3.3.1 Community Values and Community Resources

The term "community values" is included as a factor for the consideration of transmission line certification under Section 37.056(c)(4)(A)-(D) of the Texas Utilities Code. Community values have been interpreted in different ways. Recent decisions by the PUCT have included issues such as those listed below within the discussion of community values.

- A shared appreciation of an area or other natural or human resource by members of a national, regional, or local community
- Amplitude Modulation (AM), Frequency Modulation (FM), microwave, and other electronic installations in the area
- approvals or permits required from governmental agencies
- comments received from community leaders and the public
- description of the area traversed
- FAA-registered airstrips, private airstrips, and heliports in the area
- habitable structures within 300 ft of the centerline of the proposed project
- irrigated pasture or croplands utilizing center-pivot or other traveling irrigation systems
- public meeting or public open-house participation

In addition to the above- mentioned items, Burns & McDonnell also evaluated the proposed project for community resources that may be important to a particular community as a whole, but may not be specifically identified by the PUCT such as: parks or recreational areas, historical and archeological sites, or scenic vistas within the study area. Burns & McDonnell mailed consultation letters to federal, state, and local officials (Appendix A) and held three public open-house meetings hosted by Entergy, among other things, to identify and collect information regarding community values and community resources. The above referenced community values and community resources are discussed in the following sections.

3.3.1.1 Land Use and Development Patterns

Land use throughout the study area is dominated by a mixture of woodlands, cultivated land, and urban development. The northern portion of the study area has some, but very little cropland. Pastureland can be found primarily in the western portion of the study area. The developed land is primarily found around the various cities in the study area specifically in the southwest portion of the study area. The largest percentage of the land found in the study area is used as woodlands which can be found throughout the entire study area.

3.3.1.2 Agriculture

According to the USDA National Agricultural Statistics Service (NASS) 2007 Census of Agriculture, beef cattle production is the main fiscal agricultural enterprise in Grimes County. According to the 2007 Census of Agriculture, the total number of cattle and calves was 82,903 from the beef cattle production farms. The leading number of livestock is the poultry industry with 907,656 birds a year; however, it is the second largest fiscal enterprise. Other agricultural income is derived from the production and sale of hay, grass silage, vegetables, corn, and oats. The acreage of agricultural land in the county is slowly increasing. In 2007, farmland increased 5 percent from 414,887 acres in 2002 to 437,140 acres (USDA 2007).

The main fiscal agricultural enterprise in Montgomery County in 2007 was the production of landscape horticulture products followed by beef cattle production and hay. According to the 2007 Census of Agriculture, cattle and calves are the majority of the livestock in Montgomery County with 24,075 animals in the beef cattle production farms of the county. Other agricultural income is derived from the production and sale of hay, pecans, and poultry. The acreage of agricultural land in the county is decreasing. In 2007, farmland decreased by 14 percent from 197,892 acres in 2002 to 169,914 acres (USDA 2007).

3.3.1.3 Urban and Residential Areas

The total number of housing units follows a similar trend to the total population. Grimes County has a record number of 10,942 housing units (U.S. Census Bureau (USCB) 2012b), Montgomery County has a record number of 178,633 housing units within the county (USCB 2012c).

Dense urban development primarily occurs within the various municipalities located in the study area, specifically the southwestern portion of the study area between Conroe and Montgomery, Texas. The western portion of the study area consists of lower density scattered rural residences. Both counties within the study area have independent school districts (ISDs). Montgomery County has the greater number of schools between the two counties, with 114 schools within Conroe, Magnolia, Montgomery, New Caney, and Splendora ISDs. Grimes County has 11 schools within Anderson-Shiro, Iola, Navasota, and Richards ISDs (Texas Education Agency 2013). Multiple response letters including Conroe, Magnolia, Montgomery and Willis Independent School Districts and the Woodforest Development were received (Appendix A).

3.3.1.4 Park and Recreation Areas

Several park and recreational opportunities can be found within the study area. Community parks, ball fields, swimming pools, recreation centers, golf courses, and other recreation-type activities are available in some of the municipalities in the study area. Specific recreational opportunities in the study area are outlined below.

Lake Conroe is the largest recreational area in or near the study area. It is approximately 21,000 acres that provides recreational activities including boating, fishing, and golfing. Lake Conroe is also bordered by many residential developments and the lake is a reserve water supply for the City of Houston. West Montgomery County Park is a 50-acre park located adjacent to FM 149 on the north side of Montgomery, Texas. The park provides baseball, softball, and football fields as well as concession stands.

In addition to other smaller neighborhood parks, private landowners within the study area often use their land for hunting, fishing, wildlife, equestrian, and other recreational activities that are not available to the general public.

3.3.1.5 Transportation and Aviation

The study area is traversed by state and county highways and local streets. Three state highways (SH) and one state loop are located in the project area and include SH 105, SH 30, SH 90 and State Loop 336. Both SH 105 and SH 30 run east to west in the northern and central portion of the study area, respectively. SH 105 passes through Navasota, Plantersville, Dobbin, Montgomery, and Conroe, Texas. SH 30 passes through Roans Prairie and Shiro, Texas. SH 90 runs in a north to south direction in the far western half of the study area passing through Roans Prairie and Anderson, Texas. Loop 336 can be found near the Ponderosa Switching Station and is used as a loop around the City of Conroe. Some of the other roads found within the study area are mostly FM roads such as FM 2854, FM 1774, FM 149, and FM 1486. Correspondence from the TXDOT Houston District was received indicating future roadway construction projects (Appendix A).

A review of the USDOT Bureau of Transportation Statistics (BTS) National Transportation Atlas Database identified seven private airstrips within 20,000 ft of the routes (BTS, 2011). Figure 3-2 depicts the below airstrips/airports.

- Marmack Airport (Private) – approximately 4 miles southeast of Montgomery
- Lake Bonanza Airport (Private) – approximately 6.5 miles west of Conroe
- Crosswinds Ranch (Private) – approximately 4 miles south of Richards

102

- Flying Hare (Private) – approximately 5 miles northwest of Conroe
- Bridle Ridge (Private) – approximately 1.5 miles northeast of Navasota
- Unnamed Private Air Strip (Private) – approximately 4.5 miles northwest of Montgomery
- Unnamed Private Air Strip (Private) – approximately 7.5 miles west of Montgomery

Field surveys also identified one public helipad and five private helipads within the study area. The following six helipads were identified.

- Montgomery County Medical Center (Private) – in southern Conroe, inside State Loop 336
- Lawrence Administrative Services (Private) – approximately 1 mile north of Conroe
- Roans Prairie Helipad (Private) – in Roans Prairie, next to the community center
- Grimes St. Joseph Health Center (Private) – in Eastern Navasota
- Sartor (Private) – approximately 5 miles northwest of Conroe on Lake Conroe
- Unnamed Private Helipad (Private) – approximately 2 miles west of Conroe

3.3.1.6 Utilities

Existing utilities within the study area include 69kV, 138kV, and 345kV electric transmission lines and associated substations primarily owned and operated by Entergy Gulf States Inc., CenterPoint Energy Houston Electric LLC, and Brazos Electric Power Cooperative (Figure 3-2). In addition, various other municipal and cooperative utilities own and operate transmission lines, distribution lines, and substations within the study area. There are multiple oil and gas collection, transmission, and distribution facilities throughout the study area as well as oil and gas wells and associated collection lines, pump stations, and compressor stations owned and operated by a number of different companies. Water pipelines can also be found throughout the study area primarily running from reservoirs to the small communities within the study area. Prior to construction a Montgomery County Utility Permit will be required (Appendix A)

3.3.2 Socioeconomic Patterns

3.3.2.1 Population

According to the U. S. Census Bureau (USCB), the resident population of Texas in 2010 was 25,145,561 (USCB, 2013). In 2011, the population of Montgomery County was the higher of the two counties in the study area at 471,734 people. Grimes County had a significantly lower population in the study area with an estimated 26,887 people. Table 3-3 shows the populations of the counties found in the study area.

Table 3-3: Population Data

County	2010 Population	2011
Texas	25,145,561	25,631,778
Grimes	26,604	26,887
Montgomery	455,764	471,734

Source: U.S. Census Bureau, 2013

3.3.2.2 Employment and Income

According to USCB data, Grimes County had approximately 10,984 persons in the civilian work force and a 7.3 percent unemployment rate in 2010. Approximately 19 percent of the work force of Grimes County was employed in the educational, health and social services sector. The mean household income for Grimes County in 2010 was $57,211 per year (USCB, 2013).

Montgomery County had approximately 223,355 persons in the civilian work force and a 6.6 percent unemployment rate in 2010. Approximately 18 percent of the work force of Montgomery County was employed in the educational, health and social services sector. The mean household income for Montgomery County in 2010 was $90,896 per year (USCB 2013).

Table 3-4 summarizes employment sectors by county for the study area.

Table 3-4: Employment by Sector

Grimes			Montgomery		
Industry	Number	Percent	Industry	Number	Percent
Agriculture, forestry, fishing and hunting, and mining	712	7.0	Educational, health and social services	9,203	4.4
Construction	1,151	11.3	Retail trade	19,110	9.2
Manufacturing	1,255	12.3	Public administration	22,147	10.6
Wholesale trade	164	1.6	Agriculture, forestry, fishing and hunting, and mining	8,534	4.1
Retail trade	1,206	11.8	Construction	22,926	11.0
Transportation and warehousing, and utilities	593	5.8	Other services (except public administration)	16,766	8.0
Information	81	0.8	Arts, entertainment, recreation, accommodation and food services	2,975	1.4

104

Grimes			Montgomery		
Industry	Number	Percent	Industry	Number	Percent
Finance, insurance, real estate, and rental and leasing	372	3.7	Transportation and warehousing, and utilities	11,828	5.7
Professional, scientific, management, administrative, and waste management services	828	8.1	Finance, insurance, real estate, and rental and leasing	23,074	11.1
Educational, health and social services	1,908	18.7	Manufacturing	38,435	18.4
Arts, entertainment, recreation, accommodation and food services	813	8.0	Professional, scientific, management, administrative, and waste management services	16,723	8.0
Other services (except public administration)	444	4.4	Wholesale trade	10,761	5.2
Public administration	655	6.4	Information	6,105	2.9

Source: U.S. Census Bureau, 2013

3.3.3 Visual Character

The visual character of an area is a function of the terrain, land cover and land use. Throughout the study area, the land cover is post oak savannah and blackland prairies with intermittent patches of pineywoods mesquite and other forest vegetation. Much of the natural vegetation of the area still exists, but these forested areas are mixed into the development of the study area. There are scattered rural residences and municipalities outside the larger cities. The few larger cities are compact and quickly turn back to the rural countryside. Physiographically, the terrain of the study area is generally associated with the rivers and drainages that run throughout the study area to the southeast and southwest. The most dramatic relief in the study area is associated with Lake Conroe which was formed by damming of the West Fork San Jacinto River. The other area of significant relief is associated with the Brazos River.

3.3.4 Communication Towers

Several communication towers were identified within the study area. The communication towers are primarily located near towns and cities and appear to be primarily microwave communication towers (Federal Communications Commission (FCC), 2012).

105

3.4 Cultural Resources

Cultural resources are defined as sites, features, structures, or properties that may hold significant cultural, historical or scientific value. Section 106 of the National Historic Preservation Act (NHPA) encourages the protection and review of cultural resources by ensuring that they are considered as part of federal project planning, funding, and permitting. Regulations developed by the Advisory Council on Historic Preservation direct the implementation of the Section 106 process. The National Register of Historic Places (NRHP), administered by the Secretary of Interior, establishes significance criteria for inclusion on the register. Cultural resources are evaluated based on these criteria, and may be considered historic properties if they meet the criteria and are determined eligible for inclusion or if they are placed on the NRHP by the Secretary of the Interior. In addition, cultural resources that have not been evaluated but may meet eligibility criteria are considered historic properties.

3.4.1 Pre-Historic Cultural Background

The study area is in the Southeast Texas Archaeological region, which has an archaeological record that covers the last 12,000 years divided into five temporal periods. These are subdivided and summarized in Table 3-5. The boundaries of these periods are dynamic and represent often slow technological, climatic, and social change. These changes likely happened at different rates locally and regionally. As new evidence is added to the archaeological record and existing evidence reinterpreted the periods are subject to change.

Table 3-5: Southeast Texas Temporal Periods

Period		Dates (Perttula 2004)	Dates (Patterson 1995)
Paleo-Indian		10,000 to 6000 B.C.	10,000 to 8000 B.C. (Early) 8000 to 5000 B.C. (Late)
Archaic	Early	6000 to 4000 B.C.	5000 to 3000 B.C.
	Middle	4000 to 2000 B.C.	3000 to 1500 B.C.
	Late	2000 B.C. to A.D. 0	1500 B.C. to A.D. 100
Woodland / Early Ceramic		A.D. 0 to 800	A.D. 100 to 600
Period		**Dates (Perttula 2004)**	**Dates (Patterson 1995)**
Late Prehistoric		A.D. 800 to 1750/1800	A.D. 600 to 1500 (Late Prehistoric) A.D. 1500 to 1700 (Protohistoric)
Historic		A.D. 1750/1800 to 1960	A.D. 1700 to 1960

Regional environmental characteristics influenced prehistoric settlement patterns and resource procurement activities. The study area is at the confluence of two physiographic zones. Grimes County

106

is on the southern edge of the Post Oak Savannah and Montgomery County is on the northeast edge of the Blackland Prairie (Perttula 2004). The Gulf Prairies and Marshes zone is just to the south of the study area. Channels of inland streams and rivers have not changed much and many sites found along inland streams have long occupation periods implying environmental and cultural stability (Patterson 1995).

There are general trends in the archaeological record of Southeast Texas, including lifeway, subsistence patterns, settlement patterns, and artifacts. The hunter-gatherer lifeway persisted throughout the prehistory of Southeast Texas (Patterson, 1995). In many other areas of the Americas, the advent of pottery coincided with larger more permanent settlements and horticulture or agriculture, which is not the case in the coastal inland area of Southeast Texas where the study area is located. While there are some Late Pleistocene mammoth sites in the region, it appears Paleo-Indian relied on a more broad-based subsistence pattern, a trend which continued through prehistory (Patterson 1995). Faunal and floral remains found in Southeast Texas over time include small mammals like rabbit, gopher, opossum; larger mammals like deer and bison; and other animals such as turtles, birds, mussels, and some fish. Bison were not always present in the region and were likely more common in grasslands, such as the Blackland Prairie which covers part of Grimes County. Nuts and acorns were present and while not well preserved, they were likely used for subsistence. The settlement model in the Southeast Texas inland appears to be a foraging strategy on a highly scheduled seasonal basis (Patterson 1995). Common to the forager strategy, most of the sites found are residential base camps with very few satellite activity sites. The high number of re-occupied base camp sites in the region suggests mobile groups of people reused the same sites periodically, even seasonally. During the Woodland / Early Ceramic and Late Prehistoric periods many more of the sites are single component suggesting higher mobility and less scheduled foraging during these time periods. Most inland sites in Southeast Texas 1) are near water, 2) are multi-component, used and reused often, 3) have well-defined intra-site activity areas, 4) have little evidence of satellite activity sites separate from base camps, and 5) contain evidence of a variety of subsistence types (Patterson, 1995). Examples of technological continuity throughout prehistory in Southeast Texas include 1) the Gary-Kent dart point style, which was used for thousands of years starting in the Middle Archaic, 2) the long use of fired clay balls for cooking, and 3) gradual trends in flake size distributions to higher percentages of smaller size flakes later in time suggesting a slow trend toward smaller-sized dart points (Patterson, 1995).

