provide Western with a plan and, after approval and availability of funds, Western will direct transfer of funds to the designated representative. Copies of executed cooperative agreements will be forwarded to the County Agent or Board for coordination purposes, where applicable.

Rights On or Across Private-owned Lands

Cooperative agreements will be developed with County Agents or Boards in those counties where weed management plans have been implemented and where private lands containing Western facilities and their associated rights are within identified weed control areas. The County Agent or Board would be responsible for the inventory and identification of targeted undesirable plants or private lands and the corresponding Western easement. Where Western concurs with the findings and recommendation for control, including cost estimates, funding may then be directed to the respective county representative. Direct coordination with the landowner is not recommended due to the requirements for compliance with State law and EPA regulations. Payments to landowners who are not certified or trained in herbicide application are, in themselves, a liability concern.

11.5 BEST MANAGEMENT PRACTICES FOR NOXIOUS WEED MANAGEMENT

Best Management Practices (BMPs) for weed control will be used to reduce the spread of noxious weed and to increase the effectiveness of treatment. The following lists BMPs that should be considered for use within Western's service area:

- Learn how to identify high-priority weed species. Identification is the first step-know your weeds!
- Report new infestations to the appropriate resource manager.
- Treat intensely when a new or small patch is found; monitor the site periodically and repeat physical removal of the weed or treat with herbicides.
- Inspect roads before maintenance to prevent the spread of weeds by vehicles or equipment.
- Inspect bare soil or disturbed sites frequently for weeds.
- Understand the biology of the weed, including the growth stage, to identify the best and most effective management practices.
- Use seed, hay, and mulch that are certified weed-free.
- Avoid the introduction of ornamental flowers that are on State or county invasive species lists.

- Re-seed areas immediately after disturbance with an appropriate mix of native, competitive species.

- Avoid transporting weed seeds on clothing, vehicles, and equipment.

- Avoid driving in noxious weed infested areas with your vehicle and then traveling to unaffected areas; restrict travel to established roads and trails. .

- Whenever possible, clean all construction and maintenance equipment before moving between sites.

Drought causes plants to shut down their growth process. Spraying weeds during dry periods is not recommended because effectiveness is greatly reduced. Treat after rainfall if the weed is still in the proper growth stage for control.

Not all herbicides work equally on all weeds nor can every herbicide be used in every situation. Read the label, use the information provided in this manual, and consult weed experts and manuals for the most effective treatment method and chemical.

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Appendix J

Cultural Background Material

APPENDIX J.1 NATURAL, PREHISTORIC, HISTORIC, AND ETHNOGRAPHIC SETTINGS

Natural Setting

Valley

The majority of the project area is located in the Great Valley physiographic province, which is a large and flat plain that runs through the center of much of northern and central California. Beginning at the Tesla Substation in the south, the COTP line runs north along the western margins of the San Joaquin Valley, crosses the Sacramento-San Joaquin Valley, and runs north through the western half of the Sacramento Valley to the Olinda Substation, located at its northern end. It is joined by the CVP Olinda-O'Banion/Keswick-O'banion transmission line about midway up the Sacramento Valley. Over most of this area, the COTP and CVP facilities are located in flat terrain that is used for growing agricultural crops. At the north end of the Sacramento Valley, the transmission lines encounter low foothills in alluvial outwash plains. Land use in these areas is more often pasture than agriculture. Similarly, the CVP Cottonwood-Roseville line runs through agricultural areas of the Sacramento Valley and, farther north, encounters foothills and low alluvial outwash plains of the Sierra Nevada and southern Cascades that are generally used as pasture land.

In terms of aboriginal vegetation, the Great Valley province consisted of a series of parallel ecological bands or zones running north-south on either side of the Sacramento River as determined by elevation and rainfall. The Sacramento River natural levee system supported a dense riparian gallery forest. To the east and west of this narrow ribbon of forest were low lying, marshy basins that filled up with water in the winter and generally supported tule (bulrush) marshes. On either side (east and west) of the tule marsh zone, there were broad and flat bunchgrass plains, dotted with valley oaks. Farther east and west of the rivers in better drained soils of the Coast Range and Sierra/southern Cascade foothills, were (and still are) savannahs consisting of grassland, oaks, and brush.

Redding/Trinity Area

The Redding/Trinity region consists of two dramatically contrasting physiographic types: 1) low alluvial outwash plains and foothills of the Coast Ranges and southern Cascades, dissected by the Sacramento River and tributary creeks; and 2) the Trinity Mountains. The outwash plains west of Redding are characterized by greater topographic relief than similar plains farther south, as streams running out of the Coast Ranges have cut ravines through them. The Trinity Mountains consist of steep ridges rising to heights of more than 7,000 feet in the mountains surrounding the transmission line.

Vegetation in the Redding outwash plains and Coast Range foothills generally consists of oak savannah, with the addition of manzanita-dominated chaparral in areas of disturbance, and with occasional gray pines. The Trinity Mountains vary in vegetation density and contain former burn areas of dense manzanita and oak woodland, grading

into montane forests of yellow pine, with Douglas fir, incense cedar, and other species at higher elevations.

Round Mountain/Modoc Plateau

The Round Mountain/Modoc Plateau region contains three contrasting physiographic types: 1) foothills of the southern Cascades, 2) the Cascade Range, and 3) the Modoc Plateau. The southern Cascade foothills consist of a series of east-west trending, gently sloping ridges with long and narrow stream valleys between them. The Cascade range rises abruptly above these valleys to the east to heights of more than 6,000 feet. To the northwest is the Modoc Plateau, a broad, flat plain consisting of basalt flow flats and ridges, punctuated by more recent lava flows and surrounded by ridges and mountains.

Vegetation in the Cascade foothills consists of oak savannah woodland, mixed with patches of chaparral and transitioning gradually into a mix of oaks and conifers at higher elevations. The Cascade Range supports a dense montane forest of pines, Douglas fir, and other conifers. Moving north from the northeastern base of the Cascades onto the Modoc Plateau, vegetation transitions from pine forest to pine-juniper-sage, to juniper-sage grasslands.

Ethnographic Setting

The North Area transmission systems cross the aboriginal territories of a number of Native American Indian tribal units. The Native American tribal group territories are too numerous for a detailed ethnographic summary of each group, but this ethnography has been well documented in standard sources such as the Smithsonian Institution's *Handbook of North American Indians* (Heizer 1978, Walker 1998). Table J.1-1 lists the tribal groups, from north to south and east to west, along with references to ethnographic descriptions of these groups and a rough approximation of the territorial boundaries, expressed in terms of segment tower numbers.

Table J.1-1 Native American Tribal Territories In The North Area, By Segment

Native American Tribe	CVP/PACI Segments	COTP Segments
Klamath/Modoc	Malin-Round Mountain – 0-1 to 25-1	Captain Jack-Olinda – 1 to 148
Pit River/Atwamsini	Malin-Round Mountain - 25-1 to 42-1	Captain Jack-Olinda – 148 to 226
Pit River/Ajumawi	Malin-Round Mountain – 42-1 to 63-2	Captain Jack-Olinda – 226 to 327
Pit River/Ilmawi	Malin-Round Mountain – 63-2 to 72-1	Captain Jack-Olinda – 327 to 365
Pit River/Madesi	Malin-Round Mountain – 72-1 to 94-1	Captain Jack-Olinda – 365 to 490
Yana	Cottonwood-Round Mountain – 0-1 to 29-1 Cottonwood-Roseville – 20-2 to 64-3	Captain Jack-Olinda – 490 to 606
Wintu	Cottonwood-Round Mountain – 29-2 to 33-4	Captain Jack-Olinda – 606 to 658

Table J.1-1 Native American Tribal Territories In The North Area, By Segment

Native American Tribe	CVP/PACI Segments	COTP Segments
	Trinity-Carr-Keswick – all	Olinda-Tracy – 0-1 to 0-3
	Shasta-Cottonwood #1 and #2 – all	-
	Cottonwood-Olinda - all	-
	Flanagan-Keswick – all	-
	Keswick-Airport-Cottonwood – all	-
	Cottonwood-Roseville – 18-8 to 20-1	-
	Keswick-O'banion – 16-5 to 17-2	-
	Olinda-O'banion – 16-5 to 17-2	-
Nomlaki	Olinda-O'banion – 17-3 to 49-1	Olinda-Tracy – 0-3 to 29-2
	Keswick-O'banion – 17-3 to 49-1	-
Patwin	Olinda-O'banion – 49-1 to 134-6	Olinda-Tracy – 29-2 to 167-3
	Keswick-O'banion – 49-1 to 134-6	-
	Sutter-O'banion – 0-1 to 3-7	-
Maidu/Konkow	Cottonwood-Roseville – 64-4 to 111-3	-
Nisenan	Cottonwood-Roseville – 111-3 to 129-5	-
Eastern Miwok	-	Olinda-Tracy – 167-4 to 179-1
Yokuts	-	Olinda-Tracy – 179-1 to 193-5
	-	Tracy-Tesla – 1 to 38

Source: Smithsonian Institution, 1979. *Handbook of North American Indians, Volume 9, California*. The group boundaries, expressed as transmission line tower numbers are approximations, based on information from ethnographies. Pit River band boundaries are based partly on information from the tribal survey monitors.

In terms of lifeways, the subsistence practices and social organization of the groups that inhabited the Central Valley were largely similar. The relative abundance of food resources along the Sacramento River riparian corridor and in the Sacramento-San Joaquin Delta made large and semi-sedentary aggregations possible and large village sites that were occupied over a long period of time often left large mounds as archaeological sites, although many of these mounds have been destroyed by agriculture. The marshes and plains further from the river to the east and west were relatively devoid of substantial and long-term settlements, but were used for gathering food resources. The foothills of the Sierra Nevada and Coast Ranges maintained a relatively high population density. Acorn processing provided an important staple food source that could be stored over the winter. Salmon and other fish from the

Sacramento River and its tributaries were also important food sources, as was terrestrial game.

In terms of cultural traditions, most of the Sacramento Valley tribes, including the Wintu of the Valley and Trinity Mountains, spoke related languages belonging to the Penutian linguistic family. The Yana could be considered an exception to this, as they spoke a language belonging to the Hokan family. The Yana territory, however, mostly consisted of ridge and canyon lands of the southern Cascades east of the Sacramento Valley.

In the Cascade Mountains and Modoc Plateau, the tribes and bands, often collectively known as the Pit River tribe, also spoke languages of the Hokan family. Their economy was less dependent upon acorns as a staple food than were those of the Valley groups, partly because acorns were less abundant in this region. It depended more upon fishing and hunting of terrestrial game.

Farther north, between Timber Mountain and the Oregon Border, the Klamath and Modoc spoke a Penutian language. The Klamath-Modoc economy focused particularly on fish that spawned in large lakes in their territory, on wildfowl that were found abundantly on these same water bodies, on wild root and corn crops, and on arid land resources such as jack rabbits and antelope.

Prehistoric Setting

Northern California is a large and diverse region in terms of prehistory and prehistoric archaeology. The North Area facilities cross a variety of environmental and physiographic zones, and cross the aboriginal boundaries of a number of Native American tribes (see previous section). At its northern end, the North Area emerges out of what has been considered by archaeologists and ethnologists the California culture region, and crosses into what is known as the Columbia Plateau region, home of the Modoc and Klamath tribes.

Even though much of the North Area lies within one archaeological and ethnographic culture region, archaeologists' discussions of regional prehistory have taken a number of different directions, mostly to assign culture-history sequences to particular regions. For example, there are separate culture-history chronologies for the Central Valley, Northern Coast Ranges, and the Modoc Plateau. It is beyond our scope in this document to include a detailed archaeological assessment of each subregional locality. It is important, however, to provide an overview of general trends throughout prehistory that applies in a general way to the entire region, recognizing that there also may be local variations on the broader themes described in the generalized sequence. The sequence is used here as a general framework for discussing prehistoric trends in the project area.

The trend throughout California prehistory has generally been an increase in population density over time, coupled with greater sedentism and the use of a greater diversity of food resources. Chartkoff and Chartkoff (1984) identified three major periods of prehistory observed throughout California: Pre-Archaic, Archaic, and Pacific. These patterns are roughly correlated with the Paleoindian, Archaic, and Emergent periods,

developed by Bennyhoff and Fredrickson (1994) for central California. As Chartkoff and Chartkoff observe, culture change occurred in different ways and at different times throughout California. Nevertheless, these changes followed a broad pattern, as outlined below.

Pre-Archaic or Paleoindian Period (Prior to 11,000 years before present [BP])

Evidence throughout California and the western United States generally suggests that Pre-Archaic (or Paleoindian) populations at the close of the Pleistocene were small, and their subsistence economies included the capture of big game such as now-extinct large Pleistocene mammals, including mammoth and mastodon, although little evidence of direct contact between humans and extinct fauna has been found in California. Recent research in the Great Basin, which offers better preservation of Pre-Archaic sites than California, indicates that the economies of the inland Pre-Archaic peoples of the far western United States were based on a wide-ranging hunting and gathering strategy, which was dependent to a large extent on local lake-marsh habitats (Willig 1988).

Large, fluted lanceolate projectile points known as Clovis points are the most widely recognized markers for this time period in the United States, but these tend to be very rare in California. Archaeologists have suggested that very early sites may be buried in alluvium in the Sacramento Valley and foothills (Moratto 1984). It is also possible that fluted points were simply not used as frequently in California as elsewhere and that it will be necessary to find other stylistic markers of the Paleoindian period in California.

Early to Middle Archaic Period (11,000–6,000 years BP)

During the Early and Middle Archaic periods, northern California prehistoric cultures, as elsewhere, began to put less emphasis on large game hunting. Pleistocene megafauna extinctions were in their final phase and very large game available during the Pleistocene disappeared. Subsistence economies probably diversified somewhat and Archaic-era people may have begun to use certain ecological zones more intensively than before. Advances in technology, such as the advent of milling stones, indicate that new food processing methods became important during the Archaic, enabling more efficient use of certain plant foods including grains and plants with hard seeds.

Evidence of human occupation in northern California during these periods is rare, but present. This evidence has come mainly in the form of large stemmed projectile points of the Western Stemmed tradition (Willig and Aikens 1988). A model of early Holocene adaptation devised for the eastern Great Basin (Price and Johnston 1988) may be applicable to California and the Modoc Plateau. According to this model, this was a period of gradual warming and drying that supported a specialized economy based largely on marsh, lake, and stream resources. It supported higher population densities and possibly a greater degree of sedentism than the Pre-Archaic period. The climatic instability of this period possibly caused cultural instability as well, including population movements and even depopulation (White 2003). It is possible that undiscovered Early and/or Middle Archaic sites lie deeply buried or beneath existing paved and landscaped surfaces in the project area.

The Early Archaic Period has often been termed the Borax Lake Pattern in northern California, particularly as applied to the North Coast Ranges. Common markers of this time period include the Borax Lake wide-stemmed point. Another regional variant attributed to the Early Archaic is the Windmiller culture in the Sacramento-San Joaquin Delta. This phase was called The Narrows Horizon in southern Oregon and on the Modoc Plateau by Cressman (Raven 1984) and was characterized by plano-convex willow leaf-shaped projectile points, bone foreshafts, and the introduction of manos.

Late Archaic Period (6,000–4,000 years BP)

One important technological advance during the Late Archaic that was important for Sacramento Valley and foothill cultures was the discovery of a process for removing the tannins from acorns, which made it possible to exploit this abundant and nutritious, though labor intensive, resource (Chartkoff and Chartkoff 1984). Prehistoric trade networks also began to diversify and develop during the Late Archaic, bringing raw materials and finished goods from one region to another.

Resource exploitation during this period, as well as during the Early and Middle Archaic, was generally seasonal. Bands moved between established locations within a clearly defined and defended territory, scheduling the harvest of particular resources according to the time of their availability. Aggregations of food resources, occurring at the shores of a large body of water, such as Tule Lake or along a major fish-producing river, such as the Pit River or Sacramento River, allowed for larger seasonal aggregations of people. Dispersed resources, such as large and small mammalian game during the winter, meant dispersal across the landscape into small family groups for more efficient food harvesting.

The spear thrower (atl-atl) may have been introduced or increased in importance during this period, accounting for the change in projectile point styles from the Western Stemmed series to the Pinto and Humboldt series, which are generally stemmed or have indented bases, or both. There was also an increase in the importance of seed grinding (Price and Johnston 1988).

Regional cultural variants during this period are called the Mendocino Pattern in the North Coast Ranges and the Squaw Creek Pattern in the northern Sacramento Valley (Bevill and Nilsson 2001). Some key artifact traits include contracting stemmed points, perforated stone pendants, notched pebbles, and stone bowl mortars. In the Great Basin and portions of the Modoc Plateau that bear similarities to the Great Basin, this period is marked by large side-notched points called Northern side-notched and Elko eared points and corner-notched points called Elko points. In Cressman's southern Oregon sequence, this period is called Lairds Bay Horizon (Raven 1984).

Early and Middle Pacific Periods (4,000–1,500 years BP)

According to Chartkoff and Chartkoff (1984), the beginning of the Pacific Period is marked by the advent of acorn meal as the most important staple food resource for most California Indians. Increasing population densities throughout the period made it desirable and necessary for California populations to produce more food from available

land and to seek more dependable food supplies. The increasing use of food processing techniques, such as seed grinding and acorn leaching, developed during the Archaic, allowed for the exploitation of more dependable food resources. Increasing use of previously neglected ecological zones may also have been part of this trend.

Sites in the North Coast Ranges, Sacramento Valley, Sacramento Delta, and elsewhere have been attributed to the Berkeley Pattern, which is characterized by a developed bone tool industry, and large atl-atl points lacking stems (White 2003). Excavation results in the North Coast Ranges indicate that Berkeley Pattern houses were large pole-framed structures covered in wattle and daub and, perhaps, with sod. In the northern Sacramento Valley, these sites have been classed as belonging to the Whiskeytown Pattern (Bevill and Nilsson 2001). These sites are characterized by leaf-shaped points, unifaces, incised slate, and bipolar cores.

Late and Final Pacific Period (1,500 years BP-Historic Era)

A.D. 500 (1,500 years BP) marks a significant time of change throughout California. Sometime near this date, the bow and arrow replaced the spear thrower and dart as the hunting tool and weapon of choice. The most useful markers for this period tend to be the small projectile points used as arrow tips. The date of bow and arrow introduction is a point of some controversy, but most authors place it between A.D. 500 and 600. Others believe bows and arrows were introduced as early as A.D. 250 (750 years BP; Hughes 1986) or as late as A.D. 700 (1,300 years BP; Bennyhoff et al. 1982).

During the Final Pacific Period, populations became increasingly sedentary and dependent on stored staple foods. Staple foods were stored for the winter in permanent settlements. In certain areas, such as favored locations near the Sacramento River, some settlements had populations as high as 1,500 persons. For example, Alexander McLeod reported after a trapping expedition that took place in 1830, before the devastating malaria epidemic (see next section on historical background), that “Several villages each contained at least 1500 men…” (quoted in Boles 1990).

At the same time, there is evidence of continued resource base diversification. By the Final Pacific Period, every available ecological niche was exploited, at least on a seasonal basis. There was full exploitation of the marine/estuarine zone and further development of long-distance trade networks and more complex social and political systems. There is also evidence of an increased importance in fishing as an economic activity, particularly in the Sacramento Valley.

Late and Final Pacific Period sites are generally well-developed midden deposits, some with surface components. The midden deposits contain both cremated and intact human burials and residential features, including house floors, reflecting the increasingly sedentary populations.

In the Sacramento Valley and North Coast Ranges, sites dating to this period are often classified as Augustine Pattern sites. According to White (2003), typical markers of the early Augustine phase include *Olivella* whole and lipped beads and “banjo” *Haliotis* shell ornaments, bird bone tubes and whistles, and flanged soapstone pipes. Sites of this

time period are called Tehama Pattern sites in the northern Sacramento Valley (Bevill and Nilsson 2001), and date from 1800 to 700 BP. The second Augustine phase is marked by small corner-notched and triangular points, clam shell disk beads, magnesite cylinders, and bedrock mortars. The final phase of Modoc Plateau prehistory was called Modoc Horizon by Cressman (Raven 1984) and its most important marker was the advent of small triangular projectile points of the Gunther, Rose Springs (now called Rosegate) and Desert side-notched series that indicate adoption of the bow and arrow.

Formerly called the Shasta Complex, late period sites in the northern Sacramento Valley are more recently commonly termed Redding Aspect of the Augustine Pattern (Bevill and Nilsson 2001). Traits in this area include large houses (3 meters in diameter), flexed burials, stone pipes, baked clay figurines, Gunther barbed and Desert side-notched projectile points, spire-lopped *Olivella* beads, *Dentalia* beads, pine nut beads, and hopper mortars, among others.

Historical Setting

Recorded history in the project area begins with early Spanish exploration in the Central Valley area and the later arrival of fur trappers into the valley, soon followed by the influx of miners for the California Gold Rush. After the gold boom, agricultural and ranching activities became the main land use.

Documented historic-era resources in the project area are associated chiefly with agricultural development and with the various industries that developed here from the mid-1800s to the mid-1990s. The industrial history of the project area touches on several key historic themes. These include the development of agriculture and ranching, mining development (particularly in the Redding/Trinity region), development of the logging industry (particularly in the southern Cascades area), and construction and operation of railroads and other transportation-related industries. The development of the region's electrical infrastructure, including the CVP facilities and the hydroelectric generating facilities from which they convey power took place during the post-World War II period.

Valley

The earliest historic records for the Valley region and the entire project area are the accounts of Spaniards who explored beyond California's coastal zone into the interior valley. The early Spanish expeditions to the Central Valley were in search of additional Native American converts to populate the coastal missions and to punish natives of the interior who began to oppose the Spanish presence more aggressively in the early 1800s. The first recorded European American reconnaissance into the project region was the 1776 exploration of the outer San Francisco Bay Area that took Juan Baptista de Anza, with Father Pedro Font as his chronicler, to the Sacramento-San Joaquin Delta. Anza and Font climbed a hill in Antioch, not far from the modern COTP crossing of the Sacramento River, and caught a glimpse of the Sacramento Valley beyond (Gunsky 1989). The Spanish, however, focused their interest in the coastal zone until, 32 years after Anza, the expedition led by Gabriel Moraga crossed the Delta in 1808 and traveled up the eastern side of the Sacramento Valley. Moraga camped on the

American River and explored to the north of the Sutter Buttes along the Sacramento River.

While the Spanish entered the interior for military reasons more often than exploration, Americans began to show an exploratory interest in California. In 1826, Jedediah Smith arrived with a party of fur trappers. The following year, he made the first recorded crossing of the Sierra Nevada by a European American, near Ebbetts Pass (Farquhar 1965). The following year, Smith returned to California and traveled up the Sacramento Valley, following the Sacramento River, which they called the Buenaventura, trapping furs along the way. Smith continued as far north as Red Bluff, from which point he began a crossing of the Coast Ranges and proceeded north to Oregon.

Smith's reports of good fur trapping in California were one impetus for the annual Hudson's Bay fur brigades, which entered California's Sacramento Valley every year from 1834 to 1843 from their base at Fort Vancouver on the Columbia River. The best-documented fur brigade was John Work's party, which entered California in August 1832, returning to Fort Vancouver in October of 1833 (Maloney 1945). One unfortunate consequence of John Work's fur-trapping expedition to the Sacramento Valley, however, was that his trappers brought malaria with them and this disease devastated the resident population. Malaria is thought to have first entered North America on shipboard from the Hawaiian Islands to Fort Vancouver, probably in 1830, causing a major epidemic in the Columbia River Valley (Boles 1990). This disease may have killed up to 75 percent of the native population of the Sacramento Valley (Cook 1978)

The Spanish resented the intrusions by American fur trappers, whom they suspected of inciting the Native Americans against them. The Spanish could do little to prevent the Americans from entering a part of California they had not previously settled; and thus, the American emigration began. The Mexican Government granted Swiss native John Sutter permission to settle in the Sacramento Valley in 1839, and made grants of large ranchos to others, including Americans who had become Mexican citizens during the decade of the 1840s. The ranchos tended to be located along the Sacramento River and other large drainages and included ranchos as far north as Redding.

The Bartleson-Bidwell party of 1840 was the first major American attempt to traverse the region overland. Several of its members were later prominent California citizens. The trickle of overland parties to California soon became a flood, however, after the discovery of gold at Sutter's sawmill in 1848. The gold discovery caused an influx of gold-seekers to the state. There were an estimated 4,000 miners in 1848, 200,000 in 1849, and 500,000 in 1850. Many stayed and settled in the region, leading to the development of agriculture, towns, and cities, and infrastructure including wagon roads and, particularly during the 1860s, railroads. In 1850, California became an American territory as a result of the Mexican War.

