the Mitigation Program for communication, reporting, and conflict resolution. Measures to minimize impacts of noise on sensitive human receptors will also act to reduce impacts on wildlife. Erosion control measures specified in the Mitigation Program will minimize on site and off site impacts on vegetation and habitat quality that could result from soil disturbance and runoff of storm waters.

Measures for topsoil handling, backfilling, equipment and materials storage, use of hazardous materials, trash control, fire control, construction personnel activity limitations, and site restoration discussed in the Mitigation Program (section 3) will also minimize project impacts on biological resources. In addition, monetary incentives for the contractors to avoid or minimize impacts to sensitive vegetation (e.g., oak trees and Burton Mesa chaparral) will be included in the construction documents.

3.3 POST-CONSTRUCTION PHASE

A post-construction survey of the entire project will be conducted by the environmental monitors after construction cleanup and surface restoration. This survey will include comparison of the construction areas to the preproject maps and photographs to determine the actual extent of impacts to sensitive resources within the ROW and if any impacts occurred outside the specified limits for construction. All substantial impacts beyond those predicted prior to construction will be thoroughly documented on maps and by photographs, and the measures necessary to restore these areas will be added to the mitigation plan. Areas where the contractors were able to reduce impacts will also be documented, and the scope of the final revegetation plan will be revised accordingly.

Site-specific revegetation and habitat enhancement for the entire project area will be performed as described in sections 4, 5, and 7 of this plan. The success of these measures will be monitored until specific compliance criteria have been met to the extent feasible.

3.4 OPERATION PHASE

Procedures for mitigating impacts resulting from routine and emergency maintenance work have been established in the Mitigation Program. This includes vegetation control over the pipeline to allow for aerial visual inspection for leaks as well as restoration of areas disturbed during repair work.

CALENDAR PAGE	274.154
MINUTE PAGE	1331

4.0 SENSITIVE SPECIES-SPECIFIC MITIGATION MEASURES

4.1 INTRODUCTION

This section briefly describes the sensitive wildlife and plant species (see Table 4-1) that could be significantly affected by construction of the project and lists specific mitigation measures to avoid or minimize the effects. Mitigation for temporal and permanent loss of habitat is included in the vegetation mitigations (sections 5 and 7). All project-wide mitigation measures presented in section 3 of the Mitigation Program are applicable along with measures presented below. If a project-wide mitigation measure conflicts with the measures presented in this section, the mitigation measures of this section will generally be enacted. If a conflict with section 3 of this document arises during construction activities, a change order may be required following the procedures of section 2.5 in the Mitigation Program, and a change order will be executed if necessary. All individuals who handle listed or sensitive animals or plants or excavate burrows will be qualified to do so and will obtain the appropriate permits for that activity.

4.1.1 Relationship to State and Federal Threatened and Endangered Species Acts

The mitigation for sensitive species presented in this section includes several species that have been listed or are candidates for listing as threatened or endangered pursuant to the California Endangered Species Act (CESA) and the federal Endangered Species Act (ESA). It is recognized that the requirements of these acts must be met to construct the project. The mitigation measures for threatened and endangered species presented in this plan are CCWA's proposals to meet the requirements of CESA and ESA by avoiding take of listed species and significant impact to their habitat. Any changes to the mitigation measures made through the CESA process will be incorporated into this mitigation plan by a separate Management Agreement/Management Permit between CDFG and CCWA. Additional conditions may be specified by federal agencies pursuant to ESA.

4.2 SENSITIVE WILDLIFE SPECIES

4.2.1 Introduction

Sensitive wildlife species have been identified as potentially affected by construction of the Mission Hills Extension and the Santa Ynez Extension. The sensitive wildlife species that could be significantly impacted or are of particular concern are presented with a brief description of the animal and species-specific mitigation measures. Several of these species may not be

CALENDAR PAGE 274.155
MINUTE PAGE 1332

Table 4-1

SENSITIVE PLANTS AND ANIMALS POTENTIALLY AFFECTED BY THE PROJECT

	Status [1]		
	Federal	*State*	*CNPS*
Animals			
Arroyo southwestern toad	C2	SSC	
California tiger salamander	C2	SSC	
Red-legged frog	C1	SSC	
California horned lizard		SSC	
Southwestern pond turtle	C1	SSC	
Bald eagle	E	E	
Cooper's hawk		SSC	
Long-eared owl		SSC	
Yellow warbler		SSC	
Yellow-breasted chat		SSC	
Southwestern willow flycatcher	C1	E	
Tricolored blackbird	C2		
Unarmored threespine stickleback	E	E	
American badger		SSC	
Plants			
Sand mesa (shagbark) manzanita	RC1 [2]		1B
Hoover's bentgrass			4
Seaside bird's beak	C1	E	1B
Parry's delphinium	C2		1B
Black-flowered figwort	C2		3
Purisima manzanita	RC2[2]		1B [2]

Notes:

1. Federal status determined by USFWS:
   - E Endangered; in danger of extinction throughout all or a significant portion of its range.
   - C1 Substantial on-file information on biological vulnerability and threat indicates that proposing to list these species as endangered or threatened is appropriate.
   - C2 Information indicates that proposing to list these species is possibly appropriate, though more data on vulnerability and threat is necessary.
   - C3 Information indicates that these species have proven to be more abundant than previously believed and are not subject to any identifiable threat.
   - R Recommended status.

   CDFG status:
   - E Listed as endangered.
   - SSC "Species of Special Concern."

   CNPS status:
   - 1B Plants rare, threatened, or endangered in California and elsewhere.
   - 3 Review list – need more information.
   - 4 Watch list – plants of limited distribution.

2. Proposed status change.

CALENDAR PAGE 274.154
MINUTE PAGE 1333

affected due to realignments, and this will be verified during field surveys begun in the spring of 1993 and continuing through the summer of 1993. For a discussion of sensitive species that occur in the project area but would not be significantly impacted and additional wildlife information see the reports "Sensitive Fish and Wildlife Resources along the Proposed Coastal Aqueduct and Santa Barbara Extension" (BioSystems Analysis 1991a), "Biological Mitigation and Compensation Plan for Wildlife" (BioSystems Analysis 1991b), and "Sensitive Fish and Wildlife Resources along the Proposed Lompoc Pipeline" (BioSystems Analysis 1990).

4.2.2 General Mitigation Measures

The strategy for minimizing impacts to sensitive wildlife species is to avoid impacts to the greatest extent feasible, to prevent and minimize project caused mortality, and to restore and compensate for affected habitat.

The following approach to minimizing impacts to sensitive wildlife species will be followed:

- Conduct biological surveys (in the appropriate seasons) along the entire ROW and at all facility sites before construction to identify and locate sensitive species (see section 3.1). These surveys will not be limited to those species that have been determined to be significantly impacted (discussed in the following pages) but will include any other sensitive species potentially occupying areas to be affected by the project. If the surveys identify sensitive species that will be significantly impacted that are not addressed below, the PEPM will develop mitigation measures to protect the species and submit them to CDFG for review and approval prior to construction.

- Adjust ROW location or pipeline alignment within the ROW to avoid known sensitive wildlife habitat and dens or burrows to maximum degree feasible. The alignment will be adjusted through the final design and after biological surveys of the final ROW alignment. Any minor adjustments of the ROW necessary to protect wildlife or plants will be checked by appropriate environmental specialists to ensure that other sensitive resources (e.g., cultural sites) would not be affected.

- Reduce construction ROW width to avoid sensitive wildlife habitat and dens or burrows to the maximum degree feasible. The width of construction activity may be narrowed to a minimum of 50 feet for short distances to avoid or minimize impacts. These ROW width reductions will be flagged, marked on the project drawings and specifications, and included in construction contracts.

CALENDAR PAGE 274.157
MINUTE PAGE 1334

- In all habitats except agricultural fields, open trenches will be inspected by an environmental monitor each morning prior to any construction activity and each evening after construction activity is through, and any sensitive animals found will either be allowed to escape or will be removed according to prescribed protocol.

- Adjust construction schedule through or adjacent to sensitive species habitat to avoid impacts during critical times of the year such as the breeding season.

- Restore temporarily disturbed habitat (see section 5) and compensate for permanent habitat losses (see section 7).

- Develop plans, prior to construction, to handle emergency situations involving sensitive species.

4.2.3 Species-Specific Mitigation Measures

Wildlife species considered sensitive that could be significantly affected by the project are presented below along with the location of their habitat. Locations are given by mile or geographic site (see Appendix C for maps), and are approximations. Exact demarcation of the sites will be made on the drawings and specifications. State or federal status of each animal species and its occurrence on the ROW is then stated followed by species-specific mitigation measures.

Amphibians

ARROYO SOUTHWESTERN TOAD (*Bufo microscaphus californicus*)

Potential habitat for this species is present in the Santa Ynez River, although it has not been recorded west of Lake Cachuma in the Santa Ynez River drainage. The pipeline crosses the river on bridges at Buellton and Solvang, or would be bored under the river west of Buellton and placed on a bridge at Solvang. No impacts to this species are expected. The toad is a California Species of Special Concern and is a category 2 candidate for federal listing. Mitigation measures are presented below under Amphibians: Mitigation Measures.

CALIFORNIA TIGER SALAMANDER (*Ambystoma tigrinum californiense*)

The California tiger salamander is known to breed in the Campbell vernal pools (1991 records) at mile 20.5. No other locations for this species have been recorded for the project corridor.

CALENDAR PAGE 274.158
MINUTE PAGE 1335

The California tiger salamander is a California Species of Special Concern and is a Category 2 candidate for federal listing.

Specific mitigation measures for the Campbell vernal pool population (and any other populations observed during preconstruction surveys) are:

- Avoid the Campbell vernal pools by moving the pipeline to the south side of Highway 246 and using the Caltrans ROW, if feasible.
- Keep construction ROW as narrow as possible (60 feet or less) adjacent to the pools to the extent feasible. This will be shown on the drawings and specifications.
- Design and place backfill in the trench so that subsurface water flow to the pools is not interrupted by the trench (if subsurface flow is found to occur). This includes replacement of the impervious clay layer if it is cut by the trench.
- Restore land contours to preconstruction conditions so that surface runoff is not altered.
- Control sediment runoff from the ROW using standard construction techniques until soils are stabilized with vegetation.
- Biological monitors to collect any salamanders found during trench excavation and hold in cool, moist conditions until construction is complete in this area. Replace the animals in hand-excavated burrows.
- Biological monitors to place fencing between pools and ROW (small mesh) to keep salamanders from entering the ROW.

Additional mitigation measures are presented below under Amphibians: Mitigation Measures.

RED-LEGGED FROG (*Rana aurora draytonii*)

Individuals of this species have been found in the Santa Ynez River about 3 miles west of Buellton, and placement of the pipeline on Avenue of the Flags bridge, or boring under the river in this area, would not affect this population. They have also been reported in the Campbell vernal pools at mile 20.5. Potential habitat for this species exists in San Antonio Creek, in a pond at mile 17.2, and at the Zanja de Cota Creek crossing at mile 35.5. The red-legged frog is a

CALENDAR PAGE 274.159
MINUTE PAGE 1336

California Species of Special Concern and is a Category 1 candidate for federal listing. Mitigation measures are presented below under Amphibians: Mitigation Measures.

Mitigation measures for sensitive amphibian species are:

- The two Santa Ynez River crossings will make use of existing bridges, or one will be by boring under the river and the other on a bridge. San Antonio Creek will be spanned or bored under and Hilton Creek will be spanned.

- The construction corridor width will be as small as feasible, but exact dimensions cannot be specified until detailed site engineering is completed. Gravel and unconsolidated material in some streambeds forces a wider trench to bury the pipeline adequately. Dimensions of each stream crossing will be specified on the drawings and specifications and in the construction contracts.

- Construction will be limited to the dry season (about 1 April to 1 November) through or adjacent to habitat known to support the above-mentioned species, except as noted below. Any aquatic habitats that could be affected by construction activities will be surveyed using appropriate sampling gear and techniques to determine if any of these species are present. Any individuals found will be temporarily relocated by a qualified biologist to unaffected similar habitat nearby and monitored during construction to determine if any project-related mortality occurs. No construction through these habitat will begin while larval or other life stages are present until they either migrate or are removed from the habitat. Timing for construction adjacent to the Campbell vernal pools will be indicated on the drawings and specifications.

- In streams that are flowing during the dry season, the section of the stream to be excavated will be seined and any animals will be relocated by a qualified biologist before construction but after stream diversion devices have been installed. Installation and operation of the stream diversion devices will be monitored by the environmental monitors and CDFG.

- After habitat restoration is complete, approximately the same number (accounting for any known mortality) of each species removed will be returned from the relocation site to the habitat by a qualified biologist.

- Move the pipeline ROW to the south side of Highway 246, using the Caltrans ROW (if feasible) to avoid the Campbell vernal pools.

CALENDAR PAGE 274.160
MINUTE PAGE 1337

Reptiles

CALIFORNIA HORNED LIZARD (*Phrynosoma coronanum frontale*)

Potential habitat exists for this species at numerous locations in chaparral, primarily from mile 0 to mile 11. The horned lizard is a California Species of Special Concern and is on the California Natural Diversity Data Base Watchlist.

Specific mitigation measures include:

- The construction corridor width will be as small as feasible, but exact dimensions cannot be specified until detailed site engineering is completed.
- Restoration of designated horned lizard habitat that includes replacement of previously removed sand/fine gravel across topsoil surface.

SOUTHWESTERN POND TURTLE (*Clemmys marmorata pallida*)

This turtle has been observed in the Campbell vernal pools (mile 20.5), in San Antonio Creek, in the stilling basin adjacent to Bradbury Dam, and in Lake Cachuma. Potential habitat for this species exists at mile 17.2 (a pond), and in Zanja de Cota Creek. The turtle is a California Species of Special Concern and a category 1 candidate for federal listing.

Specific mitigation measures include:

- Avoid the Campbell vernal pools by moving the pipeline to the south side of Highway 246 and using the Caltrans ROW, if feasible.
- Narrow construction corridor to 60 feet wide adjacent to the Campbell vernal pools.
- Construction through known pond turtle habitat will be limited to the dry season (about 1 April to 1 November).
- Seining bodies of water within the ROW prior to construction and relocating turtles to aquatic refugia outside of the construction zone by a qualified biologist. These refugia will be monitored during construction to assess any project-related mortality. In habitats where pond turtles could enter the ROW from adjacent habitat, removal of pond turtles would occur after diversion

CALENDAR PAGE 274.1 61
MINUTE PAGE 1338

devices have been installed. Installation and maintenance of these devices will be monitored by environmental monitors.

- After habitat restoration is complete, approximately the same number (accounting for any mortality) of pond turtles removed will be returned from the refugia to the habitat by a qualified biologist.

- Fencing between the vernal pools and the ROW for tiger salamander will also keep pond turtles from entering the ROW.

Birds

BALD EAGLE (*Haliaeetus leucocephalus*)

A pair of bald eagles have nested just north of Lake Cachuma in 1989 and 1990; they may continue to use this nest site. Two other bald eagles have regularly used habitat adjacent to (west side) the Tecolote Tunnel intake tower for foraging and perching during winter. Wintering eagles occur in variable numbers (2-15) at Lake Cachuma from November through March. This species is listed as endangered by both state and federal agencies. Construction of the pipeline terminus near Bradbury Dam is not expected to affect bald eagle use of the lake.

A specific mitigation measures is:

- Construct terminus for discharging to lake during summer (April through October) when eagle numbers at the lake are at a minimum.

BURROWING OWL (*Athene cunicularia*)

Burrowing owls are not known to nest in the project area although occasional winter visitors may be present, particularly in the western portion of the study area. Preconstruction surveys will include looking for this species and suitable burrows (if any owls are observed). No mitigation measures are proposed at this time since no impacts are expected.

COOPER'S HAWK (*Accipiter cooperi*)

Cooper's hawk nesting and foraging habitat occurs in the riparian woodlands along the Santa Ynez River west of Buellton and along the oak woodlands south of San Antonio Creek, and a nest was found just north of the proposed crossing at Zanja de Cota Creek. Potential habitat for

CALENDAR PAGE 274.162
MINUTE PAGE 1339

this species also exists in chaparral and woodlands between miles 0 and 11. This bird is a California Species of Special Concern.

Specific mitigation measures are:

- Conduct preconstruction surveys within riparian woodland habitat during the April through July nesting season and before any construction activities. Any nests found within or immediately adjacent to the corridor (i.e., within approximately 0.5 mile) will be mapped during the survey and checked for use. If in use when construction is scheduled to occur (see Figure 4-1 for approximate dates), construction activities will be redirected so as to avoid disturbance of the nest site and the surrounding foraging area. The area to be temporarily avoided (until the young have fledged in July or August) will be determined by a bird specialist considering site-specific topography and existing land uses.

Riparian and Wetland Birds

LONG-EARED OWL (*Asio otus*)

This species has been seen at the Santa Ynez River 3 miles west of Buellton (near alternative route crossing by directional drilling) but is unlikely to be present near the relocated crossing at Avenue of the Flags bridge. Potential habitat for this species also exists along Zanja de Cota Creek. Construction activities may disturb birds at winter roosts or while nesting. The nearest known suitable nesting habitat is at Barka Slough, approximately 2.5 miles (4 km) east of the pipeline crossing of San Antonio Creek. This species is a California Species of Special Concern. Mitigation measures are presented below in Riparian and Wetland Birds: Mitigation Measures.

YELLOW WARBLER (*Dendroica petechia brewsteri*)

This species occurs as a migrant and occasional breeder in willow riparian habitat in San Antonio Creek in the willow riparian habitat between mile 2 and mile 3, adjacent to Zaca Creek and the Santa Ynez River west of Buellton (including the alternative bore site at the Avenue of the Flags bridge crossing), along Zanja de Cota Creek, and at the Santa Ynez River just below Bradbury Dam. The yellow warbler is a California Species of Special Concern. Mitigation measures are presented below in Riparian and Wetland Birds: Mitigation Measures.

