

Environmental Assessment State Route 447 Nixon Bridge Scour Countermeasures Project

**FHWA-NV-EA 15.01
Federal Project No. BR-0447(004)
EA: 73750**

Pyramid Lake Paiute Tribe Reservation
Nixon, Nevada

November 2015



Prepared by:

**Federal Highway Administration
In cooperation with the Nevada Department of Transportation**



**Cooperating Agency:
Bureau of Indian Affairs
Western Nevada Agency**



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ACCRONYMS AND ABBREVIATIONS:

AADT	Annual Average Daily Traffic
ACS	American Community Services
APE	Area of Potential Effect
BA	Biological Assessment
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
CAAA	Clean Air Act Amendments
CFR	Code of Federal Register
CFS	Cubic Feet per Second
CO	Carbon Dioxide
EA	Environmental Assessment
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
HA	Hydrographic Area
IAM	Indian Affairs Manual
MOVES	Motor Vehicle Emission Simulator
MSAT	Mobile Source Air Toxics
NDOT	Nevada Department of Transportation
NDOW	Nevada Department of Wildlife
NEPA	National Environmental Policy Act
NRS	Nevada Revised Statute
NTS	Not to Scale
NV	Nevada
PLF	Pyramid Lake Fisheries
PLIR	Pyramid Lake Indian Reservation
PLPT	Pyramid Lake Paiute Tribe
PM	Particulate Matter
ROW	Right of Way
SHPO	State Historic Preservation Officer
SR	State Route
TCE	Temporary Construction Easement
THPO	Tribal Historic Preservation Officer
TRFMA	Truckee River Flood Management Authority
US	United States
USEPA	United States Environmental Protection Agency
USACOE	United States Army Corp of Engineers
USC	United States Code
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WQCP	Water Quality Control Plan
WQS	Water Quality Standards

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1.0 PURPOSE AND NEED

1.1 PROJECT BACKGROUND AND LOCATION

The Federal Highway Administration (FHWA) and Bureau of Indian Affairs (BIA) are proposing to provide scour countermeasures to insure foundation stability to the Nixon Bridge on State Route (SR) 447 within the community of Nixon, Washoe County, NV.

The bridge is located at milepost WA 15.49, on SR 447 on the Pyramid Lake Indian Reservation where the highway crosses the Truckee River, Nixon NV (*Figure 1*). The Nixon Bridge Scour Countermeasures Project (Project) includes the placement of large riprap and boulders within the river channel to prevent scour of bridge supports during flood events.

The Truckee River originates in Lake Tahoe and flows northeasterly for 121 miles and terminates at Pyramid Lake in the Great Basin near Nixon, NV. The Nixon Bridge (*Figure 2*) was constructed in 1972. It has a history of significant scour problems related to past channel degradation and local pier scour. Exposure of the original pile caps led to placement of riprap around the piers in 1983 and construction of the sheet pile encasements in 1984. Scour around the concrete cap of the sheet pile encasement led to the placement of additional riprap around Pier 1 following the record flows of 21,200 cubic feet per second (cfs) in the Truckee River in 1997.

1.2 PURPOSE AND NEED

The Nixon Bridge supports are showing signs of degradation, including the effects of scour on the concrete cap and sheet pile encasements. The proposed Project would provide scour protection for flood events and stabilize bridge supports. The Project will fulfill the need of maintaining this vital link between the Pyramid Lake Indian Reservation (PLIR) and SR 447, which provides a direct link to I-80 and Reno/Sparks, NV.

The purpose of the proposed Project is to maintain the integrity of the Nixon Bridge by providing scour protection in high flow events. The Project is needed to ensure the safety and welfare of tribal members and non-tribal motorists that use SR 447 as a principal north-south access to Nixon and areas to the north.

The proposed actions are scour protection using State of Nevada funding and federal dollars distributed from FHWA, and the granting of right-of-way (ROW) by the BIA. Expenditure of federal funds and granting/acquisition of right-of-way constitute federal actions under implementing regulations for compliance with Section 102(2) of the National Environmental Policy Act (NEPA) of 1969, as amended.

This document is the Environmental Assessment (EA) generated under regulations of the Council on Environmental Quality at 40 Code of Federal Register (CFR) 1500.3, and the implementing procedures adopted by the BIA. In accordance with the BIA NEPA Handbook guidance at 59 Indian Affairs Manual (IAM) 3-H and the Department of Interior regulations at 43 CFR 46.300(a), an Environmental Assessment must be prepared to complete the BIA NEPA process.



Figure 1 – Vicinity Map



Figure 2 - Nixon Bridge

1.3 STATUTORY AND REGULATORY AUTHORITY

This EA has been prepared in accordance with the guidelines contained in the US Department of the Interior, BIA NEPA Handbook.¹ This handbook established a means of complying with NEPA and its implementing regulations.² The purpose of this EA is to evaluate the likely environmental consequences resulting from the granting of right-of-way and construction of scour protection for the bridge. Table 1 provides a summary of the entities involved in the compliance processes and the primary applicable authorities related to their actions.

TABLE 1 SUMMARY of REQUIREMENTS	
Agency/Entity	Permit/Authorization
FHWA	NEPA Lead – preparation; review, approval, and compliance activities; Endangered Species Act and National Historic Preservation Act
BIA, Western Nevada Agency	Cooperating Agency – issuance of right-of-way grant and temporary construction easements; NEPA review
Pyramid Lake Paiute Tribe, Environmental	NEPA review; Clean Water Act Section 401 permit
Nevada Department of Transportation	Project design; NEPA on behalf of FHWA
US Army Corp of Engineers	Clean Water Act, Section 404 permit
US Environmental Protection Agency	Construction Stormwater Permit

¹ Indian Affairs National Environmental Policy Act NEPA Handbook, 59 IAM 3-H, August 2012

² Code of Federal Regulation, 40 CFR, Parts 1500-1508

1.4 AGENCY SCOPING AND ISSUE DEVELOPMENT

Issues were determined through a scoping process involving internal meetings and discussions among staff within the BIA Western Regional Office, BIA Western Nevada Agency, FHWA, Nevada Department of Transportation (NDOT), and the Pyramid Lake Paiute Tribe (PLPT).

Comments were solicited from BIA, Western Nevada Agency and Tribal officials on potential areas of concern. Formal consultation took place with the US Fish and Wildlife Service (USFWS). Written consultation, pursuant to the National Historic Preservation Act (NHPA) of 1966, as amended, also took place with the Nevada State Historic Preservation Officer (SHPO) and the Tribal Preservation Officer (THPO). The Tribal Council, Interdisciplinary Team (IDT) and local residents (tribal members) contributed directly to the identification of issues through release of relevant data and conversations as documented in the Administrative Record.

Environmental issues identified as particularly relevant to the construction of the Project and that drove the development of the proposed alternative, and those alternatives considered but eliminated from further consideration, included the following:

1.5 PUBLIC INVOLVEMENT

NDOT in cooperation with the FHWA and BIA sent an Intent to Study letter dated July 12, 2013, along with a Transportation Notice to the public and other agencies. The Transportation Notice was also published in the *Reno Gazette Journal* and *Mason Valley News-Leader Courier* on July 17, 2013. Transportation Notice information was also provided to the Tribal newspaper *Numuwaetu Nawahana* for their September 2013 publication. The information was also provided for listing on the Tribe's website. The Notice of Intent was also posted at the Nixon Post Office, Museum and Store.

Letters were received in response to the Intent to Study, including one from the Tribe detailing issues concerning the project, as well as a letter from United State (US) Department of Homeland Security – Federal Emergency Management Agency (*Appendix A - Letters*).

2.0 ALTERNATIVES

2.1 INTRODUCTION

Bridge No. B-1351 is located on SR 447 near Mile Post WA 15.5, 0.2 mi west of Nixon, NV, and spans the Truckee River. The bridge carries two 12.0' lanes of traffic and has two 7.0' shoulders, with a 4' sidewalk separated from traffic by a concrete barrier along the easterly side of the bridge. The foundation consists of two abutments and two sets of pier walls on concrete pile foundations. Due to the existing channel configuration, soil characteristics, and the alignment of the river, the pier walls and abutment foundations are susceptible to significant scour when the high flows occur in the Truckee River (*Figure 3*). Therefore, the existing riprap weir was constructed to control the river flows and protect the piers in the river and abutments on the north and south banks (*Figure 4*).

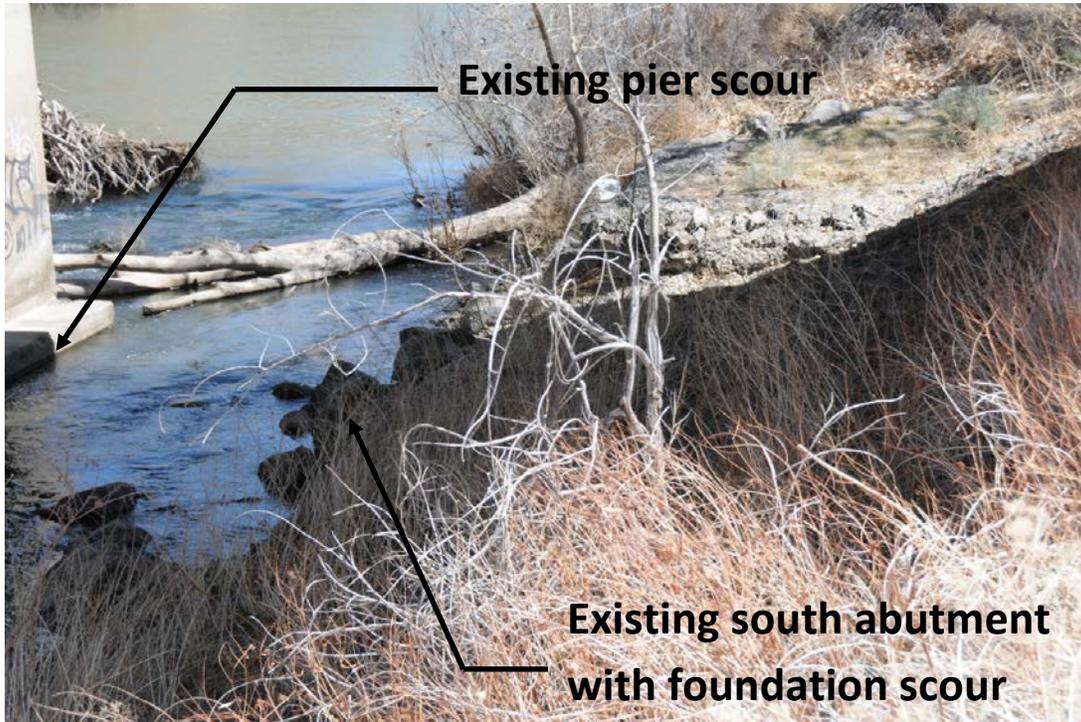


Figure 3 – Bridge Structural Scour (viewing east)

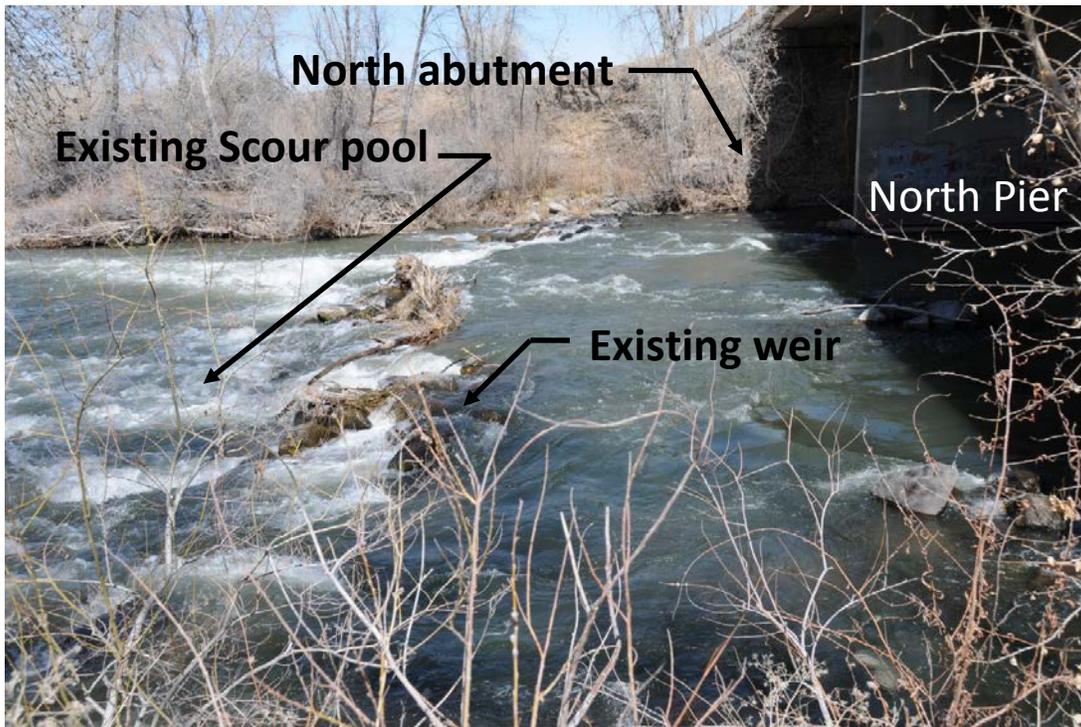


Figure 4 – Scour Pool (viewing north)

The bridge has had a history of significant scour problems related to past channel degradation and local pier scour. Exposure of the original pile caps led to the placement of riprap around the piers in 1983 and construction of the sheet pile encasements in 1984. Undermining of the concrete cap of the sheet pile encasement led to the placement of additional riprap around Pier 1 following the 1997 flood.

The bridge was constructed in 1972, which pre-dates the 1997 flood, the largest flood on the Truckee River in the past 35 years. The 1997 recorded peak discharge at the Nixon gage of 21,200 cfs has an estimated recurrence interval based on the flood-frequency relationship for this gage of about 39 years. However, recent revisions to the hydraulic modeling of the Nixon Bridge by the Truckee River Flood Management Authority (TRFMA) show a 100-year flood of approximately 23,000 cfs.

The B-1351 Bridge (SR 447 over the Truckee River) has had a history of significant scour issues related to past channel degradation and local pier scour. In 1983, the original pier pile caps were exposed and rip rap was placed around the piers. In 1984, a sheet pile encasement was constructed. Undermining of the sheet pile encasement's concrete cap led to the placement of additional riprap around Pier 1 following the 1997 New Year's flood event. A scour analysis/scour critical bridge Plan of Action (POA) was completed in April 2005, which made recommendations for scour inspection, monitoring and construction of scour countermeasures.³

Currently, the bridge is rated Item 113 - Scour Critical Bridge, Code 3, in the Structures Inventory and Appraisal.⁴ A Scour Critical Bridge is one with abutment or pier foundations which are rated as unstable due to a scour potential as determined from a scour evaluation study. Code 3 describes it as scour critical, bridge foundations are determined to be unstable for calculated scour conditions.

SR 477 is an existing paved highway that crosses the Truckee River south of Nixon, Nevada. Much of the land adjacent to the roadway has been cleared for agriculture and home sites with the remainder supporting sagebrush communities. SR 447 serves as the principal north-south highway through the PLPT Reservation and is an important link for tribal members for everyday life functions such as mail delivery, commuting and access to services in the urban areas of Reno and Sparks, NV (*Figure 1*).

To meet the purpose and need, there is little choice other than repairing and protecting the existing bridge. Since the bridge is otherwise in good repair and many environmental impacts have already been incurred, a new bridge at this or other location is not feasible or cost effective.

2.2 ALTERNATIVES

2.2.1 No Action Alternative

Under this alternative, NDOT would not obtain temporary or permanent easements and ROW to facilitate construction, would not authorize expenditures of Funds, and would not undertake

³ Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges – Report No. FHWA-PD-96-001 Office of Engineering Bridge Division, December 1995

⁴ NDOT Scour Critical Bridge Plan of Action - Bridge B-1351, December 2005, <http://gisappvsrv:6161/scourcriticalbridges/default.html>

construction. Tribal members and pass-through motorists would continue to drive on the Nixon Bridge. The no-action alternative would not meet the purpose and need of the project. Since this is a Scour Critical Bridge, on-going monitoring is in place, and if undermining occurs from a large flood, the bridge would need to be closed for safety reasons.

2.2.2 Proposed Action (Preferred Alternative)

The proposed federal action consists of two components: 1) granting the necessary ROW to facilitate construction and future bridge maintenance; and 2) construction of scour countermeasures to protect the bridge structure (*Figure 5*).

The recommended scour countermeasures for the bridge include: lining the entire bed of the channel beneath the bridge with Class 900 riprap and improving the existing rock weir that is located 35' downstream of the bridge. (Class 900 riprap is large, loose stone in variable sizes up to five feet in diameter.) The channel lining would provide scour protection for the piers and would provide toe protection for the existing gabion mats that protect the embankment slopes underneath the bridge. The rock weir provides vertical control of the river bed at the bridge location, and needs to be improved, by adding additional Class 900 riprap, as it is not properly keyed into the south bank, and may not be properly designed to prevent undermining from the scour hole that exist immediately downstream (*Figure 6*).

The channel lining will extend all the way across the channel bed from the toes of the existing gabion mats. The lining will be toed down at the upstream face of the bridge to account for contraction and local scour. Additionally, the lining will be tied into the rock weir that is located about 35 feet from the downstream face of the bridge. The proposed channel lining will extend approximately 180 feet downstream of the existing rock weir. This will fill most of the existing headcut, provide reinforcement for the existing rock weir, and provide a single gentle slope that will promote cui-ui spawning and allow the fish to pass under the bridge. In addition, boulders will be scattered through the north bay of the bridge (between the north pier and the north abutment) to give cui-ui resting places as they move upstream. The boulders will be larger than the Class 900 riprap used in the rest of the channel, and will require individual placement to guarantee that they are locked into the rest of the riprap as tightly as possible (*Figure 6*).

The existing rock weir downstream of the bridge appears to be dumped rock that is not formally designed to prevent flanking or undermining from downstream degradation or local scour. While the rock appears to be continuous with rock on the well-armored north bank, it is clearly not keyed into the left bank. The rock is sparse on the south bank and lies on top of a narrow bench of cohesive lacustrine material, which could become flanked by future erosion of the bench. Larger size Class 900 riprap will be added to the south bank and keyed into the existing rock gabions.

Project construction will occur in the late fall early winter months when river flows are minimal, (September-October). The river will be diverted to the north span while large riprap is placed along the foundation of the south abutment and center span, and additional rock riprap is placed to reinforce the existing rock weir along the westerly side of the bridge. This diversion will then be moved to the south span and the riprap will be placed along the north abutment and north side of the center span and the additional riprap will be placed to reinforce the remaining portion of the existing rock weir. Resting pools will be designed into the river flows to accommodate the cui-ui movement through the project during the river diversion.

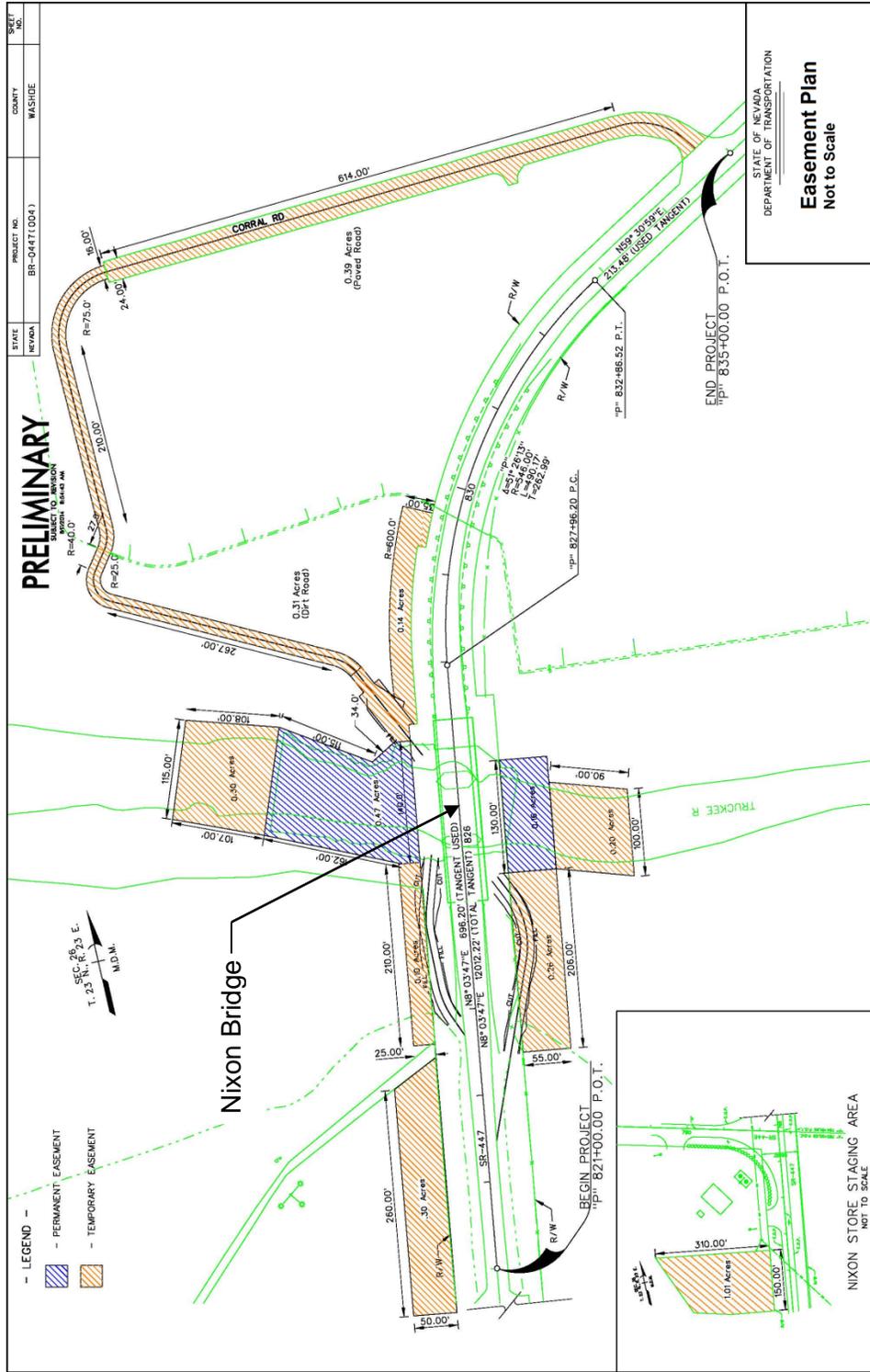


Figure 5 - Easement Plan

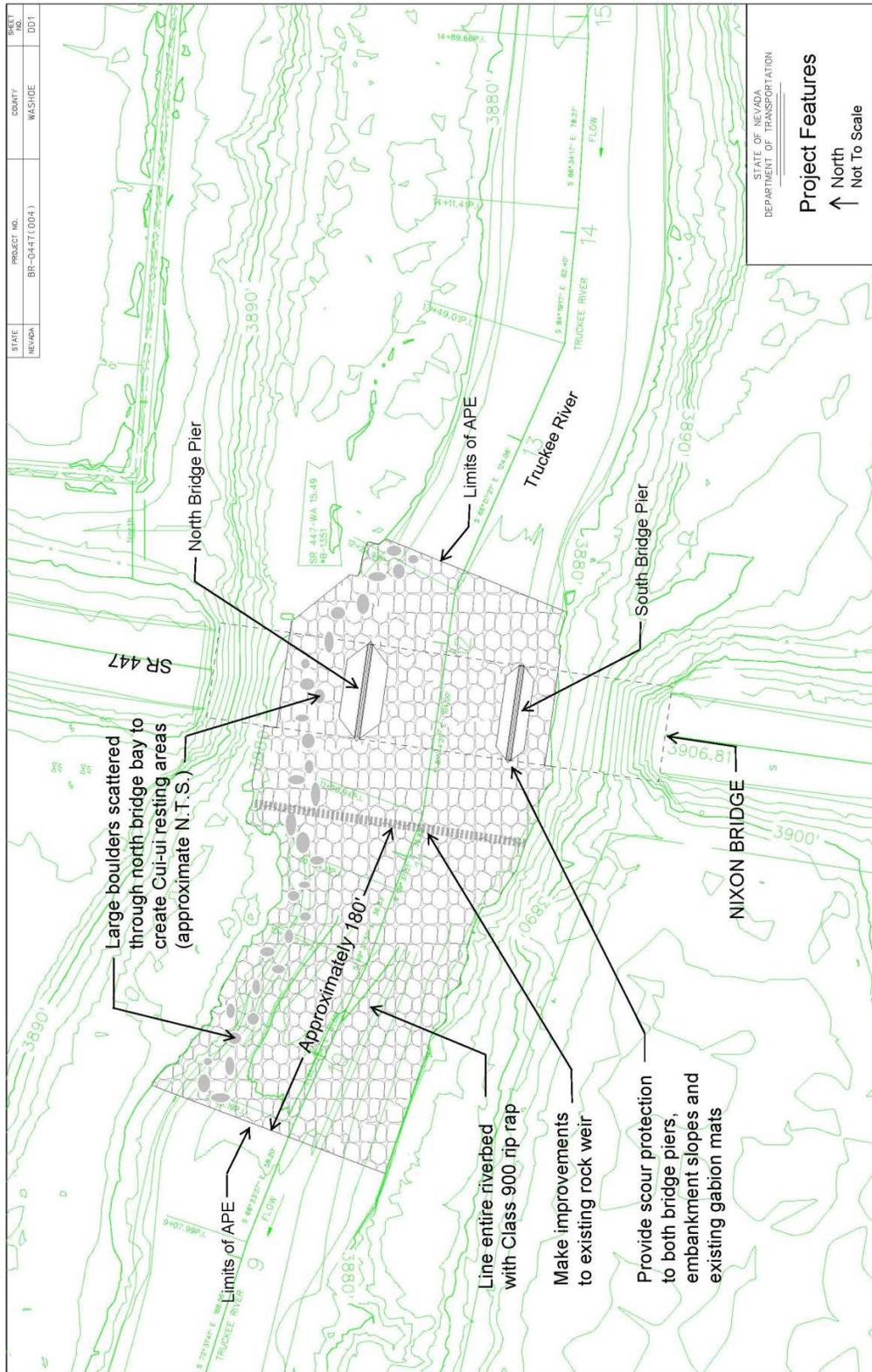


Figure 6 - Project Features

Traffic will be maintained on the bridge at all times while constructing the rock weirs and adding additional riprap around the pier foundations in the river. If the contractor elects to place riprap from the bridge for short durations, a lane will be closed and flaggers will direct traffic across the bridge.

Temporary access roads will be constructed along the east and westerly sides of SR 447 to access the south bank of the structure, and a temporary access road will be constructed along the west side of SR 447 to access the north bank of the structure. An alternative access route to the north side of the structure can be accessed via Corral Road if the contractor prefers not build a temporary access road down the steep approach immediately north of the river.

There are eight temporary easements that will be required to construct the project. Six will be used to provide access to the river, and two will be used for storing and staging material during construction. The project includes modifying two existing NDOT permanent easements for future maintenance of the riprap immediately adjacent to the bridge foundation (*Table 2*). These two easements will be enlarged beyond the existing easements that extend 50 feet from the roadway centerline to include an additional 0.16 acres on the east side and 0.47 acres on the west side.

The northerly portion of the PLPT Maintenance yard, (approx. 0.30 acres), and the area behind the Nixon Store, (approximately 1.01 acres), have been included in this study as potential staging areas for the project.

TABLE 2 EASEMENTS FOR NIXON BRIDGE SCOUR PREVENTION PROJECT				
#	Type	Use	Approximate Dimensions	Approximate Area
1	Permanent	Riprap Access (East)	130' x 55'	0.16 Acres
2	Permanent	Riprap Access (West)	162' x 140'	0.47 Acres
3	Temporary	Construction Access (SW)	25' x 210'	0.10 Acres
4	Temporary	Construction Access (SE)	55' x 206'	0.26 Acres
5	Temporary	Construction Access (NW) Corral Rd	55' x 206'	0.70 Acres (0.31 dirt) & (0.39 paved)
6	Temporary	Construction Access (NW)	35' x 230'	0.14 Acres
7	Temporary	Construction Access (E) (River)	100' x 90'	0.20 Acres
8	Temporary	Construction Access (W) (River)	108' x 115'	0.30 Acres
9	Temporary	Staging and material storage (Maintenance Yard)	50' X 260'	0.30 Acres
10	Temporary	Staging and material storage (Nixon Store)	150' x 310'	1.01 Acres

The tribe will be compensated for use of all temporary and permanent easements and any agricultural crop loss that occurs from construction activities associated with the Scour Prevention Project as directed in the Uniform Act, (Uniform Relocation and Assistance and Real Property Acquisition Policies Act of 1970 and amended in 1987).

Once properly designed and the scour countermeasures are completed, the scour rating for the bridge will be reduced to low-risk with a National Bridge Inventory rating of Item 113 (scour critical bridge) and Code 7. Code 7 indicates countermeasures have been installed to correct a previously existing problem with scour and the bridge is no longer critical.⁵

2.3 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED STUDY

Nixon Bridge Relocation

Relocation of the Nixon Bridge to another location was considered but without data on other sites, a new bridge may result in the same scour problems. The relocation of the bridge would also require the realignment of SR 447 and these relocations would have a large environmental and fiscal impact. Relocation of the bridge would not ensure that issues related to scour would not occur at a new location.

Reinforce Existing Weir Protection with Sheet Piling

This alternative consisted of constructing steel sheet piling upstream of the existing riprap weir to provide reinforcement to the existing riprap weir. This work would be done just upstream of the weir, meaning that no ROW would be required other than temporary easements for construction. A river diversion may need to be constructed in order to allow equipment to access the entire width of the river at the existing riprap weir (approximately 120').

NDOT's Materials Division analyzed the use of sheet piling to reinforce the existing riprap weir and found that cantilevered sheet piling would not work due to instability, which is caused by the scour depth and its proximity to the required pile tip elevation. The required height of the sheet pile wall would be approximately 18', and because of the wall height and limited embedment, anchors would be required. The proposed anchors would need to extend at least 20 feet behind the sheet pile wall for proper stability. However, the existing piers and the sheet piling around the piers are closer than 20', meaning that anchors would not be feasible. Since anchors would not be feasible, and a cantilevered sheet pile wall would not be feasible, NDOT did not pursue this alternative any further.

Instream Work Above and Below Nixon Bridge

This alternative would consist of a river restoration/stabilization project either upstream or downstream of the Nixon Bridge. Currently, NDOT is limited to 50' ROW from the centerline of SR 447 upstream and downstream (i.e. east and west of the Nixon Bridge). NDOT would have to acquire more ROW (160' from centerline downstream and 105' from centerline upstream), but this still may not provide enough room to stabilize the channel around the Nixon Bridge. In addition, changing the proposed work from a bridge project to a river stabilization project will involve much more time, resources, design, and coordination with other agencies including the BIA, US Army Corps of Engineers (USACOE), USFW and PLPT. This would increase time needed to stabilize the bridge and increase the risk of head cutting proceeding upstream and scour occurring at the bridge. Due to the increased time and resources required, potential ROW, and permitting/coordination needed with other agencies, this alternative was not pursued any further.

⁵ Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges – Report No. FHWA-PD-96-001 Office of Engineering Bridge Division, December 1995

3.0 AFFECTED ENVIRONMENT

INTRODUCTION

This chapter describes the environmental components potentially affected by the implementation of the Proposed and No Action Alternatives.

3.1 LAND RESOURCES

a. Topography

Almost all of Nevada belongs physiographically to the Great Basin, a plateau characterized by isolated mountain ranges separated by arid basins. These ranges generally trend north–south; most are short, up to 75 miles long and 15 miles wide, and rise to altitudes of 7,000–10,000 ft. Chief among them are the Schell Creek, Ruby, Toiyabe, and Carson (within the Sierra Nevada). Nevada's highest point is Boundary Peak, 13,140 ft., in the southwest.

Although the project area is predominately a river floodplain, the most dominant features in the immediate project area are the Truckee River and Pyramid Lake to the north. Trees and vegetation flank the river on both banks.

b. Soils

The project area, located in the Washoe County, Nevada, South Part survey, is dominated by two soil types. Soil mapping unit 1610 – Water, is centered along the Truckee River in an area approximately 165 feet in width and continues along the river's length. This unit is defined as Basins and map unit composition as Water. The description for Water includes lake basin landform and linear down slope and across slope shape.

The second soil mapping unit, 532 – Sagouspe gravelly sand, gravelly substratum, is located on either side of the river along Soil mapping unit 1610 – Water. This mapping unit has a landscape setting of Semi-bolsons with elevations from 4,400 to 4,500 feet. The map unit composition is 85% Sagouspe and similar soils and 15% minor components. Sagouspe is found in floodplains with slopes of 0 to 2%. It is subject to occasional flooding and somewhat poorly drained. Depth to water table is about 36 to 42 inches. The soil unit profile is 0 – 10 inches gravelly sand, 10 – 40 inches stratified coarse sand to silt loam, and 40 – 60 inches very gravelly loamy coarse sand.⁶

Prior to bridge construction, geology and soil classification was determined based on test borings that were used to design the concrete pile foundations for the Nixon Bridge. The geological type and disposition was also researched and sufficiently discussed in the Scour Analysis Report⁸ and again in the hydraulic analysis.

The Geotechnical Report⁷, composed in 1994 by Water Engineering and Technology and referenced in the Scour Analysis Report⁸, discussed geomorphology and rated the potential for

⁶ USDA Natural Resources Conservation Service, Web Soil Survey

⁷ Geotechnical Report, Water Engineering and Technology, 1994

⁸ Ayers Associates, Nixon Bridge (No. B-1351) Scour Analysis Report, 2005

vertical instability at the site as moderate, “especially if the boulder weir located immediately downstream of the bridge fails or is flanked as a result of the loss or undermining of the lacustrine bench on the left side of the channel.”

Three reports⁹ were prepared to address the geology of the area surrounding the bridge. The reports clearly state that, even prior to construction of the current Nixon Bridge, there was scour and head cutting in the Truckee River at this location.

c. Geologic Setting and Mineral and Paleontological Resources

The Nixon Bridge is located on young Quarternary terrace deposits of the Truckee River, including Late Holocene constructional and strath deposits; dominantly floodplain deposits: brown to gray mud, muddy sand, and silt containing organic-rich horizons (black mats), mollusks, gastropods, and vertebrate bones; intercalated layers of axial stream deposits; and well rounded, well-sorted, gray sandy, pebble to cobble gravel.

The bridge is located entirely within recently abandoned channel (*Figure 7*) and floodplain deposits standing up to 3 meters above the modern river level. The area has fresh, remnant meanders-scroll morphology visible on the terrace surface, often enhanced by riparian vegetation patterns.¹⁰

There are no identified commercial rock and mineral extraction sites near the project site.

Paleontological resources include fossil remains, specimen data, geological and geographic silt data, and the fossil-bearing rock immediately underlying the surface. Fossils are the remains of ancient organisms (e.g. mammals, birds, reptiles, plants, and invertebrates) preserved in sedimentary strata of the earth’s crust. Fossils are considered an important scientific resource because of their use in documenting the evolution of organisms, reconstructing the environments in which they lived, and determining geological events and the age of the rock in which they occur.

Paleontological resources are protected by several federal statutes, most notably by the 1906 Federal Antiquities Act and other subsequent federal legislation and policies. In Nevada, paleontological resources are treated as archeological remains and are protected by Nevada Revised Statute¹¹ and Bureau of Land Management.¹² Professional standards for assessing and mitigating adverse impacts on paleontological resources have been established by the Society of Vertebrate paleontology. Recovery or removal of paleontological resources from Tribal lands would require authorization from the BIA and coordination with PLPT.

As a remnant of Pleistocene Lake Lahontan, the Pyramid Lake is the site of a number of paleontological finds. The remains of extinct Pleistocene camels and a horse have been discovered in lake deposits at Wizard’s Beach. A Wizard’s Beach camel was radio-carbon dated to about 25,500 years B.P. Falcon Hill Caves, located at Winnemucca Lake to the east,

⁹ NDOT Boring Logs, February 28, 1978, Geotechnical Report requested by FHWA Office of Western Bridge, March 29, 1978, and NDOT Soil Properties for Sheet Pile Wall, August 31, 1983

¹⁰ Geological Map of the Nixon Area, Washoe County, NV , 2005

¹¹ Nevada Revised Statutes Chapter 381 – 381-195(5)

¹² Bureau of Land Management National Omnibus Public Land Management Act (Section 6301)

also produced horse and shrub ox remains. However, no paleontological resources have been found in the project area.¹³

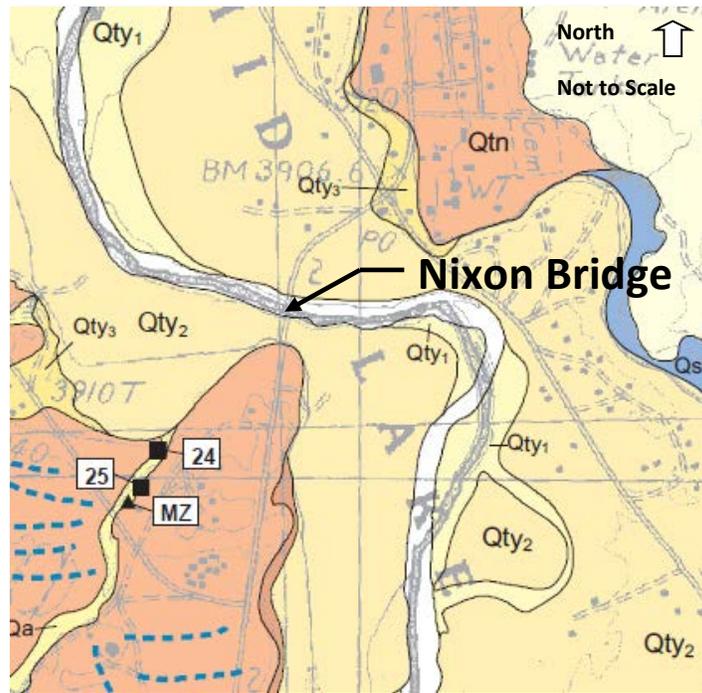


Figure 7 – Geologic Map of the Nixon Area, Washoe County, NV

3.2 WATER RESOURCES

Water resources include surface waters, groundwater, floodplains, and Waters of the US (WOUS), as defined by the USACOE and as regulated under the Clean Water Act. A preliminary jurisdictional delineation for the project area was determined in September 23, 2013. The jurisdictional delineation was determined during an on-site visit with Kristine Hansen, Regulatory Project Manager, Reno Regulatory Field Office USACOE, and one watercourse, the Truckee River, was identified within the project area as a jurisdictional WOUS.

a. Groundwater and Surface Water

The Truckee River system begins at Lake Tahoe and ends at Pyramid Lake (*Figure 8*). Inflows to the river are regulated by several reservoirs. The Truckee River basin (Hydrographic Region 6) covers over 4,700 square miles and straddles the California-Nevada border. The Truckee River Basin includes the following hydrographic areas: Winnemucca Lake Valley, Pyramid Lake Valley, Dodge Flat, Tracy Segment, Warm Springs Valley, Spanish Springs Valley, Sun Valley, Truckee Meadows, pleasant Valley, Washoe Valley, Lake Tahoe Basin, and the Truckee Canyon Segment. Major cities in the Truckee River Basin are Truckee, California, and Reno and Sparks, Nevada.