The Sacramento Valley Railroad was the first commercial railroad in the western United States and was built in 1856 from Folsom to Sacramento, then from Sacramento north to Marysville. The completion of the transcontinental railroad in 1869 dramatically reduced coast-to-coast travel time and cost and this was an economic boon and led to greater emigration to California, partly promoted by the railroads themselves. Regional

rail lines led to the founding of new towns and promoted more intensified agricultural development by providing a less expensive means of shipping crops to market. Grain crops such as wheat were widespread due to the global demand in the late 19th century, through the end of World War I. As irrigation systems were developed, however, California agriculture began to develop into the diversified powerhouse that it remains, as orchard, root, and vegetable crops were added to the repertoire. As farmers learned to manage the poorly drained tule basins on either side of the Sacramento River, they realized that this was ideal rice farming land and by the 1920s, California was a major rice producing region.

Population growth in the Central Valley was especially rapid after the end of World War II. The Federal and state governments facilitated this growth by providing the large amounts of capital necessary for investment in infrastructure development. Large-scale water projects, including the Central Valley Project and State Water Project, were planned to provide flood protection, more efficient irrigation, and a reliable water supply, with inexpensive hydroelectric power as an added benefit. Planning for the Central Valley Project began in the 1930s, and Shasta Dam was its centerpiece. It was constructed during World War II and began operation in 1944.

Redding/Trinity Area

As mentioned above, Jedediah Smith's trapping party is the first recorded American exploration of the northern Sacramento Valley. The Hudson's Bay fur brigades of the 1930s and 1840s regularly passed through the area on trapping expeditions. During the 1840s, several parties of settlers passed what became known as the California-Oregon trail on their way to California from Oregon, or vice-versa.

Pierson B. Reading was the first permanent non-Indian resident in this area, according to recorded history. Reading emigrated from New Jersey in 1843 with the Chiles-Walker party and worked for a time for John Sutter at Sutter's Fort. In 1846, Reading obtained a land grant from the Mexican government for Rancho Buena Ventura, which consisted of 26,000 acres located on the Sacramento River near the mouth of Cottonwood Creek (Hoover, Rensch, and Rensch 1966).

When John Marshall discovered gold in placer deposits along the American River in 1848, Reading visited the discovery site and recognized the American River deposits as similar to placer gravels on his ranch. He soon discovered gold north of his home near the mouth of Clear Creek and, in 1849, discovered gold on the Trinity River and near the present day ghost town of Shasta, which became a major gold rush town and the Shasta County seat and is now a state historic park (Hoover, Rensch, and Rensch 1966).

Shasta became the gateway to the mines in Trinity County, as this area developed into a major gold rush mining region. As such, it was for a time the commercial shipping center of northern California (Hoover, Rensch, and Rensch 1966). Mining camps also sprang up in the outwash plains north, west, and south of modern Redding and in the Clear Creek drainage area where French Gulch and Whiskeytown were located in the basin now occupied partly by Whiskeytown Lake. The major overland route north to

Oregon ran west to Whiskeytown and then turned north to French Gulch during the 1860s. Brothers-in-law Levi Tower and Charles Camden built a hotel at this junction in 1852 and a mining ditch nearby. Camden's house is still standing.

In 1872, the Central Pacific Railroad came to the northern end of the Sacramento Valley to where, in 1862, Pierson B. Reading had laid out a town site. The townspeople wanted to name the town after its founder, but the railroad preferred to name it after Benjamin Redding, the Central Pacific's land agent, which, in 1880, it was.

Major government-sponsored water resource management projects were planned for the region beginning in the 1930s, as mentioned above, and began to come to fruition when Shasta Dam was completed in 1944. Keswick Dam was completed in 1950. Work on the Central Valley Project Shasta/Trinity River Division was completed during the nearly 1960s with the construction of Trinity (1962), Lewiston (1963), Whiskeytown (1963) and Spring Creek (1964) reservoirs. The United States Bureau of Reclamation manages the Central Valley Project facilities. In 1977, Western Area Power Administration assumed control and management of the transmission system associated with the Central Valley Project hydropower facilities and this makes up a portion of the CVP system.

Round Mountain/Modoc Plateau Region

Historic era American exploration of northeast California lagged behind other regions. Hudson's Bay fur brigades may have entered California from this direction, but historical records are not clear. John C. Fremont's party left California by traveling northeast from the mouth of Cottonwood Creek, and over the Cascades to Big Valley. In 1848, a wagon train left the Applegate Trail in southern Oregon at Clear Lake in Modoc County, crossing the Modoc Plateau to the Fall River Mills and from there to the Burney Valley, down the mountains. Other travelers followed this road to Shasta and the Trinity gold fields.

One of the first white settlers in this region was Samuel Burney, who built a cabin, barn, and corral in the Burney Valley in 1857 and was killed by Indians in 1859. The area was sparsely visited and sparsely used before the late 1890s, when the expanding logging industry began extending railroads into the area for logging. The McCloud River Railroad, for example, was extended from Mt Shasta to McCloud in 1897 and farther east and south to a terminus at Bartle in 1905 and 15 miles beyond Bartle three years later (Moore 2006). Efforts to connect the additional 75 miles north to Klamath Falls were unsuccessful, however, until the 1930s. In 1927, Pondosa was founded as a permanent logging camp, signaling the shift in policy by the McCloud River Lumber Company from temporary camps to more permanent facilities. Other small towns in the mountains, such as Hambone and White Horse, were essentially logging bases. The railroad was completed through Burney in 1955.

The railroad was useful to Pacific Gas and Electric Company (PG&E) when it began constructing a series of hydroelectric facilities on the Pit River during the 1910s, called Pit 1, 2, and 3. PG&E made an agreement with the McCloud River Railroad to extend the railroad line to supply the construction of the hydroelectric dams.

The Modoc volcanic plateau is best known to history as the location of some of the main events in the Modoc War of 1872-73, known as the last war between an Indian tribe and the United States government to take place in Oregon or California. The war came about after Captain Jack's band of Modoc Indians was forced to move onto the Klamath Reservation. Captain Jack's group later left the reservation over disputes with members of the Klamath Tribe resident there and later conflicted with farmers who occupied their former territory. The government dispatched General Canby to forcibly return Captain Jack and his followers to the Klamath Reservation. Captain Jack's 53 fighters found refuge in the lava beds and held out against more than 1000 soldiers for several days, inflicting heavy casualties. The war ended when Captain Jack's contingent abandoned their stronghold and attacked the army at Dry Lake, resulting in the capture of many of the Modoc, including Captain Jack. Key Modoc War battle sites, such as the sites of the battles of Dry Lake and Land's Ranch, are near the COTP and PACI transmission system rights-of-way.

Intensive agricultural use of this region took place relatively late in the historical period and has tended to concentrate in the northern part of the Modoc Plateau, in the Tule Lake area. The government's land reclamation policy, culminating in the Newlands Act in 1902, attempted to open up arid lands to cultivation by draining wetlands and installing irrigation and drainage canals. The government began to open the area near Tule Lake to homesteading beginning in 1917. From that time until 1949, more land in this area was gradually opened to homesteaders and developed for agriculture. It remains a major area for horseradish and potato growing.

APPENDIX J.2 RECORDED CULTURAL RESOURCES IN THE NORTH AREA AND ACCESS ROAD APE

Note: This appendix is being submitted separately to reviewing agencies under a request for confidentiality because it contains information regarding the locations and contents of cultural resources sites.

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Appendix K

State Historic Preservation Officer Correspondence

Department of Energy
Western Area Power Administration
Sierra Nevada Customer Service Region
114 Parkshore Drive
Folsom, California 95630-4710
APR - 5 2005

Mr. Milford Wayne Donaldson
State Historic Preservation Officer
Office of Historic Preservation
Department of Parks and Recreation
P.O. Box 942896
Sacramento, CA 94296-0001

Dear Mr. Donaldson:

The Western Area Power Administration (Western), Sierra Nevada Region (SNR), a power marketing administration of the Department of Energy, owns, operates, and maintains a multitude of transmission line systems and legal access roads throughout California. Our transmission line corridors, referred to as the Right-of-Way (ROW), are divided into three geographical areas for Operations and Maintenance (O&M) management purposes. These areas are designated as the North Area ROW, the Sacramento Valley ROW, and the South Valley ROW. Enclosure 1 provides you with a map produced by our Geographic Information System of the entire California System. This map is for your official use only and due to security reasons, may not be displayed or disseminated to the public.

The purpose of Western's O&M program is to maintain the transmission line ROW and legal access roads. It is Western's responsibility to cost-effectively maintain the Federal transmission system in the interests of public safety and reliability. Western's maintenance crews must have safe and all-weather access to transmission line structures, consistent with safety and environmental regulations and policies. The purpose of the maintenance program is to control vegetation near transmission lines that could cause a human safety hazard and result in electrocution, damage to the transmission line, damage to the environment and private property, or an outage which would interrupt service.

Western is preparing an Environmental Assessment (EA) under the National Environmental Policy Act, to assess the potential environmental effects of the proposed changes to its O&M program along the North Area ROW and legal access roads, including potential impacts of O&M activities to cultural resources. While O&M activities are in a class of action that normally does not require an EA, Western has concluded that an EA is required based upon the potential presence of sensitive biological and cultural resources and the type of additional maintenance practices proposed within the project area. For the purposes of Section 106 of the National Historic Preservation Act (16 U.S.C. 470f) and §800.3(a) of 36 CFR Part 800, the proposed undertaking is O&M activities conducted by Western within our transmission line ROW and legal access roads. The area of potential effect (APE) for the North Area ROW is the varying width of 787 miles of transmission line ROWs and a 50-foot width of one to two hundred miles

of exiting legal access roads (25 feet on either side of the centerline of each road). Enclosure 2 provides you with an overview map of the North Area ROW system.

Western currently has a 1997 Programmatic Agreement (PA) with the California Office of Historic Preservation (enclosure 3). This agreement allows for certain types of routine O&M practices/activities to proceed without further consultation with your office. Due to changes over the years in technology, security requirements, and increased public encroachment on transmission systems, Western is proposing to redefine its current definition of routine O&M. Under the revised protocols for routine O&M, Western proposes to remove vegetation species with a mature height of greater than 12 feet and to maintain cleared ROWs (areas between transmission towers) using mechanical and chemical methods (as opposed to trimming) in an effort to promote permanent, low-growing plant communities. Additional maintenance activities that may be added to the current routine O&M practices include erosion repair, geotechnical borings, fiber optics installation, and other types of upgrades to transmission lines now deemed routine in the industry. These measures are necessary to improve system reliability and prevent safety hazards.

Western will be conducting cultural resource inventories of the North Area transmission line system ROWs and associated legal access roads in 2005, in preparation of the North Area EA. The North Area transmission system consists of fifteen 230-kilovolt (kV) transmission lines, two 500-kV transmission lines, and one 115-kV transmission line throughout Shasta, Trinity, Tehama, Butte, Yuba, Glen, Colusa, and Sutter counties. The two 500-kV lines extend further north (approximately 8 miles total) into Klamath County, Oregon. The O&M activities on the Oregon segment of the two 500-kV lines are the responsibility of the Bonneville Power Administration, and therefore, will not be included in Western's EA. The North Area ROW crosses both private and public, and State lands. Public lands include the Bureau of Land Management (BLM), the Bureau of Reclamation (BOR), the U.S. Forest Service, (USFS) and the National Park Service (NPS).

SNR conducted an agency coordination meeting in Redding, California on February 2, 2005, concerning the EA, proposed changes in our O&M activities, and our level of effort to identify cultural and biological resources in the project area. Representatives from each affected Federal agency were in attendance. Twenty-three Native American groups were identified as having an interest in the project area (enclosure 4). They were also invited to the agency coordination meeting. Two Tribal groups, the Pit River Tribe and the Mechoopda Indian Tribe of the Chico Rancheria attended the meeting. Enclosure 5 provides you with Western's correspondence to both the land managing agencies and Native American groups regarding this meeting. Also included is a copy of the meeting's sign-in sheet listing the attendees. We are continuing our coordination meetings with BLM, BOR, USFS, NPS, and interested Tribes throughout our planning process.

With the exception of one transmission line (Olinda-O'Banion), the North Area ROW and most of the legal access roads have been subjected to some type of cultural resources inventory within the last 15 years. At the time of these surveys, the APE was considered to be the area immediately around the tower structure (100 feet by 100 feet) and the associated legal access roads. Areas between tower structures within the ROW, in most cases, were not surveyed as

they were considered outside the APE for impacts to vegetation management practices at that time. Previous surveys have recorded 253 sites within 200 meters of ROW boundaries with 195 sites located on or immediately adjacent to the ROW, access roads, or other facilities. In addition, most sites that were recorded at the time of the surveys were never evaluated for eligibility to the National Register of Historic Places (NRHP). Western's current practice has been avoidance of those sites and the few sites that have been determined eligible in the past for NRHP. Our current PA does allow for minimal hand clearing of vegetation within such sites, but due to the amount of acreage involved and the density of the vegetation in the North Area, clearing vegetation by hand is increasingly less feasible.

In accordance with §800.4(a) and (b) of 36 CFR Part 800, Western conducted an extensive literary research and review of all known cultural resource inventories that have occurred in or near the APE. This document, *Cultural Resources Background Research/Field Strategy Report for the North Area Right-of-Way Maintenance Environmental Assessment*, prepared by CH2MHill, Sacramento, California, March 2005, is enclosed for your review and comment (enclosure 6).

This report assesses the current state of knowledge about cultural resources within or near Western's ROW and legal access roads and presents a strategy for additional inventory and evaluation for the North Area ROW and legal access roads. Section 1 of the report (pp.1-12) provides you with a description of each individual transmission line that is included in the North Area ROW. It also defines the types of O&M activities conducted by Western being considered in the EA. Page 11 of this report explains the length and width of each transmission line which further defines the APE and survey area for this undertaking. Section 2 of the report details the distinctive physiographic and vegetative conditions of each transmission line ROW. The terrain and vegetation along the transmission line strongly influence key aspects of the ROW maintenance program, including ease of access to the ROW, ease of travel along the ROW, the need for and frequency of vegetation clearance, and other maintenance activities. Section 3 provides you with the results of the archaeological and historic resources literature review for the North Area transmission lines and access roads. The report compiles a list of previous surveys in the project area and a list of previously recorded cultural resources on or near the transmission lines and legal access roads.

Based on previously surveyed areas (and the adequacy of those surveys), terrain, vegetation, access limitations, existing land use, and known or likely site density of the project area. Section four of the enclosed report presents an archaeological field survey strategy to sufficiently locate and record cultural resources within the APE of this undertaking. All previously recorded sites will be relocated and the existing site records updated.

One of the 500-kV transmission lines in the project area, the California-Oregon Transmission Project line, referred to as COTP, is jointly owned and operated by Western and several public and private subsidiaries collectively known as the Transmission Agency of Northern California (TANC). During the initial preparations for the North Area EA, TANC had not yet committed to the project, and therefore, a survey strategy for the COTP is not discussed extensively in enclosure 5. Since that time, they have committed to being involved in the EA. The COTP line was subject to an intensive cultural resource survey in 1988-89 in consultation with your office

prior to the construction of the line. The final report, *Cultural Resource Inventory of the California-Oregon Transmission Project*, prepared by Dames & Moore, 1989, and all subsequent consultation is on file with your office. Due to the age of the first survey and the proposed changes in O&M activities, TANC and Western have decided to resurvey the entire line applying the same survey strategy being proposed for the other transmission lines for the North Area EA. All sites previously identified along COTP during the initial survey will be relocated and existing site records updated. Sites that have not been evaluated for NRHP eligibility will be evaluated.

We have enclosed for further information a copy of the Statement of Work (SOW) for the North Area ROW Maintenance EA (enclosure 7). The SOW will provide you with further details regarding the overall project, including our required standards for recording and mapping cultural resource sites and surveyed areas using the Global Positioning System.

We are continuing our consultation efforts with Native American groups who may have an interest in the project area. Of the list of tribe's initially contacted (enclosure 4), three have contacted us regarding this undertaking; The Pit River Tribe; the Mechoopda Indian Tribe of the Chico Rancheria; and the Tasman Koyom Indian Foundation (Maidu). The Pit River Tribe has requested a Memorandum of Understanding between Western and the Tribe for providing us with information on Traditional Cultural Resources within the project area. In addition, the Pit River Tribe has requested to accompany the archaeological survey crew during the survey of the lines within their ethnographic areas. Western has agreed and is currently holding meetings with the Tribe to discuss their involvement further. The Maidu, who also have affiliations with the Pit River Tribe, are participating in our meetings with the Pit River. We are continuing our consultation and correspondence with all tribes throughout this project on a government-to-government basis and will keep your office updated on our consultation.

Please review all enclosures regarding this undertaking carefully. We would appreciate any comments or concerns you have regarding our level of effort to identify significant cultural resources within the project area or the definition of the APE. Please respond within thirty days of receipt of this letter. If you have any questions, please contact Ms. Cherie Johnston-Waldear, Western's SNR Archaeologist at (916) 353-4035 or waldear@wapa.gov. Your continued assistance and cooperation are appreciated.

Sincerely,

ORIGINAL SIGNED BY

Bruce Thomas

Bruce Thomas
Natural Resources Manager

7 Enclosures

cc:
Mr. Jim Milestone
Superintendent
National Parks Service
Whiskeytown National Recreation Area
Kennedy Memorial Drive
P.O. Box 188
Whiskeytown, CA 96095-0188

Ms. Sharon Heywood
Forest Supervisor
United States Forest Service
Shasta-Trinity National Forest
3644 Avtech Parkway
Redding, CA 96002

Mr. Stanley Silva
Forest Supervisor
United States Forest Service
Modoc National Forest
800 West 12th Street
Alturas, CA 96101

Mr. Eric W. Ritter, Ph. D
Archaeologist
Bureau of Land Management
Redding Field Office
355 Hemsted Drive
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Mr. Michael Ryan
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Mr. Jim West
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2800 Cottage Way
Sacramento, CA 95825

mail

STATE OF CALIFORNIA – THE RESOURCES AGENCY

ARNOLD SCHWARZENEGGER, *Governor*

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
P.O. BOX 942896
SACRAMENTO, CA 94296-0001
(916) 653-6624 Fax: (916) 653-9824
calshpo@ohp.parks.ca.gov

April 29, 2005

In Reply Refer to: WAPA050406A

Bruce Thomas
Department of Energy, Western Area Power Administration
Sierra Nevada Customer Service Region
114 Parkshore Drive
Folsom, CA 95630-4710

Re: Cultural Resources Background Research/Field Strategy Report for the North Area Right-of-Way (ROW) Maintenance Environmental Assessment (March 2005) and Statement of Work (SOW): North Area Right-of Way Environmental Assessment (July 6, 2004).

Dear Mr. Thomas:

You have provided for my review the above noted documents addressing the potential affects to historic properties of the proposed changes to the Western Area Power Administration (WAPA) Operation and Maintenance Program along the North Area Right-of-Way (ROW) and legal access roads. The studies proposed in the documents are being developed in compliance with the Programmatic Agreement (PA) Among Western Area Power Administration, The Advisory Council on Historic Preservation, and the California State Historic Preservation Officer Concerning Emergency and Routine Maintenance Activities at Western Facilities in California (1997).

Based on a review of your letter and the documentation submitted in support of this undertaking, I have the following comments:

1) The Area of Potential Effect (APE) is appropriate as per Stipulation IV of the PA and 36 CFR Part 800.4 (1) and 36 CFR Part 800.16 (d).

2) The methodology proposed for the cultural resource inventories and the ongoing Native American consultation are appropriate for the identification of historic properties within the APE as per the PA and 36 CFR Part 800.

3) Your letter states that most historic properties recorded in earlier inventories of the North Area ROW have not been evaluated for National Register of Historic Places (NRHP) eligibility, but only discusses completing NRHP evaluations under the subject undertaking for those properties in the project area of the California-Oregon Transmission Project (COTP) line. The proposed Inventory Report Methodology outlined in the SOW (6.7.5) for the North Area ROW project does include the provision that each site will have a National Register eligibility recommendation. All historic properties identified in the APE should be evaluated under NRHP criteria.

Thank you for submitting for my review your letter and documentation on the North Area ROW Maintenance Environmental Assessment and for considering historic properties in planning your undertaking. I look forward to receiving further documentation on your historic property identification efforts and NRHP determinations in the project APE. If you require further information, please contact William Soule at phone 916-654-4614 or email wsoul@ohp.parks.ca.gov.

Sincerely,

Stephen D. Mikesell for

Milford Wayne Donaldson, FAIA
State Historic Preservation Officer

Preserving America's Heritage

February 26, 2010

Mr. Thomas R. Boyko
Regional Manager
Western Area Power Administration
Sierra Nevada Customer Service Region
114 Parkshore Dr.
Folsom, CA 95630-4710

REF: Programmatic Agreement for emergency and routine activities at Western facilities in California

Dear Mr. Boyko:

Enclosed are the two copies of the executed Programmatic Agreement for the referenced programs. By carrying out the terms of the Agreement, the Western Area Power Administration will have fulfilled its responsibilities for these undertakings under Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's regulations.

We appreciate your cooperation in reaching this agreement. If you have any questions, please call Dr. Tom McCulloch at 202-606-8505.

Sincerely,

Caroline D. Hall
Assistant Director
Federal Property Management Section
Office of Federal Agency Programs

Enclosures

ADVISORY COUNCIL ON HISTORIC PRESERVATION

1100 Pennsylvania Avenue NW, Suite 803 • Washington, DC 20004
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PROGRAMMATIC AGREEMENT AMONG WESTERN AREA POWER ADMINISTRATION, THE ADVISORY COUNCIL ON HISTORIC PRESERVATION, AND THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER CONCERNING EMERGENCY AND ROUTINE OPERATION AND MAINTENANCE ACTIVITIES AND OTHER ROUTINE ACTIVITIES AT WESTERN FACILITIES IN CALIFORNIA

WHEREAS, The Western Area Power Administration (Western), Sierra Nevada Region and Desert Southwest Region operate and maintain extensive electrical transmission systems that includes transmission lines, substations, communication sites, maintenance facilities, and ancillary features; and

WHEREAS, Western conducts emergency and routine operation and maintenance (O&M) activities necessary to ensure the reliability of the electrical system and other routine activities; and

WHEREAS, these activities include the actions described in Appendix B; and

WHEREAS, certain of these emergency and routine O&M activities and other routine activities are considered undertakings and may have an effect upon historic properties included in or eligible for inclusion in the National Register of Historic Places; and

WHEREAS, Western has consulted with the Advisory Council on Historic Preservation (ACHP) and the California State Historic Preservation Officer (SHPO) pursuant to 36 C.F.R. §800.14(b)(iv) of the regulations implementing Section 106 of the National Historic Preservation Act, 16 U.S.C. §470f, as amended (NHPA); and

WHEREAS, the parties to this Agreement desire to create an efficient mechanism to ensure that Western's emergency and routine O&M activities and other routine activities identified in this Agreement comply with NHPA requirements; and

WHEREAS, other Federal agencies have been invited to concur in this Agreement because of their land management responsibilities on lands where Western has easements. These agencies include the U.S. Forest Service, the Bureau of Reclamation, and the Bureau of Land Management. The agencies have chosen not to participate as concurring parties; and

WHEREAS, the definitions given in Appendix A are applicable throughout this Agreement; and

WHEREAS, on December 10, 1997, Western, ACHP, and SHPO executed an agreement titled Agreement Concerning Emergency and Routine Maintenance Activities at Western Facilities in California (1997 Agreement). The 1997 Agreement provides for Western to conduct routine and

emergency maintenance activities on Western-owned or -managed facilities in accordance with the stipulations of the 1997 Agreement satisfying Western's Section 106 responsibilities; and

WHEREAS, this Agreement supersedes and replaces the 1997 Agreement referenced above; and

NOW, THEREFORE, Western, ACHP and SHPO agree that Western's emergency and routine O&M program and other routine activities described in this Agreement shall be administered in accordance with the following stipulations to satisfy Western's Section 106 responsibility.

STIPULATIONS

Western will ensure that the following measures are carried out.

I. The Natural Resources Manager from each region will be responsible for the implementation of and compliance with this Agreement. The Regional Historic Preservation Official (RPO) will coordinate with Western's Federal Historic Preservation Officer (FHPO), Western's Maintenance Supervisor and the Natural Resources Manager to ensure consistent implementation of this Agreement. The RPO will be responsible for developing and reviewing scopes of work, consultant proposals, historic preservation reports, the Area of Potential Effects (APE) of Projects and project impacts, the need for identification and evaluation of historic properties, and the treatment of historic properties affected by routine operation and maintenance actions and other routine activities if avoidance by project design is not appropriate.