CALENDAR PAGE 274.163
MINUTE PAGE 1340

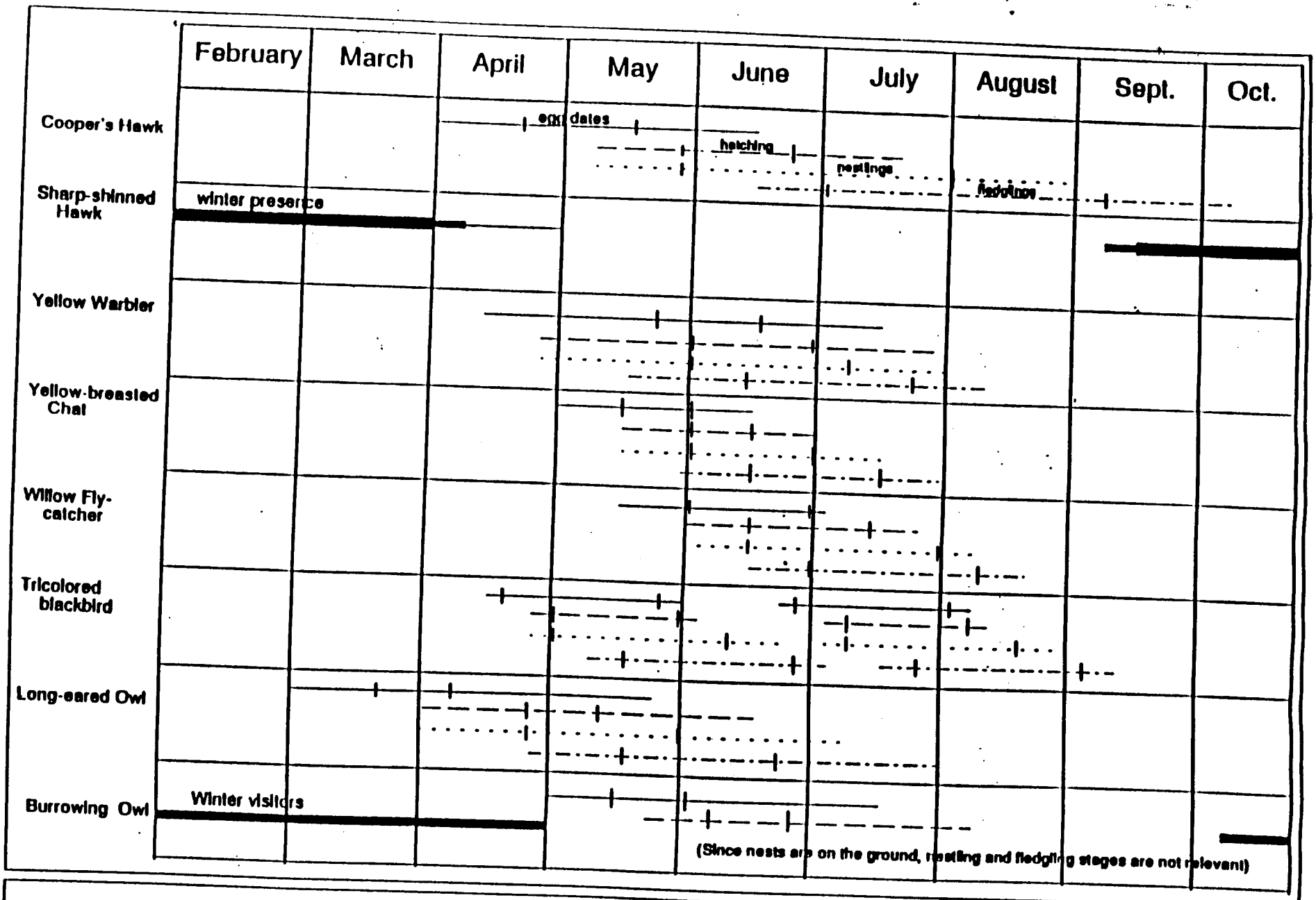


Figure 4-1

SENSITIVE BIRD NESTING PERIODS

CALENDAR PAGE 274.1W
MINUTE PAGE 1341

YELLOW-BREASTED CHAT (*Icteria virens*)

This species occurs as a migrant and breeder in dense riparian habitat adjacent to the Sant Ynez River at the confluence of Zaca Creek, at the alternative bore site, and at the Avenue of the Flags bridge crossing; along Zanja de Cota Creek; and in San Antonio Creek. Pipeline construction during the nesting season (April-June) could disrupt nesting attempts. The yellow-breasted chat is considered a California Species of Special Concern. Mitigation measures are presented below in riparian and wetland birds: mitigation measures.

SOUTHWESTERN WILLOW FLYCATCHER (*Empidonax traillii extimus*)

This species is now a rare spring and fall migrant occurring in dense willow riparian habitat along the Santa Ynez River. Nesting pairs have been found along the Santa Ynez River near Buellton. Potential habitat for this species also exists along San Antonio Creek. None were found in the vicinity of the ROW during 1992 and 1993 spring bird surveys. The southwestern willow flycatcher is listed as endangered by California and is a category 1 candidate for federal listing. Mitigation measures are presented below in Riparian and Wetland Birds: Mitigation Measures.

TRICOLORED BLACKBIRD (*Agelaius tricolor*)

Several breeding colonies have been recorded along the Santa Ynez River, close to but outside the project area (BioSystems 1990). A large colony breeds in the marsh associated with an irrigation reservoir on the Mendez Ranch at mile 17.2 located immediately adjacent to the proposed pipeline corridor. This species is a category 2 candidate for federal listing.

Riparian and Wetland Birds: Mitigation Measures

Impacts to yellow warblers, long-eared owls, yellow-breasted chats, southwestern willow flycatchers, and tricolored blackbirds will be mitigated by minimizing the area affected, timing construction activities to avoid disturbance during the breeding season, restoration of habitat (section 5), and habitat replacement (section 7). Additional measures are:

- At all stream crossings (including associated riparian woodlands) where these species are known to be present (to be designated on the drawings and specifications) and where nesting is found within the ROW, construction shall not begin in these habitats (and at least 100 to 200 feet, depending on topography, on either side of this habitat) until the young have fledged (see Figure 4-1 for approximate dates).

CALENDAR PAGE 274.165
MINUTE PAGE 1342

- Construction adjacent to the pond used by tricolored blackbirds at mile 17.2 will be performed after nest building is complete (March), and if feasible after the nesting season. The latter is assumed to be approximately 1 Angust, but the exact date will be determined by the environmental monitors. If avoiding the entire nesting season is not feasible, a buffer of at least 20 feet shall be maintained between the pond and the construction zone.

- Mitigation measures include a pre-construction survey conducted through any suitable riparian habitat within 30 days before the start of construction. Impacts to nesting long-eared owls can be avoided by restricting construction to the portion of the dry season which is within their non-breeding season (1 July to 1 November).

- A 50-foot buffer shall be maintained between construction activities and riparian woodlands where sensitive species are found to be nesting when no nesting is found within the construction corridor and construction cannot be scheduled for after the breeding season.

Fish

UNARMORED THREESPINE STICKLEBACK (*Gasterosteus aculeanus williamsoni*)

This species inhabits San Antonio Creek on Vandenberg AFB and is present at the ROW crossing of the creek. The unarmored threespine stickleback is state and federally listed as endangered.

Specific mitigation measures are:

- Avoid disturbance of stream banks and to riparian habitat within banks during installation of bridge for pipe across creek, or bore under the creek.

- Prevent runoff of sediments or other construction materials to the creek from the ROW within the watershed, especially adjacent to the creek, through use of berms, straw bales, etc. that are monitored daily and maintained as necessary.

- Complete construction over (or under) and near the creek, including the tributary to San Antonio Creek crossed three times, during the dry season (1 April to 1 November).

CALENDAR PAGE 274.166
MINUTE PAGE 1343

- Stabilize disturbed soils prior to rainy season; monitor and maintain sediment control devices until soils are permanently stabilized.

Mammals

AMERICAN BADGER (*Taxidea taxus*)

Sign of this species has been observed along or near the pipeline ROW in Burton Mesa chaparral, near Tank 7, and between mileposts 2 and 3. Potential habitat for this species occurs in grassland and open chaparral at various intervals throughout the project area. The American badger is a California Species of Special Concern.

Specific mitigation measures are:

- Survey grasslands along the entire ROW and at all facility sites during the preconstruction survey. Resurvey areas where sign of badgers is found 60 days before construction to determine if any potential dens within the construction zone are occupied. Construction contract specifications will require that contractors provide the Construction Manager notice of intent to conduct construction activities 90 days before initiation of work within areas designated as American badger habitat on project design plans.

- Mark exclusion zones of 50-foot radius around active dens where they can feasibly be avoided by the ROW.

- Destroy unoccupied dens that cannot be avoided to prevent badgers from reoccupying the dens prior to reproductive season (February - May).

- Hand excavate occupied dens within the ROW that cannot be avoided to make badgers leave and close den to assure animals will not return. This is to occur either before or after the reproductive season (February - May).

4.3 SENSITIVE PLANT SPECIES

4.3.1 Introduction

A number of sensitive plant species are present in the ROW and would be affected by construction of the Mission Hills and Santa Ynez extensions (see Table 4-1). This section presents the mitigation measures that will be used to avoid and minimize significant impact to

CALENDAR PAGE 274.167
MINUTE PAGE 1344

these resources. The mitigation measures presented in section 4.3.2 are common to all sensitive plant species. A list of the sensitive plants is then presented with a brief indication of their location and some specific mitigations. Manuals specifying details for implementing the mitigation measures for each species will be prepared after preconstruction surveys and prior to construction. The content of these manuals is presented below. A draft example is provided in Appendix A. Additional information concerning sensitive plants can be found in the "Summary of Vegetation Studies, 1987-1991. State Water Project: Coastal Branch Phase II and Mission Hills Extension" (Hendrickson 1992), and in "Lompoc to Cachuma Pipeline, Alignment Impacts to General Vegetation and Sensitive Plant Species" (DWR 1989b). Several sensitive species not discussed below are associated with Burton Mesa chaparral but are not currently known to be present in the ROW. Mitigation measures presented in section 5.2.2 and section 7 would provide habitat for these species.

4.3.2 Mitigation Measures

The strategy for minimizing impacts to sensitive plant species is to avoid the plants to the greatest extent feasible and to restore populations of plants in their natural habitat to approximately the numbers and condition present before the project if they cannot be avoided.

The following approach to minimizing impacts to sensitive plants will be followed:

- Adjust pipeline alignment within the ROW to avoid plants to maximum degree feasible. The alignment will be adjusted, where feasible, to avoid sensitive plants through the final design and after preconstruction biological surveys of the final ROW alignment.

- Reduce construction ROW width to avoid sensitive plants. The width of construction activity will be narrowed to a minimum of 50 feet for a short lineal distance to avoid or minimize impacts. These ROW width reductions will be marked on the project drawings and specifications and will be included in construction contracts.

- Provide incentives to contractors to avoid impacts to sensitive species within the ROW. These incentives will be included in construction documents.

- Transplant or collect seed, bulbs, young plants, or cuttings to reestablish individual plants that cannot be avoided.

CALENDAR PAGE 274.168
MINUTE PAGE 1345

- Identify and flag sensitive plants in exclusion zones. Fence or clearly mark the exclusion zone when small and clearly mark it when large, no sooner than * months prior to construction.

- General topsoil preservation by construction contractors will be required as shown on the drawings and specifications.

- Monitor reestablishment and irrigate, cultivate, or take other steps to assure restoration success.

Technical manuals will provide procedures on propagation and maintenance of specific sensitive plant species. The manuals will be based on existing literature and expertise of professionals. Where adequate information concerning a species is not available, the manual will suggest techniques to experimentally obtain the information with backup provisions to follow in case the experiments do not prove successful.

The technical manual will follow the following format:

- Species
- Location
- Ecological requirements
- Collection method and schedule
- Storage method
- Propagation and cultivation methods: seed preparation, fertilization, weed control, etc.
- Watering schedule: frequency, duration, quantity
- Special needs
- Recommendation for companion species
- Monitoring schedule.

CALENDAR PAGE 274.169
MINUTE PAGE 1346

- Criteria for restoration success.

4.3.3 Sensitive Plants

The following sensitive plants have been identified within the ROW or at facility sites (Hendrickson 1992; DWR 1989b; SAIC 1993 field surveys). They would be significantly impacted by the project and, therefore, require mitigation measures to restore the species populations. Other sensitive plant species that are located within or near the Mission Hills Extension ROW but would not be significantly affected by the project are discussed in Hendrickson (1992). Seeds from plants of species to be affected will be collected for revegetation purposes as time and conditions permit. Associations of sensitive species are present in Burton Mesa chaparral and wetlands. These habitats are discussed in section 5.0.

SAND MESA (SHAGBARK) MANZANITA (*Arctostaphylos rudis*)

This resprouting shrub species is a category 2 candidate for federal listing (but recommended for Category 1 status) and on the California Native Plant Society (CNPS) 1B list (rare, threatened or endangered in California). It is endemic to Burton Mesa chaparral and numerous individuals would be removed during clearing of the ROW. Specific locations where this species is found are near Nipomo and Tank 5 (within the Coastal Branch to be constructed by DWR), mile 0-0.3, mile 5.6-5.7, mile 7 to 8.2, mile 8.8 to 10, and mile 10.1 to 11.1. This is being mapped at a scale of 1 inch = 100 feet during preconstruction surveys begun in spring 1993 and continuing through summer.

The construction corridor shall be as narrow as feasible through Burton Mesa chaparral. In the area that is within the construction easement but outside the area to be trenched, sand mesa manzanita shrubs will be cut off to the stump using equipment such as a brush hog or flail-type mower. The work area will be covered with a material (such as straw) to mark the ground level and then materials excavated from the trench will be spread over it to protect the stumps from damage by heavy equipment traffic. Movement of machinery in this habitat should be minimized and avoid stumps where feasible. The area to be restored may be planted with individuals grown from locally collected seed and cuttings. Planted individuals and resprouting individuals will be tagged and monitored for several years to measure the success of the different methods of revegetation for this species.

PURISIMA MANZANITA (*Arctostaphylos purissima*)

Purisima Manzanita is on CNPS list 3, but is now proposed to be added to list 1B and recommended for Category 2 federal listing status. It is found in Burton Mesa chaparral from

CALENDAR PAGE 274.170
MINUTE PAGE 1347

Tank 5 on Vandenberg Air Force Base to Harris Grade Road at mile 11.1. Locations of its occurrence along the corridor are being mapped during preconstruction surveys begun in the spring of 1993.

Efforts to reestablish this species following pipeline construction will include spreading heat or ash treated seed over the corridor. Brush cleared during construction may be chipped and burned under a permit from the County Fire Prevention Agency and the ashes spread over the construction corridor. Whole plants could be salvaged and replanted. Supplemental watering during winter may be necessary in dry years.

HOOVER'S BENTGRASS (*Agrostis hooveri*)

Hoover's bentgrass is on CNPS list 4 (watch list). Localized patches are found in open areas and under shrubs within Burton Mesa chaparral. Hoover's bentgrass was found on a slope above unnamed drainage A under some shrubs and it may be present elsewhere in the Burton Mesa area. The occurrence located within the ROW were mapped during the preconstruction surveys. Any additional dense clumps of individuals located during flagging of the corridor will be recorded and revegetated. Individuals will be collected and saved prior to construction for replanting following construction, and seed will be collected prior to construction and then be grown at a nursery and replanted.

SEASIDE BIRD'S BEAK (*Cordylanthus rigidus* SSP. *littoralis*)

This species is a category 1 candidate for federal listing, listed as endangered by the state, and on CNPS list 1B. Suitable habitat is present in the ROW, and a number of individuals of this annual species could potentially be affected. It may occur along the banks and hillsides adjacent to unnamed drainage A near Vandenberg Village. Specific locations and numbers of individuals within the ROW will be determined and mapped during the preconstruction surveys in the 1993 blooming season. Since the subspecies *rigidus* is more common in this area, identification to subspecies will be verified through comparison with herbarium specimens using plant material collected during the preconstruction surveys.

This possible hemiparasite grows in slightly disturbed clearings adjacent to oaks and oak chaparral. It is an annual, but whole plants should be collected late in the season to seed the area following construction. Seeds of other herbs that are found in the same area will be collected and scattered with the seed of the bird's beak.

CALENDAR PAGE 274.171
MINUTE PAGE 1348

PARRY'S DELPHINIUM (*Delphinium parryi* VAR. *blochmaniae*)

Parry's delphinium is a category 2 candidate for federal listing, on the CNPS list 1B, and a species of local concern in Santa Barbara County. This species, which emerges from perennial root stalks during favorable seasons, is a local endemic in Burton Mesa chaparral. One individual occurs at mile 0.2 and at mile 4.6, and it may be present between mile 9.5 and mile 11. Since not all plants in a population may emerge every year, this species may be more abundant and widespread on the ROW than the surveys conducted during previous years have indicated. Locations found during the 1993 blooming season will be mapped.

BLACK-FLOWERED FIGWORT (*Scrophularia atrata*)

This herbaceous perennial figwort is a category 2 candidate for federal listing and is on CNPS list 3 (review list). It is known to occur at mile 0.7 and may be present between miles 9.5 and 11. Locations will be mapped during preconstruction surveys.

Individuals of this species will be removed prior to disturbance and maintained in a nursery for replanting following construction, and/or locally collected seed will be grown at a nursery for replacement planting at the site.

CALENDAR PAGE 274.172
MINUTE PAGE 1349

5.1 INTRODUCTION

This section discusses the vegetation types affected by construction of the Mission Hills and Santa Ynez extensions. The strategy for avoiding and minimizing effects to vegetation resources is described. The content of technical manuals that will be prepared to guide the replacement and maintenance of impacted vegetation resources is presented. General mitigation measures are listed. The list of vegetation types (excluding agriculture and disturbed) that will be affected by the extensions is then presented, including a brief description of the species composition and acreages impacted. The areas given are approximations from measurements on maps at a scale of 1:24,000 of the route dated 1 June 1993. The acreages will be revised as necessary upon completion of preconstruction field surveys and mapping at a scale of 1 inch = 100 feet in the summer of 1993. Specific mitigation measures to be used to minimize impacts to each vegetation type are listed. The need to create and manage similar habitats at a minimum of an acre-per-acre ratio to replace lost ecological communities or acquire disturbed lands near the project site for ecological enhancement is then presented. These recommendations are taken from Table 4-2, "Ecological Communities within Easement," from the *Coastal Branch, Phase II and Mission Hills Extension Final Environmental Impact Report*. Section 7, Acquisition of Replacement Lands, presents the proposed method to acquire lands to compensate for permanently lost threatened or endangered species habitat and to replace sensitive ecological communities that cannot be reestablished within the pipeline corridor.

Additional information concerning vegetation types can be found in Hendrickson (1992).

5.2 MITIGATION MEASURES

The strategy for minimizing impacts to vegetation is to avoid the sensitive vegetation types or individual plants, such as mature trees, to the greatest extent feasible. Where a sensitive plant species or habitat is not avoided, the pipeline corridor will be narrowed to limit impacts to the greatest extent feasible when considering added construction cost versus replacement cost. Monetary incentives will be given to the contractors to avoid or minimize these impacts. Impacts which cannot be avoided will be mitigated by restoring the vegetation on site and by off-site replacement of ecological communities that cannot be mitigated on site. The alignment will be adjusted through the final design phase and after biological surveys of the final ROW alignment should sensitive vegetation be located and an alignment shift is cost effective. Additionally, the construction ROW width may be narrowed to about 50 feet for short distances to avoid or minimize impacts to sensitive vegetation resources.

CALENDAR PAGE 274.173
MINUTE PAGE 1350

During pipeline construction qualified monitors will be present to ensure that all flagged areas are avoided, and to keep a log of all activities including the number, size, and species of trees that are removed. These monitors (through the PEPM) will have the authority to temporarily (less than 1/2 hour) stop or slow corridor clearing within Burton Mesa chaparral or other ecologically sensitive areas where vegetation is too dense to completely survey (locations marked on the plans and specifications) if necessary to enumerate or salvage sensitive plants that could not be accomplished prior to clearing due to density of vegetation. The monitors will work with construction management staff on this to minimize interruption of work. These specifications will be included in the construction contract.

Construction will follow fixed schedules to avoid disturbing habitats at crucial times. In cases where portions of the pipeline cannot be completed within the scheduled period, the supervising biologist will work with construction management staff to determine if construction in that location can be completed at that time without significant impact to vegetation or must be rescheduled.

Immediately following construction, fences and other barriers will be erected where appropriate to restrict access of mountain bikes, ORV's, and other recreational vehicles that may hamper revegetation efforts. These areas will be periodically monitored and damaged sections will be repaired promptly.

Within one month following construction, a survey will be conducted to determine actual acreages of each vegetation type disturbed.

Revegetation efforts will follow a strict schedule to maximize success. Specific plans will be formulated for each vegetation type and drainage or stream crossing. The specific plans will include relative densities of and numbers of individuals of each species. Actual methods and timing will be recorded in detail so that success of the methods can be analyzed and evaluated.

Revegetated areas will be monitored at least annually until project-specific performance criteria are met. Species present, diversity, density, and percent cover will be recorded, and photographs will be taken.

Other general mitigation measures that are aimed at preserving the natural recovery potential of the vegetation are:

- Erosion control (section 3 of Mitigation Program).

CALENDAR PAGE 274.174
MINUTE PAGE 1351

- Topsoil preservation (section 3 of Mitigation Program) including special provisions for some rare plant species (section 4 of the Biological Mitigati Plan).

