

APPENDIX E

Draft Mitigation Monitoring and Reporting Plan

This page intentionally left blank



**US Army Corps
of Engineers.**



PROPOSED BNSF CAJON THIRD MAIN TRACK SUMMIT TO KEENBROOK

MITIGATION, MONITORING, AND REPORTING PLAN

Prepared for:

United States Army Corps of Engineers
Los Angeles District
Regulatory Branch
915 Wilshire Boulevard – Suite 11000
Los Angeles, CA 90017-3041

and

County of San Bernardino
385 N. Arrowhead Avenue
San Bernardino, CA 92415
SCH# 2006061127

Cooperating Agency:
United States Forest Service

March 2007

Prepared by:

URS

URS Corporation

Applicant:

BNSF
RAILWAY

BNSF Railway Company
Cajon Subdivision Third Main Track
740 Carnegie Drive

- San Bernardino, CA 92408

This page intentionally left blank

TABLE OF CONTENTS

Mitigation Measures	1-2
Physical Environment.....	1-2
Biological Environment.....	1-10
Human Environment	1-25
Section 2 Mitigation Monitoring and Reporting Table.....	2-1

This mitigation monitoring and reporting plan program has been prepared for use in implementing the conditions of approval for:

BNSF Cajon Third Main Track Project

The program has been prepared in compliance with State law and the initial environmental study and environmental impact report prepared for the project by San Bernardino County.

The California Environmental Quality Act (Public Resource Code Section 21081.6) requires adoption of a reporting or monitoring program for those measures placed on a project to mitigate or avoid adverse effects on the environment. The law states that the reporting or monitoring program shall be designed to ensure compliance during project implementation.

The monitoring program contains the following elements:

- 1) The mitigation measures are recorded with the action and procedure necessary to ensure compliance. In some instances, one action may be used to verify implementation of several mitigation measures.
- 2) A procedure for compliance and verification has been outlined for each action necessary. This procedure designates who will take action, what action will be taken and when, and to whom and when compliance will be reported.
- 3) The program contains a separate Mitigation Monitoring and Compliance Record for each action. On each of these record sheets, the pertinent actions and dates will be logged, and copies of permits, correspondence or other relevant data will be attached. Copies of the records will be submitted to the Planning Department.
- 4) The program has been designed to be flexible. As monitoring progresses, changes to compliance procedures may be necessary based upon recommendations by those responsible for the program. As changes are made, new monitoring compliance procedures and records will be developed and incorporated into the program.

Unless specifically stated to the contrary in this MMRP, it is the intention of the San Bernardino County Board of Supervisors to adopt all mitigation measures recommended by the EIS/EIR. If a measure has, through error, been omitted from the MMRP and that measure is not specifically reflected in this MMRP, that measure shall be deemed to be included. In addition, unless specifically stated to the contrary in this MMRP, any repeating or rewording of mitigation measures stated herein are intended to be substantially similar to the mitigation measure recommended in the EIS/EIR and are found to be equally effective in avoiding or lessening the environmental impact areas.

MITIGATION MEASURES

PHYSICAL ENVIRONMENT

Air Quality (AQ)

AQ1 - Air – Construction Fugitive Dust Emissions

The SCAQMD and MDAQMD rules aimed at mitigating fugitive dust emissions during construction would be followed. The SCAQMD and MDAQMD rules regulating fugitive dust emissions and nuisance causing emissions are similar. However, SCAQMD's Rule 403 details BACMs for the mitigation of fugitive dust emissions. Compliance with these rules and the implementation of applicable BACMs can reduce fugitive dust emissions by as much as 50 to 75%, thus reducing the PM₁₀ emission component.

Implementation and Verification

1. Compliance with Air Quality rules and mitigation measures to be included in bid specifications for construction contracts.
2. Prior to construction, a dust management plan (DMP) shall be prepared to minimize potential air quality impacts associated with construction of the Proposed Action.
3. During construction, the applicant shall designate an "ESM" who will be responsible for overseeing project environmental protection measures.

Compliance Record

When Required: In the beginning – every week. Once construction is established – once a month until construction is completed.

SUBMITTED:

1. _____

2. _____

DATE SUBMITTED:

1. _____

2. _____

APPROVED:

1. _____

DATE APPROVED:

1. _____

Inspection Information

INSPECTED BY:	DATE:	INSEPECTED BY:	DATE:
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Corrective Actions Required

DATE:	ISSUE:	DATE RESOLVED:
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

AQ2 - Air - Construction Exhaust Emissions

- During construction the following additional approaches would be followed as appropriate to mitigate exhaust emissions:
 - During construction, maintain engine equipment and vehicle engines in good condition and in proper tune as per manufacturers' specifications;
 - Utilize newer, less polluting construction equipment whenever feasible;
 - Use alternative fuels such as biodiesel and natural gas for construction equipment whenever feasible;
 - Use equipment operating on electricity whenever feasible; and
 - Minimize the number of equipment operating simultaneously and limit operation duration.

Implementation and Verification

1. Compliance with Air Quality rules and mitigation measures to be included in bid specifications for construction contracts.
2. During construction, the applicant shall designate an "ESM" who will be responsible for overseeing project environmental protection measures.

Compliance Record

When Required: Throughout the construction process.

SUBMITTED:

1. _____
2. _____

DATE SUBMITTED:

1. _____
2. _____

APPROVED:

1. _____

DATE APPROVED:

1. _____

Inspection Information

INSPECTED BY:

DATE:

INSEPECTED BY:

DATE:

Corrective Actions Required

DATE:	ISSUE:	DATE RESOLVED:
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Noise and Vibration (N)

N1 - Temporary Construction Noise

- All noise-producing project equipment and vehicles using internal combustion engines shall be equipped with mufflers, air-inlet silencers where appropriate, and any other shrouds, shields, or other noise-reducing features in good operating condition that meet or exceed original factory specification.
- Mobile or fixed "package" equipment (e.g., arc-welders, air compressors) shall be equipped with shrouds and noise control features that are readily available for that type of equipment.
- All mobile or fixed noise-producing equipment used on the project, which is regulated for noise output by a local, state, or federal agency, shall comply with such regulation while in the course of project activity.
- Electrically powered equipment instead of pneumatic or internal combustion powered equipment shall be used, where feasible.
- Material stockpiles and mobile equipment staging, parking, and maintenance areas shall be located as far as practicable from noise-sensitive receptors.
- Construction site and access road speed limits shall be established and enforced during the construction period.
- Construction operations shall not occur between 7:00 P.M. and 7:00 A.M. Monday through Saturday or at any time on Sunday or on federal holidays, near noise-sensitive receptors. Construction contract provisions shall limit hours of construction including noisy maintenance activities and all spoils and material transport to these periods and days when construction activities are near noise-sensitive receptors.
- The use of noise-producing signals, including horns, whistles, alarms, and bells, shall be for safety warning purposes only.
- No project-related public address or music system shall be audible at any adjacent receptor.
- The on-site construction supervisor shall have the responsibility and authority to receive and resolve noise complaints. A clear appeal process to the owner shall be established prior to construction commencement to allow for resolution of noise problems that cannot be immediately solved by the site supervisor.
- All project workers exposed to noise levels above 80 dBA shall be provided with personal protective equipment for hearing protection (e.g., earplugs and/or earmuffs). Areas where noise levels are routinely expected to exceed 85 dBA shall be clearly posted with signs stating "Hearing Protection Required in this Area."
- When source and path modifications are not affective for mitigation or where only interior noise exposure is important (such as inside a residence), sound attenuation of the dwelling unit itself berms, or sound walls on private property could be considered an effective alternative mitigation measure. BNSF commits to the proposed or equivalent mitigation depending on the results of final engineering design and meetings with affected

property owners. A report from BNSF to the County documenting agreements made with property owners or attempts to reach reasonable agreements with property owners will be provided within a year of certification of the Final EIS/EIR.

Implementation and Verification

1. Compliance with noise regulations and mitigation measure to be included in bid specifications for construction contract.
2. During project construction, the "ESM" will enforce all mitigation measures to comply with noise regulations.
3. During construction, activities near residences will be limited at night time and adjustments to equipment operation and staging near sensitive receptors will be enforced.

Compliance Record

When Required: Throughout the construction process.

SUBMITTED:

DATE SUBMITTED:

1. _____
2. _____

1. _____
2. _____

APPROVED:

DATE APPROVED:

1. _____

1. _____

Inspection Information

INSPECTED BY:

DATE:

INSEPECTED BY:

DATE:

Corrective Actions Required

DATE:

ISSUE:

DATE RESOLVED:

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Hazards and Hazardous Materials (HM)

HM1 - Soil and Water - Contamination During Construction and Operation Activities

- Areas with known spill sites would be monitored by the ESM during project implementation; and
- In the event contamination is encountered, it shall be addressed according to applicable state and federal regulations.
- Speckled dace individuals would be transplanted to a pool near MP 62.45 that is currently devoid of this species. The pool and tributary stream connect to Cajon Creek upstream of several potential spill areas.

