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Responses to California Energy Commission Staff

Data Requests 116 through 131 (Set 1B)

In support of the

Application for Certification

For the

Mission Rock Energy Center

15-AFC-02

Prepared for

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Acronyms and Abbreviations

AFC	Application for Certification
CEC	California Energy Commission
CDFW	California Department of Fish and Wildlife
CNDDB	California Natural Diversity Database
DR	Data request
HDD	horizontal directional drill
LORS	laws, ordinances, regulations, and standards
MREC	Mission Rock Energy Center
MW	Megawatt
ROW	right-of-way

Introduction

Attached are Mission Rock Energy Center, LLC's (Applicant) responses to California Energy Commission (CEC) Staff data requests (DRs) numbers 116 through 131 (Set 1B) for the Mission Rock Energy Center (MREC) (15-AFC-2). The CEC Staff served the data requests on October 14, 2016, as part of the discovery process for the MREC project.

The responses are grouped by individual discipline or topic area. Within each discipline area, the responses are presented in the same order as presented by CEC Staff, and are keyed to the Data Request numbers (116 through 131). New or revised graphics or tables are numbered in reference to the Data Request number. For example, the first table used in response to Data Request 116 would be numbered Table DR116-1. The first figure used in response to Data Request 131 would be Figure DR131-1, and so on.

Additional tables, figures, or documents submitted in response to a data request (supporting data, stand-alone documents such as plans, folding graphics, etc.) are found at the end of a discipline-specific section and are not sequentially page-numbered consistently with the remainder of the document, though they may have their own internal page numbering system.

5.2 Biological Resources (116-117)

Land cover/vegetation community

116. Provide a description of the urban, agriculture, open space (i.e. coastal sage scrub), and riparian land cover/vegetation communities of the areas mapped in AFC Figure 5.2-6 (Pages 1-24). Include in your description the dominant, co-dominant, and other associated plant species observed for each land cover type/vegetation community.

Response: The following provides descriptions of the land cover types that occur with the biology study area for the Mission Rock Energy Center. Mapped land cover types are shown on Figure 5.2-5 in the Application for Certification. Descriptions of the Agricultural and Urban/Developed land cover types are based on typical cultivated crops and general land use respectively. Land cover types characterized by natural vegetation, such as Coastal Sage Scrub and Riparian are described based on dominant and characteristic plant species. A brief summary of special-status species that may be associated with each land cover type is also provided. A list of wildlife species observed during field survey and associated land cover types in which they may be found is provided in Table DR117-1, below. Species association with specific land cover types may include transient movement foraging as well as nesting/breeding for some species.

Agricultural

Agricultural land includes areas that are cultivated for production of fruits, vegetables or specialty crops. Over half of the agricultural land use within biological study area consists of orchards such as avocados, lemons, navel oranges, Valencia oranges, tangelos and mandarins (Figure DR116-1). Fruit and vegetable row crops such as strawberries, celery, tomatoes, peppers, onions, lettuce, and carrots, along with specialty crops such as cut flowers and nursery stock, make up the remainder of the agricultural lands (Figure DR116-2). Developed areas including farm buildings, processing facilities, residential homes, roads and railroad tracks as well as narrow bands of riparian vegetation, make up a minor component of this land cover type, but these areas were not separately mapped. The agricultural land cover type includes both cropland and orchards as described in *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer, 1998). Agricultural crops are not included in *A Manual of California Vegetation* (Sawyer et al. 2008).

The agricultural lands did not receive intensive biological survey because they are not considered significant wildlife habitat and to prevent crop damage, and no incidental special-status wildlife species were observed in this land cover type during other surveys. These areas may provide nesting habitat for special-status birds such as burrowing owl (*Athene cunicularia*), a U.S. Fish and Wildlife Service bird of conservation concern and a state species of special concern, and white-tailed kite (*Elanus leucurus*), a California Department of Fish and Wildlife (CDFW) fully protected species. Other avian species protected under the Migratory Bird Treaty Act including horned lark (*Eremophila alpestris*), killdeer (*Charadrius vociferus*) and red-tailed hawk (*Buteo jamaicensis*) may occur in agricultural areas. The California Natural Diversity Database (CNDDB) also reports an American badger (*Taxidea taxus*), a state species of special concern, within this land cover type within one mile of the Mission Rock Energy Center site, found dead on State Route-126 in 2009 (CDFW 2016a).

Coastal Sage Scrub

Coastal sage scrub within the biology study area is characterized by dense cover of woody shrubs such as California sagebrush (*Artemisia californica*), coastal purple sage (*Salvia leucophylla*), black sage (*Salvia*

Figure DR116-1
Agricultural land – orchard crop

Figure DR116-2
Agricultural land – row crop

mellifera), white sage (*Salvia apiana*), and California bush daisy (*Encelia californica*). Associated species include lemonade berry (*Rhus integrifolia*), giant wildrye (*Elymus condensatus*), common deer weed (*Acmispon glaber*), foothill needle-grass (*Stipa lepida*), coastal prickly pear (*Opuntia littoralis*), and Cucamonga man-root (*Marah macrocarpa*). Figure DR116-3 shows a typical coast sage scrub area along the western part of the biology study area. This community is described as Coastal Scrub in *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer, 1998). Vegetation communities associated with the Coast Sage Scrub land cover type include California sagebrush scrub (*Artemisia californica* Shrubland Alliance), California sagebrush-black sage scrub (*Artemisia californica-Salvia mellifera* Shrubland Alliance), and purple sage scrub (*Salvia leucophylla* Shrubland Alliance) as described in *A Manual of California Vegetation* (Sawyer et al. 2008).