Initial human occupation in the New World has been widely debated and currently there is no consensus. Generally, a sandy mantle that covers the west Gulf coastal plain contains most of the material evidence of past cultures. For about 130 km inland the clay-rich Beaumont formation lies below the sandy mantle. The Beaumont formation is no more than 30,000 years old and it is common to find early Paleo-Indian

sites on it (Patterson 1995). The study area is on the west edge of the 130 km boundary. However, at many locations in Southeast Texas about 20,000 years of geological deposits seem to be missing, possibly from severe erosion caused by long term heavy rainfall between 25,000 and 9,000 years ago (Patterson, 1995). These missing geologic layers make it difficult to say much about people living in the region more than 12,000 years ago.

The earliest and best documented Paleo-Indian sites, especially in the Southeast Texas region, belong to the Clovis complex named after diagnostic lanceolate-shaped, fluted Clovis points. Other chipped stone artifacts in the Clovis toolkit include side scrapers, end scrapers, gravers, drills, burins, and knives. There are several well-known Clovis sites in Texas. As of 2007, Grimes County had no recorded Clovis points and Montgomery County had eight (Bever and Meltzer 2007), but none of them are within the 1,000-foot buffers around the alternative routes. Across Texas and the entire United States, there is a general trend of a higher density of Clovis sites in woodland areas than in other physiographic zones. During the Late Pleistocene the southwest edge of North America's expansive deciduous/coniferous forest extended across Texas' Inner Coastal Plain. The study area would have been covered in oak, hickory, and southern pine forest at that time (18,000 to 10,000 years ago) and was slowly being replaced by a belt of oak savannah, the precursor of the modern Post Oak Savannah zone (Thomas et al. 2007). Mammoth remains have been found in the modern oak savanna along with evidence of Paleo-Indian bone quarrying for tool manufacture and food processing (Thomas et al. 2007).

The Folsom complex followed Clovis and is also named after the diagnostic type site projectile point. Folsom points are also lanceolate-shaped, fluted points with concave bases. The differences between the two are morphological. Clovis fluting consists of the removal of several flakes whereas Folsom fluting consists of the removal of one long flake covering nearly the entire surface of the point. Lanceolate Midland points contemporaneous with Folsom have also been found in Southeast Texas, but both are rare which may be due to a lack of bison in the Study Area during the Paleo-Indian period (Patterson 1995). Generally, early projectile point tool technology influences came from the southern plains and the southeastern woodlands. In Southeast Texas, several side-notched Paleo-Indian points have been found that date to the same time as Folsom suggesting more cultural diversity, or at least more technological diversity. These points include Dalton and San Patrice points with San Patrice being more common around the Study Area and Dalton more common to the northeast (Patterson 1995). There is one recorded San Patrice site (41MQ41) in Montgomery County outside of the study area. Big Sandy and Early Side-Notched points also temporally overlap with Folsom points.

108

After Folsom, the Late Paleo-Indian period is characterized by the occurrence of several Plains types of lanceolate points, including Plainview, Angostura, Scottsbluff, and Meserve. Several non-lanceolate point types have been found during this time period, such as San Patrice, which was also used during the Early Paleo-Indian period (Patterson 1995). As the Paleo-Indian period progressed, most side-notched points were replaced by corner notched varieties. In Southeast Texas, the Late Paleo-Indian period closes with the beginning of the dominance of stemmed point types, which are associated with the Archaic (Patterson 1995).

Archaic people continued with a hunter-gatherer lifestyle. The Holocene climate was beginning to change during the Archaic period, but the major changes marking the Early and Middle Archaic periods were technological and most evident in projectile point styles. Starting in the Early Archaic projectile point tool technology was predominantly influenced by the central and northeast regions of Texas (Fields 2004; Patterson 1995). Common Early Archaic points in Southeast Texas include Bell, Carrollton, Wells, and miscellaneous Early Stemmed varieties. Generally, lanceolate and notched point styles end at the start of the Early Archaic in Southeast Texas and stemmed points begin to dominate. Stem grinding is common in the region during the Early Archaic. The Bell point is associated with the Southern Plains and is usually made of Edwards chert types, which would have been an exotic material for prehistoric people of Southeast Texas. The other points from this time period are made of local cherts from the Colorado River drainage, the Brazos River valley, and streams in eastern Wharton County (Patterson 1995).

Middle Archaic point types of Southeast Texas are generally a continuance of Early Archaic points with the addition of the Bulverde type, the Pedernales type (which extend through the Late Archaic), and the Gary-Kent series of straight and contracting stem points (which extend through the Late Prehistoric, but get much smaller during the Woodland/Early Ceramic). Formal unifacial tools, such as scrapers, are common at Paleo sites, but found only in small quantities during the Archaic. Unifaces from Archaic sites are usually made from bifacial thinning flakes. Other tool types include denticulates, notched tools, perforators, and gravers. Archaic sites in Southeast Texas continue to lack specialized activity areas (Patterson 1995).

Sites dating to the Late Archaic through Late Prehistoric are the most common in Southeast Texas. There are two main theories as to why this is the case in the region: 1) these are the easiest sites to find as older sites are either deeply buried or eroded away and 2) there was a population increase in the area starting in the Late Archaic (Fields 2004). The Late Archaic period is marked by environmental and social changes in addition to different types of projectile points. The modern Holocene climate and environment was probably established around 3000 B.C. (Fields 2004). The Late Archaic had greater plant food variability

in the Post Oak Savannah and there is evidence prehistoric people of the time were doing more plant foraging rather than moving residential base camps seasonally to take advantage of changing resource availability as they did previously (Fields 2004; Perttula 2004). Ubiquitous dart point types are found throughout Southeast Texas in the Late Archaic suggesting a low population density with large territories and/or widespread interaction (Fields 2004). There are a few localized point types and lithic material choices suggesting distinct localized interaction spheres in the northern and southern parts of the Post Oak Savannah region (Fields 2004). An organized mortuary tradition is evident starting in the Middle Archaic and becoming fully developed in the Late Archaic at Allen Creek sites near the Brazos River adjacent to the southwest edge of the study area (Patterson 1995). Exotic grave goods found in the region include boatstones, bannerstones, stone gorgets, corner-tang knives, stingray spines, shark teeth, marine shell beads, and pendants. The grave goods are evidence of trade with southern Texas and Arkansas. Red ochre was used in many burial practices. Most burials are found in an extended supine position, but some are prone and bundled. Burial direction appears to be consistent within a site, but varies from site to site (Patterson 1995).

Ceramic technology made its way into the Southeast Texas inland sub-region from the coast from around 70 B.C. to A.D. 500 during the Woodland/Early Ceramic period. Early pottery was sand-tempered (Patterson 1995). Even with the introduction of pottery it appears the prehistoric people of Southeast Texas did not dramatically change their hunter-gather lifeway (Fields 2004; Patterson 1995). There is some continuity between the Late Archaic and Woodland/Early Ceramic periods in Southeast Texas in projectile point technology. The Gary-Kent point series dominates this time period in the region. Yarbrough, Darl, and Pallmillas are also common and may actually be variants of the Gary-Kent series (Patterson 1995). Late Archaic and Woodland/Early Ceramic sites in the Gibbons Creek Mine area in Grimes County, as well as other sites in the Southeast Texas Post Oak Savannah region are difficult to differentiate. The major difference appears to be population growth, the reoccupation of good sites, and longer occupation periods indicating there may have been less mobility during the Woodland/Early Ceramic (Fields 2004). Squash was found at a site north of the study area, but there is no other evidence of intensified horticulture in the region (Fields 2004). The Woodland/Early Ceramic period ends with the start of bifacial arrow points around A.D. 600.

As the Woodland/Early Ceramic period shifted into the Late Prehistoric period people in region returned to a more highly mobile lifeway than they were practicing during the Late Archaic and early Woodland/Early Ceramic periods. Mortuary practices became less organized indicating less complex social organization, which suggests higher mobility (Patterson 1995). Another indicator of higher mobility in the Southeast Texas inland sub-region during the Late Archaic is the decrease in pottery found

at sites (Patterson 1995). While the Caddo culture to the north and east of the study area was focused on agriculture and practiced sedentism, there is no evidence this lifeway influenced sites in the Gibbons Creek Mine area in Grimes County (Fields 2004). Settlement strategies of local hunter-gatherer groups changed during the early Late Prehistoric. Base camps were common in the Navasota River valley on the east side of Grimes County and the uplands to the east, including the study area, were used for hunting and resource gathering (Fields 2004). During the Late Prehistoric the coastal margin sub-region of Southeast Texas adopted bow and arrow technology. The inland sub-region continued to use atlatl dart points. Small Gary and Kent dart points dominate the archaeological record from the area along with Ensor and Ellis types (Patterson 1995). Varieties of grog-tempered and bone-tempered pottery became common during the late Prehistoric and Protohistoric periods (Fields 2004). Generally grog-tempered pottery was used in the coastal margin and bone-tempered pottery was used in the inland sub-region (Patterson 1995). The pottery appears to have been used mainly for food storage. It was poorly fired and not good for cooking. Many sites with pottery from the Late Prehistoric in the inland sub-region have drilled repair holes making them permeable and not good for liquid storage (Patterson 1995).

The Protohistoric period or the end of the Late Prehistoric dates from after initial contact between Native Americans of Southeast Texas and European explorers and the areas earliest settlers. Native American group mobility increased, perhaps as a response to European presence in the area. Because of this increased mobility it is difficult to relate historic Native Americans of the ethnographic record to prehistoric groups in Southeast Texas. It is also difficult to identify Protohistoric and Historic groups at archaeological sites because the artifact assemblages did not change much between the Late Prehistoric and Historic periods, although some Historic sites have European artifacts. Common arrow points in the area during the Late Prehistoric are Bulbar Stemmed and Guerrero. Points dating to after A.D. 1500 include Fresno and Cuney types (Patterson 1995).

The main Native American groups living around the study area documented by early late-seventeenth century French and Spanish explorers in Southeast Texas were the Tonkawa and the Atakapan-speaking Bidai and Akokisa tribes. The Bidai and Akokisa represent the anthropological Mossy Grove Tradition in the study area. The Mossy Grove Tradition formed the southwestern periphery of the Southeastern United States cultural area over the last 2,000 years, but it is best known during the Late Prehistoric and Historic time periods. The Mossy Grove Tradition shares similarities with early Woodland cultures, especially those of the Mississippi Valley (Aten and Bollich 2013). The Akokisa and Bidai shared cultural, technological, and linguistic similarities with each other. From ethnographic sources we know they were seasonally mobile hunter-gatherers who spent summers near the coast in small bands and winters inland in larger semi-permanent villages (Moore and Donachie 2001). They utilized marine

resources a little, mostly eating and using shellfish. Mossy Grove Tradition tribes in Southeast Texas had canoes for river and stream travel and resource procurement, but there is no evidence they built larger ocean-faring vessels. In addition to shellfish, they relied heavily on hunting small mammals and gathered plants for subsistence (Aten and Bollich 2013). Later in the 1700s, the Akokisas and Bidais hunted deer, bison, and bear to exchange the pelts with the French for European goods and by 1730 regular trade routes had been established. The Akokisa and Bidai tribes were different than Atlantic tribes in that they desired more practical European items and not decorative beads, mirrors, and medals (Moore and Donachie 2001). Their artifact assemblage includes poorly fired sand- or grog-tempered sandy clay earthenware called Goose Creek ware and fine clay varieties called Tchefuncte, Baytown, or San Jacinto wares. The Mossy Grove lithic assemblage has a limited variety of tool types. Other tools are made of ground stone, bone, and shell. Mortuary rituals with burials are found at sites that were occupied for longer periods of time (Aten and Bollich 2013).

In Protohistoric times the Bidai lived around Livingston, Texas, which is along the Trinity River about 50 miles east of the study area. In the 1800s the Akokisa and Bidai tribes were living along Cypress Creek in northwest Harris County about 25 miles south of the study area. Aggressive European-American settlement in Southeast Texas in the 1800s greatly reduced the population of the Akokisa and Bidai tribes. Generally, interactions between the Akokisa and Bidai and the European-Americans were opportunistic. The Native Americans were not forced to change their way of life until well into the twentieth century, which was rare compared to other tribes in America (Moore and Donachie 2001).

3.4.2 Historic Cultural Background

This Historic period in Southeast Texas was initially influenced by European settlement disrupting the lifeways of the Native Americans living in the area through the fur trade economic system, the Catholic mission system, and disease epidemics (Patterson 1995). Tribes from the north (Titskanwatits) and east (Alabama-Coushatta) also migrated to the area during the early Historic Period. By A.D. 1800, the Native American population had drastically thinned.

The Titskanwatits, mostly known by their Caddoan and Spanish name Tonkawa, were living in northern Oklahoma or south-central Kansas in the early 1600s when they were first encountered by European explorers. For the following centuries they led a life of migration, conflict, and coalescence. They moved to the Red River in northern Texas in the early 1700s and slowly made their way south along the Blackland Prairie and Post Oak Savannah physiographic zones which form alternating finger-like regions in a northeast-southwest orientation across eastern Texas. The study area is along the southern prairie and woodland border. The Tonkawa presumably liked to hunt bison in the Blackland Prairie, but liked the

112

protection the Post Oak Savannah gave them from the hostile Apache. Other remnant Native American groups that populated the same region during the early historic period were eventually absorbed by the Tonkawa for self-protection from the Spanish and Apache, but the Tonkawa always retained their separate identity. The Tonkawa artifact assemblage resembles the Late Prehistoric and is characterized as Plains Village with triangular and side-notched triangular arrow points, plain shell- and limestone-tempered pottery, end scrapers, beveled knives, and flake drills for processing bison (Prikryl 2001).

In 1768, a Spanish missionary documented a coalescent Tonkawa camp comprised of the Tonkawa, Coco, Mayeye, and Yojuane along the Brazos River about 25 miles west of the study area. Another coalescent camp was recorded 75 miles to the north of the study area in the 1770s. In the 1780s, they were documented along the Navasota River. The Tonkawa appeared to prefer a permanent or semi-permanent settlement agricultural lifeway, but were continually forced to be more mobile due to hostile Native American tribes and continually shifting alliances. In the 1850s, the United States Government moved the Tonkawa to a reservation on the Brazos River in north central Texas and eventually to a reservation near Anadarko, Oklahoma. During the Civil War, they fought for the Confederate side and were massacred by Union allies. After the War the Army moved them to Fort Griffin on the Clear Fork of the Brazos to function as army scouts. These events depleted the Tonkawa population to 92 people by 1884. Most were forcibly moved back to Oklahoma, but some moved to northern Mexico (Prikryl, 2001).