Implementation and Verification

1. Prior to construction, the applicant shall prepare and submit a “Hazardous Materials Emergency Response” plan, for review and approval by County Fire Department, to be enforced by “ESM”.
2. During construction, major equipment and maintenance and vehicle fueling with the construction area will occur within a lined containment area to prevent/minimize release to surrounding environment.

Compliance Record

When Required: Throughout the construction process.

SUBMITTED:

1. _____
2. _____

DATE SUBMITTED:

1. _____
2. _____

APPROVED:

1. _____

DATE APPROVED:

1. _____

Inspection Information

INSPECTED BY:

DATE:

INSEPECTED BY:

DATE:

_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Corrective Actions Required

DATE:	ISSUE:	DATE RESOLVED:
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

BIOLOGICAL ENVIRONMENT

Vegetation & Wildlife (VW)

VW1 - Common Vegetation & Wildlife – Loss/Disturbance of Species and/or Habitat Type

- Project personnel will exercise caution when commuting to the construction area to minimize any chance for the inadvertent injury or mortality of species encountered on major roads leading to and from the construction area. BNSF's contractors and employees will report all such incidents directly to the ESM.
- Employees and contractors will look under vehicles and equipment for the presence of protected species prior to movement. No equipment will be moved until the animal has left voluntarily or is removed by a biologist authorized to do so.
- Construction activities between dusk and dawn will be limited to specific construction operations and light shields (or similar barriers will be used).
- A pre-construction survey of each project component located within areas identified during BNSF surveys as special status species habitat will be conducted by an authorized biologist no more than seven days prior to the onset of activities.
- Qualified biologists will monitor work where prior BNSF surveys have documented the occurrence of one or more listed species. The ESM will have the authority to halt non-emergency actions that might result in harm to a listed species, and will assist in the overall implementation of protection measures for listed species during project operations.
- If a listed species is located during construction, and a contingency for avoidance, removal, or transplant has not been approved by USFWS or appropriate agency, BNSF will not proceed with project activity until specific consultation with USFWS or other appropriate agency is completed.
- All encounters with listed species will be reported to the ESM, who will record the following information:
 - Species name;
 - Location (narrative and maps) and dates of observations;
 - General condition and health, including injuries and state of healing;
 - Diagnostic markings, including identification numbers or markers; and
 - Locations moved from and to (if appropriate).
- Employees and contractors will be informed during one or more training sessions that they are not authorized to handle or otherwise move listed species either commuting to and from, or at a work site.
- Upon locating a dead or injured protected species, BNSF will notify USFWS and appropriate State wildlife agency. Written notification must be made within 15 days of

- the date and time of the finding or incident (if known) and must include: Location of the carcass, a photograph, cause of death (if known), and other pertinent information.
- OHV barriers will be installed where feasible to reduce impacts on vegetation and wildlife species.
 - BNSF will install and maintain up to four temporary water sources for wildlife where access (at locations determined by USFS) to existing waters is blocked by construction.
 - To the extent practical and appropriate as a result of project impacts, culverts are to be modified to accommodate for wildlife access and minimize downstream erosion/sedimentation. The culvert outlets as appropriate will be modified to facilitate the above referenced objectives on a case-by-case basis.
 - The riprap size (1/4 ton or 1-ton) will be based upon the proposed culvert outlet hydraulics (i.e., velocity/discharge).
 - The riprap dimensions (i.e., length and width) will be based upon the more conservative of either: 1) the amount required to fill the existing scour hole; or 2) the amount required based upon the culvert outlet hydraulics in order to minimize erosion/sedimentation downstream. Existing scour holes that provide a source of drinking water for wildlife will be protected.
 - The riprap dimensions will minimize impacts and complement the hydraulics of the culvert to both provide wildlife access and minimize downstream erosion/sedimentation to the extent practical.
 - Upon completion of project activities, BNSF will submit a standardized report to the USFWS for distribution to other agencies. The report will document the effectiveness and practicality of the conservation measures, the number of individuals of each special status species discovered during construction and the number of individuals killed or injured, and other pertinent information. The report will also make recommendations for modifying the stipulations in order to enhance species protection in the future. The final report will provide the actual acreage disturbed by project activities by habitat type.
 - Environmentally sensitive areas along the BNSF ROW, such as streambeds, critical habitat, habitat for special status species, etc. will be delineated with brightly colored fencing or similar materials.
 - A “drift fence” composed of silt fence (or similar) material will be installed wherever construction is taking place within environmentally sensitive areas (such as streambeds, critical habitat, habitat for special status species, etc.) to the maximum extent practical. The fence will be in place far enough ahead of the construction to effectively exclude special status species from the work space prior to construction. The fence may be removed progressively behind equipment as the construction progresses.
 - Noise levels resulting from construction activities shall be controlled, shielded lights will be used to minimize the effects of construction related lighting, and a physical barrier (e.g., silt fencing) will be utilized to control impacts to wildlife per the project EIR.

- The construction ROW will be limited to 100 feet (30.48 meters) either side of the centerline in width, with the exception of authorized extra workspace areas. The construction ROW will be clearly staked and flagged in advance of construction. The construction area includes approved work areas for access roads, staging and equipment storage.
- BNSF will install permanent retaining wall structures in identified sensitive environmental areas (Figure 2-1).
- Limits of grading and construction activities should be clearly delineated so that no vegetation outside the delineated grading limits would be disturbed by construction personnel or equipment. Project personnel will drive only on existing roads outside of construction limits.
- Where practicable, weed-free topsoil will be segregated, collected, and stored in an appropriate manner for use during restoration of temporary disturbance areas following construction. BNSF has committed to developing a topsoil salvage plan for inclusion in any restoration and maintenance documents. Furthermore, compacted soil in areas of temporary disturbance will be decompacted in an appropriate manner, and will occur prior to potential placement of salvaged topsoil. Fill material will be certified weed-free.
- A Habitat Mitigation Monitoring Plan (HMMP) has been developed to summarize avoidance, restoration, enhancement, creation, and preservation commitments associated with vegetation communities that will serve as compensation for the loss of habitat resulting from the Project to be completed over a 5-year period. The HMMP details compensation for: permanent loss of: (1) "Waters of the U.S.", including non-tidal wetlands; streambed habitat, and "Waters of the State" that results from Project activities authorized under Section 404 and 401 of the Clean Water Act (CWA), and California Fish and Game Section 1600 (et seq.) (URS, 2006d); (2) potential direct, indirect, and cumulative Project related effects on four federally threatened and endangered species and their designated critical habitat; and (3) required compliance with the substantive mitigation provisions for specific plant communities detailed in this EIS/EIR
 - Vegetation communities common to the region, including southern mixed chaparral, Riversidian upland sage scrub, and semi-desert chaparral, will be mitigated at a 0.5:1 ratio.
 - Vegetation communities considered regionally sensitive, including southern willow scrub, riversidian alluvial fan sage scrub, southern cottonwood-willow riparian forest, California walnut woodland, sandy river wash, and valley and foothill grassland will be mitigated at a 3:1 ratio.
 - Mitigation will be implemented onsite where feasible, with the remainder occurring offsite.
- To reduce the potential for spread of invasive non-native species and minimize the potential for disturbance activities to decrease palatable vegetation for wildlife species, the project has included the following resource protection measures:
 - In accordance with Executive Order 13112, the construction area within lands administered by the USFS will be surveyed by a qualified noxious weed authority

that will identify all noxious weeds present and provide a list to the authorized officer. A determination will be made by the authorized officer of any noxious weeds that require flagging for treatment prior to construction. Treatment will be according to instruction of the authorized officer. Any use of herbicides in California will be handled by properly-licensed county agricultural agents. Any use of herbicides on USFS lands will comply with the Sulfometuron Methyl and Glyphosate Human Health and Ecological Risk Assessment Final Report (USDA 2003 and USDA 2004).

- Prior to construction, populations of plants listed as invasive exotics by the California Exotic Plant Pest Council in the most recent “CalEPPC” A or Red Alert list, as well as any other species identified by USFS or SBNF already existing in native habitat where construction is planned, will be identified on the ground and on maps through a preconstruction survey. This will establish a baseline from which to locate equipment washdown stations as well as to evaluate post-construction monitoring surveys.
- Disposal of soil and plant materials from non-native areas will not be allowed in native areas. That is, no disposal or transfer for excess spoils or plant materials from non-native areas will be allowed into native cover type areas.
- All construction equipment will be washed prior to entering the construction area to prevent the spread of invasive weeds from other areas. Clearing and grading equipment will be washed down with high-pressure water prior to moving from infested areas to non-infested areas.
- Construction personnel will be educated on the importance of controlling and preventing the spread of invasive non-native species infestations. Gravel and/or fill material to be placed in relatively weed-free areas will come from weed free sources.

