2 PROJECT DESCRIPTION

2.1 PROPOSED PROJECT

EPGN is currently developing an approximately 972-mile-long telecommunication system project traversing the states of California, Arizona, New Mexico, and Texas for the transmission of voice and data services. The new telecommunication system will connect El Paso, Texas, to Los Angeles, California, by way of Phoenix, Arizona. Approximately 337 miles of the system will be located within California.

2.2 TELECOMMUNICATION SYSTEM

Construction of the telecommunication system within California is scheduled to commence in the fourth quarter of 2001 and be completed in the last quarter of 2002. The system will be installed simultaneously in three to four separate spreads, with 30 to 75 construction workers per spread for a total of 90 to 300 construction workers. Construction workers are estimated to be approximately 50 percent local.

Figure 2.2-1 is an overview map of the ROW system in California. The system will be located within the shoulder or paved portion of existing roadways (Table 2.2-1). The proposed system passes through Riverside, San Bernardino, and Los Angeles Counties and through lands owned by the federal government. Detailed route maps are provided in Appendix B.

Table 2.2-1 - Right-of-Way Miles and Construction Methods for the California Longhaul Route

	Right-of-Way (mi)		Construction Methods (mi)		
Route Segment	Local Roads	State Highways	Plow or Trench	Directional Bore	Bridge Attachment
RIVERSIDE COUNTY					
I-10 West		0.21			0.21
Riviera/Ramp	0.33			0.33	
Hobson Way	0.95			0.95	
Olive Lake Boulevard	0.53			0.53	
East Chanslor Way	0.98			0.98	
State Highway 95		4.03	4.03		
4th Avenue	2.03		2.00	0.03	
Lovekin Boulevard	0.50		0.50		
Rice Midland Road	33.76		33.62	0.14	
SAN BERNADINO COUNTY					
Rice Midland Road	0.30		0.30		
State Highway 62		16.23	16.23		
RIVERSIDE COUNTY					
State Highway 62		11.81	11.81		
SAN BERNADINO COUNTY					
State Highway 62		60.52	60.39	0.13	
Sunburst Avenue	3.10			3.10	
Golden Avenue	0.51		0.51		
Border Avenue	6.04		6.04		
Reche Road	5.39		5.39		
Belfield Boulevard	2.00		2.00		
Linn Road	3.93		3.93		
State Highway 247		31.52	31.52		
State Highway 18		10.58	10.58		

Table 2.2-1 (continued) - Right-of-Way Miles and Construction Methods for the California Longhaul Route					
	Right-of-Way (mi)		Construction Methods (mi)		
Route Segment	Local Roads	State Highways	Plow or Trench	Directional Bore	Bridge Attachment
Bear Valley Road	7.91		7.91		
Jacaranda Street	1.13			1.13	
Eucalyptus Street	1.30			1.30	
Santa Fe Avenue East	0.01			0.01	
Santa Fe Avenue West	0.16			0.16	
Eucalyptus Street	3.22			3.22	
Maple Avenue	2.02		2.02		
Main Street	3.19		3.09	0.10	
US Highway 395		5.67	5.67		
State Highway 18		9.88	9.88		
Sheep Creek Road	6.72		6.72		
El Mirage Road	5.05		5.05		
Avenue P	2.03		2.03		
LOS ANGELES COUNTY					
240th East	1.55		1.55		
Palmdale Boulevard	19.52		19.52		
47th Street (Hwy 138)		0.53		0.53	
East Avenue R	4.23			4.23	
6th Street East	0.12			0.12	
Sierra Highway	6.62	0.48	1.11	5.99	
Soledad Canyon Road	3.70		0.01	3.69	
Gillespie Avenue	0.27			0.27	
Crown Valley Road	0.13			0.13	
Escondido Canyon Road	8.75	0.12	0.57	8.25	0.05
Agua Dulce Canyon Road	0.50		0.07	0.43	
Davenport Road	3.67		0.18	3.49	
Sierra Highway	13.47	0.11	0.50	12.92	0.16
Foothill Boulevard	2.69	0.08	2.69	0.08	
Glenoaks Boulevard	11.07	0.05	9.66	1.45	0.01
Kenneth Road	3.37		0.03	3.34	
West Kenneth Avenue	0.90		0.01	0.89	
Sonora Avenue	0.41		0.01	0.40	
Glenoaks Boulevard	1.49		0.02	1.47	
North Pacific Avenue	0.30	0.08		0.38	
Doran Street	0.17		0.01	0.16	
North Columbus Avenue	0.49		0.01	0.48	
South Columbus Avenue	0.93		0.01	0.92	
Chevy Chase Street	0.18		0.01	0.17	
South Central Avenue	0.47		0.01	0.46	
San Fernando Road	0.27		0.01	0.26	
Brand Boulevard	0.30			0.30	
Glendale Boulevard	2.78	0.16	0.03	2.83	0.08
North Alvarado Street	1.22	0.08	0.02	1.28	
South Alvarado Street	0.80		0.02	0.78	
8th Street	1.31	0.11	0.36	1.06	
South Grand Avenue	0.19		0.19		
Totals	**184.96**	**152.25**	**267.83**	**68.87**	**0.51**
Grand Total		**337.21**			**337.21**