No special status wildlife species were observed in the coastal sage scrub land cover area during field surveys. Coastal sage scrub vegetation provides suitable habitat for several state species of special concern including American badger, burrowing owl, white-tailed kite, coast horned lizard (*Phrynosoma coronatum*), and silvery legless lizard (*Anniella stebbinsi*), as well as the federally-listed threatened coastal California gnatcatcher (*Polioptila californica californica*).

Riparian

The riparian land cover type includes vegetation growing along streams, creeks, canals and drainages within the Biology Study Area. Species composition, cover and the extent of the riparian community is highly variable. Common tree species include arroyo willow (*Salix lasiolepis*), red willow (*Salix laevigata*), southern black walnut (*Juglans californica*), cottonwood (*Populus fremontii*), California sycamore (*Platanus racemosa*), coast live oak (*Quercus agrifolia*) and blue gum (*Eucalyptus globulus*). Localized patches of giant reed (*Arundo donax*) are also present. Common associated shrubs include mulefat (*Baccharis salicifolia*), elderberry (*Sambucus nigra* ssp. *caerulea*), and poison oak (*Toxicodendron diversilobum*). The herbaceous understory consists mostly of weedy, non-native species such as black mustard (*Brassica nigra*), Italian thistle (*Carduus* pycnocephalus), poison hemlock (*Conium maculatum*), and fennel (*Foeniculum vulgare*). Figure DR116-4 shows riparian vegetation along Ellsworth Barranca, on the south side of Telegraph Road. This community generally correlates to Valley Foothill Riparian habitat described in *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer, 1998). Riparian land cover within the biology study area includes elements of Coast live oak woodland (*Quercus agrifolia* Woodland Alliance), Red willow thickets (*Salix laevigata* Woodland Alliance), Arroyo willow thickets (*Salix lasiolepis* Shrubland Alliance) and Eucalyptus groves (*Eucalyptus globulus, E. camaldulensis* Semi-Natural Woodland Stands) as described in *A Manual of California Vegetation* (Sawyer et al. 2008).

Special-status species observed within riparian habitat along Todd Barranca stream during least Bell's vireo (*Vireo bellii pusillus*) surveys included western pond turtle (*Actinemys marmorata)*, a state species of special concern; snowy egret (*Egretta thula*), which has no formal designation, but is listed on the California Department of Fish and Wildlife (CDFW) Special Animals List (CDFW 2016a); and Nuttall's woodpecker (*Picoides nuttallii*), a federal bird of conservation concern. Additionally, a threespine stickleback species (*Gasterosteus* sp.) was observed in the Todd Barranca stream; however, it could not be determined what subspecies was present. Unarmored threespine stickleback (*Gasterosteus aculeatus williamsoni*) are federally and state-listed endangered and have been documented in the Santa Clara River and its tributaries in the Santa Paula area (CDFW, 2016b).

Santa Clara River/Riparian

The riparian community along the Santa Clara River includes a mosaic of vegetation types including willow scrub, southern riparian scrub, localized patches of giant reed (*Arundo donax*), and relatively open sandy areas. Willow scrub is characterized by arroyo willow either as the sole dominate shrub/tree or co-dominant with red willow. Associated species include scatted cottonwood and

Figure DR116-3
Coastal Sage Scrub along the western portion of the generator tie-line route

Figure DR116-4
Riparian vegetation along Ellsworth Barranca on the south side of Telegraph Road

California sycamore trees as well as arrow weed (*Pluchea sericea*) and mulefat. Southern riparian scrub is characterized by woody shrubs such as mulefat, California broomsage (*Lepidospartum squamatum*), and California buckwheat (*Eriogonum fasciulatum*). Associated species include common sand aster (*Corethrogyne filaginifolia*), tree tobacco (*Nicotiana glauca*), with scattered arroyo willow and red willow sometimes present. This community generally correlates to Valley Foothill Riparian habitat described in *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer, 1998). Vegetation along the Santa Clara River includes elements of Red willow thickets (*Salix laevigata* Woodland Alliance), Arroyo willow thickets (*Salix lasiolepis* Shrubland Alliance), Arrow weed thickets (*Pluchea sericea* Shrubland Alliance) and mulefat thickets (*Baccharis salicifolia* Shrubland Alliance) as described in *A Manual of California Vegetation* (Sawyer et al. 2008).

The riparian community along the Santa Clara River is known to support a number of special-status wildlife species. The California Natural Diversity Database (CDFW 2016a), includes reported occurrences of least Bell's vireo, a federally-listed endangered species, and south coast garter snake (*Thamnophis sirtalis* ssp.), a state species of special concern, in the biology study area.

Urban/Developed

The urban land cover type includes areas that have been developed for residential home, commercial businesses and industrial uses (Figure DR116-5). Vegetation associated with urban and developed areas consists of various ornamental and landscape trees, shrubs and plants. These areas are described as Urban in *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer, 1998). Urban and developed areas are not included in *A Manual of California Vegetation* (Sawyer et al. 2008).

Urban and developed may provide habitat for birds protected under the Migratory Bird Treaty Act including house finch (*Haemorhous mexicanus*), mourning dove (*Zenaida macroura*), and northern mockingbird (*Mimus polyglottos*), among other avian species.