- Salvage of some plants.

- Preservation of burls, root crowns, and root systems of sprouting species.

- Stockpiling removed vegetation, mulching, and spreading over restored ROW.

Restoration of native vegetation at disturbed sites will be guided by the following principles:

- Restore site, to the degree feasible, to original contours and topographical conditions with modifications as necessary to prevent erosion and where a gently graded bench is necessary for access along the pipeline in sloped areas.

- Use locally collected materials for restoring native vegetation types. Geographical limits for seed, bulb, young plant, and cutting collection will be specified in the site specific restoration plans. The objective of this is to revegetate disturbed areas with specimens taken from local populations t preserve genetic compatibility and to avoid introduction of pests and diseases.

- Maintenance activities will be specified in the site specific restoration plans and will be carried out until restoration criteria have been met.

Technical manuals will be prepared prior to commencement of construction to provide procedures on propagation and maintenance of each vegetation type. The manuals will be based on existing literature and expertise of professionals. Where adequate information concerning a vegetation type is not available, the manual will suggest techniques to experimentally gain the information, with backup provisions in case the experiment(s) does not prove successful.

The technical manual will follow the following format:

- Plant community

- Location(s) and area disturbed

- Seeds to be planted (i.e., species composition)

- Methods of seed planting (e.g., soil preparation, depth, mulch)
- Other types of propagation to be undertaken (cuttings, bulbs).
- Special requirements of plantings (e.g., shade, fertilizer, fire).
- Maintenance schedule.
- Weed controlmethods, and timing.
- Monitoring methods and timing.
- Remedial action proposal.
- Criteria for determining restoration.
- Other considerations.

The following sections describe the plant communities affected and give specific mitigation measures.

5.2.1 Nonnative Grasslands

Nonnative grasslands are characterized by annuals such as wild oats (*Avena fatua*), ripgut brome (*Bromus diandrus*), soft cheat (*B. hordeaceus*), wall barley (*Hordeum murinum*), and rattail fescue (*Vulpiamyuros*), as well as native perennial and annual forbs such as lupine (*Lupinus* spp.), rancher's fireweed (*Amsinkia menzeisii* var. *intermedia*), and purple owl's clover (*Castilleja exserta*) About 164 acres of lands classified as grasslands would be affected by the project. Nonnative grasslands removed during ROW clearing will be restored within the construction ROW as will grassland disturbed at the staging areas. In addition, other vegetation types in the area permanently cleared of brush and trees above the pipeline may be restored to grassland. The loss of nonnative grasslands at permanent facilities will be the only permanent loss of this vegetation type and is not considered significant in relationship to the amount of nonnative grasslands present in the region. Therefore, replacement is not proposed. Vegetation type specific mitigation measures that will be used to restore affected nonnative grasslands will include:

- Topsoil salvage and replacement (see section 3.2.4 of Mitigation Program). The topsoil shall be removed and stored separate from subsoils. In most areas, the

CALENDAR PAGE 274.1746
MINUTE PAGE 1353

entire topsoil layer will be stored separately from subsoils, replaced in the reverse order, and revegetated by seeding as described below. At a few specific locations where native species (e.g., wildflowers; see section 5.2.8) are abundant (based on preconstruction field surveys), revegetation by seeding may not be cost effective, and the topsoil averages more than 18 inches thick, the top 2 to 4 inches of soil, which contains most of the seed, will be removed first. These specific areas will be identified on the drawings and specifications. Then the remainder of the topsoil (A horizon) will be removed and stored. The bottom layer of soil will be removed as necessary for pipeline placement. Soils will be replaced such that the original layering is restored.

- Revegetation. Seed of the nonnative species will generally be from commercially available sources and do not need to be collected at the site, but seed of the native species must be collected as close to the site as feasible to maintain the genetic integrity of the populations in the area. Species and quantities of these seed mixes will be determined for discrete sections along the corridor so that they mimic as closely as feasible the natural conditions.

- Weed Control. Seeded areas will be monitored during the first growing season after planting, and active weed control (if found to be necessary) will be conducted in areas where the surrounding grassland is not dominated by weeds until the grassland becomes reestablished. Hand spraying with an environmentally safe herbicide, cutting, or pulling noxious weeds such as bull thistle, veldt grass, and black mustard will be undertaken to control their growth. Although pulling or cutting is preferred, it may not be practical in all instances. If herbicides are used, a biologist must be present at all times during herbicide spraying to supervise their application and identify individual plants to be sprayed. Weeds must be removed at least once a year. Weeding will be conducted when the plants are large and visible but not flowering (to avoid seed set), the timing of which will vary from year to year depending on weather conditions and must be determined for each species. Surveys of specific areas with potential weed problems, such as in sandy soils where veldt grass could invade, will be done as necessary (estimated at two to three times) during the growing season to determine timing for weed eradication. It is particularly important that these schedules are followed. Deviation from them could result in seed set of the weeds and greatly lengthen the time required for weed removal efforts.

CALENDAR PAGE 274.1
MINUTE PAGE 1354

- Monitoring. The grasslands will be monitored at least annually, preferably in the spring prior to weed removal. This effort will focus in areas containing native grasses, dense wildflower assemblages, and high weed invasion potential. This will include comparison of nearby sites outside the construction ROW. When the revegetation criteria are met, the area will be considered revegetated.

5.2.2 Chaparral

Chaparral affected by the proposed state water pipelines in Santa Barbara County is primarily a subgroup of central maritime chaparral known as Burton Mesa chaparral. It is characterized by the endemic sand mesa (shagbark) manzanita (*Arctostaphylos rudis*) and Purisima manzanita (*A. purissima*), varieties of coast and Santa Barbara ceanothus (*Ceanothus ramulosus* var. *fascicularis* and *C. impressus* var. *impressus*), chamise (*Adenostoma fasciculatum*), black sage (*Salvia mellifera*), poison oak (*Toxicodendron diversilobum*), and a multi-stemmed shrubby form of coast live oak (*Quercus agrifolia*). A number of other endemic or rare taxa are present as well. A maximum of 45.5 acres of Burton Mesa chaparral (with a 120-foot-wide construction corridor except along Burton Mesa Boulevard) would be affected by the project. Included are 12.8 acres within the pipeline corridor and at Tank 5 for the Coastal Branch. This will be reduced through corridor narrowing where feasible. A small amount of northern mixed chaparral occurs at mile 17 and approximately 2.5 acres would be affected. A very small area (less than 1 acre) of mixed chaparral and oak woodland would be crossed near the terminus at Lake Cachuma. Approximately 15 acres would be permanently lost. Specific mitigation measures that will be used to restore affected central maritime and northern mixed chaparral will include:

- Narrow construction corridor to 50 feet wide where feasible (to be designated on the drawings and specifications) and maintain clear zone within permanent easement of 20 feet or less.

- Monetary incentives will be given to the contractors to minimize impacts to chaparral.

- Construction contract specifications will require that the ROW be cleared by cutting the chaparral at ground level prior to trench excavation to provide for vegetative reproduction.

- Straw (wheat or barley) mulch, or other appropriate materials (e.g., soil padding or construction fencing), will be spread over the section of the ROW to be used as spoils storage and equipment access to mark the existing ground surface.

CALENDAR PAGE 274.178
MINUTE PAGE 1355

Excavated spoils will be spread over areas where equipment will be driven to protect root systems.

- The top 2 to 4 inches of soil (where present) shall be removed and stored separately from the rest of the excavated materials, and replaced over the fill where shown on the drawings and specifications.

- Seeds and cuttings will be collected within and adjacent to the ROW, and young plants will be collected from within the ROW where ground level cutting is not feasible or unlikely to be successful. Actual weight of seed required will be calculated based on predisturbance densities and probable gemination and establishment ratios. Prior to pipeline construction, gemination ratios will be determined experimentally. It is likely that seeds of the chaparral will require some heat treatment such as boiling to enhance germination. If these methods prove unsuccessful, alternative measures such as growing individuals from cuttings will be necessary.

- Vegetation removed from the ROW will be saved and, after site restoration, spread over the ROW. The material may be burned (under a permit from the County Fire Prevention Agency and PEPM supervision) to enhance seedbank germination.

- The ROW will be monitored for a minimum of 5 years to document revegetation success relative to restoration criteria set prior to construction and to identify problems and implement remedial actions as necessary.

- Active weed control to prevent dominance by perennial, invasive weedy species (e.g., pampas grass, *Cortaderia atacamensis*; hottentot fig, *Carpobrotus edulis*; narrow-leaved iceplant, *Conicosia pugioniformis*; and veldt grass, *Ehrharta calycina*) will be practiced until chaparral becomes established. This will be done at least annually for each species. It will be scheduled after the beginning of the growing season but prior to flowering to control establishment of more weeds.

Purchase of disturbed lands near the project site for preservation and ecological enhancement of Burton Mesa chaparral may not be feasible for replacement of permanent loss (15 acres), such as at Tank 5 and in the clear zone over the pipeline to be free of large trees. An option is to restore or enhance degraded areas within the Unocal Preserve, either directly or through contribution of funds to Santa Barbara County for restoration work in this preserve. Any funds

CALENDAR PAGE 274.179
MINUTE PAGE 1356

given to the County will include stipulations that the monies are to be used only for habitat restoration work and that the County will provide CCWA with documentation of how the funds are used along with the results of the restoration work. Eradication of pampas grass upwind of the ROW is also being considered as partial mitigation for long-term impacts.

5.2.3 Coastal Sage Scrub

Two types of coastal sage scrub are found in the project area. They differ primarily in density of shrub cover and species composition. The Venturan coastal sage scrub community is generally dominated by coastal sagebrush (*Artemisia californica*) and coyote bush (*Baccharis pilularis*). A variety of other species are frequently present, and some of these may be dominant at specific locations (e.g., black sage). In disturbed areas, a subtype of this community dominated by coyote bush occurs. On Vandenberg Air Force Base and around Vandenberg Village central coast scrub is present. Besides the species listed for Venturan coastal sage scrub, mock heather (*Ericameria ericoides*), poison oak, and buckthorn (*Rhamnus* spp.) are characteristically present. About 61 acres (including 3 acres of mixed scrub and grassland) would be affected. Specific mitigation measures are:

- The top soil (A horizon) salvage and replacement shall be as described in section 3.2.4 of the Mitigation Program. Specific requirements will be included in the drawings and specifications. In addition, the soil seed bank (top 2 to 4 inches) will be salvaged and replaced in specific areas shown on the drawings and specifications.

- Seeds will be collected prior to pipeline construction close to the site to be revegetated. Different species bloom and set seed at different times of the year, and this also varies from year to year. Seed collection efforts may have to be conducted over several months and will require field checks to determine the precise timing best for seed collection. Seed collection may not be feasible in some years due to low seed production. If this occurs, seed collection will be done the following year. Seed collection will begin one year prior to initiation of construction.

- For seed mixes, species and quantities will be determined based on densities of each species in each community and germination ratios. Germination ratios will be determined experimentally for each species. The seed mixes will then be applied at a specified time to limit predation of the seeds by rodents and birds.

CALENDAR PAGE 274.180
MINUTE PAGE 1357

- The revegetated areas will be monitored and weeds will be actively removed either by hand pulling or by hand spraying of herbicides known to be environmentally safe. Cutting or mowing may be appropriate in some areas. Schedules for weed removal must be determined for each species on a year by year basis. Each weed species will be removed a least once a year. The weeds must be removed before they flower to avoid seed set. Any herbicide spraying that is done will only be permitted under the supervision of a qualified biologist, who will direct which plants are to be sprayed and keep a log of the progress.

- Revegetated areas will be monitored on a yearly basis prior to weed removal but after weed appearance. Specific criteria for evaluating weed colonization will be developed and included in the revegetation plan. When those criteria are met, the weed control efforts shall be considered complete.

- Where patches of particularly invasive weeds occur adjacent to the corridor, it may necessary to kill or cut nearby weeds as well as the ones actually growing in the construction corridor. Otherwise, the nearby weeds may provide a seed source for the disturbance corridor.

5.2.4 Riparian Communities

5.2.4.1 Southern Cottonwood-Willow Riparian Forest

This community is dominated by cottonwood (*Populus* spp.) and willows (*Salix* spp.) with sycamore (*Platanus racemosa*) common in some areas. The understory may contain mulefat (*Baccharis salicifolia*), shrubby willows, and other species. About 2 acres would be affected at stream crossings, primarily at Zanja de Cota Creek. Specific mitigation measures to be used will be:

- Mature trees within exclusion zones will be flagged. Biological monitors shall be aware of the locations of such individuals and insure that they are not removed or damaged.

- Clear the ROW outside the trench excavation by cutting the willows and other shrubs at ground level while preserving live stumps or root crowns in place to provide for vegetative reproduction. (To be designated in the drawings and specifications and to be specified in construction contracts.) Efforts should be made where feasible to avoid driving machinery over these stumps. Monetary incentives will be given to the contractors to minimize impacts.

CALENDAR PAGE 274.181
MINUTE PAGE 1358

- Collect cuttings, young plants, and seed to replace trees and understory vegetation where cutting is not feasible or successful. Seed should be locally collected and stored in a cool place.

- Prior to construction, riparian areas to be impacted will be mapped at a scale of 1 inch = 100 feet and characterized as to species composition, tree sizes, and density. Physical characteristics of the stream bed and banks will also be recorded. Following backfilling these areas will be restored to previous physical conditions. This must be done within one month of backfilling. (To be specified in construction contracts.)

- Topsoil will be salvaged and replaced as described in the Mitigation Program.

- There will be a strict schedule for construction and revegetation of riparian areas. Deviation from these schedules will only be permitted with approval of PEPM. (To be specified in construction contracts.)

- Species removed in areas cleared beyond the permanent easement will be replanted.

- Monitor restored areas, perform active weed control, and implement remedial measures (as necessary) until vegetation becomes established and meets restoration criteria established from preconstruction data.

- Maintain vegetation clear zone within permanent easement of 20 feet or less.

Creation and management of similar habitats off site at an acre-per-acre (1:1) ratio to replace lost southern cottonwood-willow riparian forest ecological communities in the permanent easement may be necessary (see section 7).

5.2.4.2 Southern Willow Scrub

This scrub is composed of willow thickets (*Salix* spp.) or sometimes mulefat thickets. About 2 acres would be affected at stream crossings with most along the tributary to San Antonio Creek. Specific mitigation measures are the same as for southern cottonwood-willow riparian forest.

Creation and management of similar habitats off site at an acre-per-acre (1:1) ratio to replace lost southern willow scrub ecological communities will be necessary if the scrub is kept cleared in the permanent easement (see section 7).

CALENDAR PAGE 274.182
MINUTE PAGE 1359

5.2.4.3 Central Coast Live Oak Riparian Forest

Coast live oak dominates this forest type with a grassy understory that includes coyote bush, mugwort (*Artemisia douglasiana*), creeping snowberry (*Symphoricarpos mollis*), and poison oak. About 1 acre would be affected at unnamed AZ and Zanja de Cota Creek. Specific mitigation measures will be the same as for southern cottonwood-willow riparian forest. Individual oak trees lost, however, will be replaced at a ratio to result in establishment of 5 saplings (after 5 years) for each one lost. Number of acorns to be collected and planted will be determined.

Creation and management of similar habitats off site at an acre-per-acre (1:1) ratio to replace lost central coast live oak riparian forest ecological communities in the permanent easement will be necessary (see section 7).

5.2.5 Marsh

This plant community is a permanently flooded, freshwater site, dominated by perennial monocots. In addition, seasonal marshes having soils that are saturated for at least part of the year and supporting perennial and annual wetland plants are present at several of the drainages. Several small marshes occur in swales at mile 0.5, 1.3, and Zanja de Cota Creek and between 5.2 and 5.7, and 15.7 and 17.0. Less than 1 acre would be affected.

Specific mitigation measures to be used include:

- Wetland soils will be removed in 18 inch deep "lifts" and stored intact at the locations indicated on the drawings and specifications. The soil will be kept moist. Following construction, the area will be recontoured and the hydrology will be restored. Then the lifts of wetland soil will be replaced in reverse order of removal. These areas will not be reseeded to maintain present species assemblages, but will be monitored for weeds.

- If natural vegetation does not survive, seed and plugs of wetland plants will be collected from the local area and planted at the site. Mitigation will not be complete until the wetland vegetation is restored.

- The construction corridor will be narrowed to the extent feasible (50 feet minimum) through this community. Monetary incentives will be given to the contractors to minimize impacts to this habitat.

CALENDAR PAGE 274.183
MINUTE PAGE 1360

- Restored sites will be monitored for weeds annually. All weeds will be removed by hand, although spraying with herbicides known to be environmentally safe in this habitat may be permitted for heavy weed infestation upon approval of and under the direction of a biologist. The site will be considered restored when the diversity, cover, and species composition is approximately equal to preconstruction conditions, and weedy vegetation does not occur at higher levels than it does at nearby wetlands that are not disturbed.

5.2.6 Oak Woodlands

5.2.6.1 Coast Live Oak Woodland

This community is dominated by coast live oak. Associated species include annual grasses, toyon (*Heteromeles arbutifolia*) and poison oak. About 25 acres would be affected. Specific mitigation measures will include:

- Where feasible, flag an exclusion zone 6 feet beyond the canopy dripline of individual mature trees not scheduled for removal. Vehicular access and disturbance of topsoil will be prohibited within this zone. Where an exclusion zone of this size is not feasible, damage to the tree shall be minimized through pruning limbs and sealing of cut surfaces, including roots under direction of the environmental monitors.

- Remove, store, and replace topsoil as described in the Mitigation Program.

- Seal all roots over 1 inch in diameter after cleanly cutting on day of cutting.

- Collect acorns along the corridor for direct planting and for growing oak seedlings in a nursery to replace trees lost. The density of oak trees will be increased within areas sparsely populated by oaks near the construction ROW, and trees will be replanted in the construction easement and in a portion of the permanent easement (excluding the area directly over the pipeline). The planting ratio will depend on the methods used, but a minimum of 5 saplings established after 5 years will be obtained for each tree lost during construction.

- In revegetated areas, plant understory species specific to each area cleared as specified in the technical manuals.

CALENDAR PAGE 274.184
MINUTE PAGE 1361

- Monitor revegetated areas and implement remedial actions (as necessary) until woodland becomes established at levels specified in restoration criteria.

- Trees cut inside the construction corridor shall be left intact at the edge of the construction corridor as dead fall after cutting, except where this would create a fire hazard, or mulched for use in root protection and revegetation. Cut trees shall not be placed in a pile but left individually. The stumps of trees outside the permanent corridor shall not be killed with herbicides but allowed to sprout and grow.

Creation and maintenance of this habitat off site (outside the permanent easement) at an acre-per-acre (1:1) ratio may be necessary to replace losses within the permanent easement (see section 7).

5.2.6.2 Valley Oak Woodland

Valley oak (*Quercus lobata*) dominates this open woodland. About 1 acre would be affected. Specific mitigation measures will be as described for coast live oak woodland.

5.2.7 Forests

5.2.7.1 Coast Live Oak Forest

This closed-canopy forest is dominated by coast live oak. About 3 acres will be affected. Specific mitigation measures will be as described for coast live oak woodland.

5.2.7.2 Introduced Forest

Stands of introduced tree species, particularly gum (*Eucalyptus* spp.) have been planted as windbreaks and for landscaping. Approximately 2 acres would be removed. This loss is not a significant impact, and no mitigation is recommended.

5.2.8 Special Vegetation Types

Native bunchgrass habitats and areas of significant wildflower displays will be included in this mitigation plan because of the uniqueness of these resources.