2.3 PROPOSED ROW

The proposed ROW enters California near the City of Blythe. The conduits will be attached to the Interstate 10 Highway Bridge to cross the Colorado River. The proposed ROW proceeds west for about 1.5 miles along the Interstate 10 offramp to East Hobson Way, then runs north briefly along Olive Lake Boulevard to East Chanslor Way. The ROW runs west on East Chanslor Way until it intersects State Highway 95. The ROW proceeds north along Highway 95 to 4th Avenue. At 4th Avenue, the ROW turns west and follows 4th Avenue 2 miles to Lovekin Boulevard. The ROW proceeds north along Lovekin Boulevard until it intersects with Rice Midland Road, and then follows Midland Road for approximately 34 miles until it intersects State Route (SR) 62. At this point, the ROW proceeds west within SR 62's ROW for about 99 miles through San Bernardino County, Riverside County, and back into San Bernardino County. The ROW will cross the Colorado River Aqueduct at four locations.

The proposed ROW passes through the City of Twentynine Palms, continuing west along SR 62 to Sunburst Street in the community of Joshua Tree. The ROW then proceeds north following Sunburst Street and Border Avenue, with a short jag over from Sunburst to Border along Golden Avenue. At Reche Road, the ROW turns west until reaching Belfield Boulevard in Landers, where it proceeds north. At Linn Road, the ROW turns west for about 4 miles until it reaches SR 247 (Old Woman Springs Road). The ROW follows SR 247 north and west for approximately 31 miles until reaching SR 18 in Lucerne Valley. Continuing west, the ROW follows SR 18 almost 11 miles to Bear Valley Road in Apple Valley. The ROW then follows Bear Valley Road for several miles to Victorville. The ROW proceeds along several residential streets in Victorville (Jacaranda Street, Eucalyptus Street, Santa Fe Avenue, and back to Eucalyptus Street) until reaching Maple Avenue. From Maple Avenue, the ROW turns onto Main Street until it intersects U.S. Highway (US Hwy) 395.

The ROW turns north, paralleling US Hwy 395 for approximately 6 miles, until reaching SR 18 (Palmdale Road) in Adobe Corners. The ROW turns west at this point for approximately 10 miles, following SR 18 until intersecting Sheep Creek Road. The ROW proceeds directly north until reaching El Mirage Road and turning west again. The ROW proceeds west along El Mirage Road and Avenue P and then runs south along 240th Street East to Palmdale Boulevard. At Palmdale Boulevard, the ROW turns west for about 20 miles, proceeds into Palmdale, and turns south on SR 138 until East Avenue R. The ROW continues west along East Avenue R through Palmdale to the terminus at 37918 6th Street East.

