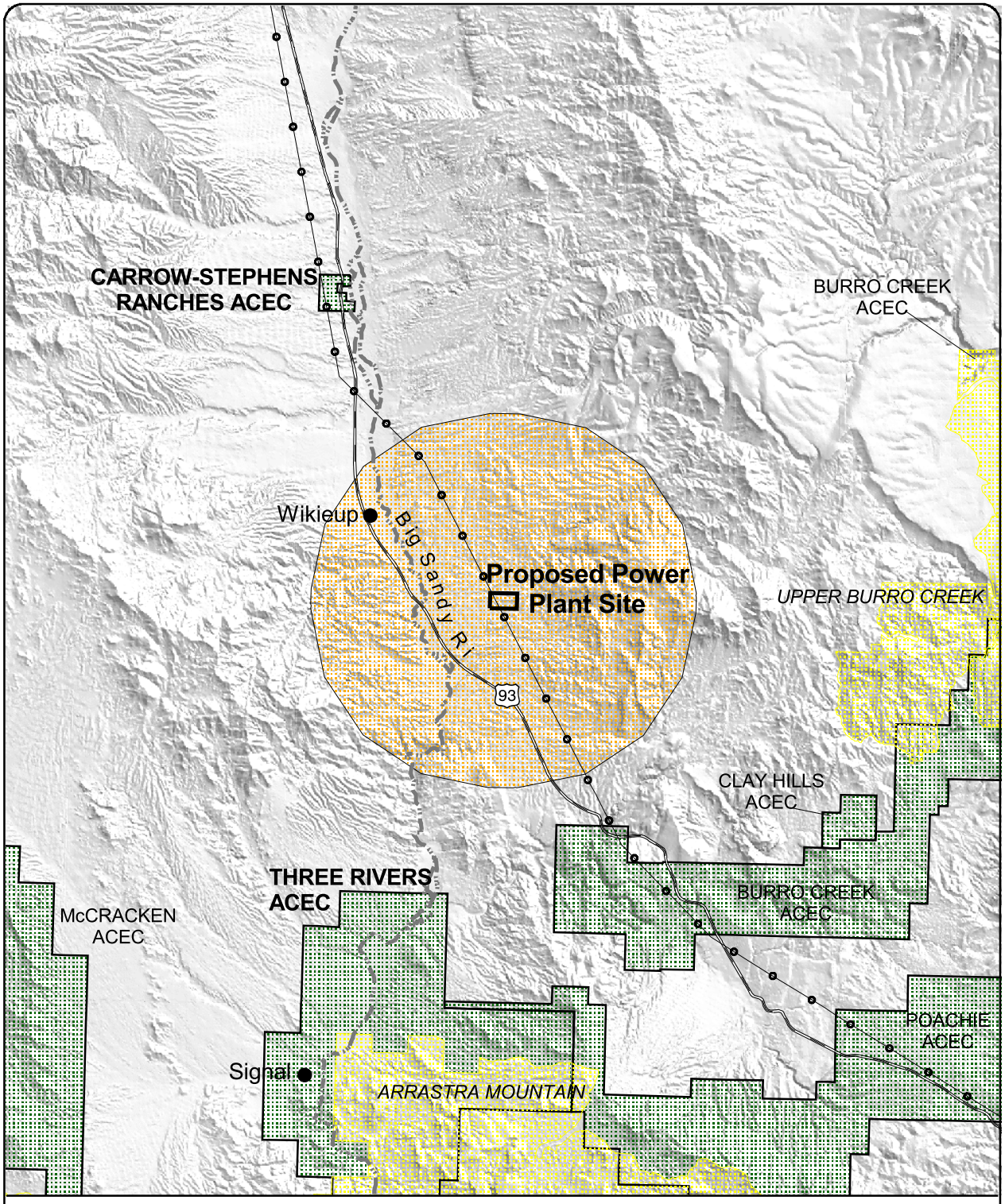


Legend

Resource Components
- Five-mile Region of Influence (Plant Site)
- Wilderness Areas
- Areas of Critical Environmental Concern
- Proposed Power Plant

General Reference
- Mead-Liberty/Mead-PhoenixTransmission Lines
- 40 Interstate
- 93 U.S. Route

Region of Influence for Visual Resources

Big Sandy Energy Project EIS

0 5 10

Scale in Miles

Universal Transverse Mercator Projection
1927 North American Datum
Zone 12

N

Figure 3.9-1

x:/bigsandy/projects/vis.apr

roads (e.g., Chicken Springs Road). Vegetation on the mountain slopes consists of a mixture of saguaro cactus, paloverde trees, ocotillo, prickly pear cactus, and creosote, which adds contrasting colors to the landscape.

The Big Sandy River (along or near corridor segments R5, T5, and R4) also is a Class A landscape and a unique feature within the region of influence. The moderate to dense xeroriparian and riparian vegetation along the river exhibits colors and textures that contrast with the surrounding desert landscape. These features make the river one of the most recognizable landscapes in the region of influence. The river extends from central portion of the region of influence through the southern portion. The river is north-south trending and parallels the east side of US 93 until it crosses under the highway west of the proposed power plant site.

The Class B foothills (along corridor segments R5, R4, R3, T5, T4, and T3) are an extension of the mountain landscapes with no distinctive ridgelines (2,000 to 3,500 feet) and smooth, rounded slopes. Vegetation is primarily Arizona Upland Sonoran Desertscrub and adds to the visual quality of these landscapes. Foothill areas occur near the proposed power plant site at the southern end of the region of influence and near the northern end of the Big Sandy River midway between Wikieup and I-40.

The Class B juniper plains (along corridor segments T2 and T1) occur near the northern end of the region of influence on the south side of I-40. This landscape is characterized by rolling to relatively flat grassland terrain. There is a moderate cover of juniper dispersed throughout the grasslands, which adds contrasting colors and textures to the landscape. Small drainages with areas of eroded slopes and exposed soils add to the visual quality of the area.

The majority of the landscape within the region of influence is Class C desert scrub (along corridor segments R5, R4, T4, C3, R3, T3, R2, R1, C2, and C1). These areas are characterized by relatively flat to rolling terrain with a low to moderate density cover of vegetation including creosote, cacti, and grasses. There are numerous small drainages cutting through the terrain adding slightly to the visual quality of this landscape. A unique feature found in this landscape is the Carrow-Stephens Ranches ACEC. This historic ranch setting is located approximately 7 miles north of Wikieup and is characterized by the presence of an 1880s two-story ranch house, a pioneer cemetery, and a 1930s Depression-era cannery. This site is indicative of the late nineteenth century farming and ranching lifestyle as stated in the *Kingman Resource Area Proposed Resource Management Plan and Final Environmental Impact Statement* (BLM 1993). Management efforts emphasize maintaining and improving the "historic feel" or "sense of place" at the ranch.

Residential and commercial development occurs throughout Wikieup. This development occurs in a linear pattern along US 93. The residential areas consist of low-density, large-lot development with primarily native vegetation throughout the area (along corridor segments R5 and T5). The commercial areas are located immediately adjacent to US 93 and consist of restaurants, convenience stores/gas stations, gift shops, and machine/maintenance shops, as well as numerous signs and lights (along corridor segment R5). Development lacks definition in terms of architectural or planning themes. However, this lack of definition contributes to the unique character and "small town" feel in Wikieup. Dispersed residential development (e.g., single-family homes and small ranches) occurs in the region of influence outside of Wikieup.