II. The classes of activities listed in Section I of Appendix B will not require any cultural resources investigations or any additional consultation among the parties to this Agreement. These activities have little likelihood of impacting cultural resources. Western will carry out these activities without consulting the SHPO.

III. The classes of activities listed in Section II of Appendix B have a low probability of affecting cultural resources because they have limited potential to result in surface disturbances or other impacts. The RPO will consult with the Maintenance Supervisor and the Natural Resources Manager to determine the project area and scope and APE for each activity in Section II they plan to undertake and conduct a project review. Such project review will include, but is not limited to, a Class I records and literature search for known cultural resources in the vicinity of the project, information on the location of previously conducted surveys and survey results, and information about the likelihood of the project area containing cultural resources, including integrity of surface conditions and existence of facilities of 45 years or older. Western need not consult with the SHPO if Class III (intensive) level surveys have been completed and no historic properties have been identified or if the undertaking proposed involves facilities less than 45 years of age. If the project area has not been surveyed to Class III (intensive) level or the identified historic property cannot be avoided, the RPO will evaluate existing environmental data to determine the possible existence of cultural resources, the likelihood of impacting such resources, and further actions required. The RPO will determine whether or not a field survey, archeological monitoring or other historic preservation efforts are necessary. In

large areas where dense vegetation prevents a Class III survey, mechanical means of vegetation removal (use of a masticator) may be used provided best management practices (BMP) as outlined in Appendix C are followed. Western shall discuss every determination in the annual report in accordance with Stipulation IX of this Agreement.

IV. The classes of activities listed in Section III of Appendix B will be subjected to Class I and Class III inventories by a qualified cultural resource specialist if they have not been subjected to a prior inventory. Additionally, any routine O&M activities and other routine activities Western undertakes that are not identified in one of the three classes will be subjected to Class I and Class III inventories by a qualified cultural resource specialist, if they have not been subjected to a prior inventory. Western's RPO, in consultation with the Natural Resources Manager and Maintenance Supervisor, will determine the APE. They will identify areas not requiring additional survey based on a records search, previous survey and consultation indicating that no historic properties were present and places where there is no potential for survival of the historic property. Western shall discuss every determination in the annual report in accordance with Stipulation IX if this Agreement.

V. If the surveys that take place under Stipulations II and III find no resources that meet California's SHPO and land-managing agencies' site definition, no consultation with the SHPO in accordance with 36 C.F.R. §§ 800.4 and 800.5 is required. If an archaeological or historic site is located, but the APE can be changed in order to avoid the site, no consultation among the signatories of this Agreement is required. After reviewing for completeness and evaluating for eligibility to the National Register of Historic Places, Western will forward to the SHPO and the land-managing agencies or Tribe (as appropriate) any field survey data including any site survey report as well as site information within four weeks of the acceptance of the completed report and site information. If historic properties meeting site definitions are located and cannot be avoided, consultation will take place in accordance with 36 C.F.R. §§ 800.4 through 800.6.

VI. Western will review building acquisition, modification, upgrading, disposal, and demolition projects to determine whether historic properties will be impacted. If historic properties will be impacted or if structures (including substation equipment) are more than 45 years old, Western will consult with the SHPO according to 36 C.F.R. §§ 800.4 through 800.6.

VII. Emergency activities will be carried out without consultation. Emergency activities are defined as situations of unplanned or unscheduled power outages or imminent outages that potentially threaten human life and property. These activities may take place between or at towers and within existing facilities such as substations, and may include replacing structures (including crossarms, insulators, and/or conductors) and tree removal. If one has not been conducted, Western will conduct a Class III survey of the emergency activity APE as soon as practicable and notify the SHPO and the local land-management agency of the findings.

VIII. Western will provide each land-management agency represented herein with information and any changes on the location of its rights-of-way and facilities within their jurisdiction. Each land-management agency will provide Western with appropriate information on sites identified on Western's rights-of-way or at its facilities subsequent to the preparation of this Agreement.

IX. On an annual basis, Western will prepare a report detailing actions taken under this Agreement for the portions of the emergency and routine O&M program and other routine activities listed under Section II and III of Appendix B. This report will be submitted to the ACHP and the SHPO by October 1 of each year beginning in 2010. The report will list the actions taken, a short description of each action, the date each action was reviewed, results of records search and inventory (if applicable), any consultations with and by whom, and the decision made based upon this information. The report will also include a general discussion of Western's efforts to identify historic resources, an evaluation of the effectiveness of the Agreement, information about Western's public involvement efforts, and items related to Western's historic property protection program.

X. Western shall develop and implement a plan for discovery should project activities encounter a previously unknown historic property. All work that might affect the property shall cease until Western, in consultation with all appropriate parties (including the SHPO, Western's HPO, Tribes, private landowners, and state, local, and land-management agencies), can evaluate the property's eligibility and project probable effects. Western shall consult with the SHPO and the land-management agencies or individuals to determine what measures can be taken to mitigate the effects or avoid the property. The consultation shall also determine when work at the location of the discovery may resume.

XI. Treatment of human remains and items of cultural patrimony will be handled on a case-by-case basis with involvement of the appropriate parties listed in Stipulation X. In the event that human remains or items of cultural patrimony as defined by the Native American Graves Protection and Repatriation Act, 25 U.S.C. § 3001, *et seq.*, (NAGPRA) are encountered on lands under the ownership of Western, Western shall consult with the lineal descendants and culturally affiliated Tribe(s) to establish the appropriate disposition of any Native American human remains or items of cultural patrimony in compliance with NAGPRA. On Federal lands managed by another Federal agency, the Federal land manager, with Western's cooperation, will assume responsibility for compliance with NAGPRA. If Native American human remains are encountered on state or private land, Western shall follow the procedures set forth in the California Public Resources Code § 5097, *et seq.* If a private landowner desires to maintain ownership of archeological items, records, and materials, copies of records shall be maintained by Western, and copies of records shall be forwarded to the appropriate office of the California Historical Resources Information System.

XII. Curation of Recovered Data:

A. Any cultural items (artifacts), materials, and records associated with the collection of those cultural items that were obtained by Western in activities associated with this Agreement shall be maintained at a local curatorial facility in accordance with the standards specified in 36 C.F.R. Part 79, as required by any other Federal agency. A curatorial agreement shall be executed between Western, or its representatives, and the curatorial facility prior to the implementation of any collection or recovery. If no suitable facility can be identified to house the material recovered during the implementation of this Agreement, Western shall consult with the SHPO to identify and finalize alternative arrangements.

B. Western shall return all archeological items, records, and materials recovered from privately held lands to the owner as established under the Archaeological Resources Protection Act, 16 U.S.C. § 470aa-mm (ARPA). If these items, records, or materials are refused by their owner or donated to an appropriate Federal agency, Western shall ensure that the receiving agency acquires title to these items, records, or materials and makes binding arrangements to curate such property. If the owner desires to maintain ownership of the archeological items, records, and materials, copies of the records shall be maintained by Western, and copies of reports shall be forwarded to the appropriate office of the California Historical Resources Information System.

XIII. The land-management agencies shall provide information to Western about the location of historic properties included in, or eligible for inclusion in, the National Register of Historic Places within Western's rights-of-way and about the location of historic preservation activities (surveys) that did and did not result in the identification of historic properties; e.g. both positive and negative historic property findings.

XIV. Any signatory party to this Agreement may terminate the Agreement by providing thirty (30) days notice to the other parties, provided that the parties will consult during the period prior to termination to seek agreement on amendments or other actions that would avoid termination. In the event that the parties agree to terminate this Agreement, Western will comply with 36 C.F.R. §§ 800.4 through 800.6 with regard to all activities covered by this Agreement.

XV. Any signatory party to this Agreement may propose to the other signatory parties that this Agreement be amended, whereupon the parties will consult in accordance with 36 C.F.R. 800.6(c)(1) and (7) to consider such an amendment. Other parties may be added to this Agreement upon mutual agreement of the original signatories.

XVI. Should any party to this Agreement object within 30 days to any actions proposed pursuant to this Agreement, Western shall consult with the objecting party to resolve the objection. If Western determines that the objections cannot be resolved, Western shall forward all documentation relevant to the dispute to ACHP. Within thirty (30) days after receipt of the pertinent documentation, ACHP shall either:

A. Provide Western with comments which Western will take into consideration in reaching a decision regarding the dispute; or

B. Notify Western that it will comment pursuant to 36 C.F.R. § 800.7(c), and proceed to comment. Any ACHP comment provided in response to such a request will be taken into account by Western in accordance with 36 C.F.R. § 800.7(c)(4) and Section 110(1) of the NHPA with reference to the subject of dispute.

Any recommendation or comment provided by ACHP will be understood to pertain only to the subject of the dispute. Western's responsibility to carry out all actions under this Agreement that are not the subject of the dispute will remain unchanged.

XVII. All appendices attached to this Agreement shall be in force and in effect, as part of this Agreement, until suspended or amended, or until the termination of this Agreement.

Execution and implementation of this Programmatic Agreement and its transmittal by Western to the ACHP in accordance with 36 C.F.R. §800.6(b)(1)(iv), and subsequent implementation of its terms shall evidence, pursuant to 36 C.F.R. §800.6(c) that Western has satisfied its Section 106 responsibilities for all individual undertakings of its emergency and routine operation and maintenance program and other routine activities in California described in this Agreement.

SIGNATORY PARTIES:

WESTERN AREA POWER ADMINISTRATION

By: _____ Date: 1/7/10
Thomas R. Boyko, Regional Manager, Sierra Nevada Region

By: _____ Date: 12/29/09
Darrick Moe, Regional Manager, Desert Southwest Region

CALIFORNIA STATE HISTORIC PRESERVATION OFFICER

By: milford wayne donaldson Date: 20 JAN 2010
Milford Wayne Donaldson, State Historic Preservation Officer

ADVISORY COUNCIL ON HISTORIC PRESERVATION

By: _____ Date: 3/1/10
John M. Fowler, Executive Director

APPENDIX A
Definitions

All-dielectric Self-supporting Cables (ADSS) - Cables installed on transmission and distribution lines for grounding and transferring communication data throughout the transmission line system (see OPGW).

Aircraft Warning Devices - These devices consist of both signs and marker balls. Signs are usually placed on the tops of transmission line structures. "Marker balls" are large colored balls placed around overhead groundwires to make the groundwires more visible to aircraft and birds.

Anchors - Anchors are metal pins or concrete weights attached to the ends of guy wires to secure them to the ground.

Armor Rod - Protective pre-formed wires wrapped around aluminum conductor to prevent damage at point of support. Also used to repair minor conductor damage.

Auger Truck - A truck equipped with a bed-mounted auger used to dig holes for poles or structure foundations.

Bird Guard - A specially designed device placed on transmission line structures to prevent birds from being electrocuted.

Bobcat - A small front-end loader.

Brushhog - A debris chipper that grinds vegetation.

Bucket Truck - A specially designed truck equipped with a bucket and hydraulic arm used to lift men and equipment to the top of transmission line structures during construction, maintenance and inspection of transmission line structures.

Bushing - An electrically insulating lining for a hole to protect a through conductor.

Capacitor Banks - Capacitors are devices which store an electrical charge. Capacitors are grouped in "banks" inside switchyards and substations. Capacitor banks perform various functions including increasing power flow, compensating for voltage drops, and improving power at the point of delivery.

Cellular Tower Antennae - Antennae installed on a Western transmission line tower or other Western facilities by private telecommunication companies for wireless services and telecommunication projects. Installation of cellular tower antennae usually involves the need for other nearby components such as small equipment cabinets, and underground or aerial telephone line connections.

Circuit Breakers or "Breakers" - A circuit breaker is any device designed primarily to provide safe, rapid interruption of abnormal current flow. Circuit breakers interrupt a faulted circuit, and reclose as soon as the fault has been cleared.

Class I Survey - A literature and records search of previously identified archaeological and historic site records within or near the project APE.

Class II Survey - A professionally-conducted sample survey designed to characterize an area.

Class III Survey - An intensive, professionally–conducted, cultural resources survey to identify cultural resources present in the APE. Intensive surveys should be no more than 20 meter transects apart and cover 100% of the APE.

Clipping - The task of permanently attaching the conductor to the insulators during construction. Clipping is the last step in completing conductor stringing.

Communication Sites - Four communication systems are used by Western to track and monitor the power system: microwave transmissions, power line carriers, radio, and leased telephone lines. Microwave communication sites are being used more and more. A microwave site consists of a fenced, level pad occupied by a tower and small control building.

Conductor - Conductors, often called wires or lines, are the actual carriers of current in a transmission system. They are usually made from solid or stranded aluminum and reinforced with steel.

Crossarms - The crossarm is the crossing member of a wood pole or steel transmission line structure which supports the insulators for the conductors.

Cultural Resources - Any definite location of past human activity, occupation, or use. Cultural resources are identifiable through inventory, historical documentation or oral evidence. Cultural resources include archeological, historic, pre-historic, or architectural sites, structures, places, objects, or artifacts and all records and remains related to or located within such resources.

Cut Out Fuse - A fuse is an electrical safety device that melts and interrupts the circuit when the current exceeds certain amperage.

Dampener Installation - Vibration dampeners are installed to inhibit the conductor or overhead ground wires from oscillating, whipping, and/or bouncing. They may be installed using bucket trucks.

Disconnect Switches - A switch is used to open or close a circuit. An open switch stops current from flowing in a circuit, while a closed switch allows current to flow again. Disconnect

switches are used throughout an electrical system to separate various parts of the system during a fault, and to allow for maintenance and repair.

Footing – An enlargement at the base of a structure used to distribute the load or weight of the structure. Footings are dug with an auger into the ground and sometimes are filled with concrete.

Ground Mat - A large wire mesh mat buried under a substation or other electrical facility used to help ground electrical equipment.

Ground Rod - A metal pole installed in the ground to a depth of at least 5 feet. The rods are attached to grounding cables.

Ground Wire - A safety device that directs current to the earth or "ground". Overhead ground wires act as lightning rods. They are connected to the transmission line structures and extend down into the ground.

Guy Wire - A steel wire used to support or strengthen a structure. A guy wire securely anchors the structure to the ground. Guy wires are used at deadend and turning structures and at endpoints such as substations.

Insulators - An insulator keeps current from flowing to earth or another conductor. Insulators usually hang from the transmission line structure crossarms. An insulator inhibits the flow of electricity to earth or another conductor. Insulators are usually bell-shaped, arranged in strings, and are made of porcelain, Pyrex glass or plastic.

Knee Brace - An angle support device used to support a transmission line structure's crossarm.

Light Beacon - A light attached to a tower used for guidance or aircraft warning.

Lightning Arrestor - Any attachment, usually a metal bayonet, used to attract lightning away from the transmission system and direct it to a ground wire and the ground.

Masticator - A tractor-type machine used for mechanically removing vegetation. Two types of masticators are generally used:

1. Feller Buncher - A tractor-type piece of machinery used to mechanically clear or mow dense vegetation. This is a method of vegetation removal that mechanically blades high growth vegetation down to 6-8 inches high while avoiding soil disturbance during normal operations.
2. Hydroax - A hydro-axe is an articulated tractor with a mower-mulcher mounted on the front of the machine. It has rubber flotation-type tires that cause little disturbance to the surface ground in dry soil. The mower-mulcher clips and mulches vegetation from 4 to 10 inches above ground. The hydroax can also be used to remove tree stumps from the ground.

Microwave Radio Tower - A tower, usually constructed of steel lattice, equipped with a microwave receiving dish.

Overhead Fiber Optic Ground Wires (OPGW) - A type of cable that is installed overhead on electric power transmission and distribution lines. OPGW combines the functions of electrical grounding and sending communication data.

Parabolic Dish - A bowl-shaped antennae or reflector used in microwave communications.

Pole Guard - A metal collar or brace used to add strength to a pole. See also "stub".

Portable or Mobile Substation - A mini-substation that can be transported by truck and installed anywhere along the transmission system.

Reactors - Devices used to introduce inductive reactance into a circuit. Usually installed in groups or banks, they help limit current to a safe value and protect equipment from excessive power surges during a fault.

Reclosers - A device associated with a circuit breaker that allows the circuit to close automatically after a fault.

Regulators - See voltage regulators.

Solar Power Array - A collection or grouping of devices such as mirrors or photovoltaic cells, capable of capturing solar energy for use in generating electricity.

Shoo-fly - A temporary tap line used to direct current around a piece of the transmission system that is under construction or repair. It also refers to a temporary road used to get around an obstruction in the normal right-of-way.

Stabilizer or Outrigger Pads - Metal plates used to support lifting equipment.

Stub - A temporary reinforcement done at the base of a pole to provide additional strength. A stub usually consists of a short piece of another pole.

Steel Transmission Line (TL) Structure - A steel structure, usually in a lattice or single pole configuration which can be used in special construction situations and to carry large transmission voltages.

Substations - On-ground facilities consisting of electrical equipment used to transform (step down or up) the voltage for delivery and consumer use.

Switches (Switchgear) - Substation equipment designed and operated to switch electrical circuits and to interrupt power flow.

Tap Changers - Devices in some transformers that increase or reduce the potential by changing the transformer turns ratio. Tap changing transformers are used to control voltage at loads, substations, and direct current ties.

Transformers - Transformers transfer energy from one circuit to another circuit and are used to increase or decrease voltage in an alternating current system. A transformer consists of two "windings", or many turns of magnetically coupled wires or coils, placed very close together within an oil cooled cylinder.

Voltage Regulators - Electric devices that regulate voltage flowing through distribution lines. It automatically raises and lowers the voltage to maintain required voltage levels for service.

Wave Traps - A wave trap is used in carrier communications to confine the carrier signal to one transmission line section. It is a parallel circuit tuned to the frequency of the carrier signal.

Wood Transmission Line (TL) Structures - Structures built from large wooden poles (usually of fir, pine, larch or cedar) that are treated with a preservative chemical to protect them against decay fungi.

X-Braces - X-braces, usually constructed of wood, provide reinforced support to large wooden transmission line structures.

APPENDIX B

Routine Operation and Maintenance Activities and Other Routine Activities

I. Activities with No or Minor Associated Surface Disturbance:

Many of these activities take place within the confines of an existing substation or communications site. Most substations have been leveled and graveled. Equipment used for these activities consist of rubber-tired vehicles such as bucket trucks, backhoes, front-end loaders, cranes, auger trucks, bobcats, and pole trucks. Many vehicles require stabilizer pads which can compact a ground area of about 2' by 2'.

A. **Substation Activities:**

1) Maintenance and replacement of transformers and breakers.
2) Servicing and testing of equipment at existing substations, including oil changeouts.
3) Installation or replacement of bushings.
4) Cleaning or replacement of capacitor banks.
5) Maintenance or installation of propane tanks within a substation yard.
6) Maintenance of switches, voltage regulators, reactors, tap changes, reclosers and valves.
7) Replacement of wiring in substations and switch yards.
8) Replacement of existing substation equipment including regulators, capacitors, switches, wave traps, radiators, and lightning arresters.
9) Installation of cut-out fuses.
10) Adjust and clean disconnect switches.
11) Placement of temporary transformer.
12) Maintenance, installation and removal of solar power array and controller.
13) Clean up of chemical spills when clean up remains above the ground mat.
14) Installation of foundation for storage buildings above ground mat within existing substation yard.
15) Ground mat repairs.
16) Clearing vegetation by hand within the boundary of a fenced substation.

B. **Transmission Line Activities:**

1) Ground and aerial patrols.
2) Climbing, inspection, and tightening hardware on wood and steel transmission line structures.
3) Replacement or repair of ground wire.
4) Replacement or placement of aircraft warning devices.
5) Replacement or cleaning of insulators.
6) Installation of bird guards.
7) Replacement of cross arms on wood pole transmission line structures.
8) Cut and drop danger trees.

9) Replacement or repair of steel members of steel transmission line structures.
10) Inspection of hardware on wood and steel transmission line structures.
11) Installation, repair or replacement of X-brace and knee brace.
12) Removal or installation of structure mile markers.
13) Dampener installation.
14) Installation of ADSS or OPGW.
15) Replacing ground spike on wood pole structures.
16) Brush removal by hand.
17) Installation of ground rods.
18) Installation of armor rod and clipping-in structures.
19) Replacement of conductor.
20) Application of wood preservatives on existing wooden pole structures.
21) Place fill or rocks around existing towers or structures.
22) Place fill or rocks around existing culverts.
23) Adding rock to bases of poles or structures where the soil is blown out.
24) Installation of cellular antenna on Western facilities when no underground trenching is required.

C. **Communication System Activities:**
1) Microwave radio tower maintenance.
2) Communication tower and antennae maintenance.
3) Installation of light beacons.
4) Removal of microwave dish.
5) Installation, removal and repair of parabolic dish.

D. **General Maintenance at Facilities:**
1) Building maintenance including interior and exterior painting; and roof, ceiling, floor, window and door maintenance.
2) Application of soil sterilants and herbicides.
3) Clearing vegetation by hand.
4) Place fill or rocks around existing culverts.

II. Activities with Minimal Surface Disturbance:

These activities may cause minimal and restricted surface disturbance.

A. **Substation Activities:**
1) Excavation for and installation of new footings.
2) Repair or replacement of ground mats.
3) Replacement or repair of footings for electrical or communications equipment within an existing substation or communications facility.
4) Remediation of small spills of oil and hazardous materials.

B. **Transmission Line Activities:**

1) Replacement of existing culverts (use of a backhoe/front-end loader within an existing access road).
2) Installation of gates where no new posts need to be installed.
3) Digging out buried anchors.
4) Uncovering tower legs from soil deposition.
5) Installation of anchors.
6) Wood pole replacements.
7) Stub an existing wood pole structure.
8) Rip-rap installation on creek or river banks where no recontouring is required.
9) Repair of pole guards.
10) Placement of single post informational signs for accessing the right-of-way.
11) Place fill in erosional features on access roads.
12) Remediation of small spills of oil and hazardous materials.
13) Vegetation removal using a masticator following BMPs in Appendix C.

C. **Communication System Activities:**

1) Removal of foundations or footings at communication sites.
2) Installation or removal or solar power array and controller.

D. **General Maintenance at Facilities:**

1) Repair fences and gates.
2) Pull existing fences.
3) Grounds maintenance for existing facilities, including the use of brush hogs.
4) Erosion control projects within an existing facility.

III. Activities Causing Extensive Surface Disturbance:

These types of activities may include the use of bulldozers, graders, backhoes, front-end loaders. Activities could take place on any Western facility including transmission line rights-of-way, substations, communication facilities, microwave facilities, and office locations.

1) Access road construction or upgrading. (This activity may take place adjacent to, or outside of, Western facilities.)
2) Installation of new culverts.
3) Installation of foundation for storage buildings outside graveled area at an existing substation.
4) Installation of fences and gates where posts or poles must be installed.
5) Erosion control projects outside existing facilities.
6) Propane tank and pad installation at a communication site.
7) Erosion control projects outside existing substation.
8) Vegetation clearing by bulldozer or grader.

9) Installation of microwave and radio tower.
10) Rip-rap installation that includes recontouring on creek or river banks.
11) Underground installation of water, power, communication or ground electrical line below ground mat or outside a substation.
12) Installation of water diversion bars on existing access roads.
13) Installation of foundation for storage buildings inside communication site yards.
14) Setting up portable substations outside of an established substation.
15) Propane tank installation outside of an established substation.
16) Excavation for and installation of new footings on a transmission line or at a communication site.
17) Installation of cellular antenna on Western facilities when underground trenching is required.

APPENDIX C
Best Management Practices

For project areas where dense vegetation prevents a Class III survey and where due to the scale of the project area vegetation removal by hand is not feasible, mechanical means of vegetation removal using mastication machinery as defined in Appendix A may be used provided the following requirements for best management practices (BMP) are in place.

BMP 1: Western will require mastication operators to prevent blading devices from removing vegetation at ground level to avoid soil disturbance. All mowed vegetation shall not be cut below 6 inches.

BMP 2: Mastication equipment will not be used within areas recently subjected to heavy rains in order to prevent rutting in wet soils from equipment tires.

BMP 3: A qualified archaeologist will be on site during mastication activities to monitor survey areas being cleared of vegetation. Should any cultural resources be detected, mastication activities will cease in the area until an assessment and the significance of the find is made. Results of the monitoring and survey activities will be provided in the annual report.

APPENDIX D

Differences between the 1997 Programmatic Agreement and this 2009 Programmatic Agreement

The following changes and additions have been made in this Agreement when compared to the 1997 Agreement.

Title: "Other Routine Activities" have been added to "Emergency and Routine Maintenance Activities". Other routine activities are those activities that Western performs on a regular basis but that are not defined as operation and maintenance activities. Such activities do not include new transmission line construction or other new facility construction.

Second Whereas Clause: "Other routine activities" have been added to "emergency and routine and operation maintenance activities" and throughout.

