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Forest Service

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Cedar City  
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# Strawberry Ridge Utility Improvement Project Environmental Assessment

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# SUMMARY

The Dixie National Forest proposes to issue special use permits to Kane County Water Conservancy District, Garkane Energy, and South Central Communications to construct, operate, and maintain a water storage and transmission system, electricity transmission, and communication transmission system, respectively, on National Forest System lands. The utility infrastructure is designed to serve the Zion View Mountain Estates and Sky Haven subdivisions, as well as to provide infrastructure needs of adjacent State Institutional Trust Lands Administration (SITLA) lands. Net proceeds from development of SITLA lands contribute to the State of Utah Trust Fund which supports the public school system of Utah.

The project area is located within the Cedar City Ranger District, Dixie National Forest, Utah. This action is necessary to support public health and safety by delivery of an approved source of drinking water and reliable water supplies for fire protection to residents and visitors to the service area.

This Environmental Assessment discloses the direct, indirect, and cumulative environmental effects that would result from the proposed action and alternatives.

In addition to the proposed action, the Forest Service also evaluated the following alternatives:

- No Action alternative
- Alternative tank site locations on Federal lands

Based upon the effects of the alternatives, the responsible official will decide whether to implement the Proposed Action as described, a modification thereof, the No Action alternative, or another alternative.

## ***DOCUMENT STRUCTURE***

The Forest Service has prepared this Environmental Assessment in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. This Environmental Assessment discloses the direct, indirect, and cumulative environmental impacts that would result from the proposed action and alternatives. The document is organized into four parts:

- *Purpose and Need:* This chapter includes information on the history of the project proposal, the purpose of and need for the project, and the agency's proposal for achieving that purpose and need. This chapter also details how the Forest Service informed the public of the proposal and how the public responded.
- *Alternatives:* This chapter provides a more detailed description of the agency's proposed action as well as alternative methods for achieving the stated purpose. These alternatives

were developed based on significant issues raised by the public and other agencies. This discussion also includes possible project design features. Finally, this chapter provides a summary table of the environmental consequences associated with each alternative.

- *Environmental Consequences:* This chapter describes the environmental effects of implementing the proposed action and other alternatives. This analysis is organized by resource area. For each resource area, the affected environment is described first, followed by the effects of the Proposed Action on that environment. The discussion of effects from the Proposed Action Alternative is followed by the effects of the No Action Alternative that provides a baseline for evaluation and comparison.
- *Consultation and Coordination:* This section provides a list of preparers, agencies and other parties consulted during the development of the environmental assessment.
- *Appendices:* The appendices provide more detailed information to support the analyses presented in the environmental assessment.

Additional documentation, including more detailed analyses of project-area resources, may be found in the project planning record located at the Cedar City Ranger District Office in Cedar City, Utah.

All acreages, distances, durations and other quantities in this document are approximations based on measurements, samples, estimates, computer models, and professional judgment commonly applied in environmental analyses.

# **CHAPTER 1 – PURPOSE AND NEED**

## ***BACKGROUND***

This report is documentation of the Environmental Assessment (EA) for the proposed Strawberry Ridge Utility Improvement Project (SRUIP) completed by the Dixie National Forest, Cedar City Ranger District. Kane County Water Conservancy District (KCWCD), Garkane Energy, and South Central Communications have applied for special use permits to construct a water storage and transmission system, buried power supply cables, and buried fiber optic cables, respectively, on National Forest System lands.

The Zion View Mountain Estates and Sky Haven subdivisions are located at the southwestern ends of Forest Roads FR058 (Strawberry Point Road) and FR060 (Swains Creek Road), respectively. These are National Forest roads and are the only vehicular access to these private properties. The subdivisions contain over 700 platted single-family homesites surrounded by National Forest System lands which are popular for recreational use. The subdivisions are without a regionalized culinary water supply, fire protection water supply, communication lines, or a power supply.

This project has been in the planning stages since 2009 when the existing drinking water source used by Zion View Mutual Water Company (ZVMWC) to supply water to private properties in the Zion View Mountain Estates and Sky Haven subdivisions failed the state drinking water standards. The ZVMWC drinking water system is a public water system in Kane County that provides drinking water to 250 people in the Strawberry Ridge area. ZVMWC and property owners asked the Kane County Water Conservancy District (KCWCD) for water supply service. KCWCD hired an engineering firm to assess water supply and delivery possibilities to properties in the Strawberry Ridge area with an approved drinking water supply and transmission system.

As documented in the engineering reports, the project record, and the Forest Service Special Use Application, Sunrise Engineering explored various methods and water supply sources to provide the private property and SITLA lands on Strawberry Ridge surrounded by federal land with an approved drinking water system. The plan needed to provide adequate water supply to support the numbers of users and also provide required water supplies and pressures for fire protection. Research into the existing well water quality and geological logs indicated that the likelihood of constructing a new well with production to supply the area with the required quantity of water was very improbable. Production in the existing well does not currently serve the existing needs of the area. In addition, the existing well and spring cannot be approved as a public drinking source due to issues with the source protection zone. Numerous water storage tank site locations on non-federal lands and National Forest System (NFS) lands were evaluated and eliminated from consideration because they did not facilitate the hydraulic requirements of the proposed water system.

Water storage tank site locations on private lands within the Zion View Estates subdivision were evaluated and eliminated from consideration as supplemental booster pumps would be required to operate the system, an additional water storage tank on NFS lands would be required to

service the Sky Haven subdivision, and the tank site in the Zion View Estates subdivision would be visible on the ridge from the popular viewpoint at Strawberry Point Overlook and from points along the Virgin River Rim Trail.

The proposed project to supply water to the Strawberry Ridge Area with water from the Duck Creek approved sources was presented to the Forest Service in a Special Use Application on April 13, 2011. The Special Use Application was accepted on May 9, 2011 based upon evaluation of project screening criteria, and predicated upon an environmental analysis to determine final approval of the proposed action, a modification of the proposed action, or no action.

The proposed project begins near the Strawberry Point Road/SR-14 intersection, roughly 2.5 miles southeast of Duck Creek Village, and terminates at the Sky Haven subdivision on Cedar Mountain in Kane County, Utah.

The legal description of the project on National Forest lands is Sections 20 and 29-31 of Township 38 South, Range 7 West, Sections 35-36 of Township 38 South, Range 8 West, and Sections 1 and 11-13 of Township 39 South, Range 8 West, SLBM. Private lands includes Sections 20 and 21, Township 38 South, Range 7 West, Section 2 and 14, Township 39 South, Range 8 West, SLBM (Figures 1,2 and 3).

## ***PURPOSE AND NEED FOR ACTION***

The purpose of this needs of the project are to (1) provide for increased public safety through reliable water source for fire fighting and (2) provide for increased public health through reliable and safe sources of culinary water.

This action is needed to meet the engineering constraints of the project and the land use constraints of the region. This action would provide benefits to the general public by replacing the existing unsafe water supply that is not approved by the Utah Division of Drinking Water due to a failure to meet safe culinary water standards, supporting a water storage and transmission system to provide an approved safe drinking water supply and reliable supplies for fire protection to the Strawberry Ridge Area.

The Strawberry Ridge Area includes State Institutional Trust lands (SITLA lands), Zion Mountain Estates, and Sky Haven subdivisions. The value of SITLA lands directly benefits Utah public schools. The value of private lands directly benefits Kane County's property tax base.

This action responds to the goals and objectives outlined in the Dixie National Forest Land and Resource Management Plan (LRMP), and helps move the project area towards desired conditions described in that plan (USDA 1986, p. IV-45) to act on Special Use applications according to the following priorities:

- A. Land and land use activity requests relating to public safety, health and welfare, e.g., highways, power lines and public service improvements.

## ***PROPOSED ACTION***

The action proposed by the Forest Service is depicted on Figures 1, 2 and 3 and described below. The Proposed Action designed to meet the purpose and need is to issue special use permits for construction, operation and maintenance of the following on National Forest Lands:

- **Kane County Water Conservancy District** - a culinary water storage and transmission system including culinary water pipelines, storage tank and associated controls.
- **Garkane Energy** - an electricity transmission system including 2 buried powerlines and associated controls.
- **South Central Communications** - a fiber optic communication system including buried fiber optic cables and associated controls.

The special use permits would provide for:

1. **Permanent 30-foot-wide utility right-of-way.** Issuance of a permanent, single, co-located utility right-of-way for the three permits which is 30 feet wide incorporating 7.5 miles of existing National Forest System Roads as shown on Figure 2. This right-of-way will allow for construction equipment, materials, temporary sidecast and all other construction activities. The water lines, fiber optic line, power lines and all associated controls, access sites and features (except as described for appurtenances below) will be located within this single utility right-of-way. This right-of-way will allow for continued operation and maintenance of utilities following the completion of construction activities.
2. **Permanent 30-foot-wide utility right-of-way and new road construction for tank access.** Construction of a permanent National Forest System road to provide access to the tank. The road would be 0.54 mile (2,854 ft.) long with standard drainage and surfacing. Issuance of a permanent, single, co-located utility right-of-way for the three permits which is 30 feet wide incorporating the new the roadway. This 30-foot-wide right-of-way will allow for construction equipment, materials, temporary sidecast and all other construction activities. The water lines, fiber optic line, power lines and all associated controls, access sites and features (except as described for appurtenances below) will be located within this single utility right-of-way. This right-of-way will allow for continued operation and maintenance of utilities following the completion of construction activities. Following construction the road would be designated as an Administrative Road.
3. **Utility appurtenances.** Controls, instrumentation and access ports for the water pipelines, powerlines and fiber optic line will be constructed as part of the project. The appurtenances are:
  - **Culinary Water:** air vents, fire hydrants (spaced 1,500-3,000 feet apart).

- **Electrical Power:** sectionalizing cabinets and splice vaults, (spaced every 1,000 feet) and pad-mounted voltage regulating and switching equipment (spaced every 5,000-7,000 feet).
  - **Fiber optic:** splice vaults (spaced 1,500-3,000 feet apart); two underground access vaults.
4. **Water pipelines and fire optic cables.** Co-location and direct burial of a 12” diameter distribution and a parallel 6” diameter culinary water pipelines and fiber optic cables at a minimum depth of seven feet. Appurtenances to be included along the pipelines and fiber optic lines are described above under 2.
  5. **Electric power cables.** Direct burial of two 3-phase 34.5 kV power cables within the permanent right-of-way. Power cables would be trenched in separate trenches 5 feet apart horizontally from each other and 2 feet apart horizontally from the water pipelines and fiber optic cables. Burial of the power cables would be at a minimum depth of 3 feet. Appurtenances to be included along the power lines are described above under 3.
  6. **350,000 gallon water storage tank.** Construction, operation and maintenance of a 350,000 gallon culinary water tank and associated control structures. The permit would provide for a temporary 1.5-acre construction area at the tank site. Following construction, the permit would provide for a permanent 1-acre operation and maintenance area. The tank would include the following:
 

Tank. An 82-foot diameter x 16-foot tall tank. The tank would be buried 12-feet in the ground, with 4-feet exposed above ground.

Control structures. A buried vault (10’x10’) and a chlorination/control building (11’x16’x10’) will be located adjacent to the tank.
  7. **Tree removal.** Tree removal at the tank site and tank access road would consist of all tree parts removed including root wads and slash using mechanized equipment. Merchantable material will be sold to the permittee and transported off-site for disposal. Slash would be chipped onsite and used to rehabilitate disturbed soils outside of the road prism to protect soils from erosion.
  8. **Post-construction rehabilitation.** Top soil will be stock piled prior to construction and spread over the rehab area after construction. Rehabilitation will occur on 0.5 acres at the tank site and 0.66 acres along the tank access road.

**Additional actions not in Special Use Authorization.** The following actions will also be completed. These will not be part of the Special Use Authorization, but will be completed as part of the project.

- A. **Closure of section of OHV trail.** A section of existing Off-Highway Vehicle (OHV) trail will be removed from the Forest Motorized Travel Plan system. The trail provides

redundant access to the Zion View Mountain Estates subdivision from Forest Road 1913. Approximately 0.90 mile (4,780 feet) of the western “arm” of OHV Route #57 (Forest Road 32021) will be closed and obliterated. The eastern “arm” of OHV Route #57 from FR 1913 to the subdivision will remain open to OHV use.

- B. **Borrow material.** Gravel, cinders or other borrow material for road base or other site needs will come from offsite mineral materials sources. These sources may include existing National Forest pits or sources off-Forest.

Following the completion of all permitted construction activity, the resulting special use authorization permitting the operation and maintenance of the road and tank site would total 2.31 acres (1.31-acre maintenance corridor for the road, plus 1-acre maintenance and operation area for the tank).

Figures 2 and 3 depict the Proposed Action components.

## ***DECISION FRAMEWORK***

Given the purpose and need, the deciding official reviews the proposed action and the other alternatives in order to make the following decisions:

1. Does the Proposed Action or alternative fulfill the purpose and need of the project?
2. Is the Proposed Action or alternative in compliance with the Forest Land and Resource Management Plan?
3. Does the Proposed Action or alternative minimize adverse environmental impacts to the greatest extent reasonably practicable?

## ***COMPLIANCE WITH FOREST LAND AND RESOURCE MANAGEMENT PLAN***

The proposed action complies with the goals and objectives outlined in the Dixie National Forest Land and Resource Management Plan (LRMP) (USDA 1986) (16 U.S.C. 1604 (i)) and subsequent amendments. The project is located in the following Forest Plan Management Areas:

- MA 1- General Forest Direction
- MA 6 -Grazing
- MA 7A- Timber Management

The forest-wide general direction applying to this project is to consider Special Use applications according to the following priorities:

- A. Land and land use activity requests relating to public safety, health and welfare, e.g., highways, power lines, and public service improvements.

The Forest Service mission is to manage lands for a variety of resource needs while providing for healthy ecosystems. Ecosystem management is an ecological approach to natural resource management. Management of ecosystems encompasses blending the biological and physical needs of that particular ecosystem, with the social and economic needs of the humans who use the ecosystem (USDA 1999).

The National Forest Management Act (NFMA) of 1976 requires National Forests to implement a Forest Land and Resource Management Plan to provide for alternative land management options for forest resources including effects on local communities.

## ***PUBLIC INVOLVEMENT***

The Strawberry Ridge Utilities Improvement Project environmental analysis was initially listed in the Schedule of Proposed Actions on October 7, 2011.

**Scoping.** The proposed action and other elements of the proposal were officially available for public scoping beginning November 30, 2011. A scoping notice was mailed to a list of property owners of record in the Zion View Mountain Estates and Sky Haven subdivisions, federal, state and local elected officials, tribal leaders and other interested parties. The proposed utility improvements were described and comments were invited.

In response to scoping, comments received were categorized as: 1) outside the scope of the proposed action; 2) already decided by law, regulation, Forest Plan, or other higher level decision; 3) irrelevant to the decision to be made; or 4) conjectural and not supported by scientific or factual evidence. Of the 23 comments received, two were identified as being outside the scope of the proposed action, and one is decided by existing law. Others expressed concerns that are addressed in the analysis or addressed by the Proposed Action. The Council on Environmental Quality (CEQ) NEPA regulations require this delineation in Sec. 1501.7, "...identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (Sec. 1506.3)...."

The comments were documented and reviewed to determine substance and to identify Issues to carry forward in the analysis. No Issues were identified from the comments.

**30-Day Comment Period.** A 30-day Comment Period was initiated on June 11, 2012 with a legal notice and a mailing to government entities, elected officials and persons known to be interested in this project. In accordance with 36 CFR 215.13, no parties established standing to appeal the decision.

## ***RESOURCES TO BE ANALYZED***

Resources to be included in the analysis in Chapter 3, Environmental Consequences include the following:

- Air Quality
- Cultural Resources
- Fire Management
- Geology and Minerals
- Noxious Weeds and Invasive Species
- Migratory Birds
- Range and Grazing
- Recreation
- Socioeconomic
- Soils
- Wildlife
  - Federally Listed Species
  - Regional Sensitive Species
  - Dixie NF Management Indicator Species
  - Migratory Birds
- Transportation
- Vegetation
- Visual Resources
- Water Resources

Upon consideration of the proposed action, some resources were not analyzed in detail, as shown in Table 1.4 below.

**Table 1.4: Resources Not Analyzed in Detail**

Critical Element	Rationale for Elimination from Further Analysis
Environmental Justice	This project would not result in disproportionately high or adverse health or environmental effects on minority and/or low income populations.
Farmlands	No prime or unique farmlands are within the project area.
Floodplains	The project would not result in the rise of or any impact to a FEMA mapped floodplain. The project would not result in an elevational change in any road or pipeline route. Existing culverts would be maintained to provide surface water drainage.
Hazardous or Solid Wastes	No hazardous or solid waste concerns are in the project area.
Native American Religious Concerns	No anticipated impacts to Native American religious concerns.
Paleontological Resources	The Quaternary alluvium and the Tertiary Claron Formation deposits exposed over the project site have low potential for yielding significant vertebrate fossils (Hayden 2011).
Wild and Scenic Rivers	No designated wild or scenic rivers are in the project area.
Wilderness	The Ashdown Gorge Wilderness Area, located 12.5 air miles to the northwest, is the closest designated wilderness to the project area. The proposed action would have no adverse impact on wilderness.