¹³ Grayson, Donald K. 1993 *The Desert's Past. A Natural Prehistory of the Great Basin*. Smithsonian Institution Press, Washington, D. C.



Figure 8 – Map of Pyramid Lake and the Truckee River Watershed¹⁴

The Pyramid Lake Paiute Tribe Reservation in northern Nevada relies on the Tracy Segment HA of the Truckee River for a large portion of its water supply. About 2,500 acres of the Tracy Segment HA are decreed for the Reservation.¹⁵ Rapid growth of the neighboring Reno/Sparks metropolitan area and development of the Tahoe Reno Industrial Center, within Storey County, have resulted in changes in land-use and water-supply requirements in the Tracy Segment HA. In addition, increased consumptive water use by evapotranspiration may be an unintended result of efforts to restore the Truckee River riparian ecosystem and its associated flood-

¹⁴ USGS Nevada Water Science Center, PLPT Water Quality Plan, October 3, 2008

¹⁵ Federal Water Master, written communication. 2003

attenuation capacity. Groundwater use has increased with new development, but the effects of increased groundwater withdrawal on discharge to the Truckee River and on appropriated surface-water rights have not been quantified.¹⁶

A flood occurred along the Truckee River in 1997, with a recorded peak discharge at the Nixon US Geological Survey (USGS) gauge of 21,200 cfs, which corresponds to an estimated recurrence interval of 39 years. According to USGS records, this was also the Flood of Record. The peak discharge of 21,200 cfs is only 68 percent of the 100-year flow as taken from USGS records ($Q_{200}=31,150$ cfs). The 500-year discharge, as taken from USGS records, is 52,810 cfs. The current project along the Truckee River being undertaken by the TRFMA, shows a 100-year flow of 19,800 cfs in the existing condition, and 23,400 cfs in the “proposed” condition. The TRFMA has modeled the entire Truckee River, and their model shows that overtopping occurs at the sides of the bridge. The bridge itself appears to be far above the 100-year water surface elevation.

The Nixon Bridge has had a history of significant scour problems related to previous channel degradation and local pier scour. Riprap was placed around the piers in 1983 and sheet pile encasements were constructed in 1984 due to exposure of the pile caps. The concrete cap of the sheet pile encasement around Pier 1 was undermined during the 1997 flood, which led to placement of additional riprap around Pier 1.¹⁷

b. Water Quality

Tertiary treated effluent from the Truckee Meadows Water Reclamation Facility, urban storm runoff, agricultural return flows, septic tanks, mining activities (present and historic) all have affected surface waters on the lower Truckee River and Pyramid Lake. Upstream diversions altering flow compounded by water pollution and subsequent low flows have affected the recovery efforts of two Pyramid Lake fish species important to the Tribe's culture and traditional way of life. The Lahontan Cutthroat Trout (*Oncorhynchus clarki henshawi*) and cui-ui (*Chasmistes cujus*) are listed as threatened and endangered, respectively, by the USFWS. Establishing Water Quality Standards and long-term Physical Habitat/Bioassessment and Water Quality monitoring will help assure that Tribal surface waters are protected from further negative impact.

Nevada has determined that several reaches of the Truckee River are impaired under the provisions of Section 303(d) of the Clean Water Act due to excessive temperature levels, total nitrogen, total phosphorus, and total dissolved solids (TDS), with potential degradation to the habitat of aquatic life.¹⁸ None of the impaired or total maximum daily load reaches of the Truckee River include the project area.

Mercury is another source of potential water quality impairment of the Truckee River. Although the river is not listed under Section 303(d) of the Clean Water Act for mercury impairment, concentrations of mercury have been found in fish in the lower Truckee River, according to an assessment of contaminants and their potential effects on fish.¹⁹ Mercury is considered highly

¹⁶ USGS Nevada Water Science Center, 2013

¹⁷ NDOT Preliminary Drainage Study, SR 447, Nixon Bridge, October 2013

¹⁸ Nevada Division of Environmental Protection, Nevada 2012 Water Quality Integrated Report with EPA Overlisting, December, 2014.

¹⁹ Higgins, Tuttle, and Foote; Preliminary Assessment of Contaminants and Potential Effects to Fish on the Truckee River, Nevada; January, 2006.

toxic, and minor amounts in water, sediment, and diet have been associated with adverse effects to fish and aquatic invertebrates. Mercury found in sampled trout collected at Reno and Tracy, however, did not exceed the environmental threshold levels of concern determined by Beckvar et al (2005), as cited in Higgins, Tuttle, and Foote (2006). Additionally, mercury concentrations in sampled trout were within the PLPT standard for mercury in fish.

Although mercury is currently not at a level of concern to indicate negative effects to the fish communities of the lower Truckee River, the terminal nature of the system could present threats to the fishery at Pyramid Lake due to mercury loads over time.²⁰ Sources of mercury for fish in the lower Truckee River are likely from the Steamboat Creek drainage. Mercury in Steamboat Creek was originally derived from its headwaters, Washoe Lake, where several gold and silver mills using mercury were located.²¹ According to Blum et al. 2001 and Stamenkovic et al. 2004, as cited in Higgins, Tuttle, and Foote (2006), in the more than 100 years since ore processing occurred, mercury-laden alluvium has been deposited in the stream channel and on stream banks, where it is available for remobilization. Non-point source urban run-off is also likely providing mercury inputs to fish within the Reno-Sparks urban area, but to a lesser degree.

The PLPT's water quality monitoring program initially began in 1981, conducted within the Resource Department of the Pyramid Lake Fisheries. The program expanded in 1999 to include streams and five sites along the lower Truckee River conducted by the Environmental Department staff to increase monitoring. Water samples are collected and analyzed for dissolved reactive phosphorus, total phosphorus, nitrates, nitrites, and total ammonia using protocols outlined in the Tribe's QA Project Plan. A new water quality laboratory was completed in the spring of 2002 to facilitate testing and analysis of all samples gathered within the exterior boundaries of the PLIR.

The long-term goal of the Pyramid Lake Paiute Tribe is for the restoration of the river habitat to support the fisheries and maintain healthy populations on all trophic levels. Restoration of the fisheries means restoration of the key cultural resource that the cui-ui Eaters (Kooyoee Takadu) used to identify themselves, now, historically, and forever.

On January 30, 2007, the Pyramid Lake Paiute Tribe received Treatment as State Status pursuant to Sections 303 & 401 of the Federal Clean Water Act by the US Environmental Protection Agency for Program Authority to institute Water Quality Standards (WQS) and 401 Certification within the exterior boundaries of the PLIR.

On May 24, 2001, the PLPT adopted a Water Quality Control Plan (WQCP). The WQCP addresses issues such as beneficial uses, antidegradation, water quality criteria, scientific justification, and implementation plans in accordance with the Tribe's Water Quality Ordinance. For the purposes of water pollution control, the PLPT maintains jurisdiction over all waters that flow into and exists within the PLIR.²²

c. Floodplains

A review of the Federal Emergency Management Agency Flood Insurance Rate Map reveals that the floodplain has not been mapped within the limits of the Reservation. The maps do indicate that the Reservation, and in particular the project site, has been classified as Zone D

²⁰ Higgins, Tuttle, and Foote; January, 2006.

²¹ Higgins, Tuttle, and Foote; January, 2006.

²² Pyramid Lake Paiute Tribe, Water Quality Program

area. A Zone D classification means that flood hazards are undetermined but possible.²³ The project is located in the Truckee River near Nixon, NV (Hydrologic Unit 10351700), which includes a drainage area of 1,827 square miles.²⁴

3.3 AIR QUALITY

The USEPA has identified six criteria air pollutants: carbon monoxide (CO), coarse and fine particulates (PM₁₀ and PM_{2.5}), nitrogen dioxide, sulfur dioxide, and lead. Criteria pollutants are defined as those air contaminants for which the federal government has established standards designed to protect human health and welfare. The proposed project is located in Hydrographic Area (HA) 81, Nixon, Washoe County, Nevada. HA 81 is currently considered to be *unclassifiable/attainment* for the six identified criteria pollutants.²⁵

The proposed project is exempt per Federal Regulation.²⁶ Since the project is located in an area designated by the USEPA as unclassifiable/attainment for CO, PM_{2.5}, PM₁₀, and ozone, a project-level conformity determination is not required.

a. Construction Activities

There will be short-term, localized increases in the ambient concentrations of CO during construction. This will be due to the slowing of traffic in construction zones and also to emissions from construction equipment. However, these CO increases would be temporary and would not cause long-term adverse effects. Contractors are required by NDOT to comply with federal, state, and local regulations for the control of air pollution, including those that prohibit idling of diesel-powered vehicles.

Emissions of fugitive dust are anticipated during construction. The resulting increases of PM₁₀ concentrations would be temporary, and would not cause long-term adverse effects. Contractors are required by NDOT to comply with the dust control regulations and to obtain relevant air quality permits.

b. Mobile Air Toxic Analysis

The project is designed to provide scour mitigation for structure B-1351. As such, the project is anticipated to generate minimal air quality impacts on Clean Air Act Amendments (CAAA) criteria pollutants and has not been linked with any special Mobile Source Air Toxics (MSAT) concerns. As a result, this project will not cause changes in traffic volumes, vehicle mix, basic project location, or any other factor that would cause an increase in MSAT impacts of the project from that of the no-build alternative.

Moreover, EPA regulations for vehicle engines and fuels will cause overall MSAT emissions to decline significantly over the next several decades. Based on regulations now in effect, an analysis of national trends with EPA's Motor Vehicle Emission Simulator (MOVES) model forecasts a combined reduction of over 80 percent in the total annual emission rate for the

²³ FEMA Flood Insurance Rate Map, Washoe County, Nevada, Panel Map Number 32031C2750G, November 2013
<https://msc.fema.gov/webapp/wcs/stores/servlet/QuickOrderResultView>

²⁴ USGS WaterWatch, Streamflow Conditions, <http://waterwatch.usgs.gov/?m=real&r=nv>

²⁵ NDOT Environmental Assessment Documentation, Air Quality Analysis Tech Memo, August 5, 2013

²⁶ Code of Federal Regulation, 40 CFR 93.126 & 127

priority MSAT from 2010 to 2050, while vehicle-miles of travel are projected to increase by over 100 percent. This will both reduce the background level of MSAT as well as the possibility of even minor MSAT emissions from this project.

3.4 LIVING RESOURCES

a. Ecosystems and Biological Communities

The project is located in Northeastern Nevada at an elevation of 3,880 feet above mean sea level. The project is located within the Central basin and range, Lahontan salt shrub basin.²⁷ This area is considered a cold desert environment, characterized by cold winters and snowfall, with high overall rainfall throughout the winter and occasionally over the summer.²⁸ The project is within the Truckee River, an interstate river which flows in a westerly direction through the project area, and is entirely within the active floodplain of the river.

The Truckee River originates at Lake Tahoe, flows northeasterly, and discharges into Pyramid Lake. The Truckee River is Pyramid Lake's only permanent tributary. The project area is located within the lower Truckee River. It is a low gradient stream with a sparse riparian corridor.²⁹

The Truckee River is perennial (i.e., contains surface flows year-round during most years) and is susceptible to periodic flooding, which typically occurs during the spring runoff. The floodplain in this area is approximately 300-feet wide. However, the river consists of an incised primary channel approximately 30 feet below the floodplain, with a rock weir immediately downstream of the Nixon Bridge. This weir was placed within the river in 1983 by the NDOT to protect the bridge structure from a head cut immediately downstream of the bridge.

This portion of the Truckee River is flanked by higher elevation communities associated with highly disturbed and altered agricultural land. Agricultural lands border the river corridor approximately seven river-miles upstream and three river-miles downstream of the project area. Multiple rock weirs, agricultural irrigation ditches, and sloughs divert flows from the Truckee River to this ten-mile stretch of agricultural lands flanking the river. A narrow riparian corridor exists in some areas between the river and agricultural fields but is not continuous.

The river corridor is flanked by the Pah Rah Range to the Southeast and the Truckee Range to the northeast. The project area is situated approximately seven river-miles upstream of Pyramid Lake, the terminus of the Truckee River to the west.

b. Vegetation

Vegetation consists of riparian species dominated by Fremont Cottonwood (*Populus fremontii*) with a mix of Coyote Willow (*Salix exigua*) and Black Cottonwood (*Populus balsamifera* ssp. *Trichocarpa*) within the riparian river corridor. Vegetation within the upland areas of the project area is composed of characteristic Lahontan salt desert shrub species, including Greasewood

²⁷ USEPA Eco Region Map Level 3 and 4, 2013

²⁸ The Desert Biome, UC Berkeley <http://www.ucmp.berkeley.edu/exhibits/biomes/deserts.php>

²⁹ Life History and State of the Endangered cui-ui of Pyramid Lake, Nevada; USFWS, Scopetone 1996

(*Sarcobatus vermiculatus*), Basin Big Sagebrush (*Artemisia tridentata* ssp. *tridentata*), and Rubber Rabbitbrush (*Ericameria nauseosa*).³⁰

c. Wildlife³¹

1. General Wildlife

Big Game

Occupied mule deer distribution exists throughout the project area and portions within a four-mile buffer of the project area. Occupied pronghorn antelope distribution exists outside of the project area within a four-mile buffer of the project area. No known occupied bighorn sheep or elk distributions exist in the vicinity of the project area.

Raptors

Various species of raptors, which use different habitat types, may reside in the vicinity of the project area. American kestrel, bald eagle, barn owl, burrowing owl, Cooper's hawk, ferruginous hawk, golden eagle, great horned owl, long-eared owl, merlin, northern goshawk, northern harrier, northern saw-whet owl, osprey, peregrine falcon, red-tailed hawk, rough-legged hawk, sharp-shinned hawk, short-eared owl, Swainson's hawk, turkey vulture, and western screech owl have distribution range that include the project area and a four-mile buffer of the project area. Raptor species are protected by State and federal laws.

Other Wildlife Resources

The following species have been observed in the vicinity of the project area: blue grossbeak, brown bullhead, bullfrog, California toad, common carp, desert horned lizard, desert spiny lizard, fathead minnow, Great Basin collard lizard, Great Basin fence lizard, Great Basin gopher snake, Great Basin whiptail, green sunfish, Lahontan redbelly, long-nosed leopard lizard, mountain sucker, Nevada side-blotched lizard, northern desert horned lizard, northern zebra tailed lizard, rainbow trout, Sacramento perch, speckled dace, Tahoe sucker, terrestrial gartersnake, western fence lizard, western mosquitofish, western patch-nosed snake, yellow-back spiny lizard and zebra-tailed lizard.

2. Threatened, Endangered, Sensitive Species and State Protected Species

Cui-ui (Endangered)

Cui-ui (*Chasmistes cujus*) was listed as Endangered on March 11, 1967 without critical habitat. The cui-ui is a lake sucker found in only one place in the world: Pyramid Lake and the lower Truckee River, all within the Pyramid Lake Paiute Reservation. It is a long-lived fish exceeding 40+ years in age and can weigh over 7.5 pounds.

This large, robust sucker is long and broad. The dorsal side of its coarsely scaled body is blackish-brown with bluish-gray cast that fades to a creamy-white belly. It spends most of its life in Pyramid Lake, leaving only to spawn in the lower Truckee River between March and June

³⁰ Jason Perock and Nova Simpson, Environmental Scientist III, NDOT, 2013

³¹ Nevada Department of Wildlife Species List, December 16, 2013

when it reaches maturity between 6-12 years of age. Cui-ui occupy habitat near the lake bottom. They are generally found in near-shore areas at depths less than 75 feet.

Cui-ui migrate up the lower Truckee River to spawn between March and June each year and return to Pyramid Lake after spawning. Migrating adults must be passed through Marble Bluff Fish Facility and above Marble Bluff Dam to access suitable spawning habitat.

Timing of the spawning migration depends on river water temperature and flow characteristics. Spawning occurs over gravel. No nests are built; the adhesive eggs are broadcast over a large area. Eggs hatch one to two weeks after spawning and larval cui-ui drift downstream to Pyramid Lake shortly after hatching. Adult cui-ui typically enter the spawning run at eight to ten years of age but may enter as early as five years of age.

Physical barriers pose a threat to cui-ui spawning migrations. Low water conditions and/or sand bars can render the delta at the mouth of the Truckee River impassable.³²

Lahontan Cutthroat Trout (Threatened Species)

Lahontan cutthroat trout (*Oncorhynchus clarkii henshawi*) was listed as Endangered on October 13, 1970 and reclassified as Threatened in 1975.

Lahontan cutthroat trout, like other trout species, are found in a wide variety of cold-water habitats, including large terminal alkaline lakes (e.g., Pyramid and Walker lakes); alpine lakes (e.g., Lake Tahoe and Independence Lake); slow meandering rivers (e.g., Humboldt River); mountain rivers (e.g., Carson, Truckee, Walker, and Marys Rivers); and small headwater tributary streams (e.g., Donner and Prosser Creeks).

Generally, Lahontan cutthroat trout occur in cool *flowing* water with available cover of well-vegetated and stable stream banks, in areas where there are stream velocity breaks, and in relatively silt free, rocky riffle-run areas.

The Lahontan cutthroat trout is endemic or native to the Lahontan basin of northern Nevada, eastern California, and southern Oregon. In 1844, there were 11 lake-dwelling populations of Lahontan cutthroat trout and 400 to 600 stream-dwelling populations in over 3,600 miles of streams within the major basins of Lake Lahontan.

Lahontan cutthroat trout currently occupy between 123 and 129 streams within the Lahontan basin, and 32 to 34 streams are outside the basin, totaling approximately 482 miles of occupied habitat. The species is also found in five lakes, including two small populations in Summit and Independence Lakes. Self-sustaining populations of the species occur in 10.7 percent of the historic stream habitats and 0.4 percent of the historic lake habitats.

Female sexual maturity is reached between the ages of three and four, while males mature at two to three years of age. Consecutive repeat spawning is rare. Like other cutthroat trout species, Lahontan cutthroat trout is a stream spawner, spawning between February and July. Spawning depends upon stream flow, elevation, and water temperature.³³

Greater Sage-grouse (Candidate Species)

³² USFWS Species Profile, http://www.fws.gov/nevada/protected_species/fish/species/cuiui.html

³³ USFWS Species Profile, http://www.fws.gov/nevada/protected_species/fish/species/lct.html

Greater sage-grouse (*Centrocercus urophasianus*) once occupied parts of 12 states within the western US and three Canadian provinces. Populations of greater sage-grouse have undergone long-term population declines. The sagebrush (*Artemisia* spp.) habitats on which sage-grouse depend have experienced extensive alteration and loss. Sage-grouse are dependent on large areas of contiguous sagebrush. The USFWS concluded in 2010 that the greater sage-grouse warranted a listing of Threatened or Endangered under the Endangered Species Act (ESA); however, the USFWS has determined that the listing of the greater sage-grouse is currently precluded by higher-priority listing actions.³⁴ Thus, the greater sage-grouse is currently a candidate for listing under the ESA and does not receive any protection under this act.

Greater sage-grouse are the largest grouse in North America. Males often weigh in excess of 4-5 pounds and hens weigh in at 2-3 pounds. On the ground and in flight they appear almost black, and their long pointed tail is approximately half the length of their body. Both sexes have narrow, pointed tail feathers, feathering to the base of the toes, and a variegated pattern of grayish brown, buff and black on the upper parts, with paler flanks and a diffuse black pattern on the abdomen. Adult males have blackish-brown throat feathers that are separated by a narrow band of white from a dark V-shaped pattern on the neck. White breast feathers conceal two large skin sacs (used in courtship displays), which are yellow-green in color. Males also have yellow eyecombs (obvious in the spring during courtship displays). Female sage-grouse lack the specialized structures used for courtship displays but generally resemble males in coloration. However, in comparison to males, their throats are buffy with blackish markings and the lower throat and breast are barred which presents a blackish-brown appearance. Immature birds (less than one year of age) can be distinguished from adults by their light yellowish green toes (adults have dark green toes).³⁵

There is no sage-grouse habitat within the project area and there are no known lek sites in the vicinity of the project area.³⁶

Brazilian Free-tail Bats (Sensitive and State Protected Species)

A large bat roost is present under and within the existing bridge deck. Acoustic voice signatures from roosting bats under the bridge were collected. Calls were collected using an AnaBat detector, and voice signatures were later downloaded and analyzed to species. The voice signatures collected were of *Tadarida Brasiliensis*, or common name Brazilian free-tailed bats. The *Tadarida Brasiliensis* are a state-protected species and a BLM state sensitive species. This bat species are noted for forming large colonies, especially during maternity season. Without collecting calls during an out-flight event it is impossible to determine how many or what other species may be day roosting in this bridge structure. It appears by the volume of vocalizations and amount of guano that this bridge is utilized for the reproductive season (June-August) and could include thousands of individual bats, the majority most likely *Tadarida Brasiliensis*. Timing for the construction and associated disturbances should occur outside the active periods for bats (7:00 PM to 7:00 AM) and outside of the maternity season (June-August). During the maternity season bat pups will be born naked and unable to fly; therefore, mother bats are more subject to stress, which could potentially cause them to abandon their pups.³⁷

³⁴ Federal Register / Vol. 75, No. 55 / Tuesday, March 23, 2010 / Proposed Rules

³⁵ USFWS Species Profile, <http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?sPCODE=B06W>

³⁶ Nevada Department of Wildlife Species list and Sage-grouse Habitat Map 12/16/14

³⁷ Jenni Jeffers, NDOW Biologist, October 2013

3. Migratory Birds

Migratory birds are protected by the federal Migratory Bird Treaty Act, which prohibits injury or death to migratory birds and their active nests, eggs, and young. Although no migratory bird species were observed, waterfowl and swallows could be present within the project area.

d. Agriculture

This portion of the Truckee River is flanked by higher elevation communities associated with highly disturbed and altered agricultural farmlands. Agricultural farmlands border the river corridor approximately seven river-miles upstream and 3.1 river-miles downstream of the project area. Multiple rock weirs, agricultural irrigation ditches and sloughs divert flows from the Truckee River to this ten-mile stretch of agricultural lands flanking the river. A narrow riparian corridor exists in some areas between the river and agricultural fields but is not continuous. Approximately 935 acres of farmland is held and operated by PLPT individual assignment holders in the area.

3.5 CULTURAL RESOURCES³⁸

The archeological field intensive survey (Class III) inventory for this project was completed based on the pre-field research and anticipated project impacts. The pedestrian survey focused on the temporary construction easements on both ends of the bridge. The proposed staging areas were observed to be completely disturbed and were not subjected to pedestrian survey.

a. Historic, Cultural, and Religious Properties

Bridge No. B-1351 is located on SR 447 near Mile Post WA 15.5, 0.2 mile southwest of Nixon, Nevada and spans the Truckee River. The Bridge was constructed in 1972. Due to the existing channel configuration, soil characteristics, and the alignment of the river, the pier walls and abutment foundations are susceptible to significant scour when the high flows occur in the Truckee River. Therefore, the existing riprap weir was constructed to control the river flows and protect the piers in the river and abutments on the north and south banks. The bridge has had a history of significant scour problems related to past channel degradation and local pier scour.

An NDOT architectural historian surveyed the Area of Potential Effect (APE) and found that no architectural resources over 50 years old exist in the APE. There are no vertical elements to the project, all project elements are below the bridge and no indirect impacts to surrounding buildings are anticipated. The PLPT provided information on potential resources, including three former home sites and a dual-spigot hand pump during the Notice of Intent. The dual-spigot hand pump and homesites were found to not be historic resources.

b. Archaeological Resources

A record search was conducted at the NDOT Cultural Resources Section in Carson City, the archaeological archive at the Nevada State Museum, and the Nevada Cultural Resources Inventory System, for previous inventories and recorded sites within and adjacent to the APE. The BLM historic General Land Office maps, historic topographic maps and Highway Plan sets on file at NDOT, were consulted for historic features such as structures and roads.

³⁸ NDOT Cultural Resource Narrative Report WA13-009, April 30, 2013

Thirteen previous archaeological inventories have been conducted within one mile of the project area. Six of these surveys include all or parts of the APE. The bridge and its approaches were surveyed by Tuohy (1972) with negative results.³⁹ Both sides of the bridge were surveyed again by NDOT in 1983, again with negative results. Maniery and Maniery (1984) conducted a Class III survey for Nevada Bell that included the current project location.³⁷ They identified site 26WA3074, an extensive lithic scatter with tools, flakes and possible depth. They noted a cabin on the site which is no longer there. In 1986 NDOT surveyed the area again and relocated site 26WA3074 south of the bridge on the east side of SR 447.³⁷ An avoidance area was established for the site. The Vierra and Jones 2011 survey for the Broadband Project⁴⁰ covers the bridge, SR447 and most of the Nixon Store staging area. That project was negative in the vicinity of the current project APE.

c. Section 4(f)

Section 4(f) of the US Department of Transportation Act of 1966 states that the FHWA “may approve a transportation program or project requiring publicly-owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, or land of a historic site of national, state or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, area, refuge, or site) only if there is no prudent or feasible alternative to using that land and the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use”.⁴¹

Although informal recreation access is provided to the river at the bridge location, there is no publicly-owned public park, recreation area, or wildlife and waterfowl refuge, or any significant historic site in the project area. Therefore, there is no Section 4(f) involvement with the project.

3.6 SOCIO-ECONOMIC

a. Employment and Income

The PLPT Reservation contains 475,000 acres, or 742.2 square miles. About 112,000 acres of the reservation is covered by a terminal desert lake, Pyramid Lake. Pyramid Lake is the most valuable asset of the Tribe and is entirely enclosed within the boundaries of the reservation.

The economy on the Pyramid Lake Reservation is centered on fishing, day use and overnight camping; the Tribe also receives lease revenues and tax revenues. Some Tribal members belong to the Pyramid Lake Cattleman’s Cooperative Association, and the Association utilizes the reservation’s desert open range to operate and manage the individual cattle herds.

Approximately 50.5% of the reservation residents over the age of 16 were employed in 2011; approximately 20% were unemployed.⁴² Approximately 25% of the population works directly for the Pyramid Lake Paiute Tribe tribal government or other government operations.⁴³ Members were employed in occupations that included service, management, professional, sales and office, farming, fishing, forestry, construction, maintenance, transportation, agriculture,

³⁹ NDOT Cultural Resource Narrative Report WA13-009, April 30, 2013

⁴⁰ Vierra and Jones, 2011, Survey for the Broadband Project

⁴¹ Title 49 U.S.C. 303

⁴² US Census ACS 5 Year (S2301), 2013

⁴³ Pyramid Lake Paiute Tribe and Natural Resources Conservation Services, 2005

government and ranching. A small percentage of Tribal Members worked at home or owned their own business.

A large percentage of Nixon residents (92.8%) commute to work.⁴⁴ Wadsworth is located in close proximity to Interstate 80, which provides residents of the community a relatively easy commute to jobs in Reno and Sparks. Residents of Nixon use the Nixon Bridge to access Interstate 80.

b. Demographic Trends

The demographic composition of the project area was determined by census tracts using the *US Census 2010, Interactive Population Map (Figure 9)*. In 2010, the US Census Bureau estimated the population of the PLPT Reservation at 1,660. The reservation parallels the boundary of Census Tract 9402, and census data has been provided specifically as it relates to the reservation (*Figure 10*).

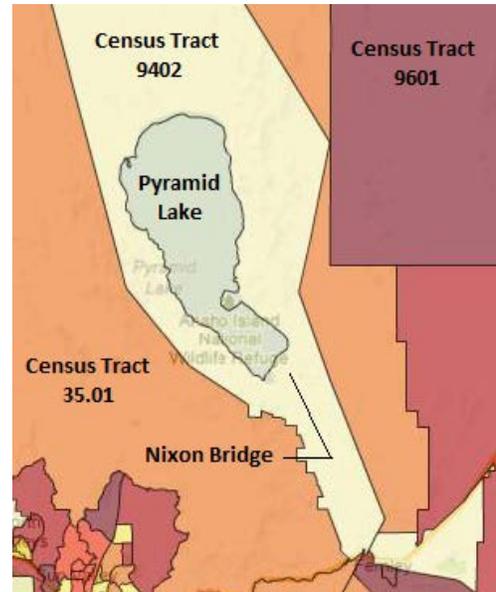


Figure 9 – US Census Tracts

The population within the reservation is predominately Native American making up 76% of the population. The next largest population is white making up 21%.

Sexes are divided evenly with 47% male and 53% female. The age of the population over 18 is 72%, which is slightly lower than the same age population for Washoe County, at 76%.

The three towns on the reservation are Wadsworth, with a population of 834, Nixon, containing a population of 374, and Suttcliff, with a population of 253. When compared to the 1993 population⁴⁵ of 1,603, the population on the reservation increased slightly, by 3.4%, by 2010.⁴⁶ This growth rate is significantly lower than Washoe County, which grew by 60%, over the same period of time.⁴⁷

PLPT Race (Persons)		PLPT Age (Persons)		PLPT Housing (Units)	
White	348	Male	782	Total Housing	697
African Am.	6	Female	878	Occupied Housing	632
Asia	4	Under 18	456	Owner-Occupied	427
AIAN*	1,251	18 and Over	456	- Population	1,094
NHPI**	5	20-24	1,204	Renter-Occupied	205
Some Other Race	23	25-34	196	- Population	566
2 or more Races	23	35-49	315	Vacant Housing	65
		50-64	331	For Rent	12
		65 and Older	203	For Sale	9

Figure 10 – 2010 US Census Demographic Data PLPT

⁴⁴ US Census 2007-2011 ACS Survey 5-Year Estimate (DP03)
⁴⁵ Pyramid Lake Paiute Tribe On-line Publication
⁴⁶ US Census 2010 (QT-P5)
⁴⁷ US Census, 1990 Population

c. Environmental Justice

The Civil Rights Act–Title VI of 1964 and Executive Order 12898 give guidance on identifying sensitive populations to ensure that individuals are not excluded from participation in, denied the benefit of, or subjected to discrimination under any program or activity on the basis of race, color, national origin, age, sex, and disability. Executive Order 12898 directs federal agencies to identify and address disproportionately high and adverse human health and environmental impacts on minority populations and low-income populations. For the purposes of this analysis, the poverty status and minority populations in the study area were compared to Washoe County and the State of Nevada. The percentage of people below the poverty threshold in Census Tract 9402 is 17.3% compared to Washoe County at 14.7% and State of Nevada at 11.1%. American Indians comprised 75% of the reservation population, well in excess of minority population in both Washoe County and the State of Nevada. The complete Environmental Justice analysis and conclusion are found in Appendix D - Environment Justice Review.

d. Indian Trust Assets

Indian Trust Assets are legal interests in assets held in trust by the US government for Indian tribes or individuals. Assets can be real property, physical assets, or intangible property rights. Indian Trust Assets cannot be sold, leased, or otherwise encumbered without the approval of the US government. A trust relationship is established through a congressional act or Executive Order, as well as by provisions identified in historic treaties. As trustee, the Department of the Interior is legally obliged to fulfill treaty and statutory obligations and to manage, protect, and conserve Indian Trust Assets and lands in utmost good faith.

Lands associated with a reservation, ranch, or public domain allotments are examples of Indian Trust Assets. Resources located on Native American reservations, including timber, minerals, oil and gas, or similar resources are also considered Indian Trust Assets. Treaty rights and water rights, as well as hunting and fishing rights, may also be Indian Trust Assets. Additional assets consist of financial capital in trust accounts.

e. Lifestyle and Cultural Values

The land comprising the Reservation was reserved for the PLPT in 1859 by the US Commissioner of Indian Affairs. In 1874, President Ulysses S. Grant signed an Executive Order confirming the status of the Reservation. It is governed by 10 Tribal Council members consisting of the Tribal Chairman, a vice-chairman, and eight Council members. The Council members are elected biannually in December and serve for staggered two-year terms. The Tribe operates under the Indian Reorganization Act Constitution and By-Laws approved on January 26, 1936, by the Department of Interior. The PLPT facilitates a government-to-government relationship with the federal government, which recognizes the federal trust responsibilities to the tribe.

There are three communities within the Reservation: Sutcliffe, Nixon, and Wadsworth. Nixon is the seat of the PLPT tribal headquarters and includes the tribal administration offices, housing authority, the tribal police, tribal court, and the Natural Resources Division. Sutcliffe is located on the west side of Pyramid Lake and is the main access location for recreational use of the lake. More than half of the Reservation population resides in Wadsworth. The town of Fernley is less than four miles from Wadsworth and provides several additional options for shopping,

dining, and employment. Interstate 80 is located just south of Reservation and provides an economic opportunity for commercial, transportation, and tourism enterprises.

Few, if any, tribal members of the PLPT pursue a traditional lifestyle consisting of subsistence hunting or fishing. Some Reservation residents have small agricultural assignments along the Truckee River, and some engage in ranching activities. However, most tribal members continue to pursue a lifestyle nearly identical to the non-tribal residents of the area with employment in Reno or Fernley, or with the tribal government.

The Reservation and its surrounding lands are the ancestral homeland for the Paiute people. The lake and many other sites have sacred and cultural importance to the tribe. The PLPT's ceremonial, cultural, and spiritual ties to the Creator are maintained through nature and natural resources it provides. Native American people are tied to the land and most still live in the area of their ancestral homelands. Tribal members use many species of plants for native foods, fiber, dyes, and medicine. Impacts to cui-ui fish is of utmost importance to the PLPT. The tribe gets its name, *Kooyooee Tukadu*, from historically having a diet largely based on the fish.

The Northern Paiute people who make up the tribe are located across the Great Basin, and Pyramid Lake is a traditional cultural center for the Paiute. The lands of the reservation are considered sacred and changes to the lands are held against potential sacred considerations or special values of a given site and its resources. Any land use or development must consider the desires and values of the tribal people and the potential impacts on their culture and heritage.

f. Community Infrastructure

Most major utilities are available on the Reservation, including electricity, telephone, cable, and sewer. Existing utilities in the vicinity of the project area include overhead power lines and an agricultural irrigation ditch. Transportation networks are discussed in 3.7(f).

3.7 RESOURCE USE PATTERNS

a. Hunting, Fishing, and Gathering

As one of the developed communities within the Reservation, the Nixon community is too populated and developed for hunting to be performed safely. Given the Bridge's proximity, which is less than one-half mile from the Nixon community facilities, the project area would be an unsafe place for firearms to be operated, and hunting opportunities would be degraded.

Fishing is far more popular than hunting on the Reservation. The Pyramid Lake fishery is renowned, consistently producing large trout. Pyramid Lake has been labeled the most beautiful desert lake in the US. These conditions attract a substantial number of fishermen, including tribal members and non-tribal members. The Truckee River, which is spanned by the Nixon Bridge, is also a valuable fishery and provides quality fishing opportunities.

Many members of the Reservation gather various species of plants for traditional foods, fibers, dyes, and medicines. The species needed for food and subsistence items are found in riparian and wetland, mountain, and desert habitat. The Pyramid Lake Indian Reservation Comprehensive Resource Management Plan⁴⁸ provides a partial list of the many species

⁴⁸ Pyramid Lake Paiute Tribe and Natural Resources Conservation Services, 2005

gathered by the tribe. Some of the species listed were observed by biologists from NDOT during surveys in May of 2013.

b. Timber Harvesting

There are no timber-harvesting operations on the Reservation. The project area contains several Fremont cottonwoods trees, which line both banks of the Truckee River in and around the Nixon Bridge. These trees are not managed for timber production.

c. Agriculture/Range Management

Small farms and ranching provide some income for the agricultural segment, dominantly through the sale of hay and cattle. Most agricultural land assignments are located near the Truckee River, where irrigation ditches are used for watering. Currently, approximately 935 acres of irrigated land are in production of forage crops and are operated by individual assignment holders.

The Range Management objectives of the PLPT are to provide a sustainable resource for the use of grazing of tribal livestock while maintaining and improving the natural resources of the PLIR. Livestock grazing utilizes approximately 302,844 acres of reservation land. The range units are designated for summer grazing and winter grazing and are administered by the Tribal Council and the Pyramid Lake Cooperative Cattlemen's Association. Livestock are owned by individual tribal members, and grazing privileges are allocated for designated units. Grazing is controlled as specified by the PLPT Livestock and Grazing Ordinance, which was adopted by resolution in 1990. Monitoring and administration are managed by the PLPT Environmental Department, with consultation/coordination with the Pyramid Lake Cooperative Cattleman's Association.

The overall goal of the range management program is to protect the natural resources and improve water quality of the waters within the reservation boundaries. The Tribe has worked in conjunction with EPA, USDA, and BIA programs to develop grazing units, fencing, and livestock water on the grazing units. Protection of riparian areas and improvement of river and riparian habitat have been consistent with these activities.⁴⁹

d. Mining

Several abandoned mines are located on the Reservation, but none are within the project area. There are no active mines on the Reservation. There are two commercial rock and mineral extraction areas on the Reservation. Neither of these extraction areas is located within the project area.

e. Recreation

No community parks or sporting facilities are located near the project site. Recreational fields and tennis courts are located a half-mile south of the Nixon Bridge at the Pyramid High School. The general area is somewhat developed, with irrigated pastures adjacent to the project area. More developed recreation facilities are associated with Pyramid Lake north of Nixon.

f. Transportation Networks

⁴⁹ Pyramid Lake Paiute Tribe On-line Publication, 2013, www.plpt.nsn.us

Arterial roads serve as the principal roadways on the Reservation, providing access from Reno, Sparks, and Interstate 80 to Pyramid Lake, Wadsworth, Nixon, Sutcliffe, and numerous locations north of the Reservation. SR 447 and 446 are the arterial roads that occur in the vicinity of Nixon. SR 447 begins at the intersection with I-80 in Wadsworth and continues north to Nixon and beyond. SR 447 crosses the Truckee River via the Nixon Bridge just south of the town. North of the bridge SR 446 branches off from SR 447 and continues northwest along Pyramid Lake to an intersection with SR 445.