In the late 1700s and early 1800s the Alabama-Coushatta migrated into Southeast Texas from the east. Their slow and sporadic migration was prompted by the influx of English-Americans settling in the Alabama-Coushatta homeland. When they first migrated to Texas they lived in a densely vegetated area between the Sabine and Brazos rivers called the Big Thicket. Its thick vegetation deterred the Spanish and provided excellent resources for the Alabama-Coushatta (Martin 2013). Groups migrated outside the Big Thicket area but they generally settled in river and stream valleys east of the study area. Possibly the closest the Alabama-Coushatta settled to the study area was the lower Trinity and Neches River basins 50 to 100 miles to the west (Patterson 1995). During the early nineteenth century the Alabama-Coushattas blazed a major trail from their Sabine River village westward to Matagorda Bay and Lavaca Bay in Texas. This trail, called the Coushatta Trace, was about 20 miles from the study area as it passed through the southeast part of Montgomery County. Lesser trails in the area were called Coushatta traces and it is likely some of these trails intersect with the study area. The Coushatta Trace was used by the Native American groups and heavily by early European-Americans (Martin 2013).

The study area is in Grimes and Montgomery counties. Their local histories are described below focusing on the nineteenth century forward. Stephen F. Austin founded a European-American colony between the

113

lower Brazos and Colorado rivers to the southwest of the study area in 1821. This ushered in major settlement of Grimes and Montgomery counties during the nineteenth century.

3.4.2.1 Grimes County

As European-Americans moved in, the Bidai, Kickapoo, and Alabama-Coushatta were living in the area along waterways such as Bedias Creek in northern Grimes County, the Trinity River to the west, and the Brazos River in southern Grimes County. The tribes used the Coushatta Trace in southern Grimes County to travel back and forth between their homes and hunting sites in the county. The hostile Comanche and Apache periodically raided and killed the other Native American tribes and European-Americans living in the area in the first half of the nineteenth century, but eventually the growing number of European-Americans and the decreasing number of Native Americans, along with military action, stopped the fatal raids (Jackson 2013).

The first settlers in the county were attracted to the rich bottomlands along rivers and streams. They preferred the prairie to the wooded areas. Before the Texas Revolution in 1836, a total of 64 heads of household had land grants within the future Grimes County from the Mexican government. One of the earliest settlers, Jared E. Groce, moved to what is now Hempstead on the Brazos River. He planted cotton, which did very well and would soon become the major cash crop of the region. By 1825, he constructed what is probably the first cotton gin in Texas. Most of the immigrants at this time were slave-holding southerners. The Texas Revolution hit Grimes County in 1836 as the advancing Mexican army joined the mass eastward flight known as the Runaway Scrape. Settlers in the county abandoned their homes, but quickly reoccupied them after the Battle of San Jacinto to the south. In 1837, the Congress of the Republic of Texas established Montgomery County, which included Grimes County. In 1846, the first state legislature split Grimes County, named after Texas Declaration of Independence signer Jesse Grimes, from Montgomery County (Jackson 2013).

Early on, Grimes County had a very high population of slaves. In 1860, there were 4,852 European-Americans and 5,468 slaves. Because of the slave-culture every European-American in the county supported the Confederate cause. During the war cotton could be exchanged for food and clothing, which helped Grimes County residents survive. The war generated an influx of planter refugees from the lower South seeking protection for their slave-property. The war was devastating for the county economically and socially. After the war there were decades of hostility between African-Americans and European-Americans and within each group. In 1866, an office of the Freedman's Bureau was established in the area, which established a court system to dispense justice to the former slaves, protect the freedmen in their exercise of the franchise, and supervise signing labor contracts. Because the majority of the

county's population was African-American after the war, the area was a Republican Party stronghold. Civil rights issues plagued the county through the middle of the twentieth century. In the early twentieth century around 30 percent of the African-Americans in the county left for better opportunities (Jackson 2013).

The economic recovery from the Civil War was slow. Not until 1910 was land valued at its pre-war levels. Cotton remained the main agricultural product. A farm tenancy system spread rapidly after the war and declined only during the Great Depression and after when staple crop production declined. During the twentieth century the cotton industry declined to nothing by the 1970s. Livestock and dairy farming became the biggest agricultural industries. Lumber processing has also been an important part of Grimes County industry throughout its history. More recently, since the 1980s, oil and gas extraction and processing and lignite mining have become huge industries in the county (Jackson 2013).

3.4.2.2 Montgomery County

In the early eighteenth century, European-Americans moving to what is now Montgomery County encountered the same kinds of Native American tribes that were in Grimes County described above. Specifically in Montgomery County, the Arkokisa Tribe had campsites along Peach Creek and on the banks of the San Jacinto River. Disease, fighting, and forced migration decreased the Native American population in the area to almost nothing by 1850 (Long 2013).

Stephen F. Austin's colony led to the first permanent European-American settlement in Montgomery County in the 1820s. Andrew Montgomery, one of the first settlers, established a trading post at the crossroads of the Loma del Toro and lower Coushatta Trace, which eventually grew into the town of Montgomery just east of the alternative routes. The Republic of Texas Congress established Montgomery County in 1837. Parts of Montgomery County were carved off and made into other counties and it was not until 1870 that its present boundaries were established. The population of the county grew quickly during the mid-1800s, many of the settlers migrating from the South and bringing their slaves with them. However, Montgomery County's slave population was never more than its European-American population as was the case in Grimes County. Cotton farming was the predominant occupation (Long 2013).

As in Grimes County, Montgomery County supported the Confederates leading up to and during the Civil War. During the war, food and goods shortages, as well as depreciation of land values devastated the county. After the war, most African-Americans did not have dramatically better working and living conditions. Most ended up as tenant farmers or agricultural laborers. No Freedman's Bureau was

115

established for Montgomery County and by the early 1870s the county's European-American elites gained control again until the Civil Rights Movement of the 1960s. Cotton continued to be the major crop after the Civil War, but it was depleting soil nutrients and yields were poor by the 1880s. Railroads in the 1870s and 1880 improved the economy slightly, especially because they made the lumber industry more feasible and profitable. Lumbering gave rise to related businesses, such as box and cross tie factories, which flourished during the early 1900s. Tobacco also became important to Montgomery County in the decades following the war as a crop and in the cigar making industry. However, the amount of work involved in processing tobacco led to its decline by the turn of the century (Long 2013).

The Great Depression hurt the lumbering and farming industries, but oil was discovered southeast of Conroe in 1931. The resulting oil boom and prosperity continued through World War II and is one of the county's leading sources of income today. The initial discovery of oil brought 10,000 people to Conroe within a few months during 1931. Farming foci have changed over the last century. During World War II and shortly after many farmers became truck farmers growing produce items, but more recently cattle ranching has taken center stage (Long 2013).

3.4.3 Records Search

In an effort to identify known cultural resources that could be affected by this project, an online search of the Texas Historical Commission (THC) Texas Atlas was conducted by Burns & McDonnell archaeologists in April 2013. The search included archaeological sites, state archaeological landmarks, historical markers, NRHP properties, cemeteries, military sites, shipwrecks, sawmills, and bridges. GIS shapefiles were retrieved from the Texas Archeological Research Laboratory (TARL) and the THC. In addition, a search of the National Park Service (NPS) NRHP database was conducted. Thirteen known /recorded cultural sites and 7 cemeteries were identified within 1,000 ft of the proposed alternative routes.

116

4.0 IDENTIFICATION OF PRELIMINARY ALTERNATIVE ROUTES

After completion of the data gathering and constraint mapping process, the project team identified numerous preliminary alternative routes to connect the Ponderosa Switching Station to the Grimes Substation as previously described in Section 2.4.

Based on the findings of several ground reconnaissance surveys and the various data collection activities, and utilizing the environmental and land use constraints map and property boundary maps, the Burns & McDonnell Project Manager and Assistant Project Manager identified preliminary alternative routes on aerial photography (Microsoft Corporation and its data suppliers - Bing Aerial Photography, flown in 2011). The property boundary maps that were utilized to locate apparent property boundaries consisted of data from various county appraisal districts, map sources purchased from a private title company, and other sources as supplied to Burns & McDonnell by Contract Land Staff (a third party land information company). Burns & McDonnell obtained digital gas pipeline data and oil/gas well data from GIS data provided by the Railroad Commission of Texas (RCT). Burns & McDonnell used the RCT data as a resource to identify potential compatible pipeline corridors (that could be paralleled by potential preliminary alternative routes) as well as to identify the location of oil and gas wells (to be avoided by potential preliminary alternative routes). Where possible, Burns & McDonnell verified the location of certain pipelines and oil/gas wells by reviewing the aerial photography and inspection during the various reconnaissance surveys, but did not alter the digital pipeline data as received from the RCT and shown on the environmental and land use constraints map.

Based on the data obtained, Burns & McDonnell identified preliminary route links that, when combined, would connect the Ponderosa Switching Station and the Grimes Substation. Route links are typically short sections between branches of other links that, when combined with other links, provide a complete route between the project endpoints. To the extent possible, route link development was based on avoiding the environmental and land use constraints within the study area while also taking advantage of routing opportunities such as existing transmission lines, pipeline corridors, public roads, and apparent property boundaries in accordance to PUCT Substantive Rule § 25.101.

Burns & McDonnell evaluated numerous links that could be developed into alternative routes to connect the Ponderosa Switching Station to the Grimes Substation. These preliminary links are shown on Figure 4-1. These preliminary links were refined and altered to develop the 69-link network that was presented at the third open-house meeting (Figure 4-2). After the third open-house meeting, 14 new links were added, 12 links were modified, and 13 links was eliminated as a result of input from the meeting attendees

and additional evaluation of the preliminary alternative routes by Burns & McDonnell. The result was the final network of links and routes that were further evaluated (Figure 4-3).

OVERSIZED DOCUMENT(S)

TO VIEW

OVERSIZED DOCUMENT(S)

PLEASE GO TO

CENTRAL RECORDS

(512) 936-7180

OVERSIZED DOCUMENT(S)

TO VIEW

OVERSIZED DOCUMENT(S)

PLEASE GO TO

CENTRAL RECORDS

(512) 936-7180

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CENTRAL RECORDS

(512) 936-7180

Burns &McDonnell generated 440 total alternative routes from the 69 links that were evaluated. The 440 possible alternatives were then divided into geographically diverse categories. From these categories, 14 geographically diverse routes were determined. The preliminary alternative routes developed by Burns & McDonnell can generally be classified into five corridors. The routes generally all Begin in an east-west direction before turning north-south. Burns and McDonnell has taken the three routes and divided into three corridors: Northern/Eastern, Central and Southern/Western . In addition to the three general corridors Burns & McDonnell also developed several links that connect these five corridors. The 11x17 figures found in Appendix B depict the preliminary alternative routes that were presented at the open-house meetings as well as the link identifiers. Figure 3-2 depicts the final route network.

4.1 Northern/Eastern Routes

The Northern/Eastern routes primarily consist of Links A, B, BI, BK, BN, L2, N, P1, AZ, BF, P4, S1, BG, S3, AD, AI, AR, and AY, and generally exit the Ponderosa Switching Station toward the southwest. In an effort to utilize existing ROW, the Northern/Eastern routes cross State Loop 336 and meet the existing Conroe Bulk to Grimes 138kV transmission line. From this area, the Northern/Eastern routes parallel the existing line as it proceeds in a westerly direction. The Northern/Eastern routes continue in a westerly direction crossing FM 2854, then separates from the existing transmission line (which heads north) and continues to traverse in a westerly direction to avoid the dense development near lake Conroe. From this point the Northern/Eastern routes continue in a northerly direction generally paralleling property boundaries and crossing Spring Branch Road, Old Dobbin Plantersville Road, SH 105, and FM 1097.The Northern/Eastern routes continue in a northwesterly direction crossing FM 1097 and Johnson Rd, to where it meets a railway approximately 1.4 miles east of the Grimes-Montgomery County line. The routes parallel the railway in a northeasterly direction before turning west to parallel a pipeline corridor. The routes proceed in a westerly direction, crossing FM 1486 and paralleling CR 212. The Northern/Eastern routes turn again to the northwest to parallel property lines. After crossing SH 30 the routes proceed in a westerly direction crossing CR 227 to where it meets the Grimes Substation from the east.

4.2 Southern/Western Routes

The Southern/Western routes primarily consist of Links A, C1, BD, C3, F, I1, I2, M, R1, BB, U2, Z, AB and AO, and generally exit the Ponderosa Switching Station to the south and then to the west paralleling the north side of the Longmire-Navasota 138kV transmission line. The routes continue to parallel the existing Longmire-Navasota 138kV transmission line before turning north to parallel the existing Centerpoint 345kV transmission line. The Southern/Western routes proceed in a northerly direction paralleling the Centerpoint 345kV line to the point of intersection with the Grimes-Navasota 138kV

transmission line. The routes parallel the south side of the Grimes-Navasota 138kV line, before turning north to parallel the west side of the existing Centerpoint 345kV line. The routes continue to parallel the Centerpoint 345kV line transmission line to a point west of the Grimes Substation. At this point the corridor turns east to enter the west side of the Grimes Substation.

4.3 Central Routes

The Central routes primarily consist of Links Y1, Y2, X, W, AC, AG, AK, AP, AT, and AX This corridor utilizes portions of the Northern/Eastern and Southern/Western corridors to get to the Central corridor. These routes parallel the existing Conroe Bulk-Grimes 138kV transmission line, from where the line intersects the existing Longmire-Navasota 138kV transmission line. The routes proceed in a northerly direction crossing SH 105, the Grimes-Montgomery County border, CR 212, FM 2819, FM 149, and CR 217, to just before the Conroe Bulk-Grimes 138kV transmission line meets the Tenaska Substation. The routes go to the south of the Tenaska Substation and then again turn north meeting up with the Conroe Bulk-Grimes 138kV transmission line as it traverse towards the Grimes Substation. The routes continue to parallel the Conroe Bulk-Grimes 138kV transmission line crossing CR 242A, to where the line enters the Grimes Substation from the south.

4.4 Connecting Links

In addition to the primary corridors, Burns & McDonnell identified numerous links that connect the primary corridors (connecting links).The connecting links include Links D, G, BL, H1, H2, H3, H5, BJ, BM, L1, K1, O, Q, U1, P2, BE, BC, T, AA, V, AF, AH, AL, AQ, BH, AN1, AU, and AV These links are generally short and connect one geographic corridor to another. The short connecting links are concentrated near the end points, allowing for a variety of routes through the more populated areas of the study area. The longer links (Links V, AA, T, and BC) are generally straight links that cross between the Northwestern, Central and Northeastern corridors. When combined, the links combine to form 404 Alternative Routes.