Implementation and Verification

1. Prior to construction, the applicant shall designate an “ESM” who will be responsible for overseeing project environmental protection measures – preconstruction botanical species habitat surveys conducted by authorized biologists.
2. During construction, the “ESM” shall work with approved personnel to enforce and manage measures to protect common vegetation and wildlife habitat.
3. Post-construction report shall be submitted to USFWS and USFS for review and approval.

Compliance Record

When Required: Throughout the construction process.

SUBMITTED:

1. _____

2. _____

APPROVED:

1. _____

DATE SUBMITTED:

1. _____

2. _____

DATE APPROVED:

1. _____

Inspection Information

INSPECTED BY:

DATE:

INSEPECTED BY:

DATE:

Corrective Actions Required

DATE:

ISSUE:

DATE RESOLVED:

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

VW2 - Special Status Vegetation – Loss/Disturbance of Species and/or Habitat Type

- A pre-construction survey of each project component located within areas identified during BNSF surveys as listed botanical species habitat will be conducted by an authorized biologist during the spring prior to the onset of activities.
- If individuals of Threatened or Endangered status plant species (Federal or State listed) are found or known to occur in the construction area, the route will be realigned or necked down to avoid the plants where feasible. Otherwise, individual plants that would be impacted by construction will be relocated to the nearest suitable habitat outside of the construction area, watered at the time of transplantation, and watered monthly for four months.
- To date, no federally threatened plant species have been detected within the proposed construction area.

Implementation and Verification

1. Prior to construction, the applicant shall designate an “ESM” who will be responsible for overseeing project environmental protection measures – preconstruction botanical species habitat surveys conducted by authorized biologists.
2. During construction, the “ESM” will halt construction activities – in the event that a Threatened or Endangered status plant species are found – and will assist in the overall implementation of protection measures for listed botanical species during project operations.

Compliance Record

When Required: Throughout the construction process.

SUBMITTED:

1. _____

2. _____

APPROVED:

1. _____

DATE SUBMITTED:

1. _____

2. _____

DATE APPROVED:

1. _____

Inspection Information

INSPECTED BY:	DATE:	INSEPECTED BY:	DATE:
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Corrective Actions Required

DATE:	ISSUE:	DATE RESOLVED:
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

VW3 - Wetlands and Other Jurisdictional Waters – Loss/Disturbance of Species and/or Habitat Type

- Un-vegetated waters would be mitigated at a 1:1 ratio. Waters would be mitigated in terms of surface area, i.e. one acre (0.4 ha) would be replaced for every acre (0.4 ha) removed. Mitigation would be implemented onsite where feasible, with the remainder occurring offsite.
- Wetlands would be mitigated at a 3:1 ratio. Mitigation offsite.

Implementation and Verification

1. During construction, the “ESM” will be responsible for managing wetlands and jurisdictional waters.
2. On-site mitigation areas shall be fenced and signage installed to prevent unauthorized activities and disturbance.

Compliance Record

When Required: Throughout the construction process.

SUBMITTED:

1. _____
2. _____

DATE SUBMITTED:

1. _____
2. _____

APPROVED:

1. _____

DATE APPROVED:

1. _____

Inspection Information

INSPECTED BY:

DATE:

INSEPECTED BY:

DATE:

Corrective Actions Required

DATE:	ISSUE:	DATE RESOLVED:
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

VW4 - Arroyo Toad – Loss/Disturbance of Species and/or Habitat Type

- To the maximum extent practical nightly pre-construction sweeps of the construction area in the vicinity of suitable arroyo toad habitat will be conducted.
- A “drift fence” (silt fence or similar material) will be installed wherever construction is taking place within 100 yards to 1 km of suitable arroyo toad habitat (depending on topography and access to breeding habitat). The fence will be installed far enough ahead of the construction to effectively exclude toads from the work space for a period of 24 hours prior to construction. The fence may be removed progressively behind equipment as the construction footprint is re-graded. This fence will exclude foraging arroyo toads from the work area and will be cleared before construction begins every morning by a qualified biological monitor. This process will proceed every hour if there is any measurable precipitation. Toads found on the inside of the enclosure will be placed outside on the stream side of the enclosure by a biologist permitted by the USFWS to handle arroyo toads. Toads found on the outside of the enclosure will be placed out of harm's way and in such a manner as to facilitate the toads' presumed trajectory.
- The USFWS will approve in writing those monitors who will be permitted to handle arroyo toads. BNSF will submit to USFWS a list of monitors with their credentials regarding their experience in identification and handling of herptofauna. BNSF will provide to the USFWS the training schedule and curriculum that is proposed for training arroyo toad monitors. The USFWS will respond with a list of the approved monitors.
- There will be daily biological monitoring of all construction activities occurring within or immediately adjacent to arroyo toad occupied habitat.
- An arroyo toad breeding season monitoring implementation plan will be developed that will include fencing, monitoring, and relocation specifications. Immediately following contract award, a construction schedule will be requested of BNSF in order to adequately coordinate monitoring during the breeding season. The monitoring plan will be submitted to USFWS for approval prior to commencement of construction.
- Project construction will avoid work within stream channels to the maximum extent practicable.
- During all construction activities, temporary access roads will be constructed and maintained to specified standards as shown on the engineering drawings and construction plans and as detailed in the contract specifications.
- Construction personnel and the biological monitors will be trained and supervised by a qualified herpetologist on the identification and avoidance of the arroyo toad.
- Directional lighting will be used when construction is within the vicinity of arroyo toad habitat.

Implementation and Verification

- 1. Prior to construction, the applicant shall designate an “ESM” who will be responsible for overseeing project environmental protection measures – daily monitoring for Arroyo Toads by authorized biologists.
- 2. During construction, the “ESM” will coordinate with the USFWS and enforce the measures to protect the Arroyo Southwestern Toad and its habitat.
- 3. Submit breeding season monitoring plan to USFWS for review and approval.

Compliance Record

When Required: Throughout the construction process.

SUBMITTED:

1. _____

2. _____

APPROVED:

1. _____

DATE SUBMITTED:

1. _____

2. _____

DATE APPROVED:

1. _____

Inspection Information

INSPECTED BY:

DATE:

INSEPECTED BY:

DATE:

Corrective Actions Required

DATE:

ISSUE:

DATE RESOLVED:

VW5 - San Bernardino Kangaroo Rat – Loss/Disturbance of Species and/or Habitat Type

- To the maximum extent practical, including temperature permitting (50 degree F minimum), nightly pre-construction trapping of the construction area in the vicinity of suitable SBKR habitat will be conducted. This trapping will occur using the USFWS protocol and by an approved biologist permitted by the USFWS to handle SBKR.
- A “drift fence” (silt fence, or similar material) will be installed wherever construction is taking place within 100 yards of suitable SBKR habitat (depending on topography and access to breeding habitat). The fence will be in place far enough ahead of the construction to effectively exclude kangaroo rats from the work space for a period of 24 hours prior to construction. The fence may be removed progressively behind equipment as the construction footprint is re-graded. Kangaroo rats trapped on the inside of the enclosure will be relocated outside within Riversidean alluvial sage scrub by a biologist permitted by the USFWS to handle SBKR.
- The USFWS will approve in writing those monitors who will be permitted to handle SBKR. BNSF will submit to USFWS a list of monitors with their credentials regarding their experience in identification and handling of small mammals. BNSF will provide to the USFWS the training schedule and curriculum that is proposed for training SBKR monitors. The USFWS will respond with a list of the approved monitors.
- There will be daily biological monitoring of all construction activities occurring within or immediately adjacent to SBKR occupied habitat.
- During construction, temporary access roads will be constructed and maintained to specified standards as shown on the engineering drawings/construction plans (per engineering specifications). Construction personnel and equipment will be prohibited from driving off these roads/entering environmentally sensitive areas/etc.
- Prior to commencement of construction, any construction personnel and the biological monitors will be trained and supervised by a qualified mammalogist on the identification and avoidance of the SBKR.
- Directional lighting will be used when construction is within the vicinity of SBKR habitat.

Implementation and Verification

1. Prior to construction, the applicant shall designate an “ESM” who will be responsible for overseeing project environmental protection measures – daily monitoring for San Bernardino Kangaroo Rat by authorized biologists
2. During construction, the “ESM” will coordinate with the USFWS to enforce measures to protect the San Bernardino Kangaroo Rat and its habitat.