CALENDAR PAGE 274.185
MINUTE PAGE 1362

5.2.8.1 Native Bunchgrass

Native grasslands are generally dominated by *Stipa* spp. (needlegrass), although bentgrass (*Agrostis hooveri*) is also locally common in Burton Mesa chaparral areas. This vegetation type, because of its scarcity, is listed by the CNPS as a sensitive habitat; it is also considered an Environmentally Sensitive Habitat by Santa Barbara County. Several significant stands of native perennial bunchgrass were noted during field surveys,particularly on Vandenberg AFB and along Highway 246 in the vicinity of La Purisima Golf Course.

Mitigation measures that will be enacted at these sites are:

- Collect bunchgrass plugs from the corridor prior to construction.
- Vegetate restored site with suitable locally collected seed mix; plant with bunchgrass plugs and irrigate as necessary.
- Monitor restored sites, conduct active weed control (including removal of nonnative grasses), and perform remedial actions (as necessary) until native grasses become established at preestablished density.

5.2.8.2 Wildflowers

Several sites of extraordinary wildflower displays were noted and mapped during spring surveys. While not considered biologically sensitive, mitigation for these sites will be revegetation of the restored site with a seed mix containing the flowering species that were originally present as can be obtained commercially or collected in the local project area.

5.2.9 Wetlands and Waters of the United States

The project will impact wetlands and water bodies that are within the jurisdiction of the U.S. Army Corps of Engineers (USACE). Nationwide permit verifications for utility line backfill and bedding, bank stabilization, and minor discharges into waters of the United States appear applicable for the crossings proposed. Obtaining nationwide permit verifications may require actions that would minimize adverse effects of discharges of fill material to biological resources such as:

- Appropriate erosion and siltation controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fill must be permanently stabilized at the earliest practicable time.

CALENDAR PAGE 274.18
MINUTE PAGE 1363

- No activity may substantially disrupt the movement of those species of aquatic life indigenous to the water body, including those species which normally migrate through the area.

- Heavy equipment working in wetlands (e.g., at Zanja de Cota Creek) must be placed on mats, or other measures must be taken to minimize soil disturbance.

- Discharges into breeding areas for migratory waterfowl shall be avoided.

- No activity is authorized which is likely to jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation as identified under the federal Endangered Species Act or which is likely to destroy or adversely modify the critical habitat of such species.

The mitigation measures presented in this plan meet the requirements of these conditions. Appendix B lists the wetlands and water bodies of the United States for which nationwide permit verifications from the USACE would be appropriate for project construction.

Streams are also under the jurisdiction of CDFG, and a Streambed Alteration Agreement will be required for all crossings to be trenched. Specific conditions to minimize impacts and for restoration after construction will be included in this agreement.

CALENDAR PAGE 274.187
MINUTE PAGE 1364

NO TEXT THIS PAGE

NO CALENDAR NUMBER THIS PAGE

CALENDAR PAGE
MINUTE PAGE 1365

6.0 AFFECTED SENSITIVE BIOLOGICAL RESOURCES BY FACILITY

6.1 INTRODUCTION

This section presents biological resources that may be significantly impacted and are found or potentially found within the construction ROW for the Mission Hills and Santa Ynez extensions (including stream crossings) and at each permanent pipeline-related facility, new access roads and powerlines, and temporary construction staging areas. Also included are two areas of Burton Mesa chaparral within the Coastal Branch (at Tank 5 and near Nipomo). Construction reaches corresponding to the segments for which construction contracts will be awarded have not been established at this time, so information is given for the entire route. Table 6-1 lists vegetation types and sensitive resources. By referring to the information presented in sections 4 and 5, a comprehensive mitigation plan for biological resources within each of the extensions results. The project maps (scale of 1 inch = 100 feet) will show the specific mitigation measures required along the ROW.

The list of sensitive wildlife and plant species in this section has been revised based on results of the 1993 preconstruction surveys. In addition, the status of several species has changed.

6.2 PIPELINE CORRIDOR

The Mission Hills/Santa Ynez Extension begins at the terminus of the Coastal Branch, Phase II at Tank 5 on Vandenberg AFB and extends approximately 42.5 miles to Lake Cachuma. Table 6-1 lists the vegetation types and sensitive resources for which significant environmental impacts could occur within the construction easement (nominally 100 to 120 feet wide) and the section of the report that discusses mitigation measures. Avoidance of impacts has been incorporated into the project design to the extent feasible.

Mitigation will focus on riparian/wetland habitats, oak woodlands, and Burton Mesa chaparral. These habitats include most of the sensitive plant and wildlife species such as (1) the state-listed willow flycatcher and seaside bird's beak, and (2) the red-legged frog and southwestern pond turtle that are category 1 candidates for federal listing. CESA consultation will be required for the state listed species, and a "take" permit may be necessary for the seaside bird's beak (if present in the corridor). ESA consultation may be necessary for the federally listed (endangered) bald eagle and unarmored threespine stickleback. Neither species would be affected by the project as currently designed and with implementation of the mitigation measures included in this plan.

CALENDAR PAGE 274.188
MINUTE PAGE 1366

Table 6-1

MISSION HILLS/SANTA YNEZ EXTENSION
SUMMARY OF VEGETATION IMPACTS AND LOCATIONS OF POTENTIAL IMPACTS TO SENSITIVE SPECIES

VEGETATION TYPE	REPORT SECTION	ACRES
Agricultural/Disturbed	NA	288
Grassland	5.2.1	164
Southern willow scrub	5.2.4.2	2
Marsh	5.2.5	1
Coast live oak forest	5.2.7.1	3
Coast live oak woodland	5.2.6.1	25
Chaparral	5.2.2	48
Venturan coastal sage scrub	5.2.3	41
Central coast scrub	5.2.3	20
Southern cottonwood-willow riparian forest	5.2.4.1	2
Central coast live oak riparian forest	5.2.4.3	1
Valley oak woodland	5.2.6.2	1
Introduced forest	5.2.7.2	2

SENSITIVE WILDLIFE (SECTION 4.2)	LOCATION (MILEPOST)
Long-eared owl	potential at 35.5, 25.2(A)
Tricolored blackbird	17.2
American badger	sign 2-3, 23.5; potential in many locations
Yellow warbler	2-3, 3.2, 25.5(A), 28.4, 35.5, 41.9
Southwestern willow flycatcher	potential at 3.2, 25.5(A)
Yellow-breasted chat	3.0, 3.2, 28.4, 35.5, 25.5(A)
California horned lizard	potential at 0-11
Southwestern pond turtle	3.2, 20.5, 42; potential at 17.2, 25.5(A), 35.5
California red-legged frog	potential at 3.2, 17.2, 20.5, 35.5
Unarmored threespine stickleback	3.2
California tiger salamander	20.5
Cooper's hawk	potential at 0-11, 20.4, 35.5, 25.5(A)
Bald eagle	42.5

SENSITIVE PLANTS (SECTION 4.3)	LOCATION (MILEPOST)
Shagbark manzanita	0-0.3, 5.6-5.7, 8.8-10.0
Seaside bird's beak	potential at 10.1-11.1
Hoover's bentgrass	10.1
Parry's delphinium	4.6; potential at 9.5-11.0
Black-flowered figwort	0.7; potential at 9.5-11.0
Purisima manzanita	0.0-0.3, 6.9-7.3, 7.6-8.6, 9.0-9.8, 10.1-11.0

Note:

A number of realignments have been made to reduce impacts, and these have been surveyed for sensitive species during the appropriate seasons in 1993. Alternative route locations are indicated by (A).

Chaparral includes 12.8 acres in the Coastal Branch; all but 2.5 acres is Burton Mesa chaparral.

Acres impacted are based on maps at 1:24,000 and the pipeline route as of May 1993. More accurate values will be available once the preconstruction survey data are entered into the computer at a scale of 1" = 100' and all segments of the pipeline are set.

CALENDAR PAGE 274.
MINUTE PAGE 1367

Vegetation along the ROW is dominated by agriculture and nonnative grassland. Scrub (Venturan coastal sage and central coast), chaparral, and oak woodlands are also importan components. Scrub and grassland communities provide habitat for sensitive species such as American badger, tricolored blackbird, and black-shouldered kite. Chaparral and scrub habitats with sandy soils support populations of the California horned lizard while wetlands provide habitat for southwestern pond turtles and the California tiger salamander. Measures to minimize the area disturbed and to restore vegetation to preconstruction conditions (as close as feasible) will be necessary throughout the pipeline corridor.

6.3 TEMPORARY CONSTRUCTION FACILITIES

Sixteen staging areas are planned for the pipeline.

- PICNIC GROUNDS (staging area number 1). An area of 300 feet by 580 feet at mile 0.8 would be used for staging in non-native grassland interspersed with coastal sage scrub. The California horned lizard could be present.

- SAN ANTONIO ROAD STAGING AREA (staging area number 2). This site (300 feet by 625 feet) is in an agricultural field at mile 3.3. No sensitive species are present.

- SANTA LUCIA CREEK STAGING AREA (staging area number 3). This site is 300 feet by 725 feet located at mile 6.5 in a mosaic of grassland and scrub adjacent to an agricultural field. No sensitive species are present.

- VANDENBERG VILLAGE STAGING AREA (staging area number 4). An area of about 300 feet by 600 feet will be used for staging. It is located in grassland, and the California horned lizard could be present.

- HARRIS GRADE ROAD STAGING AREA (staging area number 5). An area of 300 feet by 600 feet in grassland periodically disked for fire control at mile 11.5 will be used for staging. This is potential habitat for the American badger.

- HIGHWAY 246 #1 STAGING AREA (staging area number 6). This staging area is located at mile 14.6. An area of 300 feet by 800 feet in an agricultural field will be used. No sensitive species are present.

CALENDAR PAGE 274.199
MINUTE PAGE 1368

- HAPGOOD ROAD STAGING AREA (staging area number 7). At mile 18.7, an area that is approximately 375 feet by 450 feet (nearly triangular) will be used for staging. This is in an agricultural field with no sensitive species present.

- DRUM CANYON ROAD STAGING AREA (staging area number 8). An area of 300 feet by 600 feet at mile 22.2 will provide space for staging equipment and supplies. The site is in an agricultural field, and no sensitive species are present.

- TANK 7 STAGING AREA (staging area number 9). A staging area of 400 feet by 400 feet will be needed for Tank 7 construction. It is located in grassland at mile 23.6. This area is potential habitat for American badgers.

- SANTA YNEZ RIVER (staging area number 10). This staging area of approximately 300 feet by 600 feet is associated with the alternative route. It will be located in agricultural fields adjacent to the Santa Ynez River (one or both sides of the river). No sensitive species are expected in this area.

- BUELLTON TURNOUT STAGING AREA (staging area number 11). The Buellton turnout is located at mile 27.1 in an agricultural field with no sensitive species present. The staging area is 300 feet by 500 feet. It will not be needed if the alternative route is selected.

- BUELLTON BRIDGE STAGING AREA (staging area number 12). The western river crossing has been placed on Avenue of the Flags bridge, and the associated staging area (200 feet by 870 feet) is located on the south side of the river at mile 28.9; it will be in an agricultural field with no sensitive species present. If the alternative route is selected, this staging area will be moved to an agricultural field along Santa Rosa Road.

- GRANITE PROPERTY STAGING AREA (staging area number 13). This triangular staging area (3.2 acres) is located in a fallow field (weedy grassland) at mile 29.7. No sensitive species are present.

- ALISAL BRDIGE STAGING AREA (staging area number 14). This staging area will also serve the Solvang turnout. It is located at mile 32.5 in an area of maintained grassland. The dimensions are 200 feet by 1,000 feet. No sensitive species are present.

CALENDAR PAGE 274
MINUTE PAGE 1369

- REFUGIO ROAD STAGING AREA (staging area number 15). Located in an agricultural field at mile 34.6, this staging area is 300 feet by 600 feet.

- ID#1 STAGING AREA (staging area number 16). This staging area of 300 feet by 600 feet is at mile 37.5 in grassland that is potential habitat for the American badger.

- CACHUMA DISCHARGE STAGING AREA (staging area number 17). The specific size and shape of these two staging areas at mile 42 and 42.3 have not been determined at this time. Approximately 4 acres is necessary. It would be in grassland, scrub, and disturbed habitats, possibly with some oak and sycamore trees that would not be disturbed. No sensitive species are expected.

In addition, a staging area of 2.4 acres will be associated with the Tank 5 site at the terminus of the Coastal Branch. This site is in Burton Mesa chaparral and contains potential habitat for the California horned lizard, American badger, and several sensitive plant species.

6.4 PERMANENT FACILITIES

The project contains the following permanent project facilities:

- TANK 5 AND ACCESS ROAD. This site of 400 feet by 600 feet (5.5 acres) is located in Burton Mesa chaparral. It is potential habitat for the California horned lizard, American badger, and several sensitive plant species (e.g., sand mesa manzanita and Purisima manzanita).

- VANDENBERG AFB TURNOUT. The turnout, at mile 4.0, would require clearing 0.01 acre of weedy grassland and possibly shrubs. The California horned lizard could be present.

- TANK 7 AND ACCESS ROAD. The tank site (2.5 acres) would be located in grassland at mile 23.5. A short access road (about 1,000 feet long) will be through grassland. This is potential habitat for the American badger.

- BUELLTON TURNOUT. The Buellton turnout is in an agricultural field adjacent to State Route 246 at mile 27.3. If the alternative route is selected, the turnout will be located at Santa Rosa Road south of the Avenue of the Flags bridge. The area affected will be 0.01 acre. No sensitive species are present.

CALENDAR PAGE 274.192
MINUTE PAGE 1370

- SOLVANG TURNOUT. The turnout for Solvang is located on the west side of Alisal Road at mile 32.4. About 0.01 acre of disturbed habitat would be affected with no sensitive species present.

- SANTA YNEZ TURNOUT. The Santa Ynez turnout (0.01 acre) is located in grassland at mile 34.2 in potential American badger habitat.

- SANTA YNEZ PUMPING PLANT, DECHLORAMINATION STATION, AND MAINTENANCE FACILITY. About 6.2 acres of agriculture at mile 34.7 would be used for these facilities. Alternative sites in grassland are also being considered. This was in potential American badger habitat prior to cultivation in 1993.

- TERMINUS. The Santa Ynez Extension will end in Lake Cachuma near the south abutment of Bradbury Dam. The terminus will be a diffuser located in the lake at a depth of about 100 feet below the maximum pool elevation. Bald eagles and several special concern bird species use the lake surface, but none are expected to be present where the terminus is to be constructed. Alternatively, the water may be discharged from the existing tunnel through Bradbury Dam.

6.5 STREAM CROSSINGS AND WETLANDS

The pipeline route crosses one perennial stream, San Antonio Creek, and numerous intermittent or ephemeral drainages including the Santa Ynez River. These habitats are characterized in Table 6-2 along with the sensitive species that may be present. The Campbell Road vernal pools and several ponds are located adjacent to the ROW, and several support sensitive species that could be affected indirectly. These are included in Table 6-2 as well.

CALENDAR PAGE 274. 193
MINUTE PAGE 1371

Table 6-2
STREAMS AND WETLANDS IN THE MISSION HILLS/SANTA YNEZ EXTENSION
(page 1 of 4)

Site	Habitat	Description	Sensitive Species
35	Unnamed ST (mi. 0.8, 1.6, 3.1)	Ephemeral tributary to San Antonio Creek; willow riparian zone sparse at crossings.	Yellow warbler and yellow-breasted chat between miles 2 and 3.
1	San Antonio Creek (mi. 3.2)	Perennial flow; willow scrub riparian zone; wetland along stream margin.	Yellow warbler, yellow-breasted chat, southwestern pond turtle, and unarmored threespine stickleback; potential habitat for southwestern willow flycatcher and red-legged frog.
36	Santa Lucia Creek (mi. 6.4)	Ephemeral flow; coastal sage adjacent; no wetlands.	None expected.
2	Unnamed A2 (mi. 9.1)	Ephemeral; oak woodland.	None expected.
3	Unnamed A (mi 10.1)	Intermittent flow; riparian willow woodland above and below pipeline corridor; scrub at crossing.	Seaside bird's beak potentially on adjacent uplands; black-flowered figwort possible.
4	Purisima Creek (mi 13.0)	Ephemeral; channelized	None expected.
5	Cebada Creek	No longer crossed.	
6	Unnamed B (mi 15.1)	Ephemeral; channelized	None expected.
7	Unnamed C2 (mi 15.5)	Ephemeral; no riparian vegetation	None expected.
8	Unnamed D2 (mi. 15.8)	Ephemeral; no riparian vegetation	None expected.
9	Unnamed D (mi 16.0)	Ephemeral; no riparian vegetation	None expected.
10	Unnamed PGC (mi. 16.3)	Ephemeral; no riparian vegetation	None expected.

CALENDAR PAGE 274.194
MINUTE PAGE 1372

Table 6-2
STREAMS AND WETLANDS IN THE MISSION HILLS/SANTA YNEZ EXTENSION
(page 2 of 4)

Site	*Habitat*	*Description*	*Sensitive Species*
11	Silt basin & pond (mi. 17.2)	Basin dries in summer; pond perennial; willows at basin, freshwater marsh around pond.	Tricolored blackbird.
12	Unnamed E (mi 17.6)	Ephemeral; channelized	None expected.
13	Unnamed F2 (mi. 18.3)	Ephemeral; sparse riparian scrub	None expected.
14	Unnamed F (mi 19.1)	Ephemeral; channelized with narrow riparian scrub	None expected.
39	Campbell vernal pools (mi 20.5)	Ephemeral; excavated (adjacent to corridor)	California tiger salamander (breeding); southwestern pond turtle; red-legged frog (potential).
15	Santa Rosa Creek (mi 22.3)	Ephemeral; sparse riparian vegetation	None expected.
16	Unnamed H (mi 23.4)	Ephemeral; sparse oak riparian.	None expected.
17	Unnamed PB4 (mi 23.7)	Ephemeral; little or no riparian scrub	None expected.
18	Unnamed PB2 (mi 23.9)	Ephemeral; some oak woodland	None expected.
19	Unnamed PB1 (mi 25.5)	Ephemeral; no riparian vegetation	None expected.
20	Cañada de la Laguna (mi 26.4)	Ephemeral; sparse oak/riparian woodland	None expected.
21	Unnamed I (mi 26.9)	Ephemeral; sparse oak woodland	None expected.
23	Zaca Creek (mi. 28.2)	Ephemeral; channelized with sparse riparian scrub.	None expected.

CALENDAR PAGE
274.195
MINUTE PAGE
1373

Table 6-2
STREAMS AND WETLANDS IN THE MISSION HILLS/SANTA YNEZ EXTENSION
(page 3 of 4)

Site	*Habitat*	*Description*	*Sensitive Species*
22	Santa Ynez River (mi 28.9)	Intermittent; riparian and willow scrub sparse adjacent to bridge.	Yellow warbler and yellow-breasted chat.
24	Nojoqui Creek (mi 29.3)	Intermittent; disturbed with sparse riparian scrub	None expected.
25	Unnamed J (mi 31.4)	Ephemeral; sparse oak woodland	None expected.
26	Santa Ynez River (mi 32.4)	Intermittent; sparse riparian scrub	None expected.
27	Alamo Pintado Creek (mi 33.2)	Intermittent; cottonwood-willow riparian forest	None expected.
37	Unnamed K2 (mi. 33.6)	Ephemeral; no riparian vegetation.	None expected.
28	Unnamed K (mi 34.2)	Intermittent; sparse riparian scrub; freshwater marsh	None expected.
29	Unnamed L (mi 34.9)	Ephemeral; disturbed, sparse oak woodland	None expected.
30	Zanja de Cota (mi 35.5)	Perennial pond; edge of well-developed willow/box elder riparian forest; wetland along banks	Yellow warbler and yellow-breasted chat; potential red-legged frog, southwestern pond turtle, Cooper's hawk, long-eared owl habitat.
31	Unnamed M (mi 36.2)	No longer crossed.	
32	Unnamed N (mi 36.2)	Intermittent; valley oak savanna; seasonal wetland in channel.	None expected.
38	Hilton Creek (mi 42)	Ephemeral; oak woodland on banks (may be avoided).	None expected.