References

California Department of Fish and Wildlife (CDFW). 2016a. California Natural Diversity Database (CNDDB). *RareFind5.* Electronic database. http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp. Sacramento, California.

California Department of Fish and Wildlife (CDFW). 2016b. California Natural Diversity Database (CNDDB). Special Animals List. Periodic publication.

Mayer, K. E. and W. F. Laudenslayer (editors). 1998. *A Guide to Wildlife Habitats of California.* California Department of Forestry and Fire Protection, Sacramento.

Sawyer. J.O., T. Keller-Wolf, and J.M. Evens. 2009. *A Manual of California Vegetation.* California Native Plant Society in collaboration with the California Department of Fish and Wildlife. California Native Plant Society Press, Sacramento.

List of wildlife species

117. Provide a list of wildlife species observed during surveys for each land cover type/vegetation community.

Response: Table DR117-1 lists the wildlife species observed by land cover type/vegetation.

Figure DR116-5
Urban/developed land

Table DR117-1. Wildlife Observed and Associated Land Cover Types

Common Name	Scientific Name	Status[a] (Federal/State/ Other)	Agricultural	Coastal Sage Scrub	Riparian	Santa Clara River/ Riparian	Urban / Developed
Birds							
American crow	*Corvus brachyrhynchos*	---/---/---	X	X	X	X	X
American goldfinch	*Spinus tristis*	---/---/---	X	X	X	X	X
American Robin	*Turdus migratorius*	---/---/---	X	X	X	X	X
Anna's hummingbird	*Calypte anna*	---/---/---		X	X	X	X
Bewick's wren	*Thryomanes bewickii*	---/---/---		X	X	X	
Black phoebe	*Sayornis nigricans*	---/---/---	X	X	X	X	X
Bush tit	*Psaltriparus minimus*	---/---/---	X	X	X	X	X
Cliff swallow	*Petrochelidon pyrrhonota*	---/---/---			X	X	
California towhee	*Melozone crissalis*	---/---/---	X	X	X	X	X
Common raven	*Corvus corax*	---/---/---	X	X	X	X	X
Common yellowthroat	Geothlypis trichas	---/---/---	X	X	X	X	
Cooper's hawk	*Accipter cooperii*	---/---/---					
Dark-eyed junco	*Junco hyemalis*	---/---/---	X	X	X	X	X
Downey woodpecker	*Picoides pubescens*	---/---/---			X	X	X
Great Egret	*Ardea alba*		X		X	X	X
Great horned owl	*Bubo virginianus*	---/---/---			X	X	
House finch	*Haemorhous mexicanus*	---/---/---	X	X	X	X	X
House sparrow	*Passer domesticus*	---/---/---	X	X	X	X	X
Least Bell's vireo	*Vireo bellii pusillus*	FE/SE/---			X	X	
Lesser goldfinch	*Spinus psaltria*	---/---/---	X	X	X	X	X
Mallard	*Anas platyrhynchos*	---/---/---			X	X	
Mourning dove	*Zenaida macroura*	---/---/---	X	X	X	X	X
Northern mockingbird	*Mimus polyglottos*	---/---/---	X	X	X	X	X
Nuttall's woodpecker	*Picoides nuttallii*	BCC/---/---			X	X	
Orange crowned warbler	*Oreothypis celata*	---/---/---			X	X	
Pacific slope flycatcher	*Empidonax difficilis*	---/---/---			X	X	
Red-tailed hawk	*Buteo jamaicensis*	---/---/---			X	X	
Turkey vulture	*Cathares aura*	---/---/---	X	X	X	X	X
Snowy egret	*Egretta thula*	---/---/---	X		X	X	
Song sparrow	*Melospiza melodia*	---/---/---	X	X	X	X	X
Western scrub-jay	*Aphelocoma california*	---/---/---	X	X	X	X	X
Western wood-pewee	*Contopus sordidulud*	---/---/---			X	X	
White-crowned sparrow	*Zonotricia leucophrys*	---/---/---	X	X	X	X	X
Yellow warbler	*Setophaga petechia*	---/---/---	X	X	X	X	X
Yellow-rumped warbler	*Setophaga coronata*	---/---/---			X	X	

Table DR117-1. Wildlife Observed and Associated Land Cover Types

Common Name	Scientific Name	Status[a] (Federal/State/ Other)	Agricultural	Coastal Sage Scrub	Riparian	Santa Clara River/ Riparian	Urban / Developed
Fish							
Threespine stickleback	*Gasterosteus sp.*	---/---/AFS: EN			X	X	
Mammals							
Raccoon	*Procyon lotor*	---/---/---			X	X	X
Audobon cottontail	*Sylvilagus audubonii*	---/---/---	X	X	X	X	X
Reptiles & Amphibians							
Baja California treefrog	*Pseudacris hypochondriaca*	---/---/---			X	X	
Common side-blotch lizard	*Uta stansburiana*	---/---/---		X	X	X	
Sagebrush lizard	*Sceloporus graciosus*	---/---/---		X			
Western fence lizard	*Sceloporus occidenatlis*	---/---/---	X	X	X	X	X
Western pond turtle	*Actinemys marmorata*	---/CSC/CDF-S			X	X	

List of species includes surveys conducted for the Granite Construction Company by West Coast Environmental and Engineering in May 2007 as well as species observed by CH2M biologist during least Bell's vireo surveys and other incidental observations during plant surveys. Species may be transient, foraging and/or nesting in the land cover areas noted in the table.