## CHAPTER 2 – ALTERNATIVES

This chapter describes and compares the alternatives considered for the Strawberry Ridge Utility Improvement project. This section also presents the alternatives in comparative form, sharply defining the differences between each alternative and providing a clear basis for choice among options by the decision maker and the public. Some of the information used to compare the alternatives is based upon the design of the alternative and some of the information is based upon the environmental, social and economic effects of implementing each.

### *ALTERNATIVES*

#### **NO ACTION - ALTERNATIVE 1**

Under the No Action Alternative, current management plans would continue to guide management of the project area. Under this alternative, no tank construction or utility line installation would occur across National Forest System (NFS) lands, and no other actions would be implemented to accomplish project goals.

#### **PROPOSED ACTION -ALTERNATIVE 2**

The action proposed by the Forest Service is depicted on Figures 1, 2 and 3 and described below. The Proposed Action designed to meet the purpose and need is to issue special use permits for construction, operation and maintenance of the following on National Forest Lands:

- **Kane County Water Conservancy District** - a culinary water storage and transmission system including culinary water pipelines, storage tank and associated controls.
- **Garkane Energy** - an electricity transmission system including 2 buried powerlines and associated controls.
- **South Central Communications** - a fiber optic communication system including buried fiber optic cables and associated controls.

The special use permits will provide for:

1. **Permanent 30-foot-wide utility right-of-way.** Issuance of a permanent, single, co-located utility right-of-way for the three permits which is 30 feet wide incorporating the existing roadway of 8 miles of National Forest System Roads. This right-of-way will allow for construction equipment, materials, temporary sidecast and all other construction activities. The water lines, fiber optic line, power lines and all associated controls, access sites and features (except as described for appurtenances below) will be located within this single utility right-of-way. This right-of-way will allow for continued operation and maintenance of utilities following the completion of construction activities.

2. **Permanent 30-foot-wide utility right-of-way and new road construction for tank access.** Construction of a permanent National Forest System road to provide access to the tank. The road will be 0.54 mile (2,854 ft.) long and 20' wide with standard drainage and surfacing. Issuance of a permanent, single, co-located utility right-of-way for the three permits which is 30 feet wide incorporating the new the roadway. This 30-foot-wide right-of-way will allow for construction equipment, materials, temporary sidecast and all other construction activities. The water lines, fiber optic line, power lines and all associated controls, access sites and features (except as described for appurtenances below) will be located within this single utility right-of-way. This right-of-way will allow for continued operation and maintenance of utilities following the completion of construction activities. Following construction the road will be designated as an Administrative Road.
  
3. **Utility appurtenances.** Controls, instrumentation and access ports for the water pipelines, powerlines and fiber optic line will be constructed as part of the project. The appurtenances are:
  - **Culinary Water:** air vents, fire hydrants (spaced every 1,500-3,000 feet).
  - **Electrical Power:** sectionalizing cabinets and splice vaults, (spaced every 1,000 feet) and pad-mounted voltage regulating and switching equipment (spaced every 5,000-7,000 feet).
  - **Fiber optic:** splice vaults (spaced every 1,500-3,000 feet; two underground access vaults).
  
4. **Water pipelines and fiber optic cables.** Co-location and direct burial of a 12" diameter distribution and parallel 6" diameter culinary water pipelines and fiber optic cables at a minimum depth of 7 feet. Appurtenances to be included along the pipelines and fiber optic lines are described above (item 2).
  
5. **Electric power cables.** Direct burial of two 3-phase 34.5 KV power cables within the permanent right-of-way. Power cables will be in separate trenches 5 feet apart horizontally from each other and 2 feet apart horizontally from the water pipelines and fiber optic cables. Burial of the power cables will be at a minimum depth of 3 feet. Appurtenances to be included along the power lines are described above (item 3).
  
6. **350,000 gallon water storage tank.** Construction, operation and maintenance of a 350,000 gallon culinary water tank and associated control structures. The permit will provide for a temporary 1.5-acre construction area at the tank site. Following construction, the permit will provide for a permanent 1-acre operation and maintenance area. The tank will include an 82-foot diameter x 16-foot tall tank. The tank will be buried 12 feet in the ground, with 4 feet exposed above ground. A buried vault (10'x10') and a chlorination/control building (11'x16'x10') will be located adjacent to the tank.

7. **Tree removal.** Tree removal at the tank site and tank access road will consist of all tree parts removed including root wads and slash using mechanized equipment. Merchantable material will be sold to the permittee and transported off-site for disposal. Slash will be treated in accordance with Project Design Feature FM-1.
8. **Post-construction rehabilitation.** Top soil will be stock piled prior to construction and spread over the rehab area after construction. Rehabilitation will occur on 0.5 acres at the tank site and 0.66 acres along the tank access road.

**Additional actions not in Special Use Authorization.** The following actions will also be completed. These will not be part of the Special Use Authorization, but will be completed as part of the project.

- A. **Closure of section of OHV trail.** A section of existing Off-Highway Vehicle (OHV) trail will be removed from the Forest Motorized Travel Plan system. The trail provides redundant access to the Zion View Mountain Estates subdivision from Forest Road 1913. Approximately 0.90 mile (4,780 feet) of the western “arm” of OHV Route #57 (Forest Road 32021) will be closed and obliterated. The eastern “arm” of OHV Route #57 from FR 1913 to the subdivision will remain open to OHV use.
- B. **Borrow material.** Gravel, cinders or other borrow material for road base or other site needs will come from offsite mineral materials sources. These sources may include existing National Forest pits or sources off-Forest.

Following the completion of all permitted construction activity, the resulting special use authorization permitting the operation and maintenance of the road and tank site would total 2.31 acres (1.31-acre maintenance corridor for the road, plus 1-acre maintenance and operation area for the tank). Figures 1, 2, and 3 depict the Proposed Action components.

## ***PROJECT DESIGN FEATURES COMMON TO ALL ALTERNATIVES***

In response to internal and public comments on the proposal, Project Design Features (PDFs) were developed to reduce or eliminate some of the potential effects that may be caused by the various alternatives considered. PDFs represent standards established to protect Dixie National Forest resources. The PDFs presented in the following table are considered to be integral and critical components of the Proposed Action or other selected alternative in order to meet the goals of the LRMP as well as other laws, regulations, and directives. These PDFs will be applied to any action alternatives developed.

**Table 2.4: Project Design Features**

<b>Air Quality</b>	
<b>AQ-1.</b>	Surface disturbance will be watered as necessary to reduced fugitive dust during construction.
<b>AQ-2.</b>	Speed limit in construction zones will be reduced to 20 mph to reduce dust.

### Noxious Weeds

**NW-1.** Ground disturbing heavy equipment will be thoroughly cleaned at an off-forest location prior to being transported to the project area.

**NW-2.** If used for rehabilitation purposes, only certified noxious weed free hay, straw, and mulch will be used.

**NW-3.** Noxious weeds will be controlled on all disturbed areas, should they become established, through the implementation of actions that are consistent and compliant with the Dixie National Forest Environmental Assessment for Noxious Weed Management and Decision Notice (USDA 2000).

### Public Safety

**PS-1 General public safety.** Address any safety considerations to reduce risk to the public and liability to the Forest, including the following measures:

- **Construction traffic control.** Provide reasonable assurances for public safety during construction and other operations affecting roads, trails or recreation facilities. Post safety signing along roads where construction is occurring as well as the Virgin River Rim Trail (VRRT). Provide traffic control flaggers as necessary to insure public health and safety.
- **Trenches** will be covered and barricaded when unattended by construction personnel. No trenches will be left open overnight.
- **Hazardous materials.** Totally enclosed containment will be provided for all hazardous materials and trash. All construction waste including trash, litter, garbage, other solid waste, petroleum products, and other potentially hazardous materials will be removed to a disposal facility authorized to accept such materials.
- **Wildfire prevention.** Two fire extinguishers (20-lb. ABC) and hand shovels will be available at all construction sites to reduce risk of wildfire during construction. All construction activities and personnel will comply with all Forest Service, County or State fire rules and restrictions.
- **Flammable fuels** used for construction will be properly used and stored to prevent igniting wildfire. BMPs including a refueling and hazardous materials plan and Forest Service practice 15.11 – Servicing and Refueling of Equipment will be implemented (FSH 2509.22 1988, Appendix A).

### Fuels Management

**FM-1.** Forest fuels created during clearing or other construction activities will be piled and burned, or removed, or chipped per Forest Service direction.

### Wildlife Protection

**WP-1.** Construction will not occur within outlined goshawk temporal and spatial buffers within an active PFA. See Special Status Species Section.

**WP-2.** Construction will not occur within outlined peregrine falcon temporal and spatial buffers within one mile of an active eyrie. See Special Status Species Section.

**WP-3.** Construction sites will be maintained in a sanitary condition at all times; waste materials at those sites will be disposed of promptly at an appropriate waste disposal site. "Waste" means all discarded matter including but not limited to human waste, debris, garbage, refuse, oil drums, petroleum products, ashes, and equipment.

**WP-4.** No clearing of vegetation or surface disturbance will occur outside of the designated construction easement.

### Visual

**V-1.** Utility lines will be buried to avoid the visual impact of overhead lines. Concurrent construction of multiple utility in the same trench should be implemented wherever possible to reduce the need for three separate construction events.

**V-2.** Color of the tank, chlorine building, fire hydrants and air lock vent colors will be approved by the Forest Landscape Architect.

**V-3.** The tank will be buried with only the upper 4-feet exposed.

**V-4.** Contractors will utilize dust control measures during construction.

**V-5.** The proposed alignment of the tank access road conforms to the natural topography of the hillside to the extent possible thereby minimizing cuts and fills.

**V-6.** Roads that are widened for construction will be contoured and reseeded to maintain the original road width.

### **Hydrology and Soils**

**HS-1.** All applicable Soil and Water Conservation Practices (SWCPs) will be implemented. Refer to the Soils Section and Water Resources Section and Appendix A.

**HS-2.** All construction vehicle movement outside of the right-of-way will be restricted to pre-designated access, contractor acquired access, or public roads.

**HS-3.** Fill material will be left at a stable angle and revegetated with appropriate vegetation or seed mix.

**HS-4.** All construction and maintenance activities will be conducted in a manner that will minimize disturbance to vegetation, drainage channels, and intermittent and perennial stream banks.

**HS-5.** All roads will be left in a condition equal to or better than their condition prior to construction.

**HS-6.** Silt fences will be used where necessary to identify the construction limits and prevent incidental fill from being placed in the wet area adjacent to FS 058 and Strawberry Creek. No occupation of the wet area will occur as a result of project activities.

**HS-7.** New disturbance areas will be reseeded as appropriate with a Forest Service approved seed mix. Reseeding will occur during fall months within the first year upon completion to promote seed germination.

**HS-8.** The Utah Department of Environmental Quality – Division of Water Quality will be consulted on the National Pollutant Discharge Elimination System (NPDES) permit needs. The proper NPDES permits will be obtained as needed.

### **Recreation**

**R-1.** Gates and signage will direct Virgin River Rim Trail users to prevent trail confusion with the tank access road.

**R-2.** The proposed tank site and access road is located out of view of Strawberry Point scenic look out.

**R-3.** Short-term temporary trail closure may be necessary during construction of the 400 foot section of access road that overlaps the Virgin River Rim Trail.

**R-4.** Commercial outfitters and trail guides will be notified, via the District Special Uses staff, of construction schedule and any temporary trail closures 2 weeks prior to any temporary closure. Signage indicating closures will be coordinated with the DNF officer and placed at the Strawberry Point trailhead, crossing of the Strawberry Point Road, and at the Cascade Falls trailhead 1 week before closures to notify potential users.

## ***ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED STUDY***

### **Alternate Tank Site Locations on Federal Lands**

During the initial special use application and internal scoping phase of the project, proposals from the applicant (KCWCD) included two alternative tank sites on NFS lands located north of the Zion View Mountain Estates subdivision. These proposals were evaluated and eliminated from consideration. The elevations of these sites did not facilitate the hydraulic requirements to supply the Sky Haven subdivision and SITLA lands. These sites would have required the installation of an additional, intermediate tank located on Strawberry Ridge. This scenario would result in the construction, operation, maintenance, and permit administration for two tanks on NFS lands, instead of the one tank described in the Proposed Action.

## ***COMPARISON OF ALTERNATIVES***

This section provides a comparison of the alternatives in meeting the Purpose and Need elements and addressing motorized route density issues. The effects of implementing each alternative are

briefly summarized in Tables 2.5.1 and 2.5.2 below. Refer to Chapter 3 for detailed descriptions of the effects analysis on each resource.

**Table 2.5.1: Comparison of Alternatives**

Purpose and Need Element or Issue	Desired Condition	Existing Condition	Proposed Action	No Action
<b>P&amp;N1. Provide for increased public safety through reliable water source.</b>				
Provide a reliable water supply, power supply, and communication services to private and state properties of the Strawberry Ridge area.	Modern, reliable utility systems that support health and safety of the public.	The existing water supply is in violation of Federal and State water quality standards. Water is hauled to users by the Zion View Mutual Water Company and individuals. Some users siphon water from nearby streams and lakes to fill individual water tanks. Electricity is supplied by individual gas powered generators, propane and batteries.	The existing water supply will be shut down due to water standards violations. The proposed action would provide reliable water supply, power supply, and communication services by tying into existing systems by way of buried transmission lines. The proposed action would eliminate the need for property owners to haul water to individual water storage tanks, the need for individual gas powered generators, and the need for propane deliveries to individual properties.	The existing water supply will be shut down due to water standards violations. The existing hazard of water borne illness would continue. Private property values would decrease. The numbers of gas powered generators in use would increase with the increased recreational use of the area. Hazards associated with spilling gasoline when filling generators would continue.
<b>P&amp;N 2. Provide for increased public health through reliable and safe sources of culinary water.</b>				
Support requests for special lands uses that relate to public safety, health, and welfare.	Provide land and land use activities that support public safety, health, and welfare.	Forest land surrounds small private and state inholdings. It is necessary to cross forest land to access private parcels due to the geography of the area. The existing water supply is in violation of Federal and State water quality standards. Water is hauled to users by the Zion View Mutual Water Company and individuals. Some users siphon water from nearby streams and lakes to fill individual water tanks. Electricity is supplied by individual gas powered generators, propane and batteries.	The proposed action would utilize existing National Forest roads to provide utility corridors to supply utilities to private parcels and the public.  The proposed action would improve public health and safety by providing safe and reliable drinking water, water supplies for firefighting, electrical power, and communications infrastructure to private properties the Strawberry Ridge area.  The proposed action would require additional forest land special use authorizations for the use of utility systems.	The existing water supply will be shut down due to water standards violations. Existing National Forest roads would be used to haul water and power supplies to the Strawberry Ridge area. Hazards associated with hauling water and private power generation to the area would increase due to the anticipated increase in public recreational use of the area

Table 2.5.2 below compares the Proposed Action and No Action alternatives and outlines the net change to road system mileage. The proposed action would result in a reduction in miles of motorized routes in the Duck Creek – Swains Access Management Area. The No Action alternative would not result in any change in route density.

**Table 2.5.2: Comparison of Alternatives to Duck Creek – Swains Access Management Decision.**

<b>Route(s)</b>	<b>Approximate Length</b>	<b>Motorized Travel Plan Decision (Duck Creek – Swains Access Management Previous Decision)</b>	<b>Proposed Action</b>	<b>Proposed Action Change to Route Mileage</b>	<b>No Action</b>
New Tank Access Road Construction	0.54 mi.	Not Applicable, New Decision Required	Administrative Route	+0.54	No Route - No Change from Current Condition
30945 (Markagunt OHV Route #57)	0.90 mi.	Motorized Trail (62" wide or less)	Close and Obliterate	-0.90	No Change
<b>Net Change to Road System Mileage</b>				-0.36	0.0

## **CHAPTER 3 – ENVIRONMENTAL CONSEQUENCES**

This section summarizes the physical, biological, social and economic environments of the affected project area and the potential changes to those environments due to implementation of the alternatives. It also presents the scientific and analytical basis for comparison of alternatives presented in the chart above.

This chapter describes characteristics of the affected environment within the project area and the environmental consequences of the Proposed Action. The “project area” is defined as the project footprint and construction zones, as depicted in Figures 1,2 and 3. Chapter 3 also includes analysis of the cumulative effects on resources.

The Dixie National Forest consists of nearly 2 million acres of land stretching over 170 miles of southern Utah including parts of Washington, Iron, Kane, Piute, Garfield, and Wayne counties. The Cedar City Ranger District administers National Forest System lands in the project area, located on the Markagunt Plateau.

Elevation of the project area ranges from 8,000 to 9,000 feet. Precipitation ranges from 25 to 40 inches annually, typically falling as snow during winter months and heavy summer thunderstorms during July and August. Temperatures range from extremes of -30°F during the winter months to 85° F during late summer months.