4.5 Summary

The preliminary alternative routes were presented at three public open-house meetings, as further discussed in Chapter 5.0. Figures 4-1 and 4-2 depict the preliminary alternative routes that were presented at the public open-house meetings. After the first two public open-house meetings, based on the input and comments received from the meeting attendees, Burns & McDonnell made modifications to portions of Links AN, C, H, I, J, K, L, P, R, S, U, and Y and added links AZ, BB, BC, BD, BE, BF, BG, BH, BI, BJ, BK, BL, BM, and BN. Based on further review and additional input and comments received, after the third public open-house meeting, Burns & McDonnell eliminated Links AE, AJ, AM, AN2, AS,

AW, BA, C2, E, H4, P3, R2, and S2 from further consideration (Figure 4-3). Chapter 6.0 provides a detailed description of the adjustments to the preliminary alternative routes that were made following the public open-house meetings. Section 6.0 also provides a description of the final primary alternative routes.

5.0 PUBLIC INVOLVEMENT PROGRAM

To provide landowners, elected officials, and the various communities in the area with information about the proposed project, and to gather input on preliminary alternative routes and community values, Entergy held three public open-house meetings, two in March, 2013 and one in June, 2013. Open-house meeting notices were mailed (as described in Section 2.5) to landowners within 300 ft of any preliminary alternative route.

The public open-house meetings included displays with information on project need, engineering, ROW, and preliminary alternative routes. Representatives from Entergy and Burns & McDonnell were present to address the public's questions and take comments. Preliminary route links developed for the proposed transmission line were depicted on 2012 aerial photographs. Photographs and drawings showing the types of structures that could be used for the project were also displayed.

Participants at the open-house meetings received a written questionnaire to communicate their opinions and input on the routing criteria along with a brochure that provided details regarding the project. Appendix B contains a sample questionnaire.

A total of 41 people signed in as attending the public open-house meeting in Conroe, Texas, and 36 people signed in as attending the meeting in Roans Prairie, Texas. Of the people attending the Conroe public open-house meeting, 36 submitted questionnaires; and of the people attending the Roans Prairie meeting 19 submitted questionnaires. Based upon feedback received during the first two open-house meetings, Entergy decided to host a third open-house meeting in Montgomery, Texas. A total of 83 people signed in as attending the public open-house meeting in Montgomery, Texas, and of the people attending the meeting 52 people submitted questionnaires.

Results of the questionnaires received from people attending the meetings found that 84% believe the need for the project had been adequately explained.

The questionnaires asked people to rank various routing criteria from most important to least important. These factors included placing the line parallel to existing compatible ROW where possible, maximizing the distance from commercial buildings, minimizing the visibility of the lines, maintaining reliable electric service, paralleling property lines where possible, maximizing the distance from residences, maximizing the distance from historical sites or areas, and minimizing the environmental impacts. The attendee's two highest ranked factors were to parallel existing compatible ROW where possible and to maximize distance from residences. The lowest ranked factor was to maximize distance from historic

sites or areas. In addition, the questionnaire asked attendees to identify important environmental factors with a yes or no. These factors included potential impacts to nearby residences, businesses, schools, churches, hospitals, nursing homes, and other structures and cemeteries; nearby commercial radio transmitters, microwave relay stations, or similar electronic installations; nearby parks and/or recreational areas; nearby airport runways, airstrips, or heliports; nearby historical or archeological sites; agricultural areas irrigated by traveling irrigation systems; environmentally sensitive areas; threatened or endangered species; and 100 year floodplains. The environmental factor that most often received a "yes" was nearby residences, businesses, schools, churches, hospitals, nursing homes, and other structures and cemeteries; and the environmental factor that most often received a "no" was nearby commercial radio transmitters, microwave relay stations, or similar electronic installations.

The questionnaire also allowed space for attendee's to write in general comments and or concerns. Below is a synopsis of typical comments and concerns received in a letter or questionnaire format:

- "I would prefer that Entergy utilize existing right-of-ways and minimize the need to exercise eminent domain."
- "Potential line is in conflict with several existing homes, neighborhoods currently in development, CISD k-6 Elementary School, 54" SJRA waterline, future town center, existing parks, known archeological sites along Fish Creek Tributary, and $4 million Tennis/Aquatic Center...Woodforest Development/Woodforest Partners is the developer of a 3000 Ac master planned community that is the #1 fastest growing community in Montgomery County. Woodforest plans to construct more than 700 residential units, commencing development within the coming 6-8 months. We attached maps and exhibits of the Woodforest Development of 3000 acres, together with actual contract exhibits of an internal active adult community covering 287 acres and 718 residential units, including clubhouse of 8,000-10,000 square feet."
- "AZ, BC, BF, BE (are not preferred) because it is close to a historic cemetery and heavily populated neighborhood, also are too close to wolves and wildlife at the wolf sanctuary!"
- "It seems that using existing right-of-ways, and reducing turns in the line would be the most economical (for Entergy and ultimately their customers). It would also have less impact on property owners."
- "The Conroe/Bulk to Grimes already exists on the edge of our property, and it would be wise to use an existing line-(residential is in place already.) Probably would affect less of those around, but don't want it (ROW) to get wider."
- "Steel poles are good if coated at grade and below to resist corrosion."

- "We would prefer weathered natural, more like wood (structures) - not shiny steel or concrete."
- "Why can't these lines be run underground? Or, at least, along property lines, not through them!"
- "Minimize visual impacts to property- A full service resort and cooking school has been planned near link T on property that has been in family for 65+ years. With approximately 90 acres and adding/purchasing 20-21 acres to complete the project. A working farm, vineyard and conservatory for wildlife has been studied with current conditions so any impact would affect the success of the project."
- "The loss in property value if the tower crosses a tract of land."
- "With the number of RR lines and transmission lines within the Dobbin area I see no reason to further impact the area. It forces more impact on an area that has accepted its fair portion of potential issues."
- "Disturbing land that is totally wooded has value for the animals, insects, birds, etc., and vegetation in general and specifically which may be rare now, though naturally occurring and for humans to enjoy and learn from. An inventory of trees, plants, insects, birds, and animals had been made in anticipation of placing a conservation easement, rare species have been noted."
- "The PUC has just approved another major transmission line to tap power in the same area to serve area southeast, no need for two electric utilities to do the same thing and carve out two routes instead of one."
- "Potential route(s) with segment H4 will remove 100+ year old oak trees including one of the last remaining Montgomery County bottom land oak areas per Texas Parks and Wildlife in 2001."
- "Don't understand need to consider route so near to high priced property around Montgomery. Project such as this should be routed through rural land not in growth area such as route nearest city of Montgomery. The route nearest city of Montgomery, if selected, and as witnessed by comments of other property owners at open house at Lone Star Elementary school could result in goodwill issues for Entergy."
- "The environmental impact alone crossing Lake Creek bottom (crossed by every route) would be immeasurable. This is a mostly undisturbed bottomland and wetlands area that is teaming with wildlife. A forced clearing would harm this environment, plain and simple."
- "The lines could affect my roadway during constructions and maintenance. This concerns me since I have spent my hard earned money to build and maintain my roadway. To get it torn up without compensation is a concern."

6.0 MODIFICATION OF ALTERNATIVE ROUTES FOLLOWING THE PUBLIC INVOLVEMENT PROGRAM

Following the first round of open-house meetings links AZ, BB, BC, BD, BE, BF, BG, BH, BI, BJ, BK, BL, BM, and BN were added; links J and K were modified ; links AE, AJ, AM, AN2, AS, AW, BA, C2, E, H4, P3, R2, and S2 were removed due to lack of necessity. Links AN, C, H, I, L, P, R, S, U, and Y were renamed and separated. A detailed description and figures depicting these modifications are listed below.

- Link AZ was added per comments at the public open house as it would parallel and existing pipeline corridor (Figure 6-1).
- Link BB was added after it was determined the habitable structure was encroaching existing Entergy ROW (Figure 6-2).
- Link BC was added per landowner request as it would parallel and existing pipeline corridor (Figure 6-3).
- Link BD was added per landowner request in an effort to stay away from the existing cell tower and reduce impacts to his property (Figure 6-4).
- Link BE was added as an alternative to Link P3 per landowner request to minimize potential impact to his property (Figure 6-5).
- Link BF was added per landowner request as an alternative to Link P3 per landowner request to minimize potential impact to his property (Figure 6-6).
- Link BG was added per landowner request as an alternative to Link S2 per landowner request to minimize potential impact to his property (Figure 6-7).
- Link BH was added as an alternate to Link AN2 to minimize angle structures (Figure 6-8).
- Based upon further review by Entergy Planning it was determined that a possible option would be to rebuild the Conroe Bulk-Grimes 138kV line. Therefore, Links BI, BJ and BK were added as that rebuild option (Figures 6-9, 6-10 and 6-11)
- A new development was identified on the area of Link J, therefore Link BL was added after it was determined Link J was not constructible due to the new development in the area (Figure 6-12).
- Link BM was added as a connector to Link BK and Link BN after it was determined by Entergy Planning that it is possible to rebuild the Conroe Bulk-Grimes 138kV line (Figure 6-13).
- Link BN was added after it was determined by Entergy Planning that it is possible to rebuild the Conroe Bulk-Grimes 138kV line (Figure 6-14).

- Link J was removed after it was determined Link J was not constructible due to new development in the area. (Figure 6-15).
- Link K was modified to follow existing corridors after it was determined a habitable structure was encroaching existing Entergy ROW (Figure 6-16).
- Links AN1 was created with the addition of Link BH to minimize angles (Figure 6-17).
- Link C was split with the addition of Link BD into Link C1 and Link C3 (Figure 6-18).
- Link H was split into four links, Link H1, Link H2, Link H3, and Link H5 with the addition of the connectors to the Conroe Bulk-Grimes 138kV line (Figure 6-19).
- Link I was split into two links, Link I1 and Link I2 with the addition of Link BL (Figure 6-20).
- Link L was split into two links, Link L1 and Link L2 with the addition of link BN. Link L2 also was modified per landowner request (Figure 6-21).
- Link P was split into three links, Link P1, Link P2, and Link P4 with the addition of Link AZ, Link BC, Link BE, and Link BF (Figure 6-22).
- Link R became Link R1 with the addition of Link BB (Figure 6-23).
- Link S was split into two links, Link S1 and Link S3 with the addition of Link BG (Figure 6-24).
- Link U was split into two links, Link U1 and Link U2 with the addition of Link BB (Figure 6-25).
- Link Y was split into two links, Link Y1 and Link Y2 with the addition of Link BC (Figure 6-26).
- Link AE was removed from consideration as a connection to Links AC and AG would not produce a forward progressing route (Figure 4-3).
- Link AJ was removed from consideration as a connection to Link AK as no routes utilized this Link (Figure 4-3).
- Link AM was removed from consideration as a connection to Links AH and AL would not produce a forward progressing route (Figure 4-3).
- Link AN2 was removed from further consideration as it introduces an unnecessary angle in the alternative routes (Figure 4-3).
- Link AS was removed from consideration as a connection to Links AP and AT would not produce a forward progressing route (Figure 4-3).
- Link AW was removed from consideration as a connection to Links AU and AV due to not providing the required entrance point into the Grimes Substation (Figure 4-3).
- Link BA was removed from consideration as a connection to Links H2 and H3 as it is an unnecessary duplicate to Link H3 resulting in additional impacts to woodland (Figure 4-3).

- Link C2 was removed from consideration as a connection to Links C1 and C3 due to landowner feedback indicating Link BD as a preferred alignment due to future land use and an existing cell tower (Figure 4-3).
- Link E was removed from consideration as a connection to Links B and H1 due to lack of necessity and duplication of Link F which utilizes existing right-of-way (Figure 4-3).
- Link H4 was removed from consideration as a connection to Links H3 and BM as it would duplicate Link BK and would result in greater impacts to woodlands and increased angle structures (Figure 4-3).
- Link P3 was removed from consideration as a connection to Links P2 and P4 due to landowner feedback that it would unnecessarily bisect his property (Figure 4-3).
- Link R2 was removed from consideration as a connection to Links R1 and U1 as it would duplicate Link O and would not result in a forward progressing route (Figure 4-3).
- Link S2 was removed from consideration as a connection to Links S1 and S3 due to landowner feedback that it would unnecessarily bisect his property (Figure 4-3).

Following the modification of existing preliminary alternative routes, a total of 69 route links (A through BN) were carried forward for further consideration and evaluation. From these 69 route links, 440 alternative routes were identified for further evaluation as discussed in Chapter 7.0. From these 440 alternative routes, 14 geographically diverse alternative routes were identified. Table 6-1 details the 440 alternative routes and the route links that compose these alternative routes. Figure 3-2 depicts the location of the alternative route links.

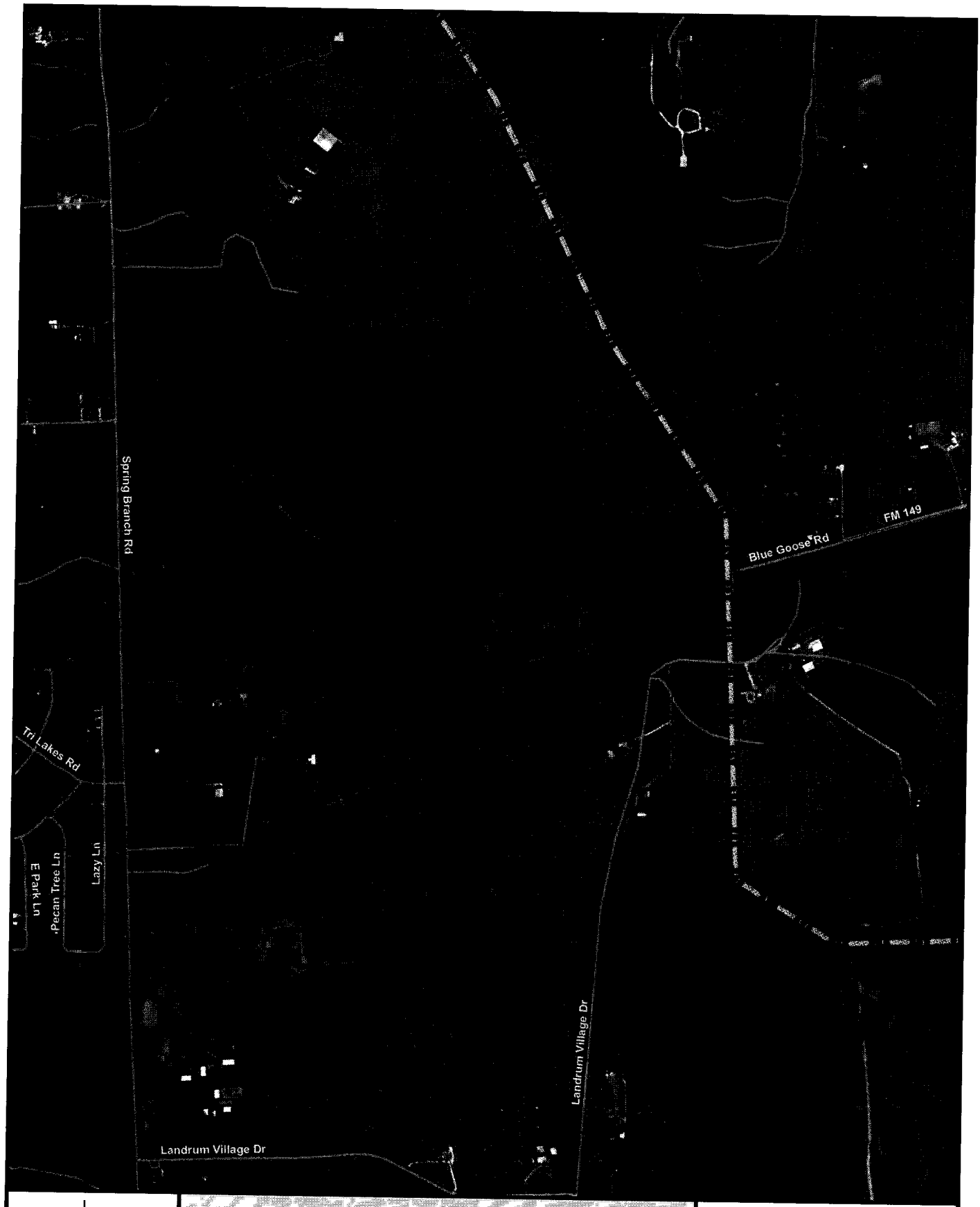

Figure 6-1
Link AZ Addition
Following Open House
Ponderosa to Grimes
230 kV Transmission
Line Project