Compliance Record

When Required: Throughout the construction process.

SUBMITTED:

1. _____

2. _____

APPROVED:

1. _____

DATE SUBMITTED:

1. _____

2. _____

DATE APPROVED:

1. _____

Inspection Information

INSPECTED BY:

DATE:

INSEPECTED BY:

DATE:

Corrective Actions Required

DATE:

ISSUE:

DATE RESOLVED:

VW6 - Least Bell's Vireo and Southwestern Willow Flycatcher – Loss/Disturbance of Species and/or Habitat Type

- Potential LBVI habitat in riparian areas will be avoided to the maximum extent practicable.
- Presence/absence surveys for vireo will be conducted during the vireo breeding season (March 15 through June 15) to determine the need for implementation of noise mitigation measures. A construction schedule will be utilized to coordinate surveys.
- Any construction or installation work performed within 150 m (500 feet) of occupied LBVI habitat during the period of March 15 to June 15 of any given year will limit noise, dust, night-time lighting, and human presence to the greatest extent feasible. Noise, dust, nighttime lighting, and human presence will be limited as follows:
 - Noise levels will be controlled with residential or better level mufflers or engine enclosures on mobile equipment.
 - When night-time operations are required, activities will be conducted behind suitable barriers that will effectively control noise and light emissions. These barriers will be placed in areas abutting or adjacent to suitable and/or occupied LBVI habitat and installed prior to construction. The type of barriers and placement of these barriers will be undertaken with input from a qualified biologist.
 - Noise levels as measured at the edge of occupied habitat will be restricted to ambient pre-construction conditions, with a goal of reducing noise to below ambient whenever and wherever practicable. There will be no construction-related pedestrian access to any riparian habitat during breeding season, except in case of emergency and to adequately monitor construction.
 - Ambient dust related to construction haul roads, access roads, staging areas, and disposal sites will be watered to control or reduce ambient dust generated from construction activities.
 - Directional lighting will be used when construction is within the vicinity of suitable habitat.
- Construction work performed within 150 meters (500 feet) of potential habitat for least Bell's vireo during the period of March 15 to June 15 will be monitored weekly by a qualified biologist. Monthly monitoring letter reports of construction activities and their effects on biological resources will be provided to the USACE and USFWS.

Implementation and Verification

1. Prior to construction, the applicant shall designate an "ESM" who will be responsible for overseeing project environmental protection measures – Least Bell's Vireo.
2. During construction, the "ESM" will coordinate with the USFWS to enforce measures to protect the Least Bell's Vireo and its habitat.

Compliance Record

When Required: Throughout the construction process.

SUBMITTED:

1. _____

2. _____

APPROVED:

1. _____

DATE SUBMITTED:

1. _____

2. _____

DATE APPROVED:

1. _____

Inspection Information

INSPECTED BY:

DATE:

INSEPECTED BY:

DATE:

Corrective Actions Required

DATE:

ISSUE:

DATE RESOLVED:

DATE:	ISSUE:	DATE RESOLVED:
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

HUMAN ENVIRONMENT

Transportation (T)

T1 - Traffic – Emergency Vehicle Traffic, Alternative Routes, Circulation

- Prior to the start of construction, a construction Traffic Control Plan (TCP) shall be developed. The plan should address construction employee parking, construction equipment staging, potential lane closures, time of construction activities (off-peak hours), truck/ haul routes, and work zone traffic control.

Implementation and Verification

1. Prior to construction, the applicant shall develop and submit a TCP and obtain encroachment permits for any County Road closures.
2. During construction, the “ESM” will enforce measures of the TCP.

Compliance Record

When Required: Once, prior to the start of the construction process.

SUBMITTED:

DATE SUBMITTED:

1. _____

1. _____

2. _____

2. _____

APPROVED:

DATE APPROVED:

1. _____

1. _____

Inspection Information

INSPECTED BY:

DATE:

INSEPECTED BY:

DATE:

Corrective Actions Required

DATE:	ISSUE:	DATE RESOLVED:
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Utilities and Public Services (U)

U1 - Telecommunication, Fiber Optic, Natural Gas, and Petroleum

- Measures to avoid impacts to all utilities shall be undertaken by BNSF prior to construction activities and include the locating and clearly designating all underground utilities prior to initiating construction activities;
- When the utilities cross the BNSF ROW, it is the responsibility of the individual utility companies to determine if the facilities can be protected in place or need to be re-located to avoid impacts from the Proposed Action;
- Prior to earth-moving activities, underground transmission lines shall be located in the field and excavation near electrical lines will be completed using BMPs to prevent potential service disruptions;
- The construction and operation impacts to fiber-optic lines shall be mitigated jointly by BNSF construction crews, Time Warner, and Level (3) Communications; and
- Construction and operation impacts to pipelines shall be mitigated jointly by BNSF construction crews, the SCG, and Kinder Morgan.

Implementation and Verification

1. Prior to construction, the applicant shall contact the individual utilities and jointly prepare a mitigation approach that will adequately address potential impacts to each of the individual utilities..
2. During construction, the "ESM" will coordinate with construction crews, the SCG, and Kinder Morgan to enforce measures of the "Utilities and Public Services Management Plan.

Compliance Record

When Required: Once, prior to the start of the construction process.

SUBMITTED:

1. _____

2. _____

APPROVED:

1. _____

DATE SUBMITTED:

1. _____

2. _____

DATE APPROVED:

1. _____

Inspection Information

INSPECTED BY:	DATE:	INSEPECTED BY:	DATE:
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Corrective Actions Required

DATE:	ISSUE:	DATE RESOLVED:
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Cultural Resources (C)

C1 - Cultural – Previously Recorded Historic Structures Damage

- It is recommended the following resources receive Level 1 HABS/HAER documentation: P-36-012317 and P-36-012318. It is recommended the following resources receive Level 2 HABS/HAER documentation: P-36-012316, P-36-012320, P-36-012322, P-36-012324, P-36-012325, P-36-012327, and SBR-6793H. It is recommended the following resources receive Level 3 HABS/HAER documentation: P-36-012319, P-36-012321, P-36-012323, P-36-012326, P-36-012328, P-36-012329, P-36-012330, P-36-012618, P-36-012619, and SBR-7093H. HABS/HAER documentation would be archived and preserved in the Prints and Photographs Division of the Library of Congress.
- It is also recommended supplemental to HABS/HAER documentation, mitigation should include the preservation, rehabilitation, restoration, and/or reconstruction of the affected historic features and resources (per the *Secretary of Interior Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings*). The Secretary of Interior treatment standards are outlined in 36 CFR §68.
- Another form of mitigation, conducted as an alternative to HABS/HAER documentation, may be the development of a Historic Structures Investigation (HSI). The HSI would be comparable to a Historic Structures Report, as suggested by the National Parks Service in *Preservation Brief 43: The Preparation and Use of Historic Structures Reports*. Essentially, an HSI is an effective form of preservation planning, which identifies the appropriate treatment (i.e., preservation, rehabilitation, restoration, reconstruction) and documents the existing conditions of a historic property.
- Supplemental to all the mitigation outlined above, archaeological monitoring by a qualified ESM, in areas of archaeological sensitivity, including the Crowder Canyon Archaeological District (Upper Cajon Pass); near the Davis Ranch and where the hearth feature (SBR-12430) was identified; the Muscupiabit Proto-Historic Site (SBR-425/H); in the area of SBR-12431, where several prehistoric sites have been previously recorded; and, in the area of the previously unrecorded sites of P-36-012324, P-36-012618 and P-36-012619 (this area may be the location of a railroad worker's camp, which if identified could contribute significantly to the historical interpretation of the railroad construction during the beginning of the 20th century). The assistance of a Native American representative will be required for areas with either known recent Native American or prehistoric Native American remains or if construction unearths a previously undocumented prehistoric site.

Implementation and Verification

1. Prior to construction, the applicant shall coordinate with the ESM to ensure the appropriate HABS/HAER documentation be completed.

- 2. During construction, the ESM shall work in coordination with a local Native American representative to identify and protect any potential archeological sensitive areas that may be unearthed.

Compliance Record

When Required: Daily throughout the construction process in sensitive resource areas.