### ***ENVIRONMENTAL CONSEQUENCES OF THE NO ACTION ALTERNATIVE***

Under the No Action Alternative, current management plans would continue to guide management of the project area. Under this alternative, no tank construction or utility line installation would occur across National Forest System lands, and no other actions would be implemented to accomplish the purposes and needs of the project.

The No Action Alternative does not meet the project Purpose and Need to provide for public health and safety with an approved drinking water system to the Strawberry Ridge area. The No Action Alternative would not support the LRMP priority to action on special use applications for land use activities relating to public safety, health, and welfare.

The No Action Alternative does not address existing issues cited in the Utah Public Drinking Water System report available through the Utah Division of Drinking Water (Utah Department of Environmental Quality 2011a). This alternative does not satisfy the need to provide adequate fire protection to the existing and planned homes in the area, nor does it meet the need for emergency services communication for the general public using the area.

Socioeconomic effects on the local communities are associated with the No Action Alternative. Subdivisions, communities, and counties that would be affected by the No Action Alternative are

within the Dixie National Forest Zone of Influence. As stated in the LRMP, these communities and counties are in fact affected by Forest policies and decisions. See the Socioeconomic Section for additional discussion on environmental consequences of the No Action Alternative on socioeconomic impacts.

The No Action Alternative does not address the infrastructure needs of the SITLA property adjacent to the Sky Haven subdivision.

This alternative does not address transient dust issues associated with water deliveries currently taking place in the Zion View Mountain Estates and Sky Haven subdivisions.

This alternative does not address the negative visual effect of above-ground individual water storage tanks on each home site to transient recreational forest users. Although this would be considered a “tangential,” or indirect effect on the recreation experience of forest users, it is recognized that the Strawberry Point Road (FS058) is the primary travel route to the popular Strawberry Point Overlook, and recreation users enroute to Strawberry Point must travel through the Zion View Mountain Estates subdivision. Many of the private homes are visible from Strawberry Point Road. Although located on private lands, the condition of private home lots has an effect on the recreation user who is driving these forest roads for their scenic qualities. Nothing in the proposal would necessarily result in the removal of existing individual home site tanks, but it is likely that the availability of a pressurized water system that serves the entire community would result in fewer auxiliary tanks on developed lots. The assigned Scenic Integrity Objective (SIO) for FS058, outside of private lands, is high. Additional information on visual resources is found in the Visual Resources Section in Chapter 3.

This alternative does not address the auditory impact on wildlife and recreational users from the high use of individual gas-powered generators used to provide power to individual homes.

The No Action Alternative does not support economic development of the local communities.

## ***ENVIRONMENTAL CONSEQUENCES OF PROPOSED ACTION ALTERNATIVE***

### ***AIR QUALITY***

#### **REGULATORY SETTING**

Forest Service actions must be in compliance with the Clean Air Act (CAA, 42 USC §7401 *et seq* 1970). The Clean Air Act as last amended in 1990 requires EPA to set National Ambient Air Quality Standards (NAAQS). These standards are divided into two types; primary and secondary. Primary standards are to protect the health of the population and secondary standards are to protect public welfare such as visibility or damage to crops and animals.

The Clean Air Act as amended in 1977 states that federal land managers have an "affirmative responsibility" to protect their Class I areas from the adverse effects of air pollution (EPA website accessed Sept 7, 2011).

### **AFFECTED ENVIRONMENT**

Kane County is in compliance with all NAAQS for the six pollutants monitored; carbon monoxide, nitrogen dioxide, ozone, particulate matter, sulfur dioxide and lead. Most of the state's air qualities monitoring stations are located along the Wasatch Front in the northern portion of the state near the highly populated areas and near the point sources. A monitoring station in Santa Clara, Washington County is the closest data point to the proposed action area (UDEQ 2012).

Zion National Park is a Class 1 air shed, located 18.5 air miles to the south. The Ashdown Gorge Wilderness Area and Cedar Breaks National Monument are Class 2 air sheds, located 12.5 and 11.7 air miles to the northwest, respectively of the project area.

Particulate matter from fugitive dust is the air pollutant of concern regarding the Dixie National Forest. Most National Forest roads are unpaved and seasonal use continues to increase on these roads. Sometimes a haze from dust hangs in Strawberry and Swains Valleys due to high vehicular traffic on busy summer weekends. Strawberry Point Road is a straight, graded, graveled road servicing the Strawberry subdivision and other private properties along this road, including Zion View Mountain Estates subdivision, as well as visitors to Strawberry Point Viewpoint. Off-Highway Vehicle (OHV) operators, other recreationists, private property owners, construction trucks, timber hauling trucks, and water hauling trucks are the major users. Excessive speeds by users exacerbate the dust problem. Speed signs are posted within the private subdivisions for dust concerns. Fugitive dust is not a concern during the winter months as the roads are often snow covered or wet and have less use.

Wildfire is typically the biggest risk to the air quality on the Dixie National Forest and surrounding Class 1 or 2 air sheds. The forest is actively reducing the wildfire hazard by removing forest fuels through a systematic program known as the Duck Creek Fuels Treatment Project initiated in 2005. This area of the forest has significant dead and decadent trees from a spruce beetle epidemic and recent a heavy tree blow down event during the winter of 2010-2011. The proposed tank site has been treated for fuels reduction under the Duck Creek project. Slash piles were burned November 2011.

### **ENVIRONMENTAL CONSEQUENCES**

#### **Direct and Indirect Effects**

Construction could increase fugitive dust temporarily as the trenches are being dug and then back filled. A water truck would be used to wet the disturbance area and minimize dust impacts during construction. A dedicated water supply to the Zion View Mountain Estates private property would reduce the need to haul water to individual lots. This would reduce water hauling truck traffic on Strawberry Point Road.

The proposed project includes installation of fire hydrants throughout the cabin sites. Providing better fire protection to the area reduces the risk of catastrophic wildfires.

### **Cumulative Effect**

The cumulative effects area considered for air quality is the entire Cedar City Ranger District. Readily available utilities could result in development of the remaining undeveloped lots in Zion View Mountain Estates and Sky Haven subdivisions. Anthropogenic impacts to air quality associated with population growth are expected in the long term, particularly particulate matter concentrations along Strawberry Point Road due to new traffic. However, with vast public lands surrounding the private lands it is unlikely contaminant concentrations would exceed NAAQS attainment levels in the foreseeable future .

During construction recreational OHV use could be displaced to other OHV trails on the district, this could transfer fugitive dust from OHV use on trails in the project area to other trails on the district.

## ***CULTURAL RESOURCES***

### **REGULATORY SETTING**

The American Antiquities Act of 1906 (16 USC 431-433) and Historic Preservation Act of 1966 (16 USC 470 *et seq*) requires no measurable effects to any historic properties. Furthermore, the Section 106 Process is explained and defined in 36 CFR Part 800. Section 106 of the National Historic Preservation Act mandates federal agencies to undergo a review process for all federally-funded and permitted projects that would impact sites listed on, or eligible for listing on, the National Register of Historic Places.

### **AFFECTED ENVIRONMENT**

A cultural resource inventory of the project footprint was conducted by Bighorn Archaeological Consultants, LLC in September, 2011. This report has been submitted to the Forest Service and is on file at the Cedar City District office. As part of this report a literature review and file search indicated 19 cultural resource inventories were conducted, and eight cultural sites were previously recorded within 1 mile of the project. Two sites (42KA1916 and 42KA2675) have been documented within the current project corridor. No evidence of these sites was observed during the inventory.

Examination of the proposed project utility corridor and water tank location resulted in the discovery and documentation of seven isolated finds. Isolated finds are categorically not eligible for consideration under the criteria of the NRHP and, as such, would not hinder the development of the project (Bighorn 2011).

### **ENVIRONMENTAL CONSEQUENCES**

As designed, the project will have no effect on cultural resources in the area. In the event that additional archaeological remains are encountered during project construction or operations, all ground disturbing activities in the immediate vicinity would cease and a representative of the Dixie National Forest should be contacted within 24 hours of the accidental discovery to evaluate the find.

# ***FIRE MANAGEMENT***

## **REGULATORY SETTING**

The Healthy Forest Restoration Act (HFRA) was passed in 2003 and provides alternative planning processes for some hazardous fuel reduction projects. The Duck Creek Fuels Treatment project was initiated under the provisions of HFRA.

## **AFFECTED ENVIRONMENT**

The Duck Creek Fuels Treatment project initiated in 2004 analyzed 23,225 acres of National Forest System (NFS) lands surrounding 4,058 acres of private lands. This proposed project is within the boundaries of the fuels reduction project analysis area. The project area is in a hazardous fire situation primarily because of high lightning occurrence and human use, coupled with heavy accumulated surface and ladder fuels, thick continuous forests, and prevailing southwest winds. These conditions increase the risk of wildfire burning into private communities. Fuel reduction programs are much safer and cost effective than wildfire suppression cost. As part of the fuels reduction project, homeowners are encouraged to maintain defensible space on their own property, as well as surrounding forest lands. (USDA 2005).

Wildland urban interface fires are of significant risk to public safety and property damage. Summer afternoon winds frequently occur at 15-25 mph, with winds predominantly out of the southwest in the fuel reduction project area. Winds greatly influence rate of fire spread. Vigilance and rapid response from fire fighters have controlled fires in the analysis area at relatively small acreages.

Within the fuels reduction project area, from 2001 to 2009 there were 36 wildfires, 27 of them were lightning caused and 9 were human caused. Lightning fires burned a total of 5.2 acres and human caused fires burned a total 1.4 acres. Notable fires outside of the analysis area but within the vicinity include the 1989 Uinta Flat fire (9,000 acres) and the 2002 Big Wash Fire (5,300 acres). (USDA 2005).

Nine fuel treatments were developed to meet the fuels reduction project purpose and need. The prescribed treatment regimes within the SRUIP area are as follows: The proposed tank site and tank access road are within an Aspen Plus fuel treatment area, NFS lands surrounding the northeast side of Zion View Mountain Estates is in Defensible Fire Space treatment area, and the NFS lands surrounding the southeast side of Zion View Mountain Estates is in Goshawk Habitat Defensible Fire Space treatment area. Forest Road 1925 is within the Conifer Plus and Conifer Minus treatment areas. Of these identified treatment areas, 200-acres have been thinned, piled and are ready to be burned. Slash piles are slated to be burned within the next 2 years. Approximately 274 acres are slated to be thinned and piled in the next year with prescribed burning to follow after at least one year of drying.

## **ENVIRONMENTAL CONSEQUENCES**

### **Direct and Indirect Effects**

Remaining trees and shrubs not cleared during fuels reduction would be cleared on the 1.5-acre construction zone at the tank site, and the 2,854 feet of the tank access road. Some trees along Forest Roads 239, 1925, 2338 and private roads within the subdivision would be cleared to allow a 30-foot construction zone. All trees, limbs or other forest fuels left from clearing will be piled

and burned, or removed, or chipped per Forest Service direction. Clearing trees and shrubs for this project would reduce fuel loads within the project area, most of which is designated as Defensible Fire Space.

The proposed project would supply the area with electrical power to private cabin. Currently, existing cabins use propane and fireplaces for power and heat.

Human use of the project area is expected to increase; therefore, risk of human-caused wildfire would increase proportionately.

The proposed project would supply the area with telephone communications. Telephone communication in the area could translate to faster notification and response time for fire fighters.

### **Cumulative Effects**

The cumulative effects area is the entire Cedar City Ranger District. Ongoing fuel reduction and timber production are anticipated to continue within the cumulative effects area. Spruce beetle infestation continues to affect fire management decisions forest-wide. Recreational use is expected to continue and increase with population growth. Gasoline is stored on private parcels and used to refuel individual gas powered generators. This increases risk of wildfire.

Fire hydrants would be installed along roadways as part of this project. A reliable water supply with hydrants would significantly aid in fire suppression.

No open burning of construction trash or debris (cleared trees, etc.) would occur on NFS lands as result of this project.

## ***GEOLOGY AND MINERAL RESOURCES***

### **AFFECTED ENVIRONMENT**

The study area is primarily mixed volcanic and Claron limestone formations. The Markagunt Plateau is an uplifted fault block tilted to the northeast. The west front of Strawberry Ridge is the Sevier River/Virgin River divide. The edge of the divide marks the Hurricane Fault exposing rock areas of the Claron Formation (limestone and sandstone) in the form of cliffs, escarpments and tertiary volcanic soils. This is the distinctive formation of Bryce Canyon and Cedar Breaks which produces the white to reddish-pink spires and canyons.

The Markagunt Plateau generally has little subsurface exploratory information. This area has moderate potential for oil and gas accumulations (USDA 2005).

### **ENVIRONMENTAL CONSEQUENCES**

#### **Direct and Indirect Effects**

The project area is not within a mineral lease area. Cliff faces would not be impacted by the proposed action.

Most of the project footprint is disturbed by existing roads, trails or fuel reduction activities. New soil disturbance is projected to be 5.4 acres between the tank site, tank access road and line burial activities along roads. Some blasting may be necessary for construction at the tank site as the tank would be buried and back filled. Post construction, the upper 4 feet of the tank would be exposed. See the Soils Section for additional information on anticipated surface disturbance.

## ***NOXIOUS WEEDS, INVASIVE AND NON-NATIVE SPECIES***

### **REGULATORY SETTING**

Forest Service policy defines “noxious weeds” as “...plants designated as noxious weeds by the Secretary of Agriculture or by the responsible State official. Noxious weeds generally possess one or more of the following characteristics: aggressive and difficult to manage, poisonous, toxic, parasitic, a carrier or host of serious insects or disease and being native or new to or not common the United States or parts thereof.” (FSM 2080.5)

The State of Utah, Commissioner of Agriculture and Food maintains a list of noxious plants as provided by the Utah Noxious Weed Act (Utah Administrative Code R68-9). Plants are identified on this list for early detection, control and containment to prevent widespread invasion posing a threat to agricultural industry and products.

### **AFFECTED ENVIRONMENT**

None of the weeds listed on the state noxious weed list were noted within the project anticipated disturbance areas (USDA 2003). Cow parsnip (*Heracleum maximum*), was noted along Strawberry Creek. This plant is in *Weeds of the West* (Whitson 1996) as potential invasive, a pernicious weed especially in pastures where it can ruin the milk of cows that eat it.

### **ENVIRONMENTAL CONSEQUENCES**

#### **Direct and Indirect Effects**

Ground disturbing activities break the protective crust in arid soils, therefore increasing risk of noxious plant invasion. Most of the project footprint is disturbed by existing roads, trails or fuel reduction activities. New soil disturbance is projected to be 5.4 acres between the tank site, tank access road and direct line burial activities.

Vehicles spread noxious plants along roadways. Roads within the study area would be continually used by vehicles and OHVs during and after construction. Disturbed soils from construction of the project could be infected with noxious plants by summer resident/visitors' vehicles from distant sources.

#### **Cumulative Effects**

The cumulative effects area for noxious weeds, invasive and non-native species is the entire Cedar City Ranger District. Grazing, fuel reduction projects, OHV and recreational visitors are expected to continue in the cumulative effects area. Potential invasion of noxious, invasive and non-native species is associated with these activities particularly along roadways and trails.

## ***RANGE AND GRAZING***

### **AFFECTED ENVIRONMENT**

The project area is located partially within two grazing allotments; Strawberry and Shingle Mill grazing allotments. The Strawberry grazing allotment is located on both sides of Strawberry Road (FS058), and both sides of FS239. The Shingle Mill grazing allotment is located on both side of Swains Creek road (FS060), FS1925, and FS2338. Utility lines would be installed in all of these roads.

### **ENVIRONMENTAL CONSEQUENCES**

#### **Direct and Indirect Impacts**

Utility lines would mostly be buried within existing dirt roads, FS roads 1925 and 2338 would be widened as result of the project. Most of the project footprint is disturbed by existing roads and not suitable range for grazing. However, direct impact to the Strawberry allotment would include temporary surface disturbance at the tank site and access road, and the long-term permanent footprint of the tank site and access road. Closing 4,780 feet of OHV trail #57 would recover 1.09 acres for grazing in the Strawberry allotment. The short-term direct impact to vegetation in the Strawberry allotment would impact 3.2 acres for construction of the tank access road and tank. The permanent footprint would be 2.31 acres. Post construction 0.89 acres of construction disturbance would be reseeded plus the recovered 1.09 acres of OHV trail #57, resulting in 1.98 acres of restored grazing range on the Strawberry allotment. Therefore, the long-term reduction in grazing (vegetated soil surface) on the Strawberry allotment would be 1.22 acres.

Within the Shingle Mill grazing allotment, most of the project footprint is disturbed by existing roads and not suitable range for grazing. However, direct impacts to the Shingle Mill allotment would include temporary surface disturbance by widening FS1925 and FS2338 from the existing 10-15 feet wide road to 30 feet wide for construction and 30 feet wide for the long-term easement. Therefore, a short-term impact to 3.6 acres of vegetation during construction and a long-term impact to 1.81 acres for road widening are anticipated. The proposed project would reduce grazing range (vegetated soil surface) of the Shingle Mill grazing allotment by 1.81 acres.

If construction occurs while cattle are in either of the allotments, they could choose to move to another area of the allotment to avoid construction presence. This could result in heavier use of other areas within the allotments.