There are numerous cultural and manmade modifications present in the region of influence. There is a BLM-designated utility corridor, which has 500-kV, 345-kV, and 69-kV transmission lines (along corridor segment T5, T4, C3, T3, T2, and T1) crossing the region of influence from the proposed power plant site to I-40. The transmission lines are a noticeable to dominant feature in the landscape depending on

their location in the landscape (e.g., proximity, skylined, backdropped). Additional infrastructure in the area consists of the US 93 (along corridor segments R5, R4, C3, and R3) and several non-paved roads. The highway corridor runs the full length of the region of influence from north to south. This corridor is well traveled and is a distinct feature in the landscape. The non-paved roads include Chicken Springs Road (along corridor segment R5) and numerous unnamed roads throughout the region of influence. These roads provide access to many sites, allowing people to experience different levels of scenic quality. In some cases, the roads have left "scars" in the soil surface that contrast with the adjacent conditions allowing them to be visible from distant areas. In areas with scenic quality Class A and B landscapes, these roads can detract from the natural qualities and appeal of the landscape.

Additionally, the Hayden Peak and Phoenix and Perkins Substations have numerous modifications including large towers, buildings, transformers, electrical equipment, and fences present which are dominant features in the landscape.

Key Observation Points and Other Viewing Areas

KOPs are viewing locations that are representative of the most sensitive viewers that would view the proposed Project. The inventory of KOPs included the following three components:

- identification of KOPs
- viewer sensitivity
- Project visibility (seen areas and distance zones).

KOPs were identified based on review of available land use data, field review, public and agency review, and previous environmental studies in the region of influence. Additionally, a general inventory of other sensitive viewing areas was documented to account for distant viewers who see the Project facilities, but would not be significantly impacted.

Viewer sensitivity is a measure of the degree of concern for change in the visual character of a landscape. Viewer sensitivity is determined by evaluating type of use, user attitude, volume of use, influence of adjacent land use, and viewing duration. Two levels of sensitive views were evaluated for this Project—high and moderate. Low sensitivity views were not evaluated since they would not result in significant visual impacts.

Visibility reflects how the proposed Project would be seen and what distance it is from a particular KOP or viewing area. There were three distance zones defined within the region of influence, as follows:

- Foreground views: 0 to 1 mile
- Middleground views: 1 to 3 miles
- Background views: 3 to 5 miles (views beyond 5 miles are considered outside the zone of influence)

There were five KOPs identified for this Project (Figure 3.9-2). The following descriptions characterize the viewing conditions relative to the proposed Project for each of the KOPs. Two of these KOPs are outside the region of influence for the plant site, but are within the region of influence for the proposed and alternative pipeline corridors.

KOP #1 - Community of Wikieup (High Sensitivity) ¾Wikieup has the highest concentration of residential views within the region of influence. There would be background views (approximately 4 miles away) of the proposed power plant site from these residences.

Corridor segment R5 would be visible from this KOP since it would parallel US 93 bisecting Wikieup.

Alternative Terminus

Proposed Terminus

T1

R1

C2

C1

T2

R2

T3

R3

C3

T4

R4

Carrow-Stephens Ranches ACEC

T5

R5

Wikieup

Proposed Power Plant Site

Proposed Well Field and Agricultural Area

40

93

1

2

3

4

5

T. 21 N.

T. 20 N.

T. 19 N.

T. 18 N.

T. 17 N.

T. 16 1/2 N.

T. 16 N.

T. 15 N.

R. 15 W.

R. 14 W.

R. 13 W.

R. 12 W.

R. 11 W.

Legend

Resource Components

- Key Observation Points
- Visual Resource Management Class II
- Visual Resource Management Class III
- Visual Resource Management Class IV

Project Components

- Pipeline Corridor Segments
- Proposed Pipeline Corridor - R1,C1,T3,C3,T4,R5
- Alternative R Corridor - R1,R2,R3,C3,R4,R5
- Alternative T Corridor - T1,T2,T3,C3,T4,T5
- Proposed Plant Facilities

General Reference

- Existing Pipelines
- Mead-Liberty/Mead-PhoenixTransmission Lines
- Stream/River
- Interstate
- U.S. Route

Visual Resources
KOPs and VRM Classifications
Big Sandy Energy Project EIS

0 5

Scale in Miles

Universal Transverse Mercator Projection
1927 North American Datum
Zone 12

N

Figure 3.9-2

x:/bigsandy/projects/jurisdiction.apr

There would not be views from this KOP of corridor segment T5 due to distance and relatively low profile.

KOP #2 - Chicken Springs Road (Moderate Sensitivity) ¾This road is located on the northwest side of Wikieup. The road serves as an access from the Wikieup area to Dutch Flat on the west side of the Hualapai Mountains. This road has open panoramic views of the entire region of influence. The westernmost portions of the road increase in elevation providing unique viewing opportunities of the entire valley and surrounding mountain landscapes when traveling east. The proposed power plant site would be visible in the distant background (approximately 7 miles away) and is considered to be outside the 5-mile region of influence.

Corridor segment R5 would be visible in the foreground to middleground (approximately 0.25 to 2 miles away) from this KOP.

Corridor segment T5 along the Mead-Phoenix Project 500-kV transmission line route would not be visible from this KOP due to distance (approximately 2.5 to 6 miles away depending upon location on the road) and low profile.

KOP #3 - US 93 (High Sensitivity) ¾There are several locations along US 93 where the proposed power plant site would be visible in the background distance zone. A section of US 93 in the southern portion of the region of influence has been designated scenic by the ADOT Parkways, Historic, and Scenic Roads Advisory Committee (ADOT 1993). The first location where the power plant may be visible is within this designated scenic section of the highway along a hilltop approximately 3.5 miles south (background views) of the proposed power plant site. The second location is the section of US 93 near Wikieup where viewing conditions are the same as those described for KOP #1. The third section is located 5 miles north of Wikieup.

The proposed gas pipeline corridor and corridor segments R5, R4, and R3 would be visible (within approximately 150 feet) for the entire length of US 93. Corridor segments R1 and R2 would be visible where they parallel Hackberry Road.

Portions of the Alternative T gas pipeline corridor would be visible from two locations along US 93. The remaining areas would not be visible due to distance and low profile. Corridor segment T5would be visible where the corridor crosses US 93 approximately 2.5 miles south of the Carrow-Stephens Ranches ACEC. Corridor Segment C3 would be visible approximately 10 miles north of the Carrow-Stephens Ranches ACEC where the corridor would be within 0.25 mile along the west side of US 93. Corridor segment C1 would be visible from a location approximately 3.5 miles south of I 40 where the corridor crosses US 93.

KOP #4 - Carrow-Stephens Ranches ACEC (High Sensitivity) ¾The proposed power plant site would be viewed in the distant background (approximately 9 to 10 miles away) and is considered to be outside the 5-mile region of influence. There are very few viewers currently visiting the Carrow-Stephens Ranches ACEC. However, future plans for developing the ACEC as an “interpretive site” for cultural resources likely will increase the number of potential viewers.