[a] Key to Status Designations

Federal Designations:
(FE) Federally Endangered,
(FT) Federally Threatened,
(FPE) Federally Proposed Endangered,
(FPT) Federally Proposed Threatened,
(FSC) Species of Concern, (FC) Candidate,
(BCC) Birds of Conservation Concern

State Designations:
(SE) State Endangered,
(ST) State Threatened,
(SR) State Rare,
(CSC) Species of Special Concern,
(CFP) Fully Protected Species

Other State Designations:
American Fisheries Society (AFS) – Endangered (EN)
California Department of Forestry (CDF) - Sensitive (S)

2.0 Project Description (118-131)

Number and heights of transmission towers

118. Please clarify the number and heights of the transmission towers necessary for the project.

Response: There are 36 transmission structures proposed. Two of these are H-frame structures and 34 are monopoles. There are no towers at numbered positions #20 or 23, as these were removed during a pre-AFC route refinement. The H-frame structure that will connect MREC with the Southern California Edison Santa Clara Substation is not numbered. Table DR118-1 lists the transmission structures by number with their structure heights.

Table 118-1. MREC generator tie-line structures

No	Structure Type	Height (ft)	Const. Dist. Area (sf)	Pole Diameter (ft)	Pole Area (sf)
1	H-frame	81.5	Inside MREC	2 x 5	Inside MREC
2	Angle pole	121	2,500	5	19.6
3	Vertical pole	106	2,500	5	19.6
4	Vertical pole	141	2,500	5	19.6
5	Angle pole	116	2,500	5	19.6
6	Vertical pole	106	2,500	5	19.6
7	Vertical pole	106	2,500	5	19.6
8	Vertical pole	96	2,500	5	19.6
9	Deadend pole	91	2,500	6	28.3
10	Vertical pole	91	2,500	5	19.6
11	Vertical pole	96	2,500	5	19.6
12	Vertical pole	96	2,500	5	19.6
13	Vertical pole	101	2,500	5	19.6
14	Vertical pole	96	2,500	5	19.6
15	Vertical pole	96	2,500	5	19.6
16	Angle pole	131	2,500	5	19.6
17	Angle pole	126	2,500	5	19.6
18	Deadend pole	156	2,500	6	28.3
19	Vertical pole	106	2,500	5	19.6
20	Not used	NA	-	-	-
21	Vertical pole	106	2,500	5	19.6
22	Deadend pole	106	2,500	6	28.3
23	Not used	NA	-	-	-
24	Deadend pole	126	2,500	6	28.3
25	Deadend pole	200	2,500	6	28.3
26	Deadend pole	200	2,500	6	28.3
27	Vertical pole	106	2,500	5	19.6
28	Vertical pole	106	2,500	5	19.6
29	Vertical pole	106	2,500	5	19.6
30	Deadend pole	200	2,500	6	28.3

Table 118-1. MREC generator tie-line structures

No	Structure Type	Height (ft)	Const. Dist. Area (sf)	Pole Diameter (ft)	Pole Area (sf)
31	Deadend pole	200	2,500	6	28.3
32	Deadend pole	116	2,500	6	28.3
33	Deadend pole	106	2,500	6	28.3
34	Vertical pole	106	2,500	5	19.6
35	Deadend pole	106	2,500	6	28.3
36	Vertical pole	81	2,500	5	19.6
37	Deadend pole	106	2,500	6	28.3
NA	H-frame	79.9	2,500	2 x 5	39.3
			87,500		810.5

Transmission tower heights

119. Please clarify the heights of the transmission towers (monopole and H frame) above grade versus the entirety of the structure.

Response: Structure heights provided in Table DR118-1 are heights above ground level.

Transmission tower numbers

120. Please update the Biological Resources section to correlate correctly with the towers and tower numbers shown on the figures in the Biological Resources section, such as Figure 5.2-2.

Response: There are no towers numbered 20 or 23 (as stated above, these towers were removed during a route refinement). Therefore, Towers 19-24 (19, 21, 22, 24) are located in agricultural fields and/or citrus orchards. By way of correction, Towers 13, 14, and 15 are also located within or at the margins of agricultural or citrus orchards. The towers are as listed by number in Table DR118-1. Note also that Tower #1 is inside the MREC fenceline.

Right-of-way width

121. Please provide the right-of-way width required for the generation tie-line (half and full right-of-way). Note any differences in right-of-way width requirements due to terrain or adjacent land uses or structures. Please map the right-of-way on aerials and a series of maps based on USGS 7.5-minute topographic maps enlarged to a scale of 1"=1,000 feet. Please provide the Geographic Information Systems shape files for the right-of-way. Please indicate areas of any new right-of-way versus existing right-of-way.

Response: The generator tie-line right-of-way is 75 feet wide (37.5 feet either side of the centerline). Figure DR121-1 shows the generator tie-line route at a scale of 1" = 1,000 feet, showing the right-of-way. The generator tie-line consists entirely of new right-of-way. Although the line parallels other, existing rights-of-way in certain locations, it does not use existing right-of-way.

Generator tie-line construction

122. Please describe how the generation tie-line would be constructed/installed. Please include the maximum dimensions of the ground disturbance associated with support structure installation; specifically maximum area, depth, width and volume.