Just before reaching the Palmdale terminus, the ROW also turns south along Sierra Highway. Leaving Palmdale, the ROW parallels Sierra Highway to Soledad Canyon Road, and then Escondido Canyon Road (via Gillespie Avenue and Crown Valley Road), Agua Dulce Canyon Road, and Davenport Road and rejoins Sierra Highway as it proceeds west through Soledad Canyon. Following Sierra Highway, the ROW continues south until reaching Foothill Boulevard. The ROW then follows Foothill Boulevard to Glenoaks Boulevard. The ROW then turns southeast onto Glenoaks Boulevard, continuing east through the Cities of Sylmar and San Fernando. The ROW continues to follow Glenoaks Boulevard until reaching the Burbank city limits. The ROW then follows Kenneth Road and West Kenneth Road into the City of Glendale.

From West Kenneth Road, the ROW proceeds south along Sonora Avenue, again runs briefly along Glenoaks Boulevard and continues along North Pacific Avenue, West Doran Street, North and South Columbus Avenue, Chevy Chase Street, South Central Avenue, San Fernando Road, and Brand Boulevard to Glendale Boulevard in Glendale. The ROW proceeds into downtown Los Angeles along North and South Alvarado Street, 8th Street, and South Grand Avenue, terminating at South Grand Avenue and Wilshire Boulevard.

2.4 CONSTRUCTION PROCESS

SITE PREPARATION

Site preparation will not be necessary for areas within the cleared area of roads, such as road shoulders, and within roadways. Where installation occurs within the ROW but outside the cleared area, site preparation may include tree and brush removal, rock removal, or rock cutting.

The following procedures will be followed if clearing of the ROW is required.

- ROW boundaries (e.g., workspace limits) will be clearly delineated to ensure that no clearing occurs beyond these boundaries.
- Environmentally sensitive areas to be avoided, such as locations with special-status species or known cultural resources, shall be clearly marked (e.g., with flagging, stakes, fencing) for avoidance before clearing begins.
- The removal of trees will be avoided whenever possible. Trees to be saved shall be marked before clearing begins.
- Stemmed vegetation such as brush, shrubs, and trees shall be removed at or near the ground level, leaving the root system intact.
- All existing fences that need to be removed for access shall be maintained through the use of a temporary fence section (gap). Before being cut, the fence will be properly braced and similar material used to construct the gap. At no time will an open gap be left unattended. The gap will be replaced after cleanup with a permanent fence of the same or similar material and condition.
- Brush piles, chippings, and other cleared materials will be disposed of at an approved landfill or other site that is traditionally used for disposal of construction debris.
- Total surface width of the construction ROW will generally be 10 feet, with 25 feet being the proposed maximum disturbance width.

INSTALLATION OF CONDUITS

Two varieties of techniques and equipment will be employed under different terrain conditions (using the most practicable and least damaging alternative in each instance). These are the conventional cable plow method and the directional boring method. Both methods are described below.

Conventional Cable Plow Method

Direct-burial cable plow technology (Figure 2.4-1) installs conduits with a track-mounted cable plow that creates a temporary "rip" in the ground. This is the quickest method of conduit installation along linear ROWs and also causes minimal disturbance to the ground surface and subsurface. The plow equipment does not result in the removal, dredging, or casting of soil and does not result in the filling of wetlands. The cable plow generally consists of a track-mounted dozer, which carries spools of HDPE conduits on the front and has a plow on the back. Conduits are fed to the backside of the V-shaped plow blade to the bottom of the blade. The blade separates the soil laterally to the desired depth and lays the conduits as the plow advances forward. Once the plow disturbs the ground, the soil seizes and settles naturally over the conduits. The soil is compressed even with the surrounding ground surface by rollers or by the tracks of a piece of construction equipment. Soil is not removed as a part of this process and no discharge or side casting of soil takes place. No fill materials are used during or following the plow process.