Any fences, gates, or cattle guards impacted by construction activities, would be repaired or replaced to their original pre-disturbed condition. Temporary gates or fences would be installed if necessary to maintain existing cattle control during construction activities.

#### **Cumulative Effects**

The cumulative effects area for grazing impacts is limited to the two grazing allotments. Ongoing activities including fuel reduction, recreation, timber harvest, and private property development within this CEA are expected to continue.

## ***RECREATION***

### **AFFECTED ENVIRONMENT**

The study area and the greater NFS lands surrounding the study area are primarily used for recreation. Recreation activities include camping, hunting, fishing, snowmobiling, snow skiing, snowshoeing, hiking, biking, horseback riding, photography, scenic driving, canoeing, backpacking and OHV use. Over the past 5 years OHV use of the area has increased significantly. Duck Creek Village is becoming well known as a popular OHV recreation area hosting organized trail rides and events annually. To respond to the OHV use demand the Forest Service created the Markagunt trail system. Designation of the trail system identified, mapped, and rated difficulty of OHV and snowmobile trails within the system. Numerous designated and undesignated OHV trails are within the study area. Use of undesignated routes and cross county travel by OHV users is a continuous problem for forest personnel and other forest users. The private properties in this area that are surrounded by NFS lands increase the recreational users of the forest lands.

Strawberry Point Road (FS058), Lars Fork Road (FS059), Swains Creek Road (FS060), FS 1912, FS1913, FS1915A, FS1913C, FS0239, FS2338, FS2335, FS2337 are graveled roads used by recreationists within the study area.

The popular Virgin River Rim Trail (VRRT, FS32011) trailhead is at the junction of FS239 and FS058. This forested, single-track trail is 32.5 miles long trending northwest along the Virgin River Rim terminating at the Deer Haven campground on Webster Flat. This trail is becoming more popular as a mountain bike trail versus a horseback or foot trail. It offers outstanding views of the pink cliffs along the rim and is used from June – October. Some OHV and single-track trail conflicts or co-location occur along the VRRT. Currently the VRRT is co-located with a portion of FS32021 (OHV trail #57).

Strawberry Point is a popular scenic view point within the study area. A short walk from the parking area takes you to the outstanding viewpoint looking into the valleys 6,000 feet below. The view point is atop a pink cliff spire that gives way to the headwaters of the North Fork Virgin River watershed. Views are 50 miles panoramic to the southwest of Zion National Park. Most viewers access Strawberry Point from Strawberry Point Road (hence the name) by vehicle, OHV, snowmobile, or mountain bike.

Strawberry Point is located 0.5 miles from the closest point of the project footprint where Strawberry Point Road (FS058) leaves the Zion View Mountain Estates subdivision.

The Proposed Action Figures 1,2 and 3 depict NFS roads that would be impacted during construction and the western arm of FS32021 (OHV trail #57) that would be obliterated.

### **ENVIRONMENTAL CONSEQUENCES**

The proposed project would temporarily impact five Forest Service graveled roads and a portion of the VRRT during installation of the buried utilities. Four of the National Forest roads have overlapping identified OHV trails. Portions of these roads and trails could be closed during construction causing displacement to users. After the utility lines are buried the roads and trails

would be restored to preconstruction condition and recreational use would return to normal conditions. Emergency repair or maintenance of utility lines could temporarily close portions of these roads and trails in the future.

The five National Forest roads that would be temporarily impacted during construction are; FS058 (Strawberry Point Road) for a distance of 26,010 feet, FS239 for a distance of 3,705 feet, FS1925 for a distance of 6,650 feet, FS060 (Swains Creek Road) for a distance of 3,985 feet, FS2338 for a distance of 1,900 feet. Total distance of National Forest roads disturbed during construction is 42,250 feet. These roads access Zion View Mountain Estates, Strawberry Valley Subdivision, Sky Haven Subdivision, Strawberry Point View Area, and the southern trailhead of the VRRT.

Four trails identified as part of the Markagunt OHV System would be temporarily impacted during construction as the trails are overlapping existing National Forest roads. These trails include OHV Trail #5 Strawberry Loop, #58 Strawberry Point, #57 Zion View Connector, and #6 Harris Rim Loop (Markagunt OHV System map). To conform to the Forest Plan regarding open route densities, the proposed action would permanently close the western half (4,780 feet) of the Zion View Connector OHV trail (#57). Currently a portion of this OHV trail is co-located with a portion of the VRRT, a potentially dangerous situation. Trail #57 also connects two private Zion View Mountain Estates subdivision roads that lead to the same road, FS1913.

Of the new 2,845 foot long tank access road a 400 foot section of the VRRT would overlap. This would result in the co-location of the VRRT and the tank access road. Since the tank access road would be gated and locked, only occasional maintenance vehicles would be on this 400 foot long portion of the VRRT. Signs would be posted to direct the trail users off the access road back onto the single-track trail. This could potentially cause route confusion. If users miss the trail sign then they would end up at the north end of the access road at the storage tank or at the south end a locked gate near the Zion View Mountain Estates subdivision.

Table 3.2.8 below identifies overlapping National Forest roads with the corresponding OHV trail. It also identifies the anticipated distance and duration of construction disturbance.

**Table 3.2.8: Recreational trails and roads disturbed during construction.**

National Forest road	Markagunt OHV System	Impact distance	Typical Users	Impact Duration
058 Strawberry Point Road	#5 Strawberry Loop #58 Strawberry Point	26,010 ft. (private section not included)	Vehicle, OHV, snowmobile	Short-term one-lane traffic during construction.
239 (Jeep trail)	# 6 Harris Rim Loop	3,705 ft	4x4, OHV, horseback	Short-term closure during construction.
1925 (Jeep trail)	#6 Harris Rim Loop	6,650 ft	4x4, OHV, horseback	Short-term closure

				during construction.
060 Swains Creek Road		3,985 ft	Vehicle, OHV, snowmobile	Short-term one-lane traffic during construction.
2338 (Jeep trail)		1,900 ft	OHV	Short-term closure during construction.
2021	#57 Zion View Connector (FS #2021)	(4,780 ft) trail would be permanently closed to OHV use to comply with Forest Plan open route density and to avoid motorized vs. non-motorized trail conflict.	OHV	Long-term permanent closure of west half of trail. Eastern half would not be impacted.
Virgin River Rim Trail		400 ft co-located with proposed tank access road.	Mountain bike, horseback, hikers	Short-term closure of 400 feet during construction.

### Direct and Indirect Effects

During construction traffic along National Forest roads and private roads would be disrupted temporarily. FS058 and FS060 are currently wide enough to maintain one-lane open during construction, narrow road sections at existing culverts may require a short-term closure. FS239, FS1925, and FS2338 would be temporarily closed during construction to restrict the footprint of the utility line trench within the roadway. Only one of these roads would be closed at one time as the utility lines are being installed. Trenches would be backfilled immediately after utility lines are installed. No trenches would be left open over night or unattended. Appropriate traffic safety measures would be utilized at all construction areas.

The proposed access road to the tank site would be co-located over the VRRRT for a distance of 400 feet. This segment of the trail could be temporarily closed during construction. Temporary trail closures are expected to last no longer than 8 hours on 3 different days. Post construction sporadic and short-term mixed use of the 400 foot section of collocated VRRRT and tank access road during operation and maintenance of the facility.

Since the utilities would be buried, impacts to recreation would be of a temporary, short-term nature during construction. Anticipated construction would occur over the summer and fall of 2012 and 2013. Impacts to winter recreation would be avoided. Recreational access to

Strawberry Point would be maintained during construction. The VRRT would be maintained open during construction, except a 400 foot section may be temporarily closed during construction if necessary to ensure the safety of trail users. Anticipated closure would be 8 hours on 3 different days.

The western half, 4,780 feet, of the Zion View Connector OHV trail (#57)(FS32021) would be permanently closed to motorized use. This trail connects two private Zion Mountain Estates roads and leads to the same place, FS1913.

Forest users' recreational experience is affected by nuisance noise. Nuisance noise associated with the use of gas-powered generators to provide electricity indirectly affects recreational experience. Electrical power supply would reduce the use of individual gas powered generators in the project area.

### **Cumulative Effects**

During construction recreationists could be displaced to other trails and areas of the district. This could have a cumulative effect on the surrounding areas of the forest. Therefore, considering recreation impacts the cumulative effects area of the project is the entire Cedar City Ranger District.

As the remaining vacant lots of the Zion View Mountain Estates and Sky Haven subdivisions are developed, the number of recreational users over the entire Cedar City Ranger District could increase. SITLA land to the west could be developed which could also increase the number of recreational users over the District.

Newly developed over-night accommodations would be available to forest recreational users on adjacent private parcels. This could provide increased recreational opportunity for users requiring modern accommodations such as elderly or handicapped.

## ***SOCIOECONOMIC VALUES***

### **AFFECTED ENVIRONMENT**

The study area is important to surrounding communities for recreation, grazing, timber harvest, and fire wood gathering. Private land within the study area is used primarily for summer recreation homes. Surrounding communities within a 2-hour drive of the study area include Hurricane, Enterprise, Panguitch, Glendale, Hatch, Parowan, Cedar City, Washington and St. George. Most of the summer homes in the study area are used by residents of surrounding communities and larger more distant communities such as Las Vegas and Southern California.

The industries that provide the greatest number of jobs in Kane County include leisure and hospitality; government; trade, transportation, and utilities; and education, health, and social services. The major employers in Kane County include Best Friends Animal Sanctuary, Aramark (Lake Powell Resorts), Kane County Hospital, Kane County School District, Kane County Government, and the Federal Government (Economic Development Corporation of Utah 2011)

US Census Bureau 2010 recorded the population of Kane County at 7,125 individuals; of this 4,312 reside in the City of Kanab. Comparison to the 2000 US Census, Kane County's population grew by 17.8% during this period while the national percent population growth was 9.7%; Utah's population grew 23.8% over this same 10 year period (US Census Bureau 2000, 2010).

US Census Bureau 2010 housing status reports 5,815 total housing units in Kane County. Of this 2,900 housing units are occupied (2,163 owner-occupied and 737 renter-occupied) and 2,915 are unoccupied. Of the unoccupied homes 251 were on the market for sale or rent, the remaining 2,423 housing units are listed as seasonal, recreational, or occasional use properties (US Census Bureau 2010). Roughly 42% of the homes in Kane County are seasonal or recreational homes.

Utah Tax Code 59-2-103 requires residential property to be taxed on the basis of its fair market value. The Utah Constitution allows a 45% residential exemption for the primary residence of the owner. Seasonal, recreational, and second homes are taxed on the full fair market value.

Kane County's taxable market value of land is \$1,150,327,926. The Kane County assessed value for Zion View Mountain Estates parcels is \$31,987,135 and Sky Haven parcels that would be serviced by the project is \$1,269,672 on 58 parcels (Sunrise Engineering 2012). Therefore, 2.89% of Kane County's current taxable market would be serviced by the proposed project.

Residents of the Zion View Mountain Estates subdivision either haul their own water to their private cabin or have the existing Zion View Mutual Water Company (ZVMWC) deliver water to their individual water tank via a water hauling truck. Currently the water company's water supply does not meet federal and state standards for public water supply. Deficiencies are measured by the State on a point system through a sanitary survey. ZVMWC currently has the most points of any water system in Utah with 552 points. This puts the ZVMWC at the top of the Improvement Priority System list. Kane County Water Conservancy District has been working with ZVMWC to design a culinary water transmission system that would supply its users with drinking water that meets federal and state water quality standards.

On July 27, 2011 the Utah Division of Drinking Water issued ZVMWC an Administrative Order requiring compliance with the Drinking Water Act stating a list of actions necessary to comply. On November 2, 2011 the Division of Drinking Water sent a failure to comply letter to the water company with outlined penalties of \$1,000/day and \$5,000/day for willfulness or gross negligence (Appendix B, UDWQ 2011b). The water company does not have the resources to pay the fines or address the deficiencies in the system for which they will be fined. ZVMWC will cease water delivery leaving its users without water this year.

## **ENVIRONMENTAL CONSEQUENCES**

### **No Action Alternative – Direct and Indirect Impacts**

The Utah Division of Drinking Water will shut down the current water supply company this year. This will stop water supply to Zion View Mountain Estates properties. Existing ZVMWC users will be required to haul water from another source. Without an approved culinary water

system, construction of undeveloped lots would stop and existing private property values would decrease. Banks will not make construction loans for development of parcels with no approved drinking water supply or power supply. Therefore, the No Action alternative would have a negative socio-economic effect on local communities within the zone of influence of the Dixie National Forest.

### **Proposed Action Alternative - Direct and Indirect Impacts**

The Utah Department of Environmental Quality, Division of Drinking Water will shut down the current water supply company this year. This will stop water supply to Zion View Mountain Estates properties. Existing ZVMWC users will be required to haul water from another source.

Participation in the proposed project is completely voluntary to the property owners that could be serviced by this project. If a property owner chooses not to participate they are not required to, and they can tie into the system at a later time. If they choose to participate, the initial connection fees would be \$10,000 with a water share and \$12,500 without a water share. KCWCD is providing funding at 6% for 10 years and additional funding options for those individuals in need. Service connections to the private parcels vary by the size of the parcel and home location. The anticipated monthly usage fees are \$25/month and \$2.00-2.50 per 1,000 gallons of water.

Short-term direct impact on the regional communities would include a viable construction project. The anticipated construction contract would be \$5.4 million. Construction would likely include 4 contractors with a total of 8 crews of 4 -5 people on each crew working about 120 calendar days, then 4 of those crews would work an additional 120 calendar days to complete the project.

Long-term maintenance of the facility would require 1 full time employee to take care of the system, and a summer crew of 4 doing maintenance each summer from June through September.

With a State approved drinking water system the unimproved lots in the Zion View Mountain Estates and Sky Haven subdivisions could be developed. Construction of summer homes would increase the assessed tax value of the parcels. Property taxes on seasonal homes directly affect the county school budget without added cost of additional students attending the schools as is often the case with primary homes. The SITLA land could be sold by the state for private development therefore, giving the land a taxable value. Money from the sale of SITLA land benefits Utah public schools.

Building on the undeveloped parcels would also create construction jobs. Residential development is typically contracted to small local or regional contractors and building supplies typically come from a local supplier. This would be an indirect, long-term positive socio-economic effect on the regional community.

Additional summer homes in the area would directly affect the amount of visitors using the surrounding forest. Increased recreation visitation results in retail sales to the surrounding commercial developments including gas stations, restaurants, lodging, and retail stores. This

creates jobs and sales tax that directly supports the community. This is a positive, long-term indirect socio-economic effect of the proposed action.

The Zion View Mountain Estates and Sky Haven subdivision would have pressurized water supply with fire hydrants. This could reduce the property insurance rate on individual residences. In addition, emergency response communication would be improved with available telephone. Both of these are positive, indirect socio-economic effects of the proposed action.

The proposed action would result in less risk of water borne illnesses due to use of a State approved drinking water supply on the residents in comparison to the current existing conditions. This would be a positive, long-term direct effect of the proposed action on public health and safety.

### **Cumulative Effects**

The cumulative effects area regarding socio-economic impacts includes populations of Kane, Garfield, Iron, and Washington Counties. In general, development creates jobs and jobs benefit the public. The cumulative socio-economic effect on populations within the CEA would be long-term, positive.

Continued timber harvest, fuels reduction, grazing, and recreation would have minor cumulative effect on populations of the region.

## ***SOILS***

### **AFFECTED ENVIRONMENT**

The study area is included in the USDA Dixie National Forest – Parts of Garfield, Washington, Iron, Kane and Wayne Counties Soil Survey dated February 7, 2007. Soils that would be impacted by construction of the project are within 4 soil units; 241, 236, 204, and 240A (USDA-NRCS 2011).

The semi-wet meadow along Strawberry Creek is soil unit (241) – Clayburn – Menbar families association, 1 to 15 percent slopes. This association is 60 percent Clayburn; a well drained soil, hydrologic class D with no restrictive features. Soil profile is 0 to 6 inches silt loam, 6 to 60 inches silty clay loam. Menbar makes up 20 percent of this soil association; a somewhat poorly drained soil, hydrologic class C with no restrictive features. Soil profile is 0 to 32 inches silt loam, 32 to 60 inches extremely gravelly silt loam. Depth to water is 21 inches. The project footprint through the Strawberry Creek valley is within the existing dirt road. The gravel road base is 1 foot higher in elevation than the adjacent meadow.

The Zion View Mountain Estates subdivision, the tank site, the tank access road, FS1925, and FS2338 is soil unit (236) – Buffmeyer – Rogert- Sawpit families complex, 30 to 60 percent slopes. Composition is 85% Buffmeyer, 20% Rogert, and 20% Sawpit. Buffmeyer is well-drained, hydrologic class C. Soil profile is 0 to 1 inches slightly decomposed plant material, 1 to 2 inches gravelly silt loam, 2 to 24 inches very gravelly clay loam, and lithic bedrock at 24 inches. Rogert is somewhat excessively drained, hydrologic class D. Soil profile is 0 to 12 inches very gravelly silt loam, 12 to 16 inches very gravelly loam, lithic bedrock at 16 inches.