SR 447 is the most likely route used by travelers destined for Pyramid Lake or points north of the Reservation who are coming from Fernley and locations farther east. The annual Burning Man event occurs north of the Reservation, and attendance is on the scale of tens of thousands of people. SR 447 is one of the two routes that almost all attendees of the event travel to reach the event site in the Black Rock Desert. Some attendees drive large vehicles to the festival, including buses and campers. Other attendees modify and decorate their vehicles; sometimes decorations can be sizable and protrude several feet or more from the vehicle. Heavy trucks also routinely use State Route 447 to access mineral exploration and mining sites north and northwest of the Reservation. Existing road are shown on Figure 1.

The remaining roads in the project area are paved, unpaved access roads and unpaved secondary roads. Secondary roads connect collector and arterial roads to various locations that are generally located outside of the Reservation boundary or to undeveloped locations on the Reservation.

The PLPT Transportation Plan⁵⁰ was developed to assist in identifying where road and transportation improvements on the Reservation were needed to provide sustainable future economic growth.

g. Land Use

The PLPT and Natural Resources Conservation Service prepared the Comprehensive Resource Management Plan (CRMP) for the PLIR in 2005.⁵¹ The plans builds on several other plans that had previously been developed for the Reservation, including the Pyramid Lake Paiute Tribe Transportation Plan and several 50-year land use plans specific to each community or resource area on the Reservation.

The CRMP for the PLIR is organized into eighteen planning regions, based on location, ecological sites and planned land use. Thirteen of these regions are planned for livestock grazing and wildlife use. The three communities (Wadsworth, Nixon, and Sutcliffe) are each a designated planning region. A separate region is defined for the Truckee River corridor and also for Pyramid Lake.

The CRMP planning process indicated land use was primarily open range for livestock grazing, residential areas, agriculture, and limited recreation. The Pyramid Lake Paiute Tribe has recently begun implementing land use plans for both the residential and grazing regions, and is actively planning improvements in the Pyramid Lake and Truckee River planning regions. In 1999, the PLPT Environmental Department began working with the Pyramid Lake Cattlemen's

⁵⁰ PLPT Transportation Plan, Ayala & Associates, 2004

⁵¹ Comprehensive Resource Management Plan for PLPT,
http://www.truckeeriverinfo.org/files/truckee/PLIR_CRMP_final090105.pdf

Association to update range unit boundaries and to implement new management strategies. The general land use plan used the new range management units as planning regions, and defined additional regions for the residential areas, river corridor, and lake regions.

There are several small in-holdings of private land within the reservation boundary, known as fee lands. The Tribe is acquiring these lands as they become available, and has also acquired adjacent lands that are part of their traditional homeland.

In 2001, the PLPT Economic Development Committee developed a 50-year land use plan for each of the residential communities. The plans address future growth and development through designated land use classes: agricultural land assignments, commercial use, commercial, recreation, industrial use, leased land, range land, residential, and open space (which includes the 100-year flood plain of the Truckee River).

According to the CRMP the project site is located within the Nixon Residential Community study area. Nixon is the seat of the PLPT Headquarters, and includes the Tribal Administration offices, Housing Authority, the Tribal Police, Tribal Court, and the Natural Resources Division, consisting of the Environmental Department and the Water Resources Department. Tribal facilities include a post office, the Tribal Visitor Center and Museum, the Head Start Program, Nixon Day Care, Pyramid Lake Health Clinic, Nixon Store, and the Pyramid Lake High School. The project area is located between Agricultural Land Use Classes to the north and south.

3.8 OTHER VALUES

a. Wilderness

There are no areas within the project area or the Reservation that have been designated as Federal Wilderness Areas. The nearest of these areas is the Desolation Wilderness, approximately 65 miles southwest of the project area, near Lake Tahoe in California. There are no designated Wild and Scenic Rivers within or near the project area.

b. Noise and Light

The project area is located in a rural setting with sparsely located residences north and south of the bridge. The closest residence is located on Corral Road approximately 400 feet to the north. Ranching and agricultural activities occur on both sides of the bridge and have very little impact on noise in the project area. The primary source of ambient noise would be from SR 447 as it crosses the Truckee River. Other dispersed, low, and intermittent sources include wind sounds and occasional maintenance of overhead utilities that run along the west side of SR 447.

There are no fixed, permanently mounted light sources in the project area. The only source of light shining directly into the project area is from vehicles traveling on SR 447.

c. Visual

The visual character of the project area is rural, undeveloped land with existing roads, overhead transmission lines, and a lineal pattern of cottonwood trees that line the banks of the Truckee River and perpendicular to the line of sight. The project area is slightly elevated over the surrounding floodplain and river views are afforded on either side of the highway. Due to

number of cottonwood trees and other understory vegetation, the project area is largely obscured from its surroundings.

d. Public Health and Safety

The Pyramid Lake Tribal Police and the Tribal Rangers are responsible for enforcement of laws on the Reservation. Fire suppression and control activities are the responsibility of the Pyramid Lake Fire Department. Police and fire departments from neighboring areas, such as Fernley or Sparks, provide support or additional services when necessary.

According to USEPA EnviroMapper,⁵² there are no potential hazardous materials concerns within the project area or surrounding vicinity. NDOT has seen no evidence of any past storage or spills of such materials in the project area. A large parking/maintenance yard is located approximately 200 feet south of the project area and some hydraulic and fuel leaks could be assumed.

The project location will not have an adverse effect on the project as it relates to hazardous materials. The contract documents will require adherence to all federal, state, and local laws, regulations and ordinances. The “hazardous materials and waste” component is an area of “no impact”.⁵³

The safety of the bridge is important to the traveling public, and it is especially important to tribal members because it represents access to emergency services in the Nixon area. As such, it is considered important to keep the bridge in good repair and protect it from scour. Closure of the bridge due to safety concerns would be detrimental to the tribe and the traveling public.

The river channel below the bridge is currently accessed by tribal members for informal recreational uses and any construction work temporary and permanent must be accomplished while insuring the safety of users. The use of the river for recreation such as boating is occasional and channel work may impact this activity. In the long term a key component of the project will be to slow river velocities and, as such, the project would not pose additional risk to this activity.

NDOT will assess any safety concerns with bridge crossings by pedestrians during the project design and implementation.

Greenhouse gases (water vapor, carbon dioxide, ozone, etc.) trap the sun’s energy in the earth’s atmosphere rather than allowing it to escape back to space. This phenomenon is commonly called the “greenhouse effect”. Without the greenhouse effect, the planet would be too cold to support life. Human-caused emissions of these gases are thought to raise the temperature of the earth’s atmosphere, a condition that could lead to undesirable environmental consequences. Transportation accounts for approximately 29 percent of the human-caused greenhouse gas emissions (FHWA, 2010). The project area is crossed by SR 447, which is a major transportation link for the reservation.

⁵² USEPA EnviroMapper: <http://www.epa.gov/emefdata/em4ef.html>

⁵³ NDOT Environmental Assessment Documentation, Hazardous Materials/Waste Analysis Tech Memo, August 5, 2013

4.0 ENVIRONMENTAL CONSEQUENCES

The following chapter discusses the consequences each alternative would have on the issue listed. This analysis includes likely beneficial and adverse effects on the human environment, including short-term and long-term effects, direct and indirect effects, and cumulative effects. Detailed consideration is given to those resources that have a potential for environmental effects. Interpretation of impacts in terms of their duration, intensity, and scale are provided where possible.

Cumulative effects are direct and indirect effects of a proposed project alternative's incremental impacts when they are added to other past, present, and reasonable foreseeable actions, regardless of who carries out the action.⁵⁴ Guidance for implementing NEPA requires that federal agencies identify the temporal and geographic boundaries within which they will evaluate potential cumulative effects of an action and the specific past, present, and reasonably foreseeable projects that will be analyzed. The bridge was constructed in 1972, riprap placed around piers in 1983, and construction of sheet piles encasements in 1984. Unless otherwise stated, the temporal boundary of analysis is from approximately 1997, when the latest scour protection riprap was placed at the bridge, to 2014. This boundary encompasses a range within which data are reasonably available and forecasts can be reasonably made. The geographic boundaries of analyses vary depending on the resource and potential effects.

Terms referring to impact intensity, context, and duration are used in the effects analyses. Unless otherwise stated, the standard definitions for these terms are as follows:

- *Negligible*: The impact is at the lower level of detection, and there would be a small change.
- *Minor*: The impact is slight but detectable, and there would be a small change.
- *Moderate*: The impact is readily apparent, and there would be a permanent measurable change.
- *Localized Impact*: The impact occurs in a specific site or area. When comparing changes to existing conditions, the impacts are detectable only in the localized area.
- *Short-term Effect*: The effect occurs only during or immediately after implementation of the alternative.
- *Long-term Effect*: The effect could occur for an extended period after implementation of the alternative. The effect could last several years or more and could be beneficial or adverse.

The nature and duration of effects of each alternative are as follows:

4.1 LAND RESOURCES

a. Topography

No Action Alternative

The No Action Alternative would not require the movement or importation of new fill material or grading of existing material within the project area. The No Action Alternative would not result in any changes to the Truckee River or the adjacent ground elevations within the project area. Therefore, the No Action Alternative would have no direct, indirect, or cumulative impacts on topography.

⁵⁴ Code of Federal Regulation, 40 CFR Part 1508.7

Proposed Action Alternative (Preferred Alternative)

Direct Impacts

The Proposed Action Alternative would require the importation of large riprap material and movement and grading of existing material within the project limits to fill scour holes and establish grades to provide desired velocities. The existing weir would be expanded and reinforced approximately 35 feet downstream of the bridge. The south bank will require work to key the weir into the bank. The large riprap will provide stability during the design event and prevent future scouring.

The channel lining will extend all the way across the channel bed from the toes of the existing gabion mats, will be toed down at the upstream face of the bridge to account for contraction and local scour, and will be tied into the rock weir that is located about 35 feet from the downstream face of the bridge. The proposed channel lining will extend approximately 180 feet downstream of the existing rock weir. This will fill most of the existing headcut, provide reinforcement for the existing rock weir, and provide a single gentle slope that will promote cui-ui spawning and allow the fish to pass under the bridge. In addition, boulders will be scattered through the north bay of the bridge (between the north pier and the north abutment) to give cui-ui resting places as they move upstream. The boulders will be larger than the Class 900 riprap used in the rest of the channel, and will require individual placement to guarantee that they are locked into the rest of the riprap as tightly as possible.

The existing rock weir downstream of the bridge appears to be dumped rock that is not formally designed to prevent flanking or undermining from downstream degradation or local scour. While the rock appears to be continuous with rock on the well-armored north bank, it is clearly not keyed into the left bank. The rock is sparse on the south bank and lies on top of a narrow bench of cohesive lacustrine material, which could become flanked by future erosion of the bench. Larger size Class 900 riprap will be added to the south bank and keyed into the existing rock gabions.

Therefore, the Proposed Action Alternative would have minor to moderate long-term direct impact on the topography with the project area.

Indirect Impacts

Potential indirect impacts on topography resulting from construction of the Proposed Action Alternative would consist of minimal changes, such as deposition of sediment as the channel equalizes to the new conditions. The reconstruction and improvement made to the weir would reduce river velocities and stabilize scour. Therefore, the Proposed Action Alternative would have both positive and negative minor-to-moderate indirect impacts on topography in the project area.

Cumulative Impacts

The minimal-to-moderate direct and indirect impacts associated with the construction of the Proposed Action Alternative would contribute incrementally to the past effects on topography from previous work on the existing weir and channel. Therefore, when considering the size of the project and other past, present and reasonably foreseeable future actions, the Proposed Action Alternative would result in only a minimal contribution to cumulative impacts on topography.

b. Soils

No Action Alternative

The No Action Alternative would not require ground disturbance in the project area. Therefore, the No Action Alternative would have no direct, indirect, or cumulative impact on soils.

Proposed Action Alternative (Preferred Alternative)

Direct Impacts

Under the Proposed Action Alternative, approximately 1.30 acres of bridge scour, construction-related soil disturbance would occur within the project area, including temporary construction easements that may include soil disturbance of up to 2.2 acres. The disturbed areas would include access point or roads to the bridge and river channel. Disturbance would include construction of temporary access roads, scour protection features, temporary channel diversion and slope grading as needed.

The Proposed Action Alternative would require excavation and grading of 9,640 cubic yards of existing material in the project area. Approximately 8,670 cubic yards of riprap will be imported for placement in the river channel. Some storage and staging of material will occur away from the river in previously graded sites at the rear of the Nixon Store (approximately 0.21 acre) and at the PLPT Maintenance Yard (approximately 0.60 acre).

Construction activities would result in temporary disturbance of soils in the project area and importation of riprap. The disturbed area would be stabilized through reseeding after construction activities are completed. NDOT is anticipating the need to stabilize all non-riprap slopes and plant riparian species post scour protection construction per regulatory requirements. Therefore, the Proposed Action Alternative would have a minor adverse direct impact on soils.

Indirect Impacts

Potential indirect impacts on soils resulting from the construction of the Proposed Action Alternative would be related to soil disturbance from construction activities after construction has been completed. Although erosion-control measures and reseeding would be implemented according to standard practices, some erosion might occur from rain and wind until the disturbed areas develop an erosion-resistant crust or vegetation begins to grow. The impact would be noticeable in the short term after construction but would diminish over time. Therefore, the Proposed Action Alternative would have minor adverse indirect impacts on soils.

Cumulative Impacts

The minor direct impacts associate with construction of the Proposed Action Alternative would contribute to the past effects on soil from previous bridge repair projects. The magnitude of human-caused erosion due to the scour protection project would be minor. Therefore, when considering the size of the project and other past, present and reasonably foreseeable future actions, the Proposed Action Alternative would result in a minor contribution to the cumulative impacts on the soils.

c. Geologic Setting and Mineral and Paleontological Resources

Under both the Proposed and No Action Alternatives, the geologic setting would not be modified and mineral resources would not be degraded because of activities in the project area. Paleontological resources are unlikely to be present. Therefore, construction or maintenance activities at the bridge associated with the Proposed or No Action Alternatives would have no direct, indirect, or cumulative impacts on geologic setting or on mineral and paleontological resources.

4.2 WATER RESOURCES

No Action Alternative

The No Action Alternative would not result in impacts on WOUS, ground disturbance, or use of construction water. Therefore, the No Action Alternative would have no direct, indirect, or cumulative impacts on water resources.

Proposed Action Alternative (Preferred Alternative)

Direct Impacts

Excavation, soil disturbance, and addition of fill materials within the jurisdictional limits of the Truckee River would occur under the Proposed Action Alternative, causing permanent and temporary impacts on jurisdictional WOUS. Approximately 0.94 acres would be permanently impacted because of construction activities within the Truckee River channel. Temporary impacts would occur from dewatering a portion of the existing channel while work is completed on portions of the channel. There are no wetlands areas associated with WOUS as all areas are riverine within the project limits.

Since impacts on WOUS include the use of riprap stabilization, the project would be authorized under USACOE. A 404 Nationwide Permit #3 Maintenance will be required based on the activity of placement of new or additional riprap to protect a structure. The placement of riprap will be the minimum necessary to protect and ensure the safety of the structure.

Pre-construction notification must be made to the USACOE District Engineer before construction activities could begin. Coordination with USACOE is ongoing. Because the project is located on Tribal lands, Clean Water Act Section 401 Water Quality Certification would be required from USEPA and PLPT before construction could begin. NDOT's contractor will be responsible for developing and implementing a stormwater pollution prevention plan (SWPPP) as well as applying for coverage under the USEPA-issued Construction General Permit. The purpose of the SWPPP is to prevent or reduce (to the maximum extent practicable) stormwater pollutant discharges from the construction site by the implementation of best management practices. NDOT will ensure that the appropriate language is included in the contract special provisions to address this requirement.

Under the Proposed Action Alternative, water would be required during construction for dust suppression, cleaning purposes, and soil compaction. It is anticipated that construction water would be obtained from nearby wells, canals, river or irrigation drains. Acquisition of construction water would be the responsibility of the contractor. The contractor would adhere to all applicable Tribal, state, and federal regulations when obtaining construction water. The

quantity of the water used for construction purposes would be minimal compared to quantities withdrawn from the groundwater table for agricultural, residential, and business use.

The Proposed Action Alternative would not likely cause a change in the 100-year flood elevation within the project area. The Proposed Action Alternative would have a limited, short-term effect on the Truckee River during construction but would have permanent effects on the velocity of the river at the bridge. Velocities would be reduced through the addition of large boulder to decrease velocity and provide resting areas for fish passage.

The Proposed Action Alternative is not anticipated to lead to further impairment of aquatic habitat in the lower Truckee River by either increasing water temperatures or elevating nitrogen, phosphorus, or TDS levels. Although temporary and short-lived pulses of sediment discharges could occur, particularly during river diversion setup and breakdown, water quality in the Truckee River would be protected through the use of best management practices and adherence to conditions set forth in the project's Section 401 and 404 permits and applicable National Pollutant Discharge Elimination System permits. Implementation of these practices and adherence to permit conditions would substantially decrease the potential for the project to elevate river water temperatures, nitrogen levels, phosphorus levels, and TDS levels.

The potential exists, however, that an unknown amount of mercury within floodplain deposits on the existing Truckee River bank or river bottom could be dislodged in the project area by project construction activities. Dislodging fixed deposits of mercury could result in increased risk of mercury contamination for aquatic life downstream of the project site, including fish in Pyramid Lake. Specific biochemical conditions are required for the methylation of elemental mercury to occur, such as can exist in some moist soils and certain types of wetland sediments.⁵⁵

Under the proposed action, recommended scour countermeasures for the bridge include lining the entire bed of the channel beneath the bridge with riprap and improving the existing rock weir that is located 35 feet downstream of the bridge. The proposed channel lining will extend approximately 180 feet downstream of the existing rock weir. These construction actions may have the potential for dislodging any existing deposits of mercury on the riverbank or river bottom. The potential for this, however, appears low because any mercury deposits created by past mining activities in the watershed have likely been disturbed by prior work in and adjacent to the river channel and by extensive scouring in the vicinity of the bridge caused by past high-flow events. The bridge was constructed in 1972, and the existing riprap weir was constructed to control river flows and to protect the bridge's piers and abutments. The bridge has had a history of significant scour issues related to past channel degradation, and a scour pool exists downstream of the existing weir. In 1983, the bridge's original pier pile caps were exposed by scouring, and rip rap was placed around the piers. In 1984, a sheet pile encasement was constructed and additional rip rap was placed around Pier 1 following a 1997 flood event. These activities involved bank disturbances and in-channel work in the study area. As a result, although no site-specific mercury-deposit data are currently available to determine whether the proposed project would disturb any existing mercury deposits in the study area, the potential appears to be low for increasing mercury contamination of the Truckee River downstream of the project area.

In summary, water quality in the Truckee River and the project area would be protected through the use of best management practices during construction. In addition, the conditions stipulated

⁵⁵ U.S. Environmental Protection Agency; 1997; Mercury Study Report to Congress, Volume 1: Executive Summary; <http://www.epa.gov/ttnatw01/112nmerc/volume1.pdf>.

in the project's Clean Water Act Section 401 and 404 permits would be followed to prevent degradation to surface water in the project area. Groundwater resources and 100-year floodplain would not be affected by construction. Therefore, the Proposed Action Alternative would have minor adverse direct impacts on water resources.

Indirect Impacts

Potential indirect impacts on water resources resulting from construction of the Proposed Action Alternative would be related to the potential for increased turbidity in the Truckee River due to erosion from disturbed areas after construction has been completed. Although erosion-control measures and reseeded areas would be implemented according to standard practice, some erosion might occur from storm events until these disturbed areas develop an erosion-resistant crust or vegetation begins to grow. The impact would be minimal and would diminish over time. Therefore, the Proposed Action Alternative would have negligible indirect impacts on water resources.

Cumulative Impacts

The minor adverse direct and negligible indirect impacts associated with construction of the Proposed Action Alternative would contribute to the previous effects on water resources from the original construction and subsequent protection measures for the Nixon Bridge. Continued agricultural- and ranching-related activities and grading activities within the Truckee River floodplain within the project area would likely result in continued soil disturbance. The magnitude of project-related human-caused erosion would be negligible compared to the magnitude of natural erosion occurring in the Truckee River watershed. Therefore, when considering the size of the project and other past, present, and reasonably foreseeable future actions, the Proposed Action Alternative would result in negligible contribution to cumulative impacts on water resources.

4.3 AIR QUALITY

No Action Alternative

Under the No Action Alternative, no temporary or long-term impacts on air quality would occur since construction activities would not be implemented. The No Action Alternative would not result in any meaningful increase in traffic volumes, vehicle mix, or any other factor that would cause an increase in emissions impacts. Therefore, the No Action Alternative would have no direct, indirect, or cumulative impacts on air quality.

Proposed Action Alternative (Preferred Alternative)

Direct Impacts

The Proposed Action Alternative would have no long-term effect on traffic volumes in the project area and would not result in any meaningful increases in traffic volumes, vehicle mix, or any other factor that would cause a long-term increase in emissions impacts. Therefore, the Proposed Action Alternative is not anticipated to cause any adverse air quality effects and will not cause a violation of the NAAQS.

There could be short-term, localized increases in the ambient concentrations of CO during construction. This will be due to the slowing of traffic in construction zones and also to

emissions from construction equipment. However, these CO increases would be temporary and would not cause long-term adverse effects. Contractors are required by NDOT to comply with federal, state, and local regulations for the control of air pollution, including those that prohibit idling of diesel-powered vehicles.

Emissions of fugitive dust are possible during construction. The resulting increases of particulate matter concentrations would be temporary and would not cause long-term adverse effects. Contractors are required by NDOT to comply with the dust control regulations and to obtain relevant air quality permits.

Existing federally enforceable control measures for nitrous oxides and volatile organic compounds will limit the formation of ground-level ozone. These control measures include the new diesel and gasoline engine emissions standards and also new standards for gasoline and on-road diesel fuel.

The Proposed Action Alternative has not been linked with any special MSAT concerns or any factor that would cause an increase in MSAT different from that of the no-build alternative.

Indirect Impacts

No potential indirect impacts on air quality resulting from consideration of the Proposed Action Alternative have been identified.

Cumulative Impacts

The Proposed Action Alternative will not have any adverse air quality effects, and will not cause a violation of the NAAQS. Therefore, the Proposed Action Alternative would have no cumulative impact on air quality.

4.4 LIVING RESOURCES

a. Ecosystems and Biological Communities

No Action Alternatives

The No Action Alternative would not result in impacts on wildlife habitat or vegetation in the project area. Therefore, the No Action Alternative would have no direct, indirect, or cumulative impacts on ecosystems and biological communities.

Proposed Action Alternative (Preferred Alternative)

Direct Impacts

The Proposed Action Alternative would not have a permanent impact on the project site. In order to complete construction of the project components some temporary access roads are required. There would be no change in species composition as a result of the construction, and the Proposed Action Alternative would not change or otherwise impact the ecosystem as a whole. Temporary short-term construction disturbances would be reclaimed. Reclamation would include reseeding disturbed areas to restore vegetation cover. Several years would be required before reclaimed vegetation resembled surrounding vegetation unaffected by the project. Riparian restoration (willow, cottonwood plantings) along the Truckee River is typically

required by the USFWS and NDOW for projects requiring tree removal to access the work site. NDOT is anticipating the need to stabilize all non-riprap slopes and plant riparian species post scour protection construction per regulatory requirements.

Placement of riprap scour protection will require a river diversion, allowing construction within approximately one half of the river bottom. Once one side of the river is complete, a river diversion will be placed on the opposite side of the river to complete the work. Prior to dewatering the river diversions, fish salvage will be performed to insure no federally listed fish species and state-protected bats are present within the project area. Construction will occur during the fall months to avoid any impacts to federally listed fish species and bats. Therefore, the Proposed Action Alternative would have no direct impacts on ecosystems or biological communities.

Indirect Impacts

No potential indirect impacts on ecosystems and biological communities resulting from the Proposed Action Alternative would be expected.

Cumulative Impacts

Agriculture, ranching, and previous construction activities have converted and degraded areas of natural vegetation in the project vicinity. The Proposed Action Alternative would not permanently impact the project area or alter the overall ecosystem. When considered with past, present, and reasonably foreseeable future actions, the Proposed Action Alternative would result in a negligible cumulative impact on ecosystems and biological communities.

b. Vegetation

No Action Alternative

Under the No Action Alternative, disturbance to vegetation would not occur. Therefore, the No Action Alternative would have no direct, indirect or cumulative impacts on vegetation.

The Proposed Action Alternative (Preferred Alternative)

Direct Impacts

The construction of scour protection for the bridge would not result in permanent loss of project area vegetation. Construction activities, including the temporary access roads would result in temporary disturbance to existing vegetation. Temporary short-term construction disturbances would be reclaimed. Reclamation would include native seeding of disturbed areas to restore native vegetative cover and planting of containerized plants, and pole planting of willows and cottonwood. Several years would be required before reclaimed native vegetation resembled surrounding vegetation unaffected by the project. Riparian restoration (willow, cottonwood plantings) are typically required by the USFWS and NDOW when working in the Truckee River and a project requires tree removal to access the work site. NDOT is anticipating the need to stabilize all non-riprap slopes and plant riparian species post scour protection construction per regulatory requirements. Therefore, there would be a short-term, minor adverse direct impact on vegetation from the Proposed Action Alternative.

Indirect Impacts

Potential indirect impacts on vegetation resulting from construction of the Proposed Action Alternative would be related to the potential for increased deposition of sediment on areas downhill of the project area. Although erosion-control measures and reclamation would be implemented, some erosion might occur from storm events. If severe, erosion may mobilize sediment capable of burying vegetation, especially forbs, at downhill locations where deposition may occur. The potential adverse indirect impacts are unlikely but would persist until disturbed areas develop an erosion-resistant crust or reclamation vegetation begins to grow. The impact would be minimal and would diminish over time. The indirect impacts on vegetation resulting from the Proposed Action Alternative would be negligible and short-term.

Cumulative Impacts

Agricultural, ranching and previous construction projects have converted and degraded areas of natural vegetation in the project vicinity. The Proposed Action Alternative would not permanently impact the project area, while the majority of project-related impacts would be temporary and short-term in nature. Therefore, when considered with past, present, and reasonably foreseeable future actions, the Proposed Action Alternative would result in a negligible cumulative impact on vegetation.

c. Wildlife

1. General Wildlife

No Action Alternative

The No Action Alternative would not result in any direct, indirect, or cumulative impacts on general wildlife.

Proposed Action Alternative (Preferred Alternative)

Direct Impacts

The Proposed Action Alternative would not have a permanent impact on general wildlife within the project area. The greatest direct effect from this proposal is to mammalian and reptilian species with low mobility. Soil disturbance and excavation destroys animal burrows, injuring or killing trapped animals. Mobile animals would be displaced by the excavation activities, resulting in loss of cover, forage, and travel routes.

Displacement into surrounding habitats already at population capacity would result in mortality increases not only to individuals displaced, but to resident populations being encroached upon. Direct effects to wildlife from habitat removal and disturbance include population reduction from loss of individuals through direct death and harassment which can reduce reproduction potential.

Loss of potential nesting, perching and foraging areas may impact resident and migratory birds. Ground clearing activities during avian breeding season (roughly May 1 to July 31) would have the highest potential impact to nesting birds. Direct effects to migratory birds would be minimized by recommending that land clearing activities do not occur during avian breeding season. If land clearing activities must occur during that time, avian nesting surveys would be conducted by a qualified biologist within ten days before new land disturbance. If nesting sites

are found, an appropriate avoidance area would be established around the nest site. The buffer area would be at least 200 feet, but may be greater based on the species. Therefore, the Proposed Action Alternative would have negligible direct impacts on wildlife.

Indirect Impacts

Indirect effects of the dust, noise and vibration caused by construction activities may cause terrestrial and avian species to abandon adjacent habitat they currently use for forage, cover, and nesting. Construction operations could cause resident and migratory animals to avoid the area, altering their movement patterns into unfamiliar territory, which could increase their risk of exposure to injury and predators. Therefore, the Proposed Action Alternative would have negligible indirect impacts on wildlife.

Cumulative Impacts

Cumulative effects of habitat fragmentation from all types of ground disturbing activities, including gravel pit operations, mining, power stations and transmission lines, and commercial and residential development reduce the area available to wildlife, restrict or alter their movement, and can expose animals to higher risks of death, injury, and illness. Habitat fragmentation impacts would be minimized by confining the new disturbance to an area adjacent to a roadway. Therefore, the Proposed Action Alternative would have negligible cumulative impact on wildlife.

2. Threatened, Endangered, Sensitive Species and State Protected Species

No Action Alternative

The No Action Alternative would not result in any direct, indirect, or cumulative impacts on threatened, endangered, sensitive species and state protected species.

Proposed Action Alternatives (Preferred Alternative)

Direct Impacts

USFWS has determined that the Lahontan cutthroat trout, a federally-listed threatened species, and the cui-ui, a federally-listed endangered species, may occur in the project area. Section 7 of the Endangered Species Act of 1973 requires that a Biological Assessment be prepared to determine if the listed species may be affected by the proposed action. As required, a Biological Assessment was prepared for the Proposed Action Alternative. The assessment, along with the resulting Biological Opinion issued by USFWS, are included in *Appendix B, Biological Assessment and USFWS Biological Opinion*. While both Lahontan cutthroat trout and cui-ui were considered in the Biological Assessment and the Biological Opinion, the primary focus was on effects on cui-ui under the understanding with the USFWS that cui-ui is more limited in movements and behaviors and is in greater peril than the Lahontan cutthroat trout, and that any measures required to protect cui-ui would also protect the Lahontan cutthroat trout.

Under the Proposed Action Alternative, all construction activities would occur in the fall months when species reside within Pyramid Lake. Fish salvage would be performed prior to dewatering to ensure no listed fish species are harmed. Construction activities would maintain or improve target velocities for fish passage. High velocity flows over the weir can cause cui-ui to accumulate downstream of the weir, increasing the susceptibility of predation by American

White Pelicans. Placement of scattered boulders within the project area will further slow velocities and provide resting areas for cui-ui. The PLPT have indicated that cui-ui are passing the current structure and are being found upstream of the project area.⁵⁶

As discussed in greater detail in the Biological Assessment, direct physical injury or mortality as a result of equipment entering the Truckee River channel for installation and removal of the temporary river diversion and during the dewatering process is the most likely, immediate potential impact. The probability of physical injury or mortality to larvae, juvenile, or adult cui-ui is not expected due to in-stream construction activities occurring outside of the designated spawning window (April through July). The placement of large boulders along the northern channel will help accommodate fish spawning though the project area post construction. Spawning habitat immediately downstream of the bridge and weir structures is expected to improve due to the placement of gravel conducive to spawning.

In addition, direct, short-term impacts on Lahontan cutthroat trout and cui-ui, including the potential for incidental take, are possible from other construction-related effects, including sedimentation and turbidity, compaction, and habitat displacement and dewatering and watering of work areas. The installation and removal of silt-fences, and heavy precipitation events could also mobilize sediments and increase turbidity. However, due to the timing of construction, it is considered highly unlikely that Lahontan cutthroat trout or cui-ui of any life stage will be in the project area during the fall construction season. (For more discussion of these effects, see the Biological Opinion in *Appendix B – Biological Assessment and USFWS Biological Opinion*.)

Given the slight potential for cui-ui to occur within the project area, the overall poor habitat for cui-ui within the project area, and the mitigation measures in place to limit direct and indirect effects to cui-ui from the Proposed Action, the Biological Assessment determined that the project “May Affect, Is not Likely to Adversely Affect the Cui-ui” (*Appendix B – Biological Assessment and USFWS Biological Opinion*).

As noted in USFWS’s biological opinion, the likelihood of encountering Lahontan cutthroat trout or cui-ui of any life stage during project implementation is very low. Project-related impacts to habitat are anticipated to be moderate to low, with a long-term beneficial improvement to fish passage through the construction area from enhancement of the head cut structure. In its Biological Opinion, USFWS concluded that implementing the proposed action, with mitigation, is not likely to jeopardize the continued existence of the Lahontan cutthroat trout or cui-ui. No critical habitat has been designated for Lahontan Cutthroat Trout or cui-ui; therefore, none will be affected.

In addition to the presence of protected fish species in the Truckee River, BLM-sensitive and state-protected Brazilian Free-tail Bats roost under the present bridge deck. The roost for the bats, however, will not be disturbed during the proposed construction work. The proposed project construction is limited to the riverbed and there will be no work on the bridge deck. Timing for the construction and associated disturbances should occur outside the active periods for bats (7:00 PM to 7:00 AM) and outside of the maternity season (generally June-August).

With mitigation, the proposed Action Alternative would have no significant direct impacts on threatened, endangered, sensitive species and state-protected species.

Indirect Impacts

⁵⁶ Beverly Harry, PLPT Inter-Disciplinary Team (IDT) 2014

Anticipated future expansion of the Lahontan cutthroat trout population within the Truckee River basin is likely to result in large numbers of migratory (spawning) adults moving upstream from Pyramid Lake, passing through the project area. The Proposed Action Alternative, however, would benefit these Lahontan cutthroat trout by enhancing conditions for passage through the project area.

Potential indirect impacts on cui-ui include the possibility of the riprap armoring to move in very large flood events, reducing the ability of cui-ui to pass over the rock weir. The placement of large scattered boulders along the north side of the Truckee River, however, will help to mitigate and provide rest areas allowing cui-ui to pass the armored section of riverbed.

Based on the timing of construction (fall months), construction will not interfere with the roost of BLM-sensitive and state-protected Brazilian Free-tail Bat, and no indirect effects on bats are anticipated.

The Proposed Action Alternative would have no significant indirect impacts on threatened, endangered, sensitive species and state protected species.

Cumulative Impacts

There are multiple agricultural diversions within the Lower Truckee River within PLIR land for irrigation purposes. PLIR diversion structures upstream of the project site include Herman, Pierson, Proctor, Ollinghouse 1, Fellnagle, Gardella, Ollinghouse 3 and the Numana Dam. At this time there are no planned State projects within the PLIR that would impact the Truckee River. The PLIR is a sovereign nation governed by PLPT; therefore, the State has no jurisdiction outside of the NDOT ROW along highways SR 445, SR 447, and SR 446.

A number of reasonably foreseeable future recreational activities on private land within the study area will continue to affect Lahontan cutthroat trout and cui-ui habitat, including boating, angling, and swimming activities. As noted in USFWS's Biological Opinion, however, the extent of future habitat impacts is unknown at this time. Additionally, fishing for cui-ui by non-tribal members is prohibited by PLPT regulations and the Endangered Species Act. Cui-ui fishing by PLPT members is regulated by the Tribal Council under a separate resolution.

Future federal actions occurring in the study area, such as USACOE's proposed Truckee Meadows Flood Control Project, would require separate consultation with USFWS pursuant to Section 7 of the Endangered Species Act, resulting in mitigation for any adverse effects.

With mitigation, the Proposed Action Alternative would have no significant cumulative impacts on threatened, endangered, sensitive species and state-protected species.

3. Migratory Birds

No Action Alternative

The No Action Alternative would not result in any direct, indirect, or cumulative impacts on migratory bird species.

Proposed Action Alternatives (Preferred Alternative)

Direct Impacts

Although nearly every species of bird in Washoe County is protected by the Migratory Bird Treaty Act, and hundreds of these species could potentially occur in habitat found in the project area, environmental protection measures, including pre-construction nesting surveys during the migratory bird nesting season and avoidance of nests located during the survey, would reduce potential effects on migratory birds. As a result, the Proposed Action Alternative would have no direct impacts or cumulative impacts on migratory bird species.

Indirect Impacts

The Proposed Action Alternative would have no indirect impacts or cumulative impacts on migratory bird species.

4.5 CULTURAL RESOURCES

a. Historic, Cultural and Religious Properties

The project area is well-developed highway right-of-way consisting of built-up earthen grades, steep improved shoulders, and utility and drainage infrastructure. All these areas exhibited moderate to severe ground disturbance. Construction and maintenance of the road and bridge have resulted in the APE being subjected to grading and cut and fill. The area southeast of the bridge was previously used as a temporary detour for bridge rehabilitation in 1983. The area on the southwest side of the bridge was tilled and leveled agricultural lands, with abundant evidence of bioturbation in the form of gopher mounds.

No previously recorded archaeological sites were identified in the APE. One isolate, one prehistoric site (WA3074), and two historic sites (WA9656 and WA9758) were identified during the pedestrian survey. No historic structures are located within the APE. A prehistoric site was previously identified south of the APE (26WA3074) and an avoidance area was established.⁵⁷ This avoidance area will be maintained. At this time, that site is fenced along the road and bound by a large irrigation ditch on the north. Site WA9656 is an historic site that was determined not eligible. Site WA9758 is an historic road that remains unevaluated, and an avoidance area was established.

FHWA found there will be “No Adverse Effect”.⁵⁸ The THPO letter of August 8, 2014, concurred with FHWA’s determination for the proposed action of Scour Mitigation for Bridge B-1351 on SR 447 (*Appendix C – THPO Concurrence Letter*).

b. Archaeological Resources

There would be no direct, indirect, or cumulative impacts on archeological resources from the No Action Alternative or the Proposed Action Alternative. Should archeological resources be discovered during construction, all work in the vicinity of the discovery shall cease and procedures as outlined in Section 5.0, Mitigation Measures, shall be implemented.

⁵⁷ Matranga, Peter F., 1987, *Archeological Survey of SR 447 (WA-16.00 to 74.63) From Nixon to Gerlach Washoe County NV*, Prepared by NDOT. Report WA088-86R

⁵⁸ Code of Regulations, 36 CFR 800.4(d)(1)

c. Section 4(f)

There is no publicly-owned public park, recreation area, or wildlife and waterfowl refuge, or any significant historic site in the project area; therefore, there is no Section 4(f) involvement with the construction of the project.

There would be no direct, indirect, or cumulative impacts on Section 4(f) properties from the No Action Alternative or the Proposed Action Alternative.