Response: The 230kV tie line will be constructed using the following approach for areas on level ground (Towers #1-21). First, a surveyor will mark the center of the pole location, along with offset transverse and longitudinal stakes to insure the pole is oriented/rotated appropriately. Next, the foundation crew will core the foundation hole at the prescribed diameter and depth for that specific pole. In areas with granular soil, a steel casing will be used to retain the soil around the foundation hole to prevent sloughing or hole collapse. According to preliminary design, most poles will be small tangent poles. The ground disturbance area for construction will generally be 50' x 50' or less and excavation to 30-foot depth. There are several tall deadend monopoles which will require excavation to 60 feet in depth (approximately 251 cubic yards) each. Next, the contractor will lift each pole into place using a crane of appropriate size and set it at the correct height and orientation into the hole. Then the hole will be backfilled with either crushed limestone or concrete. If the poles are weathering steel and the backfill is concrete, a calculation will be performed to see if guying is required to resist the buoyancy of the hermetically-sealed bottom tubular section. After the backfill has been properly tamped or hardened, the pole will be ready for stringing conductor. At this stage, all poles are self-supporting so no guys will be required. The contractor will then install the insulator assemblies and string conductor to the appropriate tensions. Next, grounding assemblies will be added in tandem to achieve the specified resistance at the base of the poles.

In hilly areas where cranes cannot be safely used (towers #22 to 38) construction installation of foundations, poles, and conductor will be done by helicopter. The foundations will be installed using the vibratory caisson method. The helicopter will transport a large tube with a diesel-powered vibrator bolted to a plate on top of the caisson tube. The pilot will level the tube/caisson on the grade (vertical) and start the vibrator, which installs the foundation through soil and rock. The pole will then be placed by the helicopter and bolted to the top plate on the caisson. Towers 22 through 38 are all either at the edge of a road or very near an existing road such that workers can access them on foot for surveying, minor vegetation clearance (brush cutting), and for pole installation.

Generator tie-line disturbance area and maps

123. Please provide the amount of temporary area and permanent area disturbed for the generation tie-line and show the areas on aerials and also a series of maps based on USGS 7.5-minute topographic maps enlarged to a scale of 1"=1,000 feet for the following list items (a-d). Please also identify the temporarily and permanently impacted areas (size in acres) and please provide the Geographic Information System shape files for the following listed items:

- *a. each monopole (include size in acres)*
- *b. access route for construction (include location and length)*
- *c. construction staging areas (include locations and size)*
- *d. permanent and temporary areas of disturbance within/around the ROW, including removal of vegetation.*

Response: See Table DR123-1 for a summary of disturbance acreages.

Table DR123-1. Generator tie-line disturbance area

Element	Temporary Disturbance	Permanent Disturbance	Comment
Transmission structures	878,500 sf (2.01 acres)	810.5 sf (0.002 acre)	Table DR118-1 - 50' x 50' construction disturbance area per tower
Access Routes	None	None	Helicopter construction – use existing roads and ROW areas
Staging area	2.75 acres	None	Staging within ROW plus pull and tensioning sites
Other Disturbance	2.8 acres	Periodic trimming in these areas	Tree and brush clearance at MREC fence, Todd and Ellsworth Barrancas

Table DR123-2 lists the generator tie-line poles around which vegetation clearance for construction and regular maintenance will be necessary. The areas of disturbance for tree trimming encompass 120,750 square feet (2.8 acres). These areas include locations where the generator tie-line crosses a row of trees (windrow), areas between two towers that contain tall trees, and areas surrounding single towers that have tall vegetation.