SUBMITTED:

DATE SUBMITTED:

1. _____

1. _____

2. _____

2. _____

APPROVED:

DATE APPROVED:

1. _____

1. _____

Inspection Information

INSPECTED BY:

DATE:

INSEPECTED BY:

DATE:

Corrective Actions Required

DATE:

ISSUE:

DATE RESOLVED:

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

C2 - Paleontological – Paleontological Loss or Destruction

- An experienced vertebrate paleontologist or paleontologic monitor must be onsite full time in paleontologically sensitive areas during excavations and grading activities when native soils would be disturbed. All exposed vertebrate and representative samples of megainvertebrate and plant fossils will be collected. The monitor would be empowered to temporarily halt construction for the purposes of recovery. Where productive sites are excavated, approximately 2,000 pound rock samples will be collected to process for microvertebrate fossil remains. These samples will be collected in 25lb bags and one 2,000 lb sample will be collected for every productive site excavated. Fossils recovered will be prepared to the point of identification, analyzed, and curated into a Federally-recognized repository. A final report will be prepared that contains a summary of the mitigation monitoring and laboratory test methods performed, a description of the site geology and stratigraphy encountered, a faunal list of taxa recovered, as well as a discussion of the significance of fossil discoveries. Appended to the report shall be the applicable supporting documentation including: field notes, geologic maps, stratigraphic sections, and an itemized inventory of specimens.

Implementation and Verification

1. Prior to construction, the applicant shall coordinate with the ESM and experienced vertebrate paleontologist to scan the construction areas for potential paleontological sensitivity.
2. During construction, the ESM shall coordinate with the experienced vertebrate paleontologist to ensure monitoring of sensitive areas is conducted and construction progress be temporarily halted in the event that an item of importance is unearthed.
3. Final Report shall be submitted to County Museum for review and approval.

Compliance Record

When Required: Daily throughout the construction process in sensitive resource areas.

SUBMITTED:

1. _____

2. _____

APPROVED:

1. _____

DATE SUBMITTED:

1. _____

2. _____

DATE APPROVED:

1. _____

Inspection Information

INSPECTED BY:	DATE:	INSEPECTED BY:	DATE:
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Corrective Actions Required

DATE:	ISSUE:	DATE RESOLVED:
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

This page intentionally left blank

Mitigation Monitoring and Reporting Table

This page intentionally left blank

**MITIGATION MONITORING AND REPORTING TABLE
BNSF KEENBROOK TO SUMMIT PROJECT**

Resource Area	Resource	Description of Impact	Environmental Commitment/Mitigation	Responsible Party	Compliance Record (When Required)	Duration	Implementation and Verification
Physical Environment							
Air Quality	Air	Construction Fugitive Dust	<ul style="list-style-type: none"> The SCAQMD and MDAQMD rules aimed at mitigating fugitive dust emissions during construction would be followed. The SCAQMD and MDAQMD rules regulating fugitive dust emissions and nuisance causing emissions are similar. However, SCAQMD's Rule 403 details BACMs for the mitigation of fugitive dust emissions. Compliance with these rules and the implementation of applicable BACMs can reduce fugitive dust emissions by as much as 50 to 75%, thus reducing the PM₁₀ emission component. 	Applicant / Environmental Site Manager	Prior and During Construction	Approximately 1 year or until construction is complete	<ul style="list-style-type: none"> Compliance with Air Quality rules and mitigation measures to be included in bid specifications for construction contracts. Prior to construction, a dust management plan (DMP) shall be prepared to minimize potential air quality impacts associated with construction of the Proposed Action. During construction, the applicant shall designate an "ESM" who will be responsible for overseeing project environmental protection measures.
		Construction Exhaust Emissions	<p>During construction the following additional approaches would be followed as appropriate to mitigate exhaust emissions:</p> <ul style="list-style-type: none"> During construction, maintain engine equipment and vehicle engines in good condition and in proper tune as per manufacturers' specifications; Utilize newer, less polluting construction equipment whenever feasible; Use alternative fuels such as bio-diesel and natural gas for construction equipment whenever feasible; Use equipment operating on electricity whenever feasible; and Minimize the number of equipment operating simultaneously and limit operation duration. 	Applicant / Environmental Site Manager	During Construction	Approximately 1 year or until construction is complete	<ul style="list-style-type: none"> Compliance with Air Quality rules and mitigation measures to be included in bid specifications for construction contracts. During construction, the applicant shall designate an "ESM" who will be responsible for overseeing project environmental protection measures.
Noise and Vibration	Noise	Temporary Construction Noise	<ul style="list-style-type: none"> All noise-producing project equipment and vehicles using internal combustion engines shall be equipped with mufflers, air-inlet silencers where appropriate, and any other shrouds, shields, or other noise-reducing features in good operating condition that meet or exceed original factory specification. Mobile or fixed "package" equipment (e.g., arc-welders, air compressors) shall be equipped with shrouds and noise control features that are readily available for that type of equipment. All mobile or fixed noise-producing equipment used on the project, which is regulated for noise output by a local, state, or federal agency, shall comply with such regulation while in the course of project activity. Electrically powered equipment instead of pneumatic or internal combustion powered equipment shall be used, where feasible. Material stockpiles and mobile equipment staging, parking, and maintenance areas shall be located as far as practicable from noise- 	Applicant / Environmental Site Manager	During Construction	Throughout the construction process	<ul style="list-style-type: none"> Compliance with noise regulations and mitigation measure to be included in bid specifications for construction contract. During project construction, the "ESM" will enforce all mitigation measures to comply with noise regulations. During construction, activities near residences will be limited at night time and adjustments to equipment operation and staging near sensitive receptors will be enforced.

**MITIGATION MONITORING AND REPORTING TABLE
BNSF KEENBROOK TO SUMMIT PROJECT**

Resource Area	Resource	Description of Impact	Environmental Commitment/Mitigation	Responsible Party	Compliance Record (When Required)	Duration	Implementation and Verification
			<p>sensitive receptors.</p> <ul style="list-style-type: none"> ▪ Construction site and access road speed limits shall be established and enforced during the construction period. ▪ Construction operations shall not occur between 7:00 P.M. and 7:00 A.M. Monday through Saturday or at any time on Sunday or on federal holidays, near noise-sensitive receptors. Construction contract provisions shall limit hours of construction including noisy maintenance activities and all spoils and material transport to these periods and days when construction activities are near noise-sensitive receptors. ▪ The use of noise-producing signals, including horns, whistles, alarms, and bells, shall be for safety warning purposes only. ▪ No project-related public address or music system shall be audible at any adjacent receptor. ▪ The on-site construction supervisor shall have the responsibility and authority to receive and resolve noise complaints. A clear appeal process to the owner shall be established prior to construction commencement to allow for resolution of noise problems that cannot be immediately solved by the site supervisor. ▪ All project workers exposed to noise levels above 80 dBA shall be provided with personal protective equipment for hearing protection (e.g., earplugs and/or earmuffs). Areas where noise levels are routinely expected to exceed 85 dBA shall be clearly posted with signs stating "Hearing Protection Required in this Area." ▪ When source and path modifications are not affective for mitigation or where only interior noise exposure is important (such as inside a residence), sound attenuation of the dwelling unit itself berms, or sound walls on private property could be considered an effective alternative mitigation measure. BNSF commits to the proposed or equivalent mitigation depending on the results of final engineering design and meetings with affected property owners. A report from BNSF to the County documenting agreements made with property owners or attempts to reach reasonable agreements with property owners will be provided within a year of certification of the Final EIS/EIR. 				
Hazards and Hazardous Materials	Soil / Water	Contamination During Construction and Operation Activities	<ul style="list-style-type: none"> ▪ Areas with known spill sites would be monitored by the ESM during project implementation; and ▪ In the event contamination is encountered, it shall be addressed according to applicable state and federal regulations. ▪ Speckled dace individuals would be transplanted to a pool near MP 62.45 that is currently devoid of this species. The pool and tributary stream connect to 	Applicant / Environmental Site Manager	During Construction	Throughout the construction process	<ul style="list-style-type: none"> ▪ Prior to construction, the applicant shall prepare and submit a "Hazardous Materials Emergency Response" plan, to be enforced by "ESM". ▪ During construction, major equipment and maintenance and vehicle fueling with the construction area will occur within a lined containment area to prevent/minimize release to surrounding environment.