Last Whereas Clause: Statement of "first amended Agreement" has been added.

STIPULATIONS:

I. Environmental Manager is changed to Natural Resources Manager.

II. Regional Historic Preservation Official (RPO) is added as responsible for decisions regarding actions carried out under the Agreement. RPO is responsible for historic preservation requirements at the regional level but is still required to coordinate with Western's Federal Historic Preservation Officer who oversees activities at the Agency level.

III. The following language has been added to Stipulation III. "In large areas where dense vegetation prevents a Class III survey, mechanical means of vegetation removal (use of a masticator) may be used provided best management practices (BMP) as outline in Appendix –are followed".

Throughout: References to 36 C.F.R. Part 800 have been revised/updated to reflect the amendments to 36 C.F.R. Part 800 effective August 5, 2004.

Appendix A:

The following definitions have been added to Appendix A:

Cellular Tower Antennae - Antennae installed on a Western transmission line tower or other Western facilities by private telecommunication companies for wireless services and telecommunication projects. Installation of cellular tower antennae usually involves the need for

other nearby components such as small equipment cabinets, and underground or aerial telephone line connections.

Class III Survey - An intensive, professionally–conducted, cultural resources survey to identify cultural resources present in the APE. Intensive surveys should be no more than 20 meter transects apart and cover 100% of the APE.

Masticator – A Masticator is a tractor-type machine used for mechanically removing vegetation. Two types of masticators are generally used:

1. Feller Buncher – A tractor-type piece of machinery used to mechanically clear or mow dense vegetation. This is a method of vegetation removal that mechanically blades high growth vegetation down to 6 to 8 inches high while avoiding soil disturbance during normal operations.

2. Hydroax – A hydro-axe is an articulated tractor with a mower-mulcher mounted on the front of the machine. It has rubber flotation-type tires that cause little disturbance to the surface ground in dry soil. The mower-mulcher clips and mulches vegetation from 4 to 10 inches above ground. The hydroax can also be used to remove tree stumps from the ground.

Appendix B

The following activities have been added to Appendix B:

BI.B.24. "Installation of cellular antenna on Western facilities when no underground trenching is required."

BII.B.13. "Vegetation removal using a masticator following BMPs in Appendix C."

BIII.17. "Installation of cellular antenna on Western facilities when underground trenching is required."

Appendix C

Appendix C has been added for "Best Management Practices".

Appendix D

Appendix D has been added to summarize amendments.

Appendix L

Native American Correspondence

TRIBAL CONTACTS FOR NORTH AREA ROW EA

BUTTE COUNTY
Berry Creek Rancheria of Maidu Indians
Jim Edwards, Chairperson
Jill Williams, Tribal Administrator
Oroville, CA 95966
Tribal Affiliation: Tyme Maidu

Butte Tribal Council
Ren Reynolds
Oroville, CA 95966

Mechoopda Indian Tribe of Chico Rancheria
Steve Santos, Chairperson
April Cottrell, Interim Tribal Administrator
Chico, CA 95926-2175
Tribal Affiliation: Mechoopda – Maidu - Concow

Enterprise Rancheria of Maidu Indians (also Glenn and Colusa County listing)
Harvey Angle, Chairperson
Oroville, CA 95965-5723
Tribal Affiliation: Estomyumeka Maidu

Mooretown Rancheria
Gary Archuleta Chairperson
Candice Miller, Tribal Administrator
Oroville, CA 95966
Tribal Affiliation: Maidu-Concow

GLENN COUNTY
Grindstone Rancheria of Wintun-Wailaki
Kenneth Swearinger, Chairperson
Elk Creek, CA 95939
Tribal Affiliation: Nomelaki, Wintun (Patwin), Wailaki, Muimok

Paskenta Band of Nomlaki Indians
Everitt Freeman, Chairperson
Orland, CA 95963
Tribal Affiliation: Wintun – Nomlaki

COLUSA COUNTY

Cortina Band of Indians
Elaine Patterson, Chairperson
Kesner Flores, Tribal Administrator
Williams, CA 95987
Tribal Affiliation: Wintun - Patwin

Paskenta Band of Nomlaki Indians
Everitt Freeman, Chairperson
Orland, CA 95963
Tribal Affiliation: Wintun – Nomlaki

MODOC COUNTY
Klamath Tribe
Morris Jimenez
Chiloquin, OR 97624
Tribal Affiliation: Klamath, Modoc

Shasta Nation
Howard Wynant, Chairperson
Macdoel, CA 96058
Tribal Affiliation:

Ajumawi Band
Leta Nalton, Cultural Resources Representative
Burney, CA 96013
Tribal Affiliation: Pit River - Ajumawi

Hammawi Band
Daniel Cardenas, Chairperson
Alturas, CA 96101

Pit River Tribe of California
(This includes XL Rancheria, Lookout Rancheria & Likely Rancheria)
Jessica Jim, Chairperson
Virgina Sutter, Tribal Administrator
Burney, CA 96013
Tribal Affiliation: Pit River – Achomawi – Atsugewi, Wintun

Pit River Tribe Environmental Office
Cultural Information Officer
Michelle Berditschevsky, Environmental Coordinator
Sharon Elmore, Cultural Information Officer
Burney, CA 96013
Tribal Affiliation: Pit River – Achomawi – Atsugewi, Wintun

Alturas Rancheria
Wendy Del Rosa, Chairperson
Creig Marcus, Tribal Administrator / Environmental Coordinator
Vi Riley, Cultural Resouces Coordinator
Alturas, CA 96101
Tribal Affiliation: Pit River, Acomawi-Atsugewi

Cedarville Rancheria of Northern Paiute
Virgina Lash, Chairperson / Cultural Resources
Duanna Knighton, Tribal Administrator
Carrie Anne Sligar, Environmental Coordinator
Alturas, CA 96101
Tribal Affiliation: Northern Paiute

Fort Bidwell Indian Reservation
Ralph DeGarmo, Chairperson / Cultural Resources Coordinator
Ken Williams, Tribal Administrator
Loyette Meza, Environmental Coordinator
Fort Bidwell, CA 96112
Tribal Affiliation: Paiute

Ajumawi Band
Leta Nalton, Cultural Resources Representative
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Tribal Affiliation: Pit River - Ajumawi

Hammawi Band
Daniel Cardenas, Chairperson
Alturas, CA 96101
(530) 604-9639 Cell

Pit River Tribe of California
(This includes XL Rancheria, Lookout Rancheria & Likely Rancheria)
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Pit River Tribe Environmental Office
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Michelle Berditschevsky, Environmental Coordinator
Sharon Elmore, Cultural Information Officer
Burney, CA 96013
Tribal Affiliation: Pit River – Achomawi – Atsugewi, Wintun

SHASTA COUNTY
Redding Rancheria
Tracy Edwards, Chairperson
Barbara Murphy, Chief Executive Officer
Redding, CA 96001-5528
Tribal Affiliation: Pit River, Wintu, Yana

Winnemem Wintu Tribe
Caleen Sisk-Franco, Chairperson
Redding, CA 96003
Tribal Affiliation: Wintu

Wintu Tribe and Toyon-Wintu Center
Redding, CA 96002
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Grant Gassway, Cultural Resources Representative
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Tribal Affiliation: Shasta

Ajumawi Band
Leta Nalton, Cultural Resources Representative
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Tribal Affiliation: Pit River - Ajumawi

Illmawi Band
Cecelia Silvas, Cultural Resources Representative
Fall River Mills, CA 96028
Tribal Affiliation: Pit River - Illmawi

Itsatawi Band
Vivian Martinez, Cultural Resources Representative
Shasta Lake, CA 96019
Tribal Affiliation: Pit River – Itsatawi

Madesi Band
Angel Winn, Cultural Resources Representative
Montgomery Creek, CA 96065
Tribal Affiliation: Pit River - Madesi

Pit River Tribe of California
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Virgina Sutter, Tribal Administrator
Burney, CA 96013
Tribal Affiliation: Pit River – Achomawi – Atsugewi, Wintun

Pit River Tribe Environmental Office
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Michelle Berditschevsky, Environmental Coordinator
Sharon Elmore, Cultural Information Officer
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Tribal Affiliation: Pit River – Achomawi – Atsugewi, Wintun

Roaring Creek Rancheria
Montgomery Creek, CA 96065
Tribal Affiliation: Pit River

Karuk Tribe of California
Alvis Johnson, Chairperson
Happy Camp, CA 95556
Tribal Affiliation: Karuk, Karok

Karuk Tribe of California
Department of Natural Resources
Attn: Leaf Hillman
Orleans, CA 95556
Tribal Affiliation: Karuk, Karok

Klamath Tribe
Morris Jimenez
Chiloquin, OR 97624
Tribal Affiliation: Klamath, Modoc

Quartz Valley Indian Reservation
Aaron Peters, Chairperson
Evette Lewis, Cultural Resouces Coordinator
Rebekah Sluss, Environmental Coordinator
Fort Jones, CA 96032
Tribal Affiliation: Karuk, Shasta, Upper Klamath

SISKIYOU COUNTY
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Illmawi Band
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Fall River Mills, CA 96028
Tribal Affiliation: Pit River - Illmawi

Itsatawi Band
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Madesi Band
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Montgomery Creek, CA 96065
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TEHAMA COUNTY
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Everitt Freeman, Chairperson
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Tribal Affiliation: Estomyumeka Maidu

Beverly K. Ogle
Tasman Koyom Indian Foundation
Paynes Creek, CA 96075
Tribal Affiliation: Maidu

TRINITY COUNTY
Hoopa Valley Indian Reservation
Clifford L. Marshall, Chairperson
Hoopa, CA 95546
Tribal Affiliation: Hoopa, Hupa

Hoopa Tribal Forestry
Hoopa, CA 95546
Tribal Affiliation: Hoopa, Hupa

Nor-Rel-Muk Nation
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Hayfork, CA 96041
Tribal Affiliation: Wintu
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Tracy Edwards, Chairperson
Barbara Murphy, Chief Executive Officer
Redding, CA 96001-5528
Tribal Affiliation: Pit River, Wintu, Yana

Round Valley Reservation
John Azbill, President
Covelo, CA 95428
Tribal Affiliation: Yuki, Pit River, Achomawi, Pomo, Conkow, Wailaki, Nomlaki, Wintu

YUBA COUNTY
Butte Tribal Council
Ren Reynolds
Oroville, CA 95966

Enterprise Rancheria of Maidu Indians
Harvey Angle, Chairperson
Oroville, CA 95965-5723
Tribal Affiliation: Estomyumeka Maidu

Department of Energy
Western Area Power Administration
Sierra Nevada Customer Service Region
114 Parkshore Drive
Folsom, California 95630-4710

JAN 11 2005

Dear Ms. Elmore:

The Western Area Power Administration (Western), a power marketing administration of the Department of Energy, owns, operates, and maintains fifteen 230-kilovolt (kV) transmission lines, one 500-kV transmission line, and one 115-kV transmission line in Shasta, Trinity, Tehama, Butte, Yuba, Glen, Colusa, and Sutter Counties, California, and Klamath County, Oregon (Enclosure 1). Western must comply with the National Electric Safety Code, the Western Electricity Coordinating Council, and the Western directives for protecting human safety and maintaining the reliable operation of the transmission system.

Western is preparing an Environmental Assessment (EA) regarding proposed changes in operation and maintenance procedures along Western's North Area transmission Right-of-way (ROW). Western proposes to change the current vegetation maintenance procedures to include the expanded use of herbicides in combination with manual and mechanical removal methods in an effort to promote low-growing plant communities. Additional maintenance activities that may be added to the current routine ROW operation and maintenance practices include erosion repair, geotechnical borings, and fiber optics installation. Western currently has a Programmatic Agreement (PA) with the California Office of Historic Preservation (OHP) pursuant to Section 106 of the National Historic Preservation Act (NHPA) that allows for certain types of maintenance activities to proceed without further consultation. However, as described above, Western proposes expanding the scope of these maintenance methods. The EA intends to support further Section 106 consultation required when Western conducts maintenance activities that are beyond those covered in the PA.

The project area extends northward from approximately Sutter County to the California-Oregon border and covers 434 miles of transmission line ROW and 77 miles of legal access roads. Our team of biologists and archaeologists will be conducting biological and cultural resource surveys within the project area to collect comprehensive environmental baseline data. All biological and cultural data will be logged using GPS technology and other mapping media. All surveys are scheduled to occur between April and September 2005.

Western will be conducting a meeting with key Federal and State agencies concerning all aspects of this project. We would like to invite you and other Tribal Representatives to this meeting so you may have an opportunity to express any concerns regarding areas of cultural sensitivity that are within the proposed project area. The meeting is scheduled for 9 a.m. on February 2, 2005, at the Red Lion Hotel, 1830 Hilltop Drive, Redding, California. Other issues to discuss at the meeting include: the proposed EA schedule, purpose and need, opportunities to be involved in the EA process with Western, ROW access, and field survey coordination.

This meeting is not intended to be our only consultation with you regarding this project. If you are unable to attend, we will still be contacting you, pursuant to Section 106 of the NHPA, to ensure that you are provided with project information (i.e., maps of the area, known cultural sites from past surveys) that will be provided at this meeting. We may also meet with you at your request. You may address any comments and concerns you have to Ms. Cherie Johnston-Waldear at (916) 353-4035 or at waldear@wapa.gov. If you interested in attending the meeting on February 2, please contact Ms. Johnston-Waldear by January 24, 2005. Thank you for your cooperation in regards to this matter. We look forward to working with you on this proposed project.

Sincerely,

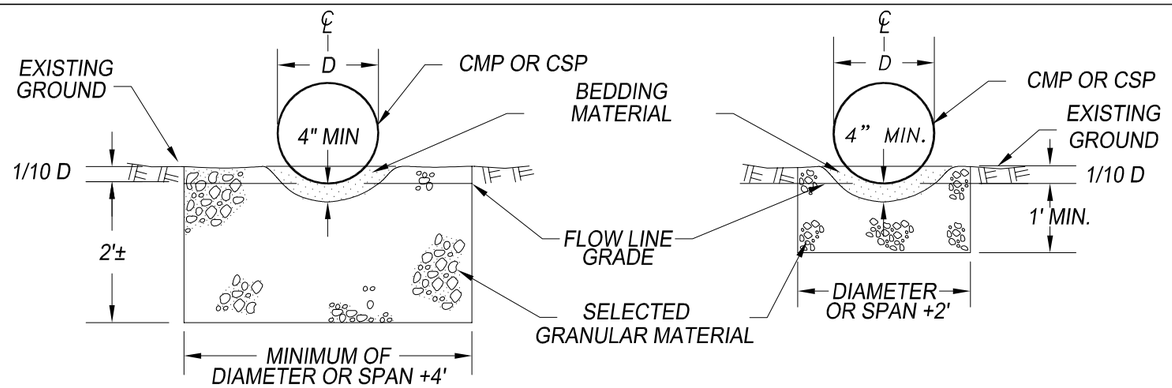
ORIGINAL SIGNED BY

James D. Keselburg
Regional Manager

2 Enclosures

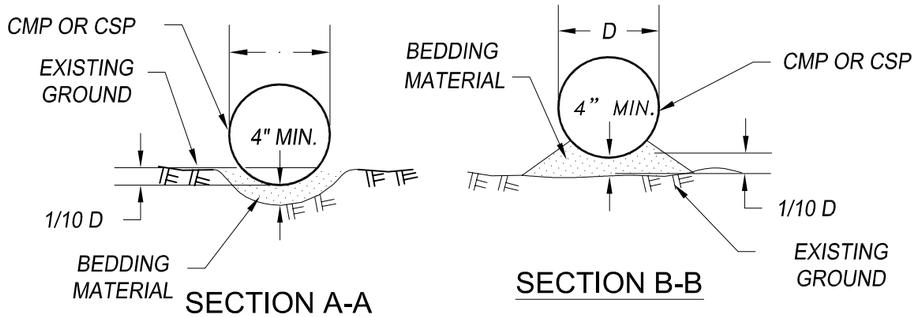
Appendix M

Culvert and Drainage Dip Specifications



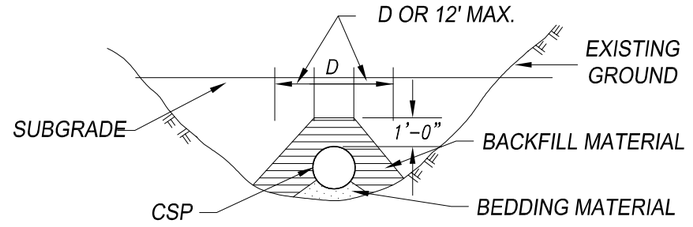
UNSTABLE FOUNDATION

ROCK FOUNDATION

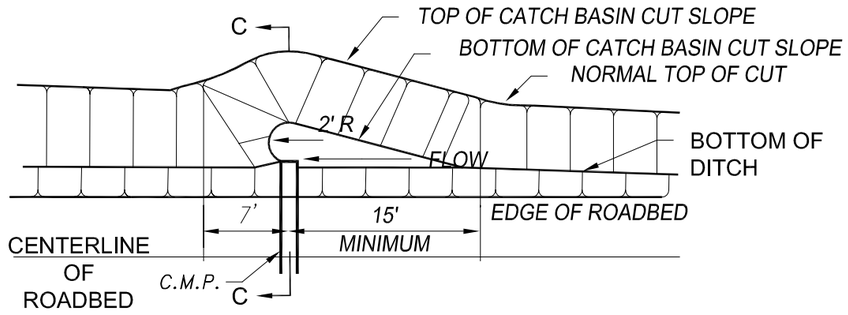


SECTION A-A

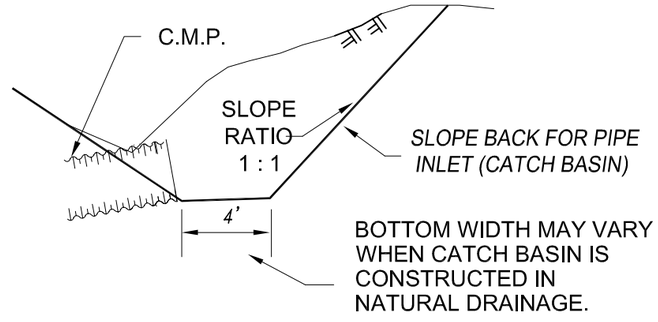
SECTION B-B



METHOD OF BACKFILLING PIPE

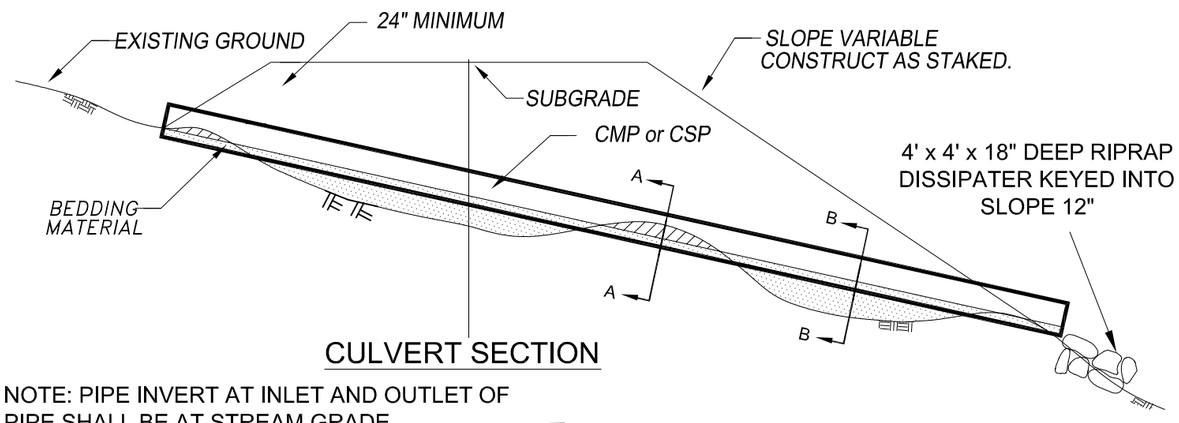


CATCH BASIN PLAN VIEW



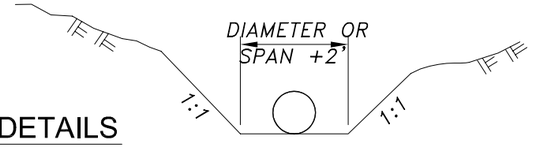
SECTION C-C CATCH BASIN

NO SCALE



CULVERT SECTION

NOTE: PIPE INVERT AT INLET AND OUTLET OF PIPE SHALL BE AT STREAM GRADE, CONSTRUCT 4' X 4' X 18" RIPRAP DISSIPATER AT OUTLET.



INLET OR OUTLET
CHANNEL EXCAVATION DETAILS

TYPICAL BEDDING AND EXCAVATION DETAILS

GENERAL NOTES

1. CULVERT AND BANDS WILL BE FURNISHED BY THE CONTRACTOR.

2. ALL CULVERT INSTALLATIONS WILL HAVE 4' X 4' X 18" RIPRAP DISSIPATER AT OUTLET. SEED AND MULCH ALL DISTURBED FILL SLOPES.

3. RIPRAP FOR DISSIPATER IS ESTIMATED AT 1 CY EACH.

USDA FOREST SERVICE
PACIFIC SOUTHWEST REGION R5

NO.	DATE	REVISIONS

FOREST: SHASTA-TRINITY NATIONAL FOREST
PROJECT NAME: ROAD MAINTENANCE
DRAWING NAME: CULVERT INSTALLATION

MT. SHASTA RANGER DISTRICT
204 W. ALMA ST
MT. SHASTA, CA
T - 530.926.4511
F - 530.926.5120

PROJECT NUMBER

DESIGNED BY R.O.

DRAWN BY C. LOHUIS

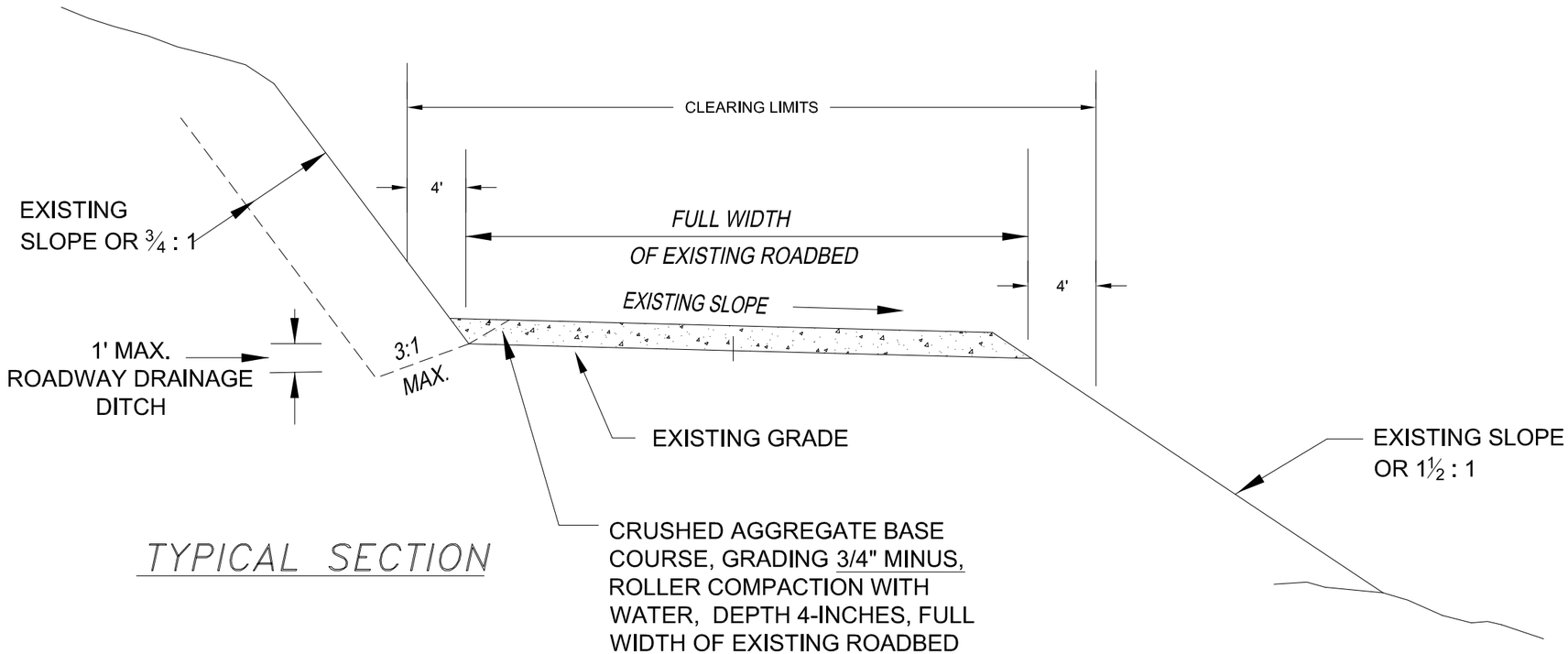
CHECKED BY

CHECKED BY

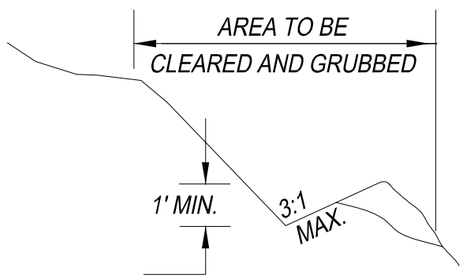
DATE 06/2007

SCALE AS SHOWN

SHEET OF



TYPICAL SECTION



TYPICAL LEAD–OFF DITCH

GENERAL NOTES

1. EQUIPMENT USED FOR PROJECT WILL BE CLEANED AND INSPECTED PRIOR TO STARTUP OF OPERATIONS.

2. ROADS TO BE RECONSTRUCTED SHALL BE SCARIFIED TO A DEPTH OF SIX INCHES, SHAPED AND ROLLER COMPACTED WITH WATER. ALL DITCHES, EXISTING CULVERTS AND INLET ASSEMBLIES SHALL BE CLEANED. CLEAN AND CLEAR AREA 10 FEET UPSTREAM AND DOWNSTREAM OF CULVERTS AND A WIDTH THAT IS 2 FEET WIDER THAN DIAMETER OF CULVERT. SLASH AND DEBRIS MAY BE SCATTERED

3. TREES OVER 6" IN DIAMETER WITHIN THE 4' CLEARING LIMIT THAT DO NOT IMPEDE BLADING SHALL BE LIMBED TO A HEIGHT OF 14' AND LEFT STANDING.