Corridor segment T4) would be visible in the foreground where it crosses through the ACEC boundaries. Corridor segment R4 would be visible where it crosses through the southwest corner of the Carrow-Stephens Ranches ACEC.

KOP #5 - Nettie’s Place Residence (High Sensitivity) ¾This residence is the closest viewer to the proposed power plant site (less than 1 mile). The existing transmission line corridor (consisting of 500-kV, 345-kV, and 69-kV transmission line structures) is partially visible crossing in front of the proposed power plant site.

Corridor segment R5 would be visible in the foreground where it would parallel the proposed access road leading to the proposed power plant

site. Corridor segment T5 would not be visible from this KOP due to distance and low profile.

Other Viewing Areas ¾ There are other locations with potential views of the proposed Project facilities, including Hackberry Road, I-40, several rural residences, and dispersed recreation areas. Corridor segment R1 would be visible in the foreground where it parallels Hackberry Road near the northern end of the region of influence. Hackberry Road is a low-use, non-paved road providing access to dispersed rural residences in the area. Views of corridor segment R1) and corridor segment T1 would be visible in the foreground where they intersect I-40.

There are middleground views (approximately 1.5 miles west) of the proposed power plant site from several rural residences. Additionally, there are middleground views (approximately 2.5 miles southwest) of the proposed power plant site from two residences. There are several dispersed rural residences near the central and northern portions of the region of influence along the proposed and alternative pipeline corridors. These residences have foreground to middleground views from less than 100 feet to more than 1 mile away.

Additionally, there are potential views from dispersed use recreation areas (undefined viewpoints) such as hunting or hiking areas along the Big Sandy River and in the adjacent mountains. Views from these areas are difficult to define and quantify. However, it is likely that use volume is low and views would be intermittent and short term.

Potentially, the region of influence, including the Wikieup area, may see future growth. However, no specific future plans for residential development, recreation, commercial development, and roads were identified. Therefore, this study does not attempt to characterize future viewing conditions.

BLM Visual Resource Management Guidelines

VRM Classes establish guidelines for determining the acceptable level of change to visual resources on BLM lands. Private, state, and county lands within the region of influence do not have formal guidelines for the management of visual resources. Although the VRM guidelines strictly apply only to BLM-managed public lands, to be consistent, the VRM classification guidelines were used for all lands within the region of influence. VRM classes in the region of influence were identified from the *Kingman Resource Area Proposed Resource Management Plan and Final Environmental Impact Statement* (BLM 1993).

Visual Resource Management Classes

Visual Resource Management (VRM) Classes are determined by evaluating three components – scenic quality, visibility from sensitive viewpoints, and sensitivity of viewpoints. The following is a summary of the VRM Classes.

Class I – The objective of this class is to preserve the existing character of the landscape. Changes to the landscape character must be low and should not be evident.

Class II – The objective of this class is to retain the existing character of the landscape. Changes to the landscape character may attract slight attention, but should be subordinate to the visual setting.

Class III – The objective of this class is to partially retain the existing character of the landscape. Changes to the landscape character may begin to attract attention, but should not dominate the visual setting.

Class IV – The objective of this class is to allow for activities that modify the existing character of the landscape. Changes to the landscape character may attract attention and dominate the visual setting. However, these activities should minimize changes to the landscape where possible.

VRM Class II, III, and IV landscapes were identified in the region of influence. Class IV lands are predominant and consist of landscapes

along the proposed gas pipeline corridor (corridor segments T4, C3, T3, C1, and R1); Alternative T gas pipeline corridor (corridor segments T4, C3, T3, T2, and T1); and Alternative R gas pipeline corridor (corridor segments R5, R4, R3, R2, and R1) located in areas of Class C scenic quality which are seen by a low to moderate number of sensitive viewers (primarily from US 93 and dispersed residences). These alternatives follow a BLM-designated utility corridor and US 93.

Class III landscapes occur near the eastern and southern boundaries of the region of influence surrounding the proposed power plant site. These landscapes consist of Class B scenic quality which is seen by a low to moderate number of sensitive viewers (primarily US 93 and dispersed residences). The Class III landscapes are found along the proposed gas pipeline corridor (corridor segment R5); Alternative T gas pipeline corridor (corridor segment T5); and Alternative R gas pipeline corridor (corridor segment R5).

Class II landscapes occur along the Big Sandy River from the southern to central portions of the region of influence. These landscapes consist of Class A scenic quality areas seen by a moderate to high number of sensitive viewers (primarily from US 93, Wikieup, and dispersed residences). The proposed and alternative gas pipeline routes cross the Class II Big Sandy River north and south of Wikieup. The Class II landscapes are found along the proposed gas pipeline corridor (corridor segment R5); Alternative T gas pipeline corridor (corridor segment T5); and Alternative R gas pipeline corridor (corridor segments R5 and R4).

The proposed power plant site is located on private land. Therefore, it is not specifically subject to BLM VRM guidelines. It is surrounded by Class III landscapes and the closest Class II landscapes are approximately 1 to 1.5 miles away.

3.9.2.2 Environmental Consequences

Identification of Issues

Impacts on visual resources resulting from the proposed Project would be both short term and long term. Issues relative to evaluating impacts on visual resources are listed below.

Short-term Issues:

- presence of construction vehicles and equipment (e.g., cranes, trucks, bulldozers, scaffolding)
- dust and emissions from construction equipment
- construction lighting

Long-term Issues:

- terrain and vegetation disturbance at the proposed power plant site (approximately 56 acres), as well as along the pipeline and access roads
- presence of aboveground facilities at the proposed power plant site including the following:
- combustion turbine generators (CTGs), approximately 60 feet high
- HRSG, approximately 93 feet high
- HRSG exhaust stacks, approximately 130 feet high
- steam turbine generator (STG), approximately 37 feet high
- cooling tower (CT), approximately 40 feet high
- water storage tanks, approximately 43 feet high

- power plant substation and transmission line structures, approximately 35 to 125 feet high
    - presence of communication facilities including a 60 feet high communication tower and two 10 feet diameter microwave dishes
- presence of visible vapor plumes emanating from the HRSG exhaust stacks and CT cells
- night lighting for operations and maintenance

Significance Criteria

Impacts would be considered significant if the following were to occur:

- non-compliance with applicable agency VRM guidelines, including the following:
    - BLM Visual Resource Management Classifications
    - ADOT Parkways, Historic, and Scenic Roads Program
    - Mohave County "Night Sky Ordinance"
- a substantial degradation of the character or scenic quality of a landscape in terms of the form, line, color, and texture qualities that make the setting unique, identifiable, or establish a "sense of place" as a result of the proposed Project
- introduction of substantial dominant visual changes in the landscape that are seen by highly sensitive viewers (e.g., residences, recreation areas, scenic roads) including, but not limited to the following:
    - partial or full view blockage of surrounding viewsheds (e.g., ridgelines and riparian corridors) by the proposed facilities, where there currently are unobstructed views
    - skyline views of proposed facilities
    - substantial earthwork (cut and fill) that exposes visually contrasting soils or rock and does not repeat natural contours of the surrounding terrain

Impact Assessment Methods

The assessment of potential significant impacts on visual resources resulting from the Proposed Action was based on the evaluation of visual contrast as defined by the BLM's 8400 series manual (Visual Resource Inventory and Contrast Rating System, 1986).