CALENDAR PAGE 274
MINUTE PAGE 1374

Table 6-2
STREAMS AND WETLANDS IN THE MISSION HILLS/SANTA YNEZ EXTENSION
(page 4 of 4)

Site	Habitat	Description	Sensitive Species
	Lake Cachuma (mi 42.5)	Impoundment; riprap shore with sparse riparian scrub.	Bald eagles forage over lake; southwestern pond turtle.
Alternative route bypasses 19-22 but adds:			
40	Santa Ynez River (mi 25.5)	Intermittent.	Yellow warbler and yellow-breasted chat; potential southwestern willow flycatcher, southwestern pond turtle, California red-legged frog.
41	Three to four unnamed streams	Ephemeral (survey to be conducted July 1993).	None expected.

Sources: BioSystems 1991; Hendrickson 1992; aerial photographs; field observations.

CALENDAR PAGE 274.197
MINUTE PAGE 1375

7.0 ACQUISITION OF REPLACEMENT LANDS

7.1 INTRODUCTION

Several ecologically important plant communities will be adversely affected by construction of the Mission Hills Extension and Santa Ynez Extension, and not all of these impacts can be fully mitigated through on-site restoration. Off-site replacement through preservation or enhancement of disturbed sites will be necessary to compensate for losses of sensitive vegetation from:

- permanent facility sites;
- areas kept clear for pipeline inspection and facility maintenance

The acreages necessary will be determined through consultations with regulatory and resource management agencies.

The following sections present the proposed methods to:

1. Determine the amounts of various vegetation types to acquire.
2. Propose the method for selecting appropriate replacement lands.
3. Describe the management plans to obtain the desired resource values.
4. Provide for CDFG and other appropriate agency review in the establishment and management of replacement lands.

7.2 DETERMINATION OF HABITAT ACREAGES TO ACQUIRE

Acreages of various sensitive vegetation types permanently lost can only be estimated at this time based on figures derived from planimetric analysis of project maps and assumptions concerning how much of each type could be restored on site. The actual amount of vegetation that will be permanently lost depends on several factors such as mitigation measures to narrow the ROW and avoid sensitive resources, success in corridor restoration, and the amount of cleared area required above the pipeline for inspection and maintenance considerations. Therefore, the acreages of each vegetation type to be replaced will be based on preconstruction and postconstruction surveys that will measure the actual acreages of impacted vegetation types.

CALENDAR PAGE 274.198
MINUTE PAGE 1376

For planning purposes, planimetry of vegetation maps for the Mission Hills/Santa Ynez Extension has been used to estimate the amount of each sensitive vegetation type that could require off-site mitigation through a replacement program (see Table 7-1).

As noted in section 4, acquisition of lands to replace nonnative grasslands is not proposed as all temporarily impacted areas of grasslands, including the permanently cleared area above the pipeline, will be seeded with grasses and the amount of area of grassland permanently lost at facility sites is not significant considering the large amount of grassland in the project area. For Burton Mesa chaparral losses, restoration of degraded areas within the Unocal Preserve is being planned. Eradication of pampas grass from upwind areas is also being evaluated for partial mitigation of long-term impacts.

Approximately 20 acres may need to be replaced off site at a ratio of 1:1, assuming that restoration of most of the construction easement (120 feet wide) is feasible and that only a 20-foot wide clear zone will be maintained free of large trees. This estimate also does not take into consideration any additional tree planting within the permanent ROW. The amount of off-site replacement will depend on the actual loss, amount restored on site, and mitigation ratio required.

After preconstruction surveys and drawings and specifications have been completed, CCWA will prepare a Replacement Lands Report that will propose the amount of land to be purchased, by vegetation type, based on acreages of vegetation types permanently removed by project construction. The report will identify where the ROW will be narrowed or where the contractors will be given incentives to avoid sensitive vegetation and how much of the ROW will be restored after construction is completed. Acreages of land to be purchased to compensate for loss of threatened or endangered species habitat will be determined through consultation with appropriate regulatory agencies. Revisions to the report will be made if necessary after post-construction surveys are completed. The Relacement Lands Report will contain Notification of Proposed Aquisition Forms.

CDFG, USFWS, and other agencies with regulatory authority will review the Replacement Lands Report to determine if it meets the requirements of any agreements that may be entered into pursuant to this mitigation plan. After determining that the above requirements have been met, CCWA shall purchase the lands, or in the case of restoration, shall enter into a binding contract to ensure the long-term protection of the restored or enhanced habitat.

7.3 PROPOSED METHOD FOR SELECTION OF REPLACEMENT LANDS

Replacement lands will be acquired with the following criteria as guidance:

CALENDAR PAGE 274. 599
MINUTE PAGE 1377

Table 7-1

ESTIMATED VEGETATION LOSSES (ACRES) AT PERMANENT FACILITY SITES AND IN THE PIPELINE PERMANENT ROW

Vegetation Type	*Facility Sites*	*ROW*[1]	*Total Permanent Loss*	*Off-Site Replacement*[2]
Burton Mesa chaparral[3]	8	6.6	14.6	14.6
Coast live oak forest	0	0.5	0.5	0.5
Coast live oak woodland	0	4.2	4.2	4.2
Valley oak woodland	0	0.2	0.2	0.2
Southern cottonwood-willow riparian forest	0	0.3	0.3	0.3
Central coast live oak riparian forest	0	0.2	0.2	0.2
TOTAL	8	12.0	20.0	20.0

Notes:
1. Assumed 20-foot wide clear zone within permanent ROW.
2. Replacement ratio is 1:1.
3. Facility sites includes Tank 5 in the Coastal Branch. The ROW includes 5 acres within the Coastal Branch (3 acres near Tank 5 and 2 acres near Nipomo).

CALENDAR PAGE 274.200
MINUTE PAGE 1378

- Suitability to provide the vegetative and habitat values that are to be replaced. Lands that can be restored and have had desired vegetative types removed or degraded by past activities that can be restored will be given preference over lands that would require vegetation type conversion or lands currently in the vegetation type desired. The rationale is to acquire lands that will yield the greatest mitigation value in terms of successfully replacing or restoring a vegetative type or habitat.

- Size and location of the lands. Additions to existing preserves or public land holdings will be given high consideration, as will lands that enlarge existing sensitive habitats and increase their habitat value. Lands located near the impacted lands that are to be replaced will also be a factor strongly considered.

- Price and availability of the lands will be an important factor considered.

7.4 MANAGEMENT PLANS

After purchase of the replacement lands or arrangement with the public entity administering public lands where replacement is proposed, CCWA will prepare management plans for each replacement situs that does not already have an adequate management plan. The management plans will contain:

- A description of the methods to establish the vegetation types on that situs.

- The short- and long-term maintenance requirements of the vegetation.

- A schedule for establishment and maintenance of vegetation types.

- Criteria to determine success of the management plans.

- Remedial actions to be taken if success criteria are not met.

Other considerations that do not conflict with the primary objective of providing replacement for project impacts, such as use of the lands for recreational or educational purposes, may be included in the management plans.

The management plans will be prepared in consultation with the CDFG, USFWS, and other agencies with regulatory authority, as appropriate.

CALENDAR PAGE 274.201
MINUTE PAGE 1379

7.5 CDFG, USFWS, AND OTHER AGENCY REVIEW

As appropriate, CDFG, USFWS, and other agencies with regulatory authority will review the following documents:

- Replacement Lands Report.
- Notification of Proposed Aquisition forms.
- Habitat Management Plans.

The exact role that CDFG will play in approval of any replacement plan activities shall be specified in the Management Agreement. Additional CDFG involvement in the replacement plan will be through the CESA processes.

7.6 SCHEDULE FOR REPLACEMENT PLAN

The schedule for enactment of the replacement plan is dependent on the final design, preconstruction biological surveys, and the construction schedule and, therefore, is presented in periods after construction contracts have been awarded. The reports or activities listed below may occur sooner than the given schedule.

The proposed schedule is:

Event	*Months after Construction Contracts Awarded*
Replacement Lands Report	6
Purchase of Lands [1]	18
Management Plans	24
Enactment of Management Plans	ongoing

Note: 1. Or contract with County and state regarding Burton Mesa Preserve.

7.7 FINAL DISPOSITION OF THE LANDS PURCHASED BY CCWA

Where purchase of replacement lands occurs, CCWA has not yet determined the long-term disposition of the lands. Currently, CCWA has two options. The first option is to maintain ownership and manage the land as a natural preserve and component of the Mission Hills and Santa Ynez extension projects. The second option is to work out an agreement with a third party (CDFG, Santa Barbara County, or The Nature Conservancy, for example) to manage the area.

In the Management Plan for such lands, CCWA will specify how and by whom the lands will be managed.

CALENDAR PAGE 274.202
MINUTE PAGE 1380

8.0 REFERENCES

BioSystems Analysis, Inc. 1990. Sensitive Fish and Wildlife Resources along the Proposed Lompoc Pipeline. Prepared for California Department of Water Resources. Santa Cruz, California.

_____. 1991a. Sensitive Fish and Wildlife Resources along the Proposed Coastal Aqueduct and Santa Barbara Extension. Prepared for the California Department of Water Resources. Santa Cruz, California.

_____. 1991b. Biological Mitigation and Compensation Plan for Wildlife. Prepared for the California Department of Water Resources. Santa Cruz, California.

California Department of Fish and Game (CDFG), Natural Heritage Division. 1990. Endangered Species Program.

_____. n.d. Mitigation Plan Annotated Outline for Endangered Plants of California. Sacramento.

California Department of Water Resources (DWR). 1989a. Draft Santa Ynez Instream Flow Need Study. Northern District.

_____. 1989b. Lompoc to Cachuma Pipeline. Alignment Impacts to General Vegetation and Sensitive Plant Species. Progress Report.

_____. 1990. Bottle Rock Geothermal Powerplant Biological Resources Mitigation and Monitoring, Biennial Report. Northern District, Red Bluff.

_____. 1991. State Water Project, Coastal Branch, Phase II and Mission Hills Extension Final Environmental Impact Report. 2 volumes. Sacramento.

California Desert Studies Consortium. 1990. Mojave Siphon Powerplant Project Revegetation Plan for the Riparian Area. Prepared for the California Department of Water Resources. by California State University, Fullerton.

California-Oregon Transmission Project. 1991. Environmental Program for Maxwell - Sacramento River Segment. Construction worker environmental education brochure.

CALENDAR PAGE 274.202
MINUTE PAGE 1381

Chambers Group, Inc. 1988. Mojave-Kern River-El Dorado Natural Gas Pipelines Project Final Supplement to the Final Environmental Impact Report/Statement. 2 vols. California State Lands Commission, Sacramento, and Federal Energy Regulatory Commission, Washington, D.C.

ERCE. 1991. State Water Project Coastal Branch (Phase II) Local Distribution Lines and Facilities. Prepared for County of San Luis Obispo, Office of the Environmental Coordinator. San Luis Obispo, California.

Federal Energy Regulatory Commission. 1991. PGT/PG&E Altamount Natural Gas Pipeline Projects Final Environmental Impact Statement. EIS-0061. Washington, D.C.

Harper, B. 1988. An Adult Steelhead Investigation of the Lower Santa Ynez River Drainage. Report to U.S. Bureau of Reclamation and California Department of Water Resources. U.S. Fish and Wildlife Service, Laguna Niguel, California.

Hendrickson, B. 1992. State Water Project: Coastal Branch Phase II and Mission Hills Extension, Summary of Vegetation Studies. Prepared for California Department of Water Resources.

Minick, N., and L. Urbais. 1991. Onsite Compliance Programs For Major Oil and Gas Projects. Paper presented at Coastal Zone, 1991. Santa Barbara, California.

Mojave Pipeline Operating Company. 1991. Endangered Species Education Program, Mojave Pipeline Project. Prepared by BioSystems Analysis, Inc., Santa Cruz, California.

Mojave Pipeline Operating Company. 1991. Environmental Monitor Education Manual, Mojave Pipeline Project. Prepared by BioSystems Analysis, Inc., Santa Cruz, California.

Mulroy, T. W., J. R. Storrer, V. J. Semonsen, and M. L. Dungan. 1989. Techniques for Minimizing and Monitoring the Impact of Pipeline Construction on Coastal Streams. Presented at the California Riparian Systems Conference, 1988. USDA Forest Service General Technical Report. PSW-110.

Santa Barbara County, Resource Management Department. 1990. Condition Effectiveness Study (FDP Condition B-2 Review) Chevron Point Arguello Project. Prepared with assistance from Science Application International Corporation. Santa Barbara, California.

CALENDAR PAGE	274.204
MINUTE PAGE	1382

_____. 1991. Compliance requirements for CEQA Documents. Memorandum.

Science Application International Corporation. 1991. Santa Ynez Extension, A Local Facility of the Coastal Branch, Phase II, Final Environmental Impact Report. Prepared for the Santa Barbara Purveyors Agency and the California Department of Water Resources. Santa Barbara, California.

Vrat, D., R. B. Almy, K. Drude, and J. A. Daily. 1991. Permit Compliance Programs for Large-Scale Development Projects. Paper presented at Coastal Zone, 91. Santa Barbara, California.

CALENDAR PAGE 274.206
MINUTE PAGE 1383

Appendix A

REVEGETATION TECHNICAL MANUALS

These are in the process of being developed using literature data and the information collected during 1993 preconstruction field surveys.

The manuals will be for each vegetation type and for individual species.

CALENDAR PAGE 274.206
MINUTE PAGE 1384

Appendix B

WETLANDS AND WATERS OF THE UNITED STATES

CALENDAR PAGE 274.207
MINUTE PAGE 1385

Table B
STREAMS AND WETLANDS IN THE MISSION HILLS/SANTA YNEZ EXTENSION
(page 1 of 8)

Site	*Habitat*	*Description*	*Sensitive Species*[1]	*Mitigation Measures*
35	Unnamed ST (mi. 0.8, 1.6, 3.1)	Ephemeral tributary to San Antonio Creek; willow riparian zone sparse at crossings.	Yellow warbler and yellow-breasted chat from mile 2 to mile 3.	• Survey in spring to determine if sensitive birds are nesting and if so schedule construction for after young fledge (about mid-July.
1	San Antonio Creek (mi. 3.2)	Perennial flow; willow scrub riparian zone; wetland along stream margin.	Yellow warbler, yellow-breasted chat, southwestern pond turtle, and unarmored threespine stickleback; potential habitat for southwestern willow flycatcher and red-legged frog.	• Span or bore under creek. • Construct during dry season (1 Apr-1 Nov) • Erosion control measures • Survey in spring to determine if sensitive birds are nesting and if so schedule construction for after young fledge (about mid-July).
36	Santa Lucia Creek (mi. 6.4)	Ephemeral flow; coastal sage adjacent; no wetlands.	None expected.	
2	Unnamed A2 (mi. 9.1)	Ephemeral; oak woodland.	None expected.	

CALENDAR PAGE 274
MINUTE PAGE 1386

Table B
STREAMS AND WETLANDS IN THE MISSION HILLS/SANTA YNEZ EXTENSION
(page 2 of 8)

Site	*Habitat*	*Description*	*Sensitive Species*[1]	*Mitigation Measures*
3	Unnamed A (mi 10.1)	Intermittent flow; riparian willow woodland above and below pipeline corridor; scrub but no trees at crossing.	Seaside bird's beak potentially on adjacent uplands; black-flowered figwort possible.	• Survey during 1993 flowering period to determine if present. • If present, quantify numbers affected and collect seed for revegetation.
4	Purisma Creek (mi 13.0)	Ephemeral; channelized.	None expected.	
5	Cebada Creek	No longer crossed.		
6	Unnamed B (mi 15.1)	Ephemeral; channelized.	None expected.	
7	Unnamed C2 (mi 15.5)	Ephemeral; no riparian vegetation.	None expected.	
8	Unnamed D2 (mi. 15.8)	Ephemeral; no riparian vegetation.	None expected.	
9	Unnamed D (mi 16.0)	Ephemeral; no riparian vegetation.	None expected.	

CALENDAR PAGE 274.2
MINUTE PAGE 1387

Table B
STREAMS AND WETLANDS IN THE MISSION HILLS/SANTA YNEZ EXTENSION
(page 3 of 8)

Site	*Habitat*	*Description*	*Sensitive Species*[1]	*Mitigation Measures*
10	Unnamed PGC (mi. 16.3)	Ephemeral; no riparian vegetation.	None expected.	
11	Silt basin & pond (mi. 17.2)	Basin dries in summer; pond perennial; willows at basin, freshwater marsh around pond.	Tricolored blackbird.	• Schedule construction by pond for after nesting season (about 1 August) if possible; if not, maintain 20-foot buffer from pond.
12	Unnamed E (mi 17.6)	Ephemeral; channelized.	None expected.	
13	Unnamed F2 (mi. 18.3)	Ephemeral; sparse riparian scrub.	None expected.	
14	Unnamed F (mi 19.1)	Ephemeral; channelized with narrow riparian scrub.	None expected.	

CALENDAR PAGE 274.2/0
MINUTE PAGE 1388

Table B
STREAMS AND WETLANDS IN THE MISSION HILLS/SANTA YNEZ EXTENSION
(page 4 of 8)

Site	*Habitat*	*Description*	*Sensitive Species*[1]	*Mitigation Measures*
39	Campbell vernal pools (mi 20.5)	Ephemeral; excavated portion is perennial; marsh and vernal pool vegetation (adjacent to corridor).	California tiger salamander (breeding); southwestern pond turtle; red-legged frog (potential).	• Construction during dry season (1 July-1 Nov). • Erosion control • Narrow construction corridor to 60 feet and fence to keep pond turtles and salamanders out. • Monitors present during trench excavation. • Restore site to preconstruction contours. • Design construction so that trench will not interrupt any ground-water flow to pools. • Move corridor to south side of Highway 246.
15	Santa Rosa Creek (mi 22.3)	Ephemeral; sparse riparian vegetation.	None expected.	
16	Unnamed H (mi 23.4)	Ephemeral; sparse oak riparian.	None expected.	
17	Unnamed PB4 (mi 23.7)	Ephemeral; little or no riparian scrub.	None expected.	

CALENDAR PAGE 274.21
MINUTE PAGE 1389

Table B
STREAMS AND WETLANDS IN THE MISSION HILLS/SANTA YNEZ EXTENSION
(page 5 of 8)

Site	*Habitat*	*Description*	*Sensitive Species*[1]	*Mitigation Measures*
18	Unnamed PB2 (mi 23.9)	Ephemeral; some oak woodland.	None expected.	
19	Unnamed PB1 (mi 25.5)	Ephemeral; no riparian vegetation.	None expected.	
20	Cañada de la Laguna (mi 26.4)	Ephemeral; sparse oak/riparian woodland.	None expected.	
21	Unnamed I (mi 26.9)	Ephemeral; sparse oak woodland.	None expected.	
23	Zaca Creek (mi. 28.2)	Ephemeral; channelized with sparse riparian scrub.	None expected.	
22	Santa Ynez River (mi 28.9)	Intermittent; riparian and willow scrub sparse adjacent to bridge; wetland in low flow channel.	Yellow warbler and yellow-breasted chat.	• Place pipeline on Avenue of the Flags bridge
24	Nojoqui Creek (mi 29.3)	Intermittent; disturbed with sparse riparian scrub.	None expected.	
25	Unnamed J (mi 31.4)	Ephemeral; sparse oak woodland.	None expected.	
26	Santa Ynez River (mi 32.4)	Intermittent; sparse riparian scrub; seasonal wetland in low flow channel.	None expected.	• Place pipeline on Alisal Road bridge

CALENDAR PAGE 274.212
MINUTE PAGE 1390

Table B
STREAMS AND WETLANDS IN THE MISSION HILLS/SANTA YNEZ EXTENSION
(page 6 of 8)

Site	*Habitat*	*Description*	*Sensitive Species*[1]	*Mitigation Measures*
27	Alamo Pintado Creek (mi 33.2)	Intermittent; cottonwood-willow riparian forest; seasonal wetland in channel.	None expected.	
37	Unnamed K2 (mi. 33.6)	Ephemeral; no riparian vegetation.	None expected.	
28	Unnamed K (mi 34.2)	Intermittent; sparse riparian scrub; freshwater marsh vegetation (wetland) in channel.	None expected.	
29	Unnamed L (mi 34.9)	Ephemeral; disturbed, sparse oak woodland.	None expected.	
30	Zanja de Cota (mi 35.5)	Perennial pond; edge of well-developed willow/box elder riparian forest; wetland along banks.	Yellow warbler and yellow-breasted chat; potential red-legged frog, southwestern pond turtle, Cooper's hawk, long-eared owl habitat.	• Preconstruction surveys to verify absence or presence of sensitive species. • If sensitive birds breeding in ROW, schedule construction for after young have fledged (mid-July). • If sensitive birds breeding in area, maintain 50-foot buffer between construction activity and nesting habitat.