USDA
FOREST
SERVICE

PACIFIC
SOUTHWEST
REGION
R5

NO.	DATE	REVISIONS

FOREST: SHASTA-TRINITY NATIONAL FOREST

PROJECT NAME: ROAD MAINTENANCE

DRAWING NAME: TYPICAL ROAD SECTION

MT. SHASTA
RANGER DISTRICT
204 W. ALMA ST
MT. SHASTA, CA
T - 530.926.4511
F - 530.926.5120

PROJECT NUMBER

DESIGNED BY
R.O.

DRAWN BY
C. LOHUIS

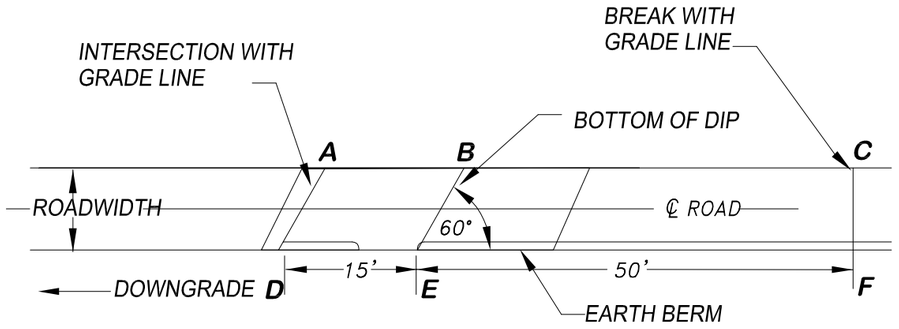
CHECKED BY

CHECKED BY

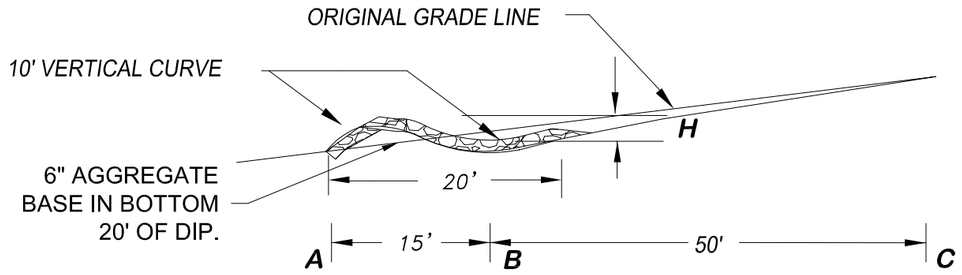
DATE
06/2007

SCALE
AS SHOWN

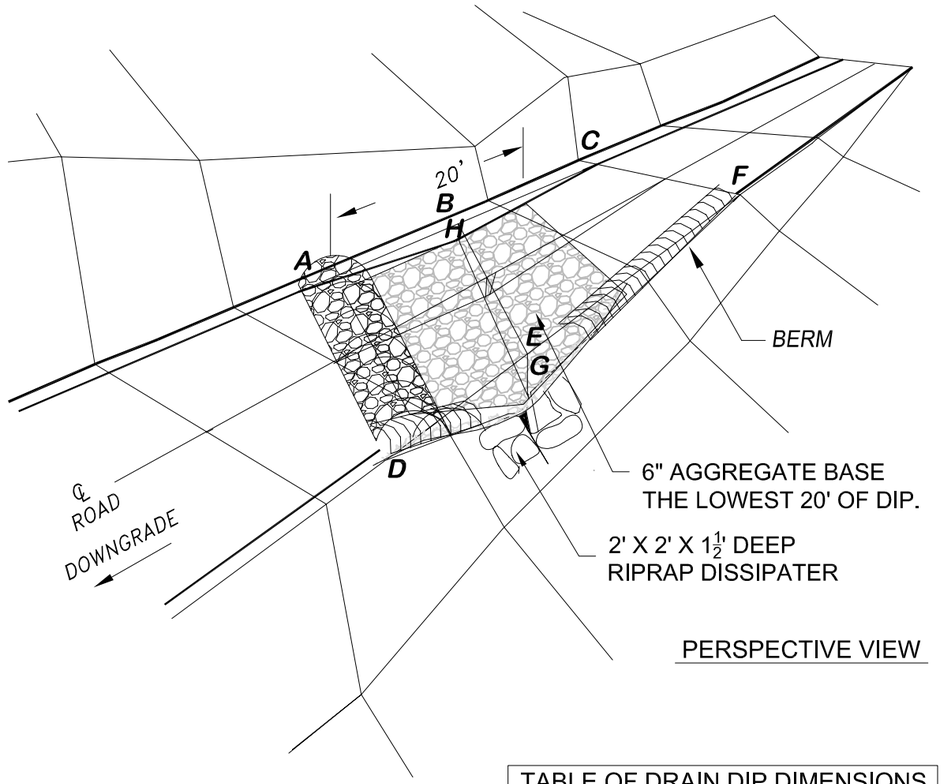
SHEET
OF



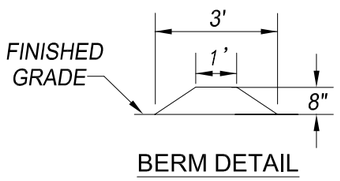
PLAN OF ROLLING DIP



ROAD PROFILE ALONG A-B-C OF ROLLING DIP



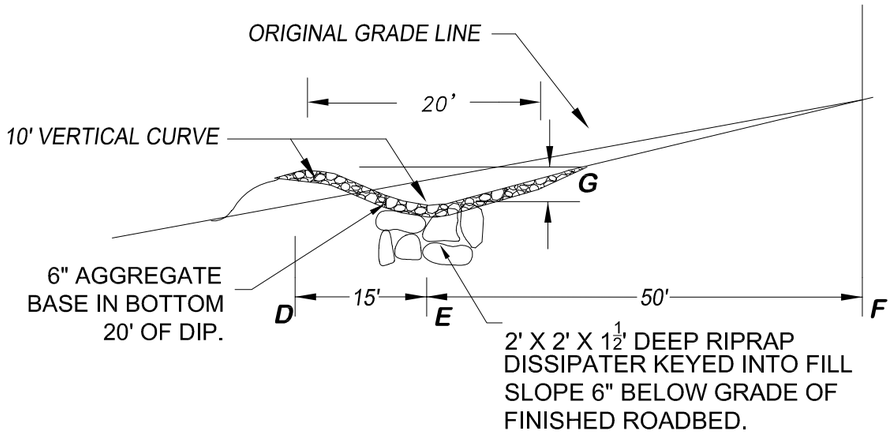
PERSPECTIVE VIEW



BERM DETAIL

TABLE OF DRAIN DIP DIMENSIONS

% GRADE OF ROAD	SINGLE LANE DEPTH	
	G	H
6% AND UNDER	1.0'	0.5'
7% AND UNDER 10%	1.5'	0.5'
10% AND UNDER 13%	2.0'	0.5'



ROAD PROFILE ALONG D-E-F OF ROLLING DIP

GENERAL NOTES

1. PLAN OF DIP SHOWN IS FOR AN OUTSLOPED DRAIN DIP. DIPS MAY BE INSLOPED OR OUTSLOPED.

2. ANGLE OF DIP MAY VARY +/- 10% FROM THAT SHOWN.

3. ALL DIPS TO BE CONSTRUCTED WILL BE COMPACTED WITH ROLLER COMPACTION, ROCKED WITH 6" AGGREGATE BASE AND SHALL HAVE 2' X 2' X 1½' DEEP RIPRAP DISSIPATER KEYED INTO OUTSIDE EDGE OF ROADBED. CACHE AND REUSE EXISTING AGGREGATE BASE.

4. PAYMENT OF DIP EXCAVATION, LOADING, HAUL AND PLACEMENT OF AGGREGATE BASE, SORTING, HAUL AND PLACEMENT OF RIPRAP FOR DIPS IS INLCLUDED IN PAY ITEM 20420(b).

USDA FOREST SERVICE

PACIFIC SOUTHWEST REGION R5

NO.	DATE	REVISIONS

FOREST: SHASTA-TRINITY NATIONAL FOREST

PROJECT NAME: ROAD MAINTENANCE

DRAWING NAME: ROLLING DIP

MT. SHASTA RANGER DISTRICT
204 W. ALMA ST
MT. SHASTA, CA
T - 530.926.4511
F - 530.926.5120

PROJECT NUMBER

DESIGNED BY R.O.

DRAWN BY C. LOHUIS

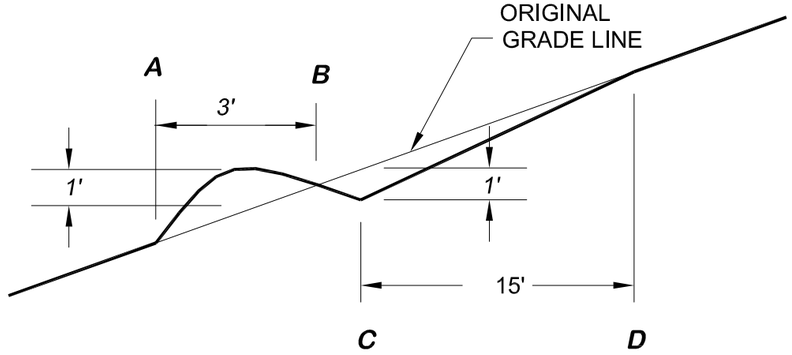
CHECKED BY

CHECKED BY

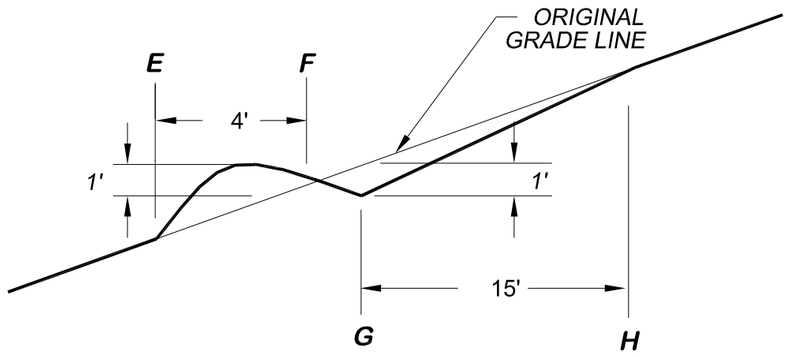
DATE 06/2007

SCALE AS SHOWN

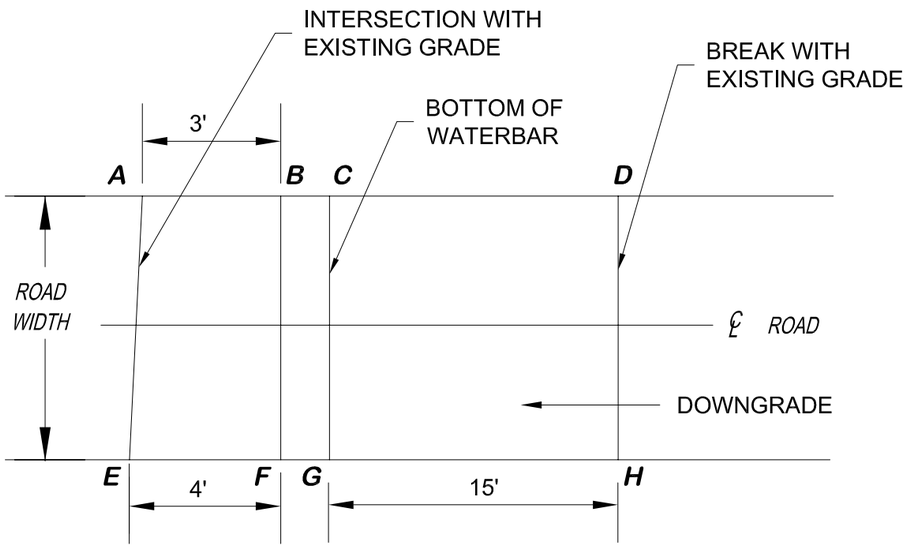
SHEET OF

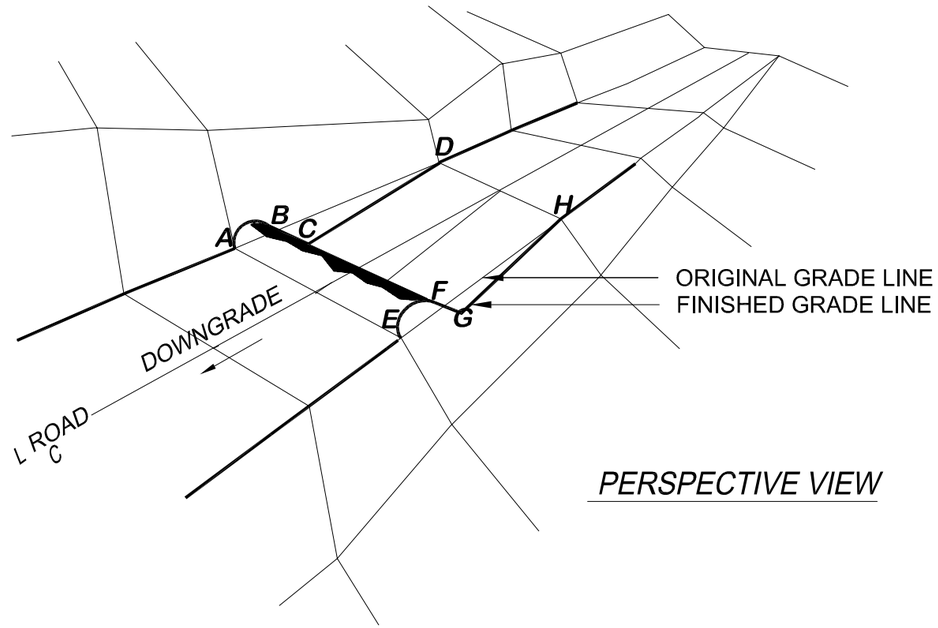


ROAD PROFILE ALONG D-E-F-G OF WATERBAR



ROAD PROFILE ALONG E-F-G-H OF WATERBAR





PERSPECTIVE VIEW

GENERAL NOTES

1.

TABLE OF WATER BAR SPACING	
% GRADE OF ROAD	SPACING
6% AND UNDER	200'
7% AND UNDER 10%	125'
10% AND UNDER 13%	50'

USDA FOREST SERVICE

PACIFIC SOUTHWEST REGION R5

NO.	DATE	REVISIONS

FOREST: SHASTA-TRINITY NATIONAL FOREST

PROJECT NAME: ROAD MAINTENANCE

DRAWING NAME: WATER BAR

MT. SHASTA
RANGER DISTRICT
204 W. ALMA ST
MT. SHASTA, CA
T - 530.926.4511
F - 530.926.5120

PROJECT NUMBER

DESIGNED BY R.O.

DRAWN BY C. LOHUIS

CHECKED BY

CHECKED BY

DATE 06/2007

SCALE AS SHOWN

SHEET
OF

Appendix N

Comments on the Draft EA

Comment	Comment ID	Response
Carol Lowe	Public-1	Figure 1-1 was revised.
USACE	Agency 1-1	404/401 permits would be obtained on project specific basis. See Standard Operating (SOP) procedure 8 in Table 2-1 of the Environmental Assessment.
	Agency 1-2	E-mail sent to USACE on August 25, 2008: "Due to the large area that the project covered, we did not conduct jurisdictional determinations or wetland delineations. All potential wetlands and watercourses were GPS-ed and discussed in the Flood Plain/Wetlands Assessment (Appendix H of the EA) with the intention of obtaining USACE permits on a project-specific level. We would be interested in learning whether USACE has some sort of programmatic process that would allow for expedited review of any wetland delineations of jurisdictional determinations associated with individual actions under this project."
	Agency 1-3	Comment noted
Caltrans	Agency 2	Comment noted
SWRCB	Agency 3-1	Comment noted
	Agency 3-2	Comment noted. Underlined insertions and struck through deletions were used in the admin draft of the Final EA (August 2009) for cooperating agencies.
	Agency 3-3	First row added to Table 4-1 discusses PG&E's plans for a transmission project extending from British Columbia to Northern California. The TANC project was cancelled in July 2009.
	Agency 3-4	Western would consult with USACE and/or SWRCB. Western would also obtain 401 water quality certifications, as applicable. Reference made to WR-SOP-8, which describes compensation and mitigation.
	Agency 3-5	Compensatory mitigation covered in new WR-SOP-8 and Section 3.2 (Habitats and Vegetation, including wetlands)
	Agency 3-6	Potential effects to wetlands and mitigation (as necessary) would be discussed in 404 permitting.
	Agency 3-7	Text modified to read: "herbicidal applications (used either to prohibit or retard vegetative growth)." Further clarification added: "As described in Appendix G, past herbicide application in the North Area ROW involved very low quantities of herbicide primarily for stump treatment. Herbicide application under the proposed O&M program would likewise be minimal." A list and map depicting potentially affected waters of the state would likely be included in 401 permitting.
	Agency 3-8	Comment noted. Road maintenance and decommissioning discussed more fully in Section 2.2.2.2 and in O&M plans.

Comment	Comment ID	Response
	Agency 3-9	See detailed SOPs for Geology and Soils. In addition, a soils layer was developed for the GIS database to analyze soil erosion potential throughout the project area. Soil retention, runoff rates, and slope stability would be further discussed in 401 permitting and CEQA process.
	Agency 3-10	Text changed to "synthetic or natural barriers" to allow for alternatives to polyester weed control mats.
	Agency 3-11	Text changed to include "Additional culvert checks will be performed as needed to keep culverts clean and unobstructed."
	Agency 3-12	Text already has provisions for controlling erosion: "Western would work with guidance from each land manager to review and annually prioritize roads for repair over a five-year period. This would involve monitoring for erosion, rehabilitating gullies and rills, and ensuring that there are no ruts deeper than three inches." Also refer to Water Resources SOPs and Section 3.12 of the EA.
	Agency 3-13	WR-SOP-1: SOP pertains to debris rather than specific barriers to manage vegetation growth. WR-SOP-2: Reworded that "Western would consult with USACE and SWRCB, as appropriate." WR-SOP-3, 4, 6, 7, and 8: WR-SOP-8 expanded to discuss avoidance of jurisdictional areas, applicable 404/401 permits, impact assessments, mitigation measures and ratios, and annual reporting.
	Agency 3-14	Note included with table: "Prior to commencement of O&M activities, all personnel will be trained on the implementation of SOPs. Western will ensure that certified personnel (e.g. Certified Professional in Erosion and Sediment Control, Certified Professional in Storm Water Quality) are available for review of proper implementation of SOPs."
	Agency 3-15	The NEPA document clearly describes why there is no effect associated with these ongoing O&M activities. Further detail will be included in the CEQA document.
	Agency 3-16	Text modified to include: "For direct impacts to jurisdictional waters and wetlands, Western would obtain 404 individual or nationwide permits and 401 water quality certifications, as applicable (see Section 3.12, Hydrology and Water Quality for additional information). Compensation or mitigation may be required as described in WR-SOP-8, resulting in a less than significant impact. Implementation of PCMs, SOPs, and certification/permit requirements would result in less than significant impacts."
	Agency 3-17	Mention of communication facilities added to Section 1.2.
	Agency 3-18	See responses to Agency 3-19 to 3-21 below.

Comment	Comment ID	Response
	Agency 3-19	Provisions for stormwater regulations and waste discharge requirements added to Section 5.3. Comment noted about Regional Water Boards that would administer the proposed project.
	Agency 3-20	Section 5.3 modified as follows: **Section 401 of the Clean Water Act**. Activities covered by the U.S. Army Corps of Engineers' jurisdiction over wetlands (CWA Section 404 Department of Army permits) require Section 401 water quality certifications from the SWRCB. The water quality certification program requires that states certify compliance of Federal permits and licenses with state water quality standards. Federal and State regulations (including Waste Discharge Requirements) are further clarified under separate bullet points.
	Agency 3-21	This would be covered in a separate document for CEQA compliance.
	Agency 3-22	Section 2.2.2.2 clarifies that figures in Appendix L are examples of general design specifications.

Public- Carol Lowe (9-2-08)

From: Tom Murphy
Sent: Wednesday, September 03, 2008 9:46 AM
To: Emmeline Kiyan
Cc: Heather Blair
Subject: FW: EA comment

Please catalog and save to server.

tom

-----Original Message-----
From: Ami Goerdt [mailto:Goerdt@wapa.gov]
Sent: Wednesday, September 03, 2008 9:39 AM
To: Heather Blair; Tom Murphy
Subject: EA comment

Tom,

Please see the email below for a minor comment regarding the maps.

Thanks,
Ami

>>> <CatloweC@aol.com> 9/3/2008 7:29 AM >>>

Thank you for the opportunity to review this EA--I wish that I had had more time to really "get into" it, but we have close friends in the New Orleans area that had to evacuate, and we were busy preparing our house for the possibility of a short- or long-term visit of at least 4 more adults and 3 children.
Luckily Gustav did not do the damage that Katrina did.
Therefore, my only comment of any substance would be to have an overlay or some demarcation of the location of highway 5 on the maps.
There are many references made in the text--are copies of these references kept in any one place so that a person could easily review them?
Thanks again....
--carol lowe--

Public 1

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO CA 95814-2922

REPLY TO
ATTENTION OF

November 7, 2008

Regulatory Division (SPK-2008-01559)

Ami Goerdt
U.S. Department of Energy
Western Area Power Administration
114 Parkshore Drive
Folsom, California 95630

Dear Ms. Goerdt:

We are writing in response to comments on the "North Area Right-of-Way Maintenance Program Draft Environmental Assessment" forwarded to us by the State Water Resources Control Board. Your identification number is SPK-2008-01559.

The Corps of Engineers' jurisdiction within the study area may be under the authority of Section 404 of the Clean Water Act for the discharge of dredged or fill material into waters of the United States. Waters of the United States include, but are not limited to, rivers, perennial or intermittent streams, lakes, ponds, wetlands, vernal pools, marshes, wet meadows, and seeps. Project features that result in the discharge of dredged or fill material into waters of the United States will require Department of the Army authorization prior to starting work.

Agency 1-1

To ascertain the extent of waters on the project site, you should prepare the wetland delineation, in accordance with the "Minimum Standards for Acceptance of Preliminary Wetland Delineations", under "Jurisdiction" on our website at the address below, and submit it to this office for verification. A list of consultants that prepare wetland delineations and permit application documents is also available on our website at the same location.

The range of alternatives considered for this project should include alternatives that avoid impacts to wetlands or other waters of the United States. Every effort should be made to avoid project features which require the discharge of dredged or fill material into waters of the United States. In the event it can be clearly demonstrated there are no practicable alternatives to filling waters of the United States, mitigation plans should be developed to compensate for the unavoidable losses resulting from project implementation.

Please refer to identification number SPK-2008-01559 in any correspondence concerning this project. If you have any questions, please contact Zac Fancher at our Sacramento Office, 1325 J Street, Room 1480, Sacramento, California, 95814-2922, email *zachary.j.fancher@usace.army.mil@usace.army.mil*, or telephone 916.557.6643. You may also use our website: *www.spk.usace.army.mil/regulatory.html*.

