

**DRAFT
ENVIRONMENTAL ASSESSMENT**

**VIRGINIA CITY AND GOLD HILL
WASTEWATER SYSTEM IMPROVEMENTS
STOREY COUNTY, NEVADA**

April 2011



**US Army Corps
of Engineers** ®
Sacramento District



Sierra Front Office

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REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO, CALIFORNIA, 95814-2922

Environmental Resources Branch

FINDING OF NO SIGNIFICANT IMPACT
Virginia City and Gold Hill Wastewater Systems Improvements
Storey County, Nevada

I have reviewed and evaluated the information presented in this Environmental Assessment (EA) for the Virginia City and Gold Hill Wastewater Systems Improvements, Storey County, Nevada. This project would involve (1) upgrading the existing wastewater treatment plant in Virginia City, (2) replacing Virginia City's sewer collection system, (3) constructing sewer lift stations in Gold Hill, and (4) replacing and extending the Gold Hill sewer collection system. The work would reduce potential surface and groundwater contamination, ensure public and environmental health, and meet Virginia City and Gold Hill wastewater treatment demands.

During this review, the possible consequences of the work described in the EA have been studied with consideration given to environmental, social, economic, and cultural feasibility. In evaluating the effects of the project, specific attention has been given to environmental conditions, including cultural resources and hazardous waste, which could potentially be affected. I have also considered the views of other government agencies, organizations, and individuals concerning the proposed project.

The project area is located entirely within the boundaries of the Virginia City Historic District (VCHD), which is listed on the National Register of Historic Places, as well as a National Historic Landmark (NHL). Numerous historic archaeological sites, features, and buildings have been identified that contribute to the integrity of the VCHD and NHL. Stipulations to determine the type and degree of any adverse effects of the project on these historic properties, as well as mitigation measures, are included in the Programmatic Agreement (PA) accompanying this EA. Implementing the stipulations in the PA would mitigate any adverse effects to less than significant.

Mercury contamination from past mining activities has been found in the soils and groundwater in Virginia City, Gold Hill, and surrounding areas. As a result, the project could disturb mercury-contaminated soils during surface clearing, grading, and excavation activities. To ensure public health, implementation of best management practices and measures required by the Nevada Division of Environmental Protection would reduce any effects on mercury sources or exposure to less than significant.

Based on my review of the EA and my knowledge of the project area, I am convinced that the proposed project is a logical and desirable alternative. Furthermore, I have determined that the project would have no significant effects on the environment. All construction will be implemented in compliance with applicable Federal, State, and local laws and requirements. Based on the results of the environmental evaluation and completion of agency coordination, I have determined that the EA and Finding of No Significant Impact provide adequate documentation and that no further environmental document is required.

Date

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BLM Draft Finding of No Significant Impact

1.0 PURPOSE AND NEED

1.1 Proposed Action

Storey County, Nevada, is proposing to (1) upgrade their existing wastewater treatment plant (WTP) in Virginia City; (2) replace the Virginia City sewer collection system; (3) construct sewer lift stations in Gold Hill; and (4) replace/extend the Gold Hill sewer collection system. Construction of an upgraded WTP is required to reduce potential groundwater contamination, ensure public health, and meet Virginia City and Gold Hill wastewater demands while accommodating potential future growth. Replacement of the sewer collection system in Virginia City is necessary due to severe deterioration of the existing system. Construction of the sewer lift stations and sewer collection system in Gold Hill is needed to replace the existing community septic system and provide sewage treatment capacity to Gold Hill.

1.2 Location of the Project Area

Virginia City and Gold Hill are located in Storey County, Nevada, approximately 18 miles southeast of Reno and 12 miles north of Carson City in western Nevada (Plate 1). The project area includes portions of T. 16 N., R. 21 E., and T. 17 N., R. 21 E., of the USGS Virginia City 7.5-minute quadrangle (Plate 2). The project area includes an area along Six Mile Canyon where the upgraded WTP would be constructed, the town of Virginia City where sewer lines would be replaced, and the town of Gold Hill where new force main sewer lines and sewer lift stations would be constructed and existing sewer lines would be replaced.

Portions of the project area are located on public land administered by the U.S. Bureau of Land Management (BLM). Storey County has applied to the BLM for a right-of-way (ROW) to install the new sewer lines that would be located on BLM-administered public land. The BLM has proposed to directly convey the WTP parcel to Storey County. In addition, the project area is within the Virginia City National Historic Landmark (NHL), Virginia City National Register District (NRD), and Comstock Historic District.

1.3 Need for Proposed Action

1.3.1 Virginia City

Treatment of Virginia City wastewater began with the construction of sewage treatment ponds in 1972. In 1982, an aeration basin type of WTP was constructed, and the sewage pond located west of Six Mile Canyon was converted to serve as an aeration and equalization basin to the WTP, while the pond located east of Six Mile Canyon was converted to a sludge wasting area (Farr West Engineering, 2010). The portions of the WTP located west of Six Mile Canyon Road are located on BLM land. The sludge wasting area is located on Storey County property. The existing WTP has an operating capacity of 0.1 million gallons per day (mgd) with a maximum capacity (peak flow) of

0.5 mgd (CSA, 2007). The treated effluent from the WTP is discharged into Six Mile Canyon Creek, which flows east from the WTP and eventually drains into the Carson River approximately 7 miles from the WTP.

Except for an auger screen installed in 2008, the WTP has not been updated since its construction in 1982. The plant process still includes manual removal of solid wastes, and the treatment technology of the liquid waste is outdated. In addition, the drying beds are undersized to provide adequate sludge drying time. Construction of the upgraded WTP is needed to update the treatment process and technology, which would result in more efficient automatic processing of solids and improve the quality of the effluent being discharged into Six Mile Canyon Creek. In addition, based on the State of Nevada demographer's population estimates, the current WTP is undersized to process peak demand. An upgraded WTP is needed to treat wastewater for the population over the next 20 years.

During periods of high precipitation and runoff in Six Mile Canyon, stormwater has been known to flood the existing WTP aeration pond, discharging untreated wastewater downstream (Farr West Engineering, 2010). This discharge of untreated wastewater is both hazardous to public health and a violation of Nevada Division of Environmental Protection (NDEP) standards that require treatment of wastewater prior to discharge. Construction of a stormwater drainage channel is needed to route stormwater around the aeration pond, and to avoid flooding and discharge of untreated wastewater.

The existing Virginia City sewer collection system was developed starting in the 1930's. The majority of the existing collection system, with the exception of the main on C Street, which was replaced in 1985, consists of old wood, clay, metal, or concrete pipelines. Due to the age of the system and the materials used for construction, the Virginia City collection system includes cracked pipes, failed joints, and pipe bottoms that have rotted away (Farr West Engineering, 2010). A video survey conducted in 2007 found that many of the old pipelines were deteriorated beyond repair and the collection system had passed its useful life (CSA, 2007).

The Virginia City sewer collection system is allowing raw sewage to infiltrate into the ground. This raw sewage is harmful to ground water resources and ultimately public health. The NDEP requires treatment of wastewater prior to discharge. Due to leaks, the current collection system does not meet NDEP standards and needs to be replaced so that all of the Virginia City wastewater is collected and conveyed to the WTP. In addition to deterioration, the existing Virginia City collection system lacks a sufficient number of manholes to ensure proper maintenance of the system. As a result, there is inadequate access to the pipes, so routine repairs cannot be made.

1.3.2 Gold Hill

The Gold Hill sewer collection system does not currently service all residences and businesses in the area due to limited capacity of the community septic tank. Those portions of the community that are not connected to the collection system are currently

using individual septic systems. In addition, the existing collection main is located in the shoulder of State Highway 341 and is substandard because there are no manholes and insufficiently sized pipes (Farr West Engineering, 2010). The disposal field associated with the community septic system is failing as evidenced by the surfacing of effluent in the area (CSA, 2007). There is a need to provide waste water treatment to the Gold Hill community to reduce the potential for groundwater contamination and public health issues associated with effluent surfacing at the disposal field.

1.4 Project Authorization

This project was authorized by the Water Resources Development Act of 1999 (Public Law 106-53), which authorized the U.S. Army Corps of Engineers (Corps) to participate in environmental infrastructure projects in rural Nevada and Montana. The Corps is the Federal lead agency for compliance with Federal laws, and Storey County is the local sponsor for the project.

The ROW for replacement of 32,900 linear feet of pipeline on BLM-administered lands would be authorized by the BLM pursuant to Title V of the Federal Land Policy and Management Act of 1976 (FLPMA) (PL 94-579) and the regulations contained in 43 CFR 2800. The sewage WTP upgrade and expansion would be authorized by the BLM pursuant to the Recreation and Public Purposes Act of 1926 (R&PP), as amended, and the regulations contained in 43 CFR 2740 and 2912. The 12-acre WTP parcel would be conveyed directly to Storey County as a land patent, subject to appropriate reversionary and compensation provisions and existing valid rights.

1.5 Purpose of the Environmental Assessment

This Environmental Assessment (EA) discusses the environmental resources in the project area; evaluates the effects of the alternatives (including the proposed action) on the resources; and proposes measures to avoid, minimize, or mitigate any adverse effects to a less-than-significant level. This EA is in compliance with the National Environmental Policy Act (NEPA) and provides full public disclosure of the effects of the proposed action.

The BLM's purpose and need for this EA is to respond to Storey County's application received on November 20, 2007 under Title V of the FLPMA for a ROW to replace the Virginia City and Gold Hill wastewater collection system. The BLM would also respond to Storey County's application pursuant to the R&PP Act to construct, operate, and maintain a WTP on BLM-administered public land.

Consistent with 48 *Federal Register* 34263 (July 28, 1983), upon a determination that this EA meets BLM's own regulations per NEPA, the BLM would adopt this EA in its own Finding of No Significant Impact (FONSI) statement. The BLM would issue a FONSI and Decision Record (DR) once all its requirements under NEPA have been met and a Programmatic Agreement with the Nevada State Historic Preservation Officer (SHPO) has been signed by all participating agencies to meet the Section 106

requirements of the National Historic Preservation Act (NHPA). The decision that the BLM will make is whether or not to grant the requested ROW and convey the parcel at the WTP directly to Storey County, and if so, what terms and conditions would be included as a part of the Notice to Proceed and other stipulations.

2.0 ALTERNATIVES

2.1 Alternative Designs Not Considered in Detail

Initially, several designs were considered for the wastewater treatment features of the project. These designs were described and evaluated in the Preliminary Design Report prepared for Storey County in 2010 (Farr West Engineering, 2010). This section identifies the alternative designs and summarizes the reasons why several designs were not considered further.

2.1.1 Virginia City

Two alternative designs were considered for the Virginia City WTP: (1) construction of a new WTP and conversion of the existing WTP to an equalization tank and (2) construction a new WTP and a new equalization tank. The first design would use the existing WTP as an equalization basin. This design would present a substantial risk to water quality and public health because the existing WTP is deteriorating and could fail in the near future. This failure would result in a discharge of untreated wastewater downstream. Therefore, the second design, which does not rely on the existing WTP and includes construction of a new equalization basin, was identified as the preferred alternative design and is considered further in this EA.

2.1.2 Gold Hill

Two alternative designs were considered for the treatment of wastewater in Gold Hill. The first design involved conveying Gold Hill wastewater to the Virginia City collection system and WTP through a series of lift stations. The second design involved constructing a WTP for the Gold Hill community at American Flat west of Gold Hill and pumping the Gold Hill wastewater to this new WTP. The construction of a new WTP at American Flat was not considered further because a new WTP would substantially increase the size of the construction footprint and would require grading an undisturbed vegetated area. Also, a substantial amount of energy and resources would be required to operate and maintain a plant.

With the project features in place, the upgraded Virginia City WTP would have the capacity to treat the Gold Hill wastewater based on State demographer projections for the next 20 years. Because the sewer lift stations would have a smaller footprint and would have less operational demands than a new WTP at American Flat, construction of the sewer lift stations was identified as the preferred alternative design for treatment of Gold Hill wastewater and is evaluated in this EA.

2.2 No Action

Under the no action alternative, an upgraded WTP and collection system would not be constructed for Virginia City, and the wastewater collection system would not be extended to Gold Hill. The existing WTP would continue to operate using outdated treatment technology, as well as manual removal of solids, undersized sludge drying beds, and a clarifier/equalization basin that is subject to flooding. The WTP would continue to be undersized to meet the needs of the population, considering the projected growth over the next 20 years.

In addition, the existing Virginia City wastewater collection system would continue to leak untreated wastewater into the soil, contaminating groundwater resources, and wastewater treatment would not be provided to Gold Hill. Ground and surface water contamination due to untreated wastewater would continue to threaten public health and violate NDEP wastewater standards.

2.3 Wastewater System Improvements (Preferred Alternative)

The preferred alternative would include (1) construction of an upgraded WTP along Six Mile Canyon, (2) replacement of the sewer collection system in Virginia City, (3) construction of sewer lift stations and force main, and (4) replacement of the sewer collection system for Gold Hill. This work would reduce potential groundwater contamination, ensure public health, and meet Virginia City and Gold Hill wastewater treatment demands while accommodating potential future growth in the area.

2.3.1 Pre-Construction Activities

Permits, Utilities, and Approvals. Prior to initiation of work, the construction contractor would be required to obtain all Federal, State, and local permits and approvals necessary to perform the work, including those related to stormwater discharge, fugitive dust, and traffic. Specific permits and approvals related to environmental resources are discussed in Section 3.0.

The contractor would also be required to verify the depths and locations of all existing utilities in the project area. Potentially affected utility companies would be notified and coordinated with directly concerning the timing and degree of the proposed work. These utility companies could include NV Energy and Storey County Public Works.

In addition, Storey County would be responsible for obtaining required Federal land use authorizations from the BLM. This would include work on portions of the collection system; WTP; and test pits, borings, and exploration. The WTP would be located on approximately 12 acres of BLM-administered public land. As shown in Table 1, up to approximately 46,000 linear feet of sewer line, storm drain, and force main would be located on BLM-administered public land in Virginia City and Gold Hill, requiring a ROW for replacement.

Table 1. Locations and Types of Pipeline on BLM Land

Section	Total (linear feet)	BLM Land (linear feet)
Virginia City sewer lines	63,500	28,700
Virginia City sewer lines alternate	12,800	4,200
Virginia City Total	76,300	32,900
Gold Hill sewer line (excludes force main)	10,900	4,500
Gold Hill sewer line alternate	3,400	1,400
Gold Hill Total	14,300	5,900
Sewer line total	74,400	33,200
Sewer Line with Alternatives Total	90,600	38,800
Force main total	7,000	3,200
Force Main Alternate Total	11,500	4,600
Virginia City Storm Drain Total	6,600	2,600
Total with Alternatives	108,700	46,000

Dewatering. Due to the close proximity to Six Mile Canyon Creek, the WTP area would be expected to have shallow groundwater. Prior to construction, geotechnical borings would be conducted to determine the depth to groundwater. If the depth to groundwater is greater than the depth of trenches, structures, or other excavation, then no dewatering would be required. However, if groundwater is encountered, then well points and a pump would be used to dewater the work area prior to construction. The contractor would be responsible for obtaining a temporary dewatering permit from the NDEP prior to dewatering, and all conditions of the permit would be complied with during construction.

Test Pits, Borings, and Exploration. Trenching and boring would be conducted as a part of geotechnical explorations to provide information in support of the engineering design. The locations of the test pits and borings are shown on Plate 5. In addition, cultural resource explorations would be conducted as requested by the State Historic Preservation Office (SHPO). The locations of the explorations would be based on a cultural resources sensitivity document.

This pre-construction work could have short-term effects on traffic, noise levels, and the local viewshed. Although road closures are not expected due to the size and location of the work, traffic controls such as lane closures may be required in some areas. Use of equipment such as the backhoe and drill rig would result in increased noise levels nearby and changes in the local viewshed. However, once exploration activities are completed, traffic, noise levels, and the viewshed would return to existing conditions.

Test Pits. A total of 45 test pits (trenching) would be excavated throughout the project area, with 11 test pits located on Federal land administered by the BLM. Test pits would be excavated using a rubber tire backhoe with a 3-foot-wide bucket. The test pit

would have a maximum depth of 10 feet, depending on bed rock, and would have a 45 degree slope towards ground level. The maximum dimensions for each test pit would be 3 feet wide by 10 feet deep by 12 feet long. There would only be one open pit exposed at a time for exploration. Once the test pit is logged, it would be backfilled and compacted with the excavated soil from the pit. The 45 test pits would be excavated and backfilled within a period of 12 days or less.

Borings. A total of 17 borings would be drilled throughout the project area, with nine borings located on Federal land administered by the BLM. The borings would be drilled using a rubber tire drill rig, which would create a hole with an 8-inch diameter. The maximum depth of each boring would not exceed 24 feet. Once the boring cuttings are logged, the hole would be backfilled and compacted with the removed soil. The 17 borings would be drilled and backfilled within a period of 5 days or less.

Explorations. Initially, a cultural resources sensitivity document would be prepared to identify those areas within the project area that are considered to have a high potential for the presence of cultural resources. The identification of these areas would be based on existing information such as topographic maps; data on cuts and fill of the area; Sanborn maps; knowledge of buried utilities including water, gas, and electric; archival information; and interviews with knowledgeable individuals on the historic district and landmark. Of those areas considered to have high potential where the project may affect subsurface resources, data recovery would likely take place.