Visual contrast is a measure of the perceptible level of change to landscape scenic quality and views from KOPs resulting from the proposed Project. Viewing variables affecting visual contrast include vegetation or terrain screening, atmospheric conditions, daytime vs. nighttime conditions, and visual absorption capability (VAC). VAC is defined as the extent to which the complexity of the landscape can absorb changes without affecting the overall visual character.

The BLM Visual Contrast Rating Worksheet (Form 8400-4) was used as the basis for establishing potential visual contrast levels. These worksheets were completed in the field and are available for review at the BLM Kingman Field Office. Additionally, visual simulations were prepared using photography and computer-generated three-dimensional models to assist in determining visual contrast levels.

There were four visual contrast (modification) levels established for this Project, as described below.

Not Noticeable ¾ Changes in the landscape scenery or views that would not be evident (weak contrast) unless pointed out due to such factors as previous disturbance, distance, terrain and vegetation screening, dominance of adjacent landscape features, and visual absorption due to

background terrain. Changes typically would be viewed in the background and would be unobstructed. However, middleground views may be included that are partially screened or foreground views that would be completely screened.

Noticeable ¾ Changes in the landscape scenery or views that would be evident (weak/moderate contrast) but visually subordinate to the setting due to the factors described above. These changes may attract slight attention, but would not compete with adjacent landscape scenery or views. Changes typically would be viewed in the middleground or background and would be unobstructed. However, foreground views may be included that would be partially screened.

Co-dominant ¾ Changes in the landscape scenery or views that would attract attention (moderate contrast) and begin to compete with adjacent landscape scenery or views. Changes typically would be viewed in the middleground and would be unobstructed or partially screened in the foreground.

Dominant ¾ Changes in the landscape scenery or views that would become the focal point or most significant (strong contrast) feature in the setting. Changes typically would be viewed in the foreground, be unobstructed, and in extreme cases may be partially screened. Such changes often cause a lasting impression when viewed in the landscape.

The severity of impacts is determined by combining the landscape scenic quality classes and viewer sensitivity levels for KOPs determined in the inventory with the visual contrast/modification levels described above. Tables 3.9-1 and 3.9-2 summarize the impacts in terms of high, moderate, and low levels. The impact levels assume the application of mitigation measures that are part of the Proposed Action and presented in Section 2.2.8.8. Table 3.9-3 summarizes the compliance with BLM VRM Classifications.

Five visual simulations (3D computer models), one from each of the KOPs, were prepared to assist with the assessment of impacts to visual resources. The simulation prepared from KOP #1 - Community of Wikieup (refer to Figure 3.9.3) is the only one shown in this Draft EIS, since it represents a characteristic view of the proposed power plant seen by the general public. Simulations for the other KOPs illustrated limited views of the power plant due to short viewing duration, increased viewing distance, and screening from intervening terrain and vegetation.

Actions Incorporated into the Proposed Action to Reduce or Prevent Impacts

As described in Section 2.2.8.8, all lighting would be shielded and directed downward, in accordance with the Mohave "Night-Sky" Ordinance. In addition, the proposed power plant would be painted to blend with the natural background. All areas disturbed by construction would be reclaimed (landscape recontoured and rocks scattered randomly and planted with native vegetation, which would help ensure that the proposed Project facilities blend with the surrounding area.

Impact Assessment

Proposed Action

Proposed Power Plant Site

Long-term impacts would begin after construction of the proposed power plant and remain over the life of the Project. Modifications would be noticeable to co-dominant primarily due to surface disturbance and the introduction of additional industrial facilities (turbines, exhaust stacks, CTs, water tanks, substation, and evaporation ponds) into scenic quality Class B foothill landscapes at the proposed power plant site. Impacts would be moderate and less than significant after the application of actions to reduce impacts and due to the presence of a BLM-designated utility corridor, which has 500-kV, 345-kV, and 69-kV transmission lines

TABLE 3.9-1 SCENIC QUALITY IMPACT LEVELS			
Visual Contrast or Modification Levels	Scenic Quality Class		
	Class A	***Class B***	***Class C***
Not Noticeable	Moderate	Low	Low
Noticeable	Moderate	Moderate	Low
Co-dominant	High	Moderate	Low
Dominant	High	High	Moderate

TABLE 3.9-2 KOP (VIEWER) IMPACT LEVELS			
Visual Contrast or Modification Levels	Viewer Sensitivity		
	High	***Moderate***	***Low***
Not Noticeable	Low	Low	Low
Noticeable	Moderate	Moderate	Low
Co-dominant	High	Moderate	Low
Dominant	High	High	Moderate

TABLE 3.9-3 COMPLIANCE WITH BLM VRM CLASSIFICATIONS				
Visual Contrast or Modification Levels	VRM Class			
	Class I *	***Class II***	***Class III***	***Class IV***
Not Noticeable	Yes	Yes	Yes	Yes
Noticeable	No	Yes	Yes	Yes
Co-dominant	No	No	Yes /No**	Yes
Dominant	No	No	No	Yes/No**

* There are no VRM Class I landscapes in the region of influence

** Compliance may depend upon implementation of mitigation measures to reduce visual contrast

bisecting the proposed power plant site and evaporation ponds.

The proposed power plant would be a noticeable feature in the landscape as viewed from KOP #1 - Community of Wikieup (approximately 3.5 to 4 miles away). Impacts on these views would be moderate to low, since they are partially screened by vegetation, terrain, and occasionally surrounding development. A simulation of the view of the proposed power plant from KOP #1 is included as Figure 3.9-3. The Aquarius Mountains to the east are the dominant feature in the landscape when viewed from this KOP. The Big Sandy River in the foreground (approximately 0.25 mile away) is a secondary feature that attracts viewer attention from this KOP. Additionally, the Hualapai Mountains to the west are a dominant feature in the landscape, which may draw attention away from views of the proposed power plant. At this distance, the proposed power plant would tend to be absorbed into the landscape. Visible water vapor plumes would contribute to the visibility of the proposed power plant from this KOP and likely would be a co-dominant feature when they occur. Lighting also would contribute to the noticeability of the proposed power plant during nighttime hours; however, impacts would be reduced to low levels because of the measures proposed as part of the Proposed Action (refer to Section 2.2.8.8). Based on the significance criteria, these impacts would not be significant.

EXISTING CONDITIONS: View from Wikieup Mobil Station looking southeast to the proposed plant site

SIMULATION

Photographic Simulation

Big Sandy Energy Project EIS

Figure 3.9-3

The proposed power plant would be a noticeable to not noticeable feature in the landscape when viewed from KOP #2 - Chicken Springs Road (approximately 7 miles away). This is primarily because the proposed power plant site is located at a relatively long distance and is partially to fully screened due to intervening terrain and vegetation from this KOP, as well as being absorbed by background terrain. Additionally, the Big Sandy River, Hualapai Mountains, and Aquarius Mountains are the dominant features visible in the landscape from this KOP. The most noticeable features would be the presence of water vapor plumes during the day and light during nighttime hours. Visible night lighting would be reduced to low levels since they would be shielded and directed away from viewers. Based on the significance criteria, impacts on this KOP would be low and less than significant.

