

the right-of-way is not adjacent to an existing right-of-way or road. Stockpile areas in desert tortoise habitat would be placed either in less valuable habitat, or minimized in size.

### 2.2.8.11 Cultural Resources Protection Measures

Cultural resources would be protected in accordance with the provisions of a Programmatic Agreement (PA) prepared in compliance with Section 106 of the National Historic Preservation Act (Western 2001). The PA defines procedures for additional pre-construction surveys to inventory cultural resources within areas of potential effect as they are identified. Any inventoried cultural resources would be evaluated and treated in consultation with the parties participating in the PA, which include Western, BLM, Hualapai Tribe, Arizona State Historic Preservation Office, Arizona State Museum, Arizona State Land Department, COE and Caithness.

### 2.2.8.12 Spill Prevention Control and Countermeasure Plan

An SPCC plan would be developed as design information is finalized. This plan would address specific methods and standards to ensure safe storage of chemicals and petroleum products at the proposed power plant site. An HMMSPC Plan would be developed by the pipeline company and implemented during construction. The plans would contain information on how to safely handle, store, and dispose of hazardous materials, as well as procedures to follow in case of a release.

### 2.2.8.13 Noise Reduction Measures

Noise reduction measures would be included in the design of the turbines and the turbine housing. The air intake system would include silencers to reduce noise from the combustion turbine compressor inlet. The turbines would be contained within an insulated shell to further reduce noise levels.

Construction other than water well drilling would be anticipated to occur in one 10-hour shift per day 5-days per week, thereby reducing the potential for noise on nights and weekends. Construction equipment would be required to have operable mufflers wherever possible.