Data recovery could consist of a variety of methods. To identify an archeological deposit or feature, methods could include excavating trenches with backhoes to identify locations and type of resource. Once identified, depending on its identification and relative importance to the Virginia City Historic District, the deposit or feature could be further excavated either around the feature or as a 1-meter by 1-meter archeological excavation unit. Depending on the size of the archeological deposit or feature, the size of the excavation unit may increase. The type of excavation unit and method of excavation would depend on the type of the deposit or feature. Excavation units would likely be excavated in 10-centimeter intervals until the base of the cultural deposit or sterile soil is reached.

Staging and Stockpiling. Construction staging would take place in defined staging areas. Staging areas have been identified throughout the project area to provide nearby access to materials as construction progresses (Plate 3, Sheets 1 through 12). Due to the large size of the overall project area, 25 potential staging areas have been identified for the project. The staging areas would be cleared and stabilized using best management practices (BMP's) prior to delivery of materials. These BMP's could include erosion control fabric, fiber rolls, silt fence, or other BMP's as specified in the Stormwater Pollution Prevention Plan (SWPPP).

During construction, excavated materials would be temporarily stockpiled in the staging areas. Materials unsuitable for use as fill would be removed from the project site via haul trucks and disposed of at either the Carson City or Lockwood landfill. Once

construction is completed in the associated work area, the soil stockpile and equipment staging areas would be restored by reseeding with a seed mix that is weed free, appropriate for the area, and approved by BLM.

Mobilization. During mobilization, construction equipment would be moved onto the staging areas, along with PVC piping, gravels, concrete, steel, and other construction materials. Types of equipment would include hydraulic excavators, track hoes, front end loaders, dump trucks, haul trucks, and water trucks. In addition, areas would be provided for an administrative trailer and parking of worker vehicles.

2.3.2 Construction Details

Construction of the project would begin with improvements to the Virginia City WTP, followed by the Virginia City collection system and the Gold Hill sewer lift stations and collection system.

Virginia City Wastewater Treatment Plant

Grading. Construction would begin by clearing and grubbing the surface vegetation and debris from the areas surrounding the existing WTP that are proposed for surface grading. Since these materials are not suitable for reuse onsite, they would be temporarily stockpiled within the limits of construction and then removed via haul trucks for disposal at either the Carson City or Lockwood landfill.

These surrounding areas would then be graded to match the elevations identified in the engineering plans. Site grading would involve excavation of a total of approximately 8,500 cubic yards (cy) of material, all of which would be used onsite as fill material. All fill needed for the project would be obtained from onsite grading. As a result, no import or export of fill material would be required for the project. Excavated materials would be temporarily stockpiled at the County storage yard on the east side of Six Mile Canyon Road near the WTP.

Grading would also include excavation from the hillside to the west and south of the existing WTP. The slope would be re-contoured to a finished grade of 2 horizontal (H):1 vertical (V) and reseeded with vegetation typical of the area. The existing storage pond and drying beds would be filled and graded to provide a flat surface for the new WTP and sludge handling building (Plate 3, Sheet 5). Rocks or other similar material would be stored at the County storage yard and could be used to line the drainage channel.

Waterline, Access Road, and Fencing. An existing 2-inch waterline along Six Mile Canyon Road would be replaced with a 6- or 8-inch water main as determined by the Storey County Fire Department for fire remediation at the WTP (Plate 3, Sheet 5). A gravel access road would be constructed along the east and south portions of the project area. The area of the existing WTP would be converted to gravel access road/parking area for maintenance vehicles following construction of the new WTP and removal of the

existing plant. The existing chain link fence around the WTP would be removed, and a new chain link fence would be installed. The new fence line would extend beyond the existing fence line to include the drainage channel to the south and east of the existing WTP.

Grit Chamber, Headworks Vault, and Diversion Vault. A new grit chamber would be constructed along the east portion of the site adjacent to the existing storage pond. This grit chamber would be approximately 10 feet by 10 feet in size. The structure would receive influent from the sewer collection system and provide initial processing of wastewater via grit removal. A headworks vault, approximately 10 feet wide by 30 feet long, would be constructed adjacent to the grit chamber. From the headworks vault, water would be transferred to a diversion vault approximately 10 feet by 10 feet in size that would be constructed directly south and adjacent to the existing WTP. The grit chamber, headworks vault, and diversion vault would receive and process influent prior to treatment in the WTP.

Solids Handling Building and Digester. A new prefabricated metal building would be constructed to handle the solid wastes generated by the WTP. The new building would be constructed at the south end of the site at the approximate location of the existing sludge drying beds. The building would be approximately 40 feet wide, 40 feet long, and 20 feet high. The building foundation and floor would be constructed using 6 inches of compacted aggregate base overlain with 8 inches of concrete. A new sludge pump and sludge press inside the building would be used to compress the sludge (solid waste) prior to export to the landfill for disposal. A new prefabricated metal building would also be constructed for a digester. The digester would be enclosed within a building approximately 30 feet wide by 100 feet long, with a height of approximately 22 feet.

Drainage Channel. A drainage channel would be constructed around the west and south sides of the aeration pond to convey stormwater runoff from up-gradient areas around the WTP to an offsite area down-gradient from the WTP. The drainage channel would be constructed from the east end of the site and would convey water along the southern perimeter of the property. The drainage channel would be approximately 5 feet wide and 2.5 to 3.5 feet deep. The channel would be constructed with a 2H:1V slope and would be lined with riprap. The channel would follow Six Mile Canyon Road on the south side and discharge into Six Mile Canyon Creek approximately 750 feet from the WTP. Rock riprap would be used to dissipate flows at the outlet.

New Wastewater Treatment Plant. A new WTP would be constructed on the location of the existing storage pond on the southern portion of the site. The new WTP would be a pre-fabricated treatment plant. It would be constructed primarily below grade and would extend approximately 12 feet below grade and 4 feet above the ground surface. Construction would involve grading and excavating the surface; backfilling with aggregate base; pouring a concrete slab; constructing the walls and roof; and installing all of the structural, mechanical, and electrical interior and exterior features of the building.

An anoxic chamber, aeration chamber, post-anoxic chamber, clarifier, and sludge holding tank would be housed within the new WTP.

Site Restoration/Building Removal. The existing sludge drying beds on the east portion of the site would be filled. The site would be restored and brought to finished grade prior to the construction of the sludge handling building at that location. The existing WTP would be demolished, and all structures except for the generator and lab would be removed when the new WTP is completed and fully operational. The location of the existing WTP would be covered with gravel and used for maintenance access/parking.

Virginia City Sewer Collection System

Pipeline. Approximately 76,300 linear feet of new sewer pipeline would be installed in the Virginia City area (Plate 3 Sheets 1 through 6). Approximately 32,900 linear feet of pipeline would be installed on BLM-administered public land, requiring a ROW from that agency. All sewer lines would be installed a minimum of 18 inches below and 5 feet in lateral distance from the nearest waterline.

In paved locations, construction of the sewer pipeline would include cutting through and removing the roadway asphalt and aggregate base in the area of excavation. A trench would then be excavated to a depth that would provide a minimum of 60 inches of cover above the sewer line, and the trench would be approximately 24 inches wider than the pipeline. The trench would be filled with a minimum of 6 inches of bedding material. The sewer line would be installed on top of the bedding material, and additional bedding material would be backfilled around the sewer line, providing a minimum of 12 inches of cover above the sewer line. The trench would then be backfilled to surface grade using stockpiled excavated material.

The new sewer line would cross the V&T Railroad in up to four locations. Three of these locations are part of the project, and one is associated with an alternative alignment of the sewer force main. In each of these locations, jack and bore construction techniques would be used to install the new sewer line. As a result, the project would avoid any adverse effects to the activities or operation of the V&T Railroad.

Any excavated material not suitable for reuse as backfill would be removed from the site, and stockpiled excavated material from a different portion of the project would be used as backfill. Installation of the pipeline would be completed along sections of the roadway each day to ensure that there would be no traffic or public safety concerns due to unattended open trenches.

Once installation of the pipeline is completed along a paved street, the disturbed area would be resurfaced with a cover of 6 inches of aggregate base and asphalt seal. Unpaved streets would be backfilled to match the natural ground surface elevation and would be compacted. Along hill slopes and areas of native vegetation, the finished ground surface would be reseeded with vegetation typical of the surrounding area.

Sewer Manholes. Approximately 324 manholes would be installed as part of the Virginia City sewer collection system. Precast manholes, cover, and base would be used. The manholes would be backfilled per the engineering plans, and a concrete collar would be installed. PVC pipe transitions and sewer couplings would be installed to connect the manhole to the sewer line. After final backfilling, disturbed paved roadways would be resurfaced with aggregate base and asphalt.

Storm Drain. The storm drain catch basins on C Street that were tied into the sewer system by the Nevada Department of Transportation (NDOT) would be disconnected from the sewer system. A separate storm drain main would run along C, Flowery, Silver, E, and Page Streets. This storm drain main would be separate from the sewer system and would discharge at the east end of Page Street.

Gold Hill Sewer Lift Stations. Three sewer lift stations would be required to pump the wastewater from Gold Hill up-gradient to the Virginia City collection system. The new lift stations would be located adjacent to the new pipeline alignment along SR 342. The work area for each lift station would be approximately 0.2 acre, for a total disturbance area of less than 1 acre. The first lift station would be located at the south end of the project area in Gold Hill on property owned by Storey County (Plate 3, Sheet 9). At this sewer lift station, the sewer line would discharge to a wet well and then gravity flow to inline grinders to reduce the size of solids. Finally, the wastewater would be pumped using positive displacement pumps through a force main to the second lift station.

The positive displacement pumps at the first lift station would be housed within a vault approximately 8 feet by 18 feet in size. The wet well, inline grinders, and positive displacement pumps would be constructed primarily below the ground surface and would extend approximately 1 foot above the ground surface. The force mains would consist of 4-inch pipeline. Construction of the sewer lift station would consist of excavating the surface; backfilling with aggregate base; pouring the concrete structure; installing all of the structural, mechanical, and electrical components of each structure; and connecting the sewer mains.

The second sewer lift station would be located west of C/Main Street, and the third sewer lift station would be located near the intersection of C/Main Street and Homestead Road (Plate 3, Sheets 7 and 8). The second and third lift stations would each consist of a wet well, which would receive wastewater through the force main. Positive displacement pumps would then pump the wastewater through the force main to Virginia City. The last force main segment would have an outlet manhole into the gravity sewer system in Virginia City. The construction of the wet well and positive displacement pumps for the second and third sewer lift stations is the same as for the first sewer lift station. For the second and third lift stations, two alternative locations are also provided because both would be located on private property. The final location of each sewer lift station would depend on agreements with the property owner.

Fencing/Electrical/Generator. The Gold Hill sewer lift stations would include a wooden security fence to protect the sites from vandalism. The fence would surround the sewer lift station and would provide room for access around the station. The area within the fence line would be compacted and covered with gravel to provide vehicle maintenance access. An electrical box would be installed at each of the sewer lift stations. The electrical box would be approximately 4 feet wide and 5 feet high. A generator would also be installed at the site. The generator would be approximately 6 feet wide and 6 feet high.

Force Main Alternative Alignments. Two force main alignments are being considered for the sewer lift stations at Gold Hill. The two alternative alignments are shown on Plate 3, Sheets 7 and 10. Both alignments are considered in this EA. The first force main alignment would follow C/Main Street north past the third lift station to the gravity sewer system in Virginia City. If the first alignment is selected, approximately 7,000 linear feet of force main pipeline would be required. This would include approximately 3,200 linear feet on BLM-administered public land.

The second alignment would follow Homestead Road east from the third lift station to State Highway 341. The alignment would then cross the highway at Homestead Road and connect to the existing sewer line in Virginia City. The pipeline would be installed under the highway using a jack and bore method to avoid any effects on traffic and the surface condition of the highway. If the second alignment is selected, approximately 11,500 linear feet of force main pipeline, as well as 2,400 linear feet of additional sewer line, would be required in Virginia City. This would include an additional 1,400 linear feet of force main on BLM-administered public land.

Gold Hill Collection System. Approximately 14,300 linear feet of new sewer pipeline would be installed in the Gold Hill area (Plate 3, Sheets 7, 8, and 9). Approximately 5,900 linear feet of pipeline would be installed on BLM-administered public land, requiring a ROW. All sewer lines would be installed a minimum of 18 inches below and 5 feet in lateral distance from the nearest waterline. The construction of sewer pipelines in Gold Hill would follow the same guidelines as the construction in Virginia City (see above). In addition, a total of 48 sewer manholes would be installed as part of the Gold Hill sewer collections system. After final backfilling for the new Gold Hill sewer collection system, paved roadways would be resurfaced with aggregate base and asphalt.

2.3.3 Borrow, Stockpiling, and Disposal

Borrow. Borrow materials would include riprap, drain rock, aggregate base, and bedding material to be used as layering material for road surfaces, trenches, and drainage swales. The material would be obtained and transported from local commercial sources meeting all State requirements. Other materials such as piping, concrete, and structural steel would be obtained from other commercial sources in the region.

Fill Areas. Three potential fill areas have been identified in the project area (Plate 3, Sheets 1, 5, and 7). All potential fill areas have been located on Storey County property. While the overall project has been designed so that excavation quantities would balance with fill quantities, excess material suitable for reuse could be excavated during one phase and not used until a following phase. The fill areas have been identified to store the excess suitable material between construction phases.

The first potential fill area is located across Six Mile Canyon from the WTP. This fill area is approximately 1 acre. The second fill area (approximately 2.5 acres) is located east of C Street and just north of Virginia City where the sewer line would be replaced. The third fill area (approximately 2 acres) is located in Gold Hill, east of C Street and north of Homestead Road near the Divide Reservoir. The fill areas would be temporarily stabilized using BMP's, including erosion control fabric, soil stabilizers/tackifiers, silt fence, fiber rolls, or other BMP's as specified in the Project SWPPP. Each fill area would be revegetated at the completion of the associated construction phase. All revegetation plans on Federal land administered by the BLM would be subject to BLM approval.

Disposal. Cleared brush, asphalt, concrete, steel, and other waste associated with construction of the new WTP, replacement of the sewer collection systems, and construction of the sewer lift stations would be transported offsite via haul trucks and disposed of at either Carson City or Lockwood landfill. The Carson City landfill is located approximately 16 miles south of the project area. The Lockwood landfill is located approximately 32 miles north of the project area. Asphalt grindings from the roadways would be used as surface material at the sewer lift stations, or at the fill location and adjacent County buildings identified on Plate 3, Sheet 7.

2.3.4 Construction Schedule/Phasing

Due to the overall high cost of the project, estimated to be approximately \$13.6 million, construction of the overall project is proposed in phases (Plate 4).

- Construct upgrades to WTP.
- Replace Virginia City collection system west of WTP and in the center of Virginia City.
- Replace Virginia City collection system and dissociate the storm drain in the southern portion of Virginia City and north of Gold Hill.
- Replace Virginia City collection system in the northern portion of Virginia City.
- Replace collection system in Gold Hill and construct sewer lift stations.

Construction of the upgraded WTP would not likely be initiated until spring of 2012. The timing of phases would depend on the availability of funding. A minimum of 6,000 linear feet of sewer line in Virginia City would need to be replaced prior to construction of the Gold Hill sewer lift stations and tie in with the new Virginia City collection system. This new Virginia City sewer line would be used to convey the Gold Hill wastewater to the upgraded WTP.

Work during most of the year for each phase would be conducted from 7:00 a.m. to 5:30 p.m., Monday through Friday. During the winter months, work would be conducted from 7:00 a.m. to 5:00 p.m., Monday through Friday. No work would be conducted on weekends or during evening or night hours.

2.3.5 Post-Construction Activities

After construction and restoration is completed, all equipment, remaining materials, and temporary BMP's would be removed. Work areas would be cleaned of excess soils and debris, and all areas would be left in a neat and presentable condition. This would include work areas along the collection system, lift station, and the WTP.

2.3.6 Operation and Maintenance

Virginia City Wastewater Treatment Plant and Sanitary Sewer. Operation and maintenance of the new WTP and sanitary sewer collection system would be the responsibility of Storey County. The new access road along the east and south side of the WTP and in the location of the existing WTP would provide maintenance vehicle access and parking. Security of the 12-acre parcel and WTP facilities would be provided by a chain link fence, signs, and locked entrance gates. Maintenance access to the new sanitary sewer pipelines would be provided via the manholes within the existing road ROW.

Gold Hill Sewer Lift Stations and Sanitary Sewer. Operation and maintenance of the Gold Hill sewer lift stations and sanitary sewer collection system would also be the responsibility of Storey County. Security for the sewer lift stations would be provided via a wooden fence and locked entrance gate. A gravel access road would be constructed from C/Main Street to the sewer lift stations to provide maintenance vehicle access. The ground surface within the fence line would be compacted for maintenance vehicle parking. Maintenance access to the new sanitary sewer pipelines would be provided via the manholes within the existing road ROW.

3.0 AFFECTED RESOURCES AND ENVIRONMENTAL EFFECTS

This section identifies resources, describes existing conditions, and evaluates the effects of the proposed action on those resources. When necessary, mitigation measures are also proposed to avoid, reduce, minimize, or compensate for any effects determined to be significant. The NEPA's determination of significance is based on both context and intensity of the effect. For this project, resource-specific bases of significance have been developed to provide specific thresholds to help determine significance.