**MITIGATION MONITORING AND REPORTING TABLE
BNSF KEENBROOK TO SUMMIT PROJECT**

Resource Area	Resource	Description of Impact	Environmental Commitment/Mitigation	Responsible Party	Compliance Record (When Required)	Duration	Implementation and Verification
Biological Resources							
Vegetation & Wildlife	Common Vegetation & Wildlife	Loss / Disturbance of Species and / or Habitat Type	<ul style="list-style-type: none"> ▪ Project personnel will exercise caution when commuting to the construction area to minimize any chance for the inadvertent injury or mortality of species encountered on major roads leading to and from the construction area. BNSF's contractors and employees will report all such incidents directly to the ESM. ▪ Employees and contractors will look under vehicles and equipment for the presence of protected species prior to movement. No equipment will be moved until the animal has left voluntarily or is removed by a biologist authorized to do so. ▪ Construction activities between dusk and dawn will be limited to specific construction operations and light shields (or similar barriers will be used). ▪ A pre-construction survey of each project component located within areas identified during BNSF surveys as special status species habitat will be conducted by an authorized biologist no more than seven days prior to the onset of activities. ▪ Qualified biologists will monitor work where prior BNSF surveys have documented the occurrence of one or more listed species. The ESM will have the authority to halt non-emergency actions that might result in harm to a listed species, and will assist in the overall implementation of protection measures for listed species during project operations. ▪ If a listed species is located during construction, and a contingency for avoidance, removal, or transplant has not been approved by USFWS or appropriate agency, BNSF will not proceed with project activity until specific consultation with USFWS or other appropriate agency is completed. ▪ All encounters with listed species will be reported to the ESM, who will record the following information: <ul style="list-style-type: none"> ▪ Species name; ▪ Location (narrative and maps) and dates of observations; ▪ General condition and health, including injuries and state of healing; ▪ Diagnostic markings, including identification numbers or markers; and ▪ Locations moved from and to (if appropriate). ▪ Employees and contractors will be informed during one or more training sessions that they are not authorized to handle or otherwise move listed species either commuting to and from, or at a work site. ▪ Upon locating a dead or injured protected species, BNSF will notify USFWS and appropriate State wildlife agency. Written notification 	Applicant / Environmental Site Manager	During Construction	Throughout the construction process	<ul style="list-style-type: none"> ▪ Prior to construction, the applicant shall designate an "ESM" who will be responsible for overseeing project environmental protection measures – preconstruction botanical species habitat surveys conducted by authorized biologists. ▪ During construction, the "ESM" shall work with approved personnel to enforce and manage measures to protect common vegetation habitat.

**MITIGATION MONITORING AND REPORTING TABLE
BNSF KEENBROOK TO SUMMIT PROJECT**

Resource Area	Resource	Description of Impact	Environmental Commitment/Mitigation	Responsible Party	Compliance Record (When Required)	Duration	Implementation and Verification
			<p>must be made within 15 days of the date and time of the finding or incident (if known) and must include: Location of the carcass, a photograph, cause of death (if known), and other pertinent information.</p> <ul style="list-style-type: none"> ▪ OHV barriers will be installed where feasible to reduce impacts on vegetation and wildlife species. ▪ BNSF will install and maintain up to four temporary water sources for wildlife where access (at locations determined by USFS) to existing waters is blocked by construction. ▪ To the extent practical and appropriate as a result of project impacts, culverts are to be modified to accommodate for wildlife access and minimize downstream erosion/sedimentation. The culvert outlets as appropriate will be modified to facilitate the above referenced objectives on a case-by-case basis. ▪ The riprap size (1/4 ton or 1-ton) will be based upon the proposed culvert outlet hydraulics (i.e., velocity/discharge). ▪ The riprap dimensions (i.e., length and width) will be based upon the more conservative of either: 1) the amount required to fill the existing scour hole; or 2) the amount required based upon the culvert outlet hydraulics in order to minimize erosion/sedimentation downstream. Existing scour holes that provide a source of drinking water for wildlife will be protected. ▪ The riprap dimensions will minimize impacts and complement the hydraulics of the culvert to both provide wildlife access and minimize downstream erosion/sedimentation to the extent practical. ▪ Upon completion of project activities, BNSF will submit a standardized report to the USFWS for distribution to other agencies. The report will document the effectiveness and practicality of the conservation measures, the number of individuals of each special status species discovered during construction and the number of individuals killed or injured, and other pertinent information. The report will also make recommendations for modifying the stipulations in order to enhance species protection in the future. The final report will provide the actual acreage disturbed by project activities by habitat type. ▪ Environmentally sensitive areas along the BNSF ROW, such as streambeds, critical habitat, habitat for special status species, etc. will be delineated with brightly colored fencing or similar materials. ▪ A "drift fence" composed of silt fence (or similar) material will be installed wherever construction is taking place within environmentally sensitive areas (such as streambeds, critical habitat, habitat for special status species, etc.) to the maximum extent practical. The fence will be in place far enough ahead of the construction to effectively exclude special status species from the work space prior 				

**MITIGATION MONITORING AND REPORTING TABLE
BNSF KEENBROOK TO SUMMIT PROJECT**

Resource Area	Resource	Description of Impact	Environmental Commitment/Mitigation	Responsible Party	Compliance Record (When Required)	Duration	Implementation and Verification
			<p>to construction. The fence may be removed progressively behind equipment as the construction progresses.</p> <ul style="list-style-type: none"> ▪ Noise levels resulting from construction activities shall be controlled, shielded lights will be used to minimize the effects of construction related lighting, and a physical barrier (e.g., silt fencing) will be utilized to control impacts to wildlife per the project EIR. ▪ The construction ROW will be limited to 100 feet (30.48 meters) either side of the centerline in width, with the exception of authorized extra workspace areas. The construction ROW will be clearly staked and flagged in advance of construction. The construction area includes approved work areas for access roads, staging and equipment storage. ▪ BNSF will install permanent retaining wall structures in identified sensitive environmental areas (Figure 2-1). ▪ Limits of grading and construction activities should be clearly delineated so that no vegetation outside the delineated grading limits would be disturbed by construction personnel or equipment. Project personnel will drive only on existing roads outside of construction limits. ▪ Where practicable, weed-free topsoil will be segregated, collected, and stored in an appropriate manner for use during restoration of temporary disturbance areas following construction. BNSF has committed to developing a topsoil salvage plan for inclusion in any restoration and maintenance documents. Furthermore, compacted soil in areas of temporary disturbance will be decompacted in an appropriate manner, and will occur prior to potential placement of salvaged topsoil. Fill material will be certified weed-free. ▪ A Habitat Mitigation Monitoring Plan (HMMP) has been developed to summarize avoidance, restoration, enhancement, creation, and preservation commitments associated with vegetation communities that will serve as compensation for the loss of habitat resulting from the Project to be completed over a 5-year period. The HMMP details compensation for: permanent loss of: (1) "Waters of the U.S.", including non-tidal wetlands; streambed habitat, and "Waters of the State" that results from Project activities authorized under Section 404 and 401 of the Clean Water Act (CWA), and California Fish and Game Section 1600 (et seq.) (URS, 2006d); (2) potential direct, indirect, and cumulative Project related effects on four federally threatened and endangered species and their designated critical habitat; and (3) required compliance with the substantive mitigation provisions for specific plant communities detailed in this EIS/EIR ▪ Vegetation communities common to the region, including southern mixed chaparral, riversidian upland sage scrub, and semi-desert chaparral, will be mitigated at a 0.5:1 ratio. 				

**MITIGATION MONITORING AND REPORTING TABLE
BNSF KEENBROOK TO SUMMIT PROJECT**

Resource Area	Resource	Description of Impact	Environmental Commitment/Mitigation	Responsible Party	Compliance Record (When Required)	Duration	Implementation and Verification
			<ul style="list-style-type: none"> ▪ Vegetation communities considered regionally sensitive, including southern willow scrub, riversidian alluvial fan sage scrub, southern cottonwood-willow riparian forest, California walnut woodland, sandy river wash, and valley and foothill grassland will be mitigated at a 3:1 ratio. ▪ Mitigation will be implemented onsite where feasible, with the remainder occurring offsite. ▪ To reduce the potential for spread of invasive non-native species and minimize the potential for disturbance activities to decrease palatable vegetation for wildlife species, the project has included the following resource protection measures: ▪ In accordance with Executive Order 13112, the construction area within lands administered by the USFS will be surveyed by a qualified noxious weed authority that will identify all noxious weeds present and provide a list to the authorized officer. A determination will be made by the authorized officer of any noxious weeds that require flagging for treatment prior to construction. Treatment will be according to instruction of the authorized officer. Any use of herbicides in California will be handled by properly-licensed county agricultural agents. Any use of herbicides on USFS lands will comply with the Sulfometuron Methyl and Glyphosate Human Health and Ecological Risk Assessment Final Report (USDA 2003 and USDA 2004). ▪ Prior to construction, populations of plants listed as invasive exotics by the California Exotic Plant Pest Council in the most recent "CalEPPC" A or Red Alert list, as well as any other species identified by USFS or SBNF already existing in native habitat where construction is planned, will be identified on the ground and on maps through a preconstruction survey. This will establish a baseline from which to locate equipment washdown stations as well as to evaluate post-construction monitoring surveys. ▪ Disposal of soil and plant materials from non-native areas will not be allowed in native areas. That is, no disposal or transfer for excess spoils or plant materials from non-native areas will be allowed into native cover type areas. ▪ All construction equipment will be washed prior to entering the construction area to prevent the spread of invasive weeds from other areas. Clearing and grading equipment will be washed down with high-pressure water prior to moving from infested areas to non-infested areas. ▪ Construction personnel will be educated on the importance of controlling and preventing the spread of invasive non-native species infestations. Gravel and/or fill material to be placed in relatively weed-free areas will come from weed free sources. 				