CALENDAR PAGE 274.4/3
MINUTE PAGE 1391

Table B
STREAMS AND WETLANDS IN THE MISSION HILLS/SANTA YNEZ EXTENSION
(page 7 of 8)

Site	*Habitat*	*Description*	*Sensitive Species*[1]	*Mitigation Measures*
31	Unnamed M	No longer crossed.		
32	Unnamed N (mi 36.2)	Intermittent; valley oak savanna; seasonal wetland in channel.	None expected.	
38	Hilton Creek (mi. 42.0)	Ephemeral tributary to Santa Ynez River; oak woodland on banks.	None expected.	• Span creek or avoid by using tunnel through Bradbury Dam.
	Lake Cachuma (mi 42.5)	Impoundment; riprap shore with sparse riparian scrub.	Bald eagles forage over lake; southwestern pond turtle.	• Construct terminus into lake in late summer (July to Nov) when few eagles are present.
Alternative route bypasses 19-22 but adds:				
40	Santa Ynez River (mi 25.5)	Intermittent.	Yellow warbler and yellow-breasted chat; potential for southwestern willow flycatcher, southwestern pond turtle, and California red-legged frog.	• Bore under river.
41	3 to 4 unnamed streams	Ephemeral (surveys to be conducted July 1993).	None expected.	

CALENDAR PAGE 274,3/4
MINUTE PAGE 1392

Table B

STREAMS AND WETLANDS IN THE MISSION HILLS/SANTA YNEZ EXTENSION

Note: 1. *Sensitive species status:*

	Federal	*State*
Unarmored threespine stickleback	E	E
Bald eagle	E	E
Southwestern pond turtle	C1	SSC
Red-legged frog	C1	SSC
California tiger salamander	C2	SSC
Southwestern willow flycatcher	C1	E
Yellow warbler	-	SSC
Yellow-breasted chat	-	SSC
Tricolored blackbird	C2	-
Cooper's hawk	-	SSC
Long-eared owl	-	SSC
Black-flowered figwort	C2	-
Seaside bird's beak	C1	E

Federal Status (determined by U.S. Fish and Wildlife Service):

- E Listed as Endangered by the Federal Government.
- C1 Category 1 Candidate for Federal listing. U.S. Fish and Wildlife Service has sufficient biological information to support a proposal to list as Endangered or Threatened.
- C2 Information indicates that proposing to list these species is possibly appropriate, though more data on vulnerability and threat is necessary.

State Status

- E Listed as Endangered by the State of California.
- SSC California Department of Fish and Game "Species of Special Concern."

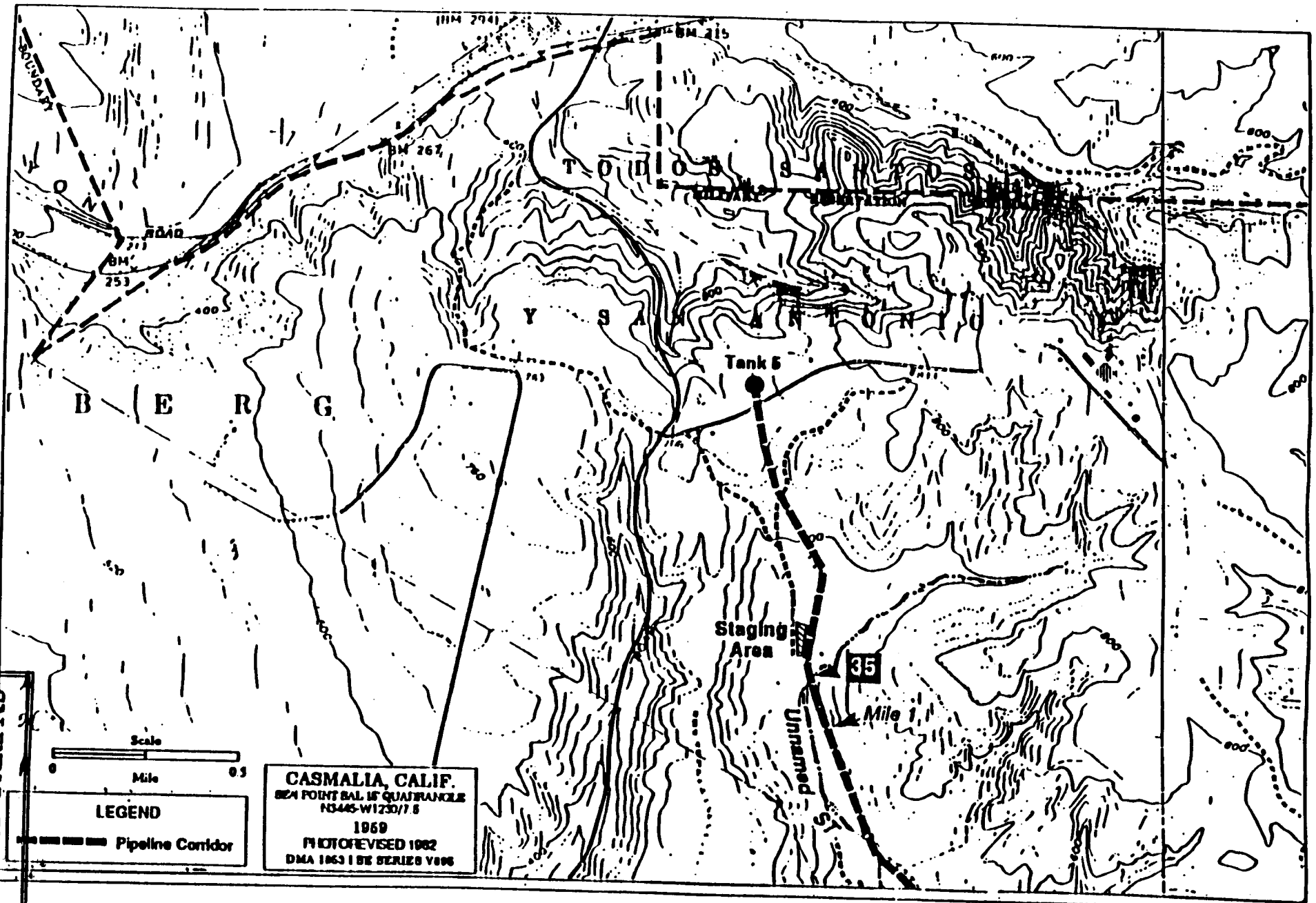
Sources: BioSystems 1991; Hendrickson 1992; aerial photographs; field observations.