4.6 SOCIAL-ECONOMIC

a. Employment and Income

No Action Alternative

The No Action Alternative would not provide temporary jobs or income for the tribal community. Therefore, the No Action Alternative would have no direct, indirect, or cumulative impacts on employment or income on the Reservation. However, moderate-to-short-term impacts may be expected if scour protection is not provided to the Nixon Bridge and it is eventually closed due to safety concerns. Since a large number of Nixon residents and other residents of the PLIR utilize the Nixon Bridge, any disruption due to bridge closure would result in much longer commutes to reach the Reno Sparks areas as well as areas in the southern portion of the PLIR. This detour would result in lost time, cost of goods may increase, and recreation opportunities would be limited.

Proposed Action Alternative (Preferred Alternative)

Direct Impacts

The Proposed Action Alternative would not be expected to create new employment opportunities for members of the PLPT or other individuals because existing road construction crews would construct the bridge scour countermeasures. Although speculative, members of the construction crews may purchase food, tobacco, batteries or other light construction materials, and/or gasoline for personal vehicles driven to and from the site from the Interstate 80 Smoke Shop and the Nixon Store. These types of purchases would have a positive direct impact to the local economic base and income on the Reservation that is likely to be short-term and negligible.

Since it is anticipated that a contractor will be hired by NDOT to perform the work, there may be opportunities for Tribal members to be employed by the contractor. In accordance with Pyramid Lake Tribal Code Title 7, Construction Contract Code, all construction contracts and sub-contracts involving construction that will take place within the reservation will utilize Indian employment. Therefore, the Proposed Action Alternative would have minor, direct impact on employment and income that is positive.

Indirect Impact

The continued maintenance and safety of the bridge provides the tribe with a direct connection to larger metropolitan areas that are job centers for the region. Therefore, the Proposed Action Alternative would have minor positive, long-term indirect impacts on employment and income.

Cumulative Impacts

The negligible, short-term impacts of the Proposed Action Alternative would not be expected to have any cumulative impacts on employment or income.

b. Demographic Trends

The No Action and Proposed Action Alternatives would have the same potential effects on demographic composition and trends. PLPT is a sovereign nation composed almost entirely of tribal members. No displacement of residents or disproportionate impact on protected populations would occur as part of either alternative. The entire population of Nixon would be equally affected by the No Action or Proposed Action Alternative. Therefore, there would be no direct, indirect, or cumulative impact on demographic composition and trends from the No Action or Proposed Action Alternatives.

c. Environmental Justice

No Action Alternative

The No Action Alternative would not have any adverse or positive impacts on any minority or low income populations. The No Action Alternative would result in no direct, indirect, and cumulative impacts on environmental justice.

Proposed Action Alternative (Preferred Alternative)

The population of Nixon and the Reservation is stable and identified as a minority and low-income population (*Appendix D – Environmental Justice Review*). The Proposed Action Alternative would not directly change the population or growth trends of the area. The proposed project would impose no barriers to social interaction or community functions and would not bisect or isolate any neighborhoods or group of people.

Traffic movement between Nixon, Wadsworth and Sutcliff would be maintained at all time for the tribe and general public. Therefore, the Proposed Action Alternative would have a negligible direct, indirect and cumulative impact on environmental justice.

d. Indian Trust Assets

The proposed project would physically affect Reservation lands in the immediate project area as a result of negligible-to-moderate impact on topography, soils, vegetation, and wildlife. Indian Trust Assets, including all treaty rights, water rights, hunting and fishing rights, mineral rights, and so on, would not be impacted from implementation of the proposed project. Therefore, there would be no direct, indirect, or cumulative impacts on Indian Trust Assets from the No Action or Proposed Action Alternatives. As discussed in the alternatives section, the Preferred Alternative best addresses the bridge scour problems and requires the least amount of Tribal land.

e. Lifestyle and Cultural Values

The Proposed Action Alternative would not preclude tribal members from using SR 447 or the Nixon Bridge during the scour countermeasure project. There would be no loss of access to reservation residences, amenities, or places of work. Additionally, the Proposed Action

Alternative would not significantly affect culturally sensitive species such as Big Basin Sagebrush. Therefore, there would be no direct, indirect or cumulative impacts on lifestyle or cultural values from the No Action or Proposed Action Alternatives.

f. Community Infrastructure

The No Action and Proposed Action Alternatives would not require the relocation power poles, irrigation canals, or other infrastructure. Project construction would require working within the channel of the river, including work on the river banks and use of dewatering practices to accomplish the scour countermeasures project. Therefore, there would be no direct, indirect, or cumulative impacts on Community Infrastructure.

4.7 RESOURCE USE PATTERNS

a. Hunting, Fishing, and Gathering

No Action Alternative

The No Action Alternative would not result in any activities that would impact, alter, or otherwise influence hunting, fishing, or gathering. There would be no direct, indirect or cumulative impacts on hunting, fishing, or gathering as a result of the No Action Alternative.

Proposed Action Alternative (Preferred Alternative)

Fishing and recreational opportunities may be temporarily affected during the construction of scour countermeasures project. During construction fishing access may be limited due to safety concerns, but these access issues would be temporary. River turbidity will increase during scour countermeasure activity, which may temporarily affect downstream fishing. With the proximity of homes, hunting is not an issue at this location. Due to grade changes and difficulty in access, gathering of plants in this location is not deemed to be practical activity. Therefore, there would be no direct impacts to hunting and gathering and a negligible, adverse direct impact to fishing.

Indirect impacts of the Proposed Action Alternative would be avoided by implementing best management practices for erosion control and accidental spills during construction. This would protect the Truckee River from any potential degradation from surface water runoff and spills from within the project area following a storm event. Therefore, there would be no indirect or cumulative impacts on hunting, fishing and gathering.

b. Timber Harvesting

There are no commercial timber-harvesting operations on the Reservation. The project area does not contain forest or any areas managed for timber production. Therefore, there would no direct, indirect, or cumulative impacts on timber-harvesting activities from the No Action Alternative or the Proposed Action Alternative.

c. Agriculture

No Action Alternative

The No Action Alternative would not impact or otherwise influence agricultural activities in the project area; therefore, the No Action Alternative would have no direct, indirect, or cumulative impact on agriculture.

Proposed Action Alternative (Preferred Alternative)

Direct Impacts

Direct impacts to agricultural production could result from the need for Temporary Construction Easements (TCEs), which will be necessary to provide access to the river along the southwesterly side of the project during construction. The TCE will allow access to the existing rock weir, abutments and existing concrete pile caps that protect the concrete pile foundation of the bridge in the river. This easement is approximately 0.10 acres in size and will be necessary during the construction phase of the project which is anticipated to be during October and November when the flows are lowest in the river.

Since the planned construction window is in the late fall, after the growing/irrigation/harvesting season is over, there should not be an impact to irrigated or harvested crops.

The tribe will be compensated for use of the TCEs and for any agricultural crop loss that occurs from construction activities associated with the Scour Prevention Project, as directed in the Uniform Act (Uniform Relocation and Assistance and Real Property Acquisition Policies Act of 1970 and amended in 1987). Therefore, the Proposed Action Alternative would have a minor direct impact on agriculture.

Indirect Impact

The use of the TCE's may result in the disturbance of native vegetation, but those disturbed areas will be restored back to their original state. Where existing agricultural roads are used, they will remain as roads for agricultural purposes. Therefore, the Proposed Action Alternative would have negligible, long-term indirect impacts.

Cumulative Impacts

The negligible, short-term impacts of the Proposed Action Alternative would not be expected to have any cumulative impacts on agriculture.

d. Mining

There are no active or abandoned mining operations within the project area. Therefore, there would be no direct, indirect, or cumulative impacts on mining activities from the No Action Alternative or the Proposed Action Alternative.

e. Recreation

No Action Alternative

The No Action Alternative would not result in any activities that would impact, alter or otherwise influence recreation in the project area.

Proposed Action Alternative (Preferred Alternative)

The area adjacent to the bridge has been and will continue to be used as an informal access to provide recreation at the river. Although there may be temporary access restrictions for safety reasons, there will be no closure of access to the river. Current access and recreational opportunities would continue under the Proposed Action Alternative. There are no Section 4(f) properties in the project area, such as publicly owned parks, recreation areas, wildlife and waterfowl refuges, or public and private historic sites. Therefore, there will be no direct, indirect, or cumulative impacts on recreation.

f. Transportation Networks

No Action Alternative

Direct Impacts

The No Action Alternative would have no direct impacts on SR 447 or any other roadway within the PLIR.

Indirect Impacts

The selection of the No Action Alternative would result in no scour protection for the bridge and may eventually result in an unsafe structural condition. If the bridge cannot be maintained and is assessed as unsafe due to structural deficiency, the result would be closure of the bridge, which would prevent north south travel on US 447. This would have indirect effects on existing traffic patterns, mix, or volume on roads in the area. If the bridge would be closed due to unsafe conditions, there would be economic impacts on the residents of the town of Nixon in the form of increased commute times and loss of income from recreation/tourism and special events such as Burning Man Festival. Therefore, if the bridge were to be closed due to unsafe conditions, there would be a moderate indirect impact.

Cumulative Impacts

The No Action Alternative would have no cumulative impacts on transportation networks within the PLIR.

Proposed Action Alternative (Preferred Alternative)

Direct Impacts

The Nixon Bridge and SR 447 would remain open during the construction period since the scour protection does not involve the bridge deck. Minor inconveniences or delays to motorists may result from construction, with an increase in work-related haul trucks.

The Proposed Action Alternative would repair and provide a means to continually maintain the bridge, allowing unimpeded access along SR 447. Therefore, the Proposed Action Alternative would have a moderate beneficial direct impact on the transportation.

Indirect Impacts

Construction of the Proposed Action Alternative could result in some inconvenience to those traveling SR 447 in the vicinity of the bridge, due to delays caused by haul trucks. The delays

would primarily be on the section of the highway between the Nixon Store or PLPT Maintenance Yard (staging areas) and the river access points on both sides of the bridge. Therefore, the Proposed Action Alternative would have a negligible indirect impact on transportation.

Cumulative Impacts

The Proposed Action Alternative would not increase traffic volumes or alter the existing traffic mix within the cumulative effects analysis area. The temporary delays and inconveniences that would occur during construction would not have a cumulative impact on transportation. Therefore, no cumulative impacts would result from the Proposed Action Alternative.

g. Land Use Patterns

No Action Alternative

The No Action Alternative would not affect any existing land use patterns. Therefore, the No Action Alternative would have no direct, indirect, or cumulative impacts on land use patterns.

Proposed Action Alternative (Preferred Alternative)

The Proposed Action Alternative would not result in any changes to existing land use patterns. However, a small amount of ROW and Temporary Construction Easements would be necessary to complete the work. Therefore, the Proposed Action Alternative would have no direct, indirect, or cumulative impacts on land use patterns.

4.8 OTHER VALUES

a. Wilderness

There are no federally designated wilderness areas or others with wilderness characteristics present within the project area. Therefore, the No Action Alternative and Proposed Action Alternative would have no direct, indirect or cumulative impacts on wilderness.

b. Noise and Light

No Action Alternative

The No Action Alternative would not have any direct, indirect or cumulative impacts on existing ambient or traffic noise or light within the project area or near the project area.⁵⁹

Proposed Action Alternative (Preferred Alternative)

The Proposed Action Alternative would not have any direct, indirect, or cumulative impacts on existing ambient or traffic noise within or near the project area. Project-related noise would consist of short-term construction-related noise. Construction noise would be temporary and intermittent, and would primarily occur below the river deck at the river channel.

There will be no permanent project lighting as part of the Proposed Action Alternative. Since the project will not affect the bridge deck or US 447, noise will be temporary and localized.

⁵⁹ NDOT Environmental Assessment Documentation, Traffic Noise Analysis Memo, 8/15/13

Therefore, the Proposed Action Alternative would have no direct, indirect or cumulative impacts on noise or light on the project area.

c. Visual

Since all project work will be accomplished within the river channel, the project will not be visible from vehicles traveling along US 447. Pedestrians on the bridge may notice a small area of rapids created by the project, but this would not be appreciably different than what is now created by the existing weir. Therefore, the No Action Alternative and Proposed Action Alternative would have no direct, indirect or cumulative impacts on visual resources.

d. Public Health and Safety

There are no documented hazardous waste sites found to be located within the project area. The project will not have an adverse effect on the environment. The “hazardous materials and waste” component is an area of “no impact”⁶⁰. Therefore, the No Action Alternative and Proposed Action Alternative would have no direct, indirect or cumulative impacts on public health and safety.

5.0 MITIGATION MEASURES

5.1 PROJECT MITIGATION

In order to reduce or eliminate negative affects to the Human Environment, the following mitigation measures, including Best Management Practices, will be incorporated into the design and consultation of the Proposed Action Alternative, if it is selected.

- NDOT will adhere to and implement all regulatory requirements, best management practices, and mitigations detailed in the Biological Assessment (see *Appendix B – Biological Assessment and USFWS Biological Opinion*). These include the stormwater pollution prevention plan, river diversion and dewatering plan, water quality monitoring/sampling plan, equipment contamination and fueling procedures, spill contamination and clean-up procedures, and best management practices detailed in Section 2.3 of the Biological Assessment, as well as the additional mitigation measures described in Section 5.3 of the Biological Assessment.
- NDOT will adhere to the Reasonable and Prudent Measures, Terms and Conditions, and Reporting Requirements set forth in the Biological Opinion issued by USFWS (*Appendix B – Biological Assessment and USFWS Biological Opinion*).
- Water will be applied as needed to control dust during all phases of construction. Areas included are access roads, construction site, staging area(s) and any other areas contributing to dust production as a result of the proposed project. A dust control permit will be required through the Washoe County Air Quality Management Division.
- Prior to construction activities in the Truckee River channel, a Section 404 Nationwide Permit #3 Maintenance will be obtained from USACOE. NDOT will adhere to all terms and conditions of the permit to ensure the project does not violate state and federal water quality standards.

⁶⁰ NDOT Environmental Assessment Documentation, Hazardous Materials/Waste Analysis Tech Memo, 8/5/13

- All monitoring requirements of the applicable permits and certifications for water quality shall be met by NDOT. If permits and certifications are violated, NDOT will immediately halt construction activities and implement corrective actions before construction resumes.
- Timing for construction and associated disturbances should occur outside the active periods for bats and outside of the maternity season (generally June-August).
- At one month prior to project construction, a final draft of the river diversion and dewatering plan, water quality monitoring and sampling plan, and fish salvage plan, provided by NDOT's contractor, would be provided to the PLPT, USFWS, USACE, and NDOT Environmental Services Division. These plans would fully address concerns or issues identified by the agencies prior to finalizing the plans and implement them accordingly. The fish salvage plan, if using electrofishing, would follow appropriate USFWS guidelines.
- Prior to rewatering, all construction debris would be removed from the dewatering zone.
- For the entire project, separate reports would be provided detailing construction activities in the area (post-construction reports). The report for the river encroachment zone will include, at a minimum:
 - A summary demonstrating compliance with all applicable tribal and federal requirements specified in all water quality permits and certifications and BMP activities during the entire construction season.
 - A map of areas that were dewatered and associated dewatering activities.
 - Results of fish salvage operations (e.g. timing and methods used, fish species, numbers, condition, and presence of any tags) during river dewatering activities.
 - A detailed assessment (including photographs) comparing the configuration and placement of design to as-built conditions for all features.
 - Any known adverse effects to cui-ui resulting from the proposed project construction activities, including the number and life stages of individuals affected (if known).
- Placement of scattered boulders shall be required along the north bank to reduce stream flow velocities and provide resting areas for spawning cui-ui. Placement of gravel suitable for salmonid spawning habitat shall be provided over the riprap within the river channel throughout the construction area.
- Any archeological or historical artifacts or remains discovered during construction shall be left intact and undisturbed, all work in the area shall stop immediately, and the Western Regional Office Archeologist and PLPT THPO shall be notified immediately pursuant to 36 CFR 800.13. Commencement of operations shall be allowed upon notification by the Western Regional Office Archeologist.
- If during construction operations any human remains, funerary objects, sacred objects or objects of cultural patrimony as defined by the Native American Graves Protection and Repatriation Act [PL 101-106; Statute 3048; 25 United State Code (USC) 3001] are discovered, operations shall stop in the immediate area of discovery and protection of the remains and objects shall be provided. The Western Regional Office Archeologist and the PLPT THPO shall be notified immediately of the discovery and cessation of construction activities shall continue until notification that operations may continue is provided by Western Office Region Archeologist.
- The contractor shall be required to provide documentation that demonstrates compliance with NEPA and other applicable federal regulations for construction equipment yards, material sources, and haul roads that are not covered in this EA.
- The project shall be performed compliant with Executive Order 13112 regarding noxious weeds. All earth-moving and construction equipment shall be washed at the staging or

storage area(s) prior to arriving on the construction site in order to prevent the introduction of noxious weed seed. Similarly, all earth-moving and construction equipment shall be washed prior to leaving the construction site to prevent noxious weed seeds from leaving the site.

- Waste material shall be disposed of in landfills that meet Environmental Protection Agency regulatory requirements for sanitary landfills.
- In the event of construction during night hours, equipment lights would be limited to those required to safely perform the construction activities, and would be shielded or directed in a manner that focuses direct light to the immediate work area. Dark-sky resources would be protected to the extent possible.

5.2 ADAPTIVE MANAGEMENT

The DOI adopted an operational definition of adaptive management for the purposes of managing operational programs in the context of ecosystem management. An Executive Summary⁶¹ provides an overview of Adaptive Management. The scour protection project for the Nixon Bridge is a project-specific action and not an operational program with ecosystem management implications. Therefore, adaptive management strategies are not applicable.

6.0 CONSULTATION AND COORDINATION

6.1 CONSULTATION

The individuals or agencies, including Tribal authorities, listed below were consulted during the preparation of this EA. Consultation requirements with the State Historic Preservation Officer, in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended, are completed. Formal Consultation with the USFW in accordance with Section 7 of the Endangered Species Act has been completed and a Biological Opinion (*Appendix B – Biological Assessment and USFWS Biological Opinion*) was issued on August 21, 2015. Other conditions relating to this project, including compliance with Tribal ordinances and other appropriate Federal, State, and local regulations have been adhered to and/or completed by the BIA, Western Regional Office.

Elwood Lowery	Tribal Chairman, Pyramid Lake Paiute Tribe
Beverly J. Harry	Environmental Manager, Environmental Department, Pyramid Lake Paiute Tribe
Betty Aleck	Tribal Historic Preservation Officer, PLPT
Andy Starostka	Fish Biologist, Nevada Fish and Wildlife Office, US Fish and Wildlife Service
Jenni Jeffers	Wildlife Biologist Western Region, Nevada Department of Wildlife, Wildlife Diversity Division

⁶¹ Adaptive Management Executive Summary:
<http://www.doi.gov/initiatives/AdaptiveManagement/TechGuide/execsumm.pdf>

Kristine Hansen	Regulatory Project Manager, Reno Regulatory Field Office, Regulatory Division, USACE
Rudy Malfabon, PE	Director, Nevada Department of Transportation
Suzette Claypool	BIA, Realty Officer, Western Nevada Agency
Chip Lewis	BIA, Western Regional Office Acting Branch Manager for the Division of Environmental, Cultural, and Safety Management
Abdelmoez Adballa	FHWA, Environmental Program Manager

Agencies:

US BIA
 US Environmental Protection Agency
 US Census Bureau
 US Army Corp of Engineers, Sacramento District
 US Federal Highway Administration
 US Geological Survey
 USDA Natural Resources Conservation Service, Web Soil Survey
 NDOT
 Nevada Division of Environmental Protection
 Nevada Department of Wildlife
 Nevada Natural Heritage Program
 Federal Emergency Management Agency, (FEMA) Flood Insurance Rate Maps

6.2 COORDINATION

The selected statutes, regulations, and executive orders pertaining to the preparation of this EA include the following:

Clean Air Act of 1963, as amended;
 Clean Water Act of 1977, as amended;
 Comprehensive Environmental Response, Compensation, and Liability Act of 1980,
 as amended;
 Endangered Species Act of 1973, as amended;
 Executive Order 11988 (Floodplain Management), May 1977;
 Executive Order 11990 (Protection of Wetlands), May 1977;
 Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority
 Populations and Low Income Populations), February 1994;
 Executive Order 13101 (Greening the Government), 1998;
 Executive Order 13274 (Environmental Stewardship and Transportation Infrastructure Project
 Review);
 Farmland Protection Policy Act of 1994;
 Fish and Wildlife Coordination Act of 1934, as amended;
 Migratory Bird Treaty Act of 1918, as amended;
 National Environmental Policy Act of 1969, as amended;
 National Historic Preservation Act of 1966, as amended;
 Native American Graves Protection and Repatriation Act of 1990;
 Religious Freedom Restoration Act of 1993;

Resource Conservation and Recovery Act of 1976;
Safe Drinking Water Act of 1974, as amended;
Section 4(f) of US Department of Transportation Act (49 USC 303); and,
Wild and Scenic Rivers Act of 1968.

In addition to the statutes and regulations listed above, other Acts, Orders, Memorandums, and Policies specific to actions on tribal lands that were considered and/or adhered to include the following:

American Indian Religious Freedom Act of 1978;
Executive Order 13007, Indian Sacred Sites;
Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations;
Executive Order 13175, Consultation and Coordination with Indian Tribal Governments;
Secretarial Order 3175, Protection of Indian Trust Assets, (change to Departmental Manual Order Release 512DM2);
Executive Order 13007 (Indian Sacred Sites), 1996;
Indian Affairs National Environmental Policy Act (NEPA) Guidebook (59 IAM 3-H), Division of Environmental Resource Management, August 2012;
Secretarial Order 3206, American Indian Tribal Rights, Federal-Tribal Trust Responsibility and Endangered Species Act;
President's Memorandum of April 29, 1994, Government-to-Government Relations with Native American Tribal Governments;
BIA Government-to-Government Consultation Policy (December 13, 2000).

7.0 LIST OF PREPARERS

This EA was prepared by Donald Naquin, RLA, Environmental Scientist III, and Roger Trott, Environmental Scientist III, Environmental Services Division (ESD), NDOT, Carson City, Nevada. The individuals listed below contributed to the development or review of this EA.

Steve M. Cooke, PE	NDOT, ESD Division Chief
Christopher E. Young, RPA	NDOT, ESD NEPA Coordinator / ES Supervisor
Dan Harms, CEM	NDOT, ESD Supervisor III Associate Engineer
Cliff Creger	NDOT, ESD Chief, Cultural Resource Manager
Elizabeth Dickey	NDOT, ESD Cultural / Natural Resource Specialist III
Suzan Slaughter	NDOT, ESD Cultural / Natural Resource Specialist II
Sabra Gilbert-Young	NDOT, ESD Cultural / Natural Resource Specialist II
Jason Perock	NDOT, ESD Environmental Scientist III
Jim Moore, PE	NDOT Hydraulic Division
John Loveless, PE	NDOT Design Division, Project Manager
Suzette Claypool	BIA, Realty Officer, Western Nevada Agency
Charles Lewis	BIA, Acting Environmental Quality Services, Branch Chief, Phoenix Office
Bonnie Smith	PLPT, Interim Environmental Director
Beverly J. Harry	PLPT, Environmental Manager
Cameron Morgan	PLPT, Water Quality Specialist

8.0 REFERENCES

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http://www.blm.gov/wo/st/en/prog/more/CRM/paleontology/paleontological_regulations.html
- Bureau of Land Management – Omnibus Public Land Management Act (Section 6301)
http://www.blm.gov/pgdata/etc/medialib/blm/ut/natural_resources/cultural/paleo/Paleontology_Documents.Par.23565.File.dat/Public%20Law%20111-011%20OPLA-PRP.pdf
- Code of Regulations, 36 CFR 800.4(d)(1)
<http://www.ecfr.gov/>
- Code of Federal Regulation, 40 CFR 93.126 & 127
<http://www.ecfr.gov/>
- Code of Federal Regulation, 40 CFR, Parts 1500-1508
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Appendix A

Letters



STATE OF NEVADA
 DEPARTMENT OF TRANSPORTATION
 1263 S. Stewart Street
 Carson City, Nevada 89712

BRIAN SANDOVAL
 Governor

July 12, 2013

RUDY MALFABON, P.E., Director

In Reply Refer to:

Intent-to-Study
 Nixon Bridge Scour Countermeasures Project
 Project ID: 73750

To Whom It May Concern:

The Nevada Department of Transportation (NDOT), in cooperation with the Federal Highway Administration (FHWA) and the Bureau of Indian Affairs (BIA), is proposing to construct scour countermeasures for the Nixon Bridge (B1351) located in Washoe County on State Route 447, Nixon, NV.

In compliance with the National Environmental Policy Act of 1969 (NEPA), NDOT is conducting an Environmental Assessment of the proposed projects impacts. This letter is intended to inform you of the current study and solicit your comments concerning the project. Areas of potential impact could include, but are not limited to, the following:

- | | |
|-----------------------|-------------------------------------|
| 1. Access | 9. Property Values |
| 2. Aesthetics | 10. Public Parks & Recreation Areas |
| 3. Air Quality | 11. Safety |
| 4. Archaeological | 12. Social Considerations |
| 5. Geology | 13. Biological Resources |
| 6. Historic Buildings | 14. Water Quality and Hydrology |
| 7. Land Use | 15. Wildlife and Wildlife Refuges |
| 8. Noise Levels | 16. Hazardous Materials/Waste |

We would appreciate receiving any response you may have by 5:00 p.m., **Friday, August 23, 2013**. If no response is received, the Department will assume you have no comments or concerns in your particular area of responsibility or interest.

Please see the enclosed Transportation Notice for additional information.

Comments or questions regarding the proposed project may be addressed to Steve M. Cooke, P.E., Chief Environmental Services Division, Nevada Department of Transportation, 1263 South Stewart Street, Carson City, Nevada 89712, telephone (775) 888-7013.

Sincerely,

Steve M. Cooke, P.E., Chief
 Environmental Services Division

SMC/DRN/tkb

Enclosure



TRANSPORTATION NOTICE PUBLIC NOTICE

Nixon Bridge Scour Countermeasures Project Washoe County, Pyramid Lake Paiute Reservation SR-447 Milepost WA 15.5

PURPOSE OF NOTICE: The Nevada Department of Transportation (NDOT), in cooperation with the Federal Highway Administration (FHWA) and the Bureau of Indian Affairs (BIA), is preparing an Environmental Assessment (EA) to analyze a proposal to construct scour countermeasures at the existing Nixon Bridge (B1351) in Nixon, NV.

The site is located on tribal lands administered by the BIA Western Nevada Agency, Pyramid Lake Paiute Reservation, Washoe County, Nixon, Nevada on SR-447 at Milepost WA 15.5.

WHY: The proposed scour countermeasures for the bridge include: lining the entire bed of the channel beneath the bridge with large riprap, and improving the existing rock weir that is located 35' downstream of the bridge. The channel lining would provide scour protection for the bridge piers and would also provide toe protection for the existing gabion mats preventing erosion to the embankment slopes under the bridge.

WHERE YOU COME IN: Your comments can be submitted for the public record through 5:00 p.m. Friday, **August 23, 2013**. You may email your comments to info@dot.state.nv.us with a reference to this project in the subject line or fax it to 775-888-7104, or you may mail your comments to Steve M. Cooke, P.E., Chief Environmental Services Division, Nevada Department of Transportation, 1263 South Stewart Street, Carson City, NV 89712.

CONTACT: For general project information, John Loveless, Design Division, Nevada Department of Transportation, 1263 S. Stewart Street, Carson City, NV 89712, (775) 888-7657, jloveless@dot.state.nv.us.





TRANSPORTATION NOTICE
PUBLIC NOTICE

Nixon Bridge Scour Countermeasures Project
Washoe County, Pyramid Lake Paiute Reservation
SR-447 Milepost WA 15.5

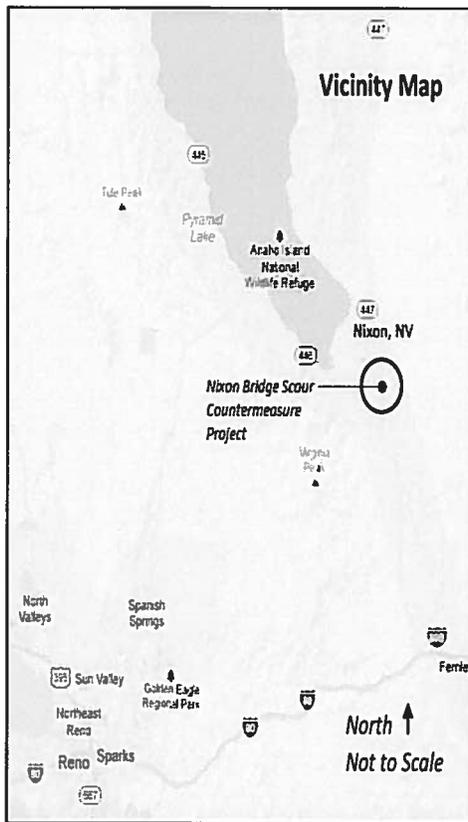
PURPOSE OF NOTICE: The Nevada Department of Transportation (NDOT), in cooperation with the Federal Highway Administration (FHWA) and the Bureau of Indian Affairs (BIA), is preparing an Environmental Assessment (EA) to analyze a proposal to construct scour countermeasures at the existing Nixon Bridge (B1351) in Nixon, NV.

The site is located on tribal lands administered by the BIA Western Nevada Agency, Pyramid Lake Paiute Reservation, Washoe County, Nixon, Nevada on SR-447 at Milepost WA 15.5.

WHY: The proposed scour countermeasures for the bridge include: lining the entire bed of the channel beneath the bridge with large riprap, and improving the existing rock weir that is located 35' downstream of the bridge. The channel lining would provide scour protection for the bridge piers and would also provide toe protection for the existing gabion mats preventing erosion to the embankment slopes under the bridge.

WHERE YOU COME IN: Your comments can be submitted for the public record through 5:00 p.m. Friday, **August 23, 2013**. You may email your comments to info@dot.state.nv.us with a reference to this project in the subject line or fax it to 775-888-7104, or you may mail your comments to Steve M. Cooke, P.E., Chief Environmental Services Division, Nevada Department of Transportation, 1263 South Stewart Street, Carson City, NV 89712.

CONTACT: For general project information, John Loveless, Design Division, Nevada Department of Transportation, 1263 S. Stewart Street, Carson City, NV 89712, (775) 888-7657, jloveless@dot.state.nv.us.



RJ-0000454965

PROOF O.K. BY: [Signature] O.K. WITH CORRECTIONS BY: _____

PLEASE READ CAREFULLY • SUBMIT CORRECTIONS ONLINE

ADVERTISER: NV STATE TRANSPORTATION PROOF CREATED AT: 7/15/2013 11:47 AM
SALES PERSON: Gina Briles PROOF DUE: -
PUBLICATION: RJ-RGJ BROADSHEET NEXT RUN DATE: 07/17/13
SIZE: 3 col X 7.75 in

RJ-0000454965.INDD



United States Department of the Interior



FISH AND WILDLIFE SERVICE
NEVADA FISH AND WILDLIFE OFFICE
1340 FINANCIAL BOULEVARD, SUITE 234
RENO, NV 89502
PHONE: (775)861-6300 FAX: (775)861-6301
URL: www.fws.gov/nevada/

Consultation Tracking Number: 08ENVD00-2013-SLI-0346

September 11, 2013

Project Name: NIXON BRIDGE (No. B1351) SCOUR PROTECTIVE MEASURES

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project.

To Whom It May Concern:

The attached species list indicates threatened, endangered, proposed, and candidate species and designated or proposed critical habitat that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act of 1973, as amended (ESA, 16 U.S.C. 1531 *et seq.*), for projects that are authorized, funded, or carried out by a Federal agency. Candidate species have no protection under the ESA but are included for consideration because they could be listed prior to the completion of your project. Consideration of these species during project planning may assist species conservation efforts and may prevent the need for future listing actions. For additional information regarding species that may be found in the proposed project area, visit <http://www.fws.gov/nevada/es/ipac.html>.

The purpose of the ESA is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the ESA and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Guidelines for preparing a Biological Assessment can be found at: http://www.fws.gov/midwest/endangered/section7/ba_guide.html.

If a Federal action agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species, and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:
<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>.

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this species list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally listed, proposed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the ESA, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally, as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation, for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the attached list.

The Nevada Fish and Wildlife Office (NFWO) no longer provides species of concern lists. Most of these species for which we have concern are also on the Animal and Plant At-Risk Tracking List for Nevada (At-Risk list) maintained by the State of Nevada's Natural Heritage Program (Heritage). Instead of maintaining our own list, we adopted Heritage's At-Risk list and are partnering with them to provide distribution data and information on the conservation needs for at-risk species to agencies or project proponents. The mission of Heritage is to continually evaluate the conservation priorities of native plants, animals, and their habitats, particularly those most vulnerable to extinction or in serious decline. In addition, in order to avoid future conflicts, we ask that you consider these at-risk species early in your project planning and explore management alternatives that provide for their long-term conservation.

For a list of at-risk species by county, visit Heritage's website (<http://heritage.nv.gov>). For a specific list of at-risk species that may occur in the project area, you can obtain a data request form from the website (http://heritage.nv.gov/get_data) or by contacting the Administrator of Heritage at 901 South Stewart Street, Suite 5002, Carson City, Nevada 89701-5245, (775) 684-2900. Please indicate on the form that your request is being obtained as part of your coordination with the Service under the ESA. During your project analysis, if you obtain new information or data for any Nevada sensitive species, we request that you provide the information to Heritage at the above address.

Furthermore, certain species of fish and wildlife are classified as protected by the State of Nevada (<http://www.leg.state.nv.us/NAC/NAC-503.html>). You must first obtain the appropriate license, permit, or written authorization from the Nevada Department of Wildlife (NDOW) to take, or possess any parts of protected fish and wildlife species. Please visit <http://www.ndow.org> or contact NDOW in northern Nevada (775) 688-1500, in southern Nevada (702) 486-5127, or in eastern Nevada (775) 777-2300.

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the Service's wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

The Service's Pacific Southwest Region developed the *Interim Guidelines for the Development of a Project Specific Avian and Bat Protection Plan for Wind Energy Facilities* (Interim Guidelines). This document provides energy facility developers with a tool for assessing the risk of potential impacts to wildlife resources and delineates how best to design and operate a bird- and bat-friendly wind facility. These Interim Guidelines are available upon request from the NFWO. The intent of a Bird and Bat Conservation Strategy is to conserve wildlife resources while supporting project developers through: (1) establishing project development in an adaptive management framework; (2) identifying proper siting and project design strategies; (3) designing and implementing pre-construction surveys; (4) implementing appropriate conservation measures for each development phase; (5) designing and implementing appropriate post-construction monitoring strategies; (6) using post-construction studies to better understand the dynamics of mortality reduction (*e.g.*, changes in blade cut-in speed, assessments of blade "feathering" success, and studies on the effects of visual and acoustic deterrents) including efforts tied into Before-After/Control-Impact analysis; and (7) conducting a thorough risk assessment and validation leading to adjustments in management and mitigation actions.

The template and recommendations set forth in the Interim Guidelines were based upon the Avian Powerline Interaction Committee's Avian Protection Plan template (<http://www.aplic.org/>) developed for electric utilities and modified accordingly to address the unique concerns of wind energy facilities. These recommendations are also consistent with the Service's wind energy guidelines. We recommend contacting us as early as possible in the planning process to discuss the need and process for developing a site-specific Bird and Bat Conservation Strategy.

The Service has also developed guidance regarding wind power development in relation to prairie grouse leks (sage-grouse are included in this). This document can be found at: http://www.fws.gov/southwest/es/Oklahoma/documents/te_species/wind%20power/prairie%20gr

Migratory Birds are a Service Trust Resource. Based on the Service's conservation responsibilities and management authority for migratory birds under the Migratory Bird Treaty Act of 1918, as amended (MBTA; 16 U.S.C. 703 *et seq.*), we recommend that any land clearing or other surface disturbance associated with proposed actions within the project area be timed to avoid potential destruction of bird nests or young, or birds that breed in the area. Such destruction may be in violation of the MBTA. Under the MBTA, nests with eggs or young of migratory birds may not be harmed, nor may migratory birds be killed. Therefore, we recommend land clearing be conducted outside the avian breeding season. If this is not feasible, we recommend a qualified biologist survey the area prior to land clearing. If nests are located, or if other evidence of nesting (*i.e.*, mated pairs, territorial defense, carrying nesting material, transporting food) is observed, a protective buffer (the size depending on the habitat

requirements of the species) should be delineated and the entire area avoided to prevent destruction or disturbance to nests until they are no longer active.

Guidance for minimizing impacts to migratory birds for projects involving communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

If wetlands, springs, or streams are known to occur in the project area or are present in the vicinity of the project area, we ask that you be aware of potential impacts project activities may have on these habitats. Discharge of fill material into wetlands or waters of the United States is regulated by the U.S. Army Corps of Engineers (ACOE) pursuant to section 404 of the Clean Water Act of 1972, as amended. We recommend you contact the ACOE's Regulatory Section regarding the possible need for a permit. For projects located in northern Nevada (Carson City, Churchill, Douglas, Elko, Esmeralda, Eureka, Humboldt, Lander, Lyon, Mineral, Pershing, Storey, and Washoe Counties) contact the Reno Regulatory Office at 300 Booth Street, Room 3060, Reno, Nevada 89509, (775) 784-5304; in southern Nevada (Clark, Lincoln, Nye, and White Pine Counties) contact the St. George Regulatory Office at 321 North Mall Drive, Suite L-101, St. George, Utah 84790-7314, (435) 986-3979; or in California along the eastern Sierra contact the Sacramento Regulatory Office at 650 Capitol Mall, Suite 5-200, Sacramento, California 95814, (916) 557-5250.

We appreciate your concern for threatened and endangered species. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment



United States Department of Interior
Fish and Wildlife Service

Project name: NIXON BRIDGE (No. B1351) SCOUR PROTECTIVE MEASURES

Official Species List

Provided by:

NEVADA FISH AND WILDLIFE OFFICE
1340 FINANCIAL BOULEVARD, SUITE 234
RENO, NV 89502
(775) 861-6300
<http://www.fws.gov/nevada/>

Consultation Tracking Number: 08ENV00-2013-SLI-0346

Project Type: Transportation

Project Description: Construct scour countermeasures for the bridge. Scour countermeasures include lining the entire bed of the channel beneath the bridge with riprap, (Class 900), and improving the existing rock weir that is located 35 downstream of the bridge. The project size is approximately 0.5 acres.