KOP #3 - US 93 has several viewing locations where the proposed power plant and access road would be not noticeable to noticeable primarily due to intervening terrain and vegetation, as well the dominance of the surrounding mountain landscapes. The proposed power plant would not be noticeable along the stretch of highway west of the proposed power plant site where views are oriented primarily north and south away from the site. However, the access road would be noticeable since it is located immediately adjacent to the highway. The most noticeable location is the designated scenic section of the highway south of the proposed power plant site where northbound views (relatively short duration) are oriented directly toward the proposed power plant site (approximately 3.5 miles away). The upper portions of the HRSG and exhaust stacks, along with the cut slope created by the earthwork at the power plant site, would be the most visible features from this KOP. However, the power plant and cut slope would tend to be absorbed into the landscape since the plant facilities would be surface treated to match colors in the surrounding environment and after the cut slope has been revegetated.

The second location along US 93 where the proposed power plant would be most noticeable is north of Wikieup where southbound views are partially directed toward the proposed power plant site in similar conditions described above. Similar to other viewing areas, night lighting and water vapor plumes would be the most visible features associated with the proposed power plant. Impacts for this KOP would be moderate along the scenic portion of the highway and low for the remaining sections after the application of measures. Based on the significance criteria, impacts along US 93 would not be considered significant.

KOP #4 - Carrow-Stephens Ranches ACEC is approximately 9 to 10 miles away from the proposed power plant site and views would range from not noticeable during daytime hours to potentially noticeable during nighttime hours. Impacts on views would be low primarily due to distance, orientation, and absorption from background terrain. Another potentially noticeable feature of the proposed power plant from this KOP would be the water vapor plumes. However, occurrence of the plumes would be relatively infrequent. Based on the significance criteria, impacts would be less than significant.

The highest visual impacts would occur at KOP #5 – Nettie's Place Residence. Impacts on these views would be moderate due to the proximity (less than 1 mile) of the KOP to the proposed plant site. The most noticeable feature would be the cut slope created by the earthwork at the plant site (including the evaporation ponds) since it is the highest point where modifications to the landscape occur. The cut slope would be visible primarily during the first several years after construction, until vegetation of the disturbed area establishes itself. Foreground screening from intervening vegetation and terrain would reduce the overall visual contrast of the proposed power plant from this KOP from co-dominant to noticeable. The impacts would be less than significant, since the proposed power plant would partially blend with background terrain when painted with earth tones consistent with the surrounding landscape.

Water vapor plumes emanating from the CT cells and HRSG exhaust stacks would be occasionally visible from KOP #5 during daylight hours. These plumes would occur only under certain atmospheric conditions (i.e., primarily during winter when cold temperatures and high humidity are common), with the CT plumes visible more frequently than the HRSG plumes. Plumes that are 164 feet high are expected to occur less than 5 percent of hours during the course of a year and plumes that are greater than 230 feet high would be expected to occur less than 3 percent of yearly hours. The plumes would appear as a medium-density white/gray cloud rising above the proposed power plant site and would occur primarily at night during winter months. The plumes would partially block views of the Aquarius Mountains from KOP #5. When visible, the plumes would be co-dominant to dominant depending upon their height above ground and duration of time visible. Impacts resulting from the plumes would be high to moderate. However, the plumes only would be visible a small percentage of daytime hours, and therefore would result in less than significant impacts.

There currently are no lights visible to the east of KOP #5. Therefore, lighting would be co-dominant (partially screened) and contribute to impacts during the nighttime. Impacts would be reduced to moderate levels by implementation of shielding and directive devices. Based on the significance criteria, impacts from night lighting would be less than significant.

Impacts on other viewing areas described in the affected environment section would be low and insignificant primarily due to limited visibility of the proposed power plant site. Additionally, measures included in Section 2.2.8.8 (i.e., surface treated facilities, revegetation of disturbed areas, and shielding devices on lights) would reduce visual contrast with the surrounding landscape.

The proposed power plant site is located on private land (zoned industrial) and therefore does not have established visual resource management guidelines. The proposed power plant and associated facilities would comply with all applicable agency visual resource management guidelines including BLM VRM classifications, ADOT's Parkways, Historic, and Scenic Roads Program; and Mohave County's "Night Sky" Ordinance, and therefore would not result in a significant impact.

Short-term impacts resulting from the construction of the proposed power plant primarily would result from the visibility of equipment and dust related to the construction process. Additionally, lighting present during nighttime hours would contribute to short-term impacts. These impacts would occur primarily to KOP #5 - Nettie's Place Residence and would range from moderate to low depending upon the size and type of equipment (e.g., high cranes, scaffolding, earth moving equipment). These short-term impacts would be less than significant.

Communication Facilities

Visible modifications and impact levels for the proposed communication towers (approximately 60 feet high) and microwave dishes would be the same as previously described for the proposed power plant site.

Modification levels for the installation of microwave dishes would range from noticeable from views within 0.25 mile to not noticeable to views from beyond 0.25 mile. Impacts would be low and insignificant primarily due to the presence of numerous existing towers, buildings, and microwave dishes. Impacts would be the same for facilities at the Phoenix and Perkins Substation sites.

Replacing the existing overhead static wire with an OPGW on the existing 345-kV transmission line would not be noticeable since it would appear nearly identical. Based on the significance criteria, therefore, impacts would be low and insignificant.

Proposed Gas Pipeline Corridor

Long-term impacts would begin after the construction of the gas pipeline along the proposed route. The proposed gas pipeline route follows existing right-of-way along the Mead-Phoenix Project 500-kV transmission line route and Hackberry Road. The modifications resulting from the proposed gas pipeline corridor would range from noticeable in areas where existing right-of-way disturbance is evident to not noticeable where existing disturbance is prevalent. Low to moderate impacts would occur where the proposed pipeline corridor crosses scenic quality Class B foothill landscapes west of the proposed power plant site (corridor segment R5) and juniper plains south of I-40 (corridor segment T3). The remainder of the proposed pipeline corridor would cross Class C desert scrub landscapes (corridor segments T4, C3, C1, and R1) resulting in low impacts. Based on the significance criteria, impacts on scenic quality would be less than significant.

Modification levels would range from not noticeable to noticeable and impacts on KOPs and other viewing areas would be low where the corridor is adjacent to previously disturbed right-of-way. Modification levels would be noticeable to co-dominant and impacts on KOPs and other viewing areas would be moderate where the corridor would diverge beyond 1/8 of a mile from previously disturbed right-of-way.

The most visible portion of the proposed gas pipeline corridor would be where it crosses US 93 and to residences located near its intersection with the Big Sandy River (corridor segments R5 and T4). Modification levels here would be noticeable and impacts would be moderate to viewers traveling in both directions along the highway as well as the residences. Contrasting rocks or soil in the disturbed area may contribute to this impact. The application of reclamation and other measures proposed as part of the Proposed Action would reduce visual contrast of the pipeline with the surrounding landscape. Based on the significance criteria, impacts on KOPs and other viewing areas would be less than significant.

The proposed gas pipeline corridor would be in compliance with BLM Class II, III, and IV landscapes. This is primarily due to its location adjacent to existing right-of-way and the implementation of the measures described in Section 2.2.8.8.

Short-term impacts resulting from the construction of the pipeline primarily would result from the visibility of equipment and dust related to the construction process from KOPs #1 - Community of Wikieup, #3 - US 93, and #5 – Nettie's Place Residence. The equipment (e.g., backhoes, bulldozers, trucks) and dust could temporarily block views to distant mountain landscapes. These short-term impacts would be moderate and, based on the significance criteria, they would be less than significant.