Sawpit is well-drained, hydrologic class C. Soil profile is 0 to 10 inches gravelly silt loam, 10 to 24 inches extremely gravelly silt loam, lithic bedrock at 24 inches.

FS058 leaving Zion View Mountain Estates subdivision is soil unit (204) – Buffmeyer, deep – Amesmont families complex, 20 to 45 percent slopes. This soil is well drained, hydrologic class B. Soil profile is 0 to 18 inches silt loam, 18 to 36 inches silt clay loam, 36 to 41 inches very gravelly silt clay loam, lithic bedrock at 41 inches.

FS060 as it enters Sky Haven subdivision is soil unit (240A) – Sawdust –Shawa, calcareous families association, 2 to 8 percent slopes. Composition is 60% Sawdust soils and 20% Shawa soils. Sawdust is well drained, hydrologic class B. Soil profile is 0 to 1 inch slightly decomposed plant material, 1 to 60 inches very gravelly loam. Shawa soil is well drained, hydrologic class B. Soil profile is 0 to 7 inches very fine sandy loam, 7 to 18 inches loam, 18 to 27 inches very fine sandy loam, 27 to 60 inches silt loam.

## **ENVIRONMENTAL CONSEQUENCES**

### **Direct and Indirect Impacts**

Winter temperatures can drop below -20°F, therefore pipelines must be buried to a depth of 7 feet below ground level to prevent freezing.

Most of the project footprint is disturbed by existing roads, trails or fuel reduction activities. New soil disturbance is projected to be 5.4 acres between the tank site, tank access road and road widening. Some blasting may be necessary for construction at the tank site as the tank is proposed to be buried with the upper 4 feet exposed. Excess material from the tank site would be transported to an approved material disposal site. No long-term adverse impacts to soils are anticipated from construction of the project because post construction 2.37 acres would be reseeded, the tank and chlorine building are impermeable surface, and closing the western arm of OHV trail #57 would reduce roads in the project area by 0.36 miles.

Long-term maintenance and repair of the utility lines is anticipated. Trenching to repair utilities buried within roads would be necessary over the life of the utilities. The long-term indirect impact on traffic flow for repair of utilities buried within roads is considered minor because of the proposed depth of the utilities and the engineered design specifications.

### **Cumulative Effects**

The cumulative effects area for soils is limited to the project foot print, Figures 1,2 and 3. Soil compaction associated with continued use of existing roads and trails is anticipated. Development of summer homes on private lands will disturb soils on building sites. Continued grazing, fuels reduction projects, and potential wildfire could affect soils in the project area.

## ***WILDLIFE***

### **AFFECTED ENVIRONMENT**

The project area was surveyed for a variety of threatened, endangered, sensitive and management indicator species (MIS). Wildlife found in the area is indicative of aspen, mixed conifer, and

meadow habitats at upper elevations in southern Utah. The following tables summarize the species, and effects.

Wildlife listed as federally threatened, or endangered is covered in the Special Status Species Section. Species listed as sensitive in Region 4 of the Forest Service are also covered in that section.

## **SPECIAL STATUS SPECIES**

### **REGULATORY SETTING**

The Endangered Species Act (ESA) of 1973 (16 USC 1531 to 1543) is the primary legislation that affords federal legal protection to threatened and endangered species in the United States. The USFWS along with the National Marine Fisheries Service are responsible for administration of the ESA. The ESA provides for conservation plans, recovery plans, designation of critical habitat, and consultations regarding listed species. Section 7 of the ESA directs all federal agencies to use their existing authorities to conserve threatened and endangered species and, in consultation with the service, to ensure that their actions do not jeopardize listed species or destroy or adversely modify critical habitat. Section 7 applies to management of federal land as well as other federal actions that may affect listed species, such as federal approval of private activities through the issuance of federal permits, licenses, grants, or other actions.

The Fish and Wildlife Conservation Act of 1958 and amendments (16 USC 2901 - 2911) encourage coordination between federal, state, local, and private agencies for the conservation of fish and wildlife. In Utah, federal regulations are used to protect wildlife. However, the Utah Division of Wildlife Resources (DWR) of the Department of Natural Resources plays an important role in managing Utah's wildlife. DWR oversees and manages the State's hunting and fishing programs; maintains the State's sensitive wildlife species list and oversees programs to prevent these species from becoming listed as threatened or endangered; and maintains the Utah Conservation Data Center, which is a central repository for Utah biodiversity information. Information stored in this repository is a collection of data from many sources including: DWR, Utah Reclamation Mitigation and Conservation Commission, the U.S. National Park Service, USFS, USFWS, BLM, Utah State University, University of Utah, Brigham Young University, the Nature Conservancy, NatureServe, various museums, and numerous individuals. The Utah Natural Heritage Program maintains a database of the recorded occurrence locations of federally listed and Utah sensitive species.

### **AFFECTED ENVIRONMENT**

The project area was surveyed for a variety of threatened, endangered, sensitive and management indicator species (MIS). Wildlife found in the area is indicative of aspen, mixed conifer, and meadow habitats at upper elevations in southern Utah. The following tables summarize listed species, habitat suitability or known occurrences in the project area, and which species will be analyzed further in this document.

## FEDERALLY LISTED SPECIES

**Table 3.2.11.1: Federally listed threatened, endangered or candidate species that occur on Cedar City Ranger District of Dixie National Forest, and their occurrence in or near the proposed Strawberry Ridge Utility Improvement project.**

TES Species	Habitat suitability or known occurrences of listed species in or near the project area	Species to be analyzed further (Yes/No)*
<i>Gymnogyps californianus</i> California Condor Experimental (E)	Range extends into high cliff areas of Southern Utah. To date, no condors have been released in Utah. Condors have been seen winter foraging near Strawberry Point near the project area, and are known to perch on human structures there. These birds are within the boundaries of the experimental range and do not nest in the area.	Yes
<i>Strix occidentalis lucida</i> Mexican Spotted Owl (T)	Old-growth forests and rocky canyons. Spotted owls have been recorded in the area during winter foraging and juvenile dispersal.	Yes

\*Yes – The proposed project’s potential effects on these species will be further analyzed in this document.

\*No – No further analysis is necessary, and a determination of “No Effect” is rendered.

### California Condor

#### Existing Condition

Condors have been seen winter foraging near Strawberry Point near the project area, and are known to perch on human structures there and use the area during summer months. These birds are within the boundaries of the experimental range and do not nest in the area. Condors are opportunistic scavengers, feeding on carcasses of mule deer, elk, cattle, domestic sheep and smaller mammals. Lead poisoning from feeding on carcasses of animals shot with lead bullets is a primary threat to condors. Most condor forage over open terrain and roost on cliffs, tall conifers, dead snags, or power poles.

#### Direct and indirect impacts

Condor are somewhat habituated to human presence and due to their scavenging nature they could be attracted to areas where construction is occurring thus putting them at risk. Conversely, they may be temporarily displaced from using the cliff areas near the project area while construction activities are occurring. Other suitable cliff habitat is in the local vicinity. Reduction in open routes would be a beneficial impact to this species.

#### Cumulative Effect

Condor are generally wide ranging birds. The cumulative effects area for condor includes four 6th order HUCs; Strawberry Creek, Swains Creek, Upper North Fork Virgin River, and Muddy Creek. Increase in human activity in the project area and surrounding areas is anticipated with projected population growth. Increased traffic within the cumulative effects area could result in a higher number of road kills. Road kills could attract condor resulting in condor mortalities from traffic collision along SR-14 and SR-89. Traffic in the project area would likely increase

with development of utilities and general population growth. Traffic collision with condors along the project routes is unlikely as the traffic typically travels at slow speeds on most dirt roads. Grazing, hunting, private property development and recreation are expected to continue in the cumulative effects area. All of these activities could put condors at risk if they increase their range and numbers of individuals.

### **Determination**

The proposed project **would not jeopardize** the experimental non-essential California condor (*Gymnogyps californianus*) population or its habitat.

## **Mexican Spotted Owl**

### **Existing Condition**

There are 5 critical habitat units in southern Utah covering approx. 2.3 million acres of federal land. No critical habitat has been designated on the Cedar City Ranger District. The project area falls between two parcels that are located outside of the district.

Spotted owls have been recorded in the area during winter foraging and juvenile dispersal. During nesting season the owls have moved to the Zion National Park area. There are several areas of cliff near the project area that may be suitable for nesting habitat; however, DNF has completed spotted owl surveys consistently since the 1990s and no known nests are within the area.

### **Direct and Indirect Impacts**

The reduction in open route density would be a beneficial impact on this species. Construction of the proposed utility improvement project would be initiated during summer months and continue into fall and possibly early winter. Anticipated construction of the water tank is 3 months. Construction crews and equipment present during the fall and early winter could displace winter foraging and juvenile dispersal to other areas of the forest until construction is complete or crews have left due to low temperatures. Nearby suitable habitat is available. The permanent footprint of the 80 foot diameter tank and 100 square foot pump house would reduce potential prey habitat by 1 acre. The area around the tank would be reseeded and reclaimed to a semi-natural condition post construction. Pipelines would be buried to a depth of 7 feet and would cause no permanent loss of prey habitat.

### **Cumulative Effect**

The cumulative effects area for MSO is four 6th order HUCs, which includes Strawberry Creek, Swains Creek, Upper North Fork Virgin River, and Muddy Creek. Some increase in human activity is expected within the subdivisions with the improvement of utilities. It is not anticipated that this project would add significantly to long-term adverse impacts to this species. However, it is anticipated that the existing uses (grazing, fuels reduction, timber harvest, private property development, and recreation) will continue within the cumulative effects area. Human presence and associated noise from all of these activities could displace spotted owls from foraging in the project area post construction.

**Determination**

Implementation of the Strawberry Ridge Utility Improvement project **may affect, but would not likely adversely affect** Mexican spotted owl (*Strix occidentalis lucida*).

**REGIONAL SENSITIVE SPECIES**

**Table 3.2.11.2: Regional sensitive species that occur or have habitat on the Dixie National Forest.**

Species Common Name <i>Scientific Name</i>	Habitat suitability within project area based on:	Further Analysis? (Yes or No)*
Wildlife		
Pygmy rabbit <i>Brachylagus idahoensis</i>	Tall, dense sagebrush clumps and loose, deep soils. No habitat within project area.	No
Spotted bat <i>Euderma maculatum</i>	Plant communities in/around proposed project site may be suitable foraging habitat for spotted bat. No documented occurrences near project area.	Yes
Townsend’s Western Big-Eared Bat <i>Corynorhinus townsendii townsendii</i>	Plant communities in/around proposed project site may be suitable foraging habitat for Townsend’s Western big-eared bat. No documented occurrences near project area.	Yes
Bald eagle <i>Haliaeetus leucocephalus</i>	No nesting habitat present or impacted. Known to roost near project area during late fall and winter.	Yes
Greater sage-grouse <i>Centrocercus urophasianus</i>	Predominantly sagebrush plains, foothills and mountain valleys; associated wet meadow areas. No habitat within project area.	No
Peregrine falcon <i>Falco peregrinus anatum</i>	Nearest known eyrie is <5 mi. from project area. Project site falls within the 1-mi. hunting/active defense range of this eyrie.	Yes
Flammulated owl <i>Otus flammeolus</i>	Suitable nesting and foraging habitat due present (larger diameter trees for nesting and surrounding meadow grasslands). No documented occurrences near project area.	Yes
Three-toed woodpecker <i>Picoides tridactylus</i>	High elevation spruce/fir plant communities present. Historical records of occurrence.	Yes
Northern goshawk <i>Accipiter gentiles</i>	Project lies within PFA of active territory.	Yes

**Table 3.2.11.2: Regional sensitive species that occur or have habitat on the Dixie National Forest.**

Species Common Name <i>Scientific Name</i>	Habitat suitability within project area based on:	Further Analysis? (Yes or No)*
Yellow-billed cuckoo <i>Coccyzus americanus</i>	No suitable patches (25-100 acres) of riparian forest dominated by willow and cottonwood stands available in or near the project area. Nearest potential habitat is at lower elevations. Species has not been observed on the Dixie National Forest.	No
Boreal Toad <i>Bufo boreas</i>	No current or historical records of boreal toad exist for the Cedar City Ranger District; no habitat for amphibians present.	No
Fish		
Colorado River cutthroat trout <i>Oncorhynchus clarki pleuriticus</i>	No perennial stream habitat within project area.	No
Bonneville cutthroat trout <i>Oncorhynchus clarki utah</i>	No perennial stream habitat within project area.	No
Southern Leatherside Chub <i>Lepidomeda aliciae</i>	No perennial stream habitat within project area.	No
Plants**		
Wonderland Alice Flower <i>Aliciella (=Gilia) caespitosa</i>	Endemic to Wayne County; pinyon-juniper communities on the Carmel and Navajo formations between 5,200 and 8,515 feet elevation.	No
Dana milkvetch <i>Astragalus henrimontanensis</i>	Endemic to Garfield County in ponderosa pine, pinyon-juniper, and sagebrush communities on gravelly loam soil, 7,000-9,200 feet elevation.	No
Navajo Lake milkvetch <i>Astragalus limnocharis</i> var. <i>limnocharis</i>	Found in plant communities with scattered bristlecone pine on the Wasatch Limestone Formation between 8,800 and 10,500 feet elevation. Endemic to the Navajo Lake area on the Cedar City Ranger District.	No
Table Cliff milkvetch <i>Astragalus limnocharis</i> var. <i>tabulaeus</i>	Endemic to Garfield County on steep, unstable limestone formations on the pink member of the Wasatch Limestone Formation, at 9,200-10,170 feet elevation.	No

**Table 3.2.11.2: Regional sensitive species that occur or have habitat on the Dixie National Forest.**

Species Common Name <i>Scientific Name</i>	Habitat suitability within project area based on:	Further Analysis? (Yes or No)*
Guard milkvetch <i>Astragalus zionis var. vigulus</i>	Endemic to the east side of the Pine Valley Mountains in pinyon- juniper, mountain mahogany, and oak-Garrya communities at 5,000-8,2000 feet.	No
Paradox moonwort <i>Botrychium paradoxum</i>	Meadow habitats and snowfields, at elevation between 9,000 and 10,000 feet. Known from Escalante Ranger District.	No
Aquarius paintbrush <i>Castilleja aquariensis</i>	Endemic to the Aquarius Plateau, Garfield and Wayne counties, in sagebrush and grass meadow communities adjacent to aspen-subalpine fir on clay-loam soils at about 9,800-11,000 feet elevation.	No
Tushar paintbrush <i>Castilleja parvula var. parvula</i>	Alpine areas on igneous gravels and outcrops and elevation, between 10,000 and 12,100 feet. Not known on Dixie National Forest.	No
Reveal paintbrush <i>Castilleja parvula var. revealii</i>	Ponderosa pine/bristlecone pine community on gravelly soils of the Wasatch Limestone Formation between 7,500 and 8,300 feet elevation. No suitable habitat within project area.	No
Yellow-white catseye <i>Cryptantha ochroleuca</i>	Associate with pinyon-juniper, ponderosa pine, and bristlecone communities on the pink limestone member of the Wasatch Formation, between 6,500 and 9,000 feet. Known from Escalante and Teasdale Districts.	No
Pinnate spring-parsley <i>Cymopterus beckii</i>	Pinyon-juniper, mountain brush, and ponderosa pine communities in sandy canyon bottoms or cliff crevices between 5,500 and 9,000 feet elevation. Known from Teasdale District.	No
Cedar Breaks biscuitroot <i>Cymopterus minimus</i>	Bristlecone, ponderosa pine, and spruce-fir communities on escarpments on Wasatch Limestone at 8,000-10,400 feet elevation. No suitable habitat within project area.	No
Creeping draba <i>Draba sobolifera</i>	Endemic to the Tushar Mountains in alpine tundra and spruce-fir communities in igneous gravels and talus at 7,500-12,000 feet elevation.	No

**Table 3.2.11.2: Regional sensitive species that occur or have habitat on the Dixie National Forest.**

Species Common Name <i>Scientific Name</i>	Habitat suitability within project area based on:	Further Analysis? (Yes or No)*
Pine Valley goldenweed <i>Ericameria crispa (Haplopappus crispus)</i>	Endemic to the Pine Valley Mountains in Iron County at elevations of 5,970-9,200 feet. Occurs in moderately open areas in association with ponderosa pine, Manzanita, fir, and aspen.	No
Widtsoe buckwheat <i>Eriogonum aretioides</i>	Endemic to Garfield County; bristlecone pine, ponderosa pine, Douglas-fir, Rocky Mountain juniper comm. on Pink Limestone member of the Wasatch Formation between 7,400 and 8,710 feet elevation.	No
Jones goldenaster <i>Heterotheca jonesii</i>	Found in Garfield, Kane, and Washington counties on ponderosa pine, Manzanita, pinyon-pine, and Douglas-fir communities on sandstone or in sand between 4,000 and 9,450 feet elevation. No suitable habitat within project area.	No
Zion jamesia <i>Jamesia americana var. zionis</i>	Mountain brush and spruce-fir communities, mostly on cliffs and other rocky places at 4,000-10,500 feet elevation. Not known on Dixie National Forest.	No
Neeses' peppergrass <i>Lepidium montanum var. neeseae</i>	Endemic to Garfield County on dry, sandy sites with little cover in ponderosa pine, Manzanita, spruce- fir communities. Typically found on the pink and white limestone members of the Wasatch Formation and on the Navajo Sandstone Formation at elevations of 7,300-9,000 feet.	No
Podunk groundsel <i>Packera (Senecio) malmstenii</i>	Endemic on the Sevier-Markagunt and Paunsaugunt plateaus in Iron, Kane, and Garfield counties in bristlecone pine, spruce-fir, and mixed conifer woodlands on steep talus slopes of the Clarion Limestone at about 8,790-10,512 feet elevation. No suitable habitat within project area.	No
Paria breadroot <i>Pediomelum pariense</i>	Endemic in Garfield, Washington, and Kane counties on ponderosa pine and pinyon-juniper communities on calcareous, or sandy soils between 5,575 and 8,000 feet elevation. Not known on Dixie National Forest.	No