In certain situations where the ground surface is soft or yielding, temporary planking or mats may be used to better distribute the equipment load on the ground surface. In some cases, low ground-pressure plow equipment may be used instead of planking or mats. In some cases, a separate dozer in front of the plow

may be used to drag a single, 4-foot-long steel tine that simulates the plow. This process, which loosens the soil and dislodges small and medium-sized buried rocks, is commonly termed "pre-ripping." The front dozer may also be used to flatten vegetation that may entangle the spools of conduits on the plow dozer. A series of dozers or "train" of equipment is anticipated to be used for installation of the proposed system.

The plowing operations are limited to areas where bedrock or large boulders are not present. Either shallow bedrock or large boulders will stop the plow, and cause these methods to be ineffective. In these cases, an alternative construction technique is necessary.

Directional Boring

Directional boring is a minimally invasive technology for installing underground conduits where disruption to the surface is not practical, such as road crossings, major drainages, rail crossings, extensive wetland crossings, and utility corridors. In directional boring, a surface-operated drilling device is angled into the ground from the surface and directed to its destination using a radio-controlled mole that contains a cutter head. Personnel directing the drilling on the ground control the depth and direction of excavation. A plastic or steel conduit is left in the ground through which the cable is later installed. Should the drilling device encounter rock or other debris (and depending on the extent of the obstruction), the cutter head can be backed up and steered around the obstruction or a rock drill head can be attached to drill through the rock. Boring fluid, a component of this technology, is a bentonite clay slurry that is inert and non-hazardous. Flow controls will be implemented during directional boring operations to control the amount of fluid introduced to the drill hole. The fluid is returned to a recycling chamber where the fragments are collected and disposed of in a lined container at an approved landfill. The remaining bentonite slurry is used in other drill locations. All practicable measures will be employed to ensure that no excess boring fluid is discharged to a stream or wetland area.

Field conditions that would inhibit or preclude the continued use of directional boring at a given location include encountering extensive areas of solid bedrock or boulder-strewn areas; areas requiring redirection of the drill operation, which could result in intercepting and affecting the integrity of the existing underground high-pressure natural gas pipelines; and areas of the ROW corridor where multiple acute angles or bends are encountered.

As part of the proposed project, EPGN plans to implement the following measures to minimize potential impacts associated with directional boring.

Planning and Design

Before construction begins, EPGN shall conduct a reconnaissance-level survey to determine crossings that may have obvious engineering or construction features that prevent use of directional boring. If required, a Registered Geologist shall participate in these surveys. These features could include presence of major faults or other geologic features susceptible to rock fractures during high-pressure boring operations conducted over long distances (known as "frac-outs"). If appropriate, alternative crossings may be identified to avoid resource impacts in sensitive or unstable areas.

EPGN shall plan to maximize the depth of each bore to reduce the probability of frac-out, consistent with industry standards and as required by permitting agencies.

EPGN shall design bores so as to reduce the likelihood of frac-out. In substrates likely to be subject to frac-out, EPGN shall plan to use lower pressure for the boring fluid and/or leak sealants (e.g., peat, mica).

Before construction begins, EPGN inspectors and drill crews shall be trained in all aspects of the directional boring protocol.

Construction Setup

The setup area for a standard directional boring operation varies based on the drill length and depth. For example, if the drill depth is 5 feet and the drill length is less than 500 feet, the dimensions would be 25 by 50 feet. Figure 2.4-2 depicts the standard configuration of a directional bore site.

The following protocol applies to all pre-planned directional bores:

- Before construction begins, EPGN shall provide CPUC with the location of scheduled bore sites. If significant sensitive resources or site-specific problematic features are found, alternative bore locations shall be identified and considered for construction. EPGN's Environmental Inspector (EI) shall ensure that all flagging and staking at each bore site is in place before the prearranged site visits are made by the agencies and construction inspectors.
- Inspectors shall participate in construction meetings.
- Site visits shall be conducted to identify sensitive resources and site-specific features that could be affected if a frac-out occurs.

Any deviation from the plan will be resolved before construction begins.

Operation

- EPGN shall conduct on-site briefings to identify the location of any and all sensitive resources at the site. Construction setup protocols shall be followed.
- At wet crossings and in sensitive resource areas while the drill is in operation, a designated EPGN observer shall be on site at all times. The primary responsibility of the observer shall be to watch for frac-outs.