United States Department of Interior
Fish and Wildlife Service

Project name: NIXON BRIDGE (No. B1351) SCOUR PROTECTIVE MEASURES

Project Location Map:



Project Coordinates: MULTIPOLYGON (((-119.3614225 39.8291032, -119.3613369 39.8294161, -119.3609346 39.8293747, -119.3609829 39.8290081, -119.3614225 39.8291032)))

Project Counties: Washoe, NV



United States Department of Interior
Fish and Wildlife Service

Project name: NIXON BRIDGE (No. B1351) SCOUR PROTECTIVE MEASURES

Endangered Species Act Species List

Species lists are not entirely based upon the current range of a species but may also take into consideration actions that affect a species that exists in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Please contact the designated FWS office if you have questions.

cui-ui (*Chasmistes cujus*)

Population: Entire

Listing Status: Endangered

Greater sage-grouse (*Centrocercus urophasianus*)

Population: entire

Listing Status: Candidate

Lahontan cutthroat trout (*Oncorhynchus clarkii henshawi*)

Population: Entire

Listing Status: Threatened



BRIAN SANDOVAL
Governor

STATE OF NEVADA
DEPARTMENT OF WILDLIFE

1100 Valley Road
Reno, Nevada 89512
(775) 688-1500 • Fax (775) 688-1595

TONY WASLEY
Director

RICHARD L. HASKINS, II
Deputy Director

PATRICK O. CATES
Deputy Director

Jason Perock
Environmental Scientist
Nevada Department of Transportation
1263 South Stewart Street
Carson City, Nevada 89712

December 16, 2013

Re: Nixon Bridge Project

Dear Mr. Perock:

I am responding to your request for information from the Nevada Department of Wildlife (NDOW) on the known or potential occurrence of wildlife resources in the vicinity of the Nixon Bridge Project located in Washoe County, Nevada. In order to fulfill your request an analysis was performed using the best available data from the NDOW's wildlife occurrences, raptor nest sites and ranges, greater sage-grouse leks and habitat, and big game distributions databases. No warranty is made by the NDOW as to the accuracy, reliability, or completeness of the data for individual use or aggregate use with other data. These data should be considered **sensitive** and may contain information regarding the location of sensitive wildlife species or resources. All appropriate measures should be taken to ensure that the use of this data is strictly limited to serve the needs of the project described on your GIS Data Request Form. Abuse of this information has the potential to adversely affect the existing ecological status of Nevada's wildlife resources and could be cause for the denial of future data requests.

To adequately provide wildlife resource information in the vicinity of the proposed project the NDOW delineated an area of interest that included a four-mile buffer around the project area provided by you (email, November 26, 2013). Wildlife resource data was queried from the NDOW databases based on this area of interest. The results of this analysis are summarized below.

Big Game – Occupied mule deer distribution exists throughout the entire project area and portions of the four-mile buffer area. Occupied pronghorn antelope distribution exists outside of the project area within portions of the four-mile buffer area. No known occupied bighorn sheep or elk distributions exist in the vicinity of the project area. Please refer to the attached maps for details regarding big game distributions relative to the proposed project area.

Greater Sage-Grouse – Greater sage-grouse habitat in the vicinity of the project area is primarily categorized as Habitat of Moderate Importance. Low Value Habitat/Transitional Range also exists in the vicinity of the project area. Please refer to the attached maps for details regarding greater sage-grouse habitat relative to the proposed project area. There are no known greater sage-grouse lek sites in the vicinity of the project area.

Raptors – Various species of raptors, which use diverse habitat types, may reside in the vicinity of the project area. American kestrel, bald eagle, barn owl, burrowing owl, Cooper's hawk, ferruginous hawk, golden eagle, great horned owl, long-eared owl, merlin, northern goshawk, northern harrier, northern saw-whet owl, osprey, peregrine falcon, red-tailed hawk, rough-legged hawk, sharp-shinned hawk, short-eared owl, Swainson's hawk, turkey vulture, and western screech owl have distribution ranges that include the project area and four-mile buffer area.

Raptor species are protected by State and Federal laws. In addition, bald eagle, burrowing owl, California spotted owl, ferruginous hawk, flammulated owl, golden eagle, northern goshawk, peregrine falcon,

prairie falcon, and short-eared owl are NDOW species of special concern and are target species for conservation as outlined by the Nevada Wildlife Action Plan. Per the *Interim Golden Eagle Technical Guidance: Inventory and Monitoring Protocols; and Other Recommendations in Support of Golden Eagle Management and Permit Issuance* (United States Fish and Wildlife Service 2010) we have queried our raptor nest database to include raptor nest sites within ten miles of the proposed project area. There are six known raptor nest sites within ten miles of the project area:

Probable Use	Last Check	Last Active	Township/Range/Section
Buteo	6/23/2007	6/23/2007	21 0210N 0220E 002
Eagle	7/16/2011		21 0230N 0230E 011
Eagle	7/16/2011		21 0230N 0230E 012
Falcon	1/1/1974		21 0240N 0230E 019
Falcon	1/1/1974		21 0240N 0240E 029
Falcon	4/12/1974	4/12/1974	21 0230N 0230E 015

Other Wildlife Resources

The following species have also been observed in the vicinity of the project area:

Common Name	ESA	State	SWAP_SoCP
blue grosbeak			
brown bullhead			
bullfrog			
California toad			Yes
common carp			
cui-ui	Endangered	Endangered	Yes
desert horned lizard			Yes
desert spiny lizard			
fathead minnow			
Great Basin collared lizard			Yes
Great Basin fence lizard			
Great Basin gophersnake			
Great Basin whiptail			
green sunfish			
Lahontan cutthroat trout	Threatened		Yes
Lahontan redband			
long-nosed leopard lizard			Yes
mountain sucker			
Nevada side-blotched lizard			
northern desert horned lizard			Yes
northern zebra-tailed lizard			
rainbow trout			
Sacramento perch			
speckled dace			
sucker (unknown)			
Tahoe sucker			
terrestrial gartersnake			
western fence lizard			
western mosquitofish			
western patch-nosed snake			
yellow-backed spiny lizard			

zebra-tailed lizard

ESA: Endangered Species Act Status

State: State of Nevada Special Status

SWAP_SoCP: Nevada State Wildlife Action Plan (2012) Species of Conservation Priority

The above information is based on data stored at our Reno Headquarters Office, and does not necessarily incorporate the most up to date wildlife resource information collected in the field. Please contact the Habitat Division Supervising Biologist at our Western Region Reno Office (775.688.1500) to discuss the current environmental conditions for your project area and the interpretation of our analysis. Furthermore, it should be noted that the information detailed above is preliminary in nature and not necessarily an identification of every wildlife resource concern associated with the proposed project. Consultation with the Supervising Habitat biologist will facilitate the development of appropriate survey protocols and avoidance or mitigation measures that may be required to address potential impacts to wildlife resources.

Mark Freese - Western Region Supervising Habitat Biologist (775.688.1145)

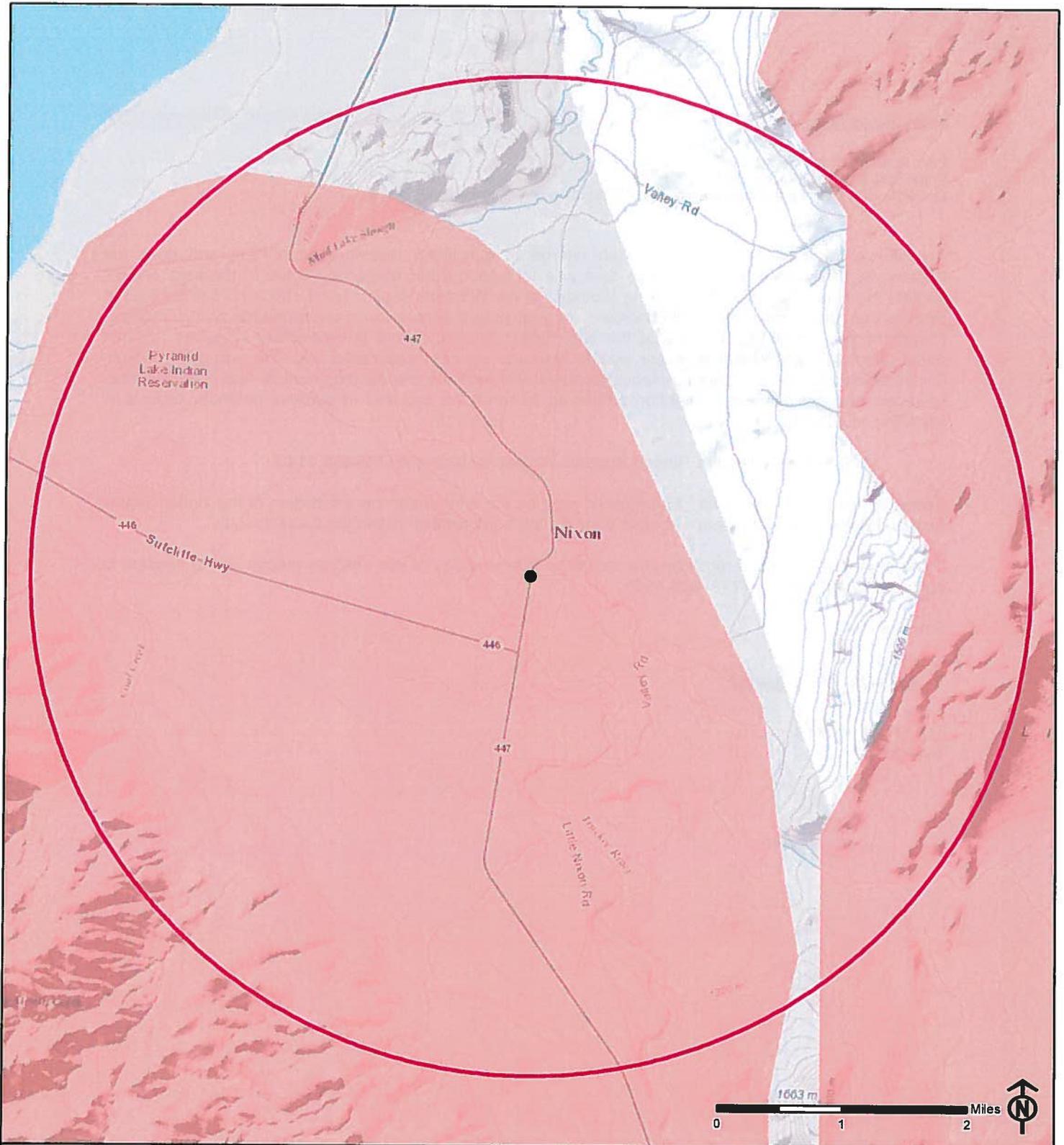
Federally listed Threatened and Endangered species are also under the jurisdiction of the United States Fish and Wildlife Service. Please contact them for more information regarding these species.

If you have any questions regarding the results or methodology of this analysis please do not hesitate to contact our GIS office at (775) 688-1565.

Sincerely,



Timothy M. Herrick
Biologist



- Project Area
- Four Mile Buffer Area Boundary
- Mule Deer Distribution



Nixon Bridge Project Mule Deer Distribution

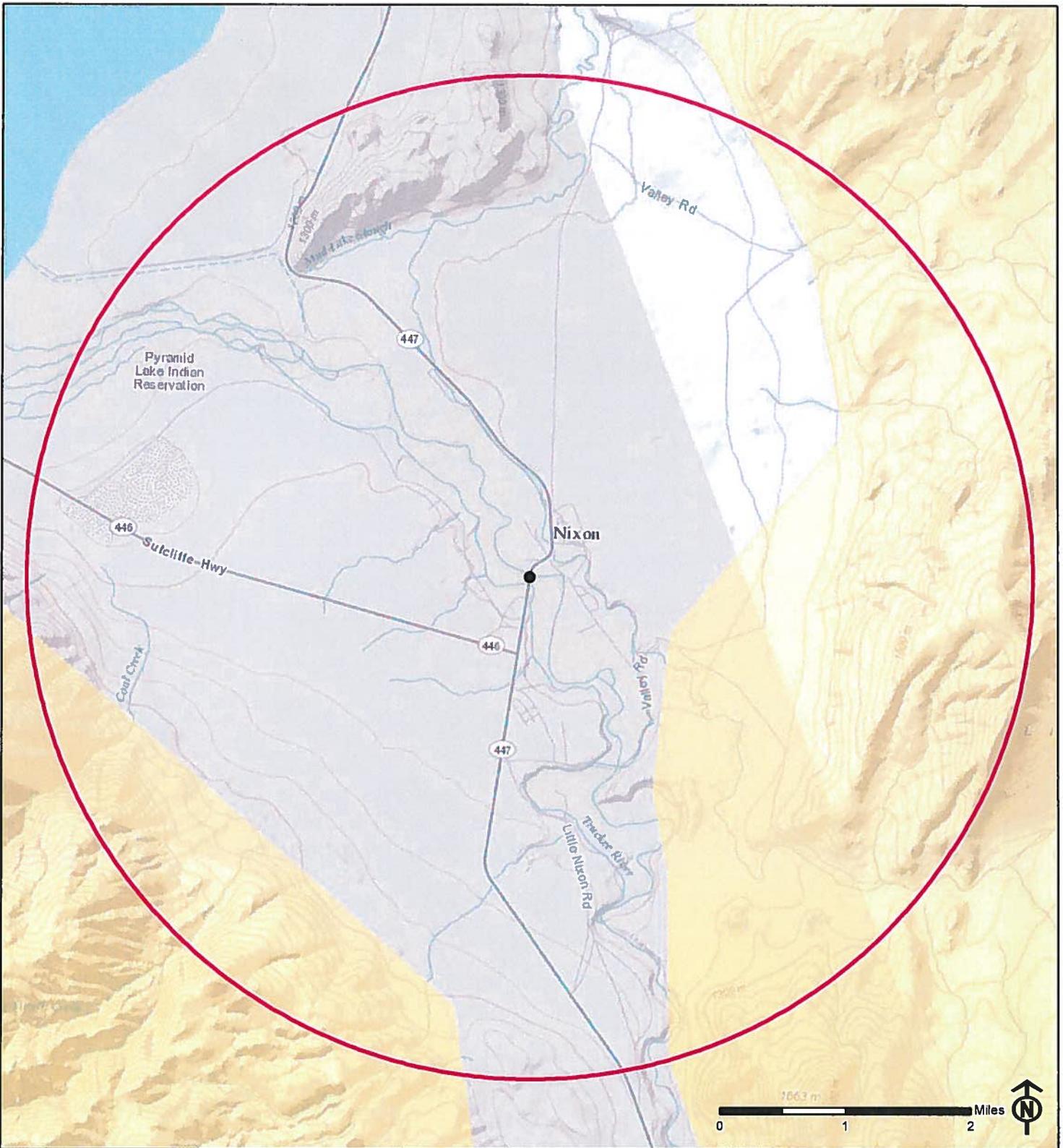


December 11, 2013

Projection: UTM Zone 11 North, NAD83

No warranty is made by the Nevada Department of Wildlife as to the accuracy, reliability, or completeness of the data for individual use or aggregate use with other data.





- Project Area
- Four Mile Buffer Area Boundary
- Pronghorn Antelope Distribution



Nixon Bridge Project Pronghorn Antelope Distribution

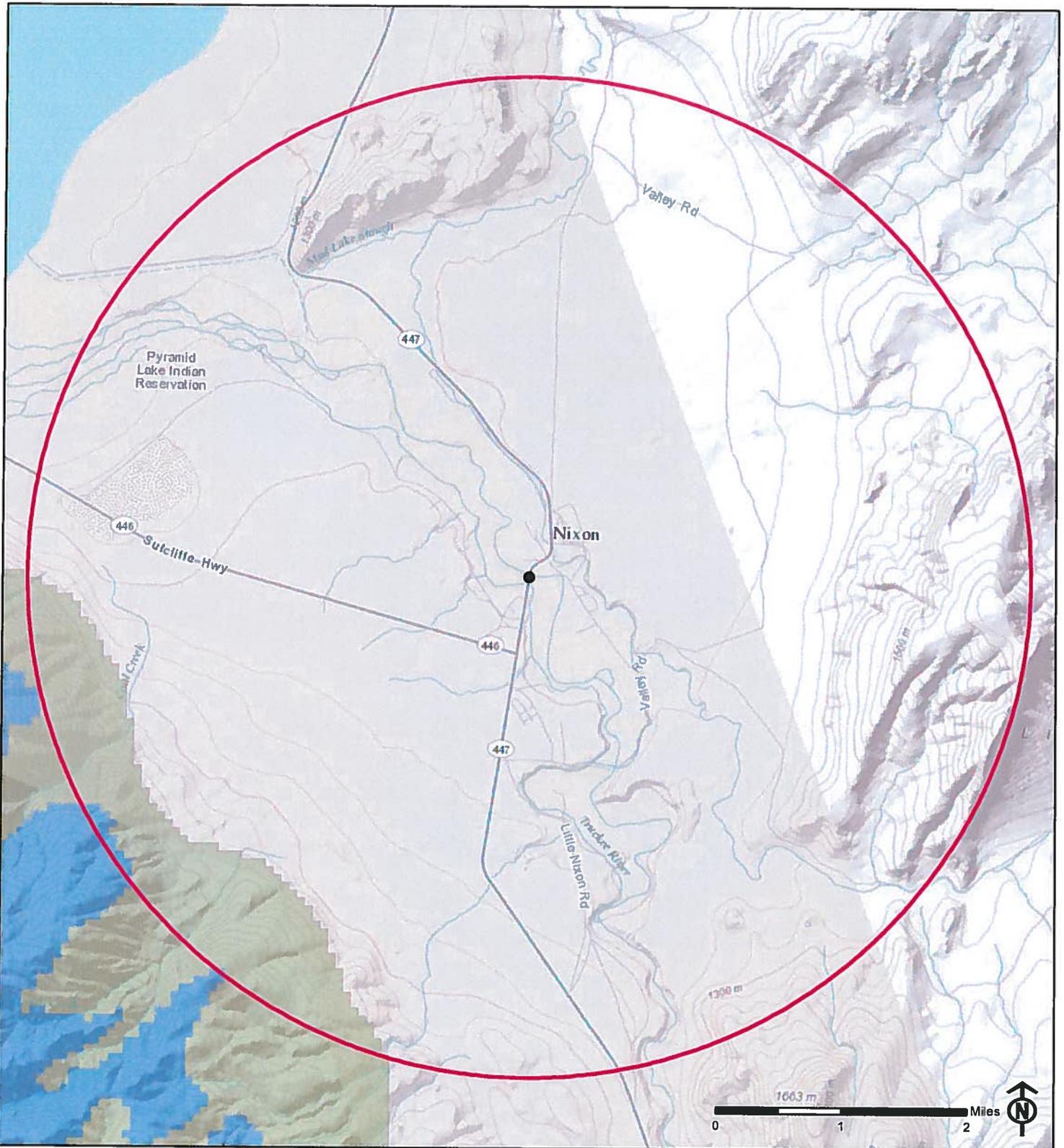


December 11, 2013

Projection: UTM Zone 11 North, NAD83

No warranty is made by the Nevada Department of Wildlife as to the accuracy, reliability, or completeness of the data for individual use or aggregate use with other data.





- Project Area
- Four Mile Buffer Area Boundary



Nixon Bridge Project Greater Sage-Grouse Habitat



- Greater Sage-Grouse Habitat**
- | | |
|--|--|
| <ul style="list-style-type: none"> 1 - Essential/Irreplaceable Habitat 2 - Important Habitat 3 - Habitat of Moderate Importance | <ul style="list-style-type: none"> 4 - Low Value Habitat/Transitional Range 5 - Unsuitable Habitat Pending Completion |
|--|--|

December 11, 2013
Projection: UTM Zone 11 North, NAD83

No warranty is made by the Nevada Department of Wildlife as to the accuracy, reliability, or completeness of the data for individual use or aggregate use with other data.



LEO DROZDOFF
Director

Department of Conservation
and Natural Resources

JENNIFER E. NEWMARK
Administrator

BRIAN SANDOVAL
Governor



Nevada Natural Heritage Program
Richard H. Bryan Building
901 S. Stewart Street, suite 5002
Carson City, Nevada 89701-5245
U.S.A.

tel: (775) 684-2900
fax: (775) 684-2909



STATE OF NEVADA
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
Nevada Natural Heritage Program
<http://heritage.nv.gov>

05 June 2013

Jason Perock
Environmental Services Division
Nevada Department of Transportation
1263 South Stewart Street
Carson City, NV 89712

RE: Data request received 04 June 2013

Dear Mr. Perock:

We are pleased to provide the information you requested on endangered, threatened, candidate, and/or at risk plant and animal taxa as well as Noxious Weeds recorded on or near the Proposed Scour Protection Project area below Bridge 1351 on SR 447 in Washoe County. We searched our database and maps for the following, a two kilometer radius around:

Township 23N Range 23E Section 26

The enclosed printout lists the taxa recorded within the given area. Please be aware that habitat may also be available for, the pale kangaroo mouse, *Microdipodops pallidus*, a Taxon determined to be Imperiled by the Nevada Natural Heritage Program, and the American White Pelican, *Pelecanus erythrorhynchos*, a Nevada Bureau of Land Management Proposed Special Status Species. The Nevada Department of Wildlife (NDOW) manages, protects, and restores Nevada's wildlife resources and associated habitat. Please contact Chet Van Dellen, NDOW GIS Coordinator (775.688.1565) to obtain further information regarding wildlife resources within and near your area of interest. Removal or destruction of state protected flora species (NAC 527.010) requires a special permit from Nevada Division of Forestry (NRS 527.270).

Please note that our data are dependent on the research and observations of many individuals and organizations, and in most cases are not the result of comprehensive or site-specific field surveys. Natural Heritage reports should never be regarded as final statements on the taxa or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments.

Thank you for checking with our program. Please contact us for additional information or further assistance.

Sincerely,

A handwritten signature in blue ink, appearing to read "Eric S. Miskow".

Eric S. Miskow
Biologist/Data Manager

At Risk Taxa Recorded Near the Bridge Scour Protection Project Area on SR 447

Compiled by the Nevada Natural Heritage Program for the Nevada Department of Transportation
05 June 2013

<u>Scientific name</u>	<u>Common name</u>	<u>Usfws</u>	<u>Blm</u>	<u>Usfs</u>	<u>State</u>	<u>Strank</u>	<u>Grank</u>	<u>UTM E</u>	<u>UTM N</u>	<u>Prec</u>	<u>Last observed</u>
Fishes											
<i>Chasmistes cujus</i>	Cui-ui	LE	S		YES	S1	G1	295350.81	4414100.34	S	2012-04-15
<i>Oncorhynchus clarkii henshawi</i>	Lahontan cutthroat trout	LT	S	T	YES	S3	G4T3	295350.81	4414100.34	S	2012-04-15
Mammals											
<i>Myotis yumanensis</i>	Yuma myotis		N;C			S3S4	G5	289506.91	4413487.52	M	1945-PRE
Birds											
<i>Charadrius nivosus nivosus</i>	Western Snowy Plover		N		YES	S3B	G3T3	296915.26	4417483.58	G	1985-PRE

U. S. Fish and Wildlife Service (Usfws) Categories for Listing under the Endangered Species Act:

- LE Listed Endangered - in danger of extinction in all or a significant portion of its range
- LT Listed Threatened - likely to be classified as Endangered in the foreseeable future if present trends continue

Bureau of Land Management (Blm) Species Classification:

- S Nevada Special Status Species - USFWS listed, proposed or candidate for listing, or protected by Nevada state law
- N Nevada Special Status Species - designated Sensitive by State Office
- C California Special Status Species (see definition S and N)

United States Forest Service (Usfs) Species Classification:

- T Region 4 and/or Region 5 Threatened species

Nevada State Protected (State) Species Classification:

- Fauna:
- YES Species protected under NRS 501.

Precision (Prec) of Mapped Occurrence:

- Precision, or radius of uncertainty around latitude/longitude coordinates:
- S Seconds: within a three-second radius
- M Minutes: within a one-minute radius, approximately 2 km or 1.5 miles
- G General: within about 8 km or 5 miles, or to map quadrangle or place name

Nevada Natural Heritage Program Global (Grank) and State (Strank) Ranks for Threats and/or Vulnerability:

- G Global rank indicator, based on worldwide distribution at the species level
- T Global trinomial rank indicator, based on worldwide distribution at the infraspecific level
- S State rank indicator, based on distribution within Nevada at the lowest taxonomic level
- 1 Critically imperiled and especially vulnerable to extinction or extirpation due to extreme rarity, imminent threats, or other factors
- 2 Imperiled due to rarity or other demonstrable factors
- 3 Vulnerable to decline because rare and local throughout its range, or with very restricted range
- 4 Long-term concern, though now apparently secure; usually rare in parts of its range, especially at its periphery
- 5 Demonstrably secure, widespread, and abundant
- A Accidental within Nevada
- B Breeding status within Nevada (excludes resident taxa)
- H Historical; could be rediscovered
- N Non-breeding status within Nevada (excludes resident taxa)
- Q Taxonomic status uncertain
- U Unrankable
- Z Enduring occurrences cannot be defined (usually given to migrant or accidental birds)
- ? Assigned rank uncertain



STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION
1263 S. Stewart Street
Carson City, Nevada 89712

BRIAN SANDOVAL
Governor

SUSAN MARTINOVICH, P.E., *Director*

April 5, 2012

In Reply Refer to:

Mr. Wayne Burke, Chairman
Pyramid Lake Paiute Tribe
P.O. Box 256
Nixon, Nevada 89424-0256

RE: Proposed Nixon Bridge (B-1351) Scour Countermeasure Project, Washoe County, Nevada

Dear Mr. Burke,

The Nevada Department of Transportation (NDOT) has identified the Nixon Bridge (B-1351) on SR 447 as requiring scour countermeasures to keep the structure from eroding and becoming deficient. It was constructed in 1972 and has had a history of significant scour problems related to past channel degradation and local pier scour. The specific countermeasures NDOT is considering include installing riprap in the channel bed underneath the bridge, installing float out devices, and potentially improving the rock weir just downstream of the bridge.

As this bridge is situated on the Pyramid Lake Indian Reservation, it is important that these countermeasures be designed and constructed in a manner sensitive to the Tribe's concerns regarding water quality and biological resources such as Lahontan Cutthroat Trout, *Cui-ui*, and migratory birds. NDOT will be responsible for preparing an environmental document for the countermeasures in compliance with the National Environmental Policy Act (NEPA). In speaking with Scott Carey of your planning staff, he has advised us that it would be beneficial for our inter-disciplinary team to meet with your inter-disciplinary team to discuss the project. Mr. Carey informs us that this meeting will assist them in making recommendations to your tribal council regarding the proposed project.

Prior to completing the design for the project, NDOT staff will be conducting preliminary engineering studies in the immediate area of the Nixon Bridge. These studies will include: verifying R/W, hydraulic inspection, mapping, and environmental surveys necessary to prepare the environmental document. It is anticipated that the scour countermeasure construction will occur on NDOT right-of-way; however, if insufficient right of way exists for all of the work, NDOT may need to apply for a temporary construction easement to access the weir and for a contractor staging area.

Our initial schedule indicates a start date of October 2013. Initiating discussion between Pyramid Lake Paiute Tribe (PLPT) and NDOT this early will ensure that any issues regarding this mutually beneficial project will be brought to light and fully considered by both parties.



Sabra Gilbert-Young and John Loveless will serve as contacts for you and your staff regarding the project; please do not hesitate to contact either of them with any comments or concerns. For your convenience our business cards are enclosed. We look forward to working with you and your staff on this important project.

Sincerely,



Kevin Maxwell, E.I.
Senior Road Design Engineer

Enclosure

Cc: Mervin Wright, Jr., PLPT Vice-Chairman
Della John, PLPT Administrator
Scott Carey, PLPT Planning

Ec: Terry Philbin, FHWA-NV
Mark Elicegui, NDOT-Structures
Sabra Gilbert-Young, NDOT-Environmental
CARRIE BYRON - NDOT R/W



U.S. Department
of Transportation
**Federal Highway
Administration**

Nevada Division

September 12, 2012

705 N. Plaza Street, Suite 220
Carson City, NV 89701
Phone 775 687-1204
Fax 775 687-3803

In Reply Refer To:
HENV-NV

Mr. Wayne Burke
Chairman
Pyramid Lake Paiute Tribe
P.O. Box 256
Nixon, NV 89424

Subject: B-1351 (Nixon Bridge) Scour Countermeasures, Pyramid Lake Indian Reservation,
Washoe County, Nevada; PID Number: 73750, FHWA Number: BR-0447(004)

Dear Mr. Burke:

In recognition of your Tribe's status as a sovereign Tribal Government, and the Federal Highway Administration's (FHWA) responsibilities under the National Historic Preservation Act (NHPA), the FHWA is requesting your Government-to-Government consultation on a proposed Federal-aid bridge protection project.

As prescribed by the NHPA, the FHWA follows a process (36 CFR §800) to locate historic properties which may be affected by the proposed project. These historic properties include prehistoric and historic archaeological sites as well as traditional cultural properties (TCPs). As part of this effort, FHWA would like to know if there are historic properties in the proposed project area to which your tribe attaches religious or cultural significance. If there are, please let us know if you would like to consult with FHWA on those historic properties.

This request for information, some of which may be sensitive in nature, is not intended as an offense to the Tribe, but instead is our good faith attempt to protect any historic properties that may be affected by this proposed project. Public access to any information you provide concerning the location, character, or ownership of these religious and cultural properties can be restricted as per Section 304 (16 U.S.C. §4702.3) of the NHPA as amended.

Project Description

The Nevada Department of Transportation (NDOT) is proposing to conduct scour countermeasures on and at B-1351, located on SR 447 over the Truckee River at Nixon, Washoe County, Nevada (see enclosed location map).

Due to the existing channel configuration, soil characteristics, and the alignment of the river, the pier walls and abutment foundations are susceptible to significant scour when the high flows occur in the Truckee River. Therefore, the existing riprap weir was constructed to control the

river flows and protect the piers in the river and abutments on the north and south banks. The bridge has had a history of significant scour problems related to past channel degradation and local pier scour.

The recommended scour countermeasures for the bridge include: lining the entire bed of the channel beneath the bridge and improving the existing rock weir that is located just downstream of the bridge. The channel lining would provide scour protection for the piers and would provide toe protection for the existing gabion mats that protect the embankment slopes underneath the bridge. The rock weir provides vertical control of the river bed at the immediate bridge location, and needs to be improved as it is not properly keyed into the south bank, and may not be properly designed to prevent undermining from the scour hole that exists on its downstream side of the weir.

The channel lining should extend all the way across the channel bed from the toes of the gabion mats, should be toed down at the upstream face of the bridge to account for contraction and local scour, and should be tied into the rock weir that is located about 15 feet from the downstream face of the bridge.

The recommended approach for improving the rock weir is to leave the existing rock in place and drive a sheet pile wall across the entire channel on the upstream side of the weir. The function of the sheet pile would be to provide backup protection for the bridge should the rock fail during future flood flows. The sheet pile would have to be driven deep enough to remain stable under the assumption that the rock weir would be washed out with local scour developing on the downstream side of the sheet pile. The crest of the sheet pile would be about 6 inches below the crest of the rock weir so there will be no change in its current hydraulic characteristics or introduce a new fish barrier at this location. The sheet pile wall should extend far enough across the channel to contain the 100-year design discharge. The sheet pile would only become a fish barrier should the rock fail during future flood flows. If this were to occur, maintenance would be required to repair the rock, restoring the rock riffle that would allow fish passage and would also restore downstream support for the sheet pile.

Traffic will be maintained on the bridge at all times while constructing the rock weirs and adding additional riprap around the pier foundations in the river. Staging area for the project will be the northerly portion of the PLPT maintenance yard which is located approximately 50 meters south of the bridge on the west side of SR 447.

Early coordination between NDOT, your office, and your Interdisciplinary Team has been taking place since April of this year to ensure that planning for the project incorporates concerns of the Tribe.

Information on Historic Properties

In preparation for this proposed project, a Class I archaeological background survey was performed. Eleven cultural resource surveys have been conducted within one mile of the Area of Potential Effect (APE). Three of the previous eleven surveys took place within the APE.

The Class I survey shows that those eleven previous surveys recorded three archaeological sites within one mile of the APE. One site has been recorded within the APE.

26WA3074 is a lithic scatter, with a blue glass trade bead and historic debris dating from the late 1920s. The site location was described as "on a terrace that overlooks the Truckee River...just south of the bridge crossing the Truckee." The site was originally recorded in 1984 and was evaluated as potentially eligible for inclusion on the National Register of Historic Places. It was revisited by NDOT archaeologists in 1986, who identified it as a possible campsite. Those archaeologists suspect that the site has depth and possibly represents a contact era site. In 1997, during work that occurred in response to flooding of the Truckee River, an archaeological avoidance area was established around this site (designated south of the bridge on the east side of SR 447). Incidentally, NDOT has also recommended the area north of the bridge as requiring an archaeologist to monitor if excavation below two feet below the surface were to take place.

NDOT will be conducting a Class III cultural resources survey of the APE this season and the results of that will be communicated to Mr. Ben Aleck as they become available.

In approximately two to three weeks, NDOT's Native American Consultation Coordinator, Sabra Gilbert-Young, will be contacting you or your designated cultural resource representative on my behalf to follow up on this letter. At that time she will ask if you have any concerns or comments regarding the proposed scour countermeasures, the previously located prehistoric and historic properties, and if there are any properties at this location that are of a religious or cultural significance to your Tribe. These types of properties are also referred to as traditional cultural properties. Additionally, if you or your cultural resource representative wishes to have a field consultation at the bridge with the project engineers to see the proposed measures in person please let her know and she will make those arrangements with you on the phone at that time. You may also mail the attached consultation response form, or FAX it to me at 775-687-3803, within 30 days. If you would like additional information, have concerns regarding this bridge replacement, or the overall FHWA program; please contact me at 775-687-1231. If desired, I will meet with you to discuss this proposed project or the overall program.

Sincerely,



Abdelmoez A. Abdalla
Environmental Program Manager

Enclosures

cc: Ben Aleck, PLPT Museum

ec: Dale Wegner, FHWA
C. Cliff Creger, NDOT
Sabra Gilbert-Young, NDOT

**Nevada Division Office
Federal Highway Administration
Native American Consultation
Response Form**

Subject: B-1351 Scour Countermeasures in Nixon, Washoe County, Nevada; PID Number: 73750, FHWA Number: BR-0447(004)

Return to: Mr. Abdelmoez Abdalla
Federal Highway Administration
705 North Plaza Street, Suite 220
Carson City, Nevada 89701

From: Mr. Wayne Burke, Chairman
Pyramid Lake Paiute Tribe
P.O. Box 256
Nixon, NV 89424

Reply: Please check one of the options below and return by October 11, 2012.

The Pyramid Lake Paiute Tribe does not request a consultation with FHWA regarding the proposed project. The Tribe has no further comment regarding this matter.

The Pyramid Lake Paiute Tribe requests a consultation with FHWA regarding the proposed project. Please contact the following person to set a time and date for the initial consultation meeting.

Contact Person: _____ Telephone Number: _____

The Pyramid Lake Paiute Tribe does not have specific cultural or environmental concerns regarding the proposed project, but requests a consultation regarding _____

Please contact the following person to discuss these concerns:

Contact Person: _____ Telephone Number: _____

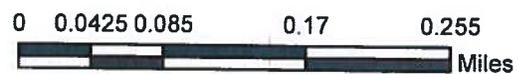
Signature: _____

Title: _____

Date: _____



Environmental Services Division
 Cultural Resource Services



Map 1. Location of proposed B-1351 Scour Countermeasures project, Nixon, Pyramid Lake Indian Reservation, Washoe County, Nevada. Map base is the Bing Maps Aerial. Scale is 1:6,500. Map is for consultation purposes only.

Pyramid Lake Paiute Tribe

Post Office Box 256

Nixon, Nevada 89424

Telephone: (775) 574-1000 / 574-1001 / 574-1002

FAX (775) 574-1008

August 22, 2013

Steve M. Cooke, P.E., Chief
Environmental Services Division
Nevada Department of Transportation
1263 South Stewart Street
Carson City, NV 89712

Re: Comments in regard to Scour Countermeasure Project at Nixon Bridge B1351

Dear Mr. Cooke:

The Pyramid Lake Paiute Tribe (PLPT) is providing comment to the Nevada Department of Transportation (NDOT) in concern to improvements proposed at the Truckee River bridge in Nixon, Nevada. This bridge is the only crossing of the Truckee River below Wadsworth, and a vital link in the northern Nevada road network. It also provides a vital link for the Pyramid Lake Paiute Tribe in providing a crucial river crossing for the community's water line, for fiber optic cables, and for pedestrians including many tribal children. The Truckee River is also the lifeblood for the tribe because it is an important link for delivering critically necessary water for maintaining Pyramid Lake, for providing fish and wildlife habitat, and in being a cultural resource. The cui-ui, a federally listed endangered fish, is especially noteworthy as it provides the tribe its name in the Paiute language.

The PLPT Inter-Disciplinary Team (IDT) has reviewed the project documents shared by NDOT and are providing these preliminary comments to help guide development of the Environmental Assessment in association with this project. The comments are included in the attached document, "Memorandum: PLPT Comments on Nixon Scour Project." The comments should help provide a starting point for NDOT in learning the issues necessary to undertake this project without causing undue harm or difficulty for the Tribe, the Truckee River, Pyramid Lake, and the fish and wildlife that depend on them.

Please utilize the comments in the attached "Memorandum: PLPT Comments on Nixon Scour Project." The Pyramid Lake Paiute Tribe looks forward to receiving NDOT progress reports and draft documents in a timely fashion, so we can help your agency shape a project which achieves the necessary goals and our special concerns.

Sincerely,



Elwood Lowery
Tribal Chairman
Pyramid Lake Paiute Tribe

Memorandum

PLPT Comments on Nixon Scour Project

Prepared August 22, 2013

The following comments have been prepared in discussion with Pyramid Lake Paiute Tribe (PLPT, tribe) Tribal Interdisciplinary Team (IDT) members in regards to potential impacts that may occur as a result of the proposed scour countermeasure construction activities at Nevada Department of Transportation (NDOT) bridge B1351 located at State Route 447 over the lower Truckee River at Nixon, Nevada.