The BLM maintains lists of "supplemental authorities" and resources/issues that must be considered in all BLM environmental documents. Table 2 lists the supplemental authorities and their status in the project area. Table 3 lists additional BLM resources and issues, and provides their status in the project area. Those supplemental authorities and

Table 2. BLM Supplemental Authorities and their Status in the Project Area

Supplemental Authority***	Not Present *	Present/Not Affected*	Present/May Be Affected**	Rationale
Air Quality		X		Refer to Section 3.6.
Areas of Critical Environmental Concern	X			Resource not present.
Cultural Resources			X	Refer to Section 3.12.
Environmental Justice	X			Resource not present. Refer to Section 3.1.6.
Farm Lands (prime or unique)	X			Resource not present. Refer to Section 3.1.5.
Human Health and Safety (Herbicide Projects)	X			Not Applicable.
Floodplains	X			Resource not present. Refer to Section 3.5.
Invasive, Nonnative and Noxious Species			X	Refer to Section 3.2.3.
Migratory Birds			X	Refer to Section 3.2.
Native American Religious Concerns			X	Discussed in Section 3.12.
Threatened and/or Endangered Species (Animals)	X			Resource not present. Refer to Section 3.3.
Threatened and/or Endangered Species (Plants)	X			Resource not present. Refer to Section 3.3.
Wastes, Hazardous or Solid			X	Refer to Section 3.13.
Water Quality (Surface/Ground)			X	Refer to Section 3.5.
Wetlands/ Riparian Zones	X			Refer to Section 3.5.
Wild and Scenic Rivers	X			Resource not present.
Wilderness	X			Resource not present.

* Supplemental authorities determined to be Not Present or Present/Not Affected need not be carried forward or discussed further in the document.

** Supplemental authorities determined to be Present/May Be Affected must be carried forward in the document.

*** See H-1790-1(January 2008) Appendix 1. Supplemental Authorities to be Considered.

resources issues that may be affected by the proposed action are discussed further in this EA.

3.1 Resources Not Considered in Detail

Because of the nature of the work, the project would have little to no effect on several resources in the project area. These resources are discussed in Sections 3.1.1 to 3.1.7 to add to the overall understanding of the project area.

Table 3. BLM Resources and Issues and their Status in the Project Area

Resource or Issue	Present/Not Affected*	Present/May Be Affected**	Rationale
BLM Sensitive Species (Animals)		X	Refer to Section 3.4.
BLM Sensitive Species (Plants)		X	Refer to Section 3.4.
General Wildlife and Fisheries		X	Refer to Sections 3.1.4 and 3.2
Land Use Authorization		X	Refer to Section 3.7.
Recreation		X	Refer to Section 3.10.
Soils	X		Refer to Section 3.1.3.
Vegetation		X	Refer to Section 3.2.
Visual Resources		X	Refer to Section 3.4.

*Resources or uses determined to be Present/Not Affected need not be carried forward or discussed further in the document.

**Resources or uses determined to be Present/May Be Affected must be carried forward in the document.

3.1.1 Climate

Located in the Virginia Mountain Range, Virginia City and Gold Hill, Nevada, enjoy four fairly distinct seasons. The average temperatures range from winter lows in the mid 20's (degrees Fahrenheit) to summer highs in the mid 80's (WRCC, 2010). The majority of the precipitation occurs in winter and spring, with summer and fall being fairly dry. Average annual rainfall is approximately 12.76 inches, and average annual snowfall is 57.2 inches (WRCC, 2010). Because of the nature of the work, the project would have no effect on area climate.

3.1.2 Geology and Seismicity

Geology. Virginia City and Gold Hill are located in the Great Basin. The geology of the region is very complex due to millions of years of movements and uplift in the earth's crust. The surficial geology in the project area is mainly composed of a young alluvium (Qay), Talus (Qt), mine tailings (d), and scattered outcroppings of volcanic deposits (Hudson et al., 2009a). The majority of the surface material is poorly sorted Holocene deposits of boulder to silt-sized material deposited on alluvial fans and as channel deposits. This is then littered with dumps of unconsolidated mine waste. Most dumps date from the 19th century in the Virginia City area. Some large waste dumps in the Gold Hill and American Flat areas are more modern (Hudson et al., 2009b).

Seismicity. Seismic maps of Nevada confirm that there are many faults around Virginia City. Virginia City and Storey County are designated as seismic zone 4. Seismic zones are rated 1 through 4, with zone 1 being the least active and zone 4 the most active. The Comstock Fault is just west of Virginia City, and there are numerous unnamed faults to the east and west of Virginia City and Gold Hill, as well as to the northeast (Sawyer, 1999). The last activity of these faults is believed to have occurred during the Early Pleistocene, less than 1.6 million years ago (USGS, 2010). Because of the nature of the work, the project would have no effect on geology or seismic conditions.

3.1.3 Topography and Soils

Topography. Virginia City and Gold Hill are located in mountainous terrain. Virginia City has an elevation of approximately 6,220 feet at “C” Street, with elevations ranging from 6,280 feet to 5,720 feet. Mt. Davidson (7,842 feet) is to the west of Virginia City. The topography in Virginia City consists of a mixture of hillsides and gentle slopes. Six Mile Canyon and Six Mile Canyon Creek, a tributary to the Carson River, are located to the east of Virginia City.

The project would not change the topography of the area as the work would involve only minor surface earthwork and grading. Except for minor re-grading around the WTP and lift stations, the surface elevations and topography at completed work areas would match pre-project conditions. As a result, the project would have no effect on regional or Virginia City topography.

Soils. The Soil Survey of the Storey County Area (1990) identifies five main soil units in the project area. These are the Bombadil-Indiano association (Map Unit 021), Wedekind-Xman-Indiano association (Map Unit 080), Tristian-Burnborough-Gabica association (Map Unit 151), Devada-Rock outcrop complex (Map Unit 160), and Pits-Dumps complex (Map Unit 602) (NRCS, 2010b). These soil complexes/associations are briefly described below.

Bombadil-Indiano Association. This soil unit consists of approximately 65 percent Bombadil stony loam, 30 to 50 percent slope; and 35 percent Indiano gravelly loam, 30 to 50 percent slope. Bombadil soils consist of very shallow, well drained soils, and are found on ridges and convex back slopes of hills on slopes of 30 to 50 percent. Indiano soils consist of moderately deep, well drained soils derived from altered volcanic rock. These soils are generally found at elevations between 5,600 and 6,300 feet in hilly areas with a slope of 30 to 50 percent. Soils are well drained and have a surface texture of stony loam and gravelly loam. Depth to bedrock is between 7 and 40 inches. This association is the major soil unit in the Gold Hill project area.

Wedekind-Xman-Indiano Association. This soil unit consists of approximately 40 percent Wedekind gravelly loam, 30 to 50 percent slopes; 25 percent Xman very stony sandy loam, 30 to 50 percent slope; and 20 percent Indiano stony sandy loam, 30 to 50 percent slopes. The Wedekind soils consist of shallow, well drained soils derived from andesite and rhyolite. These soils are found on hills and mountainous terrain. Xman soils consist of shallow, well drained soils derived from rhyolite and altered andesite. These soils are found on plateaus and hilltops. Indiano soils consist of moderately deep, well drained soils derived from altered volcanic rock. These soils are found on hills. This association is found at elevations between 5,500 and 6,000 feet in mountainous areas with a slope of 30 to 50 percent. Soils are well drained and have a surface texture of gravelly loam, very stony loam, and stony sandy loam. Depth to bedrock is between 10 and 40 inches. This association is the major soil unit that covers most of Virginia City.

Tristian-Burnborough-Gabica Association. This soil unit consists of approximately 40 percent Tristian very stony loam, 30 to 50 percent slopes, 30 percent Burnborough very gravelly loam, 50 to 75 percent slopes, and 15 percent Gabica cobbly loam, 15 to 30 percent slopes. The Tristian soils consist of deep, well drained soils derived from basic igneous rock. These soils are found on mountain back slopes of 15 to 50 percent. Burnborough soils consist of deep and very deep, well drained soils derived primarily from andesite and rhyolitic rock. They are found on hillsides between 30 and 50 percent slopes. Gabica cobbly loam, 15 to 30 percent slopes, consists of shallow, well drained soils derived from basalt or other basic igneous rock. They are generally found on hills with slopes between 15 and 30 percent. Soils are well drained and have a surface texture of very stony loam, very gravelly loam, and cobbly loam. Depth to bedrock is approximately 14 to 60 inches. A small amount of this unit is found in the mountainous areas west of Virginia City.

Devada-Rock Outcrop Complex. This soil unit consists of approximately 70 percent Devada very cobbly loam, 15 to 50 percent slopes, and 20 percent rock outcrop. Devada soils consist of shallow, well drained soils derived from basic igneous rock. These soils are found on ridges and back slopes of hills, plateaus, and mountains. In general, rock outcrops are made up of andesite, basalt, rhyolite, and rhyodacite with some sedimentary deposits. Depth to bedrock is 0 to 20 inches. A very small amount of this unit is found near Gold Hill, between an elevation of 4,500 and 5,000 feet.

Pits-Dumps Complex. This soil unit consists of mines, quarries, borrow pits, and spoil dumps. These pits and dumps have slopes that range from 0 to 99 percent, and some of these features are identified by small hills or mounds. This unit is located throughout the project area.

Near surface soils at the WTP, lift station sites, and along with the sewer line alignment would be disturbed during construction. However, all fill material would be obtained onsite, and excavated soils would be reused as fill on site. The project has been designed so that there would be no import or export of fill material/soils to or from the area. As a result, the work would have no effect on the types of soils or soil conditions in the project area.

3.1.4 Fisheries

The project is located in the Six Mile Canyon Creek watershed, which is a sub-basin of the Carson River Basin watershed. Fish species native to the Carson River Basin include Tahoe sucker (*Catostomus platyrhynchus*), Lahontan mountain sucker (*Catostomus platyrhynchus lahontan*), Lahontan tui chub (*Gila bicolor pectinifer*), and Lahontan speckle dace (*Rhinichthys osculus robustus*) (CWSD, 2007). However, the Six Mile Canyon Creek watershed does not support a fishery because parts of the creek and its small tributaries are dry during the summer and frozen during the winter (NDEP, 2006; 7Q10, 2010).

The existing WTP is located adjacent to Six Mile Canyon Creek, approximately 9 miles west of the Carson River. The treated effluent from the WTP is discharged into the creek and eventually drains into the Carson River except during low-flow periods when the effluent evaporates or percolates into the soil. The proposed project would not create a new discharge into Six Mile Canyon Creek. Conditions in the creek and Carson River would remain basically the same or could improve due to the improved treatment at the upgraded WTP. The measures identified in Section 3.5.3 to avoid or minimize adverse effects on water quality would also be implemented. As a result, the project would have no effect on fisheries or aquatic habitat.

3.1.5 Prime Farmland

Prime farmland is defined as land with the best combination of physical and chemical characteristics for producing food, feed, forage, and other agricultural crops with minimum input of fuel, fertilizer, and labor. Farmland of statewide importance is other farmland designated as such by the State (NRCS, 2010a). The project would have no effect on prime farmland or farmland of statewide importance because there is no such farmland in the project area.

3.1.6 Socioeconomics and Environmental Justice

Virginia City and Gold Hill are small communities located in rural Storey County in northwestern Nevada. The estimated combined population of Virginia City and Gold Hill was 938 in 2000 (U.S. Census Bureau, 2000). Current estimates indicate that the population has increased slightly since that time to 1,220 (City-Data, 2010). The area encompasses 18.5 square miles, with a population density of 66 people per square mile (City-Data, 2010).

In 2000, the ethnic makeup of the area was 94.7 percent white, 3.4 percent Latino of any race, 2.2 percent Native American, 0.5 percent Asian, 0.1 percent African American, and 2.4 percent from other races (U.S. Census Bureau, 2000). In 2000, 13.5 percent of families and individuals in Virginia City and Gold Hill were living below the poverty level. Consistent with the project purpose, all residents would benefit equally from upgrade of the WTP and replacement of the collection systems. The project would reduce potential groundwater contamination, ensure public health, and meet wastewater demands for the community as a whole. As a result, there would be no disproportionate effects on any minority or low-income populations in Virginia City or Gold Hill.

Virginia City is a NHL and popular tourist attraction. An estimated 2 million tourists visit the area each year (CCCVB, 2010). As such, the local economy is based mainly on tourism and related services. The workforce is mainly in retail, arts, entertainment, gaming, food services, and accommodations. In 2008, the estimated median household income in Virginia City was \$47,170 per year, and the unemployment rate was 6.8 percent (City-Data, 2010).

Construction of the project would not be expected to affect the overall socioeconomic conditions in the Virginia City area. Population growth and ethnic makeup would continue to be determined by available housing and local job opportunities. Effects on the local economy would be minimized by ensuring that tourists are not inconvenienced and that tourist attractions remain open and accessible to the extent possible. Replacement of sewer lines along Main and C Streets would be conducted on weekdays when tourist traffic is lightest, and work would be avoided during significant historic and community events. In addition, implementation of the measures in Section 3.8.3 would also help to minimize effects on tourist parking and access. As a result, the project would have no effects on overall tourism revenue.

3.1.7 Odor Control

The only potential source of unpleasant odors in the project area is the existing WTP, which is located approximately 1,000 feet from the closest residence. The project includes the upgrade of the existing WTP. The use of new technologies in the treatment of wastewater would not create any new sources of odor. In addition, replacing the sewer lines would not create any new sources of unpleasant odor. As a result, the project would have no effects on odors.

3.2 Vegetation, Wildlife, and Weeds

3.2.1 Existing Conditions

Vegetation. Vegetation types in the Virginia City and Gold Hill area consist of single leaf pinyon (*Pinus monophylla*)-Utah juniper (*Juniperus osteosperma*) woodland and Wyoming sagebrush (*Artemisia tridentata*) (Peterson, 2008). Most of the project area is located in areas that have already been disturbed by past mining activities, and more recently by urban development. In Virginia City and the surrounding areas, there also are some areas of geothermally altered andesitic soil, which is known habitat for two rare plant species: altered andesite buckwheat (*Eriogonum robustum*) and altered andesite popcorn flower (*Plagiobothrys glomeratus*). This soil type is highly acidic (pH3.0-3.5), and it supports the acidified-soil woodland vegetation type (*pinus monophylla - juniperus osteosperma / eriogonum robustum*), in which altered andesite buckwheat is a dominant understory species (Peterson, 2008).

The outlying areas surrounding the WTP and the alternate pipeline route support single leaf pinyon-Utah juniper woodland and Wyoming sagebrush vegetation types. There are also areas of the acidified-soil woodland vegetation type (*pinus monophylla - juniperus osteosperma / eriogonum (robustum)*) located along the alternate pipeline route. These areas have mapped locations of both altered andesite buckwheat and altered andesite popcorn flower (Appendix A). One other location of altered andesite buckwheat is on disturbed ground surrounding the Storey County Public Works storage yard (Appendix A).

During a field survey conducted by 7Q10, Inc., on October 11, 2010, plant species were identified in the project area (7Q10, 2010). In the developed urban area including areas adjacent to the roadways/sewer line alignment, nonnative weeds are the dominant species, and several invasive and noxious weed species such as cheatgrass (*Bromus tectorum*) were identified. Tree species identified in the project area include black locust (*Robinia pseudoacacia*), pinyon pine (*Pinus monophyllus*), and Utah juniper (*Juniperus osteosperma*). Shrub species found in the project area include Wyoming big sagebrush (*Artemisia tridentata* var. *wyomingensis*), rubber rabbitbrush (*Chrysothamnus nauseosus*), antelope bitterbrush (*Purshia tridentata*), and Utah serviceberry (*Amelanchier utahensis*). Graminoids in the project area include squirrel-tail grass (*Elymus elymoides*), Secund's bluegrass (*Poa secunda*), and crested wheatgrass (*Agropyron cristatum*). Frequent forbs include species of narrow leafed milkweed (*Asclepias fascicularis*), buckwheat (*Eriogonum spp.*), and phlox (*Phlox sp.*).

Wildlife. The single leaf pinyon-Utah juniper and Wyoming sagebrush, and pinyon pine-Utah juniper/altered andesite buckwheat acidified-soil woodland plant communities support a variety of birds, mammals, and reptiles/amphibians. Because of the project's proximity to residences, the only big game species likely to use the area would be an occasional mule deer (*Odocoileus hemionus*). Other wildlife species that may use the area are likely habituated to human disturbances, including coyote (*Canis latrans*), cottontail rabbit (*Sylvilagus audubonii*), whitetail jackrabbit (*Lepus townsendii*), California valley quail (*Callipepla californica*), short-horned lizard (*Phrynosoma douglassi*), and passerine birds. There are no Audubon-designated Important Bird Areas or important wintering areas in the project area (McIvor, 2005). However, birds would be expected to use the area during the spring and summer months for nesting and foraging. Other wildlife species that may be using the area include bighorn sheep (*Ovis canadensis*), pygmy rabbit (*Brachylagus idahoensis*), kit fox (*Vulpes macrotis*), and Wyoming ground squirrel (*Spermophilus elegans*) (NDOW, 2006).