MITIGATION MONITORING AND REPORTING TABLE
BNSF KEENBROOK TO SUMMIT PROJECT

Resource Area	Resource	Description of Impact	Environmental Commitment/Mitigation	Responsible Party	Compliance Record (When Required)	Duration	Implementation and Verification
	Special Status Vegetation	Loss / Disturbance of Species and / or Habitat Type	<ul style="list-style-type: none"> A pre-construction survey of each project component located within areas identified during BNSF surveys as listed botanical species habitat will be conducted by an authorized biologist during the spring prior to the onset of activities. If individuals of Threatened or Endangered status plant species (Federal or State listed) are found or known to occur in the construction area, the route will be realigned or necked down to avoid the plants where feasible. Otherwise, individual plants that would be impacted by construction will be relocated to the nearest suitable habitat outside of the construction area, watered at the time of transplantation, and watered monthly for four months. To date, no federally threatened plant species have been detected within the proposed construction area. 	Applicant / Environmental Site Manager	During Construction	Throughout the construction process	<ul style="list-style-type: none"> Prior to construction, the applicant shall designate an "ESM" who will be responsible for overseeing project environmental protection measures – preconstruction botanical species habitat surveys conducted by authorized biologists. During construction, the "ESM" will halt construction activities – in the event that a Threatened or Endangered status plant species are found – and will assist in the overall implementation of protection measures for listed botanical species during project operations.
	Wetlands and Other Jurisdictional Waters	Loss / Disturbance of Species and / or Habitat Type	<ul style="list-style-type: none"> Un-vegetated waters would be mitigated at a 1:1 ratio. Waters would be mitigated in terms of surface area, i.e. one acre (0.4 ha) would be replaced for every acre (0.4 ha) removed. Mitigation would be implemented onsite where feasible, with the remainder occurring offsite. Wetlands would be mitigated at a 2:1 ratio. Mitigation would be implemented onsite where feasible, with the remainder occurring offsite. 	Applicant / Environmental Site Manager	During Construction	Throughout the construction process	<ul style="list-style-type: none"> During construction, the "ESM" will be responsible for managing wetlands and jurisdictional waters.
	Arroyo Toad	Loss / Disturbance of Species and / or Habitat Type	<ul style="list-style-type: none"> To the maximum extent practical nightly pre-construction sweeps of the construction area in the vicinity of suitable arroyo toad habitat will be conducted. A "drift fence" (silt fence or similar material) will be installed wherever construction is taking place within 100 yards to 1 km of suitable arroyo toad habitat (depending on topography and access to breeding habitat). The fence will be installed far enough ahead of the construction to effectively exclude toads from the work space for a period of 24 hours prior to construction. The fence may be removed progressively behind equipment as the construction footprint is re-graded. This fence will exclude foraging arroyo toads from the work area and will be cleared before construction begins every morning by a qualified biological monitor. This process will proceed every hour if there is any measurable precipitation. Toads found on the inside of the enclosure will be placed outside on the stream side of the enclosure by a biologist permitted by the USFWS to handle arroyo toads. Toads found on the outside of the enclosure will be placed out of harm's way and in such a manner as to facilitate the toads' presumed trajectory. The USFWS will approve in writing those monitors who will be permitted to handle arroyo toads. BNSF will submit to USFWS a list of monitors with their credentials regarding their experience in identification and handling of herptofauna. BNSF will provide to the USFWS the training schedule and curriculum that is proposed for 	Applicant / Environmental Site Manager	During Construction	Throughout the construction process	<ul style="list-style-type: none"> Prior to construction, the applicant shall designate an "ESM" who will be responsible for overseeing project environmental protection measures – daily monitoring for Arroyo Toads by authorized biologists. During construction, the "ESM" will coordinate with the USFWS to enforce measures to protect the Arroyo Southwestern Toad and its habitat.

**MITIGATION MONITORING AND REPORTING TABLE
BNSF KEENBROOK TO SUMMIT PROJECT**

Resource Area	Resource	Description of Impact	Environmental Commitment/Mitigation	Responsible Party	Compliance Record (When Required)	Duration	Implementation and Verification
			<p>training arroyo toad monitors. The USFWS will respond with a list of the approved monitors.</p> <ul style="list-style-type: none"> ▪ There will be daily biological monitoring of all construction activities occurring within or immediately adjacent to arroyo toad occupied habitat. ▪ An arroyo toad breeding season monitoring implementation plan will be developed that will include fencing, monitoring, and relocation specifications. Immediately following contract award, a construction schedule will be requested of BNSF in order to adequately coordinate monitoring during the breeding season. The monitoring plan will be submitted to USFWS for approval prior to commencement of construction. ▪ Project construction will avoid work within stream channels to the maximum extent practicable. ▪ During all construction activities, temporary access roads will be constructed and maintained to specified standards as shown on the engineering drawings and construction plans and as detailed in the contract specifications. ▪ Construction personnel and the biological monitors will be trained and supervised by a qualified herpetologist on the identification and avoidance of the arroyo toad. ▪ Directional lighting will be used when construction is within the vicinity of arroyo toad habitat. 				
	San Bernardino Kangaroo Rat	Loss / Disturbance of Species and / or Habitat Type	<ul style="list-style-type: none"> ▪ To the maximum extent practical, including temperature permitting (50 degree F minimum), nightly pre-construction trapping of the construction area in the vicinity of suitable SBKR habitat will be conducted. This trapping will occur using the USFWS protocol and by an approved biologist permitted by the USFWS to handle SBKR. ▪ A "drift fence" (silt fence, or similar material) will be installed wherever construction is taking place within 100 yards of suitable SBKR habitat (depending on topography and access to breeding habitat). The fence will be in place far enough ahead of the construction to effectively exclude kangaroo rats from the work space for a period of 24 hours prior to construction. The fence may be removed progressively behind equipment as the construction footprint is re-graded. Kangaroo rats trapped on the inside of the enclosure will be relocated outside within Riversidean alluvial sage scrub by a biologist permitted by the USFWS to handle SBKR. ▪ The USFWS will approve in writing those monitors who will be permitted to handle SBKR. BNSF will submit to USFWS a list of monitors with their credentials regarding their experience in identification and handling of small mammals. BNSF will provide to the USFWS the training schedule and curriculum that is proposed for training SBKR monitors. The USFWS will respond with a list of the 	Applicant / Environmental Site Manager	During Construction	Throughout the construction process	<ul style="list-style-type: none"> ▪ Prior to construction, the applicant shall designate an "ESM" who will be responsible for overseeing project environmental protection measures – daily monitoring for San Bernardino Kangaroo Rat by authorized biologists. ▪ During construction, the "ESM" will coordinate with the USFWS to enforce measures to protect the San Bernardino Kangaroo Rat and its habitat.

**MITIGATION MONITORING AND REPORTING TABLE
BNSF KEENBROOK TO SUMMIT PROJECT**

Resource Area	Resource	Description of Impact	Environmental Commitment/Mitigation	Responsible Party	Compliance Record (When Required)	Duration	Implementation and Verification
			<p>approved monitors.</p> <ul style="list-style-type: none"> ▪ There will be daily biological monitoring of all construction activities occurring within or immediately adjacent to SBKR occupied habitat. ▪ During construction, temporary access roads will be constructed and maintained to specified standards as shown on the engineering drawings/construction plans (per engineering specifications). Construction personnel and equipment will be prohibited from driving off these roads/entering environmentally sensitive areas/etc. ▪ Prior to commencement of construction, any construction personnel and the biological monitors will be trained and supervised by a qualified mammalogist on the identification and avoidance of the SBKR. ▪ Directional lighting will be used when construction is within the vicinity of SBKR habitat. 				
	Least Bell's Vireo and Southwestern Willow Flycatcher	Loss / Disturbance of Species and / or Habitat Type	<ul style="list-style-type: none"> ▪ Potential LBVI habitat in riparian areas will be avoided to the maximum extent practicable. ▪ Presence/absence surveys for vireo will be conducted during the vireo breeding season (March 15 through June 15) to determine the need for implementation of noise mitigation measures. A construction schedule will be utilized to coordinate surveys. ▪ Any construction or installation work performed within 150 m (500 feet) of occupied LBVI habitat during the period of March 15 to June 15 of any given year will limit noise, dust, night-time lighting, and human presence to the greatest extent feasible. Noise, dust, nighttime lighting, and human presence will be limited as follows: <ul style="list-style-type: none"> ▪ Noise levels will be controlled with residential or better level mufflers or engine enclosures on mobile equipment. ▪ When night-time operations are required, activities will be conducted behind suitable barriers that will effectively control noise and light emissions. These barriers will be placed in areas abutting or adjacent to suitable and/or occupied LBVI habitat and installed prior to construction. The type of barriers and placement of these barriers will be undertaken with input from a qualified biologist. ▪ Noise levels as measured at the edge of occupied habitat will be restricted to ambient pre-construction conditions, with a goal of reducing noise to below ambient whenever and wherever practicable. There will be no construction-related pedestrian access to any riparian habitat during breeding season, except in case of emergency and to adequately monitor construction. ▪ Ambient dust related to construction haul roads, access roads, staging areas, and disposal sites will be watered to control or reduce ambient dust generated from construction activities. 	Applicant / Environmental Site Manager	During Construction	Throughout the construction process	<ul style="list-style-type: none"> ▪ Prior to construction, the applicant shall designate an "ESM" who will be responsible for overseeing project environmental protection measures – Least Bell's Vireo. ▪ During construction, the "ESM" will coordinate with the USFWS to enforce measures to protect the Least Bell's Vireo and its habitat.