The tribe's understanding of the scope of this project is based upon the documents *Scour Critical Bridge Plan of Action (7-12-05)* and the *Scour Analysis Report (Ayers Associates, October 2005)* as well as documents and discussions presented by NDOT at PLPT meetings of the IDT in 2012 and 2013. Several elements of this design include rip-rap armoring that cover the area under the bridge at or above the existing steel sheet piles, a downstream weir that raises the lip of the channel to a point about 4 feet above the surface downstream at low flow, sheet pile reinforcement of the weir, access roads to the base of the bridge for conducting the work and future maintenance, including a downstream easement for access to the river channel, and easements along 447 for staging construction activities.

Biological Resources

Cui-ui (*Chasmistes cujus*) is the first fish added to the endangered species list, and was listed in 1967 due to extremely degraded habitat in the lower Truckee River, the obstructions between Pyramid Lake and the river, and the loss of Winnemucca Lake as an important habitat incubator for the fish. Lahontan cutthroat trout (LCT, *Oncorhynchus clarki henshawi*) is a fish which is listed as threatened and forms a significant economic basis for the tribe, in its popularity as a huge catch for fishermen. Habitat for LCT in the Truckee River is also degraded, largely in loss of spawning and inability to move upstream to cooler, highly oxygenated waters. Both of these listed species of fish are present in the river at the site of NDOT Bridge 1351.

The raised weir at the bridge, including a primary channel, may create obstacles to the upstream migration of cui-ui. As a suckerfish, this species has certain needs in terms of water flow rates at which it can migrate upstream. We understand from discussion with Gary Scopetone, USGS, that for ease of passage for cui-ui, velocities should preferably be less than 3 ft/sec. The fish will try to move upstream at higher velocities, however exhaustion may occur rapidly and reduce spawning success.

The cui-ui also tend to move along the bottom of the channel, so abrupt vertical changes may affect the species upstream movement. The proposed installation of rip-rap across the bottom of the channel needs to be investigated as far as causing any difficulty. Cui-ui migrate in mass. Any

impediments to their migration can cause fish to accumulate which can result in mass casualties or increased pelican predation with abundant numbers of fish at shallower depths. Other effects on cui-ui could be present and should be reviewed by scientifically qualified individuals and agencies. Effects on the threatened fish species, Pyramid Lake Lahontan Cutthroat Trout, need to be investigated as well.

Areas designated for construction include high quality riparian and aquatic habitat. If these areas are degraded in the project, the immediate sites would need to be restored after construction activities have been completed at the bridge scour. If damage is permanent, say from rip-rap replacing vegetation, then a nearby location might be used for improvements and mitigation of the negative effects at the bridge.

Social Considerations

Impacts to cui-ui are significant to the Pyramid Lake Paiute Tribe. The tribe gets its name, *Kooyooee Tukadu*, from historically having a diet largely based on the fish. The Northern Paiute people which make up the tribe are located across the Great Basin, and Pyramid Lake is a traditional cultural center for the Paiute. The lands of the reservation are considered sacred and changes to the lands are held against potential sacred considerations or special values of a given site and its resources.

Water Quality and Hydrology

The Pyramid Lake Paiute Tribe has become the ruling authority for water quality on the Pyramid Lake Indian Reservation. Working with the U.S. Environmental Protection Agency, the PLPT has developed water quality standards implemented under tribal authority, and has received Treatment in the Same Manner as a State (TAS) status for issuing Clean Water Act Section 401 Certification. As you know, 401 Certifications pertain to projects utilizing federal funds, occur with federal actions (such as Endangered Species Act compliance) or requiring federal permits. Section 401 Certification will apply to this project and a tribal application form should be completed and processed before the project moves towards construction.

It is not clear if any direct discharges will occur to the Truckee River during the construction of this project. If such discharges, including debris, are planned, they should be reviewed in this environmental analysis. Long term site conditions that would shape stormwater discharges after completion of the project should be included in the environmental assessment. Potential temporary discharges from construction activities and from stormwater should also be considered, however they are typically mitigated through a proper Stormwater Pollution Prevention Plan (SWPPP) which are prepared in support of an EPA-issued Construction General Permit (CGP). As per our discussions with NDOT earlier, State of Nevada permits such as the MS4 and its supporting documentation do not apply on Tribal lands, and at this time the CGP process would be followed which includes PLPT review of the SWPPP prior to submittal of an electronic Notification of Intent (eNOI) request for coverage under the CGP.

The Nixon Scour Project is not just about protecting the footings of bridge B1351, but it is about providing a stable river bed under extreme hydrographic conditions. A general consideration should be made in regards to the proposed project, in that alternatives analysis should investigate

methods to alter the intensity of scour at Nixon Bridge using other techniques. The Scour Analysis Report may have inaccurately described the Truckee River being located at a site where no floodplain exists. This is reflected in the modeled geometry as well. The fact is there is a significant floodplain available to the Truckee River at flows which approach the 100 year event and overtopping conditions at the bridge. This floodplain, however, is constricted by existing road construction design. It may be possible to alter the hydrology of the site by adding large box culverts north and south of the existing bridge to allow high flows additional capacity and thus reducing pressure on the river bottom.

The reason that the river is deeply incised and a narrow floodplain under normal flows exists, is because of the recent history of the Truckee River and Pyramid Lake. Diversion of irrigation flows to the Newlands Project since 1903 have greatly lowered the elevation of Pyramid Lake, creating a deep head-cut from the delta up to the Canyon area, upstream of bridge B1351. While a check to this headcut was made at Marble Bluff Dam, the river may still be slowly downcutting in the vicinity of Nixon Bridge. We cannot discount alterations to the Truckee River made by the Army Corps of engineers in the decade that preceded the construction of Nixon Bridge. This channel straightening can still be seen in the Nixon area, and the river is slowly rebounding from this alteration by increasing sinuosity by eroding banks and building point bars. This process is happening in vicinity of Nixon Bridge and may need greater consideration for both the long-term stability of the bridge, and for the appropriate desired future condition of the Truckee River in this area.

A scour-hole exists immediately downstream of the bridge. This will be discussed more in the section that follows, but increasing flow speed by raising a berm at this location could theoretically exasperate the downstream effects on the river bottom. If this is so, then the river elevation may need to be raised by a longer reach of streambed and pool-riffle restoration by extending the projects hydrological modifications to the next one or two points of grade break of the stream bed.

Geology

The stream bed in this area is stated to include calcified lacustrine deposits. These tufa-like formations make a fairly stable bedrock, but they do erode. The exact geological structure under the bridge should be investigated. If in fact it is largely a cemented deposit, it may not have the same erosive characteristics that were proposed in the scour analysis report. That is to say, if so, the existing stream bed is actually more stable than the scour analysis report identified. However, promoting decay of this cemented structure by the installation of new steel weir devices at the edge of the downstream pool would seem counter-intuitive. We recommend a more thorough study of the geology to determine whether this project is necessary.

Wildlife and Wildlife Refuges

A mountain lion was seen at bridge B1351 in the fall of 2011, demonstrating that the bridge crossing is actually an important element for wildlife. The undercrossing of wildlife at the bridge is also undoubtedly an important aspect of the riparian zone, and adding rock structure to the bridge should not hamper this wildlife movement. The bridge itself is a habitat structure for an unknown

species of bat, which are an important element of the local ecology, including for the management of insects and mosquitos.

Nearby is the Anaho Island Wildlife Refuge, which provides nesting grounds for several species of birds including the American White Pelican. Access of waterfowl to the Truckee River is important, as is limiting access between the pelicans to cui-ui in shallow waters, where the fish are heavily predated by the efficient birds.

Property Values and Land Use

Construction of the project may affect the livelihood of local ranchers, by reducing the amount of irrigable fields available to them, if that land is needed by NDOT to construct the bridge. This temporary impact could be a significant detriment to tribal members conducting agricultural business activities. This is also important to consider, if damage or loss is permanent.

Maintaining the Nixon Irrigation Ditch will be important for continued irrigation in lower fields. If construction will impact this it needs to be addressed.

Nixon Bridge B1351 is a barrier to the flow of the Truckee River, and improving the hydrology of the bridge at flooding flow volumes may reduce the potential economic loss to tribal members and their homes, from flood damage.

Archeological

This location on the Truckee River is in the vicinity, perhaps including actual sites of battles conducted in the two Pyramid Lake Wars. Archeological materials are known to be found near the bridge, possibly from the wars as well as from historic and prehistoric populations of Paiute people living at the Truckee River or ancient Pyramid Lake shorelines. The PLPT is developing a Tribal Historic Preservation Office (THPO) to assume responsibilities currently conducted by the State of Nevada, scheduled for completion sometime in 2013. Please contact the PLPT Cultural Center at 775-574-1088 to check on status and for additional questions and concerns as project scope and specific ground impacts are refined. The tribe has guidelines in place for the investigation and treatment of bones and artifacts in case of accidental discovery.

Historic Structures

Three home sites were once located in the area southeast of the construction site. Currently an abandoned dual-spigot hand pump wellhead can be seen here and it may be of historic significance.

Public Parks and Recreation Areas

The bridge itself serves as a point of access to the Truckee River, and the bridge area may serve as a de-facto park site for Tribal Members. This should be investigated and determined by users whether the proposed construction will affect the way they use the river. In addition, limiting access to non-tribal members may be a concern, if unofficial recreation access is not desired by PLPT. This is a subject worth investigation, and the answer is not clear in outcome at initial consideration.

Safety

The proposed rock revetment and weir may be an obstacle to boaters who could be using the Truckee River. While this activity is uncommon, any new structures in the river should not make traversing the river more dangerous or unusually difficult. Please also see the section below on pedestrians.

Access

The bridge provides access for the traffic on 447, but also provides an important pedestrian link in the town of Nixon with a pedestrian walkway on the East Side. While the scope of work is largely for the security of the bridge below, maintaining and improving access to this public walkway is a desired outcome of the project. On highway 447 leading to and from the bridge, access is very poor for pedestrians, and children are often seen walking within the highway lanes near the bridge. With modifications to the road bank as part of construction site access, these areas can be finalized with improved pedestrian access at the completion of the project.

NDOT requested access to tribal lands, including expanding the permanent easement for maintenance of the structures built as a result of this project. A more fully developed construction plan should be presented how these areas will be treated and the impacts caused by NDOT modification to the land. Requirements of NDOT to access this land should also be clear, in that a protocol for communication should be provided so that tribal members and tribal administration is not alarmed by sudden activities of NDOT on these lands extending away from the typical road right of way where work normally occurs.

Hazardous Materials and Waste

Illegal discharge of hazardous materials and waste may occur with unauthorized access to the Truckee River. Consideration to final design as per the ease of access could be a consideration.



STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION
1263 S. Stewart Street
Carson City, Nevada 89712

BRIAN SANDOVAL
Governor

September 30, 2013

RUDY MALFABON, P.E., Director

In Reply Refer to:

ELWOOD LOWERY
TRIBAL CHAIRMAN
PYRAMID LAKE PAIUTE TRIBE
POST OFFICE BOX 256
NIXON, NV 89424

Pyramid Lake Paiute Tribe
Comment Letter Concerning the Scour
Countermeasures Project at
Nixon Bridge B-1351

Dear Chairman Lowery:

Thank you very much for the comments provided in your letter and memo dated August 22, 2013. The Nevada Department of Transportation (NDOT) and the Federal Highway Administration (FHWA) appreciate your thorough response to our Intent-to-Study notice as we begin preparing this Environmental Assessment (EA). NDOT has reviewed the comments provided by the Pyramid Lake Paiute Tribe and will consider them fully as we continue forward with development of the EA.

NDOT and FHWA appreciate the unique connection the Pyramid Lake people share with the Truckee River and addressing the potential impacts of the project to the natural and cultural resources will be central to the development of the EA. NDOT has already met with the Pyramid Lake Paiute Tribe Interdisciplinary Team in regards to this project and we plan further involvement of the tribe as we develop technical memos and reports in support of the EA as well as administrative drafts of the EA itself.

As part of this continuing dialog, we have included a Preliminary Drainage Study and Project Alternatives Memo with this letter for your review and comment. We look forward to your continued involvement and if you have any questions or concerns about this project please feel free to contact me (775-888-7013, scooke@dot.state.nv.us).

Sincerely,


Steve M. Cooke, P.E., Chief
Environmental Services Division

SMC/DRN/tkb

Enclosures

Cc: Beverly Harry, Interim Environmental Director

SR 447, NIXON BRIDGE

BACKGROUND

The Nixon Bridge carries SR 447 over the Truckee River near Nixon, located near Pyramid Lake in Washoe County. The existing bridge was constructed in 1972 and carries two 12.0' traffic lanes along with two 7.0' shoulders, and a 4.0' sidewalk separated from traffic by a concrete barrier on the east side of the bridge. The foundation consists of two abutments and two sets of pier walls on concrete pile foundations. The existing soil conditions, along with the geometry of the bridge and the Truckee River underneath, all make this bridge vulnerable to significant scour during high flows in the Truckee River. An existing riprap weir on the downstream (west) face of the bridge was constructed to control channel degradation and to protect the piers and abutments. See PHOTO 1 below for the existing riprap weir. District 2 Maintenance has stated in an email dated April 24, 2012 that they do not recall constructing the existing weir, and did not have any historical information available.

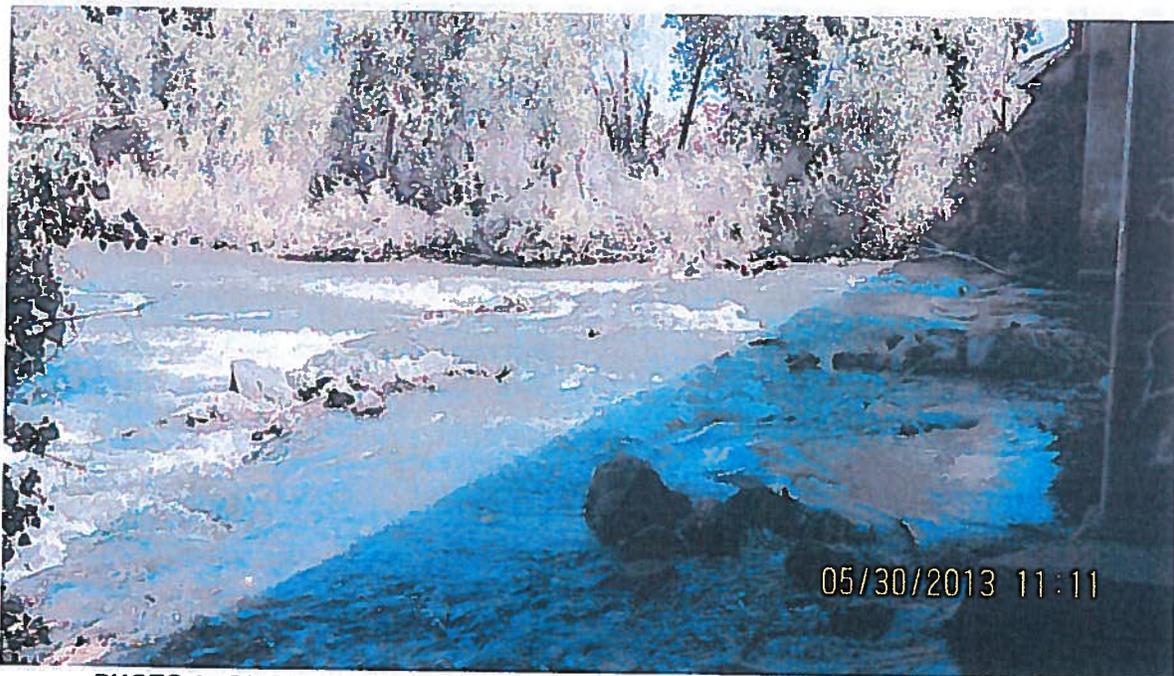


PHOTO 1: RIPRAP WEIR AT DOWNSTREAM FACE OF BRIDGE, LOOKING NORTH

A flood occurred along the Truckee River in 1997 with a recorded peak discharge at the Nixon USGS gage of 21,200 cfs, which corresponds to an estimated recurrence interval of 39 years. According to USGS records, this was also the Flood of Record. The peak discharge of 21,200 cfs is only 68 percent of the 100-year flow as taken from USGS records ($Q_{100} = 31,150$ cfs). The 500-year discharge, as taken from USGS records, is 52,810 cfs. The current project along the Truckee River being done by the Truckee River Flood Management Authority (TRFMA) shows a 100-year flow of 19,800 cfs in the existing condition, and 23,400 cfs in the "proposed" condition (which consists of using updated topographic data; calibrating flows using data including, but

not limited to, flood events in 1997 and 2005/2006; and adding elements requested by local agencies).

The Nixon Bridge has had a history of significant scour problems related to previous channel degradation and local pier scour. Riprap was placed around the piers in 1983 and sheet pile encasements were constructed in 1984 due to exposure of the original pile caps. The concrete cap of the sheet pile encasement around Pier 1 was undermined during the 1997 flood, which led to placement of additional riprap around Pier 1. The purpose of this project is to expand and reinforce the existing rock weir to prevent headcut from migrating further upstream, and to continue to provide protection for the piers and abutments.

PHOTOS 2-4 below show views of the Truckee River and the Nixon Bridge.



PHOTO 2: LOOKING UPSTREAM (EAST)



PHOTO 3: LOOKING DOWNSTREAM (WEST)



PHOTO 4: LOOKING NORTH ALONG SR 447

HYDROLOGY/HYDRAULICS

Flow rates used in modeling of the Truckee River and Nixon Bridge were taken from several sources. The flow rate for the 100-year event, which is the base value NDOT uses to design scour protection, was obtained by obtaining flow data for the USGS gage near Nixon (Station 10351700) and using a Log-Pearson Type II distribution to determine flow rates for storm events ranging from the 1-year event to the 500-year event. An overtopping storm flow was determined by running flows through the existing conditions model until the elevation of the Energy Grade Line at the upstream cross section of the bridge equaled the minimum Top of Road elevation. Using the numbers provided from the Log-Pearson Type II distribution, the overtopping flow of 47,570 cfs corresponds roughly to a 380-year storm event. The Truckee River Flood Management Authority (TRFMA) has modeled the entire Truckee River, and their model shows that overtopping occurs at the sides of the bridge. The bridge itself appears to be far above the 100-year water surface elevation.

In addition, since there is an issue with the endangered Cui-Ui fish, minimum and maximum spawning flows for the Cui-Ui were determined from the "Cui-Ui (*Chasmistes cujus*) Second Revision, Recovery Plan," prepared for the U.S. Fish & Wildlife Service, Region 1, and approved in 1992 (See "CUI-UI" below).

The hydraulics of the Truckee River and the Nixon Bridge were modeled by obtaining LiDAR data from the United States Army Corps of Engineers (USACE) and survey shots taken by the Nevada Department of Transportation (NDOT). The USACE LiDAR data was part of a data set that was originally used to develop a model of the Truckee River. The USACE and NDOT data were then used to develop a 3-D surface for use in Microstation and InRoads. InRoads was used to develop an alignment and cut cross sections, and the cross sections were then brought into HEC-RAS. Bank stations were determined from the cross sections, and Manning's "n" values for the channel and overbanks were determined from field visits and aerial photography. The HEC-RAS model was then run to model the existing conditions.

Several different "Proposed Conditions" models were developed, each with a different feature to reinforce and expand the existing riprap weir. One method to reinforce the existing weir involved the installation of steel sheet piling; however, after examination of the required sheet pile width and the fact that tiebacks would be required, this method was rejected. Expansion of the existing riprap weir with Class 900 Riprap & Bedding (the largest size NDOT currently uses; D50 for Class 900 Riprap = 36") was the preferred alternative.

CUI-UI

The endangered Cui-Ui fish (*Chasmistes cujus*) is endemic to Pyramid Lake and the Lower Truckee River in Washoe County, Nevada. The Cui-Ui was added to the Federal Register as an endangered species on March 11, 1967. Therefore, work in the Pyramid Lake/Lower Truckee River area must take into account the effects on Cui-Ui. For the Nixon Bridge project, no

impediments to spawning can be created by scour mitigation work. For that reason, it was important to determine the allowable velocity at which cui-ui could spawn. This section deals with the research that was done to determine an allowable velocity for the cui-ui. An online search for cui-ui was performed and several documents were found. A U.S. Fish and Wildlife Service document approved in 1992 states:

“...The area of spawning habitat between Marble Bluff and Numana Dams is estimated to be 10,100 square meters (109,000 square feet) at 70.75 cms (2,500 cfs, the maximum managed spawning flow) and 18,800 square meters (202,000 square feet) at 28.3 cms (1,000 cfs, the minimum managed spawning flow – see Buchanan and Strekal 1988).”¹

Sigler et al. stated:

“...The cui-ui prefers depths of water for spawning that range from 9 to 43 cm; velocities that range from 23 to 87 cm/sec, and substrate with about 60% gravel.”²

Scoppettone et al. stated:

“Cui-ui spawned over predominantly gravel substrate in water 21 to 110 cm deep, where stream velocities were 27 to 140 cm/sec and near-bed velocities were 21 to 90 cm/s.”³

In a doctoral dissertation, Koch stated:

“From observations made in the stamina chamber and Numana Dam fish ladder, velocities less than 2.4 m/s do not seem inhibiting to cui-ui. Velocities greater than 2.3 m/s tend to bring early exhaustion and premature release of gametes.”⁴

Because Scoppettone’s document was written by and for the U.S. Fish and Wildlife Service, NDOT used those velocities (27-140 cm/sec; 0.89 to 4.59 ft/sec) as the “allowable” velocities.

RESULTS

Once the existing and proposed conditions were modeled in HEC-RAS, a output table was generated that showed items such as flow rates and velocities, water surface elevations, Energy Grade Line elevations and slopes, and other information, for each of the cross sections. Using

¹ “Cui-ui (*Chasmistes cujus*), Second Revision, Recovery Plan;” Cui-Ui Recovery Team; U.S. Fish and Wildlife Service; Approved May 15, 1992.

² “Life History of the Cui-Ui, *Chasmistes cujus* Cope, in Pyramid Lake, Nevada: A Review;” Sigler, William F.; Vigg, Steven; and Bres, Mimi; “The Great Basin Naturalist;”

³ “Life History and Status of the Endangered Cui-Ui of Pyramid Lake, Nevada;” Scoppettone, G. Gary; Coleman, Mark; and Wedemeyer, Gary A.; United States Department of the Interior; U.S. Fish and Wildlife Service; 1986.

⁴ “Life History Information on the Cui-ui Lakesucker (*Chasmistes cujus*, Cope, 1883) Endemic to Pyramid Lake, Washoe County, Nevada;” Koch, David L.; Dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Zoology; University of Nevada at Reno; December, 1972.

the Minimum and Maximum Spawning Flows shown above (1,000 cfs for the Minimum Spawning Flow and 2,500 cfs for the Maximum Spawning Flow), the velocities in the table on Page 8 were derived. The following items of interest should be noted:

- From River Station 0 (furthest upstream station; \pm ¼ mile upstream of the Nixon Bridge) to River Station 1040, Existing and Proposed velocities are essentially the same for both the Minimum and Maximum Spawning flow conditions.
- From River Station 1040 to the bridge (River Station 1170), there is an increase in velocities from Existing to Proposed conditions in both the Minimum and Maximum Spawning flow conditions. The increase in velocities ranges from 0.25 ft/sec to 0.90 ft/sec.
- From River Station 1200 (\pm 30' downstream of the Nixon Bridge) to River Station 2400 (furthest downstream station; \pm ¼ mile downstream of the Nixon Bridge), the Proposed velocities are slower than the Existing velocities in both the Minimum and Maximum Spawning flow conditions (except for River Station 1200 under the Maximum Spawning Flow condition). The reduction in velocities ranges from 0.03 ft/sec to 0.71 ft/sec.
- Under the Minimum Spawning Flow condition, there are three River Stations where the Existing velocity is greater than the maximum 4.59 ft/sec allowed as described above, and three River Stations where the Proposed velocity is greater than the maximum 4.59 ft/sec allowed as described above.
- Under the Maximum Spawning Flow condition, all but 5 of the Existing River Stations have velocities that are greater than the maximum 4.59 ft/sec allowed as described above. All but 5 of the Proposed River Stations have velocities that are greater than the maximum 4.59 ft/sec allowed as described above. The River Stations that are within the 4.59 ft/sec maximum criteria are all located upstream of the Nixon Bridge.

This information can be found in tabular form on Page 8.

SUMMARY

The existing Nixon Bridge has a riprap weir located approximately 30' downstream of the downstream face of the bridge. This weir was constructed to protect the piers and abutments and to prevent the existing headcut from migrating upstream through the bridge. The existing weir needs to be expanded and reinforced.

A 3-D surface was created and cross sections and alignment were brought into HEC-RAS for the purpose of modeling the existing and proposed conditions. The following flows were used in the HEC-RAS model:

- Minimum Spawning flow (1,000 cfs)
- Maximum Spawning flow (2,500 cfs)
- 100-year flow (31,150 cfs from USGS; 19,800 cfs from TRFMA existing conditions model; 23,400 cfs from TRFMA proposed conditions model)
- Overtopping flow (47,570 cfs)

The permissible velocities for cui-ui spawning were taken from "Life History and Status of the Endangered Cui-ui of Pyramid Lake, Nevada" (Scoppettone et al., 1986) as 27-140 cm/sec (0.89 to 4.59 ft/sec).

The results are summarized below.

MINIMUM SPAWNING FLOW (1,000 cfs)

EXISTING CONDITION

- 3 River Stations with velocities greater than the maximum 4.59 ft/sec allowable, but close (5.21 ft/sec; 4.76 ft/sec; 4.94 ft/sec; all downstream of existing bridge)

PROPOSED CONDITION

- 3 River Stations with velocities greater than the maximum 4.59 ft/sec allowable (5.09 ft/sec and 6.09 ft/sec upstream of bridge; 4.95 ft/sec downstream of bridge)
- River Station 0 (furthest upstream) ~ River Station 1040: Velocities essentially identical
- River Station 1040 ~ Bridge (River Station 1170): Proposed velocities > Existing velocities by 0.22-0.98 ft/sec
- Bridge (River Station 1170) ~ River Station 2400 (Furthest Downstream): Proposed velocities < Existing velocities

MAXIMUM SPAWNING FLOW (2,500 cfs)

EXISTING CONDITION

- All but 5 River Stations have Existing velocities > 4.59 ft/sec

PROPOSED CONDITION

- All but 6 River Stations have Proposed Velocities > 4.59 ft/sec
- River Station 0 (furthest upstream) ~ River Station 1040: Velocities essentially identical
- River Station 1040 ~ Bridge (River Station 1170): Proposed velocities > Existing velocities by 0.34-0.56 ft/sec
- Bridge (River Station 1170) ~ River Station 2400 (Furthest Downstream): Proposed velocities < Existing velocities except for River Station 1200 (\pm 30' downstream of bridge); difference between Existing and Proposed ranges from 0.13-0.50 ft/sec

It can be seen that under the Minimum Spawning flow condition, locations where the Existing velocity is too fast are slowing down under the Proposed condition. Locations where the velocity increases between Existing and Proposed are still under the 4.59 ft/sec threshold except just upstream of the bridge. Under the Maximum Spawning flow condition, many of the Existing velocities are over the 4.59 ft/sec threshold to begin with; however, downstream of the bridge, the velocities are being slowed in the Proposed condition. Based on these numbers, we do not see any additional stress being placed on the cui-ui once the existing riprap weir is expanded.

SUMMARY OF HEC-RAS RESULTS

NOTE: RED VALUES ARE GREATER THAN THE 4.59 ft/sec ALLOWABLE VELOCITY

RIVER STATION	VELOCITIES (ft/sec)			
	MIN SPAWN FLOW (1,000 cfs)		MAX SPAWN FLOW (2,500 cfs)	
	EXISTING	PROPOSED	EXISTING	PROPOSED
2400	4.24	4.12	5.59	5.40
2300		3.79		5.48
2200	3.51	3.42	4.99	4.85
2100		3.26		4.88
2000	3.40	3.26	4.77	4.64
1900		3.26		4.69
1800	3.54	3.34	4.95	4.80
1700		3.85		5.82
1600	5.21	4.95	8.49	8.28
1500		4.40		6.96
1400	4.22	3.82	6.07	5.87
1320	4.76	4.13	6.71	6.41
1280	4.94	4.25	7.41	6.99
1240	4.04	3.33	6.06	5.56
1220		3.58		5.43
1200	3.91	3.88	5.15	5.31
1170	NIXON BRIDGE			
1140	4.19	5.09	4.76	5.32
1130		3.31		4.51
1120	2.94	3.19	4.23	4.57
1110		6.09		5.85
1100		3.76		5.18
1080	2.29	2.75	4.00	4.54
1040	2.23	2.55	3.98	4.39
1000	2.28	2.28	4.03	4.03
940	2.39	2.39	3.85	3.84
800	3.23	3.23	5.21	5.21
700		3.34		5.12
600	3.64	3.63	5.15	5.14
500		3.74		5.25
400	3.90	3.86	5.40	5.37
300		3.84		5.40
200	3.81	3.76	5.37	5.34
100		4.08		5.73
0	4.05	4.05	5.83	5.83

Pyramid Lake Paiute Tribe

Post Office Box 256

Nixon, Nevada 89424

Telephone: (775) 574-1000 / 574-1001 / 574-1002

FAX (775) 574-1008

Thursday, February 20, 2014

Department of Transportation
State of Nevada
1263 S. Stewart Street
Carson City, NV 89712

Attn: Mr. James Moore, P.E. CFM

Re: Nixon Bridge

Dear Mr. Moore,

This letter in response to your request for the Pyramid Lake Paiute Tribe's preferred design alternative for the Nixon Bridge Scour Project. On February 4th, 2014, NDOT presented plans "A", "B", and "C" to our Interdisciplinary Team (IDT). The Pyramid Lake Paiute Tribe discussed the three proposed alternatives and has selected "Plan B" for the Nixon Bridge Scour Project as the preferred alternative. This approval is based on the fact that "Plan B" allows more favorable conditions for the Cui-ui to successfully migrate upstream of the bridge to suitable spawning habitat.

Due to the sensitive ecosystem that lies within the proposed project area, we request that NDOT takes extra precautions in the design and construction of the Nixon Bridge Scour Project. As discussed in February's IDT meeting, Plan B has a slope of approximately 1.7% and has the option of staggering large boulders across the riverbed, creating resting areas for migrating fish. We request that these boulders are included in the project plans, to increase chances of spawning success.

Please keep us informed as the project progresses. If there are any questions regarding the selection of the preferred alternative or the conditions described herein, please contact the Water Quality Standards Specialist, Kameron Morgan at (775) 997-5343 ext. 19, or kmorgan@plpt.nsn.us.

Sincerely,



Elwood Lowery
Tribal Chairman
Pyramid Lake Paiute Tribe



STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION
1263 S. Stewart Street
Carson City, Nevada 89712

BRIAN SANDOVAL
Governor

RUDY MALFABON, P.E., *Director*

In Reply Refer to:

March 5, 2014

MR. ELWOOD LOWERY, TRIBAL CHAIRMAN
PYRAMID LAKE PAIUTE TRIBE
P.O. BOX 256
NIXON, NV 89424

Dear Mr. Lowery:

Thank you very much for your letter dated February 20, 2014, regarding the Nixon Bridge. The input of the PLPT has been very valuable, and we look forward to continuing to work with you as this project progresses.

Regarding two points in your letter, the Nevada Department of Transportation will work through the environmental process with the PLPT and other state/federal agency stakeholders throughout design and construction. We also understand the nature of the ecosystem in that area, and we are committed to working to protect it as much as possible. Also, we will be looking at placing boulders in the north bay of the bridge (between the north pier and the north slope) in order to allow Cui-ui to have resting places as they move upstream. We will show this in the plans with notes stating that the boulders should be locked in place as tightly as possible so that they do not move downstream during high flows.

Again, thank you and your Interdisciplinary Team for their input on this process. We will keep you informed as we move along in the design process. Should you have any questions, please call me at (775) 888-7799, or you can send an email to jmoore2@dot.state.nv.us.

Best Regards,

A handwritten signature in black ink, appearing to read "JL Moore".

James L. Moore, PE, CFM
Senior Hydraulics Engineer





1263 South Stewart Street
Carson City, Nevada 89712
Phone: (775) 888-7619
Fax: (775) 888-7177
(Use Local Information)

MEMORANDUM

Hydraulics Division

September 26, 2013

To: Donald Naquin, Environmental Scientist III
From: Jim Moore, Senior Hydraulics Engineer
Subject: ALTERNATIVES CONSIDERED FOR NIXON BRIDGE -- UPDATED

Per your request, we are sending this memo to update the previous memo regarding the alternatives that were considered for scour mitigation at the Nixon Bridge.

ALTERNATIVE 1: DO NOTHING

Under Alternative 1, no right-of-way would be taken for temporary easements, no funding would be put towards construction and design, and no impacts would be placed on the river or nearby areas. However, the current head cutting and scour will continue, placing the bridge in further jeopardy. At some point, the bridge may need to be closed to traffic due to scour or head cutting possibly removing material from under the pier, cutting off a vital transportation link for both the Nevada Department of Transportation (NDOT) and the Pyramid Lake Paiute Tribe (PLPT).

ALTERNATIVE 2A: REINFORCE EXISTING WEIR WITH RIPRAP

Alternative 2A consists of building up the existing riprap weir with extra riprap/bedding. The new weir will be constructed to slow the flow as much as possible to allow for safe passage of the native Cui-ui and Lahontan Cutthroat Trout, while still providing the required scour protection.

The reinforcement of the existing weir would occur upstream, meaning that no right of way would be required other than temporary easements for construction. The temporary construction easements would be restored to pre-construction condition once the work is completed. A river diversion will be required for construction of the weir reinforcement. The area to be impacted by the proposed work is approximately 115' long times the width of the river at the existing riprap weir (approximately 120'). The time for construction should be relatively short, but because the work occurs in the river, close coordination and permitting will be required from several different agencies including, but not limited to, the U.S. Army Corps of Engineers, the U.S. Fish & Wildlife Service, the Bureau of Indian Affairs, and the Pyramid Lake Paiute Tribe.

ALTERNATIVE 2B: REINFORCE EXISTING WEIR WITH STEEL SHEET PILING

Alternative 2B consists of constructing steel sheet piling upstream of the existing riprap weir to provide reinforcement to the existing weir. As with Alternative 2A, this work would be done just upstream of the existing riprap weir, meaning that no right of way would be required other than temporary easements for construction. These easements will be restored to pre-construction condition once construction is completed.

A river diversion may need to be constructed in order to allow equipment to access the entire width of the river at the existing riprap weir (approximately 120'). The time for construction should be relatively short, but because the work occurs in the river, close coordination and permitting will be required from several different agencies including, but not limited to, the U.S. Army Corps of Engineers, the U.S. Fish & Wildlife Service, the Bureau of Indian Affairs, and the Pyramid Lake Paiute Tribe.

NDOT's Materials Division analyzed the use of sheet piling to reinforce the existing riprap weir and found that cantilevered sheet piling would not work due to instability, which is caused by the scour depth and its proximity to the required pile tip elevation. The height of the sheet pile wall required would be approximately 18 feet, and because of the wall height and limited embedment, anchors would be required. The proposed anchors would need to extend at least 20 feet behind the proposed sheet pile wall for proper stability. However, the existing piers and the sheet piling around the piers are closer than 20', meaning that anchors would not be feasible. Since anchors would not be feasible, and a cantilevered sheet pile wall would not be feasible, NDOT did not pursue this Alternative any further.

ALTERNATIVE 3: INSTREAM WORK ABOVE AND BELOW NIXON BRIDGE

Alternative 3 would essentially consist of a river restoration/stabilization project either upstream or downstream of the Nixon Bridge. Currently, NDOT is limited to 50' of ROW from the centerline of SR 447 upstream and downstream (i.e., east and west of the Nixon Bridge). We would have to acquire more ROW (160' from centerline downstream and 105' from centerline upstream), but this still may not be enough room to stabilize the channel around the Nixon Bridge. In addition, changing the proposed work from a bridge project to a river stabilization project will involve much more time, resources, design, and coordination with other agencies (BIA, US Army Corps of Engineers, US Fish & Wildlife, Pyramid Lake Paiute Tribe, etc.), which will increase the risk of the head cutting proceeding upstream and scour occurring at the bridge.

Due to the increased time and resources required, potential right-of-way needed, and permitting/coordination needed with other agencies, this alternative was not pursued any further. No dimensions for new riprap were determined,

HYDRAULICS RECOMMENDED APPROACH

Alternative 2A (reinforce the existing riprap weir with additional riprap and bedding) is the alternative which appears to work best from a Hydraulics perspective. Alternative 2A is the most practical because it requires the least amount of right-of-way (temporary construction easements only) while still providing reinforcement to the existing riprap weir, which should serve to protect the river from future head cutting and/or scour. Because Alternative 2A requires right-of-way only for temporary construction easements, the permitting/coordination process should be easier. The proposed weir reinforcement will be designed to not hinder spawning of the Cui-ui and Lahontan Cutthroat Trout, and the spawning movements will continue while the river diversion is in place.



U.S. Department of Homeland Security
FEMA Region IX
1111 Broadway, Suite 1200
Oakland, CA. 94607-4052



July 22, 2013

Steve M. Cooke, P. E., Chief
Environmental Service Division
Nevada Department of Transportation
1263 S. Stewart Street
Carson City, Nevada 89712

Dear Mr. Cooke:

This is in response to your request for comments on Intent-to-Study, Nixon Bridge Scour Countermeasures Project ID: 73750, located in Washoe County on State Route 447 Nixon, Nevada.

Please review the current effective countywide Flood Insurance Rate Maps (FIRMs) for the County of Washoe (Community Number 320019), Maps revised June 18, 2013. Please note that the County of Washoe, Nevada is a participant in the National Flood Insurance Program (NFIP). The minimum, basic NFIP floodplain management building requirements are described in Vol. 44 Code of Federal Regulations (44 CFR), Sections 59 through 65.

A summary of these NFIP floodplain management building requirements are as follows:

- All buildings constructed within a riverine floodplain, (i.e., Flood Zones A, AO, AH, AE, and A1 through A30 as delineated on the FIRM), must be elevated so that the lowest floor is at or above the Base Flood Elevation level in accordance with the effective Flood Insurance Rate Map.
- If the area of construction is located within a Regulatory Floodway as delineated on the FIRM, any *development* must not increase base flood elevation levels. **The term *development* means any man-made change to improved or unimproved real estate, including but not limited to buildings, other structures, mining, dredging, filling, grading, paving, excavation or drilling operations, and storage of equipment or materials.** A hydrologic and hydraulic analysis must be performed *prior* to the start of development, and must demonstrate that the development would not cause any rise in base flood levels. No rise is permitted within regulatory floodways.