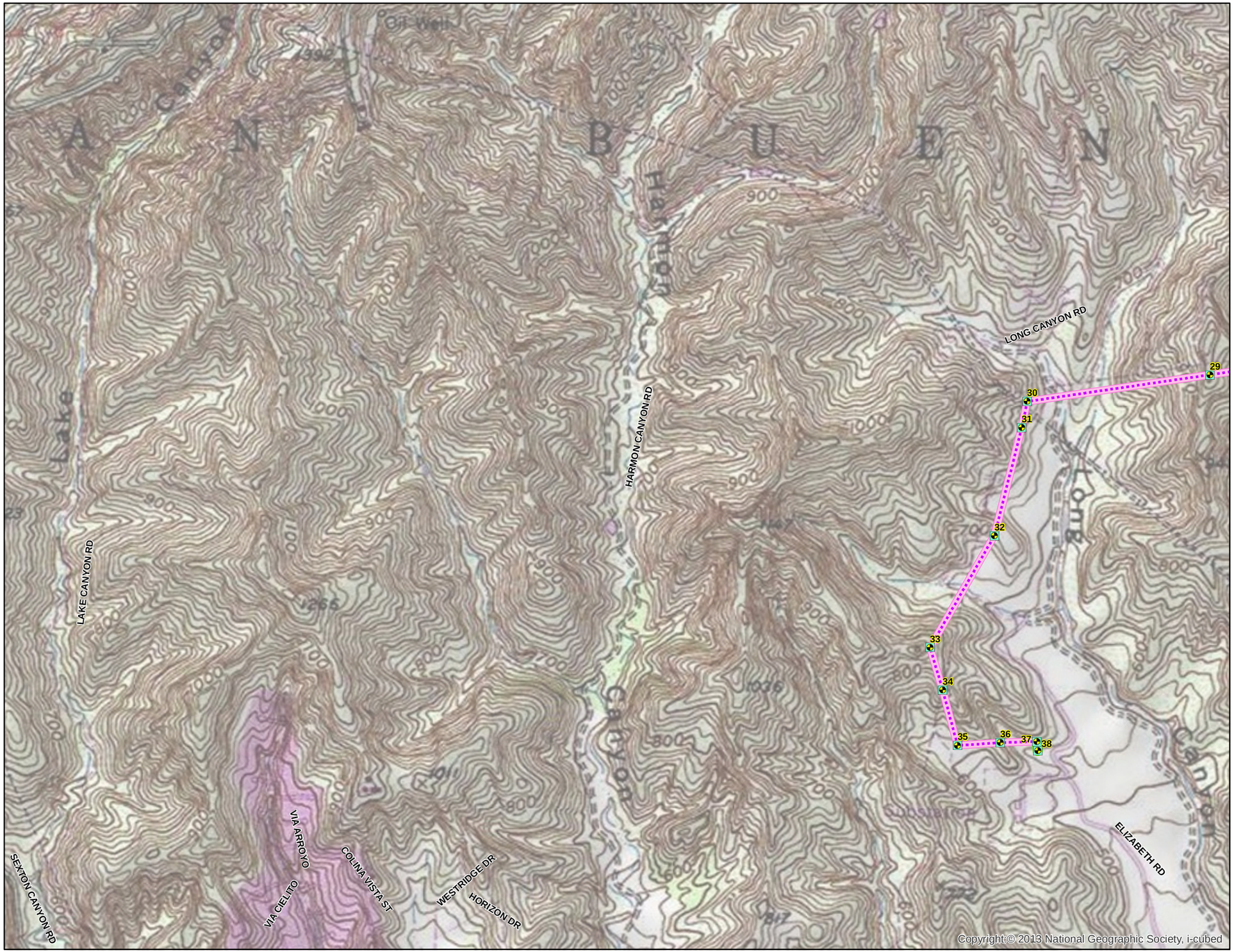
Table DR123-2. Areas of disturbance for tree trimming

Structure #			Longitudinal Clearing Length (ft)	ROW Width (ft)	Area (sq ft)
At or near tower #	Between tower #				
	From	To			
1	-	-	110	75	8,250
3	-	-	100	75	7,500
13	-	-	60	75	4,500
-	16	17	800	75	60,000
18	-	-	50	75	3,750
22	-	-	40	75	3,000
-	27	28	350	75	26,250
-	37	38	100	75	7,500
					120,750

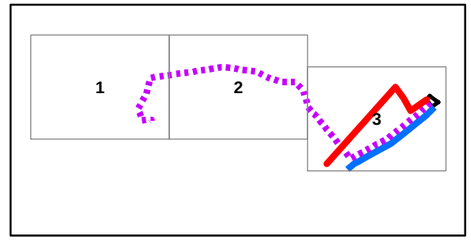
Generator tie-line maintenance

124. Please describe how the generation tie-line would be maintained once operational, including access needs and ongoing vegetation removal or maintenance within and around the right-of-way.

Response: The 230 kV tie line will be routinely maintained after construction is complete. The majority of the right-of-way is agricultural and the area under the transmission line will still be used for agricultural purposes. Ongoing agricultural activities will prevent trees from growing under the tie-line



VICINITY MAP



LEGEND

- Project Site
- Laydown Area
- Tower
- Horizontal Directional Drill (HDD)
- Natural Gas Pipeline Route
- Generator Tie-Line
- Recycled Water Supply Line

Right-of-Way

- 75-Foot-Wide Generator Tie-Line
- 50-Foot-Wide Natural Gas Pipeline Route
- 40-Foot-Wide Recycled Water Supply Line
- Tower Construction Disturbance Area
- Vegetation Management Area