All EPGN inspectors are responsible for reporting spills. Factors indicating a possible frac-out include observed loss of drilling pressure, slow-down in the volume of returned drilling muds, or visual observation of drilling material extruding into water or on land.

Spill Protocol

- If a frac-out is detected, drilling operations shall cease immediately and the spill shall be controlled.
- EPGN drill crews shall implement measures outlined in the Storm Water Pollution Prevention Plan (SWPPP), prepared according to Regional Water Quality Control Board (RWQCB) guidelines, to contain the spread of drilling muds. When CPUC and California Department of Fish and Game (CDFG) representatives arrive at the site, EPGN, CPUC, and CDFG representatives shall discuss appropriate actions to take.
- Agreement on containment, cooperation, cleanup, and resuming operations shall be reached by EPGN, CPUC, and CDFG.
- EPGN shall immediately implement the agreement and monitor for success of containment.

EPGN shall prepare a resource damage assessment for each frac-out event. The report shall identify the amount of bentonite released; the size of the area affected and listed resources that were affected, including numbers and types of organisms, mortalities, duration of spill. The reports shall be submitted to CPUC and CDFG.

Open-Trench Excavation

A backhoe, excavator, trencher, or similar heavy equipment shall be used to perform open-trench construction (Figure 2.4-3). A backhoe or excavator involves using a bucket that excavates a trench approximately 24 inches wide. A trencher will produces a smooth trench, approximately 12 to 24 inches wide, in pavement or rock. It is used in areas where agricultural practices, soil constraints, and geologic conditions preclude the use of a cable plow. Equipment may vary but may include a trackhoe, a rubber tire backhoe, or chain trenchers. The conduits are placed in the trench, and as the backhoe excavates ahead, side-cast material is back-filled into the trench. Saw cutting of paved areas shall occur before trenching operations begin in developed areas or in road crossings.

Concrete may be used as fill within roadways as requested by permitting agencies. Concrete shall not be used when the trench line is within the shoulder of the roadway. All excess trench spoils shall be disposed at permitted landfills.

Bedrock Construction

Certain portions of the route are known to have bedrock outcroppings or bedrock close to the ground surface. A rock saw, ditch saw, or hydro-hammer shall be used to cut the rock trench into which the conduits are installed. In other areas, the soils contain individual rocks large enough to prevent cable plowing. The rock saw may be used in these situations to create the trench for system installation. If blasting is required, a qualified blasting contractor shall be used, and the work shall comply with applicable federal, state, and local regulations.

Connections to Bridges or Box Culverts

Connections to bridges or box culverts by means of attachments to existing structures may be considered as a least disruptive or least intrusive method of installation. In cases where it is appropriate to make crossings on a bridge, this method shall be investigated with the California Department of Transportation (Caltrans) and local departments of public works. During bridge attachment procedures, no work is performed from the water. All work is accomplished using a bucket apparatus (snooper truck) from the traveled deck surface of the bridge. The conduits shall be drilled into the bridge abutment and then attached to the underside of the girder system of the bridge. None of the newly installed conduits shall be located below the bridge girders in locations that would reduce horizontal or vertical clearances.

Water Crossings

The preferred water-body crossing techniques are connections to bridges and directional boring. However, if unique geologic features warrant trenching, a stream crossing construction and restoration plan shall be developed and approved by the CDFG before construction begins. To cross flowing streams, a temporary dam and flume pipe would be installed before trenching to divert the entire streamflow over the excavated area and allow for dry trenching of the crossing. Soil removed from either wet or dry trenching would be stored away from the water's edge and protected by silt containment structures. Following construction, the streambanks would be restored and restabilized, and the streambed will be brought to pre-construction contours. At this time, no stream crossings using trenching as the construction technique are anticipated.