Eagles and Other Raptors. Federal agencies are required to protect bald and golden eagles per the Bald and Golden Eagle Protection Act of 1940. These two eagles and a variety of other raptors are known to occur or have range in or near the area of construction as indicated in Table 4 (Herrick, 2010). Three known raptor nest sites have been identified by the NDOW in the project area and 3-mile buffer area. They include two Cooper's hawk nests and one prairie falcon nest.

Migratory Birds. Federal agencies are required to protect migratory birds per the Migratory Bird Treaty Act of 1918. BLM management for these species is based on Instruction Memorandum (IM) No. 2008-050 (BLM, 2007). The IM also includes lists of migratory birds associated with western BLM lands. The Intermountain West is the center of distribution for many western birds (Rich et al., 2004). Over half of this biome's Species of Continental Importance have 75 percent or more of their population here. Many breeding species from this biome migrate to winter in central and western Mexico or in the southwestern biome. Shrub-nesting species comprise the largest number of Species of Continental Importance in this biome.

Table 4. Raptors Known to Occur or Have Range in or near the Project Area¹

Common Name	Scientific Name
American kestrel	<i>Falco sparverius</i>
Bald eagle	<i>Haliaeetus leucocephalus</i>
Barn owl	<i>Tyto alba</i>
Burrowing owl	<i>Athene cunicularia</i>
Cooper's hawk	<i>Accipiter cooperii</i>
Ferruginous hawk	<i>Buteo regalis</i>
Golden eagle	<i>Aquila chrysaetos</i>
Great horned owl	<i>Bubo virginianus</i>
Long-eared owl	<i>Asio otus</i>
Northern goshawk	<i>Accipiter gentilis</i>
Merlin	<i>Falco columbarius</i>
Northern harrier	<i>Circus cyaneus</i>
Northern saw-whet owl	<i>Aegolius acadicus</i>
Osprey	<i>Pandion haliaetus</i>
Peregrine falcon	<i>Falco peregrines</i>
Prairie falcon	<i>Falco mexicanus</i>
Red-tailed hawk	<i>Buteo jamaicensis</i>
Rough-legged hawk	<i>Buteo lagopus</i>
Sharp-shinned hawk	<i>Accipiter striatus</i>
Short-eared owl	<i>Asio flammeus</i>
Swainson's hawk	<i>Buteo swainsoni</i>
Turkey vulture	<i>Cathartes aura</i>
Western screech owl	<i>Megascops kennicottii</i>

¹These raptors are migratory species known to occur or have range in or near the project area.
Source: Herrick, 2010

The raptors listed in Table 4 are also the migratory bird species that occur or are likely to occur in the project area. Habitat for these migratory birds in the project area consists of sagebrush and pinyon-juniper woodland. However, much of the project area has been previously developed.

3.2.2 Effects

Basis of Significance. An alternative would be considered to have a significant effect on vegetation and wildlife if it would (1) result in the substantial loss or degradation of any plant community or (2) permanently displace resident or migratory wildlife species.

No Action. This alternative would have no effect on existing vegetation and wildlife in the project area. The plant communities and associated wildlife would be expected to remain the same.

Wastewater System Improvements

Virginia City. This alternative would have short-term effects on single leaf pinyon -Utah juniper/woodland and Wyoming sagebrush plant communities in the undeveloped parts of the project area. Initial clearing and grading for the WTP would result in the removal of approximately 3 acres of sagebrush and pinyon-juniper woodland, as well as other native and nonnative herbaceous species. Once construction of the new WTP and sewer lines are completed, however, all previously vegetated disturbed areas would be covered with native top soil and reseeded with a native seed mix approved by BLM. This would reduce potential erosion and encourage revegetation. Due to the relatively small area where vegetation would be removed, as well as the revegetation of this area, there would be no significant effect to vegetation from this project.

Construction of the WTP and sewer lines could have short-term effects on wildlife currently using the area. These effects would include disturbance and/or displacement of individuals due to noise and human activities. In addition, wildlife in the surrounding area would likely avoid the project area during construction. After construction and restoration are completed, however, wildlife would be expected to return to the area. Thus, there would be no significant effects on wildlife currently using the area. Because of the limited size of the construction area and the large amount of higher quality habitat nearby, any wildlife species using the surrounding area would not be significantly affected. Although there could be short-term effects to individual migratory birds, there would be no long-term effects on regional populations.

Gold Hill. Most of the project area in Gold Hill has been previously developed or disturbed, and is currently devoid of vegetation. Initial clearing and grading for the lift stations would result in removal of less than 1 acre of sagebrush and pinyon-juniper woodland, as well as nonnative invasive weeds. The project area is surrounded by thousands of acres of sagebrush and pinyon-juniper woodland. As a result, loss of less than 1 acre would not be considered substantial, and there would be no significant effect to vegetation from this project.

Construction of the lift stations and sewer lines could have short-term effects on wildlife currently using the area. These effects would include disturbance and/or displacement of individuals due to noise and human activities. In addition, wildlife in the surrounding area would likely avoid the project area during construction. After construction and restoration are completed, however, wildlife would be expected to return to the project area. Thus, there would be no significant effects on wildlife currently using the area. Because of the limited size of the construction area and the large amount of higher quality habitat nearby, any wildlife species using the surrounding area would

not be significantly affected. Although there could be short-term effects to individual migratory birds, there would be no long-term effects on regional populations.

3.2.3 Mitigation

Since there would be no significant effects on vegetation or wildlife, no mitigation would be required. However, if possible, construction would be scheduled outside of the nesting season for migratory birds, including bald and golden eagles. If construction is necessary during the nesting season, Storey County would be required to have a qualified biologist survey for active nests of migratory birds within a 1/8-mile radius of the project area within 15 days prior to initiation of construction. If active nests are located during these surveys, the biologist would contact the U.S. Fish and Wildlife Service (USFWS) and NDOW, as required, to determine the appropriate buffer around the nests.

During construction, the contractor would be required to implement BMP's to prevent the introduction and spread of noxious weeds, including use of certified weed free fill material, seed mixes, and borrow material. Any excavated material containing weeds would not be stored or used as fill material, but would be stockpiled and transported via haul trucks to a landfill for disposal. Storey County would coordinate with the Nevada Department of Agriculture for annual noxious weed surveys, following State protocols. If noxious weeds are discovered, a noxious weed management plan would be developed and implemented by Storey County per guidelines set forth by the Nevada Department of Agriculture and BLM. All weed treatments applied on BLM land would be required to conform with BLM protocols.

Following construction, all staging/stockpiling and fill areas would be revegetated or returned to their pre-project conditions. These areas would be seeded with species typical of the surrounding area and vegetation communities. Seed used for revegetation would be free of noxious or invasive weed species. All revegetation plans on Federal land administered by the BLM would be subject to BLM approval.

3.3 Threatened and Endangered Species

3.3.1 Existing Conditions

The USFWS, NNHP, and NDOW were contacted regarding Federally listed species that could potentially occur in and/or near the project area. In response, the USFWS provided the Corps with a letter dated September 15, 2010, indicating that there are no listed, proposed, or candidate species in the project area (Appendix A). In the letter, the USFWS indicated that they no longer provide species of concern, but are adopting the sensitive species list for Nevada maintained by the NNHP (Williams, 2010).

The NNHP conducted a search of their database and maps for a 2-kilometer radius around T. 16 N., R. 21 E., and T. 17 N., R. 21 E. (Miskow, 2010). Based on the

search, no Federally listed threatened, endangered, proposed, or candidate wildlife species are known to occur in the area (Appendix A).

3.3.2 Effects

Basis of Significance. An alternative would be considered to have a significant effect on Federally threatened and endangered species if it would (1) result in the take of a Federally listed threatened or endangered species, or (2) adversely affect a species critical habitat.

No Action. This alternative would have no effect on Federally listed threatened, endangered, or proposed species or their habitat.

Wastewater System Improvements. There are no Federally listed threatened, endangered, or proposed species or their habitat in and/or near the project area. As a result, this alternative would have no effect on these species or their habitat.

3.3.3 Mitigation

Since there would be no effect on Federally listed threatened, endangered, or proposed species or their habitat, no mitigation would be required.

3.4 BLM Sensitive Species

3.4.1 Existing Conditions

The BLM manages species (and their habitat) designated as “BLM sensitive” per BLM Manual 6840 (BLM 2008). These species are Federal candidate, proposed, and delisted (for 5 years after delisting) species requiring management to promote their conservation and reduce the need for future listing under the Endangered Species Act. These must be native species found on BLM-administered lands for which the BLM has the capability to significantly affect the conservation status of the species through management. In addition, one of the following applies to the native species: (1) there is information that the species has recently undergone, is undergoing, or is predicted to undergo a downward trend such that the viability of the species or a distinct population segment of the species is at risk across all or a significant portion of the species range, or (2) the species depends on ecological refugia or specialized or unique habitats on BLM administered lands, and there is evidence that such areas are threatened with alteration such that the continued viability of the species in that area would be at risk. A list of sensitive species associated with BLM lands in Nevada was signed in 2003 (BLM 2003).

The NNHP conducted a search of their database and maps for a 2-kilometer radius around T. 16 N., R. 21 E., and T. 17 N., R. 21 E. (Appendix A). Based on this search and the list signed in 2003, the Nevada BLM-sensitive species Sierra Valley mousetails (*Ivesia aperta* var. *aperta*), altered andesite popcornflower (*Plagiobothrys glomeratus*) and altered andesite buckwheat (*Eriogonum robustum*), Townsend's big-

eared bat (*Corynorhinus townsendii*), and western small-footed myotis (*Myotis ciliolabrum*) have been previously identified on BLM-administered land in or near the project area. In addition, to the bat species identified by NNHP, the BLM previously identified pallid, Brazilian free-tail, little brown Myotis, and fringed Myotis bats within mines in Virginia City.

Sierra Valley mousetails are usually found with other hydrophytic species in saturated sites (i.e., meadows, drainages, and seeps) in shallow, ponding soils derived from volcanic rock or volcanic alluvium. The species is found on mid- to high-elevation benches and flats. Surface soils are usually very rocky to somewhat sandy with shallow and clayey subsoils that tend to retain moisture longer than surrounding soils. The habitat supports generally sparse vegetation usually dominated by Sierra Valley mousetails and other hydrophytes. Because the project area does not include areas of saturated soils dominated by hydrophytic vegetation, there is no habitat for Sierra Valley mousetails in the project area.

Altered andesite popcorn flower is typically found between 4,800 and 6,600 feet in elevation on dry, shallow, mostly acidic, gravelly clay soils (DAFS, 2006). Altered andesite buckwheat is often located on shallow, rocky, highly acidic, barren ridges, and hill tops at elevations ranging from 4,410 to 7,325 feet msl (NNHP, 2001). The species is usually found in areas of high mineral extraction potential where evidence of some sort of past, present, or planned mining is present. It is present on soils derived from weathering of hydrothermal iron sulfide deposits formed mainly in andesite, and occasionally in rhyolitic or granitoid rocks, on dry ridges, knolls, and a variety of slopes (Morefield, 2000). The species usually forms a sparse understory with plants such as sandwort, rabbitbrush, squirreltail grass, and western bluegrass, and is usually located in an area with a sparse and stunted woodland of Jeffrey and/or ponderosa pine, with singleleaf pinyon pine. The habitat for the altered andesite popcornflower and altered andesite buckwheat is present in the overall area. During the field investigation, both species were observed on slopes adjacent to roadways and near the Storey County Public Works building.

Townsend's big-eared bats are found from low desert to high mountain habitats throughout Nevada. They are concentrated in areas with caves or mines, which they can use as roosting sites. They prefer caves and mines where the temperature is typically above freezing but less than 54 °F (NDOW, 2010b). Through correspondence with NDOW, it was determined that Townsend's big-eared bat has been located previously in mines (Attachment 2). Mines are not included in the proposed area of disturbance for the project.

The western small-footed myotis occurs throughout much of the western U.S. It is better adapted to moist, rather than dry, areas. It roosts in rock crevices, mines, caves, or buildings, and occasionally uses an abandoned swallow's nest as a roosting site (SNMH, 2010). There is no suitable roosting habitat for the Western small-footed myotis in the area of disturbance for the project. Further, the Western small-footed myotis has not been observed in the project area.

Similar to the Townsend's big-eared bats and western small-footed myotis, pallid, Brazilian free-tail, little brown Myotis, and fringed Myotis bats use rock crevices, mines, and caves for roosting habitat. Because the area of disturbance for the project does not include rock crevices, mines, or caves, there is no suitable bat habitat in the project area.

3.4.2 Effects

Basis of Significance. An alternative would be considered to have a significant effect on BLM sensitive species if it would be inconsistent with BLM objectives to conserve BLM sensitive species and their habitats. This applies only to these species or their suitable habitat that occur on BLM-administered land.

No Action. This alternative would have no effect on BLM sensitive species or their habitat.

Wastewater System Improvements

Virginia City. No BLM sensitive species or habitat were identified at the locations of the test pits and borings, or in the work areas for the WTP upgrade, sewer line installation, fill, or staging and stockpiling. As a result this alternative would have no effect on BLM sensitive species.

Gold Hill. The BLM sensitive species, altered andesite buckwheat, was present in the vicinity of, and outside the limits of, the staging and stockpiling area near the Divide Reservoir, next to the Storey County Public Works building. Additionally, for the alternative force main alignment, two BLM species of concern (altered andesite buckwheat and altered andesite popcorn flower) were observed on the hillslope adjacent to Homestead Road, (7Q10, 2010). However, these species are not at the locations of the test pits and borings, or in the work area for installation of the pipeline or staging and stockpiling areas. As a result, there would be no effect to BLM sensitive species as a result of the project, including either force main alignment in Gold Hill.

3.4.3 Mitigation

Since there would be no significant effects on BLM sensitive species on BLM-administered land, no mitigation would be required. Although the area around the staging and stockpiling area near Divide Reservoir is not proposed for staging and/or stockpiling, the contractor would be required to have a qualified biologist mark the locations of this species in the field before the area is used for staging and stockpiling. Regarding the sensitive species found along Homestead Road, if any construction activities extend beyond the limits of the existing roadways, the contractor would need to have a qualified biologist mark the locations of these two species in the field in order to avoid them.

3.5 Water Resources and Water Quality

3.5.1 Existing Conditions

Water Resources. The only surface water in the project area is Six Mile Canyon Creek, which begins at the eastern edge of Virginia City at an elevation of approximately 5,800 feet. The creek supports a riparian corridor immediately below the WTP, extending for several miles. An unnamed tributary enters the stream approximately 1,000 feet southeast of the WTP. From there, the creek flows approximately 7 miles east towards the Dayton Valley and the Carson River. Six Mile Canyon Creek is considered a Waters of the U.S. (WOUS) since it is a tributary to the Carson River.

Currently, State water quality regulations have not classified beneficial uses for Six Mile Canyon Creek (NDEP 2006). Flow in the creek during dry weather and after snowmelt ends is predominantly treated effluent discharged from the current WTP. The creek typically dissipates, becoming a dry desert wash before reaching the Dayton Valley due to percolation and evapo-transpiration. However, during storm events, storm runoff can discharge directly into the Carson River through a series of dry wash channels, including the creek.

Previous mining activity, as well as naturally occurring minerals, have adversely affected the quality of the groundwater supply under Virginia City. Since 1873, potable drinking water for Virginia City and Gold Hill has been supplied via pipeline/siphon by the State-operated Marlette-Hobart Water System (NDEP, 2006). Virginia City and Gold Hill are part of the Dayton Valley Hydrographic Area, which is currently over appropriated (NDWR, 2010).

Water Quality. No current water quality data are readily available for Six Mile Canyon Creek; i.e., data for the USGS Six Mile Canyon Creek gauging station is over 12 years old. The water quality in the Carson River is determined by flows, water diversions, and past and present land use activities in the watershed. The State has identified total phosphorus, total suspended solids, turbidity, temperature, total iron, and total mercury as parameters of concern for the Carson River (Pahl, 2007). Much of the Carson River is included on Nevada's list of impaired waters, as required by Section 303 of the Clean Water Act (NDEP, 2005).

Due to past mining activities and mineral deposits, local groundwater quality is known to be poor. As a result, monitoring wells have not been required to be installed down-gradient of the WTP. Groundwater quality monitoring occurs several miles downstream of the WTP by the Flowery Mining District. This monitoring has not shown any elevated trends in total dissolved solids (TDS) or nitrate levels (NDEP, 2006).

3.5.2 Effects

Basis of Significance. An alternative would be considered to have a significant effect on water resources or quality if it would (1) substantially deplete or degrade the quality of natural surface or groundwater resources, (2) contaminate a public water supply, or (3) expose humans to substantial pollutant concentrations.

No Action. This alternative would have no effect on water resources in the project area. However, groundwater quality would likely continue to degrade due to sewer line failures and leaks in Virginia City. In addition, the existing community septic system in Gold Hill would continue to fail and contaminate surface and groundwater resources.

Wastewater System Improvements

Water Resources. The project would have no short-term effects on water resources or water supply in the Virginia City area. Consistent with the project purpose, the total discharge of treated effluent from the upgraded WTP into Six Mile Canyon Creek would increase due to the treatment of wastewater from Gold Hill, as well as improved sewer pipelines and connections in Virginia City and Gold Hill. The project would not deplete surface or groundwater resources. Therefore, this project would not have a significant effect on water resources.