Alternative R Gas Pipeline Corridor

Long-term impacts would begin after the construction of the gas pipeline along the Alternative R gas pipeline corridor. Modification levels would range from not noticeable to noticeable and impacts on scenic quality would be low where the corridor is adjacent to previously disturbed right-of-way. Modification levels would be noticeable to co-dominant and impacts on scenic quality would be moderate where the corridor would diverge beyond 1/8 of a mile from previously disturbed right-of-way.

The Alternative R gas pipeline corridor would cross (corridor segment R5) or be adjacent to (corridor segment R4) the scenic quality Class A Big Sandy River near the middle of the region of influence resulting in moderate to low impacts. Moderate to low impacts would occur where the Alternative R gas pipeline corridor crosses scenic quality Class B foothill landscapes west of the proposed power plant site along the proposed access road (corridor segment R5). The remainder of the Alternative R gas pipeline corridor would cross Class C desert scrub

landscapes (corridor segment R4, C3, R3, R2, and R1) throughout the middle of the region of influence and result in low impacts on scenic quality. Based on the significance criteria, impacts on scenic quality would be less than significant.

Modification levels would range from not noticeable to noticeable and impacts on KOPs and other viewing areas would be low where the corridor is adjacent to previously disturbed right-of-way. Modification levels would be noticeable to co-dominant and impacts on KOPs and other viewing areas would be moderate where the corridor would diverge beyond 1/8 of a mile from previously disturbed right-of-way.

The Alternative R gas pipeline corridor would be visible for the entire length of US 93 (corridor segment R5, R4, C3, and R3) and Hackberry Road (corridor segment R2 and R1). Modification levels here would be noticeable and impacts would be moderate to viewers traveling in both directions along the roadways. Contrasting rocks or soil in the disturbed area may contribute to this impact. Revegetation of disturbed areas would reduce visual contrast of the pipeline with the surrounding landscape. Impacts to KOPs and other viewing areas would be less than significant.

The Alternative R gas pipeline corridor would be in compliance with BLM Class II (corridor segments R5 and R4), Class III (corridor segment R5), and Class IV (corridor segments R5, R4, C3, R3. R2, and R1) landscapes. This is primarily due to its location adjacent to previously disturbed right-of-way.

Alternative T Gas Pipeline Corridor

Long-term impacts would begin after the construction of the gas pipeline along the Alternative T gas pipeline corridor. The Alternative T gas pipeline corridor follows existing right-of-way along the Mead-Phoenix Project 500-kV transmission line route. Modification levels would range from not noticeable to noticeable and impacts on scenic quality would be low where the corridor is adjacent to previously disturbed right-of-way. Modification levels would be noticeable to co-dominant and impacts on scenic quality would be moderate where the corridor would diverge beyond 1/8 of a mile from previously disturbed right-of-way.

The Alternative T gas pipeline corridor would cross the scenic quality Class A Big Sandy River (corridor segment T5) near the southern end of the region of influence, resulting in moderate impacts. Low to moderate impacts would occur where the alternative pipeline route crosses scenic quality Class B foothill landscapes northwest of the proposed power plant site (corridor segment T5) and juniper plains south of I-40 (corridor segments T3, T2, and T1). The remainder of the proposed pipeline corridor would cross Class C desert scrub landscapes (corridor segments T4, C3, C1, and R1), which would result in low impacts. Based on the significance criteria, impacts on scenic quality would be less than significant.

Modification levels would range from not noticeable to noticeable and impacts on KOPs and other viewing areas would be low where the corridor is adjacent to previously disturbed right-of-way. Modification levels would be noticeable to co-dominant and impacts on KOPs and other viewing areas would be moderate where the corridor would diverge beyond 1/8 of a mile from previously disturbed right-of-way along the Mead-Phoenix Project 500-kV transmission line.

The most visible portion of the Alternative T gas pipeline corridor would be where it crosses US 93 and to residences located near its intersection with the Big Sandy River (corridor segments T5 and T4). Modification levels here would be noticeable and impacts would be moderate to viewers traveling in both directions along the highway as well as the residences. Contrasting rocks or soil in the disturbed area may contribute to this impact.The application of reclamation and other measures proposed as part of the Proposed Action would reduce visual

contrast of the pipeline with the surrounding landscape. Impacts on KOPs and other viewing areas would be less than significant.

The Alternative T gas pipeline corridor would be in compliance with BLM Class II (corridor segment T5), III (corridor segment T5), and IV (corridor segments T4, C3, T3, T2, and T1) landscapes. This is primarily due to its location adjacent to existing rights-of-way and after implementation of measures described in Section 2.2.8.8.

Short-term impacts resulting from the construction of the pipeline primarily would result from the visibility of equipment and dust related to the construction process from KOPs #1 - Community of Wikieup, #3 - US 93, and #5 - Nettie's Place Residence. The equipment (e.g., backhoes, bulldozers, trucks) and dust could temporarily would block views to distant mountain landscapes. These short-term impacts would be moderate and less than significant.

Crossover Segment C2

Corridor segment C2 follows the old US 93 alignment. The scenic quality is Class C desert scrub landscapes and would result in low impacts. Views of this corridor would be limited to the point where it intersects with US 93. Modifications would be noticeable when viewed from a small section US 93 and not noticeable for the remainder of the corridor where there are no sensitive viewers. Impacts to views from US 93 would be low primarily because of the short duration of view and minimal scenic quality of the landscape. Impacts from this corridor would be less than significant.

No-Action Alternative

There would be no impacts on visual resources associated with the No-Action Alternative. The groundwater production and monitoring wells, access roads, and well pads, that were completed on private land and used to identify and test the lower aquifer, would remain.

Mitigation and Residual Impacts

No significant impacts would result from the implementation of the Proposed Action with the actions incorporated to reduce or prevent impacts. There would be no residual significant impacts.

If adopted, the following measures would be implemented to minimize adverse impacts not considered to be significant:

- As necessary to blend with the surrounding weathered rock, the high cut slope north of the proposed power plant site would be coated with penetrating rock stain.

- As necessary to blend with the surrounding weathered rock and soil, larger rocks left on the surface of areas disturbed for the pipeline construction would be coated with penetrating rock stain.

3.10 AREAS OF CRITICAL ENVIRONMENTAL CONCERN

The Federal Land Policy and Management Act directs BLM to manage public lands for multiple purposes. However, BLM has the authority to designate and more restrictively manage some lands to protect some resources such as special status plants and animals, cultural values, scenic values, and wildlife and riparian resources. The *Kingman Area Resource Management Plan* (BLM 1993) defined 12 ACECs for such special management (Figure 3.10-1). Because of their locations, the proposed Big Sandy Energy Project is not projected to have any potential effects on 10 of these 12 ACECs. The Carrow-Stephens Ranches ACEC and the Three Rivers Riparian ACEC were identified as subject to potential impacts and are addressed in this section.