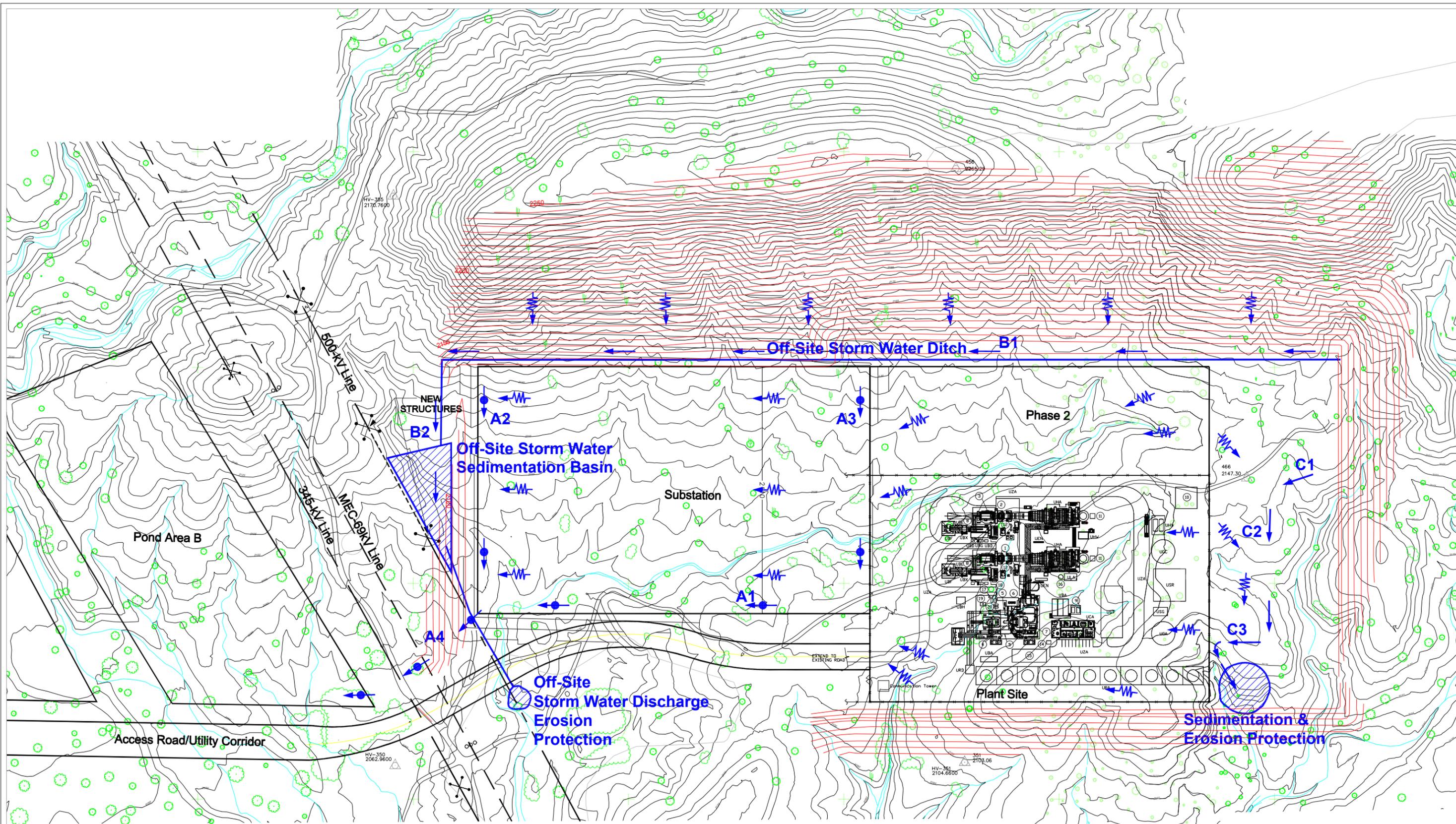
## 2.3 DESCRIPTION OF ALTERNATIVES

### 2.3.1 Alternative Pipeline Routes

Two alternatives were identified for routing the natural gas pipeline. The first would make use of the existing BLM utility corridor that overlays the Mead-Phoenix Project 500-kV and Mead-Liberty 345-kV transmission line corridors. Although Western's policies do not allow the parallel location of the pipeline within these transmission line rights-of-way, this recognized utility corridor provides a viable route from the supply pipeline connection to the proposed power plant, and the transmission lines can be closely paralleled. Also, a second alternative route that generally follows road rights-of-way was identified. This alternative would follow Hackberry Road, US 93, and the new Mohave County access road leading to the proposed power plant site.

As with the proposed pipeline, these alternative corridors consist of combined corridor segments. The five corridor segments following the transmission lines are designated T1 through T5, while the segments following roads are designated R1 through R5. Both alternatives make use of corridor segment C3 where the transmission line corridor overlaps the US 93 corridor. Figure 2-12 depicts the locations of the alternative pipeline routes and their respective corridor segments, and Table 2-2 provides a detailed description of each of the segments. Sections 2.3.1.1 and 2.3.1.2 below describe the location and features of each alternative pipeline route in more detail.

Similar to the proposed gas pipeline, an interconnection facility would be installed at each interconnection point at the northern end of the pipeline. This facility would consist of isolation valves, control valves, metering



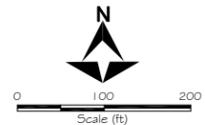
**LEGEND**

1	GAS TURBINE	UBA	POWER CONTROL CENTER
2	AIR INTAKE DUCT	UBS	LV-AUXILIARY POWER TRANSFORMER
3	GENERATOR (TEWAC)	UBC	MV-AUXILIARY POWER TRANSFORMER
4	STEAM TURBINE	UBF	GENERATOR TRANSFORMER
5	CONDENSER	UBG	START UP TRANSFORMERS
6	MAIN CONDENSATE PUMPS	UBH	OIL/WATER SEPARATOR
7	LUBE OIL TANK ROOM	UBI	CIRCUIT BREAKER
8	GENERATOR BUS DUCT	UCA	CONTROL ROOM BUILDING
9	HVAC UNIT FOR UCA	UCB	GAS PREHEATER
10	FUEL GAS CONDITIONING AREA	UCD	RAW WATER SUPPLY TANK
11	DEMUMERIALIZED WATER STORAGE TANK	UCG	HEAT RECOVERY STEAM GENERATOR
12	PLANT AIR COMPRESSORS	UHH	BOILER BLOWDOWN
13	NOT USED	UHK	AMMONIA STORAGE AREA
14	SEFIC TANK	ULA	FEDWATER PUMPHOUSE
15	DRAIN FIELD	ULM	PIPE BRIDGE
16	S/U GENERATOR	URA	COOLING TOWER
17	EXPANSION TANK	URD	CIRCULATING WATER PUMPS
18	CLOSED COOLING WATER PUMPS	URS	FIRE PUMP HOUSE
19	COOLING WATER BOOSTER PUMPS	USR	WASTE TREATMENT BUILDING (BY OTHERS)
20	PLATE FRAME HEAT EXCHANGER	UST	WORKSHOP
		UZA	ROADS

**NOTES**

1. THE EQUIPMENT SHOWN IS REPRESENTATIVE INFORMATION. THIS DESIGN IS SUBJECT TO CHANGE AT THE DISCRETION OF SIEMENS WESTINGHOUSE.
2. REFERENCE DRAWING Q75.30102 FOR COMBUSTION TURBINE EQUIPMENT DIMENSIONS AND IDENTIFICATION.