Steve M. Cooke, P. E., Chief
Page 2
July 22, 2013



- Upon completion of any development that changes existing Special Flood Hazard Areas, the NFIP directs all participating communities to submit the appropriate hydrologic and hydraulic data to FEMA for a FIRM revision. In accordance with 44 CFR, Section 65.3, as soon as practicable, but not later than six months after such data becomes available, a community shall notify FEMA of the changes by submitting technical data for a flood map revision. To obtain copies of FEMA's Flood Map Revision Application Packages, please refer to the FEMA website at <http://www.fema.gov/business/nfip/forms.shtm>.

Please Note:

Many NFIP participating communities have adopted floodplain management building requirements which are more restrictive than the minimum federal standards described in 44 CFR. Please contact the local community's floodplain manager for more information on local floodplain management building requirements. The Washoe County floodplain manager can be reached by calling Dwayne Smith, P. E., Director, Public Works Department, at (775) 328-2045.

If you have any questions or concerns, please do not hesitate to call Michael Hornick of the Mitigation staff at (510) 627-7260.

Sincerely,

Gregor Blackburn, CFM, Branch Chief
Floodplain Management and Insurance Branch

cc:

Dwayne Smith, P. E., Public Works Director, Washoe County
Kim Davis, NFIP State Coordinator, Nevada Department of Conservation & Natural Resources
Michael Hornick, NFIP Planner, DHS/FEMA Region IX
Alessandro Amaglio, Environmental Officer, DHS/FEMA Region IX

Nevada Department of Transportation Biological Assessment
and US Fish and Wildlife Service Biological Opinion

The Nevada Department of Transportation
Nixon Bridge Scour Countermeasures Project
B-1351
NDOT Project Number 73750

Biological Assessment
Cui-ui
October, 2014



Lead Agency:
Federal Highway Administration

Coordinating Agency:
Nevada Department of Transportation
Acting on behalf of the Federal Highway Administration

Primary Contact:
Jason Perock, Environmental Scientist
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Appendix C Streamflow Data for USGS Nixon Gage

DRAFT

LIST OF ACRONYMS & ABBREVIATIONS

B-1351	Nixon Bridge Number
BA	Biological Assessment
BIA	Bureau of Indian Affairs
BMP	Best Management Practices
BOR	United States Bureau of Reclamation
cfs	Cubic Feet Per Second
cm	Centimeter
cms	Cubic Meters Per Second
CWA	Clean Water Act
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act of 1973
FHWA	Federal Highway Administration
HUC	Hydrologic Unit Code
IDT	Inter-Disciplinary Team
LCT	Lahontan Cutthroat Trout
mg/L	Milligrams Per Liter
NBI	National Bridge Inventory
NDEP	Nevada Division of Environmental Protection
NDOT	Nevada Department of Transportation
NEPA	National Environmental Policy Act
NNHP	Nevada Natural Heritage Program
NTU	Nephelometric Turbidity Unit
OCAP	Operating Criteria and Procedures
OHWM	Ordinary High Water Mark
PAH	Polycyclic Aromatic Hydrocarbon
PCE	Tetrachloroethene
PLIR	Pyramid Lake Indian Reservation
PLPT	Pyramid Lake Paiute Tribe
ppm	Parts Per Million
SWPPP	Stormwater Pollution Prevention Plan
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geologic Survey
WET	Water Engineering and Technology Inc.

EXECUTIVE SUMMARY

Project: Nixon Bridge Scour Countermeasures Project.

Bridge Number: B-1351

NDOT Project Number: 73750

River System: Truckee River

Hydrologic Unit Code: 16050103

Regions: Great Basin Region, Central Lahontan Subregion, Truckee River Basin Accounting Unit, Pyramid-Winnemucca Lakes, NV Catalog Unit (1370 square miles).

The Nevada Department of Transportation will be constructing riprap scour revetment countermeasures around the two existing bridge pier footings of the Nixon Bridge within the Truckee River. Riprap countermeasures are necessary to protect the structure from scouring effects of the river and repair an existing rock weir immediately downstream of the bridge, in Nixon, Nevada. The placement of riprap will require entry into the Truckee River stream channel to access the bridge pier footings and rock weir. This is a federally funded project administered by the Federal Highway Administration.

The United States Fish and Wildlife Service has indicated that this project may impact the cui-ui (*Chasmistes cujus*) and Lahontan cutthroat trout (*Oncorhynchus clarki henshawi*), two fish species protected under the Endangered Species Act (7 U.S.C. 136; 16 U.S.C. 460 & 1531 et seq. (1973)). The cui-ui is listed as “Endangered” (Federal register Vol. 32, p. 4001) and the LCT is listed as “Threatened” (Federal Register Vol. 40, p. 29864).

Physical injury and/or mortality, and fish passage are the most likely immediate impacts to cui-ui and LCT. Degradation of water quality will be temporary and is not expected to occur after construction ceases. It is concluded that construction activities associated with the scour protection countermeasures for bridge structure B-1351 warrants a **May Affect, Not Likely to Adversely Affect** determination. Impacts will not jeopardize the continued existence of the species.

This Biological Assessment was prepared in accordance with the legal requirements under Section 7 of the ESA (16 U.S.C. 1536(c)).

1.0 INTRODUCTION AND BACKGROUND INFORMATION

The Nevada Department of Transportation's (NDOT) Bridge Scour Program is a mandated program by the Federal Highway Administration (FHWA) for all states, and requires that every bridge over water be evaluated for its vulnerability to scour. To comply with this federal mandate, NDOT hired Ayres Associates to evaluate the scour susceptibility of all of the state's bridges over water. This mandate resulted from the recognition that the most common cause of bridge failure is the scouring of bed material from around bridge foundations during floods. The result of the Scour Susceptibility Assessment in 2005 for the Nixon Bridge (B-1351) assigned a National Bridge Inventory (NBI) rating of Item 113, Code 3. This rating indicates that the bridge is scour critical and that a plan of action is necessary to address the scour hazard. The scour hazard at this bridge is due to pier scour caused by severe hydraulic conditions and the relatively wide exposed sheet-pile encasements of the piers. The scour report also indicated that the rock weir immediately downstream of the bridge should also be improved. The rock weir is at risk of failure from either undermining or flanking along the south bank (Ayres Associates, 2005).

B-1351 carries SR-447 over the Truckee River, in Nixon, NV, located near Pyramid Lake in Washoe County. The bridge was constructed in 1972 and carries two 12 foot travel lanes along with two 7 foot shoulders, and a 4 foot sidewalk separated by a concrete barrier on the east side of the bridge for a total bridge width of 42 feet. B-1351 is a concrete, three span bridge with pile supported concrete abutments and piers. Gabion mats protect the embankment slopes underneath the bridge. Each solid-wall pier is 1.7 feet wide by 44 feet long and has a triangular nose and tail. Pile driving records indicate that the steel piles for Pier 1 (south pier) are approximately 28 feet long (23 feet below the channel bottom) and the steel piles for Pier 2 (north pier) are approximately 19 to 29 feet long (15 to 25 feet below the current channel bottom). Due to past scour problems sheet-pile encasements of both pier footings were constructed in 1984. Both encasements have triangular tails and noses with the tips of the sheet-pile at an elevation about 24 feet below the current channel invert. The encasement for Pier 1 is approximately 13 feet wide and the encasement for Pier 2 is approximately 19 feet wide. A rock weir is present approximately 30 feet downstream of the bridge which acts as a hydrologic control to protect the bridge for an existing headcut attempting to migrate up river. A complete set of site photographs can be found in Appendix A. Photographs.

The purpose of this Biological Assessment (BA) is to review the proposed Nixon Bridge Scour Countermeasures Project in sufficient detail to determine to what extent the Proposed Action may affect federally threatened, endangered, or candidate species. The United States Fish and Wildlife Service (USFWS) has determined that the Lahontan cutthroat trout (LCT) (*Oncorhynchus clarki henshawi*) is a federally-listed threatened species and the cui-ui (*Chasmistes cujus*) a federally-listed endangered species may occur in the project area (USFWS Species List, September 11, 2013). Section 7 of the Endangered Species Act (ESA) of 1973 requires that a BA be prepared to determine if the listed species may be affected by the Proposed Action. This BA is prepared in accordance with legal requirements set forth under Section 7 of the ESA, as amended (ESA; 16 U.S.C. 1536(c)), and follows the standards established in the ESA guidance (USFWS and NMFS, 1998).

The primary objectives of this BA are outlined below:

- A description of the background, proposed project and its location;
- A discussion of the Proposed Action;
- An analysis of the existing environment;
- The biology and life history of the cui-ui;
- A description of the background of the decline of the cui-ui;
- An analysis of environmental impacts potentially resulting from the Proposed Action;
- A discussion of direct and indirect effects;
- A discussion of avoidance, minimization, and mitigation measures to protect the cui-ui;
- A discussion of cumulative effects;
- A summary of cui-ui recovery efforts;
- Site photographs (Appendix A);
- Streamflow Data from the United States Geological Survey (USGS) Nixon gage (Appendix C); and
- A determination of affects on the cui-ui.

1.1 PROJECT LOCATION

The Nixon Bridge Structure Scour Countermeasures Project area is located along the lower Truckee River within the town of Nixon, NV, within the Pyramid Lake Indian Reservation (PLIR), within the southeast quarter of Section 26, Township 23 North, Range 23 East (Figure 1. Vicinity Map & Figure 2. Location Map). B-1351 is located at milepost WA 15.47 on SR-447, approximately 0.61 mile north of the intersection of SR-447 and SR-446. The project footprint will extend from the south end of the bridge to the north end, and extend approximately 180 feet downstream of the downstream face of the bridge and approximately 50 feet upstream of the upstream face of the bridge (Figure 3. Easement Plan).

1.2 CONSULTATION HISTORY

Early coordination consisting of personal communications at an on-site meeting with the USFWS, United States Army Corps of Engineers (USACE) and NDOT occurred on September 23, 2013, to determine the need for formal consultation. The Pyramid Lake Paiute Tribe (PLPT) was invited but was not in attendance. Discussion included the federally listed LCT and cui-ui species and what affects the Proposed Action may have on these species. It was agreed upon, by all parties, that the project design and BA will focus on the affects of the Proposed Action on the cui-ui. This is due to the benthic nature of the cui-ui and more stringent slope and flow rate requirements for this species' passage through the project area post construction (Andy Starostka, USFWS, Personal Communications 10/31/13). The cui-ui, compared to LCT, have more restrictive flow rates and require shallower slopes for successful passage through the project area post construction. Therefore, the limiting species within the project area is the cui-ui. The USFWS agreed the BA would focus on this species since requirements imposed for the cui-ui would be above and beyond any requirements for the LCT. Back-up documentation for formal and informal consultation information can be found in Appendix B.

NDOT requested a species list from the USFWS via the IPAC system on September 11, 2013

Figure 1. Project Vicinity Map

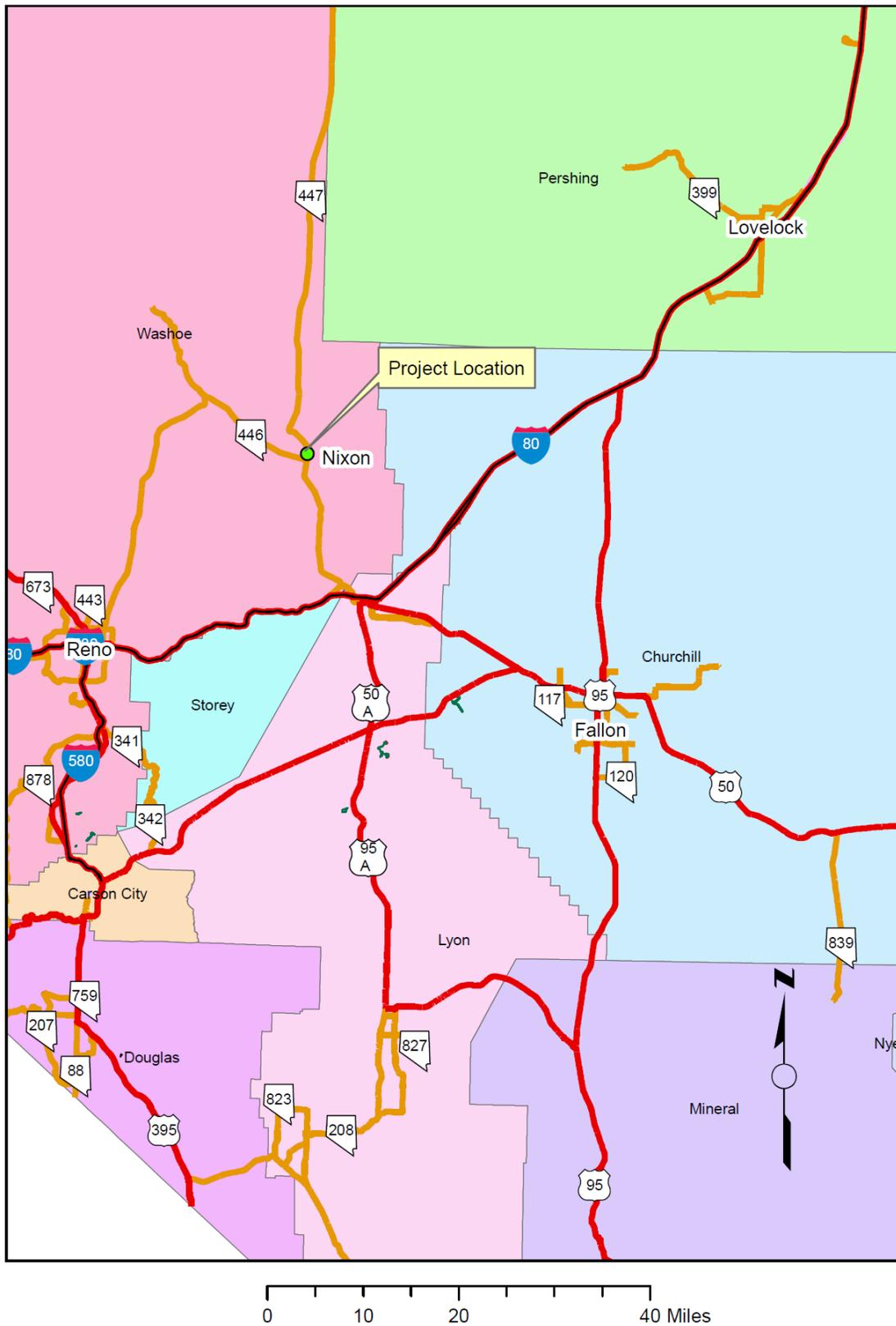


Figure 2. Project Location Map



(Appendix B). This list concurred that LCT and cui-ui may occur within the project area. The LCT was listed by the USFWS as endangered in 1970 (Federal Register Vol. 35 p. 13520) and reclassified as threatened in July of 1975 to facilitate management regulated angling (Federal Register, Vol 40, p. 29863). The cui-ui was listed by the USFWS as endangered in March of 1967 (Federal Register Vol. 32, p. 4001). There is no critical habitats currently designated for either of these species, but are they protected everywhere they are found (USFWS, 2014). The list also identified the greater sage-grouse (*Centrocercus urophasianus*), a federally listed candidate species, may occur within the project area. The project area does not contain greater sage-grouse habitat and candidate species are not afforded protection under the ESA. The greater sage-grouse and LCT will not be addressed further in this BA.

Informal Consultation History

- **9/23/13:** A project kickoff meeting occurred on site at the Nixon Bridge with USFWS Biologist Andy Starostka; Kristine Hansen, Regulatory Project Manager, USACE; Jason Perock, Environmental Scientist, NDOT; Nova Simpson, Environmental Scientist, NDOT; John Loveless, Designer NDOT; Jim Moore Senior Hydraulics Engineer, NDOT; and Donald Naquin, Environmental Scientist, NDOT. The PLPT was invited to the meeting but was not in attendance. After a brief review of the project, Andy noted that NDOT will need to consult for cui-ui but not on LCT due to the benthic nature of cui-ui and their more stringent requirements for fish passage through the project area post construction.
- **10/23/13:** Telephone correspondence with Nancy Vucinich, PLPT Fish Biologist, regarding fish salvage activities. The discussion involved the tribe's level of involvement with the proposed fish salvage activities. Nancy indicated that the tribe was not interested in performing the fish salvaging activities but requested to be present during these activities.
- **11/1/13:** Email correspondence from Andy Starostka, USFWS Biologist provided target velocities and slopes to aid in the design to accommodate cui-ui passage through the project area. Andy indicated that velocities at the downstream face of the rock weir should be no more than 3ft/s and the slope should be no more than 1/10.
- **1/16/14:** Email correspondence from Andy Starostka, USFWS Biologist provided previous consultations with the USFWS for work done previously on the Nixon Bridge.
- **1/22/14:** A design meeting was held at the USFWS office in Reno, NV with the USFWS, NDOT and the PLPT. This meeting was to discuss design options following 2-D modeling by NDOT to achieve target velocities and slope requirements. Andy indicated that more work was needed informing the PLPT on design options. Andy indicated that the USFWS would defer to the PLPT's preferred option.
- **2/4/14:** NDOT presented 4 design options to the PLPT Inter-Disciplinary Team (IDT). NDOT staff in attendance included Jason Perock, Environmental Scientist, NDOT; John Loveless, Designer NDOT; Jim Moore Senior Hydraulics Engineer, NDOT; and Chris Young, Environmental Services Supervisor, NDOT. Introductions were not given by the PLPT IDT.
- **3/5/14:** NDOT received formal response and design decision from the PLPT. The PLPT chose Plan B which includes riprap armoring of the river channel approximately 180 feet downstream of the bridge and approximately 50 feet upstream of the bridge. Large

boulders will be randomly placed along the northern channel bank to further reduce velocities and provide resting areas for cui-ui through the project area (Appendix B. PLPT Letter dated 2/20/14).

Formal Consultation History

- File # 78-F-018, FHA, Truckee River Bridge – Nixon
- File # 78-F-061, FHA, Truckee River Bridge Construction – Nixon
- File # 84-TA-012, NDOT, Truckee River – Nixon Bridge Repair
- File # 99-I-038, NDOT, Truckee River Repair

2.0 PROPOSED ACTION

NDOT will construct riprap scour revetment countermeasures (Class 900 Riprap) around the two existing bridge pier footings of B-1315 within the Truckee River, to protect the structure from the scouring effects of the river and repair an existing rock weir immediately downstream of the bridge. The placement of riprap will require entry into the Truckee River channel to access the pier footings and rock weir. Riprap will be placed to span the river channel from approximately 50 feet upstream of the bridge to approximately 180 feet downstream of the bridge. The rock weir downstream of the bridge will be designed and constructed to accommodate passage of the cui-ui post construction. The downstream face of the rock weir will be constructed to a slope of approximately 1.4% (extending approximately 180 feet downstream of the bridge) with the addition of large, scattered boulders, randomly placed along the north side of the river channel throughout the project area. These boulders will further reduce river flow velocities and provide resting areas for the cui-ui during passage. It is anticipated that approximately 0.94 acre of river channel will be excavated and approximately 8,535 cubic yards of riprap and riprap bedding will be placed within the project area (Figure 4, Figure 5, Figure 6 and Figure 7 – Plan Sheet Details).

This is a federally funded project administered by the FHWA. Construction activities below the ordinary high water mark (OHWM) will be required. Due to the location of the project, the nature of the work to be constructed, and federally listed species present within the project area, coordination and consultation will take place with the USACE, PLPT and the USFWS. Authorization from the USACE in the form of a Section 404 Department of the Army Permit will be required for construction activities within jurisdictional boundaries below the OHWM of the Truckee River. Tribal permits issued by the PLPT, i.e. Section 401 Water Quality Certification, will be required for water quality assurances. Consultation with the USFWS is necessary to assess impacts to fish species, most notably the cui-ui and LCT.

B-1351 scour countermeasures construction is scheduled to begin October 2015 with a completion date of November 2015. Construction is anticipated to take approximately 6 to 8 weeks. Construction will be timed to avoid spring spawning runs of the cui-ui and LCT.

2.1 CONCEPTUAL DESIGN

The conceptual construction sequencing for the construction of the riprap scour countermeasures will consist of the activities listed below in chronological order. Actual sequencing is dependent on final design, permitting requirements, and other contractor needs.

Figure 6. Plan Sheet DD3

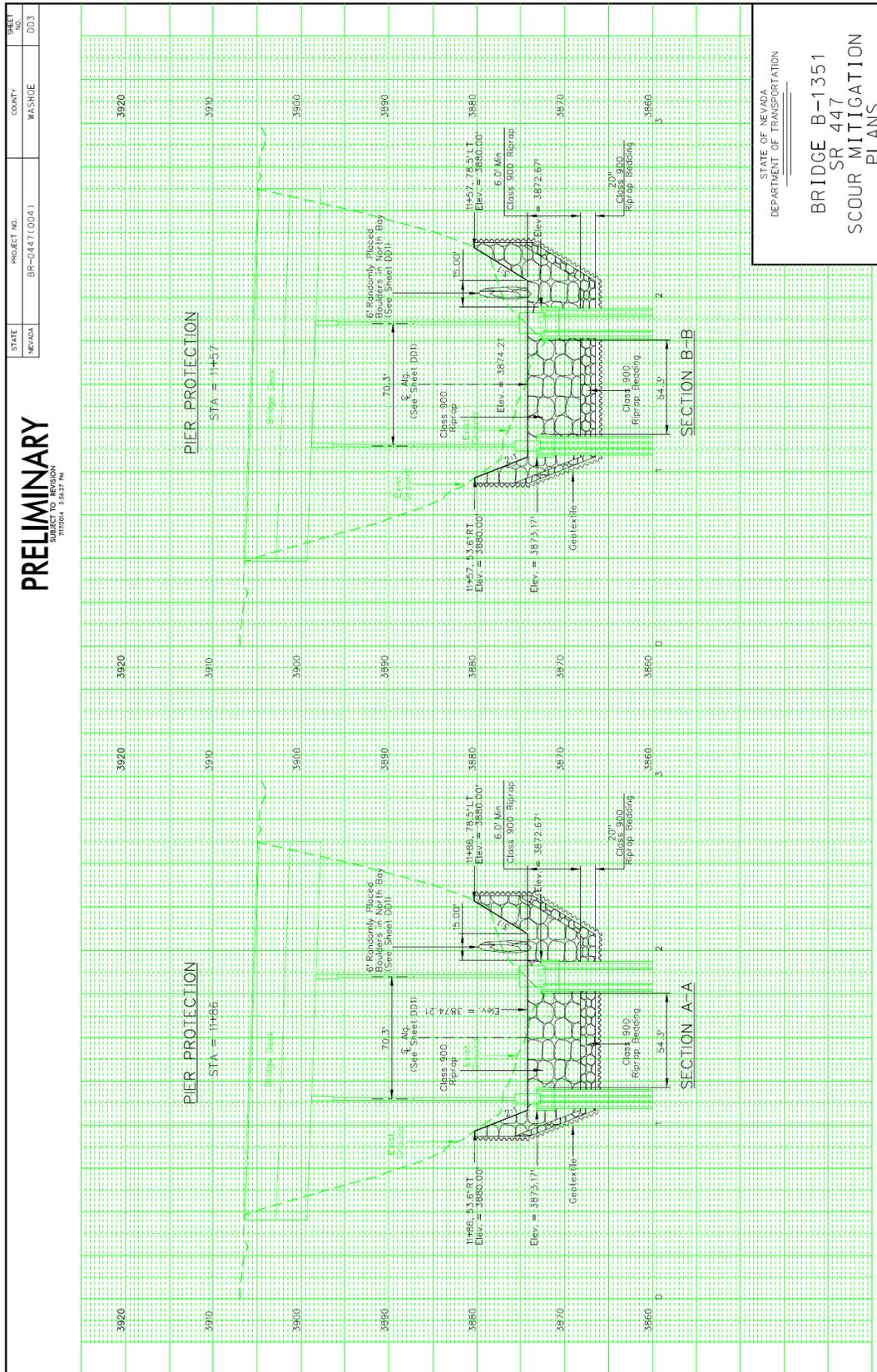
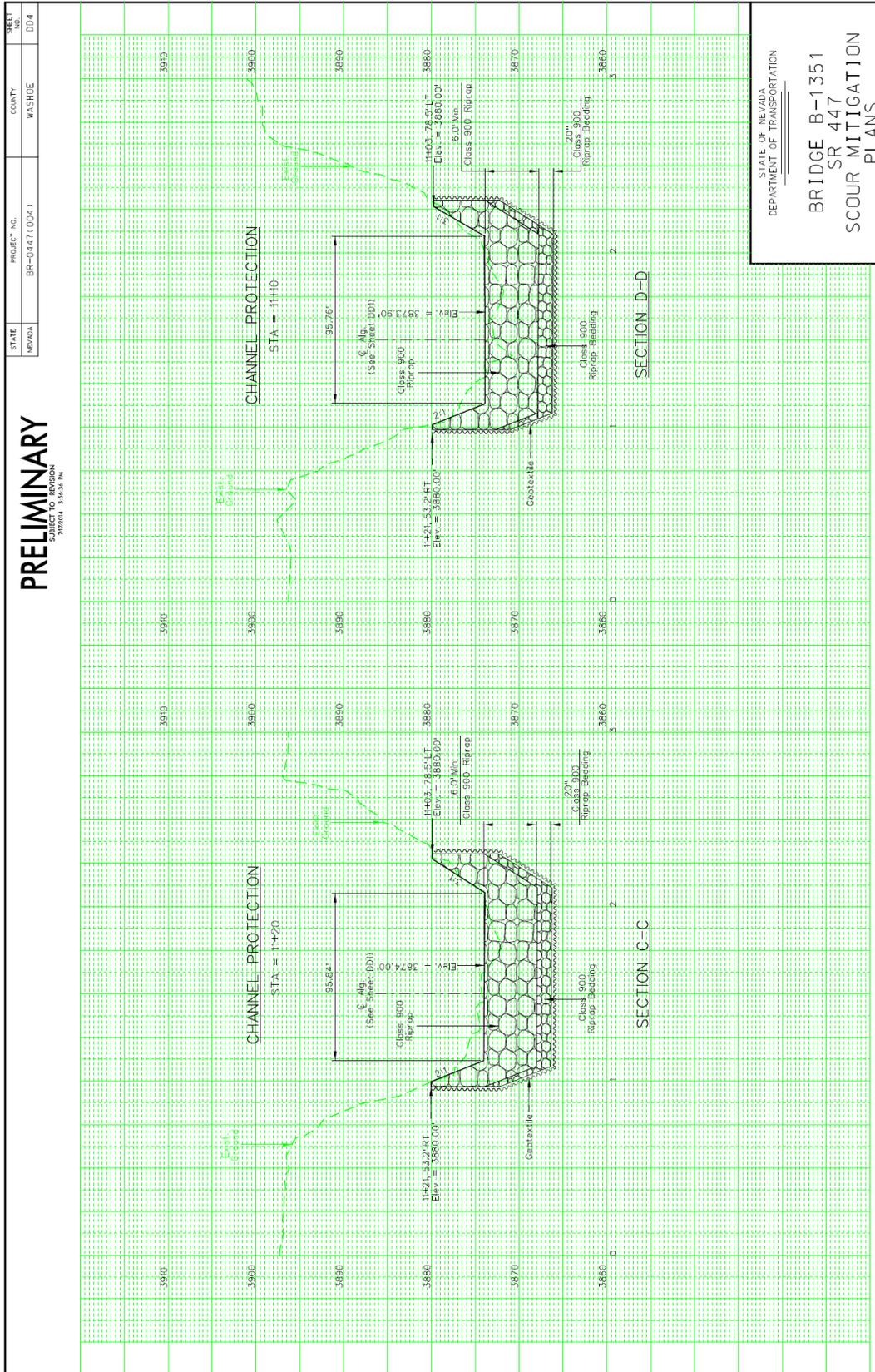


Figure 7. Plan Sheet DD4



1. Procurement of Class 900 Riprap (~3' diameter) and larger boulders (~6' diameter);
2. Truckee River diversion (north or south half);
3. Fish salvage;
4. Removal/Excavation of existing riprap and gabion mats (if necessary);
5. Placement and keying-in of riprap and large boulders;
6. Flip Truckee River diversion (north to south or south to north);
7. Fish salvage;
8. Removal/Excavation of existing riprap and gabion mats (if necessary);
9. Placement and keying-in (secured in place) of riprap and large boulders;
10. Removal of Truckee River diversion;
11. Restoration and rehabilitation of access roads, planting and seeding of disturbed areas; and
12. Final detailing.

Conceptual Staging and Mobilization

NDOT's Contractor will determine actual staging areas, but staging is anticipated to occur behind The Nixon Store located at the intersection of SR-444 and SR-447, and the PLPT maintenance yard on SR-447 approximately 0.1 miles south of the B-1351. Minor staging locations may include the parcels to the southeast and northwest of the bridge near the river access points (Figure 8. Proposed Staging Area Map). Staging will include but will not be limited to, heavy equipment such as loaders, dump trucks and backhoes necessary to construct the project, as well as materials for constructing the riprap scour revetment including Class 900 Riprap, large boulders, geo-synthetic fabric, steel, etc.

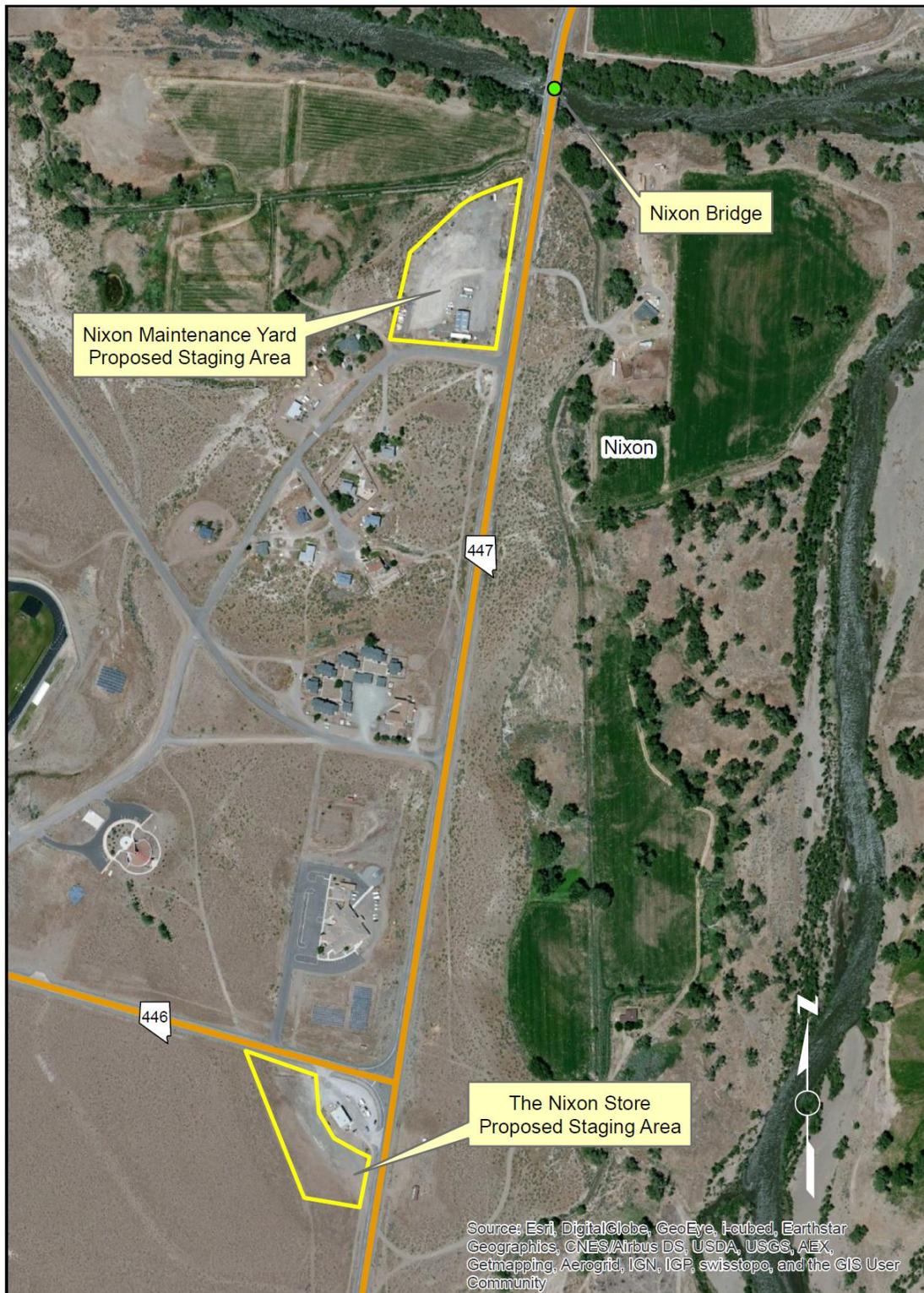
Truckee River Diversion

A temporary river diversion will be installed to divert Truckee River flows to approximately half of the river channel (north or south), creating a dry work zone within the river channel and between the existing piers. It is estimated that the limits of the temporary river diversion will begin 150 feet upstream and end 300 feet downstream of the B-1351 structure, for a total of 492 feet (including the bridge width of 42 feet), creating an in-stream work zone of approximately 0.35 acres in size (Figure 9. Plan Sheet DD5).

Water isolated from the diverted river channel will be allowed to drain out of the in-stream work zone at a rate of one to three inches of water depth per hour. This slow release will allow isolated fish to move downstream and out of the in-stream work zone. A fish salvage operation coordinated by NDOT Biologists and the contractor, with oversight of the PLPT, will ensure that all fish are removed from the in-stream work zone during dewatering. A temporary easement will be obtained from the PLPT and Bureau of Indian Affairs (BIA) for in-stream construction activities (Figure 3. Easement Plan). All equipment and rock imported from off-site sources will be cleaned off site prior to entering the river and placement the rock.

The final design of the temporary river diversion is unknown at this time. A final dewatering plan will be developed by the contractor in conjunction with the temporary diversion plan. NDOT allows the contractor to make design modifications based on current river conditions. However, the contractor will build upon a conceptual design (Figure 9. Plan Sheet DD5) developed by NDOT and presented in the Best Management Practices Plan developed during the

Figure 8. Proposed Staging Area Map



0 0.05 0.1 0.2 Miles

final design. It is anticipated that the temporary river diversion will be comparable to the commonly constructed method of placing a portable precast concrete barrier rail upon gravel bags with an impermeable geotextile liner (non-toxic materials would be best used such as 10 millimeter visquene or similar) to seal off the work zone. Another diversion method, which may be considered, is the use of large sand bags. This approach has proven effective on other river projects. The final design will be reviewed and approved by the PLPT, USACE, USFWS, and NDOT Environmental Services Division prior to construction. Copies of the approved temporary diversion plan and the dewatering plan will be distributed to the appropriate federal and state agencies and the PLPT.

Once work on one side of the river is completed (as described below), flow in the river will be returned to that side of the river. The opposite side of the river will then be dewatered using the same methodology employed to dewater the initial work area within the river channel.

Access Roads

Installation of the temporary river diversion and construction activities will require equipment to enter the Truckee River from the river bank via newly constructed access roads from the southeast, southwest and northwest corners of the bridge. The northwest access will be access the project area from Corral Road. (Figure 3. Easement Plan). Access roads will be graded approximately 16 feet wide with 2:1 fill slopes. Construction of access roads will require clearing and grubbing, minor grading and protection of an existing agricultural ditch south of the project limits. It is anticipated that the access road on the southeast and southwest sides of the bridge will need to be constructed over an existing agricultural irrigation ditch. The ditch will be covered temporarily with steel plates or concrete, with fill being placed on the downhill side to create the access roads. The cover and associate fill will be removed and restored to its original condition post construction.

Conceptual Construction Method

Once access is gained to the river, and the in-river work area is dewatered, the riprap scour protection can be constructed. The existing riprap within the channel and gabion baskets will be excavated and removed (if necessary). The river channel will then be excavated to an approximate depth of up to 12 feet to accommodate the placement of new class 900 riprap (average rock diameter of 3 feet) and large boulders (average boulder diameter of 6 feet). Riprap bedding material, class 900 riprap and large boulders (northern half of the river only) will be placed within the river channel and keyed-in to prevent movement during high flows. Large boulders, placed within the class 900 riprap, along the northern half of the river only, are incorporated into the design to provide resting/refuge areas and reduce stream flow velocities to accommodate passage of federally protected fish species to spawning areas upstream of the project area post construction. At the request of the PLPT and the USFWS, spawning gravel (0.25" - 3") will be place over the riprap scour countermeasures. It is anticipated this material will be flushed down river into the existing scour hole downstream of the rock weir but will benefit the cui-ui and LCT by improving habitat downstream of the project.

All areas of disturbance will be restored and revegetated including temporary staging areas and access roads. Temporary staging areas and access roads will be re-contoured to original

condition prior to construction, any additional temporary fill removed, and revegetated. Revegetation includes but is not limited to hydroseeding, pole plantings and planting of containerized stock of native local indigenous species. Revegetation specifications will be included into the project contract to ensure successful revegetation of native plant species.

2.2 SCHEDULE

Final design and environmental permitting activities are currently underway. Riprap scour countermeasures design, National Environmental Policy Act (NEPA) review, and permitting are expected to take approximately 12 to 18 months. It is anticipated that all planning documentation will be completed and the project would be construction-ready by October 2015 with improvements beginning immediately. Activities such as the water diversion, excavation, and the placement of riprap and boulders are expected to be completed within 4 to 6 weeks. Additional time may be necessary depending on final detailing or spill over work, for a maximum estimated time of 8 weeks.

2.3 REGULATORY REQUIREMENTS AND BEST MANAGEMENT PRACTICES

2.3.1 Water Quality

In order to prevent accidental physical harm to cui-ui, LCT or the riverine environment during construction activities, a number of water pollution control measures will be taken, in accordance with federal, state and tribal requirements. Required federal and tribal water quality permits, permitting authority and the party responsible for obtaining the permits are presented below in Table 1. Federal Regulatory Permit Requirements.

Table 1. Federal Regulatory Permit Requirements

Permit Type	Issuing Authority	Responsible Applicant
CWA 404 Dredge and Fill Permit	USACE	NDOT
CWA 401 Water Quality Certification	PLPT	NDOT
Construction Stormwater Permit	EPA	Contractor

In support of these permits several water quality components and BMPs will be developed including; the stormwater pollution prevention plan (SWPPP), river diversion and dewatering plan, water quality monitoring/sampling plan, equipment contamination and fueling procedures, spill contamination and clean-up procedures.