**Table 3.2.11.2: Regional sensitive species that occur or have habitat on the Dixie National Forest.**

Species Common Name <i>Scientific Name</i>	Habitat suitability within project area based on:	Further Analysis? (Yes or No)*
Red Canyon beardtongue <i>Penstemon bracteatus</i>	Endemic in Garfield County on ponderosa pine, pinyon-juniper, limber pine, and bristlecone pine-manzanita communities on the pink and white limestone members of the Wasatch Formation between 6,900 and 8,320 feet elevation.	No
Little penstemon <i>Penstemon parvus</i>	Endemic in Garfield, Piute, Sevier, and maybe Wayne counties in sagebrush-grass, and spruce communities between 8,200 and 10,170 feet elevation.	No
Pinyon penstemon <i>Penstemon pinorum</i>	Endemic to the Pine Valley Mountains in Iron County on pinyon-juniper communities between 5,600 and 5,800 feet elevation.	No
Angell's cinquefoil <i>Potentilla angelliae</i>	Endemic in Wayne County on the Aquarius Plateau in rocky subalpine meadows at about 10,988 feet elevation.	No
Arizona willow <i>Salix arizonica</i>	Found in riparian corridors above 8,500 feet elevation in unshaded or partially shaded wet meadows, streamsides. No suitable habitat within project area.	No
Maguire campion <i>Silene petersonii</i>	Ponderosa pine, Rocky Mountain juniper, bristlecone pine, and spruce-fir, on open calcareous escarpments between 6,955 and 11,200 feet elevation. No suitable habitat within project area.	No
Rock-tansy <i>Sphaeromeria capitata</i>	Disjunctive populations in Garfield County on bristlecone pine on Cedar Breaks Limestone at about 5,000-7,800 feet elevation.	No
Bicknell thelesperma <i>Thelesperma subnudum</i> var. <i>alpinum</i>	Endemic to Wayne County; restricted to the Navajo Sandstone and Carmel Limestone on the peculiar vari-colored phase in pinyon-juniper, mountain brush, and bristlecone pine communities at 7,380-9,000 feet elevation.	No

\*Yes - The proposed project's potential effects on this species will be analyzed further in this document.

\*No – No further analysis is necessary.

\*\*Plant habitat information taken from Madsen 2011.

## **Spotted and Townsend's Big-eared Bats**

### **Existing Conditions**

There are no caves, mine shafts, or lava tubes for roosting within the proposed project area. There are ample rock crevices and steep rock faces near the project footprint perimeter, however; no spotted or Townsend's Big-eared bats have been observed at or near the proposed project area. The project area does provide suitable foraging habitat.

### **Direct and Indirect Impacts**

All construction activity for the proposed project would occur during daylight hours. There would be no direct disturbance to the spotted bat or Townsend's big-eared bat. No known roost areas are within the project footprint.

New surface disturbance includes the 5.4 acres for the tank site, new access road, and road widening. Of this 2.37 acres would be reseeded post construction. This clearing would alter foraging habitat on a minimal level.

### **Cumulative Effects**

CEA for spotted bat and Townsend's big-eared bat impacts is the same as for all wildlife species. Ongoing fuels reduction, grazing, timber harvest, and recreational uses are anticipated. Cumulative effects from these ongoing activities to spotted bat and Townsend's big-eared bat is anticipated.

### **Determination**

Implementation of the Strawberry Ridge Utility Improvement project **may impact individuals or habitat but would not likely cause a trend towards federal listing or a loss of viability** of spotted bat and Townsend's big-eared bat.

## **Flammulated Owl**

### **Existing Conditions**

Primary nesting habitat for flammulated owls is ponderosa pine and secondary habitat includes mixed conifer and aspen. The project area contains primary and secondary habitat for flammulated owls. Surveys conducted during August 2011 resulted in no detection of owls within the project area.

### **Direct and Indirect Impacts**

Indirect impacts due to habitat loss or alteration are expected. Several large snags occur along the roads where pipelines would be installed. These trees are potential nesting trees for flammulated owls. Clearing of the new tank site and the new tank access road could also result in loss of nesting habitat. This impact is considered to be minimal since no owls were detected using the area, minimal nest trees would be removed, and more suitable habitat located away from roads would not be impacted with this project.

Direct impacts from project activities could result in temporary displacement of owls during construction. This disturbance is only anticipated during construction and would cease once the project is complete. Disturbance from maintenance vehicles to service the new tank would be no

greater than motorized vehicle disturbance already experienced by wildlife within the project area. The proposed reduction in open route density would be a beneficial impact to this species.

### **Cumulative Effects**

CEA for flammulated owl is the same for all wildlife species. Activities associated with the proposed project would occur during the day, not while owls are out foraging. No flammulated owls have been observed in this drainage, and minimal foraging habitat would be impacted. Grazing, fuels reduction, timber harvest, recreation, and private property development are expected to continue.

### **Determination**

Implementation of the Strawberry Ridge Utility Improvement Project **may impact individuals or habitat but would not likely cause a trend towards federal listing or a loss of viability** for flammulated owls.

## **Northern Goshawk**

### **Existing Conditions**

The project area is suitable foraging habitat for northern goshawks. Portions of the project area fall within the 600 acre Post-fledgling Family Area (PFA) of the Zion goshawk territory. This territory had been inactive since 2004, but was determined to be active in 2011 after two fledglings and an adult responded to survey calls made from the proposed tank site along with confirmed activity at the known nest site in August 2011. Annual monitoring in May of 2012 showed no indication of occupancy or activity of the Zion goshawk territory. Monitoring of this territory will occur several times during the breeding season for the life of this project in order to determine the need for restricted activity within the PFA seasonal temporal buffer.

### **Direct and Indirect Impacts**

The project area is located within the 600 acre PFA of the Zion goshawk territory. This nesting area had been inactive since 2004, but was determined active summer of 2011 after surveys conducted in August 2011, but not active in 2012. A seasonal buffer period between March 1 and September 30 within the PFA are in place for goshawk (USDA 2000). Construction within this time frame would only be permitted if District wildlife staff have surveyed the area and determined that the territory is not active or occupied or that the birds are out of the territory or not within direct line of sight with construction activities. Construction along FS058 leaving the Zion View Mountain Estates subdivision and FS239 would be subject to seasonal restrictions if District wildlife staff determine territory occupancy or an active goshawk nest is located for the life of the project.

Direct disturbance to the northern goshawk would include new disturbance to 5.4 acres of foraging habitat at the tank site and pipeline routes. Some indirect impacts would include noise disturbance and short-term temporary displacement of prey species. The area of new disturbance is minimal, and other project activities are confined to narrow corridors of existing roads; therefore, the proposed project should have short-term, minimal impacts to northern goshawks. The proposed reduction in open route densities would be a beneficial impact to this species.

### **Cumulative Effects**

Goshawks forage over wide areas. The CEA for goshawk is the same for all wildlife species. The proposed action could impact the northern goshawk from noise disturbance to foraging birds and future traffic. Use of the new access road would remain minimal. Access would be by NFS or KCWCD maintenance vehicles only. Anticipated use is 1 vehicle trip every 30 days. Some increase in human activity is expected within the subdivisions with the improvement of utilities. It is not anticipated that this project would add significantly to negative cumulative impacts for this species. Ongoing fuels reduction, timber harvest, grazing, recreation and private property development is anticipated.

### **Determination**

Implementation of the Strawberry Ridge Utility Improvement Project **may impact individuals or habitat but would not likely cause a trend towards federal listing or a loss of viability** to northern goshawks.

## **American Peregrine Falcon**

### **Existing Conditions**

There is a known eyrie located near the boundaries of the proposed project. The project area falls within the 1-mile hunting/active defense range of this eyrie. There is a recent record of peregrine falcon within or near the project area. One adult falcon was observed during annual territory monitoring on June 7, 2011 as well as on May 17, 2012. Monitoring of this territory would occur several times during the breeding season for the life of the project in order to determine the need for restricted activity within the 1-mile seasonal temporal buffer.

### **Direct and Indirect Impacts**

The project area is located within the 1-mile hunting/active defense range of a known falcon eyrie. There is a recent record of peregrine falcon activity within or near the project area. One adult falcon was observed during annual territory monitoring on June 7, 2011 and again in May of 2012.

Direct disturbance to the peregrine falcon would include new disturbance to 5.4 acres of foraging habitat for construction at the tank site and pipeline routes; post construction 2.37 acres would be reseeded. Some indirect impacts would include noise disturbance and temporary displacement of prey species. A spatial buffer of 1.0 mile radius around the eyrie and a seasonal buffer period between February 1 and August 31 are in place for peregrine falcon. No construction shall occur within outlined buffers or until the forest wildlife biologist has determined that young have left the nest and/or the construction activity is not within direct line of sight of the nest. With the spatial and seasonal construction buffers and the relatively small amount of new surface disturbance the proposed project should have short-term, minimal impacts on the peregrine falcon or its habitat. With the project design features long-term impacts on prey habitat is expected to be minimal. Long-term use of the new access road would be minimal; access would be by NFS or KCWCD maintenance vehicles only. Anticipated use is 1 vehicle trip every 30 days. The reduction in open route density would be a beneficial impact on habitat for this species.

### **Cumulative Effects**

The CEA for peregrine is the same for all wildlife species. The proposed action could impact the peregrine falcon from noise disturbance to foraging birds and future traffic. Some increase in human activity is expected within the subdivisions with the improvement of utilities. The cumulative effect on falcon habitat from timber harvest, fuels reduction, grazing, and recreational use is expected to continue within the outline cumulative effects area.

### **Determination**

Implementation of the Strawberry Ridge Utility Improvement Project **may impact individuals or habitat but would not likely cause a trend towards federal listing or a loss of viability** to peregrine falcon.

## **Bald Eagle**

### **Existing Conditions**

Bald Eagles have been documented near Duck Creek Pond, 4 miles from the project area, during late fall, and early winter (USDA 2010). Duck Creek Pond is the nearest body of water where bald eagles have been noted (Rodriguez 2008). Typically, 2 or fewer birds are seen at the pond during the winter months. Potential roost trees were removed in 2003 during a hazardous tree removal project in Duck Creek Campground (USDA 2010). Since construction of the proposed project would occur during the summer months, there would be no effect on bald eagles using the pond.

### **Direct and Indirect Impacts**

The project area is located greater than 4 air miles from Navajo Lake and Duck Creek Pond. Bald eagles are known to use these two bodies of water during winter months. Birds may perch in the project area as they pass through the area; however construction would not occur during winter months when birds are expected. Therefore direct and indirect impacts to bald eagles are expected to be negligible. The new disturbance area of 5.4 acres would reduce the number of large trees available for perching. Temporary displacement of prey species may also be an indirect effect to any eagles in the area.

### **Cumulative Effects**

The cumulative effects area on bald eagles is the same for all wildlife species. Continued effects on bald eagle roosting and foraging habitat from fuels reduction, grazing, timber harvest, recreation and private property development is anticipated.

### **Determination**

Implementation of the Strawberry Ridge Utility Improvement Project **may impact individuals or habitat but would not likely cause a trend towards federal listing or a loss of viability** to bald eagle or its suitable habitat.

## **Three-toed Woodpecker**

### **Existing Conditions**

The project area contains some, and is within close proximity to, areas of beetle-killed forest. Slash piles around the tank site were burned in November 2011. Forest Service wildlife staff conducted a survey for three-toed woodpeckers in August 2011. No woodpeckers were detected within the project area.

### **Direct and Indirect Impacts**

Direct disturbance to the three-toed woodpecker would include new disturbance to 5.4 acres of foraging and nesting habitat. Some indirect impacts would include noise disturbance and temporary displacement of wildlife species. The area of disturbance is minimal, and other project activities are confined to narrow corridors of existing roads; therefore, the proposed project should have short-term, minimal impact on the three-toed woodpecker or its habitat. The proposed reduction in open route density would have a beneficial impact on this species.

### **Cumulative Effects**

Cumulative effects associated with habitat loss and human presence from ongoing fuels reduction, timber harvest, recreational uses and private property development on three-toed woodpecker are anticipated. Cumulative effects area for three-toed woodpecker is the same area outlined for all wildlife.

### **Determination**

Due to the small amount of habitat loss and proposed project design features, implementation of the Strawberry Ridge Utility Improvement Project **may impact individuals or habitat but would not likely cause a trend towards federal listing or a loss of viability** to three-toed woodpecker or its suitable habitat.

## **SUMMARY OF DETERMINATIONS FOR FEDERALLY LISTED THREATENED OR ENDANGERED SPECIES**

As a result of this analysis, it is determined that implementation of the proposed Strawberry Ridge Utility Improvement project would have the following effects on federally listed species:

- (1) No jeopardy determination on the experimental non-essential California condor (*Gymnogyps californianus*) population.**
- (2) May impact Mexican spotted owl, but is not likely to adversely affect.**

## **SUMMARY OF DETERMINATIONS FOR REGIONAL SENSITIVE ANIMAL AND PLANT SPECIES**

As a result of this analysis, it is determined that implementation of the proposed Strawberry Ridge Utility Improvement project would have the following effects on sensitive species:

- (1) **May impact** spotted bat and Townsend’s big-eared bat, flammulated owl, northern goshawk, bald eagle, three-toed woodpecker, and peregrine falcon, **but would not lead to a trend towards Federal listing or loss of viability.**
- (2) **No impact** on pygmy rabbit, greater sage grouse, yellow-billed cuckoo, boreal toad, southern leatherside chub, Bonneville cutthroat trout, or Colorado River cutthroat trout or their habitats.
- (3) **No impact** to any Regional sensitive plant species.

**Avoidance and Minimization of Effects**

The goshawk territory and peregrine falcon eyrie would continue to be monitored prior to project activities to determine occupancy. If birds are present, monitoring would continue throughout the nesting season to determine nest success. A spatial buffer within the PFA and a seasonal buffer period between March 1 and September 30 are in place for northern goshawk. Construction within this time frame would only be permitted if District wildlife staff has surveyed the area and determined that the birds are out of the territory or not within direct line of sight with construction activities. If goshawk are discovered during the 2012 nesting season in the project area, all construction activities along FS058 south of Zion View Mountain Estates and FS239 would be restricted between March 1 and September 30.

If any sensitive animal or plant species are detected during project implementation, it is recommended that project activities be suspended in the area of detection until Forest Service biologists can determine the best way to proceed to minimize impacts to the species.

The area around the new tank would be reseeded and restored to a semi-natural condition. Thus, the permanent footprint would be reduced to the tank, access road and pump house. Existing roads within the remainder of the project area would be used to the greatest extent possible for installation of utility lines. New disturbances would be reseeded where applicable.

Re seeding would occur during fall months with a Forest Service approved seed mix.

**DIXIE NATIONAL FOREST MANAGEMENT INDICATOR SPECIES**

**Table 3.2.15: Management Indicator Species (MIS) as identified by the Land and Resource Management Plan for the Dixie National Forest, adopted in 1986 (Northern Goshawk is also an MIS but is addressed in the Sensitive Species Section).**

Species	Species or Habitat Present?	Species or Habitat Potentially Affected?	Impact to Population Viability?
Wildlife			
Rocky Mountain Elk	Yes	Yes	No impact
Mule Deer	Yes	Yes	No impact

Northern Flicker	Yes	Yes	No impact
Wild Turkey	Yes	Yes	No impact
Fish			
Brown trout	No	No	No impact
Brook trout	No	No	No impact
Cutthroat trout	No	No	No impact
Rainbow trout	No	No	No impact

## ENVIRONMENTAL CONSEQUENCES

### Direct and Indirect Impacts

Direct impacts to elk, mule deer, and wild turkey would include new disturbance to 5.4 acres of habitat, 2.37 acres would be reseeded post construction. A direct impact to northern flickers includes the loss of 5.4 acres of potential nesting and breeding habitat. Overall habitat effectiveness would increase however, with the proposed reduction in open route density. This is considered a beneficial direct impact. Indirect short-term impacts would include noise disturbance and temporary displacement of wildlife during construction. It may be necessary to blast rock from the tank pad site. Blasts would be in compliance with the State construction safety standards utilizing a certified blast technician. A blast is a short-term, one-time percussion impact on wildlife similar to a sonic boom or a close gun shot. If more than one blast is necessary it is separated by a day of excavation. It is unlikely that more than one blast would be necessary. No long-term effects from blasts on wildlife are anticipated. The area of new disturbance is minimal, and other project activities are confined to narrow corridors of existing roads; therefore, the project impacts would be minor given the short duration of activities and the low acreage impacted with no loss of viability.