Water Quality. This alternative could have short-term effects on water quality. Surface clearing, grading, and excavation activities at the WTP, lift station locations, and along the pipeline alignment would involve the movement of loose soils. During storm events, these soils could be washing into surface runoff and carried into down-gradient swales and creeks. The types of BMP's discussed in Section 3.5.3 would be implemented during construction to avoid or reduce any short-term effects on water quality to less than significant.

Consistent with the project purpose, this alternative would increase the capacity of the WTP and reduce potential releases of raw sewage to Six Mile Canyon during periods of high surface runoff. Replacing the collection system in Virginia City would also reduce the potential for pipeline leaks or breaks of raw sewage to contaminate the soils and groundwater. Finally, the Gold Hill sewer collection system and lift stations would replace the existing community septic system where the disposal field is believed to be failing and potentially leaching into the groundwater.

3.5.3 Mitigation

Since the project would have no significant effects on water resources or quality, no mitigation would be required. During construction, sediment and erosion control BMP's would be used to prevent sediment from leaving the construction area. The contractor would need to prepare a Stormwater Pollution Prevention Plan in accordance with all Federal, State, and local regulations. Construction of the project would disturb

more than 1 acre of ground surface. As a result, the NDEP would require that the County obtain an NPDES permit in accordance with the Clean Water Act, as amended. This permit is required for construction activities that disturb 1 or more acres of land and involve possible storm water discharges to surface waters.

The current WTP permit from the State expires on August 14, 2011. Storey County would need to apply to renew and update the permit 180 days prior to this date (Hartley, 2010). Storey County would consider the additional wastewater that would be collected under the proposed improvements and the recommendations made by Farr West Engineering (2010) in the renewal and update of the permit.

3.6 Air Quality

3.6.1 Existing Conditions

Air Quality Management. The Nevada Bureau of Air Pollution Control (BAPC) and Nevada Bureau of Air Quality Planning (BAQP) are responsible for ensuring compliance with Federal and State air quality regulations in all Nevada counties except Washoe and Clark Counties (BAPC, 2010; BAQP, 2010). Among other activities, the Nevada BAPC issues emission and surface area disturbance permits while the Nevada BAQP monitors and manages ambient air quality throughout the rest of the State.

The State has adopted the U.S. Environmental Protection Agency's (EPA) National Ambient Air Quality Standards in determining compliance. According to the U.S. EPA, the project area is classified as an "attainment" area (meets standards) for all required pollutants including particulate matter (PM10) (EPA, 2010).

Sensitive Receptors. Air quality sensitive receptors include sensitive land uses and those individuals and/or wildlife that could be affected by changes in air quality due to emissions and fugitive dust from the project. Air quality sensitive land uses in the project area include residences and open space recreation area. Sensitive receptors include residents, tourists, recreationists, and occasional wildlife.

3.6.2 Effects

Basis of Significance. An alternative would be considered to have a significant effect on air quality if it would (1) violate any ambient air quality standard, (2) contribute on a long-term basis to an existing or projected air quality violation, (3) expose humans or sensitive species to substantial pollutant concentrations, or (4) not conform to applicable local standards.

No Action. This alternative would have no effect on existing air quality in the project area. Air quality would continue to be influenced by climatic conditions, wild fires, and local and regional emissions from vehicles and agriculture.

Wastewater System Improvements. This alternative would have short-term effects on air quality during construction of the project. The operation of vehicles and heavy equipment would produce emissions as hydrocarbon, exhaust, and PM10. In addition, there would be short-term increases in PM10 as fugitive dust during soil excavation and operation of vehicles and heavy equipment. The types of BMP's discussed in Section 3.6.3 would be implemented during construction to reduce any short-term effects to less than significant. Once the project is completed, air quality would return to pre-project conditions so there would be no long-term effects on air quality in the region.

3.6.3 Mitigation

Since the project would have no significant effects on air quality, no mitigation would be required. Since construction would disturb 5 acres or more of ground surface not related to agriculture, Storey County would be required to obtain a Surface Area Disturbance permit from the State. Prior to construction, the contractor would prepare a Fugitive Dust Control Plan identifying BMP's to minimize the amount of emissions and PM₁₀ generated during construction. These BMP's could include water trucks, sprinklers, fences or windbreaks, and speed limits. The contractor would be required to implement these BMP's and maintain dust controls during construction.

Since this construction project is not located in a Federal air quality non-attainment area, it is in a category of actions considered exempt from general conformity requirements (Section 176(c) of the Federal Clean Air Act). The project would be required to comply with all provisions of the Nevada Revised Statutes (NRS), Chapter 445B, Air Pollution, as well as NRS Chapter 486A, Alternative Fuels: Clean-Burning Fuels. Compliance with Nevada Administrative Code, Chapter 445B, Air Controls, would also be required. As a result, no additional mitigation would be required.

3.7 Land Use and Zoning

3.7.1 Existing Conditions

Virginia City was originally designed in a square platted grid pattern with little recognition of the surrounding topography. Residential development was primarily by individual owners with little thought given to zoning. Today, the County land use is governed and directed by the Storey County Master Plan (Storey County, 1994) and a Zoning Ordinance (Storey County, 1999). The purpose of the Storey County Master Plan is to provide goals and objectives for development in the County. Storey County's Master Plan consists of four primary districts or population areas: Virginia City/Gold Hill, Virginia Highlands, Mark Twain, and the River District. Over 90 percent of the land in Storey County is privately owned, with the remainder managed by Federal agencies, mainly the BLM.

In Virginia City, land is currently zoned by the County as Commercial/Residential (45 percent), Industrial – Light (2 percent), Industrial – Heavy (2 percent),

Public (3 percent), Residential (47 percent), and Multi-Residential (1 percent). In Gold Hill, land is currently zoned as Commercial/ Residential (58 percent), Industrial – Heavy (6 percent), Public (15 percent), and Residential (21 percent). Virginia City is located well outside the floodplain of the Carson River (NBMG, 2010).

3.7.2 Effects

Basis of Significance. An alternative would be considered to have a significant effect on land use or zoning if it would result in land uses that are incompatible with existing and planned land use in the area, or if it would result in an inconsistency with land use zoning or goals.

No Action. This alternative would have no effect on existing land use or zoning in the project area. Land uses on land not administered by BLM would continue to be determined by Storey County via their Storey County Master Plan and zoning ordinances.

Wastewater System Improvements

Virginia City. The WTP would be constructed in the same general area as the existing WTP on 12 acres of public land administered by the BLM. The BLM has proposed to directly convey the WTP parcel to Storey County. This land would change from open space to public utility. Although the land use would change from BLM open space to public utility, this change would not be incompatible with the existing land use since there is already a WTP in that area, and would not result in an inconsistency with Storey County land use goals for the area. As a result, the change would not be considered significant, and therefore there would not be any significant land use or zoning change. Approximately 35,500 linear feet of sewer lines and storm drain in Virginia City are on BLM-administered public land. Prior to project initiation, Storey County would obtain the appropriate ROW from BLM.

Land use in the Virginia City and Gold Hill area currently includes residences, tourist related businesses, retail stores, industrial, public facilities, and open space. These current land uses would not change, and the County has determined that the project would require no changes in current zoning. The project goals include replacement of outdated infrastructure, extending the sewer line to Gold Hill, and increased wastewater treatment capacity to accommodate population growth and peak demand due to tourism. As such, the project is consistent with the County's Master Plan. The project would have no effect on land use or zoning in Virginia City.

Gold Hill. The sewer lift stations are located in a mixed ownership area of private land and public land administered by the BLM. Sewer lift station one is located on Storey County land, and its land use would not change. The second sewer lift station and both of its alternatives are located on private land. The third sewer lift station and both of its alternatives are located on parcels where a portion of the parcel is on BLM land and the rest is on private land. Final locations for the sewer lift stations would be based on negotiations with private land owners.

Storey County would apply for the appropriate ROW if any of the sewer lift station alternatives involve BLM-administered public land. Approximately, 10,500 linear feet of sewer lines and force main are on BLM-administered public land in Gold Hill. Prior to project initiation, Storey County would obtain the appropriate ROW from BLM and negotiate any agreements for land use with the private property owners. As a result, the project would not significantly affect land use or zoning in Gold Hill.

3.7.3 Mitigation

Since the project would have no significant effects on land use or zoning, no mitigation would be required. Prior to project construction, Storey County would be responsible for obtaining required Federal land use authorizations from the BLM. This would include work on portions of the collection system, as well as the WTP. Up to approximately 46,000 linear feet of sewer line, force main, and storm drain would be located on BLM-administered public land in Virginia City and Gold Hill, requiring a ROW for replacement and maintenance access.

3.8 Traffic

3.8.1 Existing Conditions

Regional and Local Roadways. The local roadways in the project area include paved highways and city streets along with gravel and dirt roads. The major roadways include State Highway (SH) 341, SH 342, and Six Mile Canyon Drive. These roadways provide connections to Reno, Carson City, and the Dayton Valley via Virginia City and Gold Hill. City streets serve the residential and commercial areas in Virginia City and Gold Hill, while gravel and dirt roads provide limited access to facilities and open areas in surrounding areas.

Traffic Types and Volumes. The types of traffic that can be found on the major roadways include cars, small utility vehicles, recreational vehicles, trucks, buses, and motorcycles. Vehicles on city streets are mainly cars and small utility vehicles. The NDOT records annual average daily traffic (AADT) volumes on paved roads in Virginia City and Gold Hill. Table 5. Annual Average Daily Traffic on Roadways near the Project Area in 2009

shows the 2009 AADT counts at 10 locations in or near the project area (NDOT, 2009).

3.8.2 Effects

Basis of Significance. An alternative would be considered to have a significant effect on traffic if it would cause an increase in vehicular traffic that is substantial in relation to the existing traffic on a roadway; an increase in safety hazards on area roadways; or (3) substantial deterioration of the physical condition of area roadways.

Table 5. Annual Average Daily Traffic on Roadways near the Project Area in 2009

Station	Road	Location	AADT
290001	SH342, Silver City-Gold Hill Rd	0.2 mi S of SH341 (Virginia City Rd)	1,900
290002	SH341, Virginia City Rd	0.1 mi S of SH342	600
290004	F' St	0.2 mi W of Washington St N of RR tracks	340
290005	SH341, C St	120 feet S of Six Mile Canyon Rd (Mill St)	2,200
290007	SH341, C St	83 feet N of power pole at Mill St	2,400
290010	Six Mile Canyon Rd	2.3 mi W of US50 E of Dayton	980
290013	D St	65 feet N of Union St	620
290014	Six Mile Canyon Rd	0.15 mi E of D St.	1,100
290015	Cartwright Rd	0.1 mi S of Buckeye Rd (Virginia City Highlands)	1,200
290016	B St	100 feet N of Union Ln	430

Source: NDOT, 2009

No Action Alternative. This alternative would have no effect on existing roadway traffic in the project area. The types and volumes of traffic would be expected to remain basically the same.

Wastewater System Improvements. This alternative could have short-term effects on traffic on residential streets, SH 341, SH 342, Six Mile Canyon Road, and other local roads during construction. The collection system replacement and Gold Hill force main construction would require short-term lane and road closures while the sewer lines are replaced in the roadways. In some areas, traffic may need to be rerouted to adjacent streets, resulting in short-term increases in traffic volumes, possible delays, and/or congestion on these adjacent streets.

Residential streets and driveways may be partially or completely closed for short periods during replacement of sewerlines, causing residents to use alternative routes and/or park on neighboring streets. However, the work would be conducted along one street at a time so that any effects on residential traffic would be minimized. As a result, the short-term increase in traffic on alternative routes would not be substantial in relation to the existing traffic. In addition, any effects on parking during construction would be minimized by existing public parking lots, which are currently under used (Nevin, 2011). As a result, the short-term effects of the project on residential traffic would be less than significant. When the work is completed, the traffic volumes and flow along these roadways would be expected to return to pre-project conditions. As a result, there would be no long-term effects on traffic on residential streets.

An alternative alignment of the Gold Hill force main includes a crossing of State Highway 341. Under the alternative alignment, traffic flow would potentially be reduced to one-lane while the force main is installed. On State Highway 342, the traffic would potentially be reduced to one-lane during construction of the sewer line. The construction

would proceed along State Highway 342 such that the sewer line would be replaced in sections and only a segment of the roadway would be opened each day.

There would be a short-term increase in the volume of traffic on Six Mile Canyon Road as construction equipment, haul trucks, and worker vehicles access the WTP. An average of 10 worker vehicles would travel to and from the project area each work day, for a total of 20 trips per day. These short-term increases in traffic would not be considered significant in relation to the existing volumes of traffic on Six Mile Canyon Road.

Staging and storage areas are located adjacent to, or within, existing roadways and developed areas throughout the project area. The transport of materials from the area of construction to the staging and storage areas would have short-term effects on traffic. Materials would be stored for use in the staging areas, as required. Materials would be transported from the staging areas to the work areas during construction via existing roadways. By locating the staging/storage areas near the area of construction throughout the project area, traffic related to construction equipment would be reduced. City streets B, D, I, L, M, P, Howard, and Ridge would be partly closed where used for staging and stockpiling areas during construction; local traffic would be rerouted to alternative routes.

Effects to traffic as a result of road closures and lane closures would include increased commute times and traffic volumes. Traffic would also be affected during the delivery of equipment and movement of equipment and soils throughout the project area during construction, causing increased traffic volumes and traffic delays. These effects including road closures, increased congestion, and one-lane traffic would be short-term. With the implementation of measures described in Section 3.8.3, the short-term effects to traffic as a result of this project would be less than significant. Once construction is complete, traffic volumes and travel times would return to pre-construction conditions. As a result, there would be no long-term effects to traffic.

3.8.3 Mitigation

Since the project would have no significant effects on traffic, no mitigation would be required. However, the County would be required to ensure public safety on roadways. Prior to construction, a traffic management/control plan would be developed by Storey County, and traffic control measures would be implemented in accordance with the plan. The plan would include use of signs, flaggers, traffic calming, and alternative routes to accommodate local and through traffic. In addition, local residents would be advised regarding schedules for construction traffic detours through distribution of flyers prior to initiation of construction. Meetings would be held with local residents and businesses to discuss construction plans, including implications to traffic in the area.

During construction, traffic would be detoured around the project area. In some cases, the road may need to be closed and traffic redirected to alternative roads. Notice of road closures and detour routes would be provided to residents, nearby businesses, and local fire departments, police, and others in the community. Notice would be posted in

Virginia City and Gold Hill where access would be affected during construction. Traffic control measures would be used, where appropriate.

Storey County and the contractor would coordinate with NDOT regarding the crossing of State Highway 341, and the replacement of the sewer line and installation of the force main along State Highway 342. The NDOT would ultimately make the decisions regarding construction methods and how traffic would be handled along State highways.

3.9 Noise

3.9.1 Existing Conditions

Noise can be defined as unwanted sound and noise levels, and effects are interpreted in relationship to noise level objectives for each county. Storey County manages excessive noise that is injurious to health or interferes unreasonably with the comfortable enjoyment of life or property in the County (Storey County, 1999).

Primary sources of noise in the project area are from the operation of motor vehicles and natural sounds such as wind and wildlife. Noise is mainly attributable to vehicles and occasional human activities such as recreation or school activities. Noise-sensitive receptors include sensitive land uses and those individuals and/or wildlife that could be affected by changes in noise or noise levels. Noise sensitive land uses in the project area include residences and businesses; sensitive receptors include residents, tourists, recreationists, and wildlife.

3.9.2 Effects

Basis of Significance. An alternative would be considered to have a significant effect on noise if it would substantially increase the ambient noise levels for adjoining areas. The significance of temporary noise effects is evaluated with reference to existing noise levels, the duration of the noise, and the number of sensitive receptors affected.

No Action Alternative. This alternative would have no effect on existing noise in the project area. Current noise sources and levels would be expected to remain basically the same.

Wastewater System Improvements. Construction activities would result in a short-term temporary increase in existing noise levels in the vicinity of the project area during the period of active construction. Potential sources of noise from the project construction include both on-site construction noise sources from the use of heavy equipment (bulldozers, excavators, trucks, jackhammers, etc.) and transportation-related noise sources from construction workers and deliveries.

The anticipated construction noises produced by implementation of the project include short-term noise effects during the period of construction, and there would be no

long-term direct or indirect noise effects as a result of the project. Because of the proximity of the project area to residential areas, specifically for sewer line replacements in residential areas of Virginia City and Gold Hill, there are the potential for short term noise effects to residents during construction. The BMP's specified in Section 3.9.3 below would be implemented during construction to reduce potential noise effects to a less than significant level.

3.9.3 Mitigation

Since there would be no significant effects on noise, no mitigation would be required. The contractor would implement the following BMP's to minimize short-term effects on noise during construction:

- Equip construction equipment with mufflers equivalent to original equipment manufacturer.
- Limit the hours of construction to daytime hours near residential and business areas, and tourist attractions.
 - Work during most of the year for each phase would be conducted from 7:00 a.m. to 5:30 p.m., Monday through Friday.
 - During the winter months, work would be conducted from 7:00 a.m. to 5:00 p.m., Monday through Friday.
- No work would be conducted on weekends or during evening or night hours.
- Limit haul truck or other vehicles speed on roads adjacent to residences, businesses, tourist attractions, and on any unpaved roadways.