Sincerely,

Kathleen A. Dadey, Ph.D.
Chief, California South Branch

Copy furnished without enclosure(s):

U.S. Army Corps of Engineers, 152 Hartnell Avenue, Redding, California 96002-1842
Clifford Harvey, State Water Resources Control Board, Division of Water Quality, P.O. Box 100, Sacramento, California 95812-0100
Dave Smith, U.S. Environmental Protection Agency, Region IX – Wetlands Regulatory Office, 75 Hawthorne Street, San Francisco, California 94105
Susan Jones, U.S. Fish and Wildlife Service, Endangered Species Division, 2800 Cottage Way, W-2605, Sacramento, California 95825
National Marine Fisheries Service, Sacramento Area Office, 650 Capitol Mall, Suite 8-300, Sacramento, California 95814-4706
California Department of Fish and Game, Region 1, 601 Locust Street, Redding, California 96001-2711

USACE- David Ammerman (8-19-08)

From: Ammerman, David A SPN [David.A.Ammerman@usace.army.mil]
Sent: Tuesday, August 19, 2008 3:09 PM
To: Ami Goerdt
Cc: Reid, Kelley E SPN
Subject: RE: EA North Area Right of way

Ami -

I reviewed the entire EA that you sent us. I believe it correctly identifies the agencies involved and their regulatory authority, the water categories and plant communities covered under the Section 404 Clean Water Act, project purpose and scope of action. The only item I would request is identification of specific waters in Corps jurisdiction in Trinity County (and Siskiyou County) so we can confirm the jurisdictional determination. Also identify any waters in those counties that may be directly or indirectly impacted by the power line maintenance.

Agency 1-2

Kelley Reid may have comments regarding the Siskiyou County portion of the project. Otherwise, our involvement would be very minor and do not expect a formal letter me. I can't speak for Kelley on this one.

- Dave

-----Original Message-----
From: Ami Goerdt [mailto:Goerdt@wapa.gov]
Sent: Tuesday, August 19, 2008 10:16 AM
To: Ammerman, David A SPN
Subject: Re: EA North Area Right of way

David,

Thank you for the updated info and I apologize for the mix-up and delay. I look forward to receiving your comments. If you have any questions, please don't hesitate to contact me.

Thank you,

Ami Goerdt
Biologist
Western Area Power Administration
114 Parkshore Drive
Folsom, California 95630-4710
(916) 353-4526 office
(916) 847-3608 cell
(916) 985-1935 fax
goerdt@wapa.gov

>>> "Ammerman, David A SPN" <David.A.Ammerman@usace.army.mil> 8/14/2008
>>> 3:35 PM >>>
Ms. Ami Goerdt -

I received today by Certified Mail a copy of the Draft EA for the North Area Right-of-Way Maintenance Program dated July 2008 via your cover letter of July 29, 2008. The package was originally delivered to our former P.O. Box 4863 in Eureka. We discontinued use of that P.O. Box in June 2008. Please be advised our new mailing address is:

Eureka Office
U.S. Army Corps of Engineers
601 Startare Drive, Slip 14
Eureka, CA 95501

USACE- David Ammerman (8-19-08)

Our office has not moved, we still have our office on Woodley Island, but our mail is brought to us on the island instead of us driving to the P.O> Please use the above address for all Post Office mail. UPS, Fed EX, etc. can be sent to 601 Startare Drive and to our office directly.

We review EA's for Siskiyou County and Trinity County. We will try to comment within the time allotted, but since this came a little late due to the mailing errors, we may ask for an extension, if necessary.

Thanks, David Ammerman, USACE

USACE- David Ammerman (9-3-08)

From: Ami Goerdt [Goerdt@wapa.gov]
Sent: Monday, August 25, 2008 3:08 PM
To: David A SPN Ammerman
Cc: Kelley E SPN Reid
Subject: RE: EA North Area Right of way

David,

Due to the large area that the project covered, we did not conduct jurisdictional determinations or wetland delineations. All potential wetlands and watercourses were GPS-ed and discussed in the Flood plains/Wetlands Assessment (Appendix H of the EA) with the intention of obtaining USACE permits on a project-specific level. I would be interested in learning whether USACE has some sort of programmatic process that would allow for expedited review of any wetland delineations or jurisdictional determinations associated with individual actions under this Project.

Agency 1-2

Please let me know if you have any other questions or concerns.

Thank you for you time!
Ami

>>> "Ammerman, David A SPN" <David.A.Ammerman@usace.army.mil> 8/19/2008
>>> 3:09
PM >>>

Ami -

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- Dave

-----Original Message-----
From: Ami Goerdt [mailto:Goerdt@wapa.gov]
Sent: Tuesday, August 19, 2008 10:16 AM
To: Ammerman, David A SPN
Subject: Re: EA North Area Right of way

David,

Thank you for the updated info and I apologize for the mix-up and delay. I look forward to receiving your comments. If you have any questions, please don't hesitate to contact me.

Thank you,

Ami Goerdt
Biologist
Western Area Power Administration
114 Parkshore Drive
Folsom, California 95630-4710

USACE- David Ammerman (9-3-08)

(916) 353-4526 office
(916) 847-3608 cell
(916) 985-1935 fax
goerdt@wapa.gov

>>> "Ammerman, David A SPN" <David.A.Ammerman@usace.army.mil> 8/14/2008
>>> 3:35 PM >>>
Ms. Ami Goerdt -

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Eureka Office
U.S. Army Corps of Engineers
601 Startare Drive, Slip 14
Eureka, CA 95501

Our office has not moved, we still have our office on Woodley Island, but our mail is brought to us on the island instead of us driving to the P.O> Please use the above address for all Post Office mail. UPS, Fed EX, etc. can
be sent to 601 Startare Drive and to our office directly.

We review EA's for Siskiyou County and Trinity County. We will try
to comment within the time allotted, but since this came a little late due to
the mailing errors, we may ask for an extension, if necessary.

Thanks, David Ammerman, USACE

USACE- Kelley Reid 2 (9-3-08)

From: Reid, Kelley E SPN [Kelley.E.Reid@usace.army.mil]
Sent: Wednesday, September 03, 2008 11:53 AM
To: Ami Goerdt
Subject: RE: Public comments needed

David Ammerman of my office provided many comments.
I'm hoping that we can delegate Sacramento District, to permit the entire project within California, to review your application. Frequently a project that spans the district boundary is handled by the district with the largest fraction of the project.

-----Original Message-----
From: Ami Goerdt [mailto:Goerdt@wapa.gov]
Sent: Tuesday, September 02, 2008 1:04 PM
To: Ami Goerdt
Subject: Public comments needed

All -

Western appreciates your participation in the North Area Right-of-Way Maintenance Project. Please keep in mind the public comment period closed on August 28th, 2008. In order to allow Western to stay on schedule, we will need to receive your comments by the close of business September 8th, 2008. If you have any questions or concerns, please don't hastate to call or email me; otherwise, Western looks forward to receiving your comments.

Thank you for your time,

Ami Goerdt
Biologist
Western Area Power Administration
114 Parkshore Drive
Folsom, California 95630-4710
(916) 353-4526 office
(916) 847-3608 cell
(916) 985-1935 fax
goerdt@wapa.gov

USACE- Kelley Reid (9-3-08)

From: Reid, Kelley E SPN [Kelley.E.Reid@usace.army.mil]
Sent: Wednesday, September 03, 2008 12:43 PM
To: Ami Goerdt
Subject: RE: Public comments needed

Providing a wetland report for the proposed project area(s) will expedite permit evaluation. It will be time consuming for us to complete the delineation without a wetland report to provide an initial review. Typically, an utility line is a complete project only in it's entirety. From supply to grid connection. And it's more efficient to mobilize the wetland delineators once, complete the entire project and be done, rather than mobilize a half dozen times for modules.

I recommend your agency complete a wetland report expeditiously so that it doesn't unnecessarily delay your project later, whether our district or Sacramento District handles your application.

Agency 1-3

-----Original Message-----
From: Ami Goerdt [mailto:Goerdt@wapa.gov]
Sent: Wednesday, September 03, 2008 12:16 PM
To: Reid, Kelley E SPN
Subject: RE: Public comments needed

See attached for my response to David's comment email (his email is included in my response). Based on your email, I'm assuming you had no additional comments and neither of you had comments regarding my answer about not having conducted formal wetland delineations or determinations. If this is the case, Western will move forward on this project.

Thank you,
Ami

>>> "Reid, Kelley E SPN" <Kelley.E.Reid@usace.army.mil> 9/3/2008 11:52
>>> AM >>>
David Ammerman of my office provided many comments.
I'm hoping that we can delegate Sacramento District, to permit the entire project within California, to review your application. Frequently a project that spans the district boundary is handled by the district with the largest fraction of the project.

-----Original Message-----
From: Ami Goerdt [mailto:Goerdt@wapa.gov]
Sent: Tuesday, September 02, 2008 1:04 PM
To: Ami Goerdt
Subject: Public comments needed

All -

Western appreciates your participation in the North Area Right-of-Way Maintenance Project. Please keep in mind the public comment period closed on August 28th, 2008. In order to allow Western to stay on schedule, we will need to receive your comments by the close of business September 8th, 2008. If you have any questions or concerns, please don't hastate to call or email me; otherwise, Western looks forward to receiving your comments.

Thank you for your time,

Ami Goerdt
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USACE- Kelley Reid (9-3-08)

(916) 353-4526 office
(916) 847-3608 cell
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DEPARTMENT OF TRANSPORTATION
DIVISION OF TRANSPORTATION PLANNING, MS-32
1120 N STREET
P. O. BOX 942874
SACRAMENTO, CA 94274-0001
PHONE (916) 653-0808
FAX (916) 653-4570

Flex your power!
Be energy efficient!

August 28, 2008

Amy Goerdt
U.S. Department of Energy
Western Area Power Administration
114 Parkshore Drive
Folsom, CA 95630

SCH2008074004, Draft Environmental Assessment, North Area Right-of-Way Maintenance Project, July 2008

Dear Ms. Goerdt:

The California Department of Transportation (Caltrans) appreciates the opportunity to review the subject Draft Environmental Assessment. The proposed project will traverse four Caltrans Districts and be in proximity to portions of the State Highway System (SHS), specifically State Routes 4, 12, 16, 20, 32, 36, 65, 70, 113, 160, and 162; and Interstates 5, 80, 205, 505, and 580.

While the purpose of the proposed project is to maintain existing transmission line and legal access road rights-of-way, the potential exists for installation of new infrastructure, as described in Section 2.2.5.3, *Category C—New Infrastructure* (Page 2-10). With that in mind, and making note of your Standard Operating Procedure TRANS-SOP-1, we offer the following information:

Transportation Permits:

Project work that requires movement of oversized or excessive load vehicles on the SHS would require a transportation permit issued by Caltrans. The applicant can access the following website for an application and additional information: http://dot.ca.gov/hq/traffops/permits/. Also, Attachment 1 contains contact information.

Agency 2

Encroachment Permits:

Project work or traffic control within the SHS right of way (ROW) requires an encroachment permit issued by Caltrans. Access the following website for an application and additional information: http://dot.ca.gov/hq/traffops/developserv/permits/. Attachment 2 contains contact information.

Further, should new infrastructure be installed relative to the SHS (poles or transmission towers), we suggest coordination with Caltrans in order to establish appropriate setback distances from the existing outer edge of the SHS to allow for future "ultimate width" freeway and highway expansion. We also request copies of any resulting applicable "As-Built" plans.

Cultural Resources

If construction activities are proposed within the SHS ROW, Caltrans requires documented results of a current archaeological record search from the Northwest Information Center (NIC) of the California Historical Resources Information System before an encroachment permit can be issued. Current record searches must be no more than five years old.

Caltrans requires the records search, and if warranted, a cultural resource study by a qualified, professional archaeologist, to ensure compliance with the National Environmental Protection Act (if there is federal action on the project), California Environmental Quality Act (Public Resources Code, Section 5024.5) (for state-owned historic resources) and Volume 2 of Caltrans Environmental Handbook, the Standard Environmental Reference (SER). The SER can be accessed at: http://www.dot.ca.gov/hq/env/index.htm.

Agency 2

Work subject to the above requirements includes, but is not limited to: Lane widening; channelization; auxiliary lanes; and, modification of existing features such as slopes, drainage features, curbs, sidewalks, and driveways within or adjacent to the SHS ROW.

Finally, we are attaching (Attachment 3) Caltrans' publication, *Transportation Management Plan Guidelines*, for your use should the applicable project activity require it.

Again, thank you for the review opportunity. Please advise if we can be of assistance.

Sincerely,

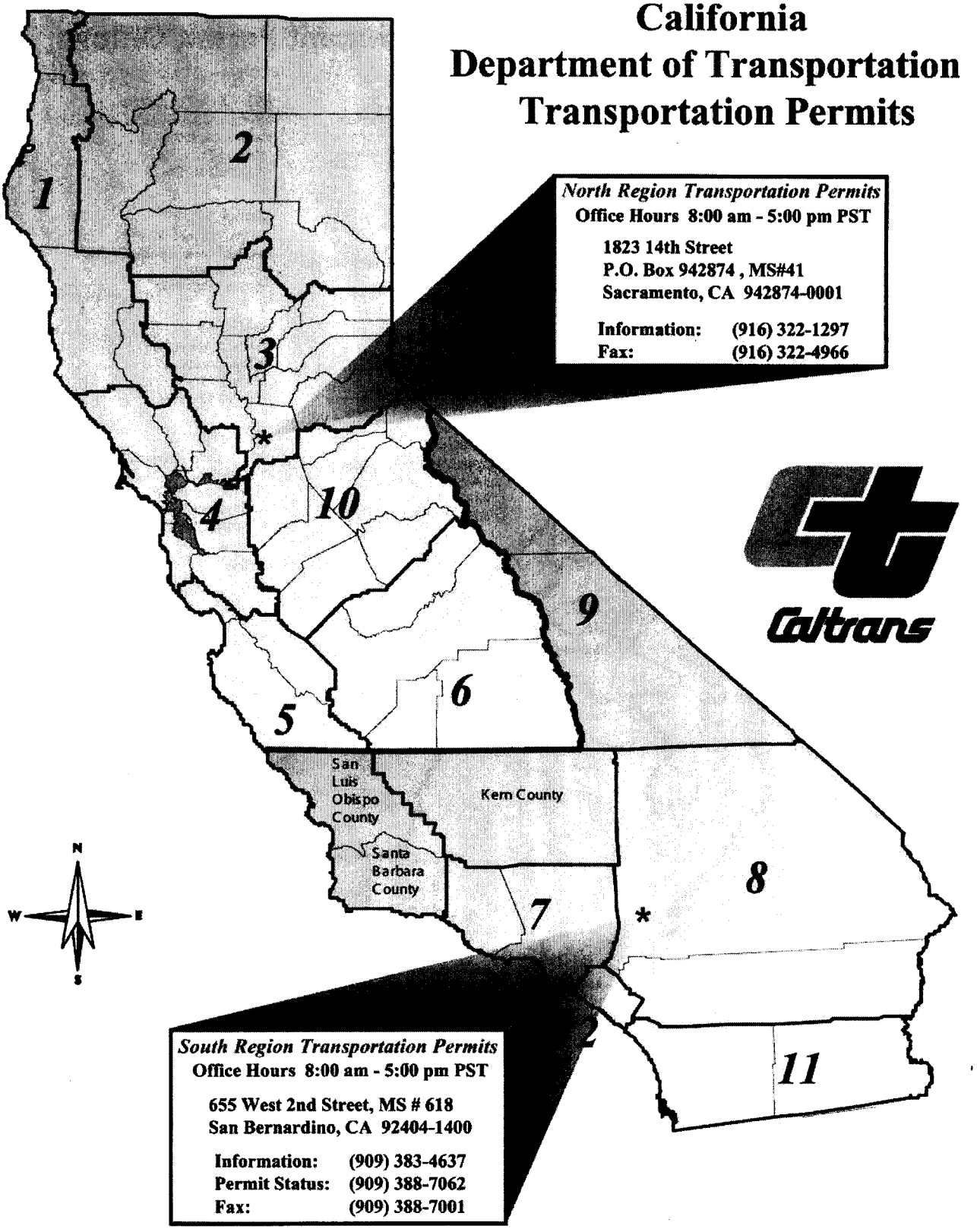
Betty Miller

Betty Miller
Statewide Local Development-Intergovernmental Review Coordinator
Office of Community Planning

Attachments: 1. Contacts/Transportation Permits
2. Contacts/Encroachment Permits
3. Transportation Management Plan Guidelines

c: M. Gonzalez, LDR Coordinator, District 2
A. Begley, Chief, Office of Transportation Planning-South, District 3
K. Champion, Coordinator, District 3
L. Carboni, Chief, IGR/CEQA Branch, District 4
L. Courington, Coordinator, District 4
K. Selsor, Coordinator, District 10
D. Brewer, Chief, Rural Planning & Administration, District 10

California Department of Transportation Transportation Permits



North Region Transportation Permits
Office Hours 8:00 am - 5:00 pm PST

1823 14th Street
P.O. Box 942874 , MS#41
Sacramento, CA 942874-0001

Information:	**(916) 322-1297**
Fax:	**(916) 322-4966**

Caltrans

South Region Transportation Permits
Office Hours 8:00 am - 5:00 pm PST

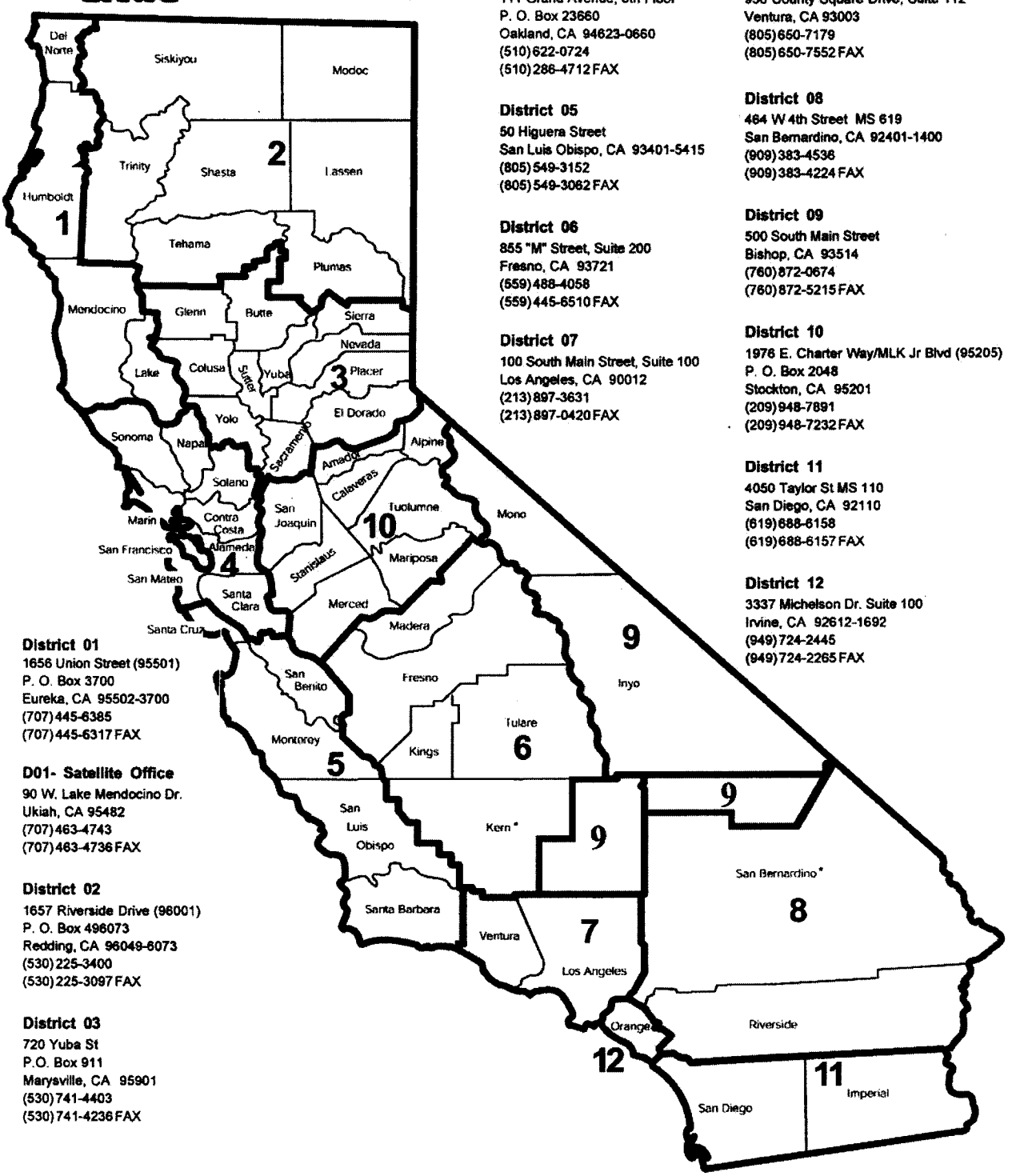
655 West 2nd Street, MS # 618
San Bernardino, CA 92404-1400

Information:	**(909) 383-4637**
Permit Status:	**(909) 388-7062**
Fax:	**(909) 388-7001**

Atch 1

APPENDIX G

District Encroachment Permit Offices



District 01
1656 Union Street (95501)
P. O. Box 3700
Eureka, CA 95502-3700
(707) 445-6385
(707) 445-6317 FAX

D01- Satellite Office
90 W. Lake Mendocino Dr.
Ukiah, CA 95482
(707) 463-4743
(707) 463-4736 FAX

District 02
1657 Riverside Drive (96001)
P. O. Box 496073
Redding, CA 96049-6073
(530) 225-3400
(530) 225-3097 FAX

District 03
720 Yuba St
P.O. Box 911
Marysville, CA 95901
(530) 741-4403
(530) 741-4236 FAX

District 04
111 Grand Avenue, 6th Floor
P. O. Box 23660
Oakland, CA 94623-0660
(510) 622-0724
(510) 286-4712 FAX

District 05
50 Higuera Street
San Luis Obispo, CA 93401-5415
(805) 549-3152
(805) 549-3062 FAX

District 06
855 "M" Street, Suite 200
Fresno, CA 93721
(559) 488-4058
(559) 445-6510 FAX

District 07
100 South Main Street, Suite 100
Los Angeles, CA 90012
(213) 897-3631
(213) 897-0420 FAX

D07 - Satellite Office
950 County Square Drive, Suite 112
Ventura, CA 93003
(805) 650-7179
(805) 650-7552 FAX

District 08
464 W 4th Street MS 619
San Bernardino, CA 92401-1400
(909) 383-4536
(909) 383-4224 FAX

District 09
500 South Main Street
Bishop, CA 93514
(760) 872-0674
(760) 872-5215 FAX

District 10
1976 E. Charter Way/MLK Jr Blvd (95205)
P. O. Box 2048
Stockton, CA 95201
(209) 948-7891
(209) 948-7232 FAX

District 11
4050 Taylor St MS 110
San Diego, CA 92110
(619) 688-6158
(619) 688-6157 FAX

District 12
3337 Michelson Dr. Suite 100
Irvine, CA 92612-1692
(949) 724-2445
(949) 724-2265 FAX

*Eastern Kern County and Northern San Bernardino County fall under D09's jurisdiction. Please contact the office if you have any questions.

Atch 2

State of California

Department of Transportation

Transportation Management Plan Guidelines

Prepared By:

Division of Traffic Operations

Office of Systems Management Operations

Atch 3

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I. INTRODUCTION

A. BACKGROUND

With the construction of California's state highway system virtually complete, the California Department of Transportation (Department) major emphasis on transportation projects has largely shifted from new construction to reconstruction, operation, and maintenance of existing facilities. As traffic demand steadily increases, Department work activities can create significant additional traffic delay and safety concerns on already congested highways. Planning work activities and balancing traffic demand with highway capacity becomes more critical.

In order to prevent unreasonable traffic delays resulting from planned work, Transportation Management Plans (TMPs) must be carefully developed and implemented in order to maintain acceptable levels of service and safety during all work activities on the state highway system.

B. WHAT ARE TRANSPORTATION MANAGEMENT PLANS?

A TMP is a method for minimizing activity-related traffic delay and accidents by the effective application of traditional traffic handling practices and an innovative combination of public and motorist information, demand management, incident management, system management, construction strategies, alternate routes and other strategies.

All TMPs share the common goal of congestion relief during the project period by managing traffic flow and balancing traffic demand with highway capacity through the project area, or by using the entire corridor. Certain low-impact Maintenance and Encroachment Permit activities do not require the development of individual TMPs. "Blanket" TMPs are developed for those activities. A blanket TMP is a generic list of actions that would be taken to keep delay below the delay threshold when performing activities on highways. Each district Maintenance and Encroachment Permit office should have a list of activities to which blanket TMPs apply.