- Sheet Flow (Surface Runoff Only)
- Concentrated Surface Storm Water Runoff
- Concentrated Plant Storm Water Runoff
- Grading
- Sediment Basins



**Drainage Plan Map**  
**Big Sandy Energy Project EIS**  
 Figure 2-15

equipment, and a filter separator. The equipment would be enclosed within small buildings. This equipment and buildings would be located within new approximately 100-foot by 100-foot fenced and graveled yard. In addition, a small communication tower (about 15 feet high) would be included within the fenced yard. Electric power service would be supplied from a nearby existing distribution line. Access to the interconnection facility would be from existing roads. Additional yards would be needed if connections were made to more than one of the interstate pipelines.

A gas metering facility would be installed at the southern end of the pipeline within the proposed power plant site. This facility would consist of isolation valves, metering equipment, a filter separator, and pressure reduction and control valves used to feed gas to the turbines. A fuel gas preheater also would be installed to increase the efficiency of the proposed power plant.

### 2.3.1.1 Alternative R Gas Pipeline Corridor

The Alternative R (Road) gas pipeline corridor, would consist of the following corridor segments:

R1 – R2 – R3 – C3 – R4 – R5

Corridor segment R1 begins at the northernmost potential supply pipeline and heads south after crossing under I-40. This segment and corridor segment R2 encompass the Hackberry Road right-of-way, which varies from 100 to 150 feet wide. Corridor segment R1 passes through both private and state-owned land, while corridor segment R2 crosses private land only. Corridor segment R1 is 3.9 miles long and segment R2 is 0.8 miles long.

Corridor segment R3 begins where Hackberry Road intersects with US 93 and continues south, following the US 93 alignment. The corridor width is 400 feet, immediately adjacent to the eastern edge of the US 93 right-of-way. This segment is about 9.3 miles long and crosses primarily private lands.

Corridor segment C3 is the same connecting segment included in the Alternative T gas pipeline corridor, and is described above.

Corridor segment R4 continues south along US 93 just east of the US 93 right-of-way to the intersection with the Alternative T gas pipeline corridor, a distance of about 13.7 miles. This segment crosses private, BLM-managed public, and state-owned lands and has a width of 400 feet except within the Carrow-Stephens Ranches ACEC, where it also includes the 200-foot wide US 93 right-of-way; and along US 93 south of Gunsight Canyon, where it increases to a width of 1,500 feet to accommodate the planned realignment of US 93.

From this point, the Alternative R gas pipeline corridor follows corridor segment R5, which follows along US 93 south to the proposed access road leading to the proposed power plant site. The access road right-of-way would cross Sections 1, 5, and 7, T15N, R12W, and enter the proposed power plant site over the section corners of Sections 5, 6, 7, and 8, T15N, R12W. This corridor segment is about 8.5 miles long and varies in width from 200 feet wide along the proposed access road to 1,800 feet wide along part of US 93.

### 2.3.1.2 Alternative T Gas Pipeline Corridor

The Alternative T (Transmission Line) Gas Pipeline Corridor, would consist of the following corridor segments:

T1 – T2 – T3 – C3 – T4 – T5

The northern end of this alternative route would begin with corridor segment T1. The exact starting location would depend on which interstate pipeline or pipelines are selected for the gas supply, but would begin about 1 mile northwest of the interchange of US 93 and I-40. All three potential source natural gas pipelines are located north of I-40 at this location; therefore, the pipeline would be installed by boring underneath I-40. Corridor segment T1 extends south about 3.7 miles to Old Highway 93 in Section 18, T20N, R13W (also the

intersection with corridor segment C2). The corridor has a width of 2,235 feet and crosses private and state-owned lands.

This route continues along corridor segment T2, following the existing transmission lines for about 2.1 miles to the intersection with corridor segment C1 in Section 30, T20N, R13W. Corridor segment T2 is also 2,235 feet wide and crosses private and state-owned lands.

The route continues with corridor segment T3, heading south parallel to the transmission lines, for a distance of 8.5 miles. This corridor segment is also 2,325 feet wide, crossing both private and state-owned lands. It intersects with corridor segment C3, which is located where the transmission line and US 93 corridors overlap. This segment's eastern boundary is 400 feet east of the US 93 right-of-way and the western boundary is 1,000 feet west of the Mead-Liberty 345-kV transmission line right-of-way. The segment is about 1.9 miles long and crosses private and state-owned lands.