N

0 500 1,000
Feet

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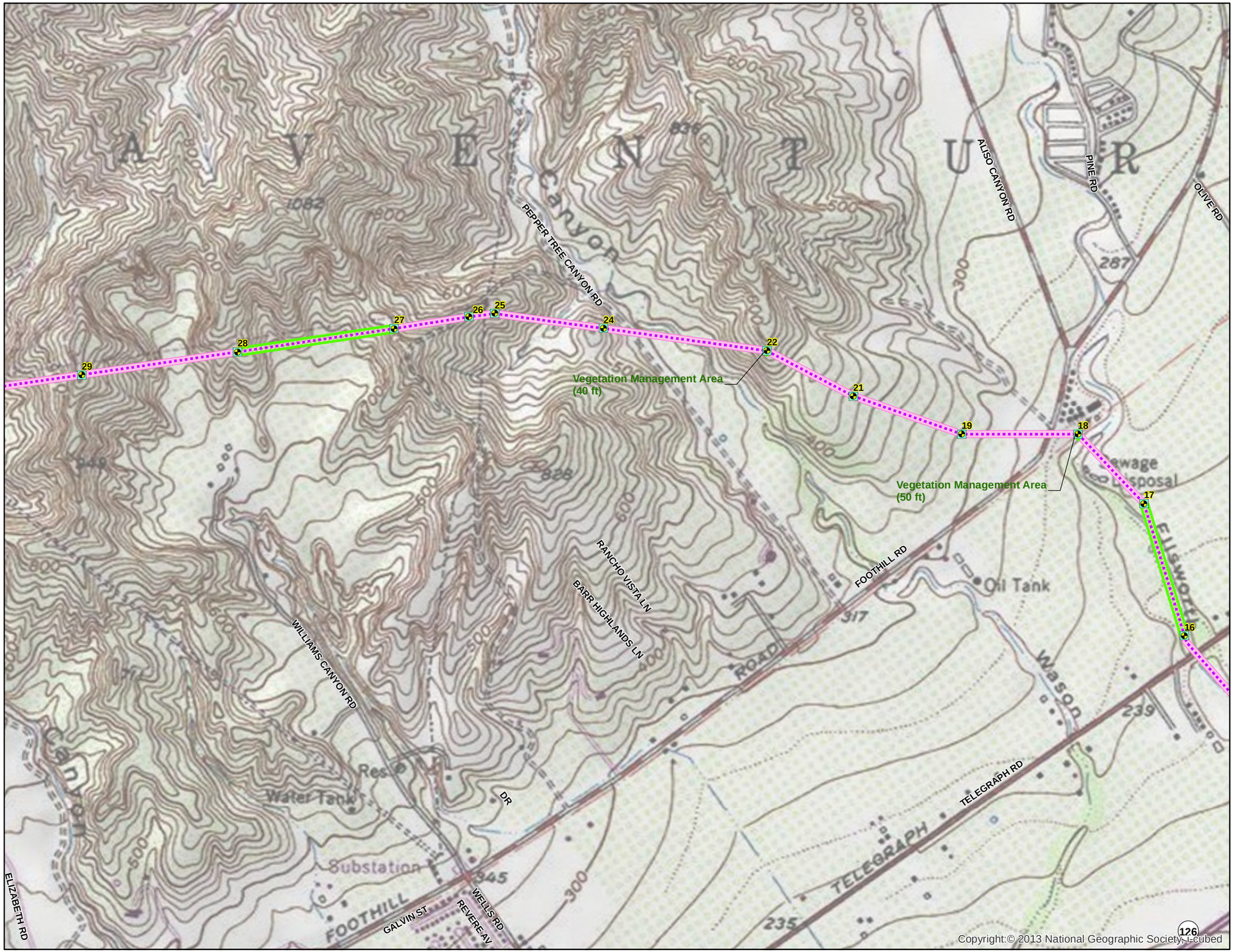
Generator Tie-Line, Natural Gas Pipeline, and Water Supply Pipeline Disturbance Areas

Mission Rock Energy Center
Ventura County, California



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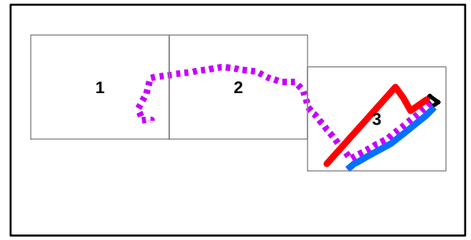


LEGEND

- Project Site
- Laydown Area
- Tower
- Horizontal Directional Drill (HDD)
- Natural Gas Pipeline Route
- Generator Tie-Line
- Recycled Water Supply Line

Right-of-Way

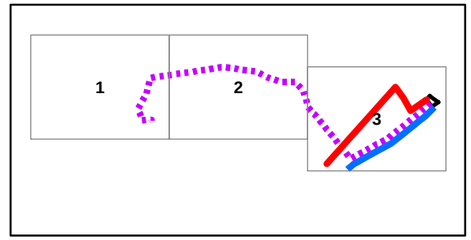
- 75-Foot-Wide Generator Tie-Line
- 50-Foot-Wide Natural Gas Pipeline Route
- 40-Foot-Wide Recycled Water Supply Line
- Tower Construction Disturbance Area
- Vegetation Management Area

N

0 500 1,000
Feet

DR121-1 - Page 2
Generator Tie-Line, Natural Gas Pipeline, and Water Supply Pipeline Disturbance Areas
Mission Rock Energy Center
Ventura County, California

VICINITY MAP



LEGEND

- Project Site
- Laydown Area
- Tower
- Horizontal Directional Drill (HDD)
- Natural Gas Pipeline Route
- Generator Tie-Line
- Recycled Water Supply Line

Right-of-Way

- 75-Foot-Wide Generator Tie-Line
- 50-Foot-Wide Natural Gas Pipeline Route
- 40-Foot-Wide Recycled Water Supply Line
- Tower Construction Disturbance Area
- Vegetation Management Area

N

0 500 1,000
Feet

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Generator Tie-Line, Natural Gas Pipeline, and Water Supply Pipeline Disturbance Areas
Mission Rock Energy Center
Ventura County, California

along the majority of the right-of-way. However, there are some locations where the right-of-way will cross existing road rights-of-way, parallel a barranca, or enters hilly areas that are not used for agricultural. In these locations, a yearly tree/clearance inspection will be performed to determine if there are any new or potential hazards (usually trees or branches) which could fall onto the conductor or grow up into the conductor. In the event that any potential clearance concerns arise, a tree-clearing subcontractor will be used to trim back or cut down the tree. Access to the tie-line right-of-way will be given to the landowner and certain subcontractors for maintenance and vegetation management purposes. In non-agricultural areas where vegetation growth exceeds the recommendations of General Order 95, NESC, or RUS, a vegetation management plan will be implemented. For the full length of the tie line, yearly inspections will also be performed to check for damage (or theft) to grounding, structures, insulators, conductor, OPGW, shield wires, access gates, and all other exposed physical components of the tie line.