3.10.1 Affected Environment

3.10.1.1 Region of Influence

The region of influence for assessing construction and operation impacts includes the area within the boundaries of the Carrow-

Stephens Ranches and Three Rivers Riparian ACEC. Corridor segment T4, which is a component of the Proposed Action and the Alternative T gas pipeline corridor, crosses the Carrow-Stephens Ranches ACEC, as does corridor segment R4 of the Alternative R gas pipeline corridor. Also, the OPGW option for the substation dual/redundant communication system would cross this ACEC within the right-of-way for the Mead-Liberty 345-kV transmission line. The Three Rivers Riparian ACEC begins about 8.5 miles south of the Project area and extends about 16 to 17 miles south to where the confluence of the Big Sandy River and Santa Maria River form the Bill Williams River. This ACEC was addressed to evaluate whether the pumping of groundwater for the Big Sandy Energy Project could affect the ACEC by reducing surface water flows in the Big Sandy River or could affect the water quality of the Big Sandy River.

3.10.1.2 Existing Conditions

Carrow-Stephens Ranches ACEC

The Carrow-Stephens Ranches ACEC encompasses 542 acres of public land on the west side of the Big Sandy River about 5 to 6 miles north of Wikieup. US 93 and the Mead-Liberty 345-kV and Mead-Phoenix Project 500-kV transmission lines cross the ACEC (refer to Figure 3.10-1).

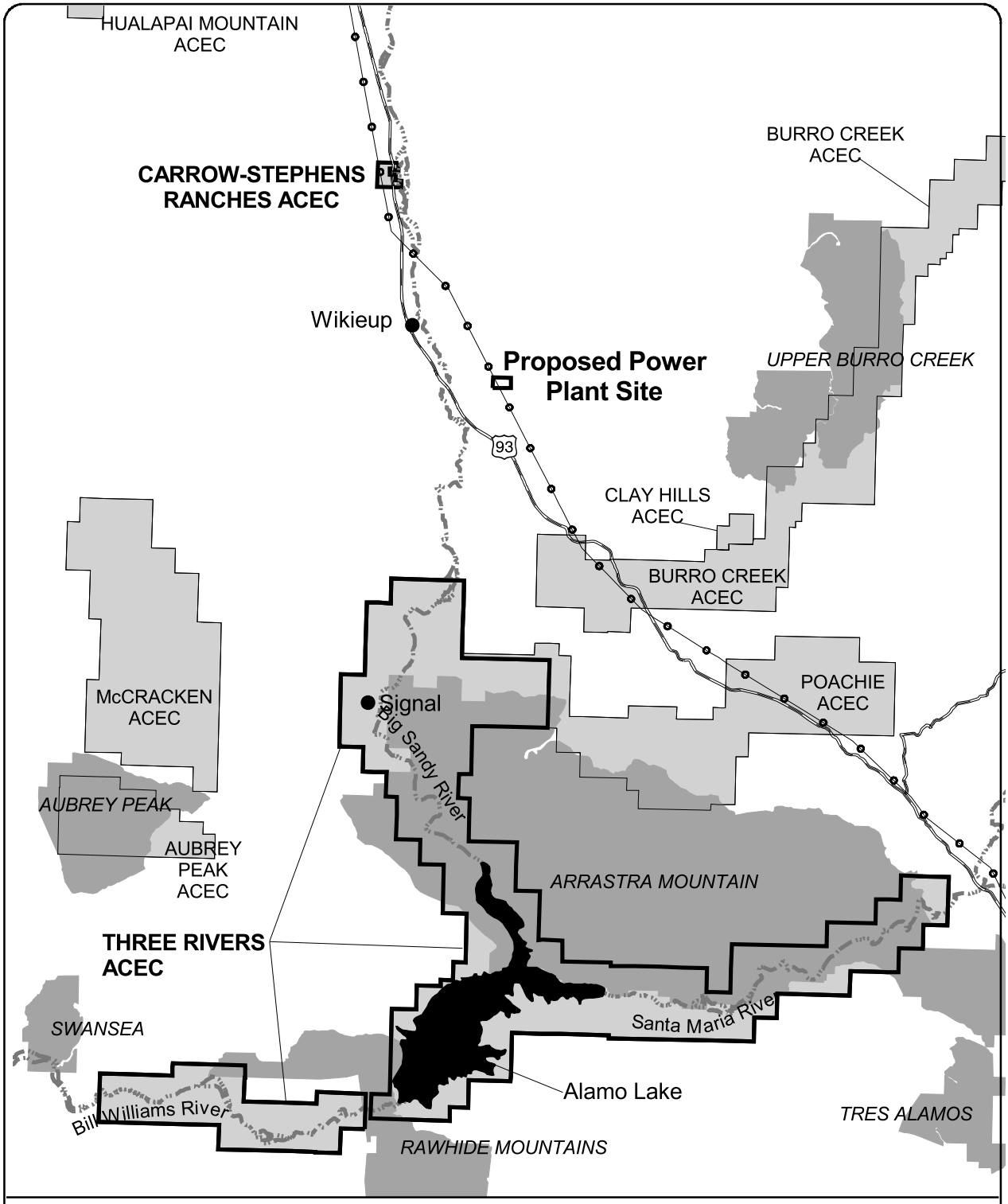
This ACEC was designated primarily to protect the historical residences, outbuildings, and other features of the Joseph Carrow and Ray Stephens ranches, but also includes parts of the Carrow-Stephens Wildlife Movement Corridor (BLM 1995). The potential for other aboriginal archaeological sites and Miocene-Early Pliocene fossils also was recognized when the ACEC was designated. A recent survey for the planned upgrading of US 93 discovered four previously unrecorded archaeological sites within the ACEC. These include three scatters of historic trash that may relate to the historic ranches, and a small scatter of pieces of broken aboriginal pottery and flaked stone artifacts. About one-third of the ACEC has yet to be intensively inventoried for cultural resources, but paleontological studies indicate that the ACEC is north of the Big Sandy Formation and therefore has little potential for significant fossils (refer to Section 3.2).

The features of the Carrow Ranch complex include the main house (a two-story adobe built in 1890-91), family cemetery, ruins of a dugout structure, barn, garage, outbuilding, outhouse, corrals, irrigation ditches, road, 1930s cannery shed, and earth-sheltered storage cache (Figure 3.10-2). The foundations of a school also may be present but have not been located. The features at the Ray Stephens Ranch include the main house (adobe building constructed in 1935), five storage sheds, and small orchard. Pieces of wagons and other farming equipment and other artifacts are scattered across both of the ranch complexes.

The Carrow family moved onto their ranch in 1882. Crops had been grown at this location adjacent to two springs since at least 1873. The family lived at the ranch for two decades and Joe Carrow became known as one of the most successful farmers in Mohave County.

Two of the Carrow children died in the 1890s and were buried in a family cemetery. At least one other individual, an unidentified Hualapai Indian who apparently worked on the ranch, is buried at the cemetery (Colby et al. 1993:26).

William Stephens settled on a ranch north of the Carrow place in 1894. In 1922 Stephens acquired the Carrow land and combined the ranches. In the 1930s, one of his sons, Ray, built the house south of the Carrow ranch that is now within the ACEC.