All Capital projects require individual TMPs. Blanket TMPs are suitable for minor projects. Major TMPs are required for high-impact projects. Generally, major TMPs are distinguished by being:

- Multi-jurisdictional in scope, encompassing the Department of California Highway Patrol (CHP), city, county and regional governments, state DOTs, employers, merchants, developers, transit operators, ridesharing agencies, neighborhood and special interest groups, emergency services, and Transportation Management Associations;
- Multi-faceted, comprised of an innovative mix of traffic operations, facility enhancement, demand-management and public relations strategies, as well as more traditional work zone actions, construction methods and contract incentives, customized to meet the unique needs of the impacted corridor;
- In place over a longer period of time, sometimes implemented up to a year or more prior to the start of actual construction, with specific elements often implemented incrementally to coincide with construction phasing.

C. POLICY

Department Deputy Directive 60 (DD-60) titled Transportation Management Plans (see APPENDIX) requires TMPs and contingency plans for all state highway activities.

Policy Statement:

The Department minimizes motorist delays when implementing projects or performing other activities on the state highway system. This is accomplished without compromising public or worker safety, or the quality of the work being performed.

TMPs, including contingency plans, are required for all construction, maintenance, encroachment permit, planned emergency restoration, locally or specially-funded, or other activities on the state highway system. Where several consecutive or linking projects or activities within a region or corridor create a cumulative need for a TMP, the Department coordinates individual TMPs or develops a single interregional TMP.

TMPs are considered early, during the project initiation or planning stage.

Major lane closures require District Lane Closure Review Committee (DLCRC) approval.

Definitions:

Major lane closures are those that are expected to result in significant traffic impacts despite the implementation of TMPs.

Significant traffic impact is 30 minutes above normal recurring traffic delay on the existing facility or the delay threshold set by the District Traffic Manager (DTM), whichever is less.

Contingency Plans address specific actions that will be taken to restore or minimize effects on traffic when congestion or delays exceed original estimates due to unforeseen events such as work-zone accidents, higher than predicted traffic demand, or delayed lane closures.

II. TMP DEVELOPMENT AND IMPLEMENTATION

A. OVERVIEW

Responsibilities:

The DTM:

- Acts as the single focal point for all traffic impact decisions resulting from planned activities on the state highway system.
- Determines the extent of a TMP.
- Facilitates review and approval of TMP measures and planned lane closure requests.
- Directs the termination or modification of active planned lane closure operations when traffic impact becomes significant, without compromising traveler or worker safety.

The TMP Manager:

- Acts as the single focal point for development and implementation of TMPs.

The Construction Traffic Manager (CTM):

- Serves as a liaison between Construction, the DTM and the TMP Manager.
- Reviews the TMP and traffic contingency plan for constructability issues.
- Act as a resource for the Resident Engineer, DTM and TMP Manager during TMP implementation and reviews the contractor's contingency plan.

The extent of a TMP is determined by the DTM during the preliminary studies of a capital project. For all TMPs, an itemized estimate of the proposed strategies and their respective costs are included in the Project Study Report (PSR) or Project Study Scoping Report (PSSR) for proper funding consideration. The workload required to develop and implement TMPs is estimated in advance and captured in the district work plan.

For major TMPs, a TMP team may need to be formed and led by the TMP Manager. The itemized strategies and costs are further refined in the project report stage as determined by the TMP team and appropriate functional units using the most current geometric information available. Those elements of the TMP not included as part of the main construction contract should be itemized under State Furnished Material and Expenses using the appropriate Basic Engineers Estimate System (BEES) codes in the plans, specifications and estimates. During construction, TMP activities are to be monitored and evaluated by the TMP team and those elements found not to be cost effective should be modified as deemed appropriate or eliminated. The TMP process is explained in detail in the following sections.

B. FUNDING AND PROGRAMMING

When identifying funding for various TMP elements, it is important to distinguish between capital outlay and capital outlay support.

Work done by district staff for the planning and designing of TMP activities for capital projects are a normal part of the project development process and should be captured as capital outlay support. The TMP Manager and each functional manager should work closely with the project manager to ensure that TMP activities are included in all project work plans. TMP support activities to consider include ridesharing programs, Freeway Service Patrol (FSP) contracts, public awareness campaigns, parallel route improvements and the Request for Proposal (RFP) process up to award of the contract. Note that some of these activities may also have a capital component in addition to the support component discussed here. Workload hours for TMP activities must be included in the Capital Outlay Support (COS) project's work plan in order to be resourced (funded) by COS. These activities should then be charged to each project's expenditure authorization (EA), using the appropriate Work Breakdown Structure (WBS) code for that stage of the project. TMP-related work should be charged only to the WBS codes reserved for those activities. These codes can be found on the Department's Division of Project Management's Intranet web page.

Work done by district staff for implementing TMP elements during construction of capital projects are also a normal part of the project development process. Again, workload (hours) for implementing TMP activities must be included in the COS project's work plan in order to be resourced (funded) by COS. These activities should then be charged to the appropriate project's phase three EA, and WBS code 270 (Perform Construction Engineering and Contract Administration).

Some funds necessary to implement TMP elements not done by the Department staff, including consultant contracts, can be sourced from capital outlay funds allocated by the California Transportation Commission (CTC) as itemized in the plans, specifications and estimates. Some TMP elements, such as parallel route improvements and highway advisory radios, could be a phase of the construction contract or separate construction contracts while others such as public awareness campaigns and transit subsidies must be separate contracts or cooperative agreements.

The TMP elements that need to be in place prior to start of construction are identified and funded as stage construction or first order of work under a single package presented to the CTC. If approved, the Division of Budgets may assign specific amounts for each TMP activity. All TMP activities may not necessarily be included under the main contract. Service contracts such as those for freeway service patrols, public service or consultant contracts, information campaigns, or establishing telephone hotlines must be arranged separately with consultants and other providers. For most projects, it takes four to six months to get a service contract in place. This means that all consultant contracts have been advertised, the consultant selected, and the contract ready for signature and award immediately following CTC allocation of funds. Other activities such as parallel route improvements are usually included in the main construction contract and as a first order of work under a cooperative agreement.

In some cases, the CTC can be petitioned to fund a portion of the TMP as an initial phase of the main project. This is usually for a high priority project where plans, specifications, and estimates for the main project are not yet finalized, but early funds are needed to initiate TMP activities such as making transit arrangements with local governments. The petition to fund an initial phase comes from the district, explaining why a portion of the project must proceed before funding for the main project is allocated. These early funds reduce the programmed funds for the main project accordingly.

The Federal Highway Administration (FHWA) supports the TMP concept and views major reconstruction projects as an excellent opportunity to initiate continuing traffic management strategies that provide improved traffic operations long beyond the completion of work. Examples include: installation of permanent Changeable Message Sign (CMS), full structural section shoulders, continuing auxiliary lanes, and wider shoulders for incident management during construction if cost-effective in the long term. All cost-effective transportation management activities that address the problem of delay or safety are eligible for 100 percent Federal Aid funding.

TMPs and contingency plans for Encroachment Permit projects are developed by the permittee or by Department staff. Staff time for development, review and implementation of TMPs for Encroachment Permits is charged to the permit. Maintenance normally develops TMPs for its projects; Maintenance and staff from other functional areas that expend time on Maintenance TMP charge to the designated Maintenance EA.

C. TMP IN PROJECT INITIATION DOCUMENT

The TMP is part of the normal project development process and must be considered in the Project Initiation Document (PID) or planning stage (project K phase). Since projects are generally programmed, budgeted, and given an Expenditure Authorization (EA) upon PID approval, it is important to allow for the proper cost, scope and scheduling of the TMP activities at this early stage of development. TMPs that are retrofitted to projects already programmed must be handled on a case by case basis and may require a contract change order.

Prior to PID approval, the initiating unit sends conceptual geometrics to the district Division of Operations for evaluation. The DTM estimates the extent of the TMP required and determines whether potential traffic delays are anticipated that cannot be mitigated by traditional traffic handling practices or well-planned construction staging. The TMP Manager must sign-off on the TMP DATA SHEET in the PID. A TMP cost estimate should be developed for each alternative being considered. An estimate should not be based only on the project cost. The cost of a TMP could range from a small percentage of project cost to 20 percent or more. Further guidance can be obtained from the following publications "Wilbur Smith & Associates TMP Effectiveness Study" and Frank Wilson & Associates "A Traffic Management Plan Study for State Route 91" located in Headquarters Traffic Operations, Office of System Management Operations.

TMP Elements

A list of potential TMP strategies with their respective elements is categorized in TABLE 1. As many different elements as are feasible should be considered for the proposed project's preliminary TMP.

When developing a preliminary TMP at this early stage, use the most current layout of the roadway (geometrics) information available and consider:

Contingency Plans
Lane closure policies and procedures
TMC coordination
Multi-jurisdictional communication and buy-in
CHP and local law enforcement involvement
Emergency closures
Clearance of alternate routes for STAA and oversized
Special training or workforce development
Duration of construction (months)
Length of project (miles)
Number of major construction phases
Urbanization (urban, suburban, or rural)
Traffic volumes
Expected vehicle delay (from data sheet)
Public/media exposure
Political or environmental sensitivity
Business impacts and affected activity
Percent trucks
Potential increase in accidents
Permit issues
Conflicting construction projects
Percent reduction in vehicle capacity
Special factors (if any)
Impact on Transit/Railroad services
Viability of alternative routes

Wilbur Smith Associate's TMP Effectiveness Study and Frank Wilson & Associate's A Traffic Management Plan Study for State Route 91 During Construction of HOV Lanes (both available from Headquarters Division of Traffic Operations, Office of System Management Operations) are excellent sources for guidance on selecting the most cost-effective TMP elements. The district Public Information office is also an experienced source for estimating the effectiveness of public information campaign options, and can help the TMP Manager estimate their cost and effectiveness in reducing traffic demand through the project area.

Public information campaigns serve two main purposes in TMPs. They inform the public about the overall purpose of the project to generate and maintain public support; and they encourage changes in travel behavior during the project to minimize congestion. Because they give travelers the information they need to make their own travel choices, public information campaigns can be the single most effective of all TMP elements.

The FSP is a congestion relief program of roving tow trucks operating in most metropolitan and some rural areas. The FSP program is operated by Regional Transportation Planning Agencies (RTPAs) with funding from the Department. The Department also reimburses the CHP for training and supervisory services provided for the FSP. The RTPAs contract with tow companies

for commute time service and some weekend and mid-day service to assist motorists with simple repairs (i.e. flat tire, one gallon of gas) or tow the automobile from the highway.

FSP is available for incident management during construction. However, construction-related FSP service needs to be funded as part of the TMP. A cooperative agreement with the RTPA is required, outlining the services provided and the fund transfer. An interagency agreement with the CHP is required for any support services (field supervision and dispatch operator services). These agreements should be initiated with the RTPA and the CHP as soon as it is determined that FSP should be in the project TMP.

The Department's HQ Traffic Operations is currently working on Master Agreements with the RTPAs for future FSP services. This process will simplify the process for both the Department and the RTPAs by eliminating the need for a cooperative agreement for each project. Only a task order form will be needed for each project. A similar agreement is being created with the CHP. Please contact HQ Traffic Operations, Freeways Operations Branch for more information.

TABLE 1

TMP STRATEGIES AND THEIR ELEMENTS

A. Public Information	Off peak/Night/Weekend Work
Brochures and Mailers	Planned Lane/Ramp Closures
Media Releases (including	Project Phasing
Minority Media Sources)	Temporary Traffic Screens
Paid Advertising	Total Facility Closure
Public Information Center	Truck Traffic/Permit Restrictions
Public Meetings/Speaker's Bureau	Variable Lanes
Telephone Hotline	Extended Weekend Closures
Visual Information (videos, slide shows, etc.)	Reduced Speed Zones
Local cable TV and News	Coordination with Adjacent Construction
Traveler Information Systems (Internet)	Traffic Control Improvements
Internet	Total Facility Closure
B. Motorist Information Strategies	**E. Demand Management**
Electronic Message Signs	HOV Lanes/Ramps
Changeable Message Signs	Park-and-Ride Lots
Extinguishable Signs	Parking Management/Pricing
Ground Mounted Signs	Rideshare Incentives
Commercial Traffic Radio	Rideshare Marketing
Highway Advisory Radio (fixed and mobile)	Transit Incentives

Planned Lane Closure Web Site	Transit Service Improvements
The Department's Highway Information Network (CHIN)	Train or Light-Rail Incentives
Radar Speed Message Sign	Variable Work Hours
	Telecommute
C. Incident Management	Shuttle Service Incentives
Call Boxes	
Construction or Maintenance Zone Enhanced	**F. Alternate Route Strategies**
Enforcement Program – COZEEP or MAZEEP	Ramp Closures
Freeway Service Patrol	Street Improvements
Traffic Surveillance Stations (loop detectors and CCTV) Closures	Reversible Lanes
911 Cellular Calls	Temporary Lanes or Shoulder Use
Transportation Management Centers	
Traffic Control Officers	**G. Other Strategies**
CHP Officer in TMC during construction	Application of new technology
Onsite Traffic Advisor	Innovative products
CHP Helicopter	Improved specifications
Traffic Management Team	Staff Training/Development
D. Construction Strategies	
Incentive/Disincentive Clauses	
Ramp Metering	
Lane Rental	

If the DTM determines that a major TMP is required, the TMP Manager forms a TMP development team. The team's membership will vary according to the TMP elements proposed and the project's impacts. At a minimum, it should include representatives from Construction, Public Affairs, Project Development, Traffic Operations (including Transportation Permits), the CHP and local agencies. Others to be considered as the plan gets refined are Rideshare, Transportation Planning, Public Transportation, Maintenance, Structures, CHP, local law enforcement, local transit agencies, emergency services, and FHWA. Local Maintenance field staff familiar with conditions in the project area should be team members or should be consulted as needed as the TMP develops.

D. TMP IN PROJECT REPORT

As more information becomes available during the project report phase the preliminary scope and cost of the overall TMP and the individual elements should continue to be refined. The TMP team will coordinate the TMP strategies with the project engineer and appropriate units, with

each team member handling their area of expertise. For major projects, subcommittees or task forces may be formed to handle the planning, implementation, monitoring, and evaluation details of some elements. The TMP Manager will keep the Project Manager and district Construction Coordinator updated and must sign-off on the TMP data sheet of the project report.

It is appropriate at this point to develop a timeline schedule for major TMPs keeping in mind that many elements of the TMP have to begin prior to the start of construction. Many TMP elements listed in Table 1 need to be developed separately but concurrently with the project plans. They may be bid and constructed or initiated separately from the project or be included in the project plans and be installed or implemented as the first order of work.

Some tasks may take a long time depending on the complexity of the major project and the type of transportation management necessary. For example, if building new park-and-ride lots are necessary for the Ridesharing element, the planning phase would have to be extended for several months and a design phase added.

An additional activity involves analyzing the existing traffic volume in the corridor, both on the freeway and surface streets. This will provide a basis for establishing the goal of the TMP, i.e., the number of vehicles that should be removed from the freeway, and in determining the capability of the surrounding surface streets to handle the additional traffic demand. It can also provide a database for evaluating the overall effectiveness of the TMP.

E. TMP IN PS&E

Those TMP elements that are not part of the main contract, but are identified as capital outlay costs tied to the main project, should be itemized as State Furnished Materials and Expenses using the appropriate BEES item cost (see TABLE 2). The Project Engineer should consult with the TMP Manager to ensure that the appropriate "Maintaining Traffic" Standard Special Provisions (SSP) are included in the PS&E. The SSPs should always require the contractor to submit a contingency plan.

The TMP and PS&E should address oversize and overweight vehicles traveling under a transportation permit. Additional construction area signs should be provided that restrict travel to overwidth vehicles whenever the lateral clearance drops to 15 feet or less.

The DTM must concur with the PS&E and with Encroachment Permit and Maintenance TMPs.

TABLE 2

TMP BEES ITEM CODES
066003 State Furnished Materials
066004 Miscellaneous State Furnished Materials
066005 Concurrent Work
066006 Miscellaneous Concurrent Work
066008 Incentive Payment
066009 Utility Expense

066010 Work by Others
066060 Additional Traffic Control
066061 CHP Enhanced Enforcement
066062 COZEEP Contract
066063 Traffic management plan – public Information
066064 Specter Radar Unit
066065 Freeway Service Patrol
066066 Public Transit Support
066069 Rideshare Promotion
066070 Maintain Traffic
066072 Maintain Detour
066074 Traffic Control
066076 Temporary Traffic Control
066077 Install Traffic Control Devices
066578 Portable Changeable Message Signs
066825 Temporary Striping
066872 Service Contract
128602 Traffic Control System (One Way)
128650 Portable Changeable Message Signs
129150 Temporary Traffic Screen
861793 Telephone Service (Location 1)
860811 Detector Loop
860925 Traffic Monitoring Station (Count)
860926 Traffic Monitoring Station (Speed)
860927 Traffic Monitoring Station (Incident)
860930 Traffic Monitoring Station
861088 Modify Ramp Metering System
861985 Travelers Information system
869070 Power and Telephone Service
991046 Public Address System
991047 Telephone Facility
994920 Bicycle Parking Rack

995000 Bus Shelter
995002 Bus Passenger Shelter (Type S-1)
995004 Bus Passenger Shelter (Type SM-1)
995005 Bus Passenger Shelter (Type LM-1

F. TMP DURING CONSTRUCTION AND MAINTENANCE OPERATIONS

During construction, those TMP elements that are part of the main contract or Encroachment Permit are implemented under the general direction of district Construction or Encroachment Permits. Those separate contracts/agreements such as for rideshare and transit activities and public awareness campaigns will be under the direction of their respective contract managers.

Special effort should be given to assure that Changeable Message Sign (CMS), Highway Advisory Radio ()HAR) and other media tools provide accurate and timely information to motorists regarding lane closure times and

TMP elements must be carefully monitored for cost effectiveness. The TMP team should determine whether the implemented measures are reaching the predetermined goals for cost effectiveness. If an element's predetermined goal is not immediately reached during implementation, but there is a general trend toward meeting that goal, the element can remain in effect and the FHWA will continue to participate. Elements that show no sign of approaching their predetermined goals as determined by the TMP Manager must be modified as deemed appropriate or dropped.

Contractor compliance with lane closure pickup deadlines can be enforced in two ways. A "maintaining traffic" SSP allows a penalty to be assessed to the contractor for value of traffic delay when the contractor exceeds the lane closure window. The minimum penalty is $1,000 per 10 minutes, but it can greatly exceed the minimum, depending on traffic volumes and the highway facility. The DTM calculates the "delay penalty" during PS&E. The second method is for the state representative to suspend the contract work.

A contractor or the Department forces (such as Maintenance) can be ordered to pick up a lane closure early if traffic impacts become significant either due to a project incident or activities outside the project area. Early pickup should only be ordered when traveler and worker safety will not be compromised. The "maintaining traffic" SSPs for capital projects provide for compensating contractors for early pickup. Encroachment Permit provisions require the permittee to pick up a closure early without compensation.

DTM's are to ensure that lane closures will not be terminated early, or may be extended beyond the lane closure window when the activity needs to be completed for the safety of the public or workers. These activities may include structure inspections and repairs, guardrail repairs, culvert replacement.

In order to avoid significant traffic impacts, it is essential to monitor and respond immediately to delay, pick up closures on time, and have solid traffic and contractor contingency plans.

A Department staff member who can make informed decisions about implementing contingency plans and modifying, terminating or extending approved lane closures should be available to respond to significant delays and other unexpected events whenever lane closures are in place.

The designated employee(s) may be Traffic Operations, Construction, or TMC staff, depending on the district.

At the end of the project a post-TMP evaluation report must be completed by the TMP Manager for all major TMPs and for TMPs where the actual delay exceeded the threshold set by the DTM. Post-TMP meetings with the CHP and other partners can be held to identify what went well and what could have been done differently. Samples of past TMP reports can be obtained from headquarters' Traffic Operations, Office of System Management Operations and from the DTM.

Contingency Plan

Both traffic and contractor contingency plans are required for all planned work. Both blanket and individual TMPs must include contingency plans. The traffic contingency plan, prepared by the Department or a consultant, addresses specific actions that will be taken to restore or minimize affects on traffic when the congestion or delay exceeds original estimates due to unforeseen events such as work-zone accidents, higher than predicted traffic demand, or delayed lane closures. The contractor contingency plan addresses activities under the contractor's control in the work zone. After the contractor's contingency plan is submitted and approved, it becomes part of the TMP contingency plan.

The TMP contingency plan should include, but is not limited to the following:

- Information that clearly defines trigger points which require lane closure termination (i.e., inclement weather, length of traffic queue exceeds threshold;
- Decision tree with clearly defined lines of communication and authority;
- Specific duties of all participants during lane closure operations, such as, coordination with CHP or local police, etc.;
- Names, phone numbers and pager numbers for the DTM or their designee, the Resident Engineer (RE), the Maintenance Superintendent, the Permit Inspector, the on-site traffic advisor, the CHP Division or Area Commander, appropriate local agency representatives, and other applicable personnel;
- Coordination strategy (and special agreements if applicable) between DTM, RE, on-site traffic advisor, Maintenance, CHP and local agencies;
- Contractor's contingency plan;
- Standby equipment, State personnel, and availability of local agency personnel for callout (normally requires a Cooperative Agreement);
- Development of contingencies based on maintaining minimum service level.

G. RETROFITTING PROGRAMMED PROJECTS

Usually the extent of the TMP is to be determined prior to programming (PID approval). However, it may sometimes be necessary to retrofit a TMP to a project that is already programmed due to project changes, policy changes, emergencies or unforeseen conditions. These projects must be handled on a case by case basis since the course of action will depend on how far along the project development process is and how extensive the TMP needs to be. Retrofitted TMPs may require a TMP team and TMP Manager and involvement from all functional units as discussed earlier in these guidelines. The project manager is responsible for

initiating a TMP investigation since they are most knowledgeable of project status. Some suggestions for funding retrofitted TMP are:

Use of Minor Funds

Minor A and B money has been used to pay for TMP measures that total less than $1,000,000. The districts will not usually be reimbursed for this even though the FHWA agrees to participate (it is not economically feasible for the Department to process minor funds for reimbursement). There have been exceptions however, and that decision is at the discretion of the Federal Resources Branch in headquarters Budgets Program.

Charge to Other Project Phase 4 (Construction) Funds

Funds from other construction contracts in the district may be used if those projects are in the vicinity of, or will be affected by, the project requiring TMP funds. At the discretion of the Deputy District Director for Construction a list of chargeable project EAs may be submitted to headquarters Accounting for prorated charging. Very few Accounting staff are aware of the process required and headquarters Traffic Operations, Office of System Management Operations should be contacted for assistance.

Project Cost or Scope Changes

The CTC has delegated to the Director of the Department the authority to increase a project's cost by up to 20 percent without prior commission approval. This authority has been delegated to other Department managers as described in Project Management Directive PMD6. This increase can be used for TMP implementation and will be 100 percent reimbursable by the FHWA. The increased costs must be absorbed by other projects in the district since the total capital outlay allocation remains the same.

H. LOCAL INVOLVEMENT

The TMP Deputy Directive 60 applies to all projects on state facilities, including those not funded by the state. District Directors are responsible for assuring local compliance. Since many measure projects are split funded, the Department and local entities must work cooperatively to develop an effective TMP. The Department is responsible for approving all PSRs and it is at this point that agreements should be reached concerning the costs and scope of TMP measures.

III. CORRIDOR, REGIONAL AND MULTI-FUNCTIONAL AREA TMPS

When multiple or consecutive projects are within the same general corridor, the cumulative impact can result in excessive traffic delays and detour conflicts. These may be multiple capital projects, the involvement of more than one district, or a combination of capital projects and Encroachment Permit and/or Maintenance activities. Corridor or regional coordination will minimize or eliminate these impacts and reduce inconvenience to the motoring public.

When multiple projects are in the same corridor or on corridors within the same traffic area, it may be possible to develop a single corridor or regional TMP. In other cases, individual TMPs are developed and funded from their own sources, and a bare-bones corridor or regional TMP addresses the cumulative impact. Each project covered by corridor and regional TMP contributes resources in proportion to its traffic impact. During TMP implementation, the TMC serves as an information clearinghouse and coordinates operations. The TMC helps identify conflicts and recommends appropriate action. When provided with accurate and up-to-date lane closure information the TMC provides real-time traffic information via electronic media, CMS, and HAR.