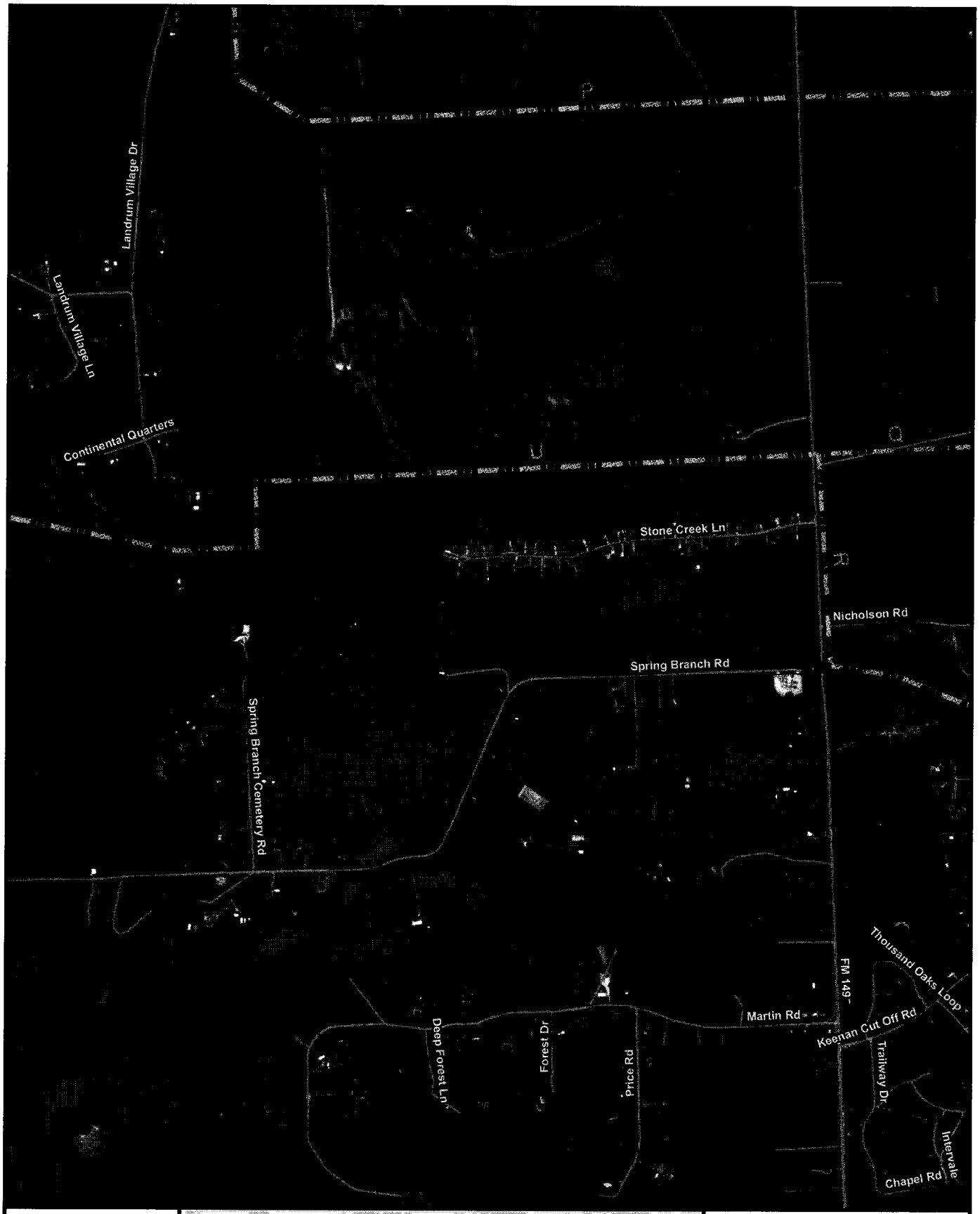

Figure 6-2
Link BB Addition
Following Open House
Ponderosa to Grimes
230 kV Transmission
Line Project

132

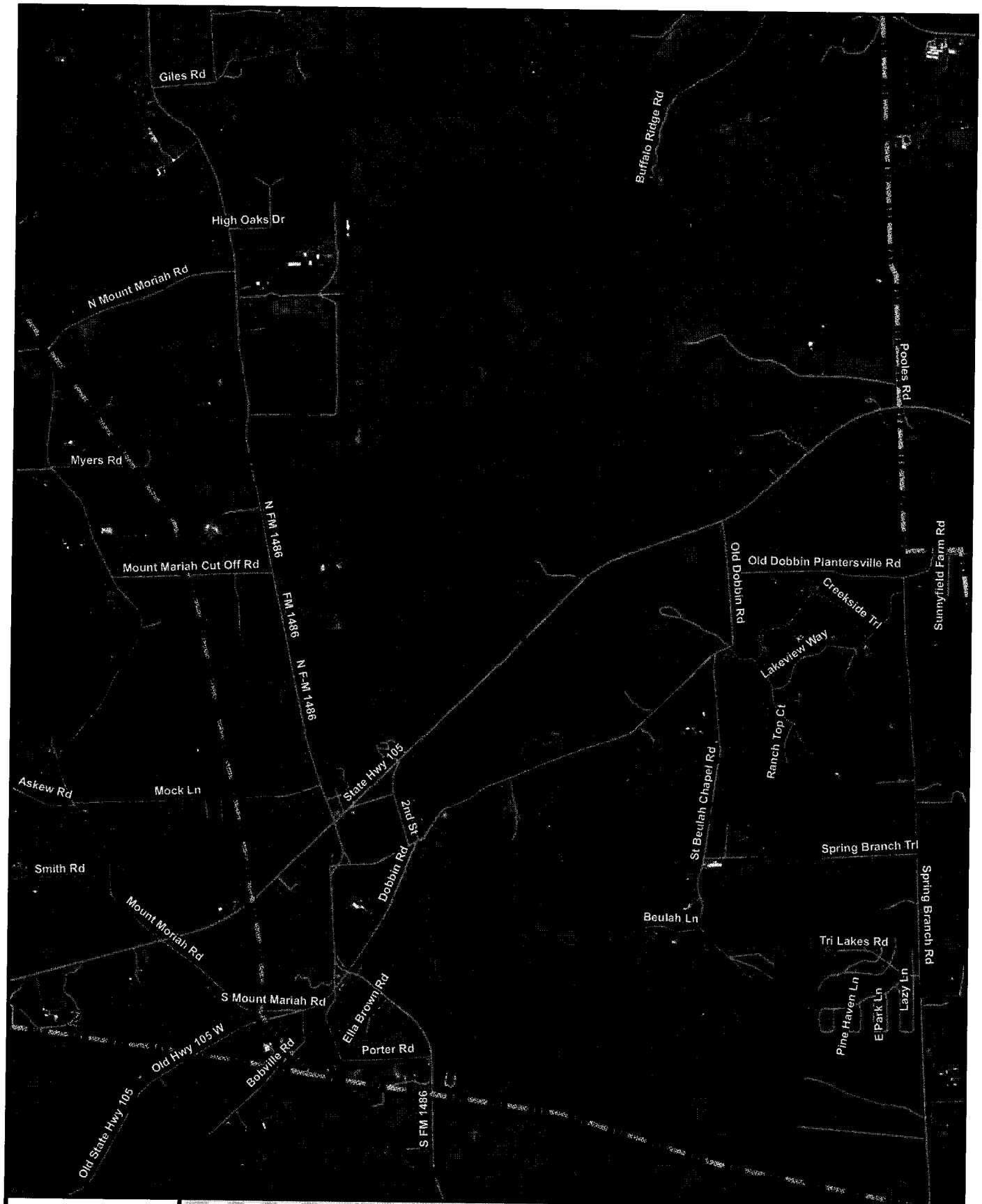

Figure 6-3
Link BC Addition
Following Open House
Ponderosa to Grimes
230 kV Transmission
Line Project

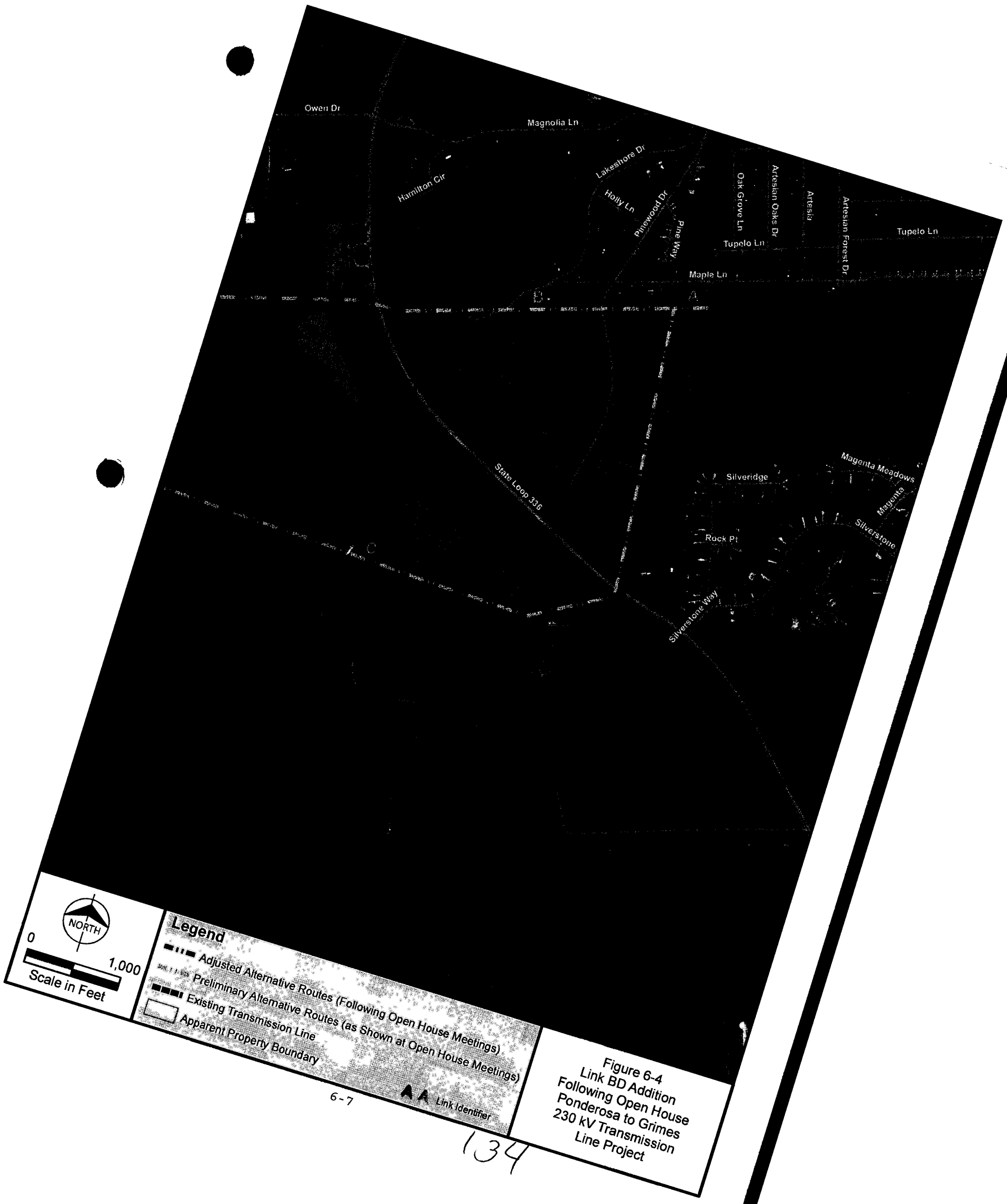

Figure 6-4
Link BD Addition
Following Open House
Ponderosa to Grimes
230 kV Transmission
Line Project

134

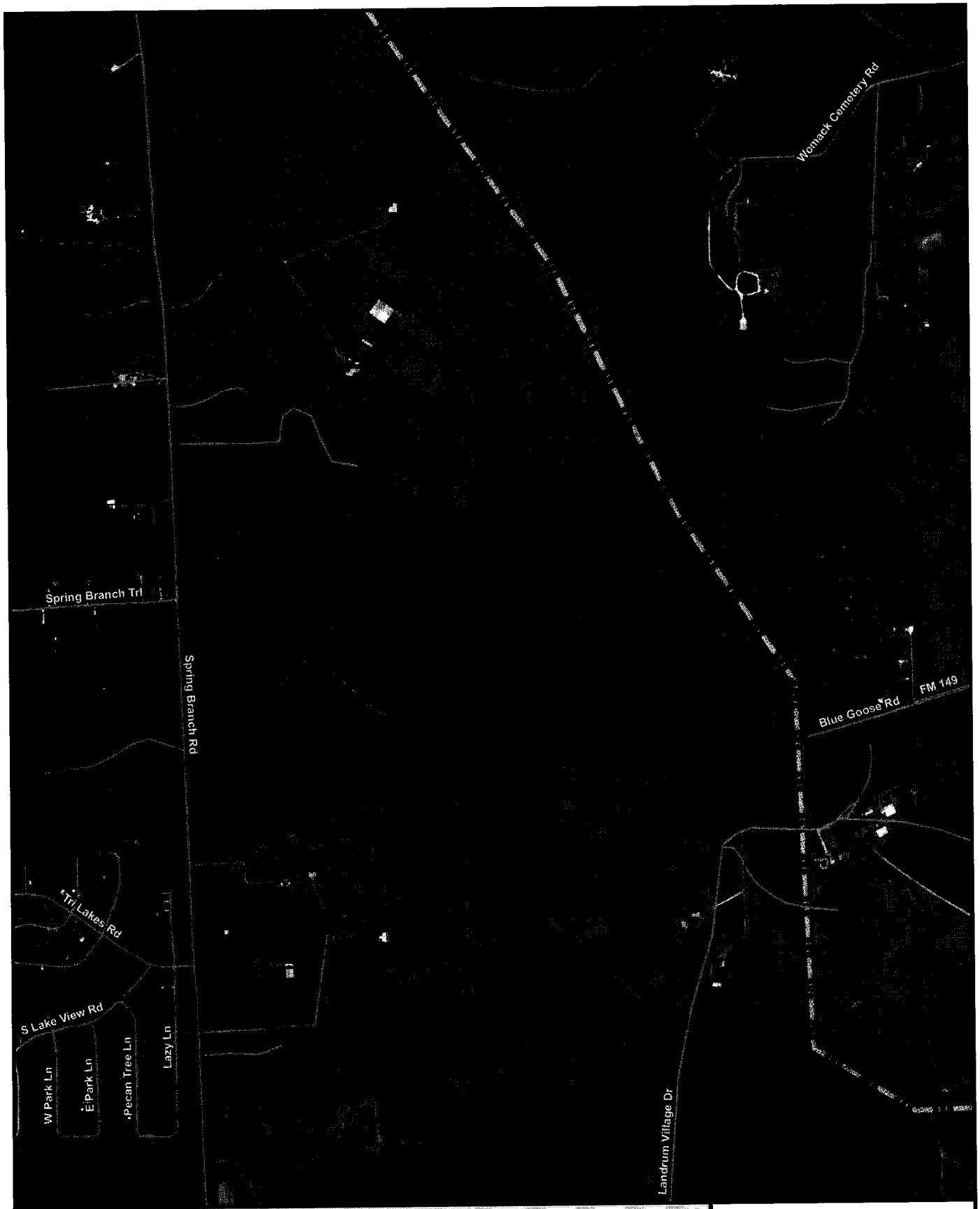

Figure 6-5
Link BE Addition
Following Open House
Ponderosa to Grimes
230 kV Transmission
Line Project