CALENDAR PAGE 274.215
MINUTE PAGE 1393

Appendix C

MAPS OF THE PIPELINE CORRIDOR AND ASSOCIATED FACILITIES

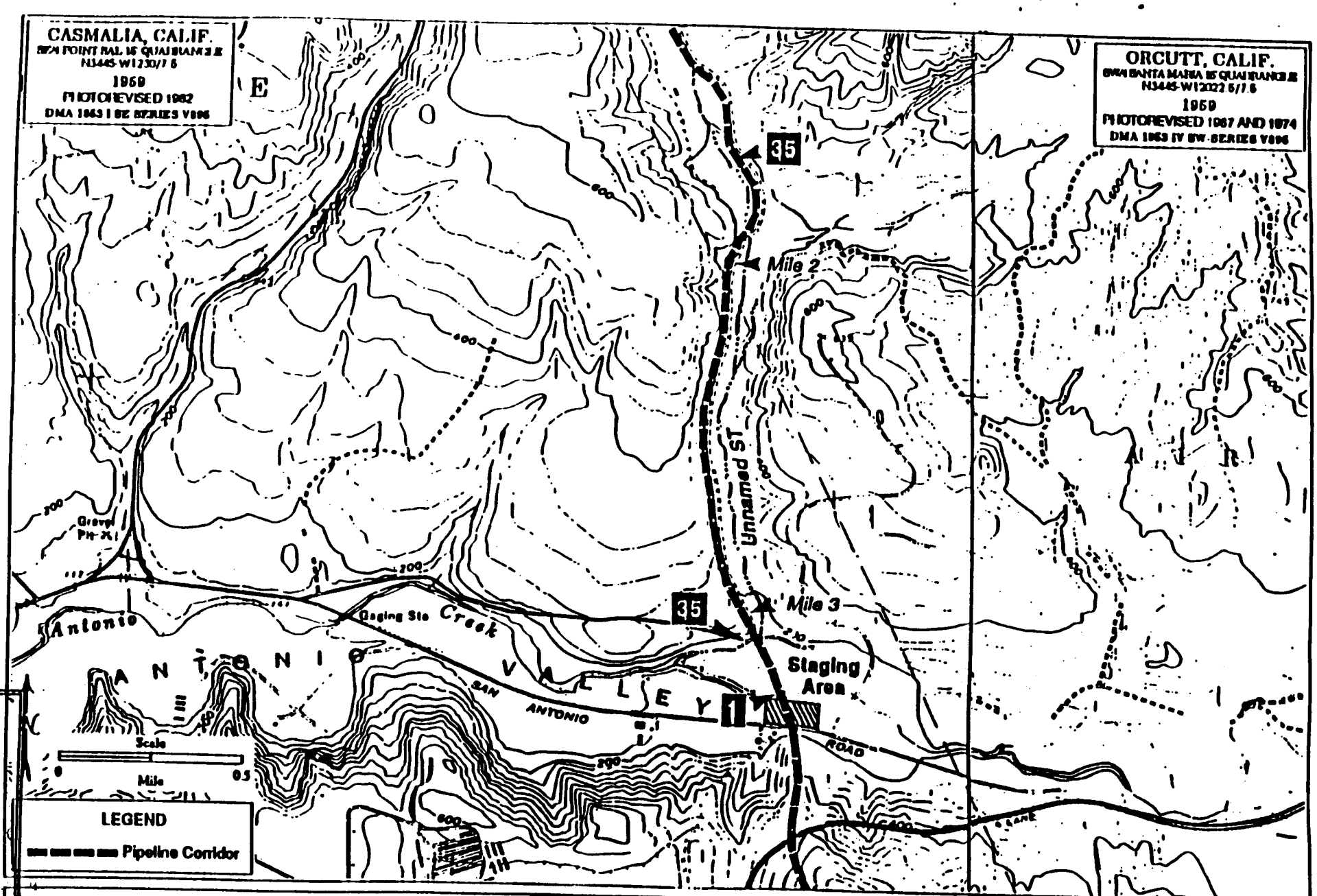
CALENDAR PAGE 274
MINUTE PAGE 1394



Appendix C

CCWA PIPELINE CORRIDOR

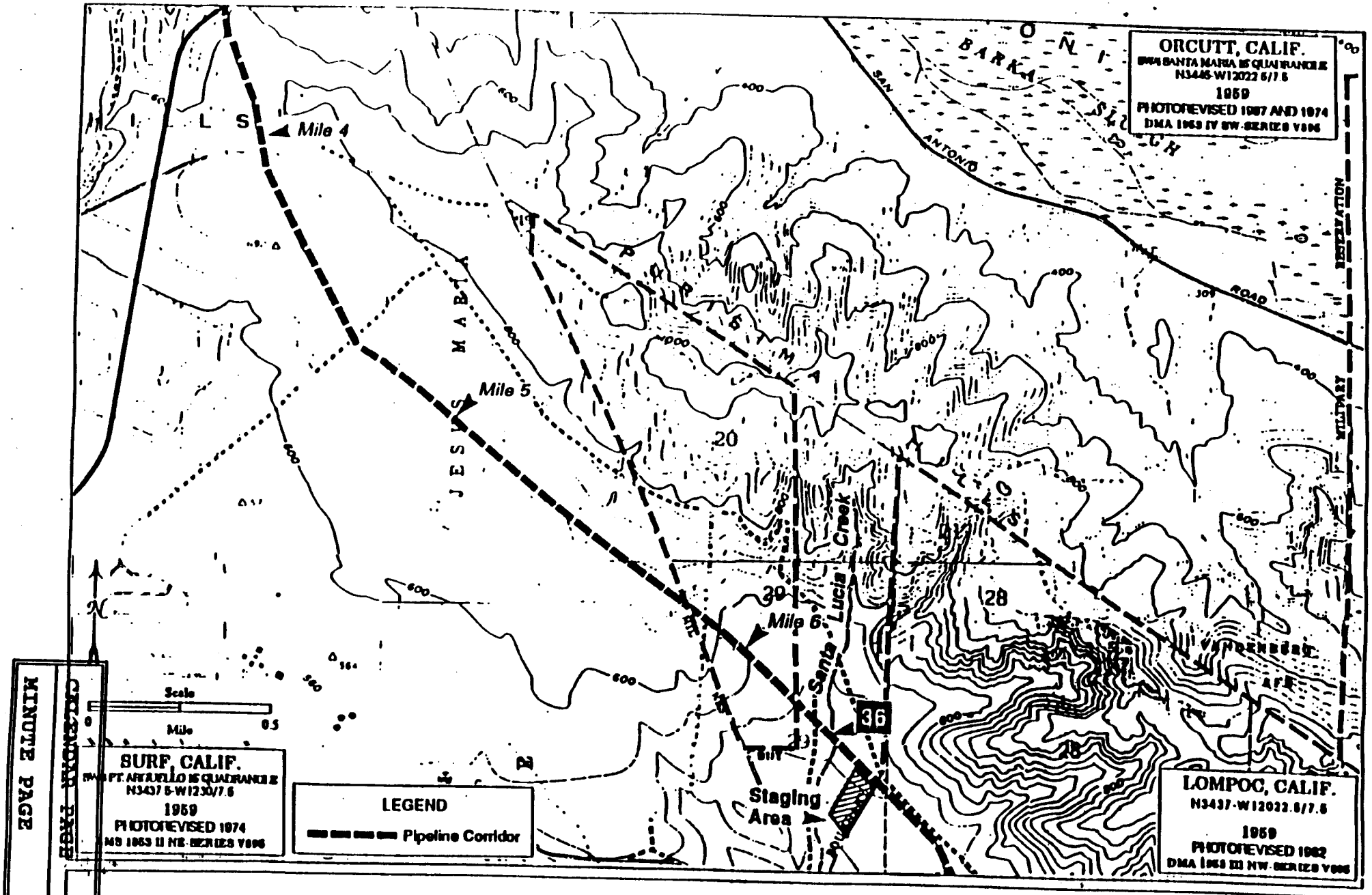
MINUTE PAGE 1395
CALENDAR PAGE 274



Appendix C

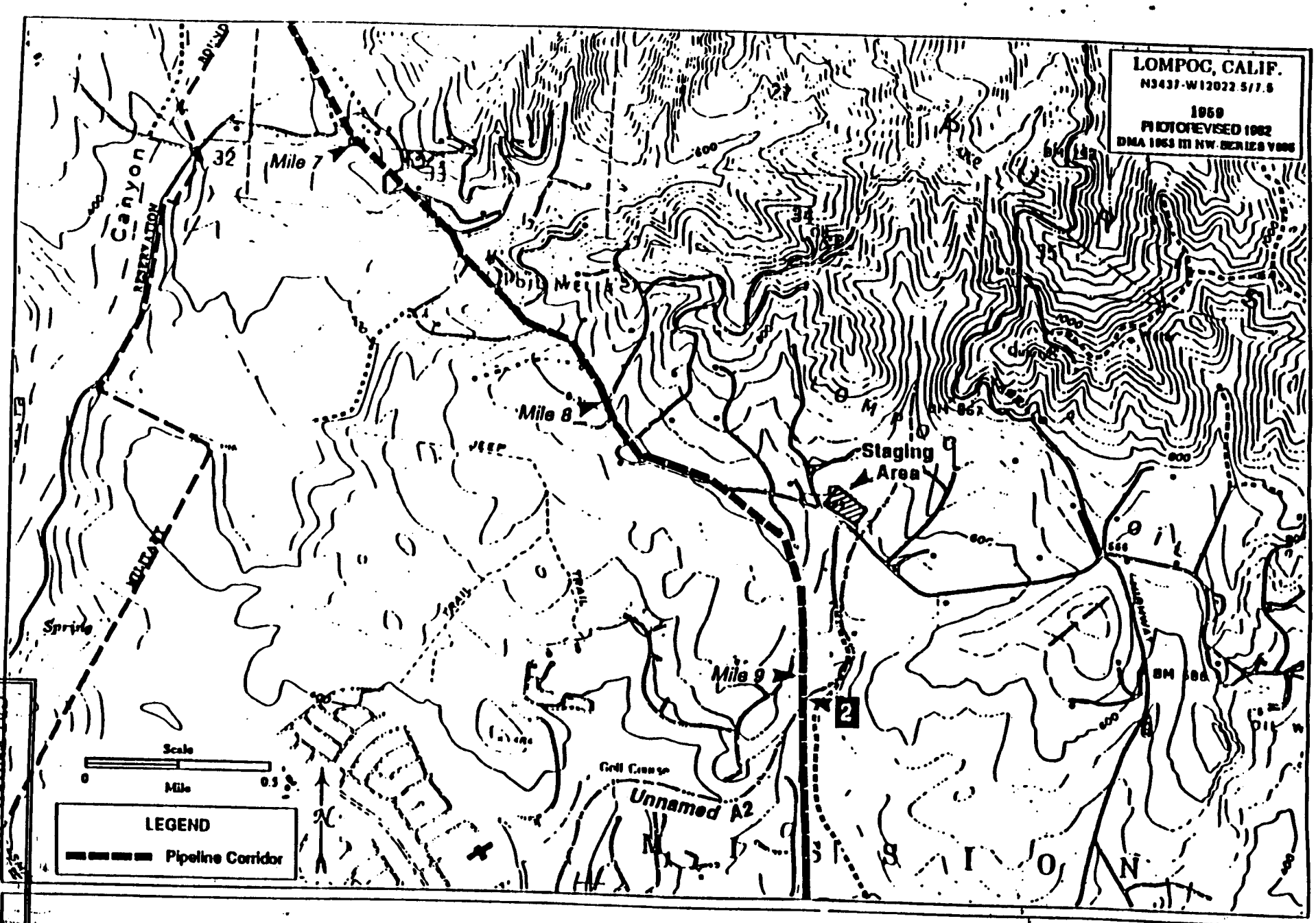
CCWA PIPELINE CORRIDOR

MINUTE PAGE 1396
CALENDAR PAGE 274



Appendix C

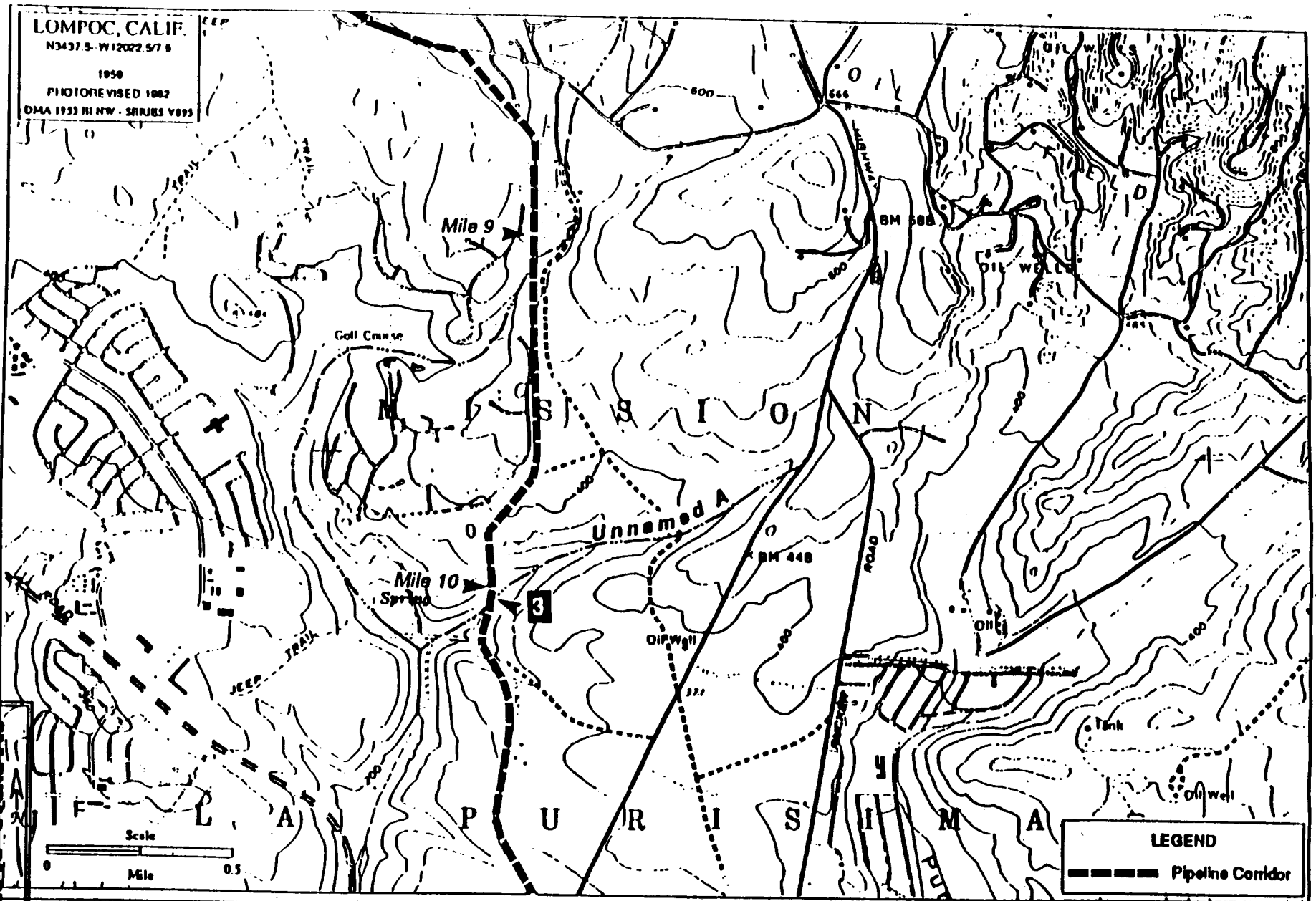
CCWA PIPELINE CORRIDOR



Appendix C

CCWA P[illegible]LINE CORRIDOR

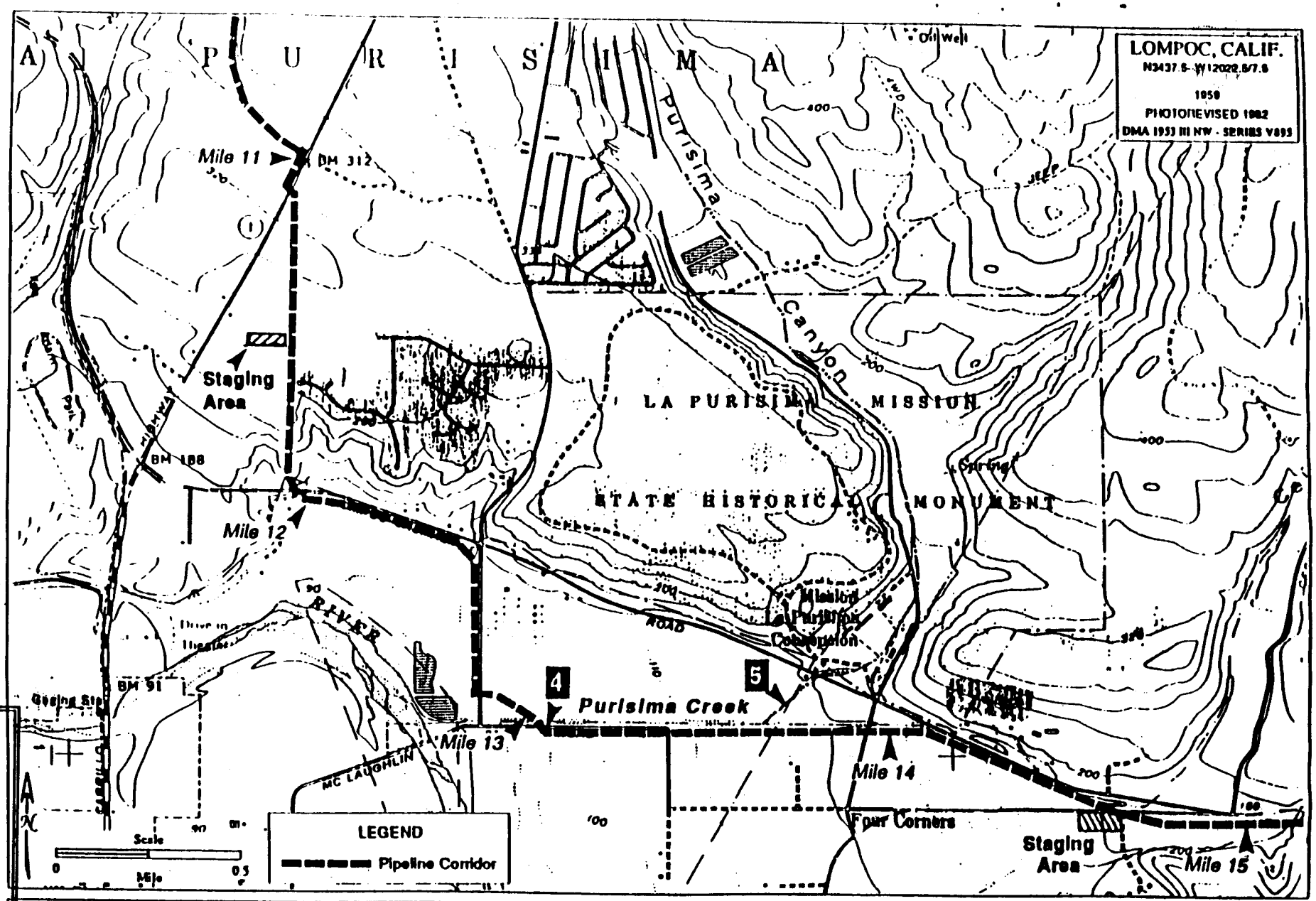
CALENDAR PAGE
MINUTE PAGE
1398
274



Appendix C

CCWA PIPELINE CORRIDOR

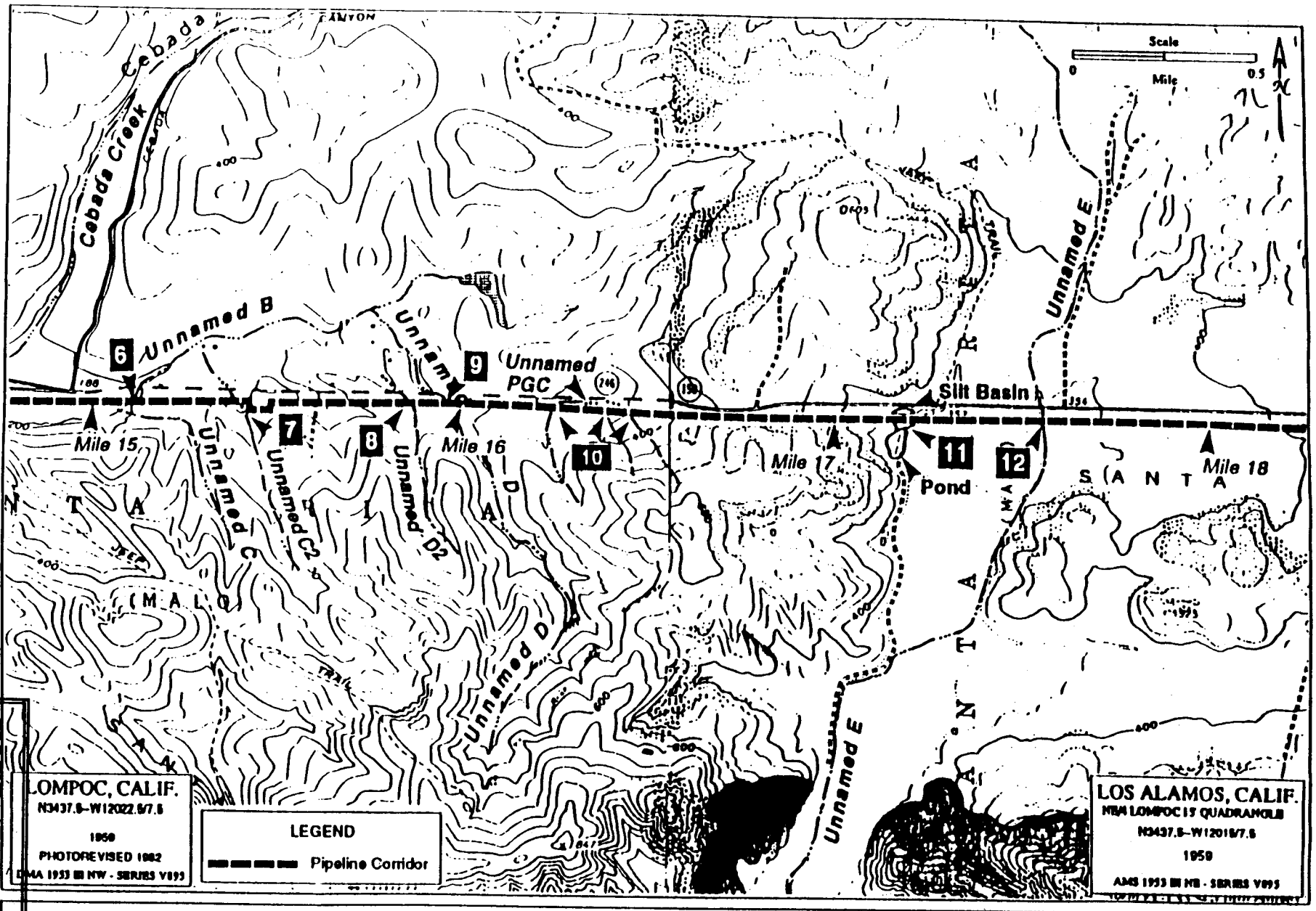
MINUTE PAGE 1399
CALENDAR PAGE 274.331



CALENDAR PAGE 274.222
MINUTE PAGE 1400

Appendix C

CCWA PIPELINE CORRIDOR

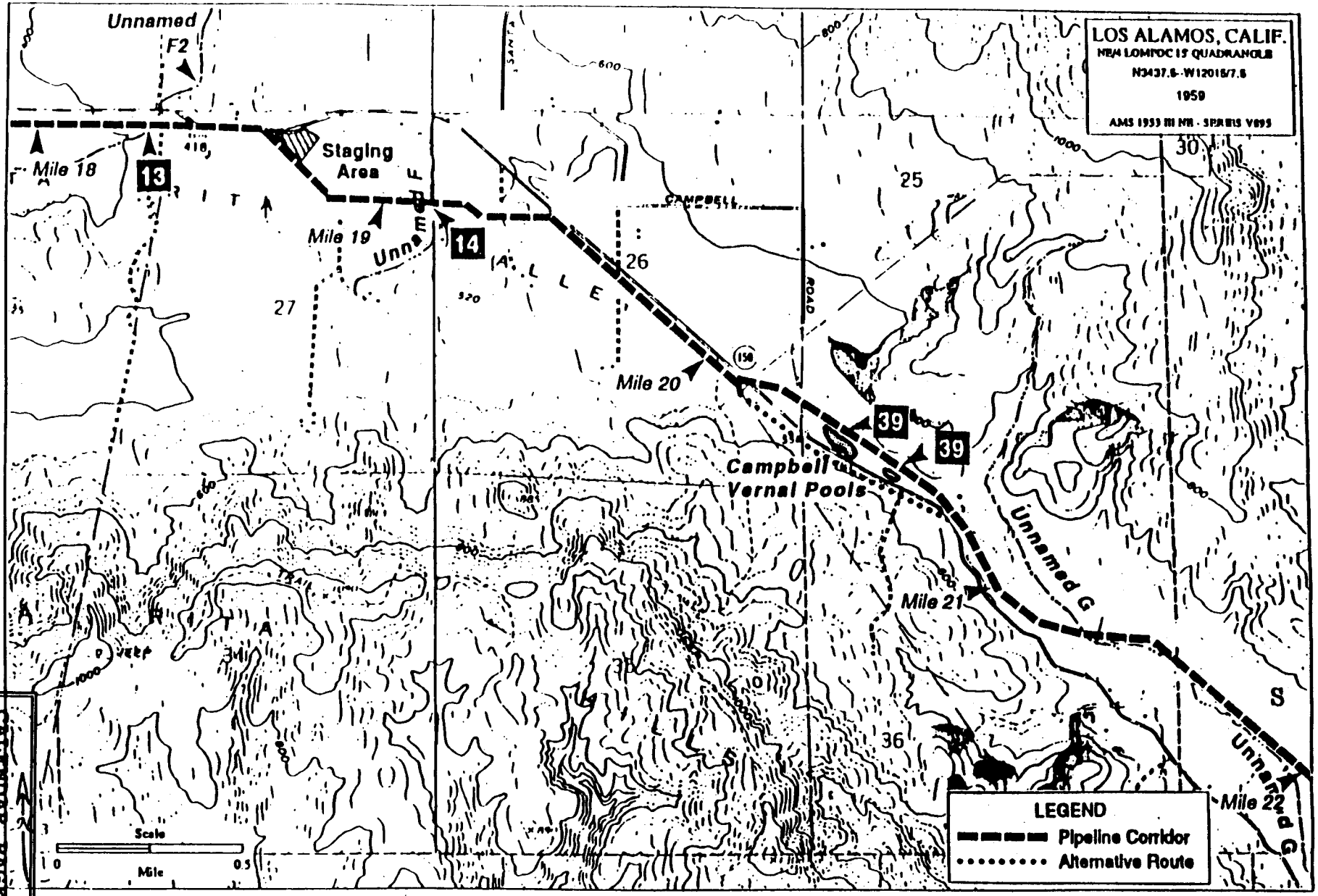


Appendix C

CCWA PIPELINE CORRIDOR

MINUTE PAGE 1401

CALENDAR PAGE 274.223

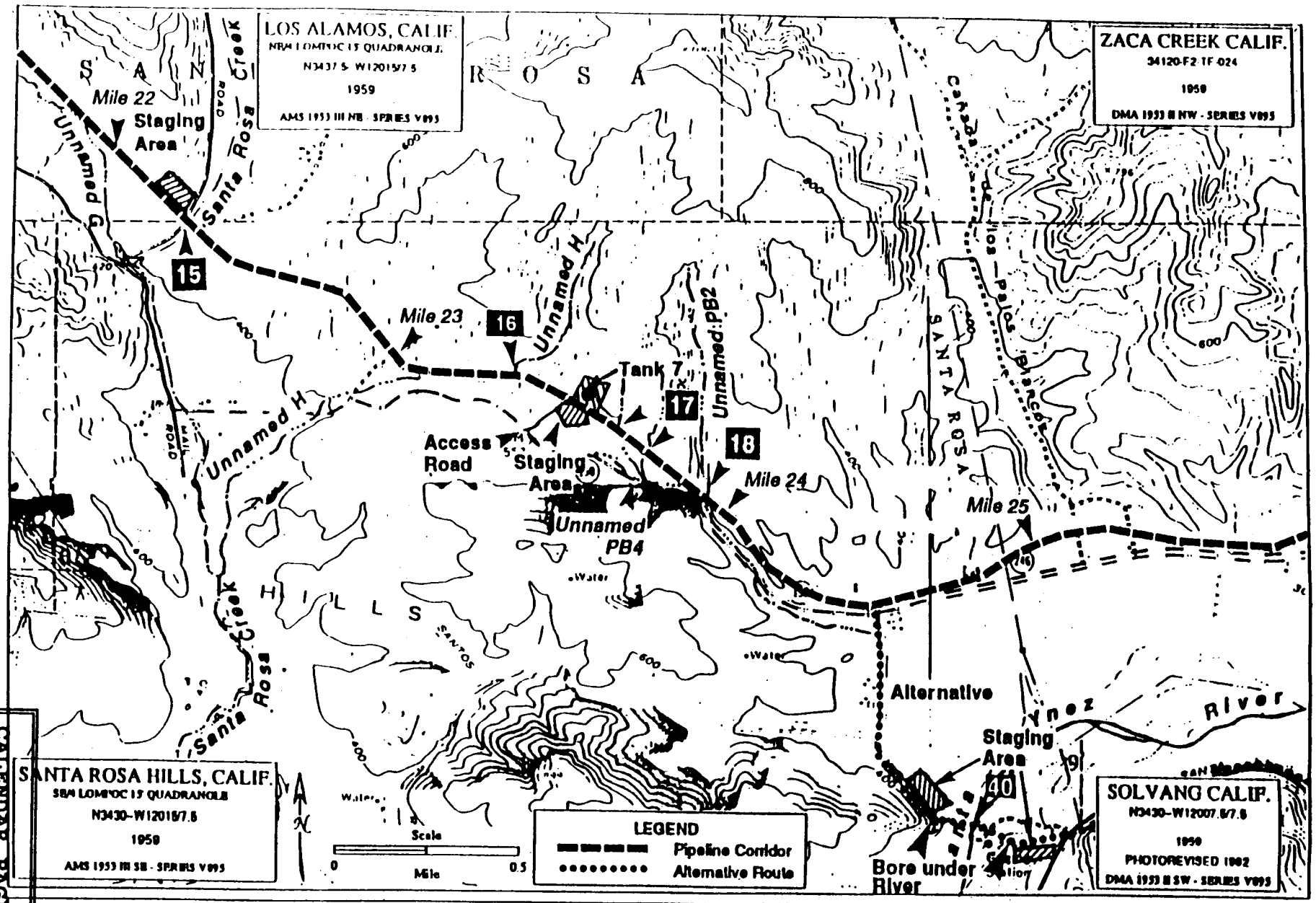


Appendix C

CCWA PIPELINE CORRIDOR

MINUTE PAGE 1402

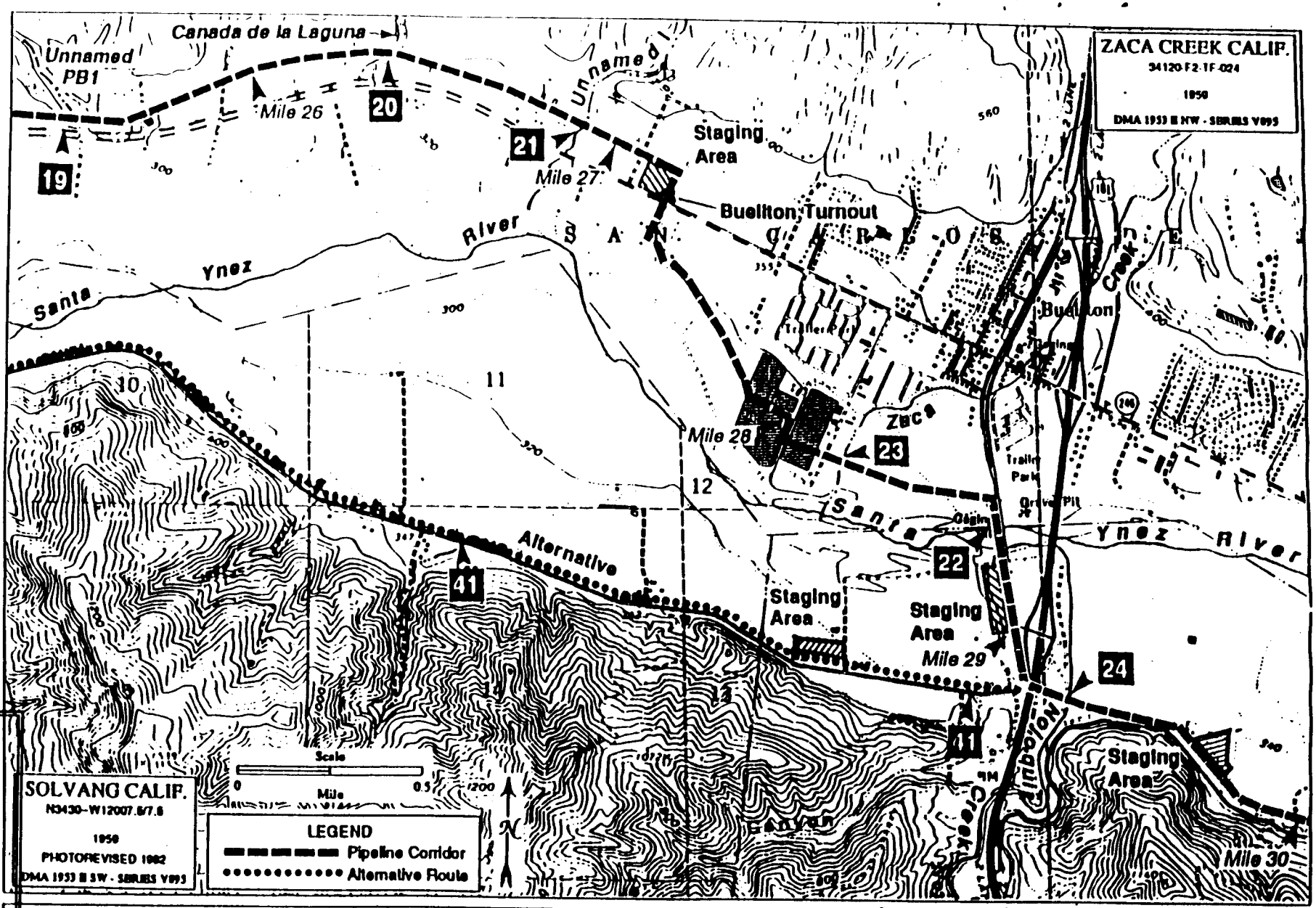
CALENDAR PAGE 274.224



Appendix C

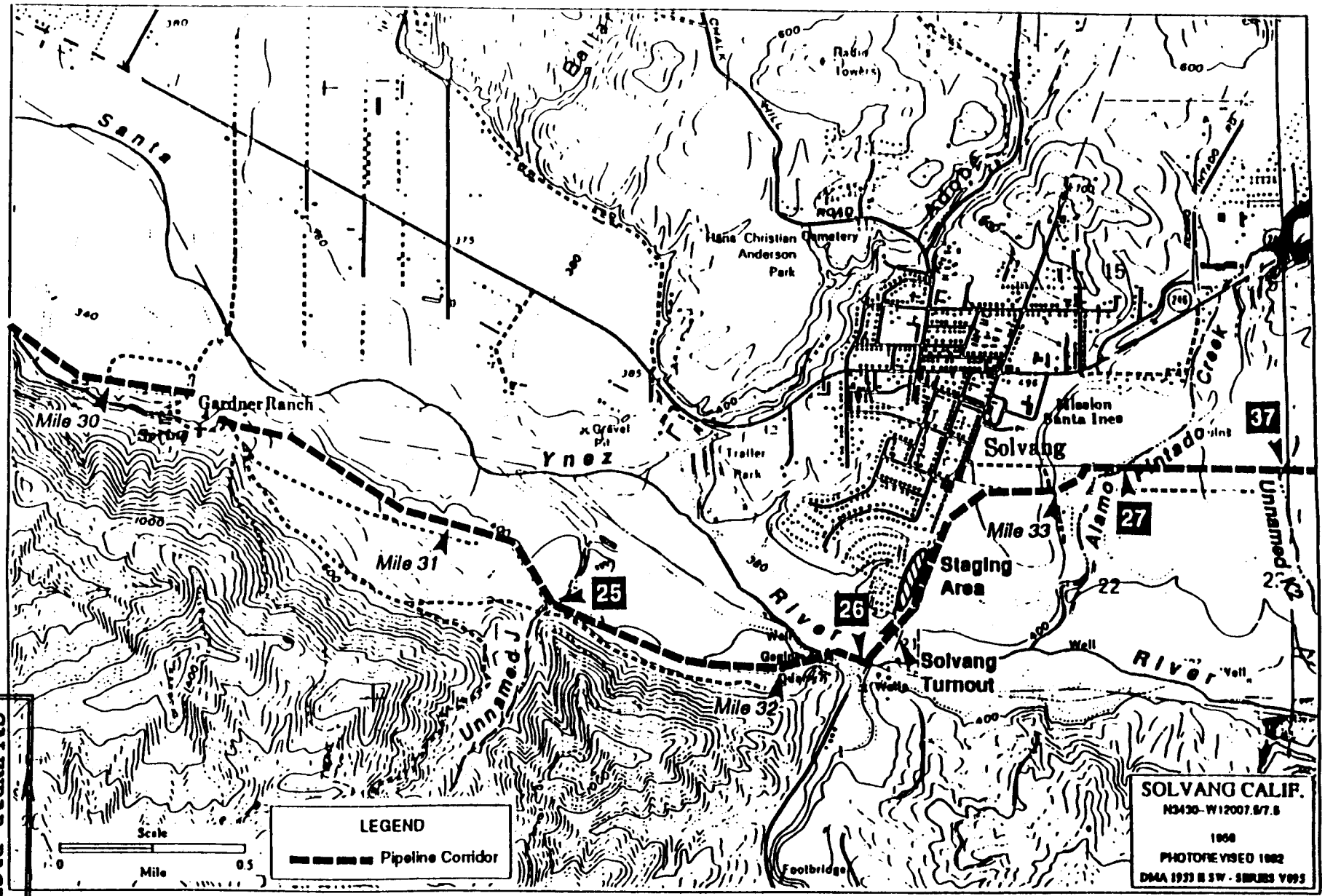
CCWA PIPELINE CORRIDOR

MINUTE PAGE 1403
CALENDAR PAGE 274.325