Equipment Staging and Fueling

Staging areas shall be required for the entire route. Approximately three sites will be required per mile, each no larger than 12 by 100 feet in size. Equipment will be left single-file along the running line of the EPGN route when located along a pipeline corridor or roadway. Equipment and material will also be stored where the construction route intersects with roads, and will generally occupy an area parallel with the construction route about 12 by 200 feet in size. All staging areas shall be pre-surveyed by a qualified biologist and cultural resource specialist, except those located at a commercial facilities typically used for equipment storage.

Whenever practical, vehicle fueling shall occur in the storage areas adjacent to roads where fuel trucks have access. Bulk fuel (diesel) will usually be transported in 50- to 100-gallon tanks mounted on the contractor's pickup truck. Absorbent pads and mats will be placed on the ground beneath equipment before refueling and maintenance. The contractor shall implement special measures to prevent spills in areas where oil barrels and trucks carrying fuel are loaded. The contractor is required to keep universal absorbent pads, absorbent particulate pillows, heavy-duty trash bags, and straw bales on site. The fueling rigs are required to carry absorbent pads at all times.

When refueling is required at the site, the contractor shall ensure that equipment is refueled and lubricated within the cleared ROW and at least 150 feet away from all water bodies and wetlands. Impact minimization measures and equipment shall be sufficient to prevent accidental discharges of fluid from leaving the ROW or reaching wetlands or water bodies and shall be readily available for use. These will include some combination of the following:

- Dikes, berms, or retaining walls sufficiently impervious to contain spilled fluids (e.g., oil, fuel);
- Sorbent and barrier materials in quantities determined to be sufficient to capture the largest reasonably foreseeable spill;
- Structures such as gutters, culverts, and dikes for immediate spill containment;
- Tools such as shovels and backhoes for excavating contaminated materials;
- Sumps and collection systems; and
- Drums, barrels, and temporary storage bags to clean up and transport contaminated materials.

The contractor shall prepare for approval by EPGN a list of the type, quantity, and storage location of containment and cleanup equipment to be used during construction. All spills shall be cleaned up immediately and contaminated material will be disposed of at an approved disposal site. Containment equipment shall not be used for storing contaminated material.

ACCESS VAULTS

Access vaults are installed at splice points and intermediate locations to facilitate cable installation. These vaults are approximately 6 feet long, 2.5 feet wide, and as deep as needed to access the conduits (generally 4 feet). These vaults are used to install and maintain the fiber optic cable and conduits. Access into the vaults is by standard steel manhole covers. The covers are buried under at least 18 inches of soil. Access vaults placed in roadways are constructed to withstand standard highway traffic load. All vaults contain a special device in the lid that can be located by equipment carried by construction, installation, and maintenance crews.

SAFETY MARKING

Carsonite or polyvinyl chloride (PVC) markers will identify the location of the system at approximately 1,000-foot intervals. These markers are approximately 4 inches wide and at least 3 feet tall (above

ground) with a 14-inch orange plaque on top that provides the toll-free number to call before digging. The contractors will also install cable-marking ribbon 1 to 2 feet below grade and directly above the system. Where the system is laid within a roadbed, the markers will be placed along the side of the road.

Marker poles or notices on existing poles will be placed approximately every 1,000 feet along the system route when construction is complete for an area. Marker poles will warn of buried facilities and display the local one-call number and emergency number. Marker poles will be placed at all highway, railroad, river, and stream crossings in addition to the routine route markings. They will also be placed at all points of cable route directional change.

SITE RESTORATION

Where the system is contained within existing cleared limits of ROWs (e.g., road shoulders), very little site restoration will be needed. Where the method of installation is plowing or directional boring, little or no restorative activity will be required following the placement of the system. At locations where vegetation is cleared for the installation, EPGN shall implement the following measures to protect the ROW and the surrounding environment. In the event that final restoration cannot occur in a timely manner due to weather or soil conditions, temporary erosion and sediment control measures will be maintained until the weather is suitable for final cleanup and revegetation. Long-term restoration and revegetation of the ROW also incorporate permanent erosion and sediment control measures.