135

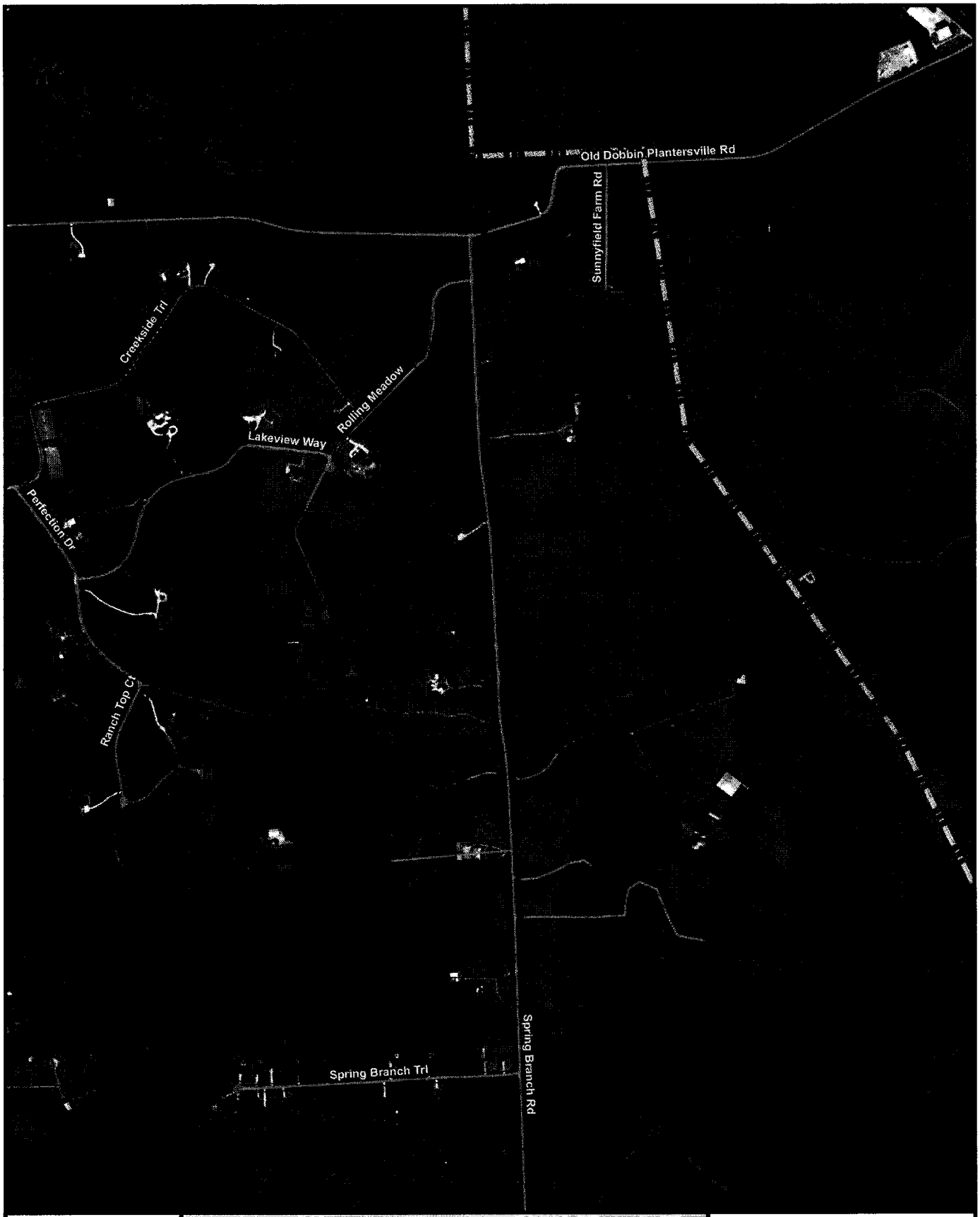

Figure 6-6
Link BF Addition
Following Open House
Ponderosa to Grimes
230 kV Transmission
Line Project

136

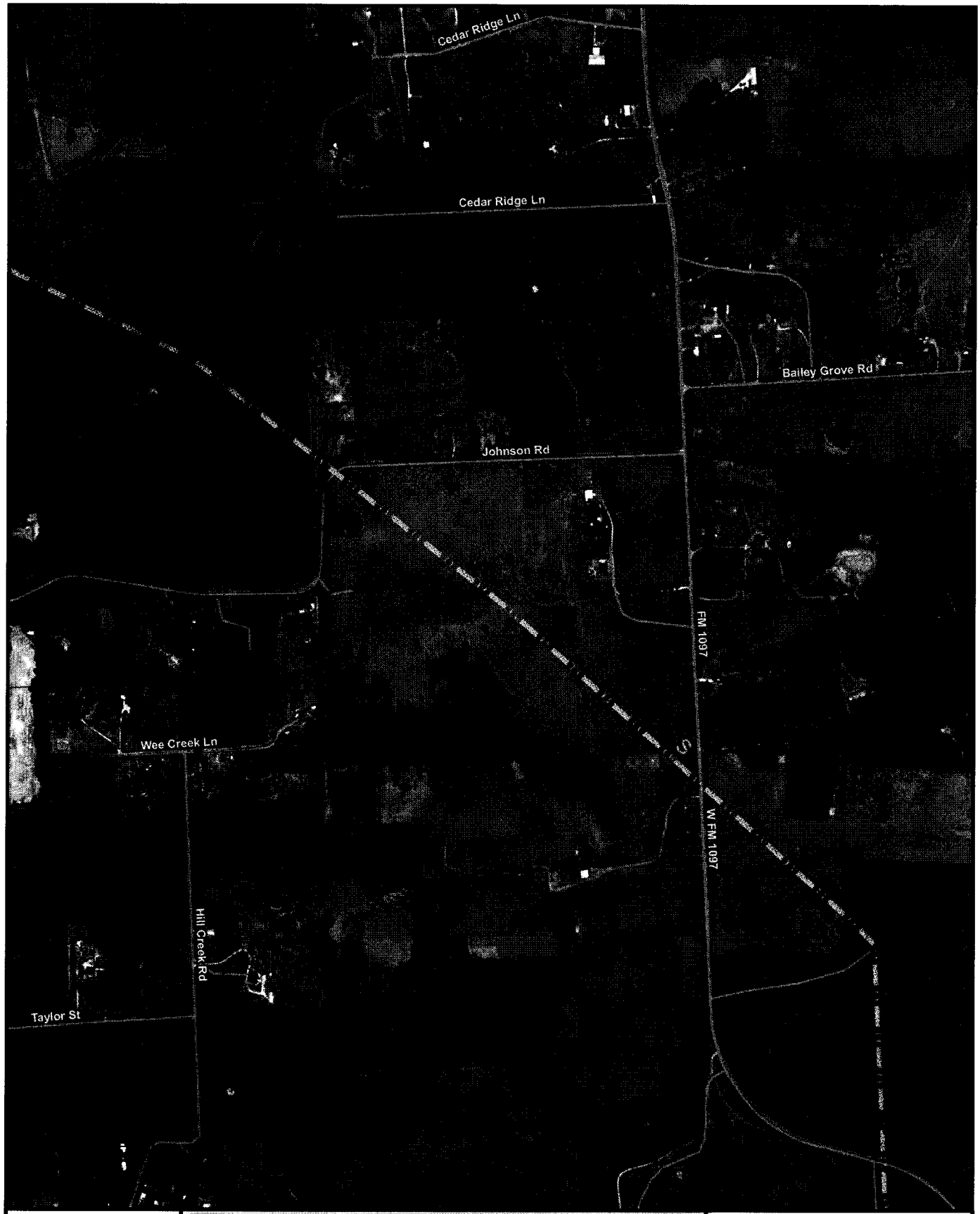

Figure 6-7
Link BG Addition
Following Open House
Ponderosa to Grimes
230 kV Transmission
Line Project

137

NORTH

0 500

Scale in Feet

Legend

Adjusted Alternative Routes (Following Open House Meetings)

Preliminary Alternative Routes (as Shown at Open House Meetings)

Apparent Property Boundary

AA Link Identifier

Figure 6-8
Link BH Addition
Following Open House
Ponderosa to Grimes
230 kV Transmission
Line Project

138

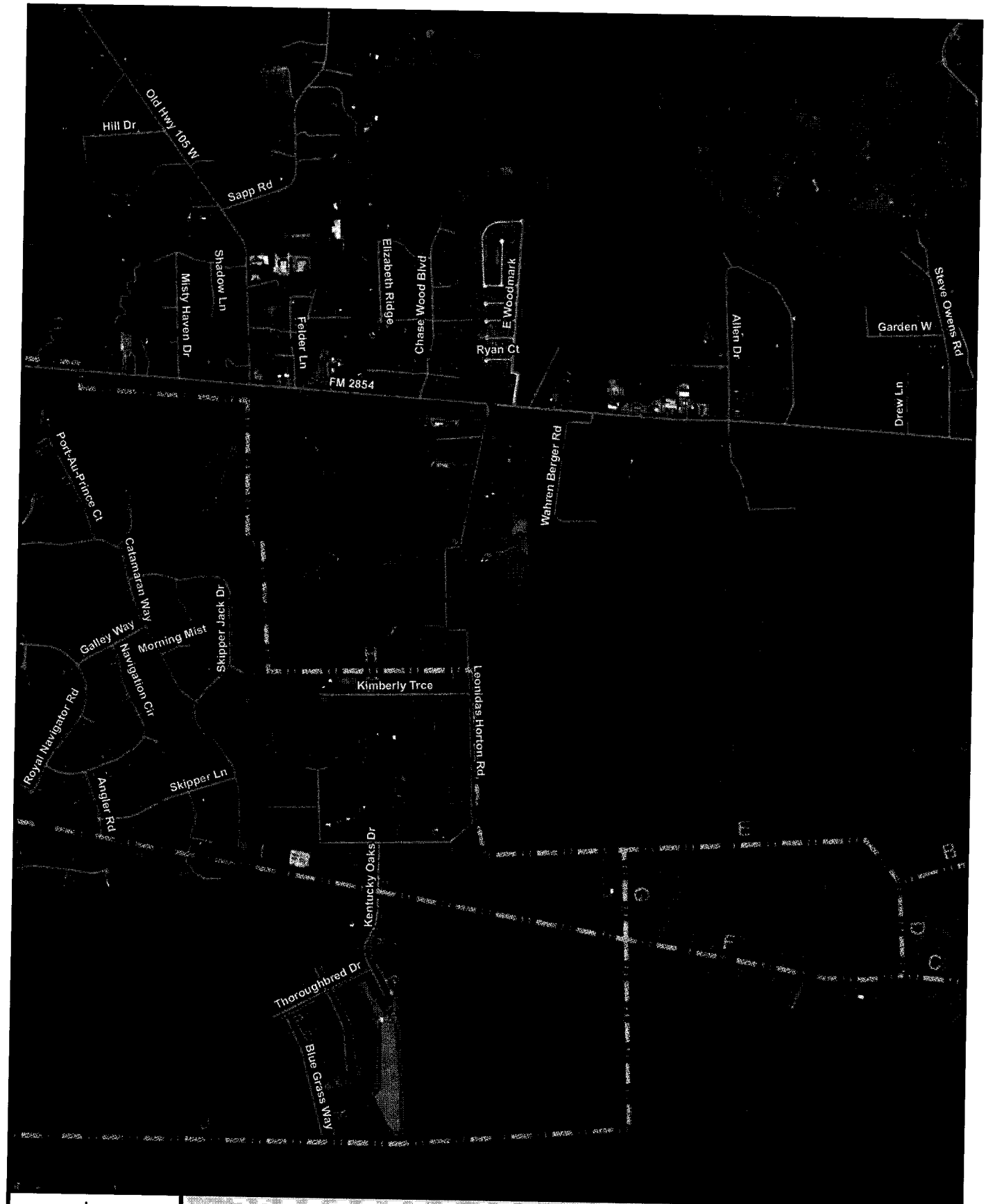

Figure 6-9
Link BI Addition
Following Open House
Ponderosa to Grimes
230 kV Transmission
Line Project