3.10 Recreation

3.10.1 Existing Conditions

Virginia City is the largest Federally designated NHL in the U.S., and attracts over 2 million tourists visit each year (CCCVB, 2010). Attractions include saloons, bed and breakfasts, mine tours, the Virginia & Truckee Railroad, Piper's Opera House, Fourth Ward School, and St. Mary's Church. Miner's Park is located in Virginia City at the corner of Carson and F Streets. This park includes a pool, baseball field, gazebo, BBQ area, skate park, and playground equipment. Except for this park, there are no other developed recreational facilities at the WTP, lift station, or adjacent to the sewer line alignment. In addition, Storey County offers many outdoor recreational opportunities including hiking, mountain biking, and horseback riding in other parts of the County.

3.10.2 Effects

Basis of Significance. An alternative would be considered to have a significant effect on recreation if there would be a substantial loss of recreational areas.

No Action Alternative. This alternative would have no effect on existing recreational facilities or opportunities in the project area.

Wastewater System Improvements. This alternative would have no effect on existing recreational facilities, but could affect recreational opportunities in the project area. Any tourist visiting Virginia City could be affected by the construction activities and noise in the project area. While the primary tourist attractions are located on C/Main Street in the center of Virginia City and the sewer line was replaced recently in this area, tourists could be affected by construction on neighboring roadways. The project would have an effect on available parking and also have the potential to increase traffic volume, road closures, and cause delays or congestion. These effects would be to recreational activities in town; however, the outdoor recreational activities such as hiking and biking would not be affected since access is more widespread and straightforward than the confined areas in town.

This alternative could have short-term effects on access to Miner's Park and the ball fields. These effects could include reduced access, disruption in recreational activities, and/or a reduction in the quality of the recreational experience for users. Access would be unavailable for short periods during installation of the sewer pipeline. Construction activities and noise could also disrupt activities where the ability to hear voices or whistles is needed, as well as reduce the quality of the recreational experience for those users enjoying the peaceful areas of the park. Once the project is completed, recreational and tourist activities and the quality of the recreational experience would return to pre-project conditions. This project would also help to accommodate wastewater treatment demand during peak tourist season. There would be no long-term effects on recreation in the project area. While there would be short-term effects to recreation, with the implementation of the measures in Section 3.10.3, the project would have a less than significant effect on recreation.

3.10.3 Mitigation

Since the project would have no significant effects on recreation, no mitigation would be required. To avoid or minimize any short-term effects on recreation, the County would post signs in Miner's Park, informing the public of the construction schedule. The County would also coordinate with community groups to avoid construction during scheduled public events and ensure that there is sufficient access for the public event. Additionally, construction of sewer alignments near C Street would be performed during off-peak season for tourists in order to minimize any effects on parking and access.

3.11 Esthetics and Visual Resources

3.11.1 Existing Conditions

Esthetic resources are those natural resources, landforms, and manmade structures in the regional and local environment that generate one or more sensory reactions and evaluations by viewers. The regional landscape around Virginia City includes mountainous rolling terrain with trees and shrubs. Virginia City is one of the oldest

established communities in Nevada, a result of the Comstock Lode silver strike of 1859. Virginia City was declared a NHL in 1961. As a result, many of the buildings from the 1800's have been preserved along with the feel of the Old West. This historic time is still reflected in the buildings and architecture of the town.

Virginia City was built in a very mountainous area. Mt. Davidson's Peak towers over Virginia City to the west. Virginia City is surrounded by mountain ranges and canyons. To the east lie Dayton Valley and Six Mile Canyon. Located just to the east on the outskirts of the City, the WTP is typically only noticed by motorists who use Six Mile Canyon Road. Otherwise, the hills around the WTP prevent it from being easily viewed. The lift stations would be constructed on parcels of land currently devoid of any buildings.

The project area is located in an area designated by the BLM as Visual Resource Management Class IV as documented in the BLM's 2001 Carson City Field Office Consolidated Resource Management Plan. The BLM's Visual Resource Inventory Handbook (H-8410-1) states: "The objective of this class is to provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the effect of these activities through careful location, minimal disturbance, and repeating the basic elements."

3.11.2 Effects

Basis of Significance. An alternative would be considered to have a significant effect on esthetics if changes in landform, vegetation, or structural features substantially increase levels of visual contrast as compared to surrounding conditions. The significance of esthetic effects is evaluated with reference to the number of viewers affected. The BLM's Visual Resource Management Plan and Handbook H-8410-1 provide the criteria for acceptability of any visual effects.

No Action. This alternative would have no effect on existing esthetics or BLM's visual resource designation in the project area. The regional landscape and local viewshed would be expected to remain basically the same.

Wastewater System Improvements.

Virginia City. This alternative would have both short-term and long-term effects on existing esthetics. Short-term effects would involve changes in the local viewshed during staging of equipment and supplies, as well as construction of the new facilities at the WTP project location and the replacement of the Virginia City sewer lines. Most construction activities at the WTP would not be visible to viewers because the current topography would block most of the activities. Construction of the solids handling building at the WTP would be partially visible to Virginia City residents on R Street and motorists on Six Mile Canyon Road. However, due to the limited size of the building, it

would not substantially increase visual contrast as compared to the surrounding conditions. Residents of Virginia City, as well as tourists using residential streets, would be subject to short-term visual effects associated with the sewer line replacement. However, staging of construction materials would be in the more isolated areas, and phased installation of the sewer lines would be conducted along individual streets over time. Thus, the level of visual contrast would not be considered substantial in relation to surrounding conditions, and the number of viewers affected at one time would be limited. As a result, short-term effects on esthetics would be considered less than significant.

Long-term effects to esthetics would include a change in the local viewshed due to the addition of new facilities at the WTP. However, the new facilities would be similar in size and height to other existing structures, would have the general appearance of a utility structure, and would be located and designed to minimize visual contrast. There would be some surface grading, but there would be no export/import of any fill. As a result, this change would not substantially increase the levels of visual contrast as compared to surrounding conditions. Thus, the long-term effects on esthetics would not be considered significant.

Gold Hill. This alternative would have both short-term and long-term effects on existing esthetics. Short-term effects would involve changes in the local viewshed during staging of equipment and supplies, as well as construction of the new sewer lift stations, replacement of the sewer lines, and installation of the force main. However, only a few viewers would be affected because of smaller size and fewer tourist attractions in Gold Hill. As a result, the level of visual contrast would not be considered substantial so any short-term effects on esthetics would be considered less than significant.

Long-term effects to esthetics would include a change in the local viewshed due to the addition of new sewer lift station structures. The new structures would have the general appearance of a utility structure, and most of the sewer lift station structure would be constructed below grade and outside of view. The tallest above-ground structures associated with the sewer lift station would be the electrical cabinet and generator, which would be no more than 6 feet high. In addition, a 6-foot wooden fence would be constructed around the sewer lift stations. The fence, which would be the only feature visible at the completion of the project, has been designed to meet the design criteria of the Comstock Historic District Commission (CHDC). As a result, this change would not substantially increase the levels of visual contrast as compared to surrounding conditions. Thus, the long-term effects on esthetics would not be considered significant.

3.11.3 Mitigation

Since there would be no significant effect on esthetics, no mitigation would be required. The CHDC oversees any above-ground construction in the NHL. As a result, the local sponsor would be required to coordinate with the CHDC regarding any changes in esthetics prior to initiation of construction.

3.12 Cultural Resources

The term “cultural resources” is broadly defined as the buildings, structures, objects, sites, districts, and archeological resources associated with historic or prehistoric human activity. When these cultural resources are listed in, or are eligible for listing in, the National Register of Historic Places (NRHP), they are referred to as “historic properties.” Such properties may be significant for other cultural values and may be of national, state, or local significance. Historic properties may be eligible or listed as a result of their individual eligibility and/or as contributors to historic districts, and/or as historic landmarks, memorials, and other designations. Cultural resources are representative of broad patterns, themes, events, and people in prehistory and history.

The area of potential effects (APE) is defined as the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The APE is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking. The APE for this undertaking is defined as the previously described project area, as well as the visual landscape around above-ground project features that may have an effect on structures, objects, and cultural landscapes and settings around these project features.

3.12.1 Existing Conditions

Prehistoric. Within the APE for the project, there is a potential for the presence of prehistoric sites. A records and literature search at the Nevada State Museum will be completed to determine known sites within the APE. Types of sites existing in the APE may include camps, lithic scatters, quarries, rock art, rock shelters, religious and sacred sites, as well as others. Native American tribes known to have interest in the APE include the Washoe Tribe of Nevada and California, and the Yerington Paiute Tribe.

Historic. The project is located entirely within the boundaries of the Virginia City Historic District (VCHD), which is a NRHP-listed historic district, as well as a NHL.

Virginia City, on the Comstock Lode, was the first silver rush town; it was also the first area in the West where methods of large-scale industrial and corporate enterprise were intensely applied and developed. As the experimental laboratory for these techniques, which were introduced with such success between 1860 and 1864, Virginia City became the prototype for the subsequent important mining towns that appeared on the mining frontier in Colorado, Idaho, Montana, and eastern Nevada.

Gold Hill was an intensely developed region on the Comstock. The earliest producing mines were located in Gold Hill, including the Crown Point, Yellow Jacket, Imperial, Kentucky, and Confidence. Gold Hill grew rapidly because of its proximity to several mines and mills, and was eventually built up to the divide where it merged with Virginia City. In its heyday during the 1870's, Gold Hill boasted a population of approximately 8,000 people, second only to Virginia City. It had a thriving business

district, including an office for the Bank of California that stands today, several lodges, hotels, churches, schools, and other public amenities (CHDC 2005).

The VCHD is described as: “Technologically, economically, and sociologically the Comstock Lode represented a big and abrupt stride beyond the farthest limits reached in California during the 1850’s. No California mining venture of the 1850s has demanded such a huge investment, none had been conducted on such a flamboyantly large scale, none had required such a rapid advance in engineering and technology. Nor had California mining, even in the field of quartz, led to the factory-like industrial relations that so soon characterized Virginia City and Gold Hill”(Rodman, 1963). The period of significance for the VCHD extends from 1859 to 1941.

The bonanzas of the Comstock Lode and Virginia City mines resulted in a total of \$292,726,310 and paid \$125,335,925 in dividends from 1859 to 1882. The Virginia City mines dominated western mining history from 1870 to 1879 (Snell, 1978).

As described by the National Register of Historic Places listing for the VCHD from 1978 and the amended listing from 1991, there are a number of types of historic archaeological sites, features, and buildings that contribute to the integrity of the VCHD and NHL. These include cultural landscape features (mill tailings, mine dumps, sunken shafts, cemeteries, abandoned railroad, and road beds), historic structures (headframes, ore rockers, mill leaching tanks, and water tanks and flumes), and archaeological sites (underground mining tunnels, partially or totally buried mining equipment, and parts of buildings, stone embankments, and foundations), as well as the physical setting and the built environment of the VCHD and NHL.

The historic physical setting, which has remained relatively constant from the 1850’s to 1942, includes the topography and patterns of drainage and vegetation, as well as the underlying geology of the area, all of which have influenced human use and development of the land. The built environment of the VCHD and NHL includes buildings and structures in Virginia City, Gold Hill, Silver City, and Dayton. These include commercial and residential buildings (such as family dwellings, businesses, religious, government, social, cultural, education, transportation, and industrial structures), outbuildings, and mill and mining structures generally within the four communities. The architectural styles of these buildings and structures generally fall into three categories (late Victorian period, vernacular, and industrial) and date from the mining bonanza years of the 1860’s and 1870’s and the period of economic revival in the 1930’s.

3.12.2 Effects

Significance Criteria. A historic district possesses a significant concentration, linkage, or continuity of sites, buildings, structure, or objects united historically or esthetically by plan or physical development. A district derives its importance from being a unified entity even though it is often composed of a wide variety of resources. The identity of the district results from the interrelationship of its resources, which can

convey a visual sense of the overall historic environment or can be an arrangement of historically or functionally related properties. A district must be significant, as well as be an identifiable entity. It must be important for historical, architectural, archeological, engineering, or cultural values (USDI, 1992).

The NHL's are nationally significant historic places designated by the U.S. Secretary of the Interior because they possess exceptional value or quality in illustrating or interpreting the heritage of the U.S. Today, fewer than 2,500 historic places bear this national distinction. The National Historic Landmarks Program works in coordination with interested citizens and National Park Service staff to nominate new landmarks and provide assistance to existing landmarks. The National Park Service and the Nevada State Historic Preservation Officer provide oversight for Federal undertakings in NHL's and National Register listed historic districts with National significance in Nevada. The CHDC provides historic building oversight in the NHL for Virginia City. This includes Virginia City, Gold Hill, Silver City, the Sutro Tunnel, the town of Dayton, and the surrounding mining district.

Adverse effects on cultural resources (including historic districts) that are contributing elements, listed or eligible for listing in the NRHP, or as contributing elements of a NHL could be considered significant. Cultural resources that are contributing elements to a NRHP eligible or listed property, district, or NHL, or are individually listed or eligible for listing in the NRHP are considered historic properties and must undergo particular evaluation to determine if the effect of an alternative is adverse. An alternative would be considered to have an adverse effect on historic properties if the alternative may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusions in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling or association. Types of adverse effects include:

- Physical destruction, damage, or alteration of all or part of the historic property.
- Isolation of the historic property from or alteration of the character of the historic property's setting when that character contributes to the historic property's qualifications for the NRHP.
- Introduction of visual, audible, or atmospheric elements that are out of character with the historic property or alter setting.
- Neglect of a historic property, resulting in its deterioration or destruction.
- Transfer, lease, or sale of the historic property.

Integrity. Historic integrity is the composite effect of seven qualities: location, design, setting, materials, workmanship, feeling, and association. Decisions about historic integrity require professional judgments about whether a property today reflects the spatial organization, physical components, and historic associations that it attained during the period of significance. A property's period of significance becomes the benchmark for measuring whether subsequent changes contribute to its historic evolution or alter its historic integrity.

No Action. This alternative assumes that the project would not be constructed. Existing cultural resources and historic properties such as the VCHD and NHL would remain unaffected and as described in Section 3.12.1, and future activities within the boundaries of the VCHD and NHL would be potentially subject to the review of the CHDC, Nevada SHPO, and BLM.

Wastewater System Improvements. When historic properties are identified that may be adversely affected by a proposed project, methods must be determined to identify the scope of the historic properties, assess the extent of the adverse effects, and develop measures to avoid or mitigate any adverse effects. One method to meet this requirement when a project may affect a complex historic property, NHL, or other sensitive resource is the execution of a Programmatic Agreement (PA) between the parties who are involved in decision-making for the project. In addition, in accordance with 36 CFR 800.14(b)(1)(ii), when effects on historic properties cannot be fully determined prior to approval of an undertaking, a PA may be used to outline the process for identification, evaluation of properties and effects, and minimization or mitigation of effects. The evaluation and resolution of adverse effects is made pursuant to 36 CFR 800.5 and 36 CFR 800.6.

The Corps has determined that the project may have an adverse effect to the VCHD and NHL. The VCHD and NHL are composed of above-ground buildings and structures that are considered significant as remnants of the Comstock Lode, and buried resources contributing to the historic significance of the Comstock Lode may be present at or under the surface that would be disturbed during construction. In addition, the proposed lift stations and replacement of the WTP may affect the visual nature of the landscape of the VCHD and NHL. The visual landscape is considered an important part of the integrity of the property, and the introduction of features out of character with the historic setting of the VCHD and NHL could result in adverse effects.

As a result of these potential effects, a PA is being developed in consultation with the BLM, Nevada SHPO, Storey County, the Advisory Council on Historic Preservation, and National Park Service. The PA includes activities that would occur before construction and during construction. As the lead Federal agency for compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, the Corps would execute the PA. In order to determine what resources in the APE may be affected, the PA includes stipulations to complete background documentation and an inventory of known and unknown resources in the APE. Once the background and inventory are complete and the known above-ground resources have been determined, the PA stipulates steps to assess effects to known resources, as well as buried resources that are unknown until ground-disturbing activities commence.

To assess the effects on both the known above-ground resources and possible buried resources, the PA requires (1) development of a sensitivity document to identify those areas most likely to have historic properties and (2) preparation of a visual effects assessment. The visual effects assessment would determine if above-ground construction may have an adverse effect on the integrity and character of the VCHD and NHL. The

design of the above-ground project features has already been coordinated with the CHDC, who required alteration of the type of fencing, pitch of the roofs, and color and type of material used for siding. CHDC's alterations were needed to be consistent with the character of the VCHD and NHL and reduce visual effects to less than significant. Any additional project features would be designed in coordination with the CHDC and PA signatories, as well as consistent with the CHDC construction standards for the VCHD and NHL, in order to reduce visual effects to less than significant.

The visual effects assessment would also examine potential effects of the project on the overall character and integrity of the historic setting of the VCHD and NHL beyond the built environment. The historic setting relates to the setting, feeling, and association of the VCHD and NHL, and how the landscape has both shaped and been shaped by the VCHD and NHL. The visual effects assessment would determine if the project would have an adverse effect on those character-defining features of the VCHD and NHL. If the project is determined to have an adverse effect on the visual landscape of the VCHD and NHL, potential mitigation measures such as documentation of the landscape through Historic American Landscape Survey would reduce effects to less than significant. Potential mitigation measures would be considered and coordinated with the SHPO and the BLM.