### Cumulative Effects

The cumulative effects area for deer, elk, wild turkeys, and northern flickers is the land included in four 6<sup>th</sup> order HUCs encompassing the project footprint. Outlined HUCs are Strawberry Creek, Swains Creek, Upper North Fork Virgin River, and Muddy Creek. Wildlife would be displaced to the CEA during construction and habitat rehab after construction. Readily available utilities would encourage development of the remaining undeveloped lots in Zion Mountain Estates subdivision. Anthropogenic impacts to wildlife associated with population growth are expected in the long term. Ongoing fuels reduction, grazing, wood production, and recreation would have impacts on these species within the cumulative effects area as well.

## **MIGRATORY BIRDS**

### **REGULATORY SETTING**

The Migratory Bird Treaty Act of 1918 (16 USC 701 to 715s) and associated amendments provide for the protection of migratory birds and their parts—including eggs, nests, and feathers. Federal agencies are directed to ensure that federal actions are not likely to have a measurable, negative effect on migratory birds. Also, the Eagle Protection Act of 1940 (16 USC 668) specifically protects bald eagles and golden eagles. The *Utah Field Office Guidelines for Raptor Protection from Human and Land Use Disturbances* establishes guidance for raptor protection locally.

### **AFFECTED ENVIRONMENT**

The project area is dominated by spruce/fir habitat. There are areas of beetle-killed spruce that have been cleared and dead trees stacked into slash piles. Large snags or dead trees exist throughout the project area and provide roosting habitat for large birds of prey as well as nesting cavities for smaller birds. Along the roadways, there are areas of open meadow. Strawberry Creek and Swains Creek within the project area flow only during high water stages in the spring, or possibly all year in years with above-average precipitation. These creeks flow through wet meadow lacking riparian vegetation.

Migratory birds considered in this section are those listed on the Utah Partners in Flight Priority Species Lists that occur in mixed conifer and spruce/fir habitat. Those species that are also listed as Utah Sensitive Species (bald eagle, three-toed woodpecker, Mexican spotted owl, peregrine falcon, flammulated owl, greater sage grouse, and Northern goshawk) are discussed in the Sensitive Status Species Section. The broad tailed hummingbird (*Selasphorus platycercus*), a priority migratory bird species, is discussed in this section.

The broad-tailed hummingbird breeds in mountains throughout the Great Basin and Rocky Mountain states. Primary nesting habitat consists of mountain riparian zones and secondary consists of high elevation forests. These birds will often return to the same tree for nesting year after year.

### **ENVIRONMENTAL CONSEQUENCES**

#### **Direct and indirect impacts**

Direct impacts could occur if activities occurred during the breeding season and from tree removal and displacement of breeding birds. Indirect impacts could occur due to habitat loss from road construction and tank construction. These impacts are expected to be short term, minimal since the project area is secondary breeding habitat and includes little habitat loss overall. Short-term impacts include noise disturbance and temporary displacement of migratory birds within the wildlife cumulative effects area during construction. Long-term maintenance use of the new tank and access road would be minimal, approximately 1 vehicle trip every 30 days.

#### **Cumulative Effects**

The cumulative effects area for the broad-tailed hummingbird includes four 6th order Hydrologic Unit Code (HUC) watersheds encompassing the project footprint. These 6th order HUCs include; Strawberry Creek, Swains Creek, Upper North Fork Virgin River, and Muddy

Creek. Some increase in human activity is expected within the subdivisions with the improvement of utilities. This could mean an increase of backyard bird feeders, often frequented by smaller migratory birds.

It is not anticipated that this project would add significantly to negative cumulative impacts to migratory birds in the long term. Fuels reduction, grazing, and timber production activities are expected to continue. Recreational impacts within the CEA are expected to continue and increase with population growth.

## ***TRANSPORTATION***

### **AFFECTED ENVIRONMENT**

A project level Transportation Analysis Process Report (TAP) was completed in May, 2012 during the environmental review of the proposed project. The TAP is on file in the project record and incorporated with this reference. Before implementing road management decisions, the Forest Service completes a TAP to provide decision makers with critical information to develop road systems that are safe and responsive to public needs and desires, are affordable and efficiently managed, have minimal negative ecological effects on the land, and are in balance with available funding for needed management actions.

The transportation analysis area considered for this project includes all roads and trails within the Strawberry Creek Watershed. The existing transportation system in the analysis area includes a network of 109.08 miles of system roads. The system also includes 15.4 miles of motorized trails. The National Forest System roads serve a number of purposes. These include recreation, timber management, and access for fire suppression (USDA 2012).

### **ENVIRONMENTAL CONSEQUENCES**

#### **Direct and Indirect Impacts**

The proposed action would decommission 0.9 mile of motorized trail (FS32021) and add 0.54 mile of maintenance level 1 administrative access road to the existing transportation system within the analysis area (See Figures 2 and 3). Therefore the analysis area would result in 109.62 miles of system roads and 14.5 miles of motorized trails.

The Forest Plan guidance for National Forest System lands for wildlife habitat is 2 miles of road per square mile of habitat; currently the analysis area exceeds recommended road density. The proposed action is a net reduction in open route density by 0.36 mile, thereby a positive direct impact on wildlife habitat. The proposed administrative route would be maintained by the permittee, and not the agency. Removal of 0.9 mile of motorized trail would reduce maintenance costs to the agency. The proposed action would result in less motorized trails in the project area. Since FS32021 is redundant access from the east arm of FS32057 to Zion Mountain Estates subdivision the impact on motorized recreation is negligible. A 400 foot section of the VRRRT would be co-located with the proposed access road. This would be a direct impact on the scenic integrity of this 400 section of non-motorized trail changing the character from a two-track trail to a 20 foot wide dirt road. This would be a negligible impact on the transportation aspect of the trail and a minor impact on the recreational perception of the trail. Due to the closure of

motorized trail #32021, noise from OHV use will be diminished, a positive impact on the non-motorized trail (USDA 2012).

### **Cumulative Impacts**

The proposed action could improve fire suppression, fuels reduction, and timber harvest activities by providing an administrative access route in the area. Private property development would increase use of the Forest Service transportation system in the project area.

## ***VEGETATION***

### **AFFECTED ENVIRONMENT**

Vegetation of the subject area consists of high mountain meadow and mixed conifer with patches of aspen stands. Strawberry Point Road cuts across a high mountain wet meadow, Strawberry Creek meanders through the meadow. Dominant meadow vegetation consists of Prairie Junegrass, mutton grass, Kentucky bluegrass, shrubby cinquefoil, sorrel, dandelion, clover, cattail, tufted hairgrass, squirreltail, western wheatgrass, horsetail, arctic rush and cow parsnip. The meadow gives rise to mixed conifer with aspen patches near the subdivisions and water tank site. Dominant species at the tank site and access road consists of white fir, Oregon grape, Engelmann spruce, limber pine, ponderosa pine, Douglas-fir, manzanita, cryptantha, pussytoes, milkvetch, smooth brome, Kentucky bluegrass.

### **ENVIRONMENTAL CONSEQUENCES**

#### **Direct and Indirect Impacts**

Most of the project footprint is disturbed by existing roads, trails or fuel reduction activities. New surface disturbance is projected to be 5.4-acres between the tank site, tank access road and road widening.

#### **Cumulative Effects**

Cumulative effects area for vegetation is the project footprint. Development of summer homes on private lands in the project area will disturb vegetation and timber on building sites. Large trees on building sites could be removed by private property owners. Continued grazing, fuels reduction projects, and potential wildfire could affect vegetation in the project area.

## ***VISUAL RESOURCES***

### **LANDSCAPE CHARACTER**

This area of the Dixie National Forest is characterized by high elevation mixed conifer and aspen forest with interspersed open meadows. Strawberry Creek meanders northeast through Strawberry Valley draining the high elevation snowpack to the Sevier River. Most of the area consists of natural appearing forest environment; however the character of the project area has been altered by spruce beetle kill, fuel load management, construction of summer homes, overhead utilities, fences, and signs.

This area is primarily used for recreation due to the picturesque landscapes, high elevation climate, open space, and rugged terrain. The Forest Management Plan designates the project

area for wood production and grazing. The summer homes and cabins built on the private lands surrounded by forest land have increased the recreational use of the area over the last decade.

The Scenery Management System (SMS) was implemented by the Forest Service in 1996 to replace the Visual Management System (VMS) of 1974. The Scenery Management System expanded the Visual Management System to accommodate ecosystem management and the realistic time frames of natural systems. The SMS identifies which scenic elements forest users value most and identifies ways to maintain or improve them. The SMS applies Scenic Integrity Objectives (SIO) for all forest management areas except Management Area 1, General Direction. An area with an unassigned SIO does not indicate that the area lacks scenic integrity; merely a visual assessment must be completed for projects proposed in unassigned SIO areas.

Scenic Integrity Objective (SIO) indicates the current status of a landscape, the degree of intactness and wholeness of the landscape character. The SIO refers to the degree of acceptable change or alteration of the valued landscape theme. Under the Scenery Management System, higher SIOs represent highly valued natural landscapes where management activities would result in little or no deviation from those values. Greater modification to the landscape is acceptable in low SIO landscapes. Very High Scenic Integrity is reserved for designated Wilderness areas or areas where the valued landscape character is intact and there is no obvious modification. High Scenic Integrity applies to areas that appear unaltered and integrity is intact, structures are designed to blend with the natural landscape. Moderate Scenic Integrity may appear slightly altered but alterations are visually subordinate to the overall landscape. Low Scenic Integrity areas may have deviations that dominate the landscape.

The landscapes of the Dixie National Forest are described according to Landscape Themes. **Developed Recreation** is a Landscape Theme characteristic of areas with developed recreation facilities such as campgrounds and picnic areas. In these areas, the recreation facilities are dominant feature in the landscape. The **Natural Appearing** Landscape Theme applies to areas where the existing landscape character has been influenced by human activities, but appears natural to the majority of viewers. Natural elements such as native trees, rock outcrops, and streams or lakes dominate the views. In a **Natural Evolving** Landscape Theme, the natural landscape character originates primarily from natural disturbances and ecological succession, with only subtle changes due to indirect human activities. In these areas, natural events such as forest fires, drought, or deforestation due to insect infestations may dramatically change the views (USFS 2000).

Table 3.2.13.1 below outlines the proposed areas of construction and the corresponding Forest Plan Management Area Code, the assigned Scenic Integrity Objective and the Landscape Theme. The assigned SIO on Strawberry Point Road (FS058) and FS239 is categorized high due to recreational access to Strawberry Point. The scenic integrity objective is to maintain a natural appearing forest to visitors traveling to the scenic viewing area on these roads. Opportunities to enhance the character and screen human influence on the landscape should be promoted even though these roads are within Forest Management Areas designated for livestock grazing and wood production which are typically assigned low to moderate SIO.

**Table 3.2.13.1: Proposed construction areas and corresponding Forest Plan Management Area Code, Scenic Integrity Objective, and Landscape Themes.**

Construction Area	Forest Plan Management Area – Code	SIO	Landscape Theme
Road 058	Livestock grazing - 6A	High	Natural Appearing
Road 239			
Road 1925		Moderate	
Road 060			
Road 2338			
Tank Access Road	Wood Production – 7A	Low	
Tank Site			

**ENVIRONMENTAL CONSEQUENCES**

Considering the environmental consequences of construction of the proposed alternative it is determined that the project is in compliance with the SIOs of the Forest Plan. The high SIO along FS058 and FS239 are achieved by project design features outlined below, eliminating existing air quality impacts from water hauling trucks, and future elimination of above ground water storage tanks on private parcels from the direct line of sight from users on these roads. The discussion and Table 3.2.13.2 below summarizes the visual assessment of the proposed construction project.

**Table 3.2.13.2: Visual resource assessment of the proposed action.**

Project Area	Character	Integrity	Anticipated Impacts	Proposed Action Elements
Road 058	High use, 30' wide gravel road traverses a high mountain meadow; meadow gives rise to mixed conifer and aspen forest. Strawberry Creek meanders through the meadow. Road crosses Strawberry Creek, two metal culverts (24", 18") provide creek crossing. Road leads to Strawberry Point, scenic overlook. Road is used for recreation, private property access, hunting, timber harvest, grazing allotment access. View of red tailed hawk hunting the meadow. View of deer at forest/meadow edge, seasonal cattle grazing.	Road becomes wider every time it is graded and graveled. Meadow is used for grazing, cattle fence and cattle guard along roadway. Overhead power line crosses road near the north end, private cabins and a fire station are permanent structures noted along the roadway at the north end (Strawberry Valley subdivision) and the southern end (Zion View Mountain Estates), dirt airplane runway in the wet meadow west and parallel to the road.	<b>Short-term:</b> construction impacts consisting of trench and bury of utility lines. Single lane access would be maintained through construction. Construction equipment, personnel. <b>Long-term:</b> 6 or 7 Airlock vents and 2 fire hydrants would be appropriately spaced along the entire roadway, and placed within 15' of roadway. Utilities would be buried, no overhead power lines proposed.	<ul style="list-style-type: none"> <li>➤ Silt fence would be installed along adjacent meadow.</li> <li>➤ Culverts would be maintained to provide natural drainage to Strawberry Creek.</li> <li>➤ All construction impacts would be within the footprint of the existing roadway, except the air vents and hydrants which would be outside the existing roadway.</li> <li>➤ Dust control measures would be utilized as necessary.</li> <li>➤ Utilities would be buried, no overhead infrastructure.</li> </ul>

Project Area	Character	Integrity	Anticipated Impacts	Proposed Action Elements
Road 239	Moderate uses, 15' wide dirt road. Mixed conifer forest. Limited site distance, 15' into forest, 100' up and down road.	Graded, heavy winter broke many trees. Snow mobile trail markers on trees. Heavy OHV use.	<b>Short-term:</b> construction <b>Long-term:</b> potential widening by 3- 5 feet. Improved drainage as mitigation.	<ul style="list-style-type: none"> <li>➤ Dust control measures would be utilized as necessary.</li> <li>➤ Road would be graded and sloped for proper drainage.</li> </ul>
Road 1925	12-foot wide road. Mixed conifer forest with Ponderosa Pine. Limited site distance, 15' into forest, 100' down road. Meanders down steep slope when it crosses the ridge.	Heavy winter broke many trees. Heavy OHV use. Snow mobile trail and OHV trail markers.	<b>Short-term:</b> construction <b>Long-term:</b> potential widening by 5', convert from jeep trail to 4x4 road. Improved drainage as mitigation. Some tree/shrub clearing. Buried control valve vault in roadway, 2 vents and 1 hydrant within 15' of roadway.	<ul style="list-style-type: none"> <li>➤ Dust control measures would be utilized as necessary.</li> <li>➤ Road would be graded and sloped for proper drainage.</li> </ul>
Road 060	20' wide gravel/dirt road cut through high mountain meadow, meadow gives rise to mixed conifer and aspen forest. Swains Creek meanders through the meadow. Serves as a collector road to numerous side roads to private cabins on both sides.	Road becomes wider every time it is graded. Meadow is used for grazing, cattle fence along road. Overhead powerlines. Dirt airplane runway in wet meadow. Heavy OHV use.	<b>Short-term:</b> construction <b>Long-term:</b> No long-term visual impact as utility line would be buried. 2 airlock vents and 1 fire hydrant within 15' of the roadway would be appropriately spaced along the southern most end of the roadway.	<ul style="list-style-type: none"> <li>➤ Culverts would be maintained to provide natural drainage to Strawberry Creek.</li> <li>➤ All construction impacts would be within the footprint of the existing roadway.</li> <li>➤ Dust control measures would be utilized as necessary.</li> </ul>
Road 2338	1719 feet long leads to SITLA lands. 10' wide two track dirt road.	Heavy winter in 2011 broke many trees. The road has been cleared for OHV passage, the broken trees remain on the sides.	<b>Short-term:</b> construction <b>Long-term:</b> the road would be 30 feet wide with drainage down the north side.	<ul style="list-style-type: none"> <li>➤ Dust control measures would be utilized as necessary.</li> <li>➤ Road would be graded and sloped for proper drainage.</li> </ul>
New Tank Access Road	The first 1000' of route leaves the subdivision on a 2-track ATV trail through mixed conifer forest with aspen stands, white limestone rock outcrops. The second 1854' is cross country. Limited sight distance 10-20 feet.	Gates would be installed to restrict access to the tank site to the general public and to mark the VRRT. The access road would be a permanent new road.	<b>Short-term:</b> disruption to the VRRT users during construction. Construction presence. <b>Long-term:</b> new 30' wide road maintained for maintenance access. 1 Vent and 1 hydrant within 15' of roadway.	<ul style="list-style-type: none"> <li>➤ Proposed route follows an alignment that minimizes necessary cuts and fills.</li> <li>➤ Proposed alignment utilizes existing drainage crossing.</li> </ul>
Tank Site	Mixed conifer with ponderosa pine, Douglas fir. Limited sight distance offers forested seclusion. Deer, flickers, rock squirrels and	Slash piles, remnant logging roads, undesignated ATV trails.	<b>Short-term:</b> Construction 1.5 acres cleared and graded for pad site and staging area. <b>Long-term:</b> 82'diameter tank and 352 sq. ft. treatment building would be permanent structures.	<ul style="list-style-type: none"> <li>➤ Tank site location is not visible from existing roads, trails and viewpoints.</li> <li>➤ Tank is buried to 4 feet above ground surface.</li> <li>➤ Top soil would be</li> </ul>