Recycled water pipeline diameter

125. Please provide the diameter of the recycled water pipeline.

Response: The recycled water pipeline will approximately be 4 inches in diameter.

Recycled water pipeline right-of-way width

126. Please provide the right-of-way width required for the new recycled water pipeline (half and full right-of-way). Note any differences in right-of-way width requirements due to terrain or adjacent land uses or structures. Please map the right-of-way on aerials and a series of maps based on USGS 7.5-minute topographic maps enlarged to a scale of 1"=1,000 feet. Please provide the Geographic Information Systems shape files for the right-of-way. Please indicate areas of any new right-of-way versus existing right-of-way.

Response: The entire width of the recycled water pipeline right-of way will be 30 feet. See Figure DR121-1 for a map at a scale of 1" = 1,000 feet showing the recycled water pipeline right-of-way.

Recycled water pipeline right-of-way width

127. Please describe how the recycled water pipeline would be installed, including the depth of cover provided over the pipeline, depth and width of the trench, or buried area, to install the pipeline.

Response: The recycled water pipeline will be constructed as follows:

The optimal trench will be approximately 24 inches wide and 40 inches deep, depending on the soil. The pipeline will be buried to provide a minimum cover of 36 inches. The excavated soil will be piled on one side of the trench and used for backfilling after the pipe is installed. The pipeline will be installed through trenching at most locations. Boring or directional drilling will be used to cross beneath Todd and Ellsworth Barrancas.

After excavation, the pipeline will be trucked to the right-of-way site and laid out on wooden skids besides the open trench. The pipe will be installed by bending, welding, and coating the weld-joint areas of the pipe after it has been strung, padding the ditch with sand or fine spoil, and lowering the pipe string into the trench. Bends, if required, will be made using a cold bending machine or will be shop fabricated as required for various changes in bearing and elevation.

After laying the pipe, the trench will be backfilled by returning spoil back into the trench around and on top of the pipe, ensuring that the surface is returned to its original grade or level. The backfill will be compacted to protect the stability of the pipe and to minimize subsequent subsidence. Cleanup consists of restoring the surface of the ground by removing any construction debris, grading to the original grade and contour, and revegetating or repairing where required.

Recycled water pipeline disturbance area

129. Please provide the amount of temporary and permanent area disturbed for the recycled water pipeline and show the areas on aerials and also a series of maps based on USGS 7.5-minute topographic maps enlarged to a scale of 1"=1,000 feet for the following list items (a-d). Identify the temporarily and permanently impacted areas (size in acres). Please provide the Geographic Information System shape files for the following:

a. recycled water pipeline

b. access route for construction (location and length of route)

c. construction staging areas (locations and size)

d. permanent (including on-going) and temporary vegetation removal (e.g. trees, shrubs, etc) within and around the right-of-way.

Response: See Table DR129-1 and Figure DR121-1.

Table DR129-1. Recycled water pipeline disturbance area

Element	Temporary Disturbance	Permanent Disturbance	Comment
Recycled water pipeline	8.25 acres (0.37 acres)*	None	1.7 miles x 30 feet*
Access Routes	None in addition to ROW	None	Existing farm roads and farm fields and ROW
Staging area	None	None	Contained in pipeline right-of-way (ROW)
Vegetation removal	Ag fields only – no natural vegetation removal	None	Route in agricultural fields or horizontal directional drill (HDD) under vegetated drainages

* The water line temporary disturbance area will be within the 75-foot-wide generator tie-line right-of-way except for the southernmost 530 feet (0.10 miles).

Natural gas pipeline ground disturbance

130. Please provide the maximum dimensions of the ground disturbance associated with the natural gas pipeline installation (depth, width and area), location and dimensions of boring and drilling entry and exit points where the pipeline is routed under existing drainages or infrastructure.

Response: As stated in AFC Section 4.0, Natural Gas Supply the gas pipeline trench will be approximately 54 inches deep, 30 inches wide and 2.4 miles long. The pipeline will be constructed using horizontal directional drilling or jack-and-bore techniques to cross Todd and Ellsworth Barrancas. The horizontal directional drilling designs will be finalized during final project design. At that time, entry and exit points and drilling dimensions will be designated.

Natural gas pipeline area

131. Please provide the amount of temporary and permanent area disturbed for the natural gas pipeline and show the areas on aerials and also a series of maps based on USGS 7.5-minute topographic maps enlarged to a scale of 1"=1,000 feet for the following list items (a-d). Identify the temporarily and permanently impacted areas (acres) and please provide the Geographic Information System shape files for the following:

a. natural gas pipeline

b. access route for construction (location and what length)

c. construction staging areas (locations and size)

d. permanent (including on-going) and temporary vegetation removal (e.g. trees, shrubs, etc.) within and around the right-of-way..

Response: See Table 131-1 and Figure DR121-1. Per Section 3.0 of the AFC, the gas pipeline trench will be 30 inches wide (2.5 feet).

Table DR131-1. Natural gas pipeline disturbance area

Element	Temporary Disturbance	Permanent Disturbance	Comment
Natural gas pipeline	14.6 acres	None	2.4 miles x 50 feet
Access Routes	None in addition to ROW	None	Farm roads and fields used
Staging area	None	None	Staging within the ROW
Vegetation removal	Ag fields and orchards only – no natural vegetation removal	None	Route in agricultural fields and orchards or HDD under vegetated drainages