Because the extent and types of buried resources is currently unknown, the sensitivity document would compile existing information on the VCHD and NHL from topographic maps, information on cuts and fill of the area, Sanborn maps, historic geographic/mineral archival information, knowledge of buried utilities (water, gas, and electrical), archival information, survey of knowledgeable individuals, and any other information relating to subsurface features. That information would be compared to the project and APE, and a testing plan targeting areas in the APE for the project identified as sensitive for buried resources would be developed to identify resources and determine likely effects. The testing plan would identify what buried components are likely to be found and where. The goal of the testing plan is to identify those areas within the APE where sites do exist or are likely to exist, and recommend the extent and method of testing prior to construction to determine the potential site eligibility as an NRHP-eligible or listed property or contributing historic property to the VCHD and NHL.

Implementation of the testing plan would include determinations of eligibility for sites identified during the testing. Determinations of eligibility would be coordinated with the SHPO and the BLM. For sites in the APE determined eligible as NRHP-eligible or listed properties, or contributing historic properties to the VCHD and NHL, a historic property treatment plan (HPTP) would be developed. A HPTP would include a data recovery plan to document and recover values that make sites, sensitive areas, or parts of the VCHD and NHL eligible for listing in the NRHP as contributing elements to the NRHP-listed district or as individually eligible historic properties. Development of any HPTP or data recovery plan would be coordinated with the SHPO and the BLM. Implementation of HPTP's for known resources or buried resources determined to be likely located in the APE and determined as NRHP-eligible or listed properties, or

contributing historic properties to the VCHD and NHL, would reduce effects to less than significant.

Even after completion of the sensitivity document, testing plan, HPTP's and data recovery, the possibility still exists that unknown buried cultural resources could be discovered during project construction. Once construction is initiated, the PA includes stipulations for monitoring construction activities in both previously disturbed and undisturbed areas. Those stipulations include guidelines for contacting the BLM and the SHPO, examining the discovery, and determining NRHP eligibility of, and effects to, the discovery.

The stipulations of the PA will be completed by professional individuals who meet the Professional Qualifications Standards set forth in the Secretary of the Interior's Standards and Guidelines for the applicable technical area. Execution of the PA stipulations is the means to consider the effects of the project on historic properties and develop methods to avoid effects, where possible, and to minimize and mitigate any adverse effects elsewhere. Implementation of the stipulations in the PA would reduce any effects on historic properties in the APE to less than significant.

3.12.3 Mitigation

Since implementation of the stipulations in the PA would reduce any effects to less than significant, no additional mitigation would be required. Once the provisions of the PA relating to pre-construction identification, evaluation, and resolution of effects are met, ground-disturbing activities for the project may proceed.

In the event that an unanticipated discovery of a potential historic property is made, the PA would include an unanticipated discoveries plan to guide stopping work, coordinating with the BLM and the SHPO, determining effect, and determining possible mitigation through a HPTP and in accordance with 36 CFR 800.5 and 800.6. The unanticipated discoveries plan would also include guidelines for notification of relevant parties, coordination with appropriate Native Americans, and treatment of any human remains in accordance with all relevant Federal law, State, and local laws.

The PA will be executed prior to any construction or activity under Sections 2.3.1, 2.3.2, or 2.3.3 of this EA.

3.13 Hazardous, Toxic, and Radiological Waste

3.13.1 Existing Conditions

Background. Mining in the Carson River drainage basin commenced in 1850 when placer gold deposits were discovered near Dayton at the mouth of Gold Canyon. Throughout the 1850's, mining consisted of working placer deposits for gold (and later silver) in Gold Canyon and Six Mile Canyon. These ore deposits became known as the

Comstock Lode. Gold and silver production from the Comstock Lode increased slowly during the early years to 1863, which was the first year of large production (Corps, 2010).

Mercury was imported to the Virginia City and Gold Hill area during the Comstock era for processing gold and silver ore. The most widely used processing method was the "Washoe Process" used at mills near the mines. With this process, the raw ore was wet crushed with stamps; the crushed ore was separated from the slurry in a settling tank; and then mercury was added to the crushed ore. The mercury formed an amalgam with the gold and silver, which were then separated and recovered. The remaining material (tailings), including much of the mercury, was discharged into the local drainage and thus released into the environment. The amount is estimated to have been approximately 14 million pounds of mercury. An estimated 186 such mills operated during the Comstock era (Corps, 2010).

Mercury Contamination. In the 1970's, the U.S. Geological Survey (USGS) identified elevated levels of mercury, beyond the naturally occurring levels for this element, in the sediments and unfiltered surface water from the Carson River (Bevans et al., 1998). Due to the high concentrations of mercury contamination in both the soil and watercourse, the U.S. EPA included the Carson River Mercury Site (CRMS) on the National Priorities List (NPL) in August 1990 (*Federal Register*, 1990). This NPL site consists of (1) sediments in an approximately 50-mile reach of the Carson River in Lyon and Churchill Counties, beginning between Carson City and Dayton, and extending downstream through the Lahontan Reservoir to the Stillwater National Wildlife Refuge; and (2) tailing piles associated with the river (EPA, 1990).

Potential forms and sources of toxic mercury include methyl mercury in surface waters and associated aquatic species, airborne elemental particulate matter, and percolation of elemental mercury and/or amalgam into the groundwater flow system (NDEP, 2010). Methyl mercury is the most toxic form of mercury. It affects the immune system, alters genetic and enzyme systems, and damages the nervous system (USGS, 2000). Exposure to methyl mercury is usually by ingestion, and it is absorbed more readily and excreted more slowly than other forms of mercury. Elemental mercury causes tremors, gingivitis, and excitability when vapors are inhaled over a long period of time. Although less toxic, elemental mercury may be found in higher concentrations at mining sites where it was used to extract gold (USGS, 2000).

Phase 1 Environmental Site Assessment. A Phase 1 Environmental Site Assessment (ESA) conducted by the Corps in 2010 found that the CRMS, in the vicinity of Virginia City/Gold Hill, has the potential of a past, present, and/or future release of HTRW (Corps, 2010). Due to the high concentrations of mercury in the soils and watercourse, the U.S. EPA designated the Carson River basin from New Empire to Stillwater and the Carson Sink as a NPL site under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA or Superfund) in August 1990. This is Nevada's only NPL site and is under direct control of the U.S. EPA, Region IX, in San Francisco.

Clean-up Efforts. Previous mercury cleanups at six areas in the town of Dayton and one area in Silver City were conducted in 1998 and 1999. The previous clean-up included the excavation of contaminated soils to a depth up to 2 feet, offsite disposal of the soil, replacement of the contaminated soil with clean fill, grading and surface contouring to restore the property to pre-cleanup conditions, and revegetation of the affected areas (NDEP, 2010).

Although future cleanup of sediment in the Carson River is proposed (NDEP, 2010), clean-up in Virginia City and Gold Hill has not been proposed as a part of the remediation of the Carson River Mercury Site. However, areas in Virginia City and Gold Hill have been identified to have different CRMS risk area intensities (Yates, 2010). Plate 6 shows these risk and mill site locations.

3.13.2 Effects

Basis of Significance. An alternative would be considered to have a significant effect if it would involve substances identified as potentially hazardous (for example, by CERCLA; the Resource, Conservation, and Recovery Act; and/or 40 CFR Parts 260 through 270); and (1) expose workers to hazardous substances in excess of Federal Occupational, Safety, and Health Administration standards, or (2) contaminate the physical environment, thereby posing a hazard to people, animals, or plant populations by exceeding Federal exposure, threshold, or cleanup limits.

No Action. The no action alternative would have no effect on HTRW or increase human or environmental exposure to any HTRW, including mercury. Any potentially contaminated areas would be expected to remain in their current condition.

Preferred Alternative. The project would have the potential to disturb mercury-contaminated soils during earthwork associated with (1) the upgrades to the WTP, (2) replacement of sewer lines in Virginia City and Gold Hill, and (3) construction of sewer lift stations in Gold Hill. During construction of the WTP, mercury-contaminated soils could be unearthed during grading and excavating soils from the hill slopes surrounding the existing WTP. Excavated soils would be stockpiled temporarily at the Storey County facility across Six Mile Canyon and would be reused as fill material as a part of the upgrades to the WTP.

During replacement of the sewer lines in Virginia City and Gold Hill, mercury-contaminated soils could be encountered in the existing roadways. Excavated soils would be temporarily stockpiled in the staging and stockpiling areas, and would be reused as backfill after placement of the new sewer lines. Once backfill and road resurfacing are completed, the soils would return to their pre-project condition and would not be a new source of mercury exposure.

During construction of the sewer lift stations, mercury-contaminated soils could be encountered during soil excavation below grade. These excavated soils would be moved to a nearby fill location. Excess soils, which could potentially be contaminated

with mercury, would be stored in three fill locations in the project area. With the implementation of the BMP's listed in Section 3.13.3, this project would not have a significant effect on HTRW sources or exposure.

3.13.3 Mitigation

Since there would be no significant effects on HTRW, no mitigation would be required. During construction, BMP's would be implemented to reduce the potential for mobilizing a source of mercury-contaminated soils via either water or air. These BMP's would be specified in the SWPPP and the dust control plan discussed in Sections 3.5 and 3.6, respectively. Types of BMP's include (1) covering soil stockpiles to prevent wind or stormwater erosion; (2) watering to reduce the potential for wind borne contamination; and (3) repaving roadways and other final BMP's for soil stabilization.

In addition, the following BMP's required or recommended by NDEP (Yates, 2010) would be implemented during work in the CRMS to further ensure worker and environmental safety (Appendix C).

- Storey County would be responsible for developing a contingency plan if mercury is encountered. This plan would include controls for management of hazardous materials, as well as operating procedures that address prevention of possible recontamination of clean areas by construction. This plan would require approval by the NDEP.
- If elemental mercury is encountered during the project, construction would be temporarily halted in that area, and the NDEP would be contacted for guidance and disposal options.
- All workers that could encounter hazardous material must be compliant with OSHA 1910.120.
- No material that appears to contain mine waste would be left exposed at the surface of the ground without being covered by at least 2 feet of clean material. Any temporary stockpiles of material that could be contaminated with mercury would be covered and protected from erosion and human contact by 2 feet of clean material.
- No material excavated from the CRMS would be used for pipe bedding material, be placed in direct contact with water lines, be used as fill in any area outside the CRMS, or be used in any area known to be free of contamination.
- All borrow material would be obtained from areas known to be free of mercury contamination.
- The final as-built report produced as a part of the project would be submitted to NDEP.

4.0 CUMULATIVE EFFECTS

Cumulative effects are effects of the project considered with other past, present, or reasonably foreseeable projects in the area. Currently, there are no ongoing projects in or near the project area. In addition, there are no past projects that resulted in identifiable

long-term effects having a cumulative relationship with the effects of the proposed project. However, there are four projects that are reasonably foreseeable given the phased nature and anticipated length of construction to complete the Virginia City and Gold Hill wastewater system improvement project.

4.1 Reasonably Foreseeable Projects

4.1.1 Comstock Mine Project

The Comstock Mining Project (CMP) is located in Storey and Lyon Counties, approximately 3 miles south of Virginia City, and 1 mile south of Gold Hill. The CMP is leased or owned by Comstock Mining, Inc., and is a combination of new and existing mining projects. The company originally purchased an existing mining project (Plum Mine), and continues to acquire additional land and claims. Permits for the existing mines have been kept current, and where possible, have been modified to fit the operation's future plans. The CMP is currently in an exploration phase, with plans to possibly start Phase I of production in 2011.

Phase I of the CMP would consist of hard rock mining on private property. Extraction of ore and waste materials from the proposed open pit mine would be by conventional drill and blast mining techniques using front shovel/truck operations. The initial mine operation is scheduled for 8 hours per day, 5 days per week (BDG, Inc., 2010). Phase I of the project may also include rerouting a portion of State Highway 342 if approved by NDOT. Required permits and the necessary ROW's to conduct Phase I of the CMP have been obtained. Phase II of the CMP, which would include work on Federal land, would start in 2016. The CMP would be expected to operate until 2035.

Because of the size and type of project, the CMP would have effects on environmental resources in the area. An environmental impact statement would be prepared prior to any action on Federal land. This mines project could result in effects on vegetation and wildlife, water resources/ quality, air quality, land use, traffic, noise, recreation, esthetics, cultural resources, and HTRW. Rerouting of State Highway 342 depends on NDOT approval and has been deferred to NDOT engineers to design the reroute.

4.1.2 United Comstock Merger Mill at American Flat

The United Comstock Merger Mill is located at American Flat (AFM) south of Gold Hill, approximately 1.5 miles from the project area. The mill structures are located on Federal land under the administration of the BLM. In 2008, the U.S. Department of the Interior, Office of the Inspector General, audited the AFM and found the property to be a high-risk liability to the U.S. Government.

In response, BLM prepared an EA to evaluate the environmental effects of various alternatives to mitigate hazards to human health from the AFM , while addressing historic resources. The preferred alternative in the EA involved demolition of the AFM.

All eight buildings would be demolished; voids and tunnels filled; and building footprints and other disturbed areas covered with native borrow and soil material and revegetated. The BLM would perform cultural resource studies and construct secure fencing in 2011 and proceed with the project in 2012, subject to the availability of funding (Bitner, 2011).

Based on the EA, the BLM determined that the proposed project (demolition) would have no significant effects on the environment (assuming MOA with SHPO), and a FONSI and Decision Record were signed in December 2010 (BLM, 2010). According to the BLM's EA, the AFM would have short-term effects on air quality and long-term effects on soils, cultural and historic resources, visual resources, land use authorization, and education and interpretation. However, avoidance, minimization, mitigation, and best management practices would be implemented to reduce any effects to less than significant, including effects on historic resources in the VCHD and NHL.

4.1.3 IDA Consolidated Mines Project

The IDA Consolidated mines project is located near Silver City, approximately 3.8 miles south of the project area. IDA Consolidated has plans to refurbish an old mill and reactivate mining activities (mining, crushing, and ore processing/milling activities). This would be a continuation of a mine project from 22 years ago. The mine has an estimated life of 5 additional years. This project is currently in the planning phase.

According to Mr. Art Wilson, owner of IDA Consolidated (2010), the project is currently in the planning phase. Mr. Wilson attended Storey County and Lyon County Commission meetings in early 2010 and applied for a special use permit. At that time, Storey County requested additional information on the project and its potential effects before taking action on the application. Although Mr. Wilson anticipates that mining activities would start in 2012, there has not been recent activity to obtain the necessary approvals and authorizations. The Storey County special use permit is on hold until the project is put back on the agenda, and no other project permits have been obtained.

Because of the size and type of the project, the IDA Consolidated mines project could result in effects on vegetation and wildlife, water resources/ quality, air quality, land use, traffic, noise, esthetics, cultural resources, and HTRW.

4.1.4 Virginia & Truckee Railway Tunnel Reconstruction

The Virginia & Truckee (V&T) Railway Tunnel is located in the heart of Virginia City. Storey County plans to reconstruct this historic tunnel and purchase the accompanying train depot to extend service of the V&T Railroad. The tunnel would be constructed within the East Street ROW, a few hundred feet from South Washington Street, and extend north of Union Street. The tunnel would be approximately 440 feet long.

This railway tunnel project has received the necessary approvals and permits, and has established a funding source. However, project initiation depends on the cost of

construction. Reconstruction could begin as early as April 2011 and be completed by October 2011. If reconstruction bids are higher than expected, the project would be postponed until the project can be fully funded.

This project would have environmental effects on air quality, traffic, noise, esthetics, cultural resources, and HTRW in the vicinity of the tunnel on East Street. Streets would be closed in the V&T tunnel project area, and utilities would be protected and moved to accommodate reconstruction of the project.

4.2 Summary of Cumulative Effects

4.2.1 Assumptions

Because of the location and status of the four reasonably foreseeable projects relative to the Virginia City and Gold Hill wastewater improvement project, this evaluation of cumulative effects makes several assumptions as discussed below.

First, only the V&T railway tunnel and the Virginia City and Gold Hill projects are located in close proximity within the project area. Thus, the evaluation assumes that they would share the same local sensitive receptors, viewers, and viewshed. Because of the distances between the three mine projects and project area, as well as the mountainous terrain, none of the three mine projects would share the same viewers, or have the same viewshed, with each other or the Virginia City and Gold Hill project. However, because of the potential use of blast mining for the CPM, they would share the same sensitive receptors for effects on noise.

Second, the V&T railway tunnel project currently has necessary permits/ approvals, a funding source, and scheduled completion date of October 2011. Thus, the evaluation assumes that the railway tunnel project would be completed prior to construction of the first phase of the Virginia City and Gold Hill project. The construction schedules for the three mine projects are uncertain at this time because they all need to obtain required permits/approvals and/or secure adequate funding. Because of this uncertainty, the evaluation assumes that the three mine projects would be constructed at the same time (concurrent construction) as one or more phases of the Virginia City and Gold Hill project.

4.2.2 Short-Term Effects

Since the railway tunnel project would be completed prior to construction of the Virginia City and Gold Hill project, there would be no short-term cumulative effects on environmental resources. However, concurrent construction of the three mine projects and the Virginia City and Gold Hill project would result in short-term cumulative effects on air quality, traffic, and noise as discussed below.