Temporary Erosion Control

- Stabilization measures shall be initiated as soon as practicable on portions of the ROW where activities have temporarily or permanently ceased.
- Temporary plantings shall be fertilized in accordance with the recommendations of BLM, Caltrans, county public works and/or planning departments (if applicable), and CDFG.
- Temporary sediment barriers shall be removed when an area is successfully revegetated.

Permanent Restoration Measures

- Final grading shall be completed as soon as practical after backfilling, weather permitting.
- Construction debris shall be removed from the ROW and the ROW shall be graded so that the soil is ready for planting.
- Permanent water bars or terraces shall be constructed after final grading and before seeding.
- Permanent water bars shall be constructed to replace temporary erosion control barriers at road and water-body crossings.

Revegetation and Seeding

- In conjunction with BLM, Caltrans, CDFG, local county agencies, and private landowners, EPGN shall determine the specific revegetation requirements for individual sites.
- If seeding is required, the ROW shall be seeded as soon as practicable following final grading in accordance with recommended seeding dates, weather and soil conditions permitting.
- ~~Trees, ornamental shrubs, and other landscaping materials shall be restored in accordance with landowner agreements.~~Only native trees and shrubs, provided in the list from CDFG, shall be used for replanting.
- Where broadcast seeding or hydro-seeding is to be requested, the seedbed shall be scarified to ensure that sites are available at which seeds can lodge and germinate.
- The seedbed shall be prepared to a depth of 3 to 4 inches using appropriate equipment to provide a firm, smooth seedbed, free of debris.

- Seed shall be purchased in accordance with the Pure Live Seed (PLS) specifications for seed mixes and used with 12 months of testing. Seed mixes shall be approved by CDFG.
- Legume seed shall be treated with a species-specific inoculate in accordance with the manufacturer's specifications.
- Seed shall be applied and covered uniformly. A seed drill equipped with a cultipacker is preferred, but broadcast seeding or hydro-seeding can be used at double the recommended seeding rates. Where broadcast seeding is used, the seedbed shall be firmed after seeding.
- Areas seeded after the recommended seeding date should be mulched if possible.

For locations where the system is trenched into the road surface, road surfaces shall be returned to pre-construction conditions.

SITE MAINTENANCE

Following initial system installation, no adverse effect will occur on the ability of any road or pipeline managers to carry out maintenance activities. If cables need to be added or replaced, EPGN shall coordinate with the easement and/or fee holders and plan to work outside of any seasonal or operational restrictions to perform the installation. Any road disturbance shall be planned for and managed as described for the initial installation. Where access vaults placed within roadways need to be accessed, the vaults will be recovered, the material compacted, and the road returned to at least pre-construction condition.

2.5 REGENERATION/OP-AMP STATIONS (OFF-ROW)

Six regeneration/OP-AMP stations will be constructed off the proposed project ROW in California as part of the project. Each regeneration/OP-AMP station houses equipment that reconstructs and/or boosts the optical signal. The proposed regeneration stations are required because signals transmitted on a fiber optic strand must be amplified (i.e., boosted) approximately every 45 miles and reconstructed (maintained) every 90 to 120 miles. A typical regeneration site includes the facility itself, access road, driveway and parking area, a generator/fuel tank, fiber optic manholes/handholes, and a fence enclosing the compound. The land area for each regeneration station varies slightly in size based on the number of customers served by each station. Figures 2.5-1 through 2.5-6 depict the layout of each proposed site.

LOCATION OF OFF-ROW FACILITIES

The locations of the proposed regeneration stations are listed in Table 2.5-1. Figures 2.5-7 through 2.5-12 depict the locations of the six proposed regeneration stations. The six proposed regeneration stations will be located on private land and lease or purchase arrangements will be made with property owners regarding station locations.

ELECTRIC POWER

All but one of the new required regeneration/OP-AMP stations have power available at the site already, and no new power line construction or ROW acquisition would be required. The Rice, California site would require the construction of approximately 3.3 miles of new power line within the footprint of the historic power line that formerly supplied power to Rice. An existing power line ends east of Rice on the south side of State Highway 62 that currently serves a cellular telephone tower. EPGN proposes to reconstruct the historic power line (using contemporaneous materials and construction styles) from this location to the proposed regeneration/OP-AMP site at Rice. In addition, this power line would be designed to comply with the specifications outlined in Suggested Practices for Raptor Protection on Power Lines (EEI, 2000). The EPGN ROW application for the proposed project is currently being

amended to include the proposed historic reconstruction and associated ROW. None of the remaining regeneration/OP-AMP stations would require new ROW.