This alternative route continues with corridor segment T4, which follows the transmission line rights-of-way to their intersection with US 93. Corridor segment T4 is 2,325 feet wide except along the western border of the Carrow-Stephens Ranches ACEC, where it expands to 4,000 feet. This segment is 13.8 miles long and crosses private, BLM-managed public, and state-owned lands.

The final corridor segment for the Alternative T gas pipeline corridor is T5, which begins at the southern end of corridor segment T4 and extends southeast about 7.8 miles to the proposed power plant site. This segment is 2,325 feet wide except where it veers from the transmission line rights-of-way to cross the Big Sandy River perpendicularly; the corridor expands to 3,000 feet wide for this crossing. This segment crosses private and BLM-managed lands.

### 2.3.1.3 Crossover Segment C2

Although not a part of any alternative route, corridor segment C2 is included in

environmental planning and analysis because it could be considered during final right-of-way acquisition as a connecting link between the Alternative T and R gas pipeline corridors. It encompasses the Mohave County 150-foot-wide right-of-way of Old Highway 93 and is about 2.3 miles long, crossing private and state-owned lands. Mohave County has agreed that the pipeline could be placed within the existing road right-of-way to minimize impacts.

### 2.3.1.4 Construction of the Alternative Pipelines

Construction and maintenance within either alternative corridor would use methods similar to those described for the Proposed Action (refer to Section 2.2.7.4). Any applicable actions to reduce or prevent environmental impact (Section 2.2.8) also would be implemented. Requirements for temporary workspace are expected to be similar to those of the Proposed Action. Wherever possible, existing roads would be upgraded as needed and used for pipeline construction and maintenance access. The new area of disturbance for construction of either route would be 90 feet wide within the pipeline right-of-way, with additional work areas totaling 7 acres. Tables 2-7 and 2-8 summarize the areas of disturbance associated with both alternative corridors, including a breakout of total, permanent, and temporary disturbance.

Although the two alternatives differ in where they would cross the Big Sandy River, similar construction and environmental protection measures would be used. The Alternative T gas pipeline corridor would cross the river perpendicularly, where the river is typically dry, so that trenching would be used. Pipeline anchoring and construction methods to prevent flotation during flooding would be required across the entire 0.5-mile width of the crossing.

### 2.3.2 No-Action Alternative

No action would mean that BLM would not approve the requested right-of-way for the gas pipeline, the access road, the water pipeline and other related facilities for the proposed power

TABLE 2-7 SUMMARY OF GROUND DISTURBANCE ACTIVITIES ALTERNATIVE R GAS PIPELINE CORRIDOR			
Activity	Acres of Permanent Disturbance	Acres of Temporary Disturbance*	Total Acres Disturbed
<b>Proposed Power Plant and Immediate Site Facilities</b>			
Power Plant	15	0	15
Power Plant Lay Down Area	0	3	3
Substation	12	0	12
Substation Cut/Fill	0	7	7
Transmission Line Turning Structures	0	1	1
Evaporation Ponds	18	0	18
<b>SUBTOTAL</b>	<b>45</b>	<b>11</b>	<b>56</b>
Well Pad Sites	10	10	20
Well Pad Access Roads	6	0	6
Plant Access Road (2.3 miles)	13	8	21
Agricultural Activities	107	0	107
OPGW Installation ( 15 pulling and tensioning sites)	0	5	5
<b>SUBTOTAL</b>	<b>136</b>	<b>23</b>	<b>159</b>
<b>Proposed Pipeline Route: R1-R2-R3-C3-R4-R5</b>			
Construction Right-of-Way	47	339	386
Additional Work Spaces	0	7	7
<b>SUBTOTAL</b>	<b>47</b>	<b>346</b>	<b>393</b>
<b>TOTAL</b>	<b>228</b>	<b>380</b>	<b>608</b>

\*These areas would be disturbed only during construction.

plant site, and Western would not approve the interconnection request. In effect, the Project would not be built as proposed.

For the No-Action Alternative, there would not be any power plant developed at the proposed site. This includes the principal associated facilities including the substation and modifications to the Mead-Phoenix Project 500-kV transmission line for the interconnection. The natural gas pipeline would not be built, and no opportunity would be created for natural gas supply in the Wikieup area. Those project features already constructed on private lands, such as groundwater well PW2, the groundwater monitoring wells, and the associated well pads and well access roads, would remain.

Table 2-9 at the end of this chapter summarizes the environmental consequences associated with each alternative by resource.

## 2.4 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER ANALYSIS

Possible alternatives were identified primarily through the scoping process. Following notification that an EIS would be prepared, the public and Federal, state, and local agencies were given the opportunity to provide comments on the proposed Project. An evaluation of these comments resulted in the identification of possible alternatives to the Proposed Action.