**MITIGATION MONITORING AND REPORTING TABLE
BNSF KEENBROOK TO SUMMIT PROJECT**

Resource Area	Resource	Description of Impact	Environmental Commitment/Mitigation	Responsible Party	Compliance Record (When Required)	Duration	Implementation and Verification
			<ul style="list-style-type: none"> Directional lighting will be used when construction is within the vicinity of suitable habitat. Construction work performed within 150 meters (500 feet) of potential habitat for least Bell's vireo during the period of March 15 to June 15 will be monitored weekly by a qualified biologist. Monthly monitoring letter reports of construction activities and their effects on biological resources will be provided to the USACE and USFWS. 				
HUMAN ENVIRONMENT							
Transportation Systems and Facilities	Traffic	Emergency Vehicle Traffic, Alternative Routes, Circulation	<ul style="list-style-type: none"> Prior to the start of construction, a construction Traffic Control Plan (TCP) shall be developed. The plan should address construction employee parking, construction equipment staging, potential lane closures, time of construction activities (off-peak hours), truck/ haul routes, and work zone traffic control. 	Applicant / Environmental Site Manager	During Construction	Approximately 1 year or until construction is complete	<ul style="list-style-type: none"> Prior to construction, the applicant shall develop and submit a Traffic Control Plan (TCP). During construction, the "ESM" will enforce measures of the TCP.
Utilities and Service Systems	Utilities	Telecommunication, Fiber Optic, Natural Gas, and Petroleum	<ul style="list-style-type: none"> Measures to avoid impacts to all utilities shall be undertaken by BNSF prior to construction activities and include the locating and clearly designating all underground utilities prior to initiating construction activities; When the utilities cross the BNSF ROW, it is the responsibility of the individual utility companies to determine if the facilities can be protected in place or need to be re-located to avoid impacts from the Proposed Action; Prior to earth-moving activities, underground transmission lines shall be located in the field and excavation near electrical lines will be completed using BMPs to prevent potential service disruptions; The construction and operation impacts to fiber-optic lines shall be mitigated jointly by BNSF construction crews, Time Warner, and Level (3) Communications; and Construction and operation impacts to pipelines shall be mitigated jointly by BNSF construction crews, the SCG, and Kinder Morgan. 	Applicant / Environmental Site Manager	During Construction	Approximately 1 year or until construction is complete	<ul style="list-style-type: none"> Prior to construction, the applicant shall contact the individual utilities and jointly prepare a mitigation approach that will adequately address potential impacts to each of the individual utilities. During construction, the "ESM" will coordinate with construction crews, the SCG, and Kinder Morgan to enforce the measures of the "Utilities and Public Services Management Plan".
Cultural Resources	Cultural	Cultural	<ul style="list-style-type: none"> It is recommended the following resources receive Level 1 HABS/HAER documentation: P-36-012317 and P-36-012318. It is recommended the following resources receive Level 2 HABS/HAER documentation: P-36-012316, P-36-012320, P-36-012322, P-36-012324, P-36-012325, P-36-012327, and SBR-6793H. It is recommended the following resources receive Level 3 HABS/HAER documentation: P-36-012319, P-36-012321, P-36-012323, P-36-012326, P-36-012328, P-36-012329, P-36-012330, P-36-012618, P-36-012619, and SBR-7093H. HABS/HAER documentation would be archived and preserved in the Prints and Photographs Division of the Library of Congress. It is also recommended supplemental to HABS/HAER documentation, mitigation should include the preservation, 	Applicant / Environmental Site Manager	Prior and During Construction	Approximately 1 year or until construction is complete.	<ul style="list-style-type: none"> Prior to construction, the applicant shall coordinate with the ESM to ensure the appropriate HABS/HAER documentation be completed. During construction, the ESM shall work in coordination with a local Native American representative to identify and protect any potential archeological sensitive areas that may be unearthed.

**MITIGATION MONITORING AND REPORTING TABLE
BNSF KEENBROOK TO SUMMIT PROJECT**

Resource Area	Resource	Description of Impact	Environmental Commitment/Mitigation	Responsible Party	Compliance Record (When Required)	Duration	Implementation and Verification
			<p>rehabilitation, restoration, and/or reconstruction of the affected historic features and resources (per the <i>Secretary of Interior Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings</i>). The Secretary of Interior treatment standards are outlined in 36 CFR §68.</p> <ul style="list-style-type: none"> ▪ Another form of mitigation, conducted as an alternative to HABS/HAER documentation, may be the development of a Historic Structures Investigation (HSI). The HSI would be comparable to a Historic Structures Report, as suggested by the National Parks Service in <i>Preservation Brief 43: The Preparation and Use of Historic Structures Reports</i>. Essentially, an HSI is an effective form of preservation planning, which identifies the appropriate treatment (i.e., preservation, rehabilitation, restoration, reconstruction) and documents the existing conditions of a historic property. ▪ Supplemental to all the mitigation outlined above, archaeological monitoring by a qualified ESM, in areas of archaeological sensitivity, including the Crowder Canyon Archaeological District (Upper Cajon Pass); near the Davis Ranch and where the hearth feature (SBR-12430) was identified; the Muscupiabit Proto-Historic Site (SBR-425/H); in the area of SBR-12431, where several prehistoric sites have been previously recorded; and, in the area of the previously unrecorded sites of P-36-012324, P-36-012618 and P-36-012619 (this area may be the location of a railroad worker's camp, which if identified could contribute significantly to the historical interpretation of the railroad construction during the beginning of the 20th century). The assistance of a Native American representative will be required for areas with either known recent Native American or prehistoric Native American remains or if construction unearths a previously undocumented prehistoric site. 				
	Paleontological		<ul style="list-style-type: none"> ▪ An experienced vertebrate paleontologist or paleontologic monitor must be onsite full time in paleontologically sensitive areas during excavations and grading activities when native soils would be disturbed. All exposed vertebrate and representative samples of megainvertebrate and plant fossils will be collected. The monitor would be empowered to temporarily halt construction for the purposes of recovery. Where productive sites are excavated, approximately 2,000 pound rock samples will be collected to process for microvertebrate fossil remains. These samples will be collected in 25lb bags and one 2,000 lb sample will be collected for every productive site excavated. Fossils recovered will be prepared to the point of identification, analyzed, and curated into a Federally-recognized repository. A final report will be prepared that contains a summary of the mitigation monitoring and laboratory test methods performed, a description of the site geology and stratigraphy encountered, a faunal list of taxa recovered, as well as a discussion of the significance of fossil discoveries. Appended to the report shall 	Applicant / Environmental Site Manager	Prior and During Construction	Approximately 1 year or until construction is complete.	<ul style="list-style-type: none"> ▪ Prior to construction, the applicant shall coordinate with the ESM and experienced vertebrate paleontologist to scan the construction areas for potential paleontological sensitivity. ▪ During construction, the ESM shall coordinate with the experienced vertebrate paleontologist to ensure monitoring of sensitive areas is conducted and construction progress be temporarily halted in the event that an item of importance is unearthed. ▪ Final Report shall be submitted to County Museum for review and approval.

**MITIGATION MONITORING AND REPORTING TABLE
BNSF KEENBROOK TO SUMMIT PROJECT**

Resource Area	Resource	Description of Impact	Environmental Commitment/Mitigation	Responsible Party	Compliance Record (When Required)	Duration	Implementation and Verification
			be the applicable supporting documentation including: field notes, geologic maps, stratigraphic sections, and an itemized inventory of specimens.				

Note: Only resources are included in this table that require mitigation measures or environmental commitments and monitoring. Details are provided in the Mitigation Monitoring Plan text and EIS/EIR