CONSTRUCTION PROCESS

Construction of off-ROW facilities is planned to begin in late 2001, with both on-ROW and off-ROW projects planned to be completed in spring 2002. Construction of each regeneration/OP-AMP station takes approximately 6 weeks with a workforce of approximately 30 construction workers.

Table 2.5-1
Proposed Regeneration/OP-AMP Station Sites

NAME AND DIMENSIONS OF STATION	COUNTY	OWNERSHIP	LOCATION
Blythe, 45 by 60 feet	Riverside	Private	East corner of Midland Rd. and Railroad tracks; NE ¼, NE ¼, Sec. 6, T6S, R23E; 1.19 acres
Rice, 60 by 66 feet	San Bernardino	Private	Southwest and southeast corners of SR 62 and Midland Rd; SE ¼, SW ¼, Sec. 14, T1S, R20E; 14.83 acres
Twentynine Palms, 45 by 60 feet	San Bernardino	Private	2.75 miles east of intersection of Chadwick Rd. and SR 62, south side of SR 62; SE ¼, NE ¼, Sec. 4, T1S, R12E; 3 acres
Linn, 45 by 60 feet	San Bernardino	Private	Southeast corner of Linn Rd. and Shawnee Rd.; NE ¼, NW ¼, NW ¼, Sec. 2, T3N, R5E; 5.6 acres
Apple Valley, 45 by 60 feet	San Bernardino	Private	2,000 ft north of Hwy. 18 on west side of Soledad Rd.; NE ¼, SE ¼, SE ¼, Sec. 33, T4N, R2W; approx. 5 acres
El Mirage, 45 by 60 feet	Los Angeles	Private	South of El Mirage Rd. and east of 240th Street East; NW ¼, NE ¼, Sec. 23, T6N, R8W; 2.47 acres

At some station locations, cut and/or fill will be required to achieve a level construction and site area. Underlying areas shall be constructed using excavated subsoils. Off-site material shall be used only after available excavated materials have been utilized. Fill material shall be graded and compacted to uniform building code standards.

BUILDING INSTALLATION

Site preparation for the facilities shall occur in one mobilization. Concrete pads (approximately 12 inches thick) will be poured for the foundations of the buildings, and at least 8 to 12 inches of gravel will be placed over the remainder of the site. A circular column (18 inches in height) will be placed in the concrete pads to support each of the EPGN buildings. Buildings will be installed directly on the pads. All buildings will be pre-assembled and range in size up to 100 feet long, 80 feet wide, and 10 feet high. Installation of regeneration/OP-AMP equipment will be completed and ancillary equipment will be installed after building installation and electrical power connection is complete. Existing commercial power sources will provide electrical power for the regeneration/OP-AMP stations. One backup electrical generator, ranging in size from 125 kilowatts (kW) to 175 kW, will be located at each regeneration/OP-AMP station site. These generators shall operate on diesel fuel, which will be stored in 200- to 440-gallon tanks on-site. EPGN shall secure required building permits and any other permits required for the initial buildout.

Fencing, gates, and security lighting will be installed. Security floodlights shall be mounted on the exterior side of each of the exterior doorways. Passive infrared motion sensors and photocell controls shall control these lights. Consequently, these lights shall remain off most of the time and will be activated only when operations personnel are present.

SITE RESTORATION

The sites shall be restored to pre-existing conditions. If required by the local jurisdiction, the perimeter of the site shall be landscaped with drought-resistant plants.

MAINTENANCE AND EXPANSION

Maintenance shall consist of periodic EPGN visits for equipment maintenance, drainage, and vegetation management. These are unmanned facilities that will be operated remotely.