Because of the regional nature of air quality, the sensitive receptors in the project area could be affected by increases in hydrocarbons, exhaust, and PM10 during operation

of vehicles and heavy equipment associated with all four projects. In addition, the major roadway providing access to Virginia City, Gold Hill, and surrounding area is State Highway 342. All four projects could increase traffic volumes, disrupt traffic flow, and pose a public safety hazard on these highways during vehicle entry to and exit from local paved, gravel, or dirt roadways. In addition, the CMP and the Virginia City and Gold Hill project both involve work either on or along sections of Highway 342. Finally, while increases in most construction noise would have only local effects because of the distances and mountainous terrain, the increase noise levels due to blasting at the CMP could affect sensitive receptors in Virginia City and Gold Hill, as well as the other mine projects.

Because of the type and extent of the proposed work, the CMP and IDA Consolidated Mines project could result in local effects on air quality, traffic, and noise. In particular, the CMP could result in short-term effects on local traffic or noise. However, the magnitude of the effects contributed by the Virginia City and Gold Hill project to these local effects would be very small because (1) avoidance and best management practices such as water trucks and speed limits would minimize effects on air quality and (2) work would be scheduled to avoid concurrent work with the CMP on Highway 342. In addition, the attenuation of sound over distance would reduce the decibel contribution of the Virginia City and Gold Hill project to very low levels at the CMP or IDA Consolidated Mines project. Once constructed, the Virginia City and Gold Hill project would no longer contribute to short-term cumulative effects. Air quality emissions, traffic and public safety conditions, and noise levels in the project area would return to pre-project conditions.

4.2.3 Long-Term Effects

Because of their distance and locations, the three mine projects would have no long-term effects having a cumulative relationship with the Virginia City and Gold Hill project. However, both the V&T railway tunnel and the Virginia City and Gold Hill projects would have long-term effects on the local viewshed in and near Virginia City. The reconstructed railway tunnel and upgraded WTP would both be apparent to viewers such as motorists, tourists, and train passengers. The magnitude of the effects contributed by the Virginia City and Gold Hill project would be expected to be small because (1) viewers would be limited to motorists along Six Mile Canyon Drive (2) and upgrades would be designed to be similar in location and appearance to other existing structures in accordance with stipulations of the PA related to historic properties.

4.2.4 Conclusion

Therefore, when the Virginia City and Gold Hill project is considered with other past, present, and reasonably foreseeable projects in the area, no significant cumulative effects are anticipated.

5.0 COMPLIANCE WITH ENVIRONMENTAL LAWS AND REGULATIONS

Bald and Golden Eagle Protection Act (16 U.S.C. 668a-d). *Compliance.* This act requires that the project avoid “take” of bald and golden eagles. If construction is necessary during the nesting season, Storey County would be required to have a qualified biologist survey for active nests of these birds within a 1/8-mile radius of the project area within 15 days prior to initiation of construction. If active nests are located during these surveys, the biologist would consult with the U.S. Fish and Wildlife Service (USFWS) and NDOW, as required, to determine the appropriate buffer around the nest.

Clean Air Act, as amended and recodified (42 U.S.C. 7401 et seq.). *Compliance.* The project is not expected to violate any Federal or State air quality standards, or hinder the attainment of air quality objectives in the local air basin. The Corps has determined that the project would have no significant adverse effects on the future air quality of the area.

Clean Water Act (33 U.S.C. 1251 et seq.). *Compliance.* Since the project would not involve placing any fill material into waters of the U.S., including wetlands, a Section 404 permit would not be required. The project would require an NPDES permit from the State since it would disturb 1 or more acres of land and involve possible stormwater discharges to surface waters.

Endangered Species Act (16 U.S.C. 1531 et seq.). *Compliance.* No Federally listed threatened or endangered species or their habitat have been identified in or near the project area.

Executive Order 11988, Floodplain Management. *Compliance.* This order directs all Federal agencies to avoid to the extent possible the adverse effects associated with the modification of floodplains, and to avoid support of floodplain development wherever there is a practicable alternative. The project would have no effect on floodplains.

Executive Order 11990, Wetlands. *Compliance.* This order directs all Federal agencies to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands. The project would have no effects on wetlands.

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. *Compliance.* The order directs all Federal agencies to identify any disproportionate human health or environmental effects of their programs, policies, and activities on minority and low-income populations. The project would have no such effects on any minority or low-income populations.

Farmland Protection Policy Act (7 U.S.C. 4201). *Compliance.* The project would have no effect on prime farmland or farmland of statewide importance because there is no such farmland in the work areas for the project.

Migratory Bird Treaty Act (15 U.S.C. 701-18h). *Compliance.* This act requires that the project avoid destruction of active bird nests or young of migratory birds that breed in the area from March to August. If construction is necessary during the nesting season, Storey County would be required to have a qualified biologist survey for active nests of migratory birds within a 1/8-mile radius of the project area within 15 days prior to initiation of construction. If active nests are located during these surveys, the biologist would consult with the U.S. Fish and Wildlife Service (USFWS) and NDOW, as required, to determine the appropriate buffer around the nest.

National Environmental Policy Act (42 U.S.C. 4321 et seq.). *Partial Compliance.* This draft EA is in partial compliance with this Act. Comments received during the public review period will be considered and incorporated into the final EA, as appropriate. The final EA and either a signed Finding of No Significant Impact (FONSI) or determination of need to prepare an Environmental Impact Statement (EIS) will result in full compliance with this act. The BLM will complete their NEPA process with the signing of the Decision Record, which can be appealed.

National Historic Preservation Act of 1966, as amended (16 U.S.C. 470 et seq.). *Partial Compliance.* Section 106 of this Act requires Federal agencies to take into account the effects of a proposed undertaking on properties that have been determined to be eligible for listing, or are listed in, the NRHP. The Corps has concluded that the project is entirely within the boundaries of the VCHD, a NRHP-listed historic district and a NHL. A Programmatic Agreement (PA) with stipulations to identify affected historic properties, assess adverse effects, and resolve adverse effects on the VCHD would need to be executed in order for the project to be in compliance with Section 106.

The PA will further define the roles and the methods of complying with Section 106 and will be developed in consultation with the SHPO, National Park Service, Storey County, CDHC, Advisory Council on Historic Preservation, and the BLM. The PA will represent a binding commitment to the proposed measures and will be drafted in accordance with 36 CFR Part 800.6.

Letters to potentially interested Native Americans were sent on December 1, 2010, requesting their knowledge of locations of archeological sites, or areas of traditional cultural interest or concern. In a letter dated December 7, 2010, the Washoe Tribe of Nevada and California requested a copy of the survey findings for the project, when completed, and asked to be kept informed on the status of the project. Copies of these letters, as well as other cultural correspondence, are included in Appendix B.

In a letter to the Nevada SHPO dated December 1, 2010, the SHPO was asked to comment on the area of potential effects, the project description, and the roles of the Federal agencies involved. The SHPO responded in a letter dated December 14, 2010,

requesting additional information and specifying steps to be taken and included in the PA. Letters to the National Park Service and Advisory Council on Historic Preservation were sent on January 27, 2011, to inform those agencies of the project and the forthcoming PA for their review. The PA, which further defines agency roles and the method of complying with Section 106, is being developed and will be coordinated with all relevant parties.

6.0 PUBLIC INVOLVEMENT

6.1 Corps

Storey County and the BLM have taken the lead in ensuring that the residents of Virginia City and Gold Hill are aware and involved in the project. To date, the Corps has participated in their presentation on the project at the Comstock Historic District Commission meeting on January 10, 2011. The Corps will also participate in a presentation on the project before the Storey County Commissioners' at their meeting during the 30-day public review period. These meetings are open to the public.

6.2 BLM

6.2.1 Scoping

On September 13, 2010, the BLM conducted internal scoping during an ID team meeting to review the proposed action and to determine which resources need to be evaluated in the EA. The resources that BLM identified as "may be affected" by the proposed action were carried through the EA for evaluation.

6.2.2 Public Meetings

To fulfill 43 CFR 46 and the BLM's NEPA Handbook (BLM, 2008) regarding public notification and public involvement, the BLM relies on a combination of several ways to present project information to the public, including news releases to the media, direct mailings, and presentations at public meetings or other public forums.

On January 10, 2011, the BLM participated in a presentation on the project before the Comstock Historic District Commission. This participation served two purposes for the BLM; i.e., to assist in meeting their NEPA as well as Section 106 public involvement processes.

Due to the large number of people that need to be notified by direct mailings, the BLM, in coordination with Storey County, has determined that the most appropriate approach will be to participate in a presentation on the project before the Storey County Commissioners' at their meeting during the 30-day public review period. These meetings are open to the public.

7.0 COORDINATION AND REVIEW OF THE EA

Development of this EA has been coordinated with both the BLM and USDA. The draft EA and FONSI will be circulated for 30 days to agencies, organizations, and individuals known to have an interest in the project (Appendix D). All comments will be considered and addressed, as appropriate. This project is being coordinated with all relevant government resource agencies including the BLM, USDA, USFWS, National Park Service, Advisory Council on Historic Preservation, NDEP, NDOT, Nevada SHPO, Storey County, and Comstock Historic District Commission.

8.0 CONCLUSIONS

Based on the information in this EA, the project would have no significant adverse effects on the environment. No mitigation beyond avoidance, BMP's, and measures proposed in this EA would be required. Following the public review period, a determination will be made whether a FONSI is warranted or whether preparation of an EIS is necessary.

9.0 PREPARERS

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Virginia City and Gold Hill Wastewater System Improvements

draft
Finding of No Significant Impact

DOI-BLM-NV-C020-2011-0004-EA

February 2011



Background

Storey County, Nevada, is proposing to (1) upgrade their existing wastewater treatment plant (WTP) in Virginia City; (2) replace the Virginia City sewer collection system; (3) construct sewer lift stations in Gold Hill; and (4) replace/extend the Gold Hill sewer collection system. Construction of an upgraded WTP is required to reduce potential groundwater contamination, ensure public health, and meet Virginia City and Gold Hill wastewater demands while accommodating potential future growth.

Except for an auger screen installed in 2008, the WTP has not been updated since its construction in 1982. The treatment technology used by the plant is outdated and requires manual removal of solids. In addition, the drying beds are undersized to provide adequate sludge drying time. Construction of the upgraded WTP is needed to update the treatment technology, which would provide adequate treatment of solids and improve the quality of effluent being discharged into Six Mile Canyon Creek. In addition, based on the State of Nevada demographer's population estimates, the current WTP is undersized to process peak demand. An upgraded WTP is needed to treat wastewater for the population over the next 20 years.

During periods of high precipitation and runoff in Six Mile Canyon, stormwater has been known to flood the existing WTP aeration pond, discharging untreated wastewater downstream. This discharge of untreated wastewater is both hazardous to public health and a violation of Nevada Division of Environmental Protection (NDEP) standards that require treatment of wastewater prior to discharge. Construction of a stormwater drainage channel is needed to route stormwater around the aeration pond, and to avoid flooding and discharge of untreated wastewater.

The Virginia City sewer collection system is allowing raw sewage to infiltrate into the ground. This raw sewage is harmful to ground water resources and ultimately public health. The NDEP requires treatment of wastewater prior to discharge. Due to leaks, the current collection system does not meet NDEP standards and needs to be replaced so that all of the Virginia City wastewater is collected and conveyed to the WTP. In addition to deterioration, the existing Virginia City collection system lacks a sufficient number of manholes to ensure proper maintenance of the system. As a result, there is inadequate access to the pipes, so routine repairs cannot be made.

The Gold Hill sewer collection system does not currently service all residences and businesses in the area due to limited capacity of the community septic tank. Those portions of the community that are not connected to the collection system are currently using individual septic systems. In addition, the existing collection main is located in the shoulder of State Highway 341 and is substandard because there are no manholes and insufficiently sized pipes. The disposal field associated with the community septic system is failing as evidenced by the surfacing of effluent in the area. There is a need to provide waste water treatment to the Gold Hill community to reduce the potential for groundwater contamination and public health issues associated with effluent surfacing at the disposal field.

The right-of-way for replacement of 32,900 linear feet of pipeline on BLM administered lands would be authorized by the BLM pursuant to Title V of the Federal Land Policy and

Management Act of 1976 (PL 94-579) and the regulations contained in 43 CFR 2800. The sewage WTP upgrade and expansion would be authorized by the BLM pursuant to the Recreation and Public Purposes Act of 1926, as amended, and the regulations contained in 43 CFR 2740 and 2912. The 12-acre WTP parcel will be conveyed directly to Storey County as a land patent.

Land Use Plan Conformance

The Proposed Action is in conformance with the Carson City Field Office Resource Management Plan (CRMP) adopted in 2001.

The following decisions in the CRMP affect the HMA:

Lands and Realty, LND-7, Administrative Actions #6:

Exchanges and minor non-Bureau initiated realty proposals will be considered where analysis indicates they are beneficial to the public.

The Proposed Action is consistent with the plans and policies of local, county, State, tribal and federal agencies and governments.

Finding

Based on the analysis of potential environmental impacts in the *Virginia City and Gold Hill Wastewater Improvements Environmental Assessment* (EA), DOI-BLM-NV-C020-2011-0004-EA, I have preliminarily determined that the Proposed Action will not have a significant effect on the human environment. Therefore, the preparation of an environmental impact statement (EIS) is not required for compliance with the National Environmental Policy of 1969 (NEPA).

The environmental review process included the consultation requirements under the National Historic Preservation Act (NHPA), recognizing that the Proposed Action is completely within the Virginia City National Historic Landmark (VC NHL), and some adverse effects to historic and cultural resources can be anticipated. Actions will be taken to identify, evaluate, assess affects, and mitigate all adverse impacts to historic resources, and to resolve affects identified under NHPA. In regard to the process to be followed and sites being adversely affected, the BLM will enact a Programmatic Agreement (PA) with the Nevada State Historic Preservation Officer (SHPO) and other stakeholders.

This finding and conclusion is based on the consideration of the Council on Environmental Quality's (CEQ) criteria for significance (40 CFR 1508.27), both with regard to the *context* and the *intensity* of impacts described in the EA. Although adverse effects to historic resources in Virginia City and Gold Hill are anticipated, the impacts are not determined to be significant. The impacts under the Proposed Action will not compromise the VC NHL as a whole, and adverse impacts will be mitigated to a large degree by actions mutually agreed to in the PA between the BLM, SHPO and other parties.

Context:

The affected areas of the Proposed Action are the communities of Virginia City and Gold Hill. The combined population estimate of the communities encompassing 18.5 square miles is 1,220 people. The project area is highly developed and disturbed. A significant amount of the sewer line replacement will occur under existing paved roadways. Other areas where the project would occur are highly disturbed and natural resources values are low. The project has been planned with input from the interested public and users of public land.

Intensity:

1) *Impacts that may be both beneficial and adverse.*

The Proposed Action is predominantly beneficial; improvements in public services and water quality are anticipated to occur as a result of the project's implementation. Some historic resources will be identified as important elements of the VC NHL, and they could be adversely impacted by the Proposed Action. The effects will be resolved per Sections 106, 110(f) and 111(a) of NHPA through application of the PA. The loss of some scientific, cultural, and historical value of the VCNHL is anticipated to be minimal and not significant.

2) *The degree to which the proposed action affects public health or safety.*

The present Virginia City sewer collection system is allowing raw sewage to infiltrate in the ground. This raw sewage is harmful to ground water resources and ultimately to public health. The Proposed Action would benefit public health by resolving these issues with proper treatment of effluent in Virginia City and Gold Hill. There are no public safety concerns; measures will be implemented during construction to minimize hazards around work areas and impacts to traffic circulation cause by the project.

3) *Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.*

The Proposed Action is completely within the VC NHL, the Virginia City National Register District, and the Comstock Historic District. Historic and cultural resources that contribute to the importance and values of these designated areas are known to be present.

No wetlands, park lands, prime or unique farmlands, wild and scenic rivers, ecological critical areas, or Areas of Critical Environmental Concern will be affected by the Proposed Action.

4) *The degree to which the effects on the quality of the human environment are likely to be highly controversial.*

The Proposed Action is predominantly beneficial; improvements in public services and water quality are anticipated to occur as a result of the project's implementation.

5) *The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.*

There is only one aspect of the Proposed Action which carries effects that are highly uncertain or involve unique or unknown risks. Some historic resources will be identified through application of the PA. Although unique and highly valuable historic or cultural resources could be encountered in a previously undisturbed context, this is not of high likelihood.

6) *The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.*

The Proposed Action would not establish a precedent for future actions. Any future improvements or alterations to the wastewater system on BLM administered lands in Virginia City or Gold Hill would require project-specific NEPA analysis.

7) *Whether the action is related to other actions with individually insignificant but cumulatively significant impacts.*

The Proposed Action is not related to other actions with individually insignificant but cumulatively significant impacts.

8) *The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the NRHP or may cause loss or destruction of significant scientific, cultural, or historical resources.*

Some historic resources will be identified as important elements of the VC NHL, and they could be adversely impacted by the Proposed Action. The effects will be resolved per Sections 106, 110(f) and 111(a) of NHPA through application of the PA. The loss of some scientific, cultural, and historical value of the VCNHL is anticipated to be minimal and not significant.

9) *The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the ESA of 1973.*

The Proposed Action will have no effect on any federally listed species or their critical habitat under the ESA.

10) *Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.*

The Proposed Action is in compliance with the CRMP. The Proposed Action will not violate or threaten to violate any federal, State, or local law or requirement imposed for the protection of the environment.

Linda J. Kelly
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Date