139

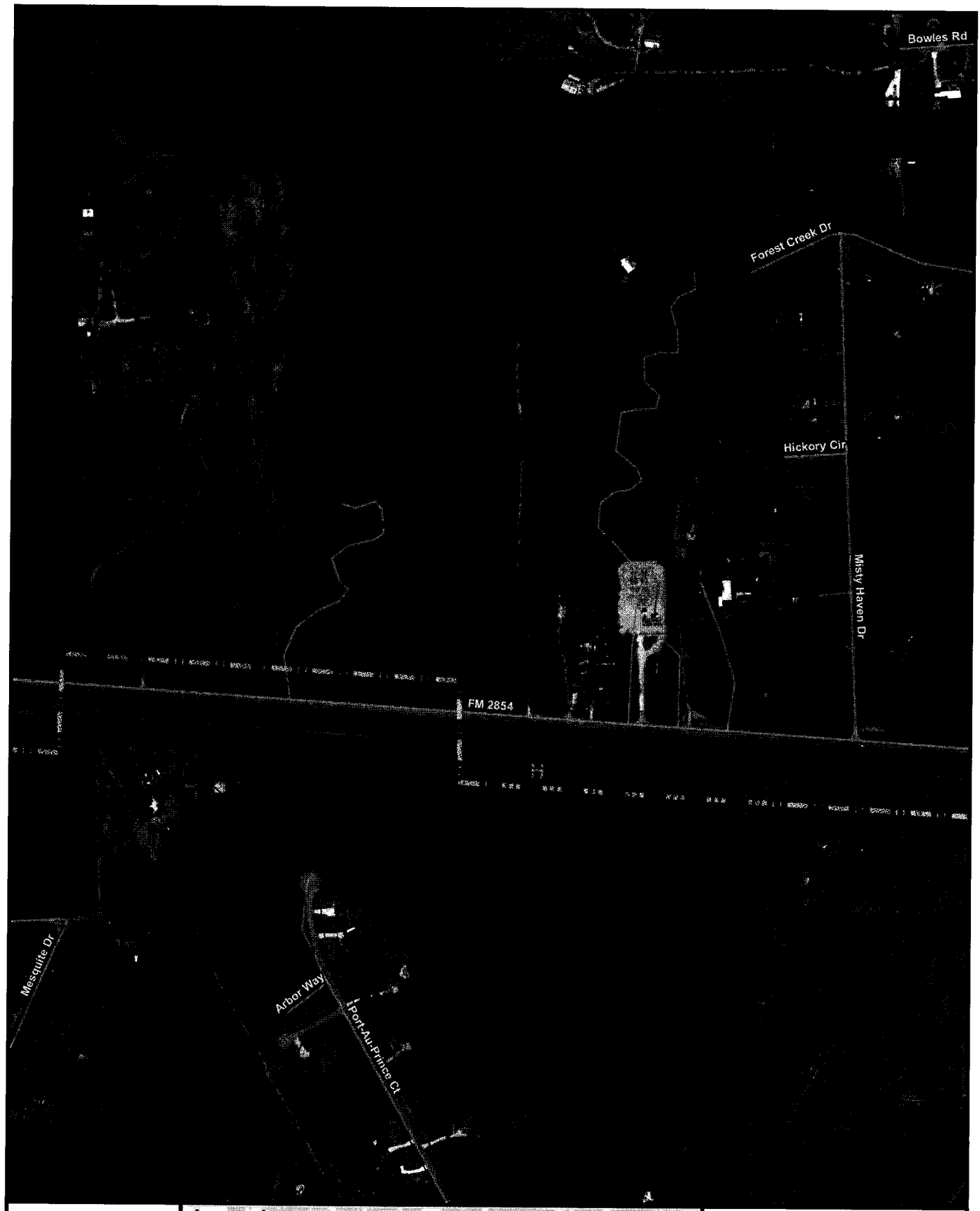

Figure 6-10
Link BJ Addition
Following Open House
Ponderosa to Grimes
230 kV Transmission
Line Project

140

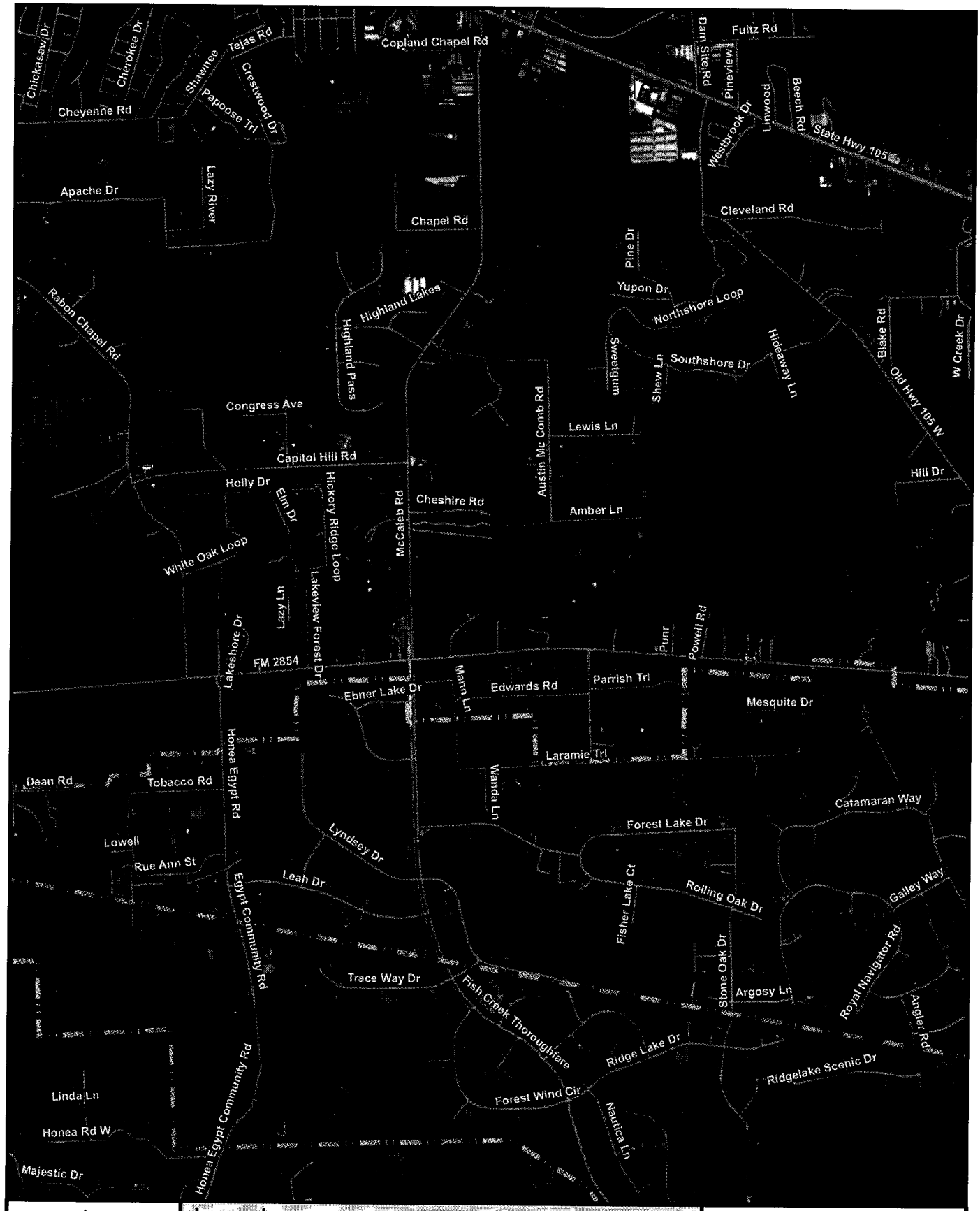

Figure 6-11
Link BK Addition
Following Open House
Ponderosa to Grimes
230 kV Transmission
Line Project

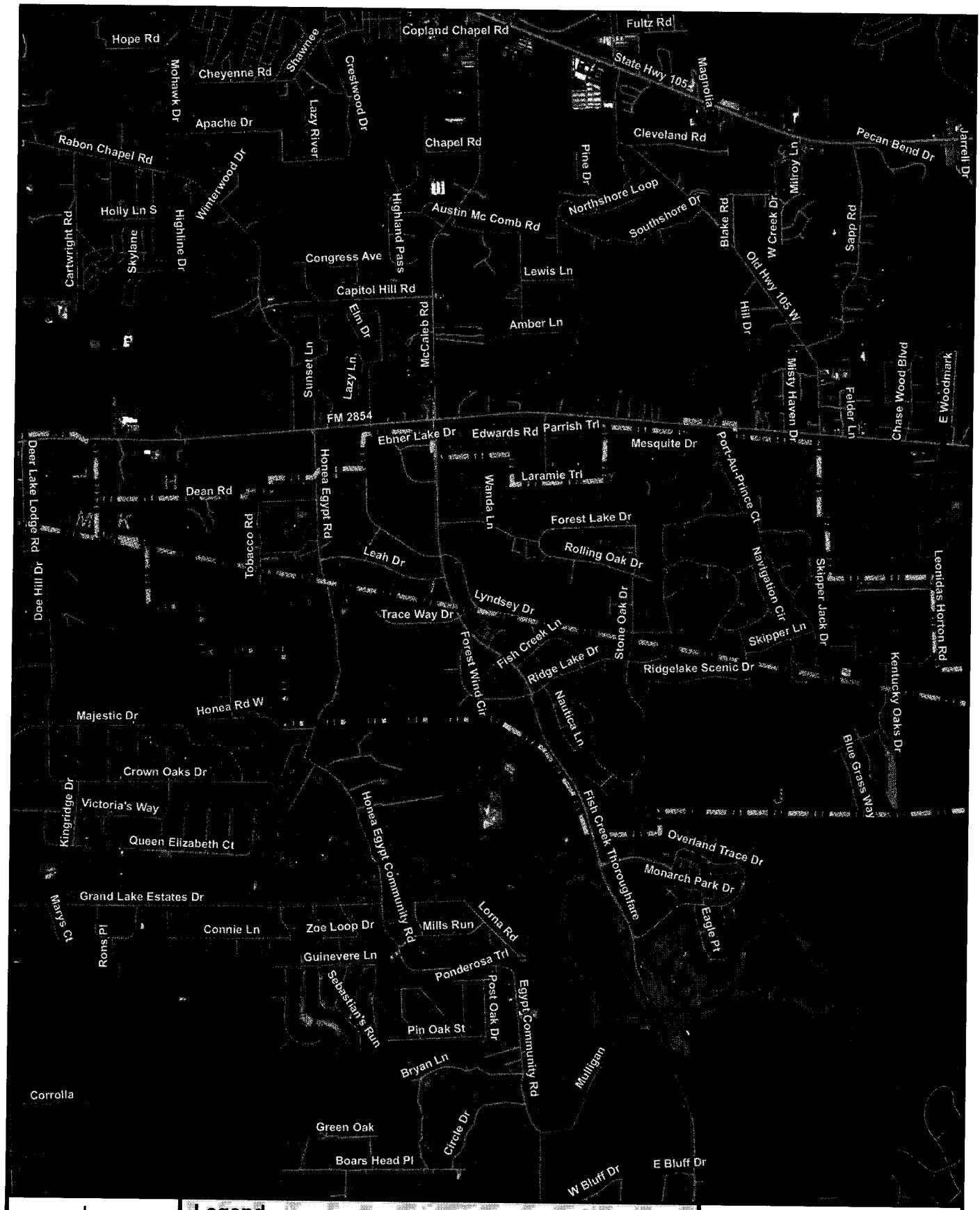

Figure 6-12
Link BL Addition
Following Open House
Ponderosa to Grimes
230 kV Transmission
Line Project

142

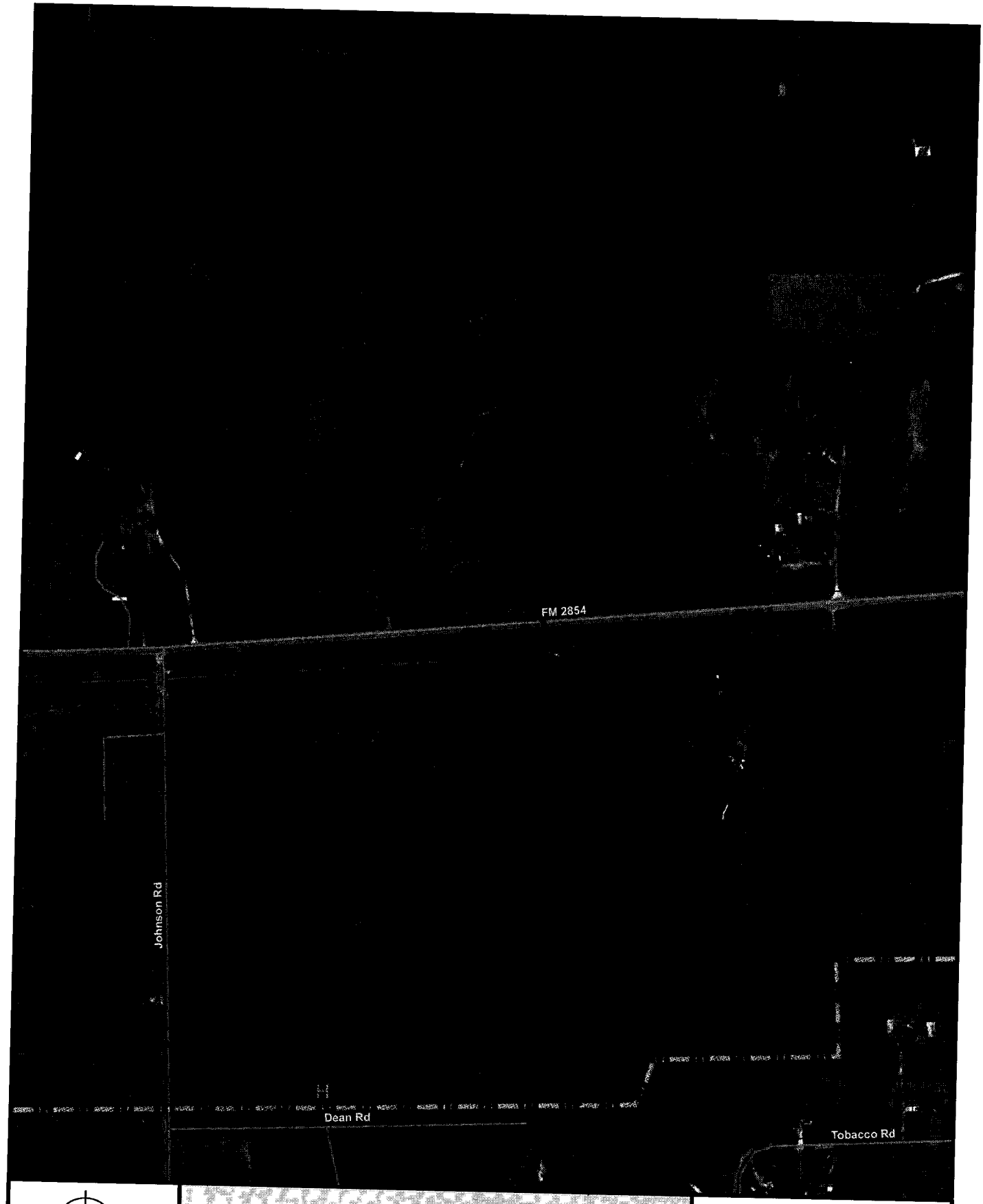

Figure 6-13
Link BM Addition
Following Open House
Ponderosa to Grimes
230 kV Transmission
Line Project