The TMP Manager coordinates the development and implementation of corridor and regional TMPs. The TMP Manager forms a TMP team including, as a minimum, representatives from Construction, Maintenance, Public Affairs and Traffic Operations for each of the affected districts. The initial meeting is held several months in advance of the construction season to set milestones, and allow time to gather project information and prepare and distribute information.

The corridor/regional TMP may need elements in addition to those provided by the individual TMP for each project. Those elements may include changeable message signs at key locations outside individual project limits, the establishment of an information hot line and web-sites for all projects involved. The use of the statewide Caltrans Highway Information Network (CHIN) number (1-800-427-ROAD), and particularly the use of TMCs as a central reporting hub. The Northern Valley TMC in District 3 has established reporting procedures specifically for interregional TMPs that are obtainable from headquarters Traffic Operations.

IV. MAJOR LANE CLOSURE APPROVAL PROCESS

This process applies to all major lane closures on the state highway system. Major lane closures are those lane closures that are expected to result in significant traffic impacts despite the implementation of TMPs. A "significant traffic impact" is defined in DD-60 as (a) 30 minutes above normal recurring traffic delay on the facility, or (b) the delay threshold set by the DTM, whichever is less. When a planned lane closure is expected to have a significant traffic impact, Headquarters District Lane Closure Review Committee (DLCRC) review and approval is required. The functional unit directly involved in the work must submit the major lane closure request to the DLCRC for approval as detailed below.

A traveler's trip should not be increased by more than 30 minutes due to planned Department activities. The DTM may set a lower maximum if the economic impact of a delay over 20 minutes would be high. The lesser of these delay limits is the maximum delay threshold allowed for any activity. Only the DLCRC can approve a higher delay threshold for a project.

Additionally, it should be noted that TMP activities are comprehensive, and involve actions in addition to traffic management through the work zone, as detailed in these TMP Guidelines. All lane closure operations and other planned activities should be evaluated at the earliest possible developmental stage for potential impacts and mitigation strategies. Pre-implementation meetings and contingency plans remain important aspects of all lane closure operations to minimize impacts of unforeseen events.

A. THRESHOLD CRITERIA FOR LANE CLOSURES REQUIRING APPROVAL OF THE DLCRC

DLCRC review and approval is required when planned activities are expected to result in a traffic delay that exceeds 30 minutes or the delay threshold set by the DTM, which ever is less.

DLCRC review and approval is not required for emergency closures due to natural events or incidents. However, the DTM must be notified, and every effort must be made to minimize traveler delay and reopen traffic lanes as soon as practical.

Applicability

The DLCRC, comprised of the CHP, District Public Information Officer, and Deputy District Directors of Construction, Design, Maintenance and Operations, approves all requests for major lane closures that meet the above threshold criteria. The criteria are applicable for moving or static lane closure operations. The DLCRC will decide when to submit lane closure requests that

are of an interregional, statewide, environmental, or otherwise sensitive nature to the Headquarters Lane Closure Review Committee (HQLCRC) for their approval.

The DLCRC is responsible for determining when HQLCRC approval is required. The HQLCRC is comprised of the Division Chiefs for Construction, Maintenance, Design and Local Programs, and Traffic Operations along with the Headquarters Public Information Officer, and a representative from the CHP. The HQLCRC may review the closure or leave the decision to the DLCRC. The HQLCRC should be advised of all planned lane closures that exceed the above threshold criteria. All planned lane closures that exceed the above threshold criteria and are of an interregional, statewide, environmental, or otherwise sensitive nature, as determined by the district LCRC, may also require approval of the HQLCRC.

Contents of Major Lane Closure Request Submittal

The functional unit requesting the lane closure and responsible for its performance prepares a proposed lane closure submittal. Sufficient information is provided to ensure complete understanding of the proposal. The submittal is sent through the DTM for review before sending it on to the LCRC. If additional TMP efforts can reduce the expected additional delay to less then 30 minutes, then the closure does not have to go to the LCRC. The DLCRC/HQLCRC may require additional information during its review. At a minimum, the following information is recommended initially:

1. Location and vicinity maps showing the state highway(s), local street network, and other adjacent lane closures or nearby work that may affect traffic during the same period, including special events;
2. Dates, times and locations of the lane closure(s);
3. Brief description of the work being performed during the lane closure(s);
4. Brief description of each lane closure and its anticipated affect on traffic;
5. Amount of expected delay and corresponding queue length for each lane closure;
6. Summary of TMP strategies that will be used to reduce delay and motorist inconvenience during the lane closure(s) (refer to Table 1). A copy of the approved TMP for the project, if available;
7. Contingency plan (see "Contingency Plan" below).

B. EVALUATION

The LCRC is responsible for approving major lane closures and will use the items below for evaluating lane closure operations. In its evaluation of the proposal, the LCRC will give consideration to the accuracy, reliability, and completeness of information provided as well as other reliable sources of information available to the LCRC.

Proposals will be evaluated on the basis of effectiveness in the following areas:

- Promoting motorist and worker safety;
- TMP strategies;
- Plans for coordination with adjacent construction, maintenance, encroachment permits, and special events;

- Plans for coordination with TMC and field personnel;
- Plans for coordination with public media;
- Plans for use of existing field elements such as traffic surveillance loops, changeable message signs, highway advisory radio, and Closed Circuit Television cameras;
- Lines of communication and authority (top to bottom);
- Plans for monitoring delay (or corresponding queue length) during lane closure operations;
- Alternatives to proposed closures;
- Viability of contingency plans;

C. Post-Closure Evaluation Statement

A Post-Closure Evaluation statement will be submitted to headquarters' Traffic Operations Program, Office of System Management Operations, on all projects that exceed expected delay or run outside of the closure window. No more than one page is suggested. The functional unit performing the lane closure will prepare the statement within five working days of the date the lane closure exceeded the threshold criteria. The statement should explain:

- The cause and impact of delays;
- Either actions taken or to be taken to avoid or mitigate an occurrence or recurrence;
- Why the expected delay was exceeded and/or why it was necessary to exceed the closure window;
- How the situation can be avoided in the future.

Post-closure evaluation statements are only for closures formally approved by the District LCRC under this process (i.e. exceed the lesser of 30 minutes or the DTM limit).

Linda S. Adams
Secretary for
nvironmental Protection

State Water Resources Control Board

Division of Water Quality
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Arnold Schwarzenegger
Governor

September 10, 2008

Ms. Ami Goerdt
U.S. Department of Energy
Western Area Power Administration (WAPA or Western)
114 Parkshore Drive
Folsom, CA 95630

Dear Ms. Goerdt:

NORTH AREA RIGHT-OF-WAY MAINTENANCE PROGRAM
DRAFT ENVIRONMENTAL ASSESSMENT

State Water Resources Control Board (State Water Board) staff has reviewed the WAPA North Area Right-of-Way Maintenance Program Environmental Assessment (EA). The proposed project has the potential to adversely impact water quality and beneficial uses during construction as well as over the life of the project. In addition, the project may result in waste discharges to surface waters.

Anyone proposing to conduct a project that requires a federal permit or involving dredge or fill activities that may result in a discharge to surface waters, including wetlands, is required to obtain a Water Quality Certification (Certification) verifying that the project activities will comply with state water quality standards. Since this project spans more than one Regional Water Quality Control Board (Regional Water Board), the Certification would be issued by the State Water Board.

Agency 3-1

The California Water Boards (State and Regional Water Boards collectively) expect that for any project subject to their permitting authority, every effort will be made to avoid and minimize impacts to all Waters of the State to the maximum extent practicable, and to ensure no net loss of any type of wetlands and their beneficial uses. In the event that unavoidable impacts occur, mitigation for the loss of or adverse effect upon those waters, their functions, or their beneficial uses shall be provided. State Water Board staff will work with the project proponents and other regulatory agencies to ensure that this goal is met.

The size and scope of this EA does not allow a comprehensive review of all details in the time provided. This review, therefore, covers several general topics of concern and provides examples of classes of specific concerns that will need to be addressed in a final document and in development of subsequent project implementation plans.

Please note that when rewording of text in the EA is proposed, <u>suggested new text is underlined</u> and suggested deletions are ~~struck through~~ in the quotes from the document that are cited. Text citations in this letter are typically indented.

Agency 3-2

GENERAL COMMENTS

1. Cumulative Effects

Transmission Agency of Northern California (TANC) plans include the construction of hundreds of new miles of electric transmission lines that parallel or intersect with the existing transmission lines that are addressed in this EA. In addition, other agencies and commercial enterprises also have plans for development of significant new transmission lines that cross or connect with the transmission lines that are the subject of the proposed project. These proposed projects should be examined in the cumulative effects section of the EA (See discussion of Section 4, below).

Agency 3-3

2. Effects on waters of the U.S. and waters of the State, including wetlands

Compensatory Mitigation (Also see discussion of Section 5, below): In Section 3.2.3.3, regarding "Category C – New Infrastructure" (p. 3.2-15) it is stated that Category C activities are generally those maintenance activities that would disturb large areas and would rely on the use of heavy equipment." It is also stated that "...if jurisdictional wetlands are disturbed, Western would consult with the USACE and obtain 404 individual or nationwide permits, as applicable..." Section 3.12 has similar language. In each case, it is stated that "Compensation or mitigation may be required, resulting in a less than significant impact."

Reference to additional waste discharge requirements (WDRs) that may be required under state law is omitted. An accounting of potential effects to so-called "non-Federal" waters of the State, along with a plan for mitigating for those effects, is required before Certification of a CWA section 404 application is possible.

Agency 3-4

It should be noted that in projects where compensation or other mitigation is required, the threshold for categorical exemptions under CEQA typically would be exceeded and at least a negative declaration would be expected.

While it is understood that a project proposal of this type cannot fully predict the extent of possible impacts to wetlands, the potential for effect and subsequent compensatory mitigation described here also brings with it the requirement for a description of what those compensatory mitigation measures would be. No compensatory mitigation plan is presented.

Appendix H, the "Floodplain/Wetlands Assessment" – Potential Permanent Loss of Wetlands: Appendix H states that "Potential adverse effects to wetlands from the proposed action would include...permanent loss of wetland vegetation and habitat." Although such actions might be offset by mitigation, the potential for such effects removes the possibility of the State Water Board's acceptance of a blanket CEQA Categorical Exemption for the entire project.

Agency 3-5

While it is understood that a project proposal of this type cannot fully predict the extent of possible impacts to wetland, the potential for effect also brings with it the requirement for compensatory and other mitigation measures. No compensatory mitigation plan is presented.

Appendix H, the "Floodplain/Wetlands Assessment" -- Ongoing disturbance: It is also stated that the proposed project's vegetation type conversion objective, if achieved, might result in less ongoing effects to wetlands due to lower levels of effort needed to achieve maintenance goals.

Agency 3-6

If correct, that might be a desirable outcome of the project. However, this assertion begs the question of what existing and probable future effects to wetlands might be. If rates of re-entry to or crossing of wetland sites may lead to a long-term detrimental effect, these potential effects should be more clearly delineated, and appropriate mitigation measures should be presented. Effects of vegetation type conversion should also be analyzed. **Agency 3-6**

COMMENTS ON PART TWO

Sec. 2.2.2 (p. 2-2), Herbicides: This section states that: "...herbicidal applications (used either to kill non-native vegetation or retard growth)." The meaning of this statement is not clear. Does this section mean to state that herbicides will be used only on non-native growth? Will herbicides be used in any form on native vegetation where invasive species are not present? **Agency 3-7**

Will herbicides be used in any areas that may be Waters of the State and/or Waters of the U.S.? A clear list and map of receiving waters that might suffer contamination as a result of herbicide runoff should be provided.

2.2.2, Bullet 2, (p. 2-3): Also see comments for Section 2.2.2.2 below. Road maintenance and decommissioning strategies should be more fully discussed. The first mitigation steps for any project should be avoidance and minimization of impacts. Since roads are one of the more significant ground disturbing aspects of the proposed project, a discussion of avoidance and minimization alternatives would be helpful in evaluating potential effects. **Agency 3-8**

2.2.2.1: Effects of type conversion of vegetation on soil retention, runoff rates, and slope stability is not mentioned or discussed. Some consideration of these concerns should be included in the analysis. **Agency 3-9**

2.2.2.1: Manual Vegetation Control Methods (p. 2-5) lists use of polyester weed control mats. Polyester mats are photodegradable over time, but are not bio-degradable. Photo-degraded plastics, including polyester, become microscopic particles of plastic that circulate throughout the environment, including transport through ground and surface water. Alternatives to synthetic static barriers to vegetation should be discussed. **Agency 3-10**

2.2.2.2 – Access Road Maintenance (p. 2-9) (See also comments on App. L below): The section on culverts includes specifications for newly constructed roads. It is stated that, "Ditches on newly constructed roads could require frequent cleaning and checking after each major storm until revegetation is established." It should be stated that road patrols will be conducted after each storm event. **Agency 3-11**

2.2.2.2: (p2-9 through 2-13). The section on Road Maintenance includes provision for construction of new roads and removal of old roads. No mention is made for correction of existing road-related drainage and erosion problems. Significant road related gullying, for example, occurs in a few places in the mountainous sections of the project area. The only apparent response seems to have been the development of alternate access. No treatment of the erosion seems to have occurred. If conversion to stable, low growing vegetation is a goal of the vegetation management plan, this goal should be closely integrated with an erosion rehabilitation goal, to eliminate old erosional features while proactively preventing new ones from starting. **Agency 3-12**

Table 2-1, Standard Operating Procedures (SOPs) - Water Resources:

WR-SOP-1: pertaining to non-biodegradable debris. See comments for 2.2.2.1, Manual Vegetation Control Methods, above.

WR-SOPP-2: Suggested rewording: "Western will consult with USACE and the State Water Board, as appropriate."

Agency 3-13

WR-SOP-3,4,6,7,8. Greater specificity for practices such as those summarized here is needed, because analysis of potential effects cannot be conducted if insufficient details are provided regarding means of avoidance or minimization of effects.

For all SOPs listed, no mention is made regarding training and supervision of maintenance personnel who will be doing the work. For all activities relating to erosion control and prevention, stormwater management, stream bank management, etc., it should be specified that the work be supervised by qualified persons with experience and training in stormwater management, erosion prevention, stream bank management and erosion control (as evidenced by work experience or certifications such as Certified Professional in Erosion and Sediment Control, or Certified Professional in Storm Water Quality).

Agency 3-14

COMMENTS ON PART THREE

Section 3.2.1: Resources not evaluated. While your conclusion of "no effect" for the resource concerns listed -- i.e., radiation, hazardous chemicals, waste management, socioeconomics and environmental justice – may be correct, some explanation of why and how that conclusion was reached will be necessary for CEQA compliance (see comments on Part 5 below).

Agency 3-15

Section 3.2.3.3 (p. 3.2-15) describes "Category C- New Infrastructure" actions that may occur under the proposed maintenance program. It is stated that some of these actions could result in disturbance of Waters of the U.S. that might require "mitigation or compensation." If such compensation became necessary, then a threshold of significance will have been reached such that NWPs and CEQA exemptions will no longer apply.

Agency 3-16

Section 3.4.3.1, item 3, discusses environmental consequences from the proposed action that may occur as a result of herbicide use and cell tower installation. This seems to the first mention of cell tower installation to occur in this EA. Some mention of this class of activities in Section 1 of the EA would be expected. No purpose or need for cell towers is discussed in that part of Section 1.

Agency 3-17

COMMENTS ON PART FIVE

Section 5.2 of this EA correctly notes that various state laws in California regulate many of the proposed actions to be undertaken that are described in the EA. The laws and responsible agencies listed are:

→The California Endangered Species Act (CESA) California Department of Fish and Game (CDFG)
→The California Public Utilities Commission (CPUC) General Order 95, rules for Overhead Electrical Line Construction

Agency 3-18

→California Code of Regulations (CCR), Title 3, Div. 6, Pesticides and Pest Control Operations, administered by California Department of Pesticide Regulation.
→California Food and Agriculture Code, sections 7270-7274, as administered by the California Department of Food and Agriculture.

Agency 3-18

However, significant omissions from the list of pertinent state laws were noted by Water Board staff.

1 Stormwater Quality Requirements

Omitted from this list are the stormwater regulations under the CWA and Porter-Cologne. Stormwater regulations or permits which may apply to the proposed actions include the Construction General Permit and the Municipal Stormwater Permits. Sometime in the near future, the proposed Linear Construction Permit may also pertain (currently being developed by the State Water Board).

The Regional Water Boards that would administer stormwater permits in the proposed actions include:

Region 1: North Coast Regional Water Board: Oregon Border south approximately to the watershed divide between the Klamath and Sacramento River drainages.

Region 5-Redding Office: Central Valley Regional Water Board, which administers those parts of the proposed project area that fall within the Sacramento River Drainage.

Region 2: San Francisco Bay Regional Water Board, which administers those parts of the project area that drain into the San Francisco Bay.

Note that municipal staff may be delegated authority to administer municipal permits for the regional boards under local ordinances. Staging areas, whether temporary or permanent, may also be subject to the Industrial General Stormwater Permit.

Agency 3-19

2. Federal Clean Water Act (CWA) 401 Certification and Waste Discharge Requirements under the California Porter-Cologne Act and California Water Code.

In section 5.3, first bullet (p. 5-13), we find the following statement:

> "Activities covered by the U.S. Army Corps of Engineers' jurisdiction over wetlands (CWA Section 404 Department of Army Permits) require Section 401 water quality certifications or waivers from the Central Valley RWQCB."

First, 401 water quality certifications cannot be waived. Second, as noted above, three Regional Water Boards and are affected by the proposed project. The Central Valley Regional Water Board is incorrectly identified as the Water Board responsible for issuance of the Certification. Because of the multi-regional nature of the project presented in the EA, the State Water Board is responsible for any necessary Certification if a 401 Certification and CEQA determination is to be requested. (See Cal. Code Regs., tit. 23, § 3855.) If each individual project under this EA is to be the subject of a separate Certification, then the respective

Agency 3-20

Regional Water Boards would receive separate applications, and each would be subject to a separate CEQA process.

This section also confuses Federal and State laws and terminology, and in so doing fails to accurately describe either one. The 401 Water Quality Certification Program and the issuance of Waste Discharge Requirements (WDRs) under Porter-Cologne are related, but are separate regulatory programs.

Both are administered by one Water Board program under one application, but both have distinct purposes, jurisdictions, and requirements. Despite the many similarities in the programs, these differences must be accounted for.

For example, the 401 Certification Program applies to waters of the U.S. that are subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE) under section 404 of the CWA. WDRs apply to waters of the State, which are much more expansive and inclusive than waters of the U.S.

The order for general WDRs that would be in effect would be:

Water Quality Order No. 2004-0004-DWQ – Statewide General Waste Discharge Requirements for Dredged or Fill Discharges to Waters Deemed by the U.S. Army Corps of Engineers to be Outside of Federal Jurisdiction (General WDRs).

Agency 3-20

Eligibility criteria for this general WDR are found in section 9 of the order:

> Eligibility Criteria 9. These General WDRs are restricted to dredged or fill discharges of not more than two-tenths (0.2) of an acre and 400 linear feet for fill and excavation discharges, and of not more than 50 cubic yards for dredging discharges. Projects that may be covered under these General WDRs include land development, detention basins, disposal of dredged material, bank stabilization, revetment, channelization, and other similar projects. These size maximums help limit the potential environmental impact of the discharges and make them amenable to similar discharge restrictions, while permitting about half of the projects discharging to non-federal waters, as projected from historical data on discharge sizes. The size and volume restrictions are appropriate because larger projects involve a significantly greater risk to the environment and are more appropriately regulated by individual WDRs. Absent a potential effect on the quality of waters of the state, no notification is required under these General WDRs.

If the proposed project does not meet these eligibility requirements, an individual WDR must be issued. In addition, mitigation requirements, including compensatory mitigation, for impacts to waters of the State may be required in addition to mitigation for impacts to waters of the U.S. A method of accounting for those impacts to waters of the State, as separate from waters of the U.S., during the life of the proposed Maintenance Program will be required in order for the State Water Board to approve applications a Certification and for WDRs.

Careful consideration of these differences will be necessary to ensure that all permitting requirements are fully and adequately described in the environmental documentation that is used to support any Certification application.

3. California Environmental Quality Act (CEQA)

In various sections of the EA, it is stated that WAPA, as a federal agency, is "exempt" from various state laws and regulations. As noted above, this project may not qualify for a CEQA exemption. Further, despite federally owned rights-of-way for this project, there are state governmental agencies with oversight of certain aspects of the proposed action requiring this project to adhere to pertinent state laws.

The proposed project affects three transmission lines. Two are owned, operated and maintained by WAPA: portions of the Central Valley Project (CVP) and the entire Pacific Alternating Current Intertie (PACI). Additionally, WAPA operates and maintains, and partly owns, the California-Oregon Transmission Project (COTP).

In Sec. 1.1, Purpose and Need (p. 1-1) of the EA, it is stated that:

> "...Western operates and maintains (also has partial ownership) the California-OregonTransmission Project (COTP), which is primarily owned by the Transmission Agency of Northern California (TANC) and comprises three 500 kV lines that extend from ...Oregon.... To San Joaquin County, California."

TANC is a Joint Powers Agency created pursuant to California Government Code. (Gov. Code, § 6500 et seq.) TANC's membership currently consists of the California cities of Alameda, Biggs, Gridley, Healdsburg, Lodi, Lompoc, Palo Alto, Redding, Roseville, Santa Clara, and Ukiah; the Sacramento Municipal Utility District (SMUD); the Modesto Irrigation District (MID); and, the Turlock Irrigation District (TID). The Plumas-Sierra Rural Electric Cooperative is an associate member of TANC.

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TANC currently owns approximately 87 percent of the California-Oregon Transmission Project (COTP) and has transmission rights contracted from the Pacific Gas and Electric Company. TANC is listed as a public agency authorized to conduct CEQA on the official State Clearing House website. TANC has served as lead agency for five COTP projects since 2000 (SCH Numbers 2006012124, 2005032105, 2004032102, 2002118378, 2002052010). Therefore, TANC could potentially serve as a lead agency for CEQA for the proposed project, at least for the COTP sections of the project.

While often conducted concurrently with National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA) compliance, the CEQA process is a distinct process with some differences to NEPA. For example, documentation of cumulative effects is required under CEQA, and the CEQA public review process differs from NEPA.

California's water quality certifications pursuant to CWA section 401 are subject to the requirements of the CEQA. The requirements of CEQA are triggered when a public agency takes a discretionary action that has either a direct or foreseeable indirect detrimental environmental effect. (Pub. Resources Code, § 21065.) The Legislature has specifically stated that the issuance of licenses, permits, or certificates constitute such an action. (Pub. Resources Code, § 21006.)

The California public agency tasked with determining whether and to what extent the proposed project will have environmental effects is that agency which has the principal responsibility for

carrying out or approving a project. (Cal. Code Regs., tit. 14, § 15367.) It appears that TANC is the public agency with the principal responsibility for carrying out this proposed project.

While the environmental document is in the draft stage, responsible agencies provide comments relative to the proposed project and within their area of expertise. (Cal. Code Regs., tit. 14, § 15096.) The State Water Board's determinations, whether made during the draft stage or after the environmental document has been completed, must be made prior to the issuance of the Certification. (Cal. Code Regs., tit. 23, § 3856.)

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The EA prepared for CEQA compliance for this project is not in itself adequate for CEQA compliance. The project proponents should continue to communicate with affected state agencies so that an appropriate lead agency and CEQA process can be identified.

COMMENTS ON APPENDIX L

For all parts of App. L: Qualitative performance standards for these installations to go with the engineering specifications are needed. E.g., energy dissipators at runouts of culverts and dips must be adequate for expected worst case storm flows.

App. L – Culvert Installation (Sheet 1). (see also to Sec. 2.2.2.2) This design detail is barely adequate. No specifications are given on where culverts would not be used in favor of bridges, crossings, etc.

No specifications are given for low flow crossings.

The Figure on Inlet or Outlet Channel Excavation Details only shows installation for cross road drainage. No details are provided for swale or stream crossings.

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A plan detail for outlets and a side view are missing.

Specifications on run out areas below energy dissipators are missing.

No provision for armored inlets and aprons is included. These should be specified in any swale or channel capable of carrying debris in sufficient quantities that plugging and diversion are possible.

App. L- Typical Road Section (second sheet): Will all roads under reconstruction receive this treatment? Will any roads, tracks or ways not be treated as in this Figure?

App. L – Rolling Dip (Sheet 3) and Water Bars (Sheet 4): Specifications for downslope cover below rolling dip outflow energy dissipators is missing. In the absence of vegetative or duff cover, larger dissipators may be needed. Grading to fan out the flows may be needed.

Thank you for your consideration of these comments. If you require further assistance, please contact Cliff Harvey, the staff person most knowledgeable on the subject, at (916) 558-1709 (CHarvey@waterboards.ca.gov).

Sincerely,

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