Project Area	Character	Integrity	Anticipated Impacts	Proposed Action Elements
	chipmunks common.			<p>scraped and stock piled then redistributed as part of final clean-up and reclamation of the tank site.</p> <ul style="list-style-type: none"> <li>➤ Disturbed areas would be reseeded with approved seed mix during late fall.</li> <li>➤ Tank is stained a non-reflective color of the native soil.</li> <li>➤ Treatment building is stained a non-reflective color of the native soil.</li> </ul>
Zion View Mnt Estates	Second homes in the high mountain forest, secluded by mixed conifers and aspen. Dirt, 28' wide roads used to access lots.	Cabins lack consistency in age, style, color and materials. Above ground water storage tanks, relic RVs, and remnant building materials litter some private cabin lots others are quaint and well kept. Some dead spruce.	<b>Short-term:</b> Construction <b>Long-term:</b> project would encourage cabin construction on the undeveloped remaining lots, existing cabins could remove above ground water storage tanks. Airlock vents and fire hydrants, every 500 feet throughout the subdivision.	<ul style="list-style-type: none"> <li>➤ Dust control measures would be utilized as necessary.</li> <li>➤ Road would be graded and sloped for proper drainage.</li> <li>➤ Alignment follows existing roads.</li> <li>➤ Utilities would be buried, no overhead infrastructure.</li> </ul>
Sky Haven	Second homes in the high mountain forest, secluded by mixed conifers and aspen. Dirt 10' wide roads used to access lots.	Cabins on private lands lack consistency in design, color, age and materials.	<b>Short-term:</b> construction within existing roadways. <b>Long-term:</b> Airlock vents and fire hydrants every 500' throughout the subdivision. Utilities would be buried, no overhead power lines proposed.	<ul style="list-style-type: none"> <li>➤ Dust control measures would be utilized as necessary.</li> <li>➤ Road would be graded and sloped for proper drainage.</li> <li>➤ Alignment follows existing roads.</li> <li>➤ Utilities would be buried, no overhead infrastructure.</li> </ul>
SITLA Land	Forested mixed conifer and aspen. The Virgin River/Sevier River divide bisects this 200-acre parcel of land. Pink cliffs are exposed on the south side of the divide. Views from the cliff edge are breathtaking.	Winter 2011, heavy snow, freeze and wind knocked down and broke many trees.	<b>Short-term:</b> no changes to this land. <b>Long-term:</b> 180 acres could be subdivided for summer homes in an area that is natural appearing.	<ul style="list-style-type: none"> <li>➤ Utilities would be buried, no overhead infrastructure.</li> </ul>

### **Direct and Indirect Impacts**

Construction is proposed May 2012 – November 2013. Construction timing is subject to proper permits, weather, and wildlife buffers. Anticipated crew working days on this job are 240 calendar days. The presence of construction equipment would have a negative short-term visual impact during construction.

The proposed action is to bury the utility lines more than 7 feet beneath existing dirt roads. FS1925 and FS2338 would be widened from the existing 4x4 road (10 feet) to 30 feet to accommodate installation. Temporary side cast would disturb an additional 10 feet along the length of the trench. FS239 and FS060 are currently 20 feet wide. Temporary side cast would disturb an additional 10 feet along the length of the trench. FS058 is currently wide enough to restrict construction within the existing road boundaries.

Buried utility lines in comparison to overhead utilities have a significantly less visual impact. Project related surface disturbance is considered a short-term negligible impact when considering the long term benefit of buried utilities on visual resources.

Fire hydrants and air lock vents would be appropriately spaced and noticeable along the roads in which pipelines are placed.

Construction of the water storage tank would disturb 1.5 acres of forest. The proposed site has been partially cleared for the fuels reduction project. Slash piles were burned on the tank site in November 2011. The water tank would be buried with the upper 4 feet exposed. Some blasting may be necessary to excavate the hole for the tank. Excess fill material would be hauled off to an approved waste disposal site located off National Forest System lands. The long-term direct visual impact of the tank would be minimal because it would be stained to match surrounding colors, it would be mostly buried, and it is in a wooded area not seen from roads and trails.

The tank access road would change the character of 1,000 feet of two-track OHV trail to a 20 foot wide road. In addition 1,854 feet of new 20 foot wide dirt road would be constructed. This area has existing impacts from timber harvest and the fuels reduction project. Temporary surface disturbance for the tank access road is 1.97 acres, of this 0.2 acres is existing two-track OHV trail. Post construction the road would be sloped appropriately for surface water drainage and the sides would be reseeded to maintain not more than a 20 foot wide road. Post construction 0.85 acres would be tank access road. The road would be gated and locked at the Zion View Mountain Estates subdivision. A 400 foot long section of the road would be co-located with the existing Virgin River Rim Trail.

Piped water supply to developed homes would eliminate the need for water hauling trucks on Strawberry Point Road (FS058). This would reduce fugitive dust in the valley.

Piped water supply and a 350,000 gallon community water storage tank would eliminate the need for additional individual above ground water tanks on future developed lots. Existing homes could, upon individual homeowners' discretion, remove unsightly above ground water storage tanks on individual properties. Available fire hydrants for fire suppression could reduce

risk of catastrophic wildfire, thereby reducing risk of wildfire impacts on visual resources including air quality, vegetation, and fire control efforts.

Overall, the proposed action could have a long-term positive effect on visual resources of the surrounding forest by relieving some of the visual impacts of individual utility systems and reducing the risk of catastrophic wildfire.

### **Cumulative Effects**

The cumulative effects area viewed includes the Strawberry Valley, Zion View Mountain Estates and Sky Haven subdivisions. Fuels reduction, timber harvest, OHV and recreational travel, grazing, road maintenance, development of cabins in the project area, and development of private lands south and west of the project area would have continued affect on the visual resources of the area.

## ***WATER RESOURCES***

### **REGULATORY SETTING**

The Clean Water Act (CWA) Section 404 requires a permit for actions involving the dredge or fill of materials within US waters (33 U.S.C. 1344). The State of Utah Division of Water Rights has authority to issue a stream alteration permit for this project under the provisions of General Permit 40. The intent of this law is to protect lakes, rivers, stream, mudflats, sandflats, sloughs, wet meadows, natural ponds, and wetlands adjacent to other waters from the indiscriminate discharge of material capable of causing pollution and to restore and maintain their chemical, physical, and biological integrity.

The CWA also requires each state to implement its own water quality standards. The State of Utah's Water Quality Antidegradation Policy requires maintenance of water quality to protect existing instream beneficial uses on streams designated as Category 1 High Quality Waters. All surface waters geographically located within the outer boundaries of the Dixie National Forest, whether on private or public lands, are designated as High Quality Waters (Category 1) (Utah Division of Water Quality 2004). This means they would be maintained at existing high quality. New point sources would not be allowed, and non-point sources would be controlled to the extent feasible through implementation of Best Management Practices (BMPs) or regulatory programs. The State of Utah and the Forest Service have agreed through a 1993 Memorandum of Understanding to use Forest Service Plan Standards and Guidelines and the Forest Service Handbook (FSH) 2509.22 Soil and Water Conservation Practices (SWCPs) (USDA Forest Service 1988, Appendix A) as the BMPs. The use of SWCPs as the BMPs meets the water quality protection elements of the Utah Nonpoint Source Management Plan.

To insure that this project is in compliance with the National Pollutant Discharge Elimination System, if additional culverts are required during road work, KCWCD will acquire a NPDES permit if necessary. In their Plan of Development, KCWCD will identify where any new culverts will be located and address any discharges into the stream system in the area.

## AFFECTED ENVIRONMENT

The project area is located near the upper reaches of the intermittent Strawberry Creek. Strawberry Creek flows into Asay Creek a tributary to the Sevier River, which is part of the Upper Sevier River watershed. Lars Fork and 5 un-named ephemeral drainages feed into Strawberry Creek within the project area along Strawberry Point Road. A wet meadow is adjacent to Strawberry Creek through the valley. Twin springs are just west of FS1925 and would not be impacted by the project.

The beneficial use classification of Asay Creek and its headwaters are; 2B – Protected for secondary contact recreation such as boating, wading or similar uses, 3A – protected for cold water species of game fish and other coldwater aquatic life, including the necessary aquatic organisms in their food chain, and 4 – protected for agricultural uses including irrigation of crops and stock water. Asay Creek was recorded as fully supporting its beneficial use classification when last assessed in 2002 (UDWQ 2004).

The Upper Sevier River watershed (Hydrologic Unit Code (HUC) #16030001) extends upstream from its confluence with the East Fork Sevier River near Piute Reservoir and is comprised of the major tributaries of Mammoth, Asay, Panguitch, and Bear Creeks. Sevier River water is fully utilized for irrigation in Circleville Valley more than 80 river miles downstream of the project area. The main portion of the watershed (excluding the East Fork Sevier River) is 831,000 acres and is comprised of 425,539 acres of NFS lands, 188,249 acres Bureau of Land Management public lands, 132,136 acres private, 84,377 State and 841 acres of National Park lands. Private land comprises 16% of the total land area of the watershed (UDWQ 2004).

Impairments within the Upper Sevier River watershed are established through Total Maximum Daily Loads (TMDLs) for pollutants and sources of concern. Four segments of the Upper Sevier River all within Garfield County, north of the project area, have been listed on the 2002 303(d) list of impaired waters for their designated beneficial use as a cold water fishery (Class 3A). Total phosphorus and habitat alteration (mainly due to grazing management) are the listed pollutants of concern. Compliance implementation strategy consists of streambank restoration, riparian fencing and grazing management. (UDWQ 2004)

In the Upper Sevier River watershed land under agricultural production represents only 3% of the land cover, roughly 29,139 acres. Water related land use comprises 35,616 acres of the watershed of which 64% of land cover uses are associated with cattle production (UDWQ 2004).

The project area lacks a regional sewer treatment facility. All dwellings in the area utilize individual septic systems. All dwellings in Utah are regulated under the Utah Administrative Code R317-4 which regulates wastewater systems. The local health department must obtain approval from the Utah Division of Water Quality to administer alternative wastewater system permits. Alternative systems include on-site wastewater systems or septic tanks. The local health department is responsible for administering permits for new construction, enforcement and correction of malfunctioning systems, and maintaining a plan to properly manage these systems including review and inspection. The local health department is also responsible for a ground water quality protection management policy based on a ground water management study,

or policies for both onsite systems management and land use planning determined by the county's agency, including steps taken or planned to be taken for implementation of the policy.

## ENVIRONMENTAL CONSEQUENCES

### Direct and Indirect Impacts

Material exposed from excavation, fill and grading is the main source of potential water pollution. Non-sediment sources of pollution are generated by equipment and materials used during construction. Pollutants that could potentially affect water resources and that may be generated by the use of construction equipment or materials on site include fuel, oil, hydraulic fluid, solvents, trash and debris.

To comply with the Clean Water Act and Executive Orders 11990 and 11988 the project would not result in the dredge or fill within boundaries of US Waters or wetlands. The applicant would obtain a stream alteration permit from the State of Utah to cross under the culvert that contains Strawberry Creek within the boundaries of FS058. The utility lines would be bored beneath the existing culverts that contain flows of Strawberry Creek in Strawberry Creek Road. Or the culverts would be pulled and reset post installation of utility lines. Silt fence would be used to define construction limits and prevent incidental fill of the wet meadow adjacent to Strawberry Creek. No impact to the wet meadow is anticipated as construction would be confined to the limits of FS058.

Other existing culverts would be pulled for construction and reset to preconstruction elevations. Any erosion problem areas would be identified and contoured for drainage. Gravel aprons at culvert ends may be used to dissipate high spring water run-off flows to prevent excess soil erosion.

Table 3.2.14 below lists surface water features that would be crossed by construction of the proposed project. All eight features are crossed by Strawberry Point Road (FS058).

**Table 3.2.14: Surface water features within the project potential disturbance area.**

Water Feature	Location	Anticipated construction
Strawberry Creek	37°29'27.99"N 112°38'49.64"W	Bore under existing culverts in Strawberry Point Road.
Wet Meadow	37°29'28.17"N 112°38'50.52"W	Avoid by staying within existing road boundaries. Use silt fence to define construction limits.
Ephemeral Wash 1	37°29'20.61"N 112°39'5.2"W	Pull culvert and trench within existing roadway or bore.
Ephemeral Wash 2	37°29'12.35"N 112°39'19.14"W	Pull culvert and trench within existing roadway or bore.
Ephemeral Wash 3	37°29'6.23"N 112°39'27.28"W	Pull culvert and trench within existing roadway or bore.
Ephemeral Wash 4	37°28'41.30"N 112°39'58.96"W	Pull culvert and trench within existing roadway or bore.

Ephemeral Wash 5	37°27'59.05"N 112°40'33.72"W	Pull culvert and trench within existing roadway or bore.
Lars Fork	37°27'52.38"N 112°40'39.52"W	Pull culvert and trench within existing roadway or bore.

**Cumulative Effects**

The CEA for water resource impacts includes the Upper Sevier River Watershed (HUC 16030001). Reasonably foreseeable future activity within the CEA on public lands includes continued grazing, timber reduction and harvest, and recreational activities including dispersed camping and OHV use. Private property uses include residential development, light commercial development, and agricultural uses.

Listing impaired waters on the 303(d) list identifies waters that do not meet water quality standards for their designated beneficial use. Identifying impaired waters provides a mechanism to identify pollution point sources and to develop a compliance strategy. Development of the compliance implementation strategy by the state Division of Water Quality outlines measures to restore impaired waters TMDL to levels that meet the designated beneficial uses. Because of measures identified and being implemented within the Upper Sevier watershed to restore streambanks, fence riparian areas from cattle and control grazing practices the cumulative effect on water resources is minimal. Also, continued Forest Service efforts to bridge OHV water crossings and provide erosion control measures on trails reduces the cumulative impact from recreational use on water resources. In addition, the state requires a permit for installation of septic systems. The Utah Division of Water Quality regulations on continuous monitoring of ground and surface water quality in relation to the numbers of septic systems in an area would identify the need for a regional wastewater treatment system. Because of these water quality protection measures and the applicant committed avoidance, minimization and project design features outlined below the cumulative impact of the project on water resources is negligible (UDWQ 2004, R317-4).

## **CHAPTER 4 – CONSULTATION AND COORDINATION**

The Forest Service and a third party NEPA consultant, Alpine Environmental Resources, consulted the following individuals, Federal, State, and local agencies, and tribes during the development of this environmental assessment:

### ***INTERDISCIPLINARY TEAM MEMBERS:***

Steven Robinson, Recreation and Lands Specialist – Primary Project Leader  
Pam Gilbert, Reality Specialist – Final Project Leader  
Dave Swank, NEPA Specialist  
Marian Jacklin, Archeologist  
Rick Dustin, Landscape Architect  
Jake Dodds, Engineer  
Chris Butler, Hydrologist  
Nate Yorgason, Wildlife Biologist  
Brian Monroe, Range Management Specialist  
Patrick Moore, Timber Management Specialist

### ***THIRD PARTY NEPA CONTRACTOR:***

Alpine Environmental Resources, LLC  
Jill Hankins, NEPA Specialist  
Angela Averett, Conservation Biologist

### ***FEDERAL, STATE, AND LOCAL AGENCIES:***

Utah Forestry, Fire and State Lands Division  
Kane County Commission  
Garfield County Commission  
Iron County Commission  
Five County Association of Governments  
US Senator Orrin Hatch  
US Senator Mike Lee  
US Congressman Jim Matheson  
Utah State Representative Evan Vickers  
Utah State Representative Mike Noel  
State of Utah Public Lands Policy Office  
US Fish & Wildlife Service  
National Park Service  
Utah Division of Parks and Recreation  
Utah Dept. of Transportation  
Town of Brian Head  
City of Cedar City  
City of Panguitch  
City of Parowan

***TRIBES:***

Paiute Tribe of Southern Utah

***OTHERS:***

People For The USA  
Utah Environmental Congress  
WildEarth Guardians  
Kane County Water Conservancy District  
Sunrise Engineering, Inc.  
Aaron Averett, P.E.  
Utah Shared Access Alliance  
Southern Utah Wilderness Alliance

Private property owners within the project area that could be serviced by the proposed utilities were sent a scoping notice and letter. The names of individuals and groups receiving the scoping notice and letter are located within the project record.

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## **APPENDICES**

### **Appendix A – Soil and Water Conservation Practices**