Legend

- Wilderness Areas
- Areas of Critical Environmental Concern
- Mead-Liberty/Mead-Phoenix Transmission Lines
- 93 State Route

Areas of Critical Environmental Concern

Big Sandy Energy Project EIS

5 0 5 10

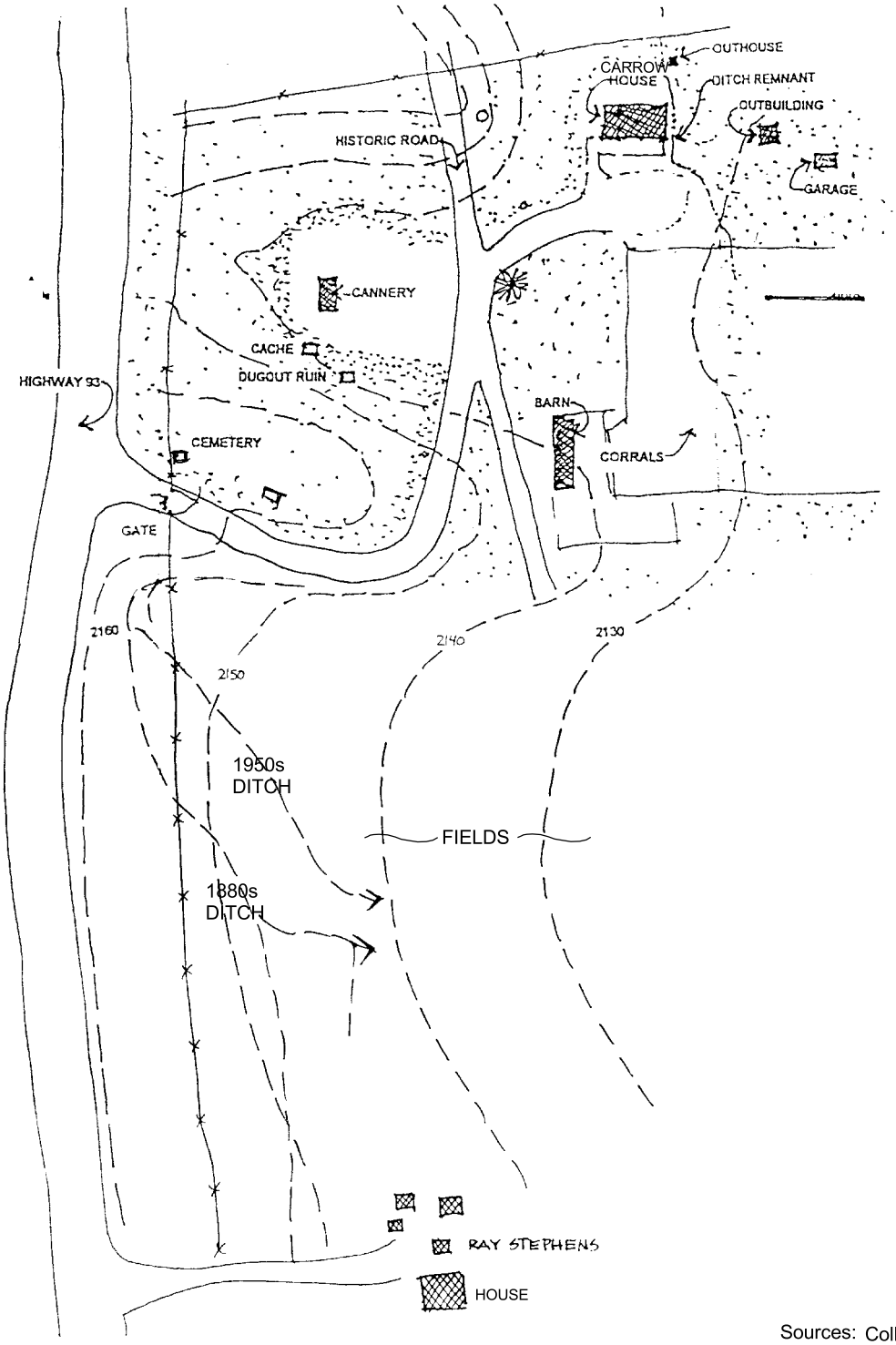
Scale in Miles

N

Universal Transverse Mercator Projection
1927 North American Datum
Zone 12

Figure 3.10-1

x:/bigsandy/projects/acec.apr



Sources: Colby and others 1993
Wright 1993

Carrow-Stephens Ranches ACEC

Big Sandy Energy Project EIS

N

Figure 3.10-2

The cannery shed and storage cache are remnants of the Big Sandy Cooperative Canning and Marketing Association. These facilities were developed with assistance of a New Deal self-help program during the Great Depression. The canning of locally grown fruits, vegetables, and beef began in 1936 and continued for several years.

The Carrow-Stephens Ranches ACEC stands as a monument to the first generation of ranchers in the Big Sandy Valley, and BLM objectives for this ACEC focus on public interpretation, education, and recreation. The National Park Service completed an assessment of the site conditions in 1993 (Colby et al. 1993), and BLM has programmed additional funds to stabilize the Carrow ranch house. BLM is seeking additional funds and partners for development of the site for recreational and educational opportunities. Within the next 5 to 10 years, the Arizona Department of Transportation (ADOT) plans to upgrade US 93 within the ACEC, but would reroute the highway about 1,200 feet west of the existing alignment to reduce impacts on the historic ranches within the ACEC.

Three Rivers Riparian ACEC

The Three Rivers Riparian ACEC covers 32,043 acres. The ACEC boundaries encompass the riparian zones where the Big Sandy River and Santa Maria River join to create the Bill Williams River and upland areas that surround this confluence. Alamo Dam, built across the upper Bill Williams River, creates Alamo Lake within this ACEC (refer to Figure 3.10-1).

The northern, eastern, and western boundaries of this ACEC are located along the Big Sandy River, Santa Maria River, and Bill Williams River, respectively. The northern boundary is north of Burro Creek, in T14N, R13W; the eastern boundary is in T12N, R9W; and the western boundary is in T9N, R15W. The boundaries of this ACEC abut the Arrastra Mountain Wilderness and the Rawhide Mountains Wilderness.

This ACEC was designated to protect riparian habitat because these habitats are limited and have been degraded throughout the Southwest. The riparian areas along the Big Sandy, Santa Maria, and Bill Williams rivers provide habitat for birds, fish, wildlife, and insects—some of which are threatened or endangered, State-listed, or BLM sensitive species (refer to Section 3.14). In addition to its importance for wildlife, the ACEC includes valuable scenic and recreational resources. Scenic resources include the riparian vegetation and diversity of terrain. The free-flowing stream provides opportunities for water-based recreation, and BLM has proposed portions of the Big Sandy River within the ACEC for inclusion in the Wild and Scenic River system.

3.10.2 Environmental Consequences

3.10.2.1 Identification of Issues

The following issues were identified during the scoping and preparation of this Draft EIS:

- potential effects of the Project on goals and objectives for the Carrow-Stephens Ranches ACEC and Three Rivers Riparian ACEC
- potential effects on archaeological and historical resources in the Carrow-Stephens Ranches ACEC
- potential effects on riparian areas in the Three Rivers Riparian ACEC as a result of any reduction in surface water flows
- potential effects on water quality in the Three Rivers Riparian ACEC due to spills or stormwater or wastewater discharges

3.10.2.2 Significance Criteria

Any Project effects on the Carrow-Stephens Ranches ACEC and Three Rivers Riparian ACEC that are inconsistent with the BLM Kingman Area RMP goals, objectives, and management prescriptions for these ACECs would be considered significant.