Appendix C

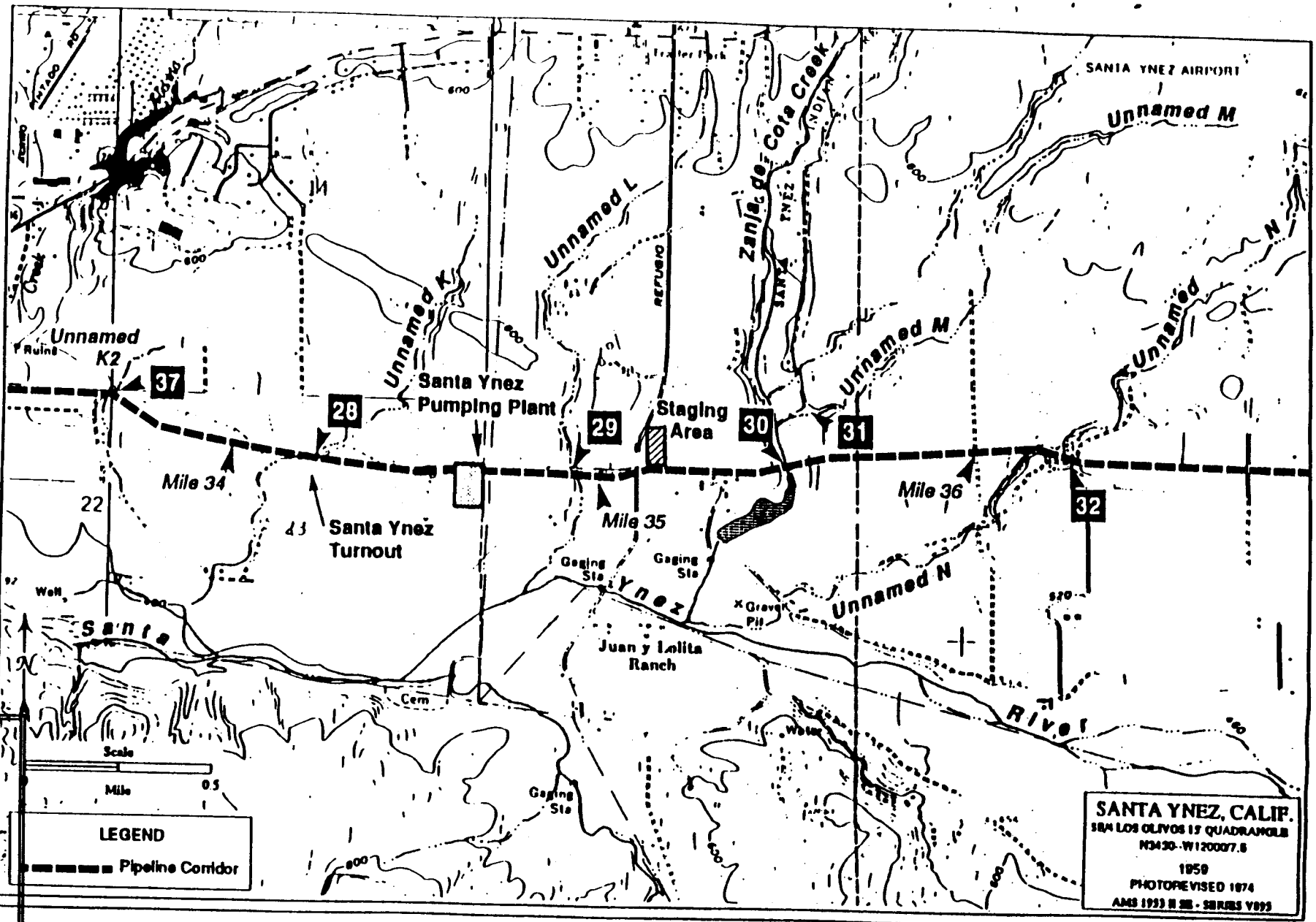
CCWA PIPELINE CORRIDOR



Appendix C

CCWA PIPELINE CORRIDOR

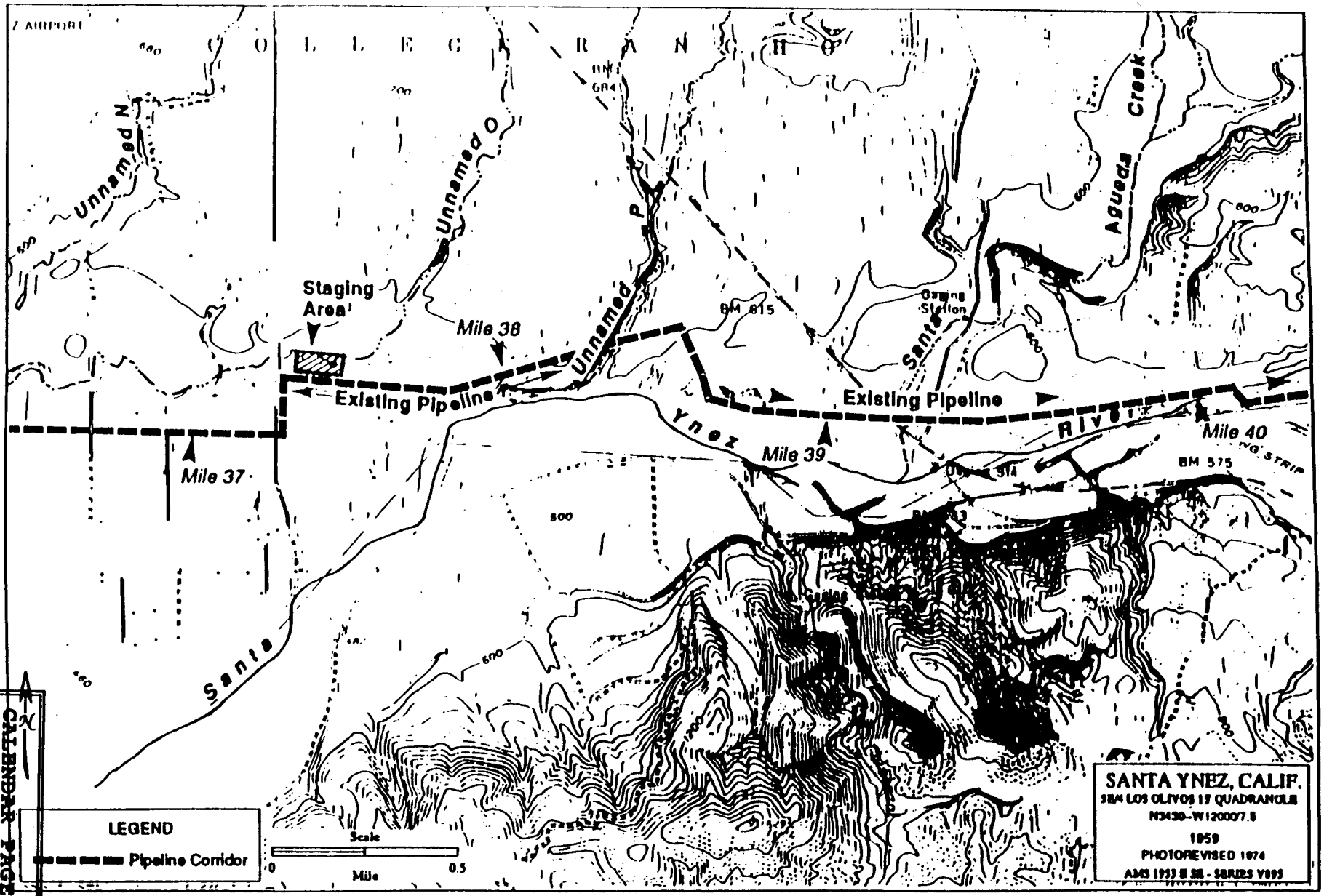
CALENDAR PAGE 274.232
MINUTE PAGE 1405



Appendix C

CCWA PIPELINE CORRIDOR

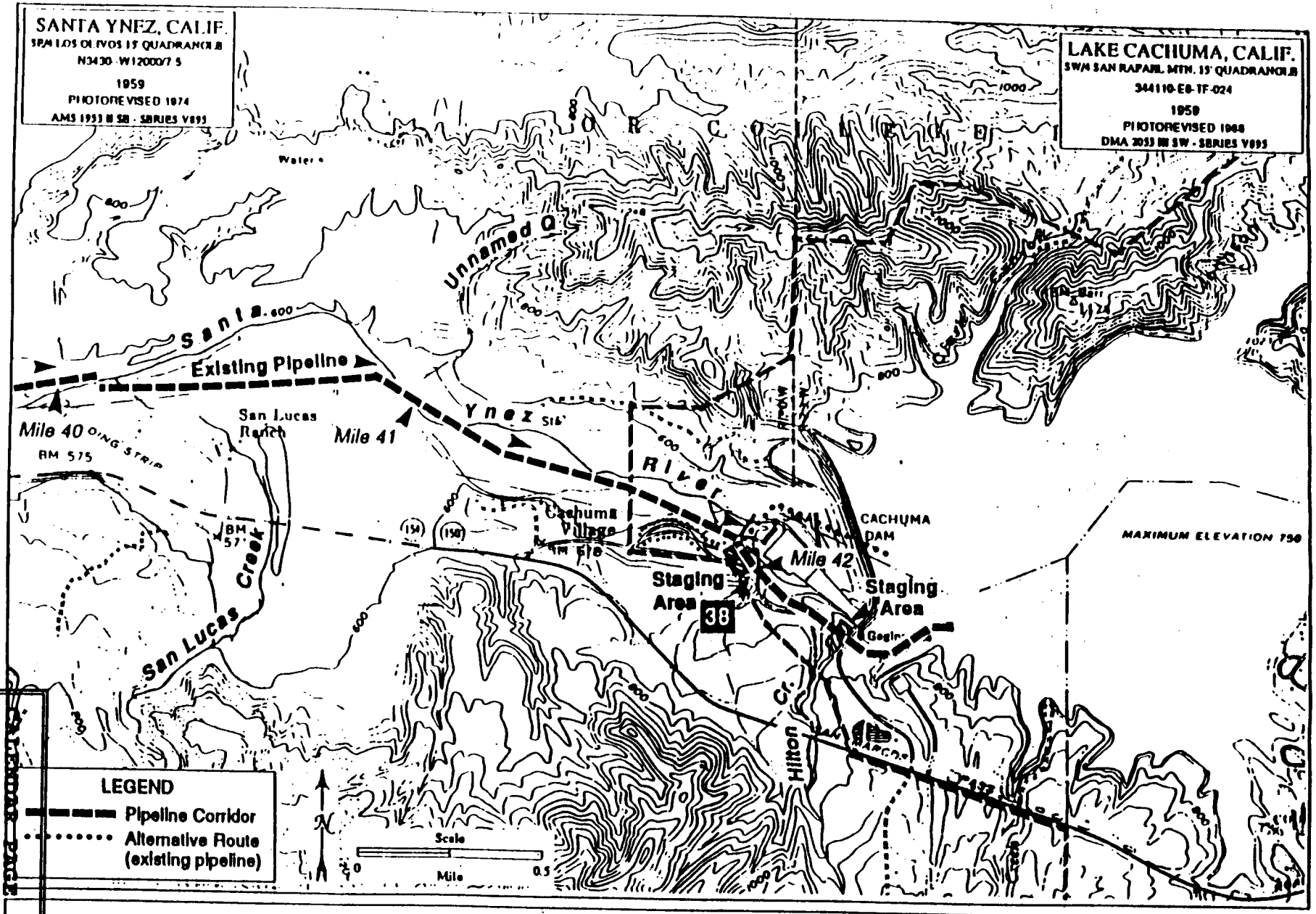
MINUTE PAGE 1406
CALENDAR PAGE 274.228



Appendix C

CCWA PIPELINE CORRIDOR

MINUTE PAGE 1407
CALENDAR PAGE 274.229



Appendix C

CCWA PIPELINE CORRIDOR

EXHIBIT "D"

W 25000

Final Mitigation Program

for the Mission Hills Extension and Santa Ynez Extension

September 1993

Prepared for

Central Coast Water Authority
1933 Cliff Drive, Suite 12
Santa Barbara,
California 93109

Prepared by

SAIC An Employee-Owned Company
Science Applications International Corporation
Environmental Programs Divis

CALENDAR PAGE 274.231
MINUTE PAGE 1400

Final

Mitigation Program

for the Mission Hills Extension and Santa Ynez Extension

September 1993

Prepared for

Central Coast Water Authority
1933 Cliff Drive, Suite 12
Santa Barbara, California 93109

Prepared by

Science Applications International Corporation
Environmental Programs Division
816 State Street, Suite 500
Santa Barbara, California 93101

CALENDAR PAGE 274.232
MINUTE PAGE 1410