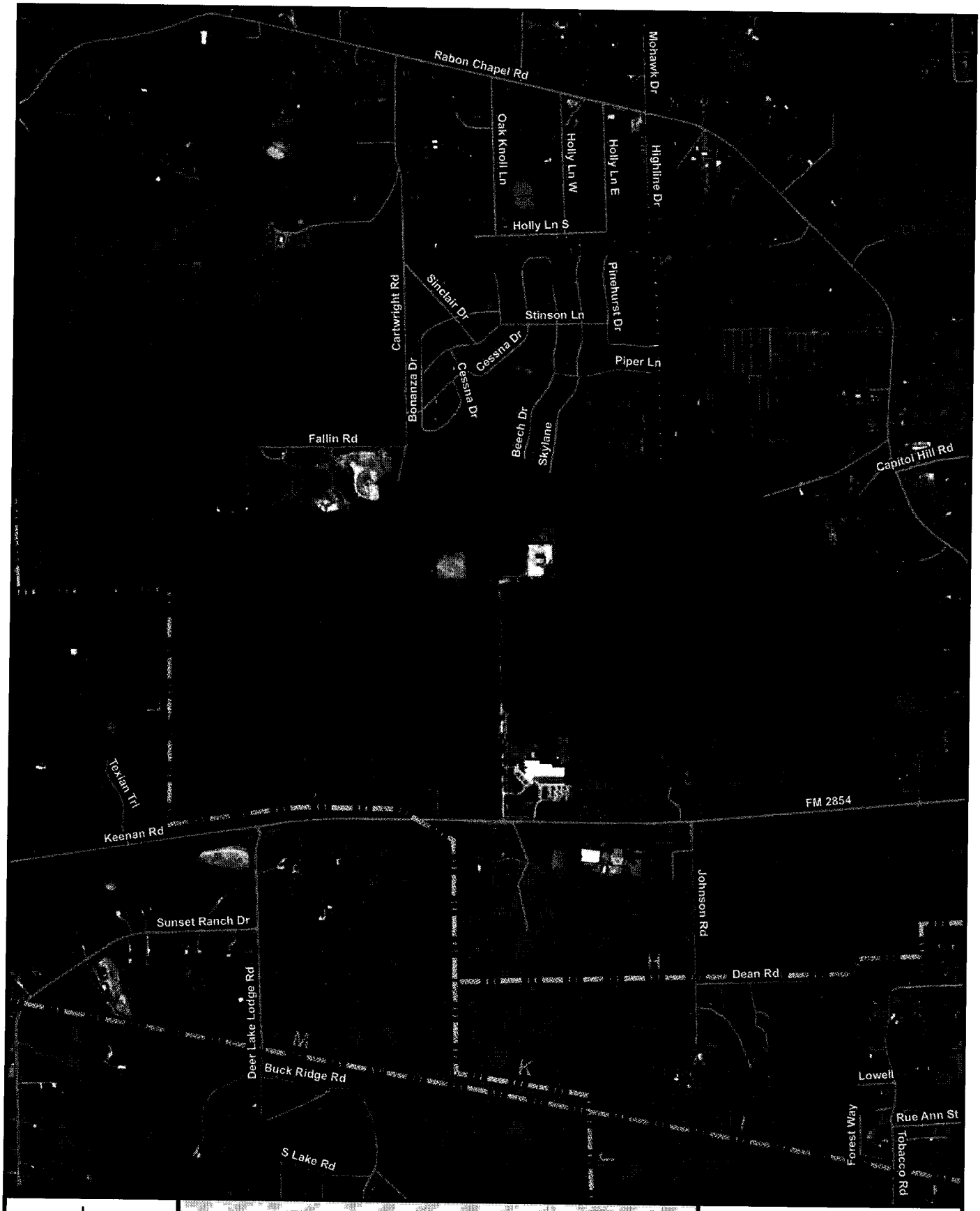

Figure 6-14
Link BN Addition
Following Open House
Ponderosa to Grimes
230 kV Transmission
Line Project

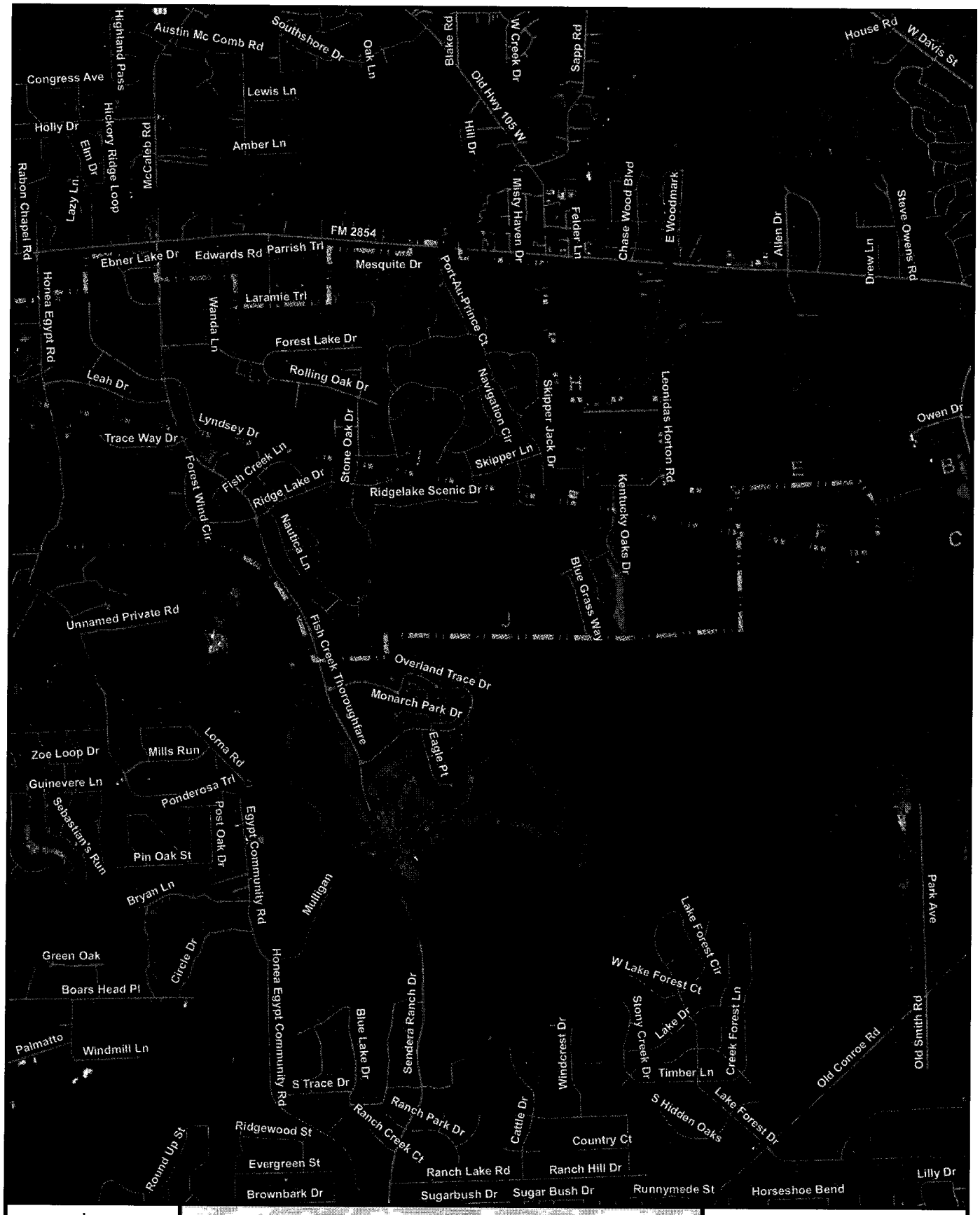

Figure 6-15
Link J Removed
Following Open House
Ponderosa to Grimes
230 kV Transmission
Line Project

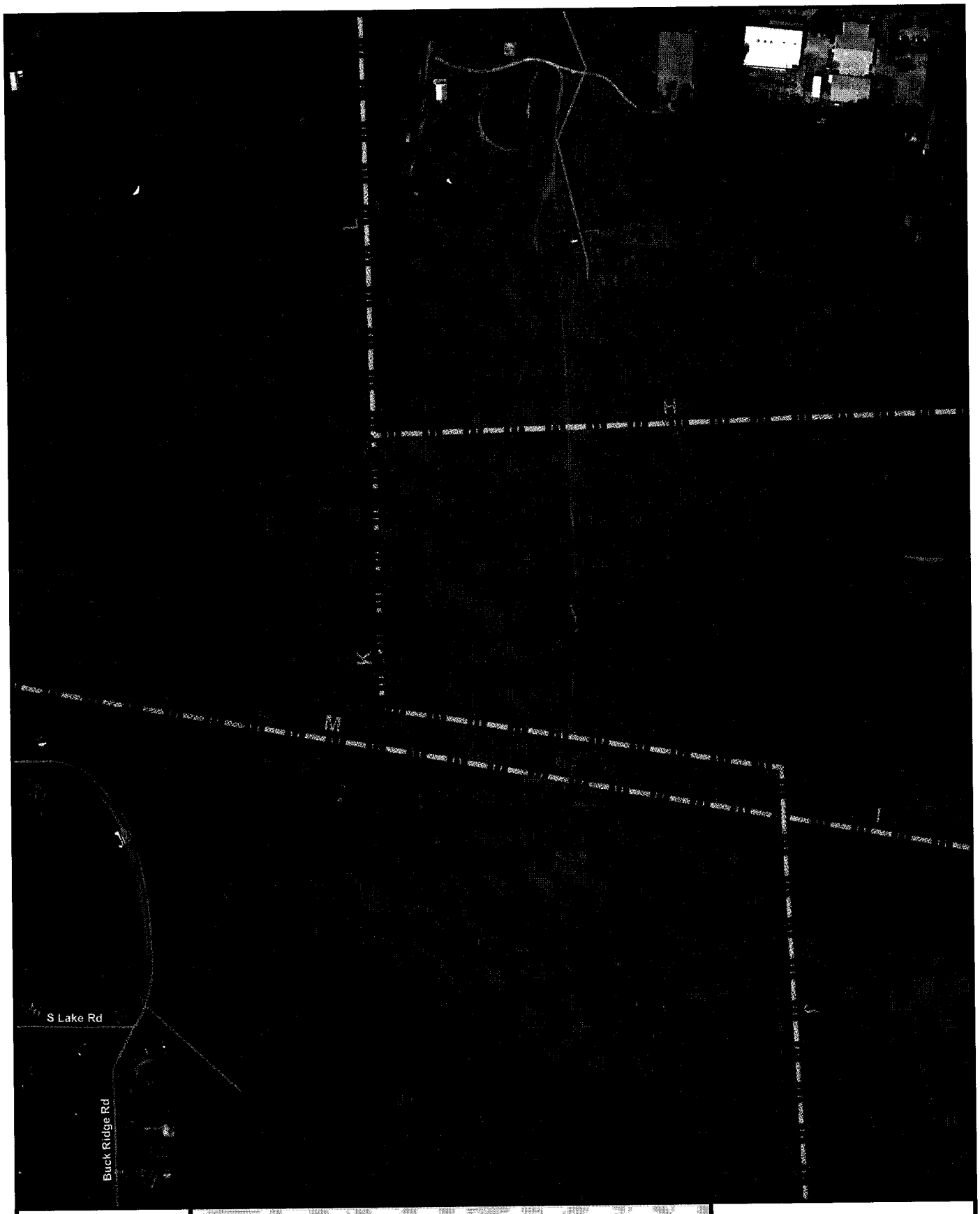

Figure 6-16
Link K-K1 Alteration
Following Open House
Ponderosa to Grimes
230 kV Transmission
Line Project

NORTH

0 1,000

Scale in Feet

Legend

- Adjusted Alternative Routes (Following Open House Meetings)
- Preliminary Alternative Routes (as Shown at Open House Meetings)
- Apparent Property Boundary
- AA Link Identifier

Figure 6-17
Link AN Modification
Following Open House
Ponderosa to Grimes
230 kV Transmission
Line Project

147

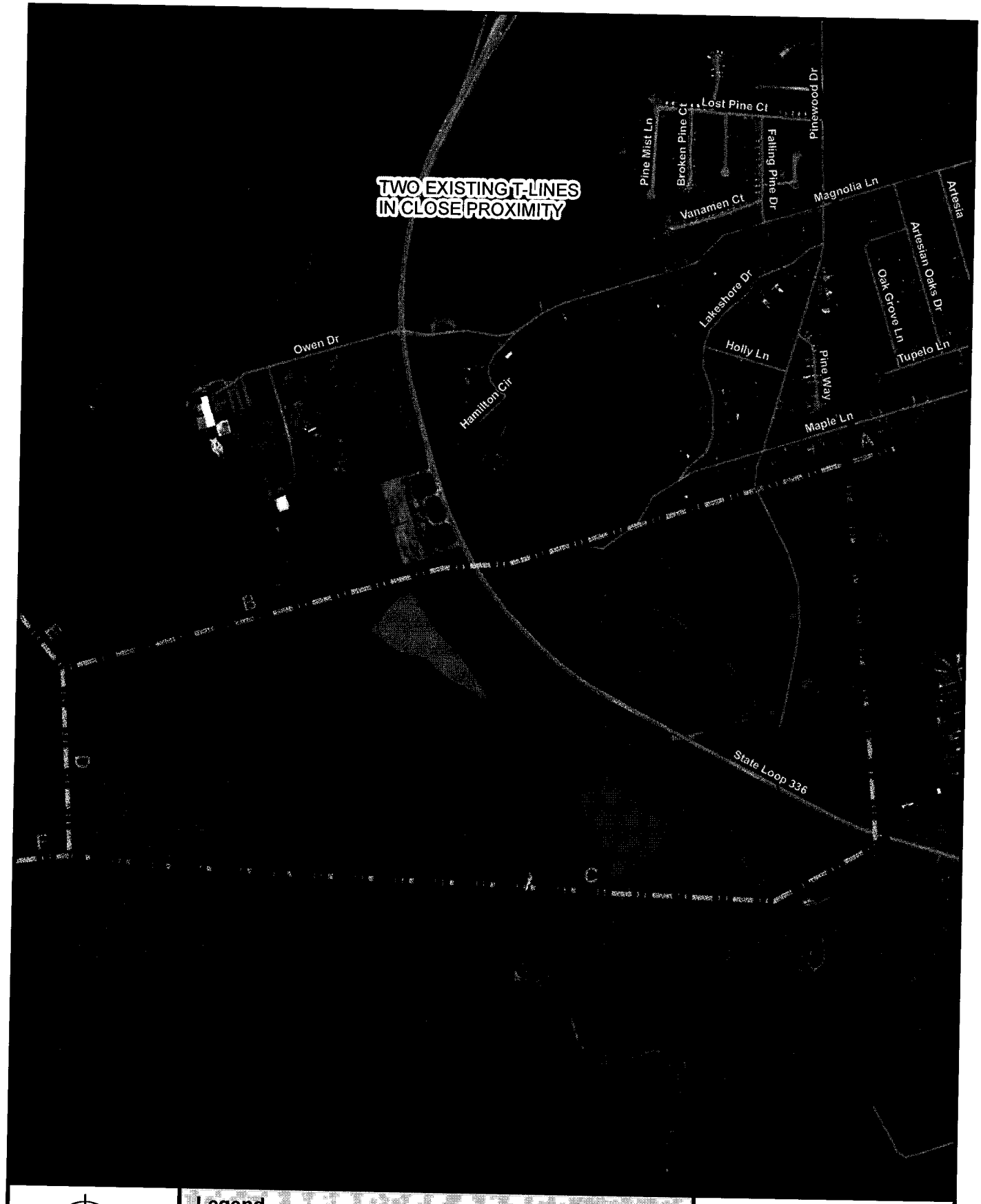

Figure 6-18
Link C Modification
Following Open House
Ponderosa to Grimes
230 kV Transmission
Line Project