SWPPP

The SWPPP, developed by NDOT's contractor, will identify potential stormwater pollution sources and appropriate BMPs that will be utilized to prevent or reduce to the maximum extent possible, pollutant discharges to the Truckee River. The SWPPP will address erosion and sediment control, streambank stabilization, dewatering controls, general housekeeping measures, etc.

River Diversion and Dewatering Plan

A river diversion plan and dewatering plan will be developed by NDOT's contractor and submitted to the PLPT, USFWS, USACE, and NDOT Environmental Services Division for

review and approval at a minimum of one month prior to construction. Dewatering of the work zone following the installation of a temporary river diversion will occur at a rate of a one to three inch decrease of elevation head per hour to allow fish to move out of the work zone. To prevent water and the accidental entry of fish into the work zone, the temporary river diversion structure will be constructed and lined with impermeable, non-toxic material, e.g. a visqueen liner. Water pumped out of the in-stream work zone will be treated to equal or less than upstream baseline turbidity levels prior to discharge back into the river.

Water Quality Monitoring/Sampling Plan

The project monitoring shall be conducted by means of a water sampling program, a concise narrative report describing the project and a series of photos documenting the project activities including the implementation of sediment and erosion management BMPs. The “before, during and after” photos, shall document the above practices as well as any vegetation removal, and bank stabilization activities. The photos shall be taken from established photo points. The photos, along with the narrative report shall be submitted to the PLPT, USFWS and NDOT Environmental Services within one month of the completion of the project. A record of the water quality sampling and analysis shall be submitted to the PLPT and NDOT Environmental Services Division monthly.

Water Quality samples taken for turbidity in compliance with the monitoring requirements shall be taken at approved sampling locations, one upstream of the work area and one downstream of the work area. Samples shall be taken in the centroid of flow in the main channel of the river. Flow shall be measured for all discharges. Daily measurements in the river shall be recorded in a log, with copies included with daily monitoring reports. One background sample upstream and downstream each shall be collected prior to work in the river; daily sampling shall be initiated upstream and downstream when active construction work in the river and streamzone begins and shall be conducted daily. Sampling is not required when equipment is out of the river and no project work is occurring. Work shall cease when turbidity at the downstream sampling location exceeds 10 NTU above turbidity at the upstream sampling location, and shall not resume until a subsequent test is less than 10 NTU above turbidity at the upstream sampling location. Subsequent tests shall not be taken sooner than 15 minutes after the initial test.

If a visible plume is generated **during the initial river diversion setup**, compliance sampling shall occur at the downstream sampling location. Work shall cease when turbidity at the downstream sampling location exceeds 10 NTU above turbidity at the upstream sampling location, and shall not resume until a subsequent test is less than 10 NTU above turbidity at the upstream sampling location. Subsequent tests shall not be taken sooner than 15 minutes after the initial test.

If a visible plume is generated **after the initial river diversion setup**, a grab sample shall be taken immediately from the center of the plume and analyzed for turbidity; the width and depth of the plume shall be estimated at that time and recorded. If the sample results exceed 10 NTU above the upstream sampling location reading, work shall cease immediately, measures shall be taken to remedy the situation, and NDOT’s contractor shall notify the PLPT and NDOT Environmental Services Division immediately for consultation on additional BMP

implementation. BMPs shall be evaluated and any inadequacies addressed. Sampling at the downstream sampling location shall not occur no sooner than 15 minutes after ceasing work. Work may resume when turbidity results at the downstream sampling location are less than 10 NTU above the upstream sampling location. Analytical work, if required, shall be conducted by a Nevada Certified Laboratory.

Equipment Contamination, Fueling and Spill Control and Clean-Up

To minimize the potential for contaminants to be released into the river during construction, all equipment will be fueled and maintained at a designated fueling location, at a minimum of 100 feet away from the river. Spills will be addressed in accordance with standard spill control procedures. All equipment working within the river area will be visually inspected daily for petroleum, hydraulic, or other leaks. NDOT's contractor will pressure wash all equipment prior to the equipment entering the river to control contamination from accumulated greases and oils on the machinery and eliminate the possibility of introducing noxious weeds.

2.3.2 Best Management Practices

BMPs will be implemented to minimize sedimentation and erosion, and other potential sources of water pollution in accordance with the NDOT's Construction Site BMP Manual (NDOT 2006). Typical BMPs that could be utilized in the project are provided in Table 2. Please refer to the manual for complete descriptions.

Table 2. List of BMPs from NDOT's Construction Site BMP Manual

Best Management Practice Title	NDOT BMP Reference #	Description of the BMP
Dewatering Operations	NS-2	Dewatering operations are practices that manage pollutants when non-stormwater and stormwater must be removed from the work site.
Clear Water Diversion	NS-5	Clear water diversions consists of various structures (e.g. berms, aqua barriers) and measures that intercept clear surface water upstream of a project site, transport it around the work area, and discharge it downstream with minimal water quality degradation by either the project construction operations or the construction of the diversion.
Vehicle and Equipment Cleaning	NS-8	Vehicle and equipment cleaning procedures and practices are used to minimize or eliminate the discharge of pollutants from vehicle and equipment cleaning operations. Cleaning stations will be located away from storm drain inlets, drainage facilities and watercourses. These areas must also be bermed in an impermeable material.
Vehicle and Equipment Fueling	NS-9	Vehicle and equipment fueling procedures and practices are designed to prevent the discharge of fuel spills and leaks into storm drain systems or to watercourses. Fueling areas will be located no closer than 100 feet from the edge of the water.
Vehicle and Equipment	NS-10	Vehicle and equipment maintenance procedures and

Maintenance		practices are designed to prevent the discharge of fuel spills and leaks into storm drains or to watercourses.
Material and Equipment Use Over Water	NS-13	Procedures for the proper use, storage, and disposal of the materials and equipment on barges, boats, temporary construction pads, or similar locations that minimize or eliminate the discharge of potential pollutants to a watercourse.
Structure Demolition and Removal Over or Adjacent to Water	NS-15	Procedures to protect water bodies from debris and wastes associated with structure demolition or removal over or adjacent to watercourses.
Geotextiles, Mats, Plastic Covers and Erosion Control Blankets	SS-7	Geotextiles, mats, plastic covers and erosion control blankets are used to temporarily stabilize disturbed soil and protect soils from erosion by wind or water.
Streambank Stabilization	SS-12	These procedures typically apply to all construction projects that disturb or occur within stream channels and their associated riparian areas.
Wind Erosion Control	SS-13	Dust or wind erosion control consists of applying water, soil stabilizers, dust palliatives, or other soil stabilization BMPs to prevent or minimize dust.
Silt Fence	SC-1	A silt fence is a temporary linear sediment barrier.
Sediment Logs	SC-5	A sediment log is placed on the toe and face of slopes to intercept runoff and reduce its flow velocity.
Gravel Bag Berm	SC-6	A gravel bag berm forms a barrier across a slope to intercept runoff, reduce its flow velocity, release the runoff as sheet flow, and provide some sediment retention.
Stockpile Management	WM-3	Stockpile management procedures are designed for stockpiles of soil, and paving materials such as Portland cement, aggregate sub-base or premixed aggregate and pressure treated wood.
Spill Prevention and Control	WM-4	These are procedures and practices implemented to prevent and control spills in a manner that minimizes or prevents the discharge of spilled material to the drainage system or watercourses.
Construction Debris and Litter Management	WM-5	Solid waste management procedures and practices are designed to minimize or eliminate the discharge to the drainage system or watercourses as a result of the creation, stockpiling, or removal of construction site wastes.
Concrete and Paving Curing	NS-12	Concrete and pavement curing is used on bridges, retaining walls, and pump houses using both chemical and water.
Concrete Finishing	NS-14	Concrete Finishing methods are used for bridge deck rehabilitation; sound walls, paint removal, curing compound removal, and final surface.

2.3.3 Biological Requirements

NDOT's contractor will develop a fish salvage plan to be submitted to the PLPT, USFWS, USACE and NDOT Environmental Services Division for final approval at a minimum of one month prior to construction. Fish that do not migrate out of the temporary river diversion will be relocated through the coordinated efforts with NDOT Biologists and NDOT's contractor, with oversight by the PLPT Fisheries staff. Fish salvage activities will comply with USFWS protocols.

At the request of the USFWS and the PLPT, NDOT will place washed gravel 0.25 to 2.5 inches in diameter to a depth of one foot, following the installation of the riprap scour protection, within the temporary dry work zone to enhance potential fish spawning habitat downstream of the project area. In addition, approximately 10 boulders, approximately 6 feet in diameter, will be strategically placed within the north bay of the bridge and along the northern portion of the river channel, within the temporary dry work zone, to increase cover and refuge locations and provide resting areas for spawning cui-ui. All river rock material imported from offsite sources will be cleaned prior to placement within the river channel.

3.0 EXISTING ENVIRONMENT

This section describes the biotic, historic, and current hydrologic environment of the project area and emphasizes those factors most likely to influence essential habitat components for the federally listed cui-ui. Collectively, these descriptions provide the background for the analysis of impacts on the cui-ui in Section 4.0, since some alteration of these environmental elements will result if the Proposed Action is approved. Photographs of the proposed project area are provided in Appendix A.

3.1 BIOTA

Aquatic

Species lists were obtained from the USFWS, Nevada Department of Wildlife, and Nevada Natural Heritage Program (NNHP) to identify species that are listed as threatened or endangered. LCT (*Oncorhynchus clarki Henshawi*) and cui-ui (*Chasmistes cujus*) may occur in the project area or may be affected by the project. The LCT and cui-ui are currently listed as threatened and endangered, respectively, and warrant federal protection under the ESA (7 U.S.C. 136: 16 U.S.C. 460 & 1531 et seq. (1973)).

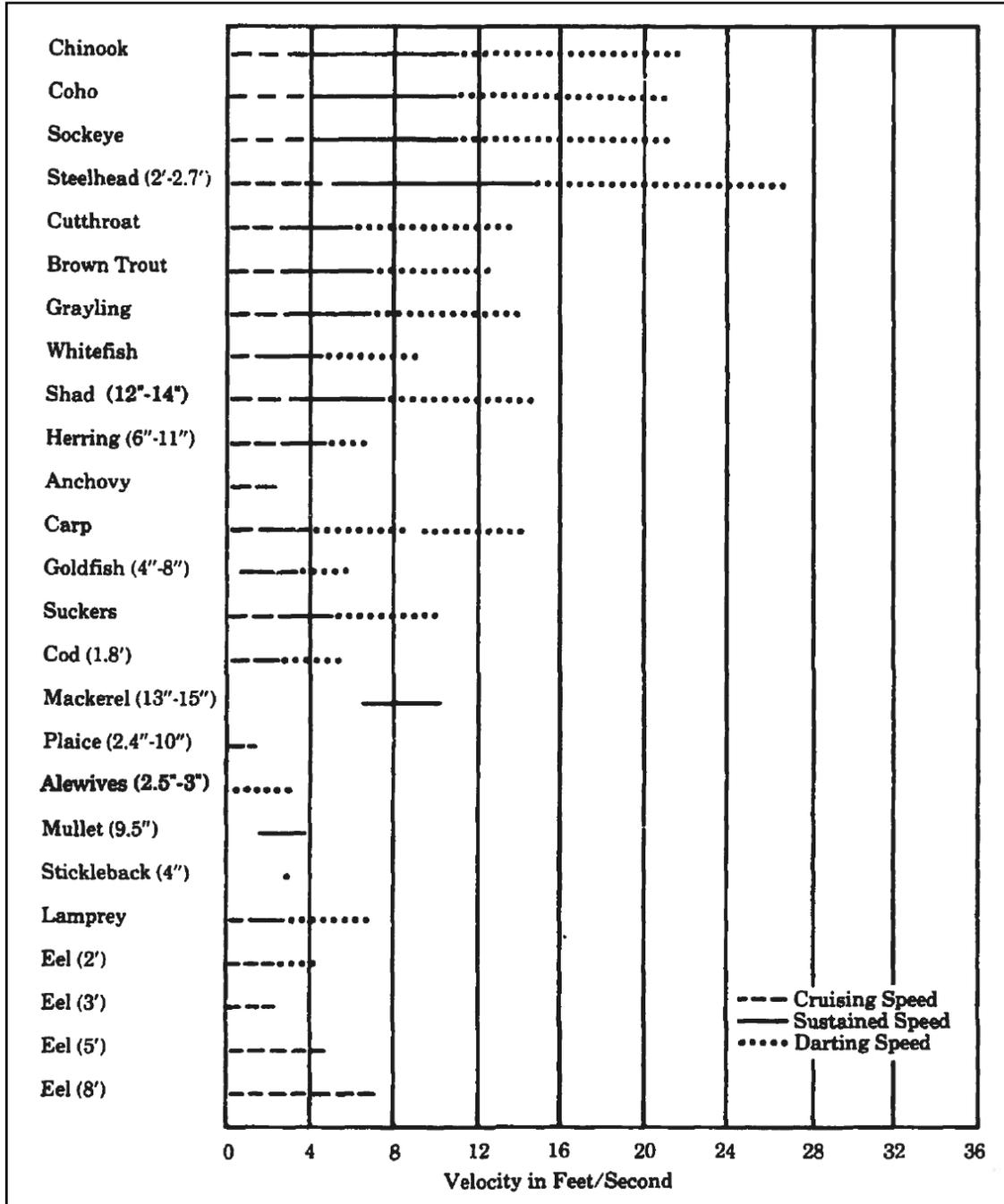
The cui-ui was listed by the USFWS as endangered in March of 1967 (Federal Register Vol. 32, p. 4001). There is no critical habitat currently designated for this specie, but are they protected everywhere they are found (USFWS, 2014).

Due to the benthic nature of the cui-ui and more stringent requirements associated with cui-ui passage through the project area, it was decided on 9/23/13, with Andy Starostka, USFWS Biologist that this document will focus on the affects to cui-ui, with the assumption if cui-ui can pass through the project area post construction, LCT will also pass. Although no formal fish surveys were conducted, the PLPT IDT indicated verbally that cui-ui have been found

approximately 5 river miles upstream of the project area at the Numana Dam (PLPT IDT Meeting, 2/4/14).

Swimming and jumping capabilities can vary greatly between fish species. Figure 10 below, taken from Bell's Fisheries Handbook, depicts relative swimming abilities of adult fish.

Figure 10. Relative Swimming Abilities of Adult Fish, in Customary Units (Bell 1991)



Fish movement can be divided up into three categories based on speed: cruising, sustained, and Darting. Cruising is a speed that can be maintained for long periods of time (hours). Sustained is a speed that can be maintained for minutes. Darting is a speed obtained in a single effort and is not sustainable. (Bell 1991).

Fish normally employ cruising speed for movement (as in migration), sustained speed for passage through difficult areas, and darting speed for feeding or escape purposes. Swimming and jumping capabilities can vary greatly between species. As depicted above in Figure 10, burst speeds reaching approximately 13.5 ft/s give cutthroat trout a higher velocity potential than suckers at approximately 9.5 ft/s. The figure also indicates that cutthroat trout can sustain longer sustained speed and darting speed compared to suckers (Bell 1991). Therefore, as stated previously in Chapter 1.2, the LCT will not be further addressed in this document.

Benthic macroinvertebrates are good indicators of water quality condition and are the primary food sources for fish species. Although no data was found specific to the project area, samples have been collected at a number of sites on the Truckee River. Overall values indicate the biological condition for macroinvertebrates was of higher quality in the upper reaches of the Truckee River system and declined in quality in the lower river system as it approaches Pyramid Lake (Tetra Tech, 2004 and 2007).

Vegetation

This portion of the Truckee River is flanked by higher elevation communities associated with highly disturbed and altered agricultural land. Agricultural lands border the river corridor approximately 7 river miles upstream and 3 river miles downstream of the project area. Multiple agricultural irrigation ditches and sloughs divert flows from the Truckee River through this 10 mile stretch of agricultural lands flanking the river. A narrow riparian corridor exists in some areas between the river and agricultural fields but is not continuous.

Vegetation consists of riparian species dominated by Fremont cottonwood (*Populus fremontii*) with a mix of coyote willow (*Salix exigua*) and black cottonwood (*Populus balsamifera* ssp. *Trichocarpa*) within the riparian river corridor. Vegetation within the upland areas of the project area is composed of characteristic Lahontan salt desert shrub species including, greasewood (*Sarcobatus vermiculatus*), basin big sagebrush (*Artemisia tridentata* ssp. *tridentata*), and rubber rabbitbrush (*Ericameria nauseosa*).

State listed noxious weeds are also present within the project area. Species include tall whitetop (*Lepidium latifolium*), and madusahead rye (*Taeniatherum caput-medusae*).

Soils

The United States Department of Agriculture Natural, Resource Conservation Service has mapped the soils on the north and south side of the river within the project area as Map Unit 532, Sagaouspe Gravelly Sand, Gravelly Substratum. Sagaouspe Gravelly Sand, Gravelly Substratum are deep, somewhat poorly drained soils derived from mixed alluvium that occur within floodplains. Slopes are typically zero to two percent. The depth to a restrictive layer is more than 80 inches and the depth to the water table is 36 to 42 inches. Available water capacity is

low (USDA Web Soil Survey, 6/11/14).

3.2 CHANNEL MORPHOLOGY AND GEOMORPHIC PROCESSES

B-1351 is located in the center of a long straight reach of river that runs east to west. A tight bend lies at the upstream end and a somewhat gentler bend lies at the downstream end of this straight reach. Multiple terraces composed of riverine, eolian, and lacustrine deposits bound the river on both sides. Old meander scars and oxbow lakes are present on the higher terraces upstream and downstream of the bridge. The bridge is situated on one of the lower terraces, but well above the active floodplain (Ayres Associates 2005).

The Truckee River in this area is a small to medium size river, equal river width that is fairly sinuous, meandering through multiple terraces composed of river deposits, lacustrine and deltaic deposits and eolian deposits. The river is deeply entrenched as a result of significant degradation associated with the fall of historic lake levels and as a result of the failure of the BIA diversion dam in 1950 just downstream of the present Marble Bluff Diversion Dam (Approximately 3 miles downstream of B-1351). The banks in the bridge reach are as much as 16 to 18 feet high. Old high water debris can be found 3 to 4 feet below the top of the banks in places. Deep scour holes are present just upstream and downstream of the bridge; the scour hole just downstream of the bridge is nearly 10 feet deep in places (Ayres Associates 2005).

A narrow, inset floodplain exists intermittently along the channel in this reach. Mature cottonwoods and willows are well established on the inset floodplain, where it exists and along the lower banks of the channel. The bed of the channel is intermittently composed of fluvial sediments and outcrops of highly resistant fine-grained deltaic and lacustrine sediments. In the bridge reach, strath surfaces of cemented fluvial gravels border the channel, indicating periods of lateral adjustment and vertical stability. Upstream and downstream of the bridge, alluvial sediments in the channel bed and bars are composed of predominantly of sand and gravel. Where alluvium is present in the channel bed, the bed is not armored (Ayres Associates 2005).

In 1991 NDOT constructed a boulder weir across the channel approximately 30 feet downstream of the bridge. The weir was placed to protect the bridge from an existing head cut which is attempting to migrate upstream. The boulder weir is unraveling as material is redistributed or settles and the downstream edge is undermined by scour. The south end of the boulder weir has been placed on top of a narrow bench of cohesive lacustrine material at the base of the south bank. Future undermining of the bench could threaten the south end of the boulder weir and in turn jeopardizing the west noses of the bridge piers and their foundations. The drop in water surface elevation across the weir, at low flow, is approximately 2.5 to 3 feet (Ayres Associates 2005).

Lowering of the water level in Pyramid Lake by more than 80 feet since 1905 and the loss of an old BIA dam at the present location of the Marble Bluff Dam in 1950 resulted in significant incision passing upstream into this reach. As discussed previously, multiple terraces presently border the river as a result of this incision. The reach from just downstream of the bridge to 1.5 miles upstream is fairly steep. The highly resistant fine-grained deltaic sediments presently exposed in the channel bed upstream of the bridge have arrested some of the channel degradation

and restricted lateral migration according to a report by Water Engineering & Technology, Inc. (WET 1991). Miller et al. (1994) suggests that the potential for vertical instability in this reach is high. Ayres Associates, based on existing conditions, rates the potential for vertical instability at this site as moderate, especially if the boulder weir located immediately downstream of the bridge fails or is flanked as a result of the loss or undermining of the lacustrine bench on the south side of the channel (Ayres Associates, 2005).

WET (1991) indicates the planform in this reach has become essentially fixed due to the channel incision into resistant units. WET (1991) also indicates that the widening stage associated with incised channel evolution has already passed through the reach as evidenced by the inset floodplain. In contrast Miller et al. (1994) indicate that there is a high potential for lateral instability in this reach. Ayres Associates (2005), based on existing conditions, the presence of cohesive units in the channel banks, and the deeply entrenched nature of the river, concluded that the river has a low potential for lateral instability. However, it should be noted that on a local scale, large mass failures of the high banks can occur if the toe of the bank is sufficiently undermined (Ayres Associates, 2005).

3.3 LAND USE

The current land use of the surrounding area is agriculture. This portion of the Truckee River is flanked by higher elevation communities associated with highly disturbed and altered agricultural farmlands. Agricultural farmlands border the river corridor approximately 7 river miles upstream and 3 river miles downstream of the project area. Multiple agricultural irrigation ditches and sloughs divert flows from the Truckee River to this 10 mile stretch of agricultural lands flanking the river. A narrow riparian corridor exists in some areas between the river and agricultural fields but is not continuous. Approximately 935 acres of agricultural land is held and operated by PLPT individual assignment holders in the area.

There are multiple agricultural diversions within the Lower Truckee River within PLIR land for irrigation purposes. PLIR diversion structures upstream of the project site include, Herman, Pierson, Proctor, Ollinghouse 1, Fellnagle, Gardella, Ollinghouse 3, and the Numana Dam.

3.4 HYDROLOGY

The main stem of the Truckee River originates in the Sierra Nevada Range at the northwest shore of Lake Tahoe, where an outlet structure regulates flow into the river. The river flows approximately 120 miles through portions of California and Nevada before reaching its terminus at Pyramid Lake in Nevada. The Truckee River watershed is approximately 3,060 square miles in area (USACE, 2007). The contributing drainage area at Reno is about 1,100 square miles and about 1,900 square miles at Pyramid Lake. Elevations range from over 10,000 feet in the mountains to less than 4,000 feet at Pyramid Lake. Flood flows are the result of spring snowmelt or warm heavy rain on snow in the winter. The main tributaries between Lake Tahoe and downtown Reno are the Little Truckee River, Prosser Creek, Donner Creek, Martis Creek, Hunter Creek, Alum Creek, Dog Creek, Bronco Creek, and Grey Creek. Flows above the Reno area are partially regulated by Stampede, Boca, Prosser Creek and Martis Creek reservoirs at Lake Tahoe. Downstream of Reno, the river flows about 50 miles to Pyramid Lake, a remnant of prehistoric Lake Lahontan. The Truckee River terminates into Pyramid Lake, a terminal water

body.

The Truckee River system (excluding the Truckee Canal) is comprised of three river basins as delineated by hydrologic units set by the United States Geologic Survey (USGS): Lake Tahoe, Truckee and Pyramid-Winnemucca Lakes Catalog Units (Table 2).

Table 3. Truckee River Hydrologic Unit Coding

Hydrologic Catalog Unit	HUC	Region	Subregion	Accounting Unit	Area (mile ²)
Lake Tahoe	16050101	Great Basin	Central Lahontan	Truckee	509
Truckee	16050102	Great Basin	Central Lahontan	Truckee	1213
Pyramid-Winnemucca Lakes	16050103	Great Basin	Central Lahontan	Truckee	1395

This is a description of the three hydrologic units that the Truckee River flows through from Lake Tahoe to Pyramid Lake. Each hydrologic unit is assigned a hydrologic unit code (HUC) which is used for identification and reference purposes.

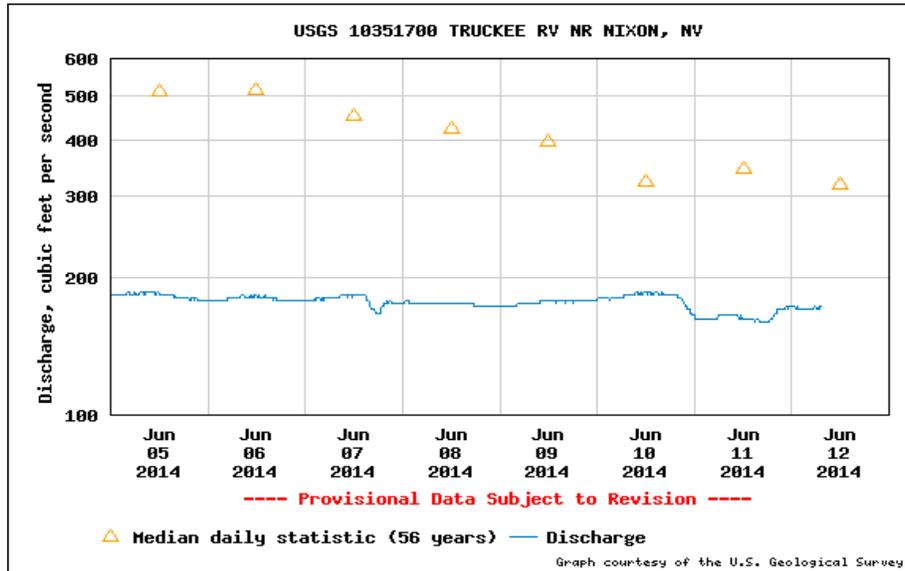
In 1906, the completion of the Newlands Project, and the associated construction of the Derby Dam, flows into Pyramid Lake were cut in half. In 1967, the level of Pyramid Lake reached its lowest point in recorded history, 87 feet lower than when diversions began at Derby in 1906, and prevented fish species from migrating upstream to spawn (USBOR 2011).

During the 1950s and 1960s, river ecosystem function was not understood and was not considered in management practices. The goal at the time was to move water out of the communities as fast as possible to help alleviate flooding concerns. As a result, most of the river through the Reno area was straightened and channelized leading to unstable streams that do not provide all functions of a stream. The sediment transport, water transport, and the ecosystem have all been modified as part of the channelization process.

Streamflow

There are multiple USGS stream-gaging stations on the Truckee River. The closest gage to B-1351 is the USGS gage #10351700, located approximately 6.2 river miles upstream of B-1351, and referred to as the Nixon gage. Recorded data available for the Nixon gage dates from 1957 to 2013 and is included in Appendix C. The monthly mean for all available data indicates that the peak flows typically occur in May and the lowest flows occur in August. Yearly variances depend on annual precipitation rates. However, the data consistently shows that between August and November, the Truckee River flows in the project reach are at their lowest levels (USGS 2014). Annual river flow data is presented below in Figure 10 below.

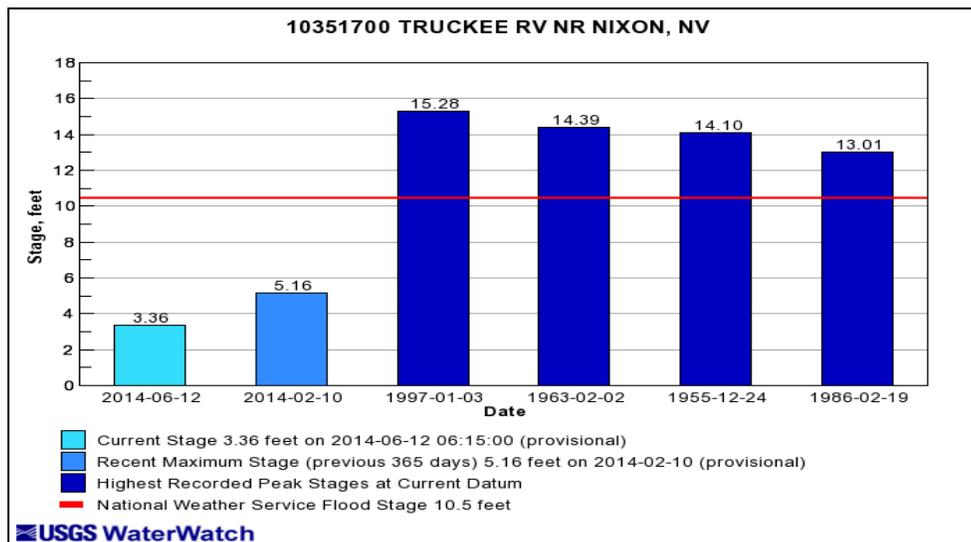
Figure 11. USGS Nixon Gage Flow Data



Source: USGS National Weather Information System 2014

Flooding on the Truckee River occurs on a regular basis with flood events at or above flood stage numerous times over recorded history. Types of flooding include general rain floods (November through April), snowmelt floods (April through July), and cloudburst floods (typically during the summer months) (USACE, 2007). The most recent flood event, and the flood of record, occurred in 1997 with an estimated flow by the USGS at 7,378 cfs. Flood stage at the Nixon gage has been determined to be 10.5 feet. This height has been exceeded four times since the USGS began collecting data at this gage (USGS, 2014). Historical flood data for this gage is presented below in Figure 11.

Figure 12. USGS Nixon Gage Flood Data



Source: USGS National Weather Information System 2014

3.5 WATER QUALITY

Temperature, dissolved oxygen, total dissolved solids, alkalinity, and nutrient supply are important parameters that affect aquatic biota and ecosystem function. As the Truckee River flows from the relatively unpolluted upper Truckee River watershed, erosion and human activities can degrade water quality as the river flows through urbanized areas. Point and non-point sources of pollutants can impact the river from sources such as return flows of irrigation tail waters, sediment runoff (e.g. construction activities), erosion of the watershed, and urban runoff. Numerous diversions for agriculture irrigation and hydropower occur upstream at various locations.

The majority of municipal stormwater runoff in the Truckee Meadows discharges to the Truckee River upstream of the project site (Stantec, 2011). Contaminants that accumulate on public and private lands, parking lots, streets and other roadways can be transported directly to the Truckee River via municipal stormdrains.

Abundance of trout species and community structure in the Truckee River have been shown to decline as the river moves through the urban areas into the lower Truckee River. The cumulative effects of urbanization, loss of riparian cover, reduced flows, increased water temperature and contaminants are contributing factors to the decline of the species. Elevated concentrations of a variety of metals and polycyclic aromatic hydrocarbons (PAH) in river sediments collected in the Reno-Sparks metropolitan area have been reported by USGS and others (Higgins et al., 2006).

Metals and trace elements have been analyzed in fish from various sampling sites along the Truckee River. Concentrations of aluminum and barium were highest in fish sampled above the Reno urban area and were attributed to geochemical interactions of stream water with specific bedrock types. Concentrations of arsenic, mercury, and selenium were highest at the Tracey sampling site located below the Reno-Sparks area. Sources for these constituents were attributed to geothermal springs, historic mine wastes, irrigation, and tertiary-treated sewer effluent within the Steamboat Creek drainage. Although mercury is a concern throughout the Truckee River system, the 2006 study found that mercury concentrations downstream did not exceed avian dietary effects guidelines for fish consumption, or the water quality standard established by the PLPT for mercury concentrations (Higgins et al., 2006).

The lower Truckee River from Wadsworth to Pyramid Lake lies within PLPT Tribal Lands. All water quality authority and permitting is within the auspices of the PLPT. All Water Quality permits will be obtained by the contractor directly from the PLPT. A description of regulatory requirements, applicable permits and responsible permit applicant was discussed in Section 2.3 Regulatory Requirements and Best Management Practices.

3.6 AREA CONTAMINATION

The immediate and surrounding area of B-1351 (the project area) was visually surveyed on June 18, 2014. The survey was conducted to identify any existing hazardous materials or wastes that may be reasonably encountered during construction or project activities. No debris or evidence of prior adverse impacts (e.g. stressed vegetation, stained soils) were identified. No industrial activity or industry related discharges that can be reasonably assumed to have impacted the

project area were located. Existing bridge structure coating materials may contain heavy metals and may present exposure and disposal considerations if disturbed. Additionally, accumulations of bat guano were identified below both northern and southern portions of the bridge (Piekarz, 2014).

4.0 BIOLOGY AND LIFE HISTORY OF THE CUI-UI

This section of the document provides information on habitat requirements, life history, range and distribution, and reasons for decline of the federally-listed cui-ui (*Chasmistes cujus*) in the proposed project area and surrounding region as determined through survey efforts, published and unpublished literature, management plans, and recovery plans. This section also describes anticipated effects of activities associated with the project on the federally-listed cui-ui. The magnitude and nature of effects resulting from implementation of the project is assessed for the cui-ui, relative to the existing nature of effects, relative to existing conditions, in terms of whether these effects are expected to appreciably reduce the likelihood of species survival and recovery. Conclusions regarding the effects of the project on this species, as well as a determination of effects are presented in the Determination of Effects Section 4.5.3.

4.1 HABITAT REQUIREMENTS

Cui-ui spends most of its life in Pyramid Lake, leaving only to spawn in the lower Truckee River between March and June when it reaches maturity between 6-12 years of age. Cui-ui occupy habitat near the lake bottom. They are generally found in near shore areas at depths of less than 75 feet. Pyramid Lake provides rearing habitat for larvae, juveniles and adults. The lower Truckee River provides primary spawning habitat (USFWS, 2014).

Lake Habitat

Pyramid Lake is the terminus of the Truckee River. For much of the year adult and juvenile cui-ui inhabit the littoral zone at depths of 60-100 feet. Juveniles appear to concentrate at the north and south ends of the lake and are most active during the summer and fall (USFWS, 1992).

River Habitat

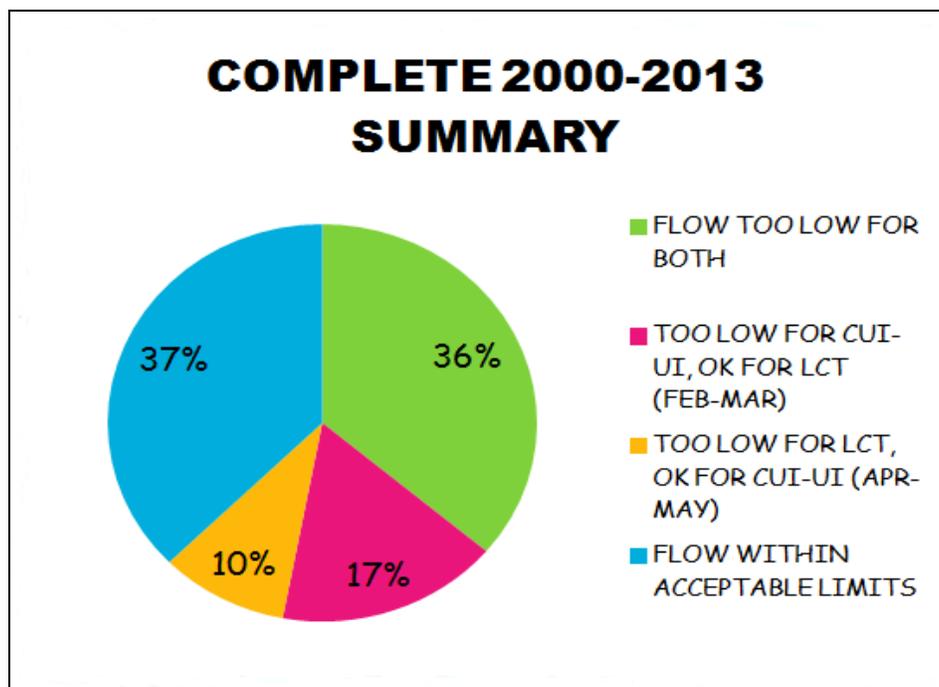
The lower Truckee River is a low to moderate gradient stream. The stream channel has changed significantly during this century. The lowering of Pyramid Lake and the straightening of the river for flood control purposes have created a shallow, braided, and unconfined channel network and formed a broad delta at the mouth. Marble Bluff Dam functions as a hydraulic control to reduce upstream erosion, and has also created several miles of habitat suitable for cui-ui immediately upstream (USFWS, 1992).

Pollutants from point and non-point sources enter from municipal, agricultural, and industrial sources along the entire river, resulting in high levels of nutrient loading to the Truckee River and Pyramid Lake. A variety of factors have degraded water quantity and quality which periodically have adversely affected cui-ui spawning and nursery areas. Increased temperatures, and sediment loading, decreased dissolved oxygen and wetted perimeter, and other parameters have all reduced habitat quality for the cui-ui (USFWS, 1992).

When hydrologic conditions are suitable, cui-ui can access spawning habitat in the lower Truckee River either across the Truckee River Delta or through the Pyramid Lake Fishway. Passage is determined by the elevation of Pyramid Lake and availability of upstream flows. Inflows to Pyramid Lake is often insufficient to attract spawners or to stimulate fish movement into the river or the Pyramid Lake Fishway. Sediment loads in the river, in conjunction with declining lake elevation, have created an extensive delta across the mouth that is frequently a barrier to upstream passage of cui-ui spawners (USFWS, 1992).

The acceptable flow rates (minimum 1000 cfs and maximum 2500 cfs) for the upstream passage of cui-ui were taken from Tables 4 and 5 from “Pyramid Lake Inflow Required for Cui-ui and Lahontan Cutthroat Trout” written by Chester C. Buchanan in May 1987 for the US Fish and Wildlife Service. These values were compared to the recorded flow rates at the USGS Nixon gage from 2000 to 2013 for acceptable flow rates for cui-ui and LCT. The data shows that if each February through May period is examined from 2000 to 2013, the flow was within the acceptable limits for the cui-ui approximately 47% of these years displayed below in Figure 13 below. Supporting documentation can be found in Appendix E Streamflow Data for the USGS Nixon Gage.

Figure 13. Historic Acceptable Flow Rates for Cui-ui and LCT from the USGS Nixon Gage



Source: Information obtained from USGS National Weather Information System 2014

Essential habitat for cui-ui has been determined, by the USFWS, to be the Truckee River from Hunter Creek in West Reno to, and including, Pyramid Lake and its tributaries. No critical habitat has been designated for the cui-ui (USFWS, 1992).

The area of spawning habitat between the Marble Bluff Dam and Numana Dam is estimated to be 10,100 square meters (109,000 square feet) at 70.75 cms (2500 cfs the maximum managed spawning flow) and 18,800 square meters (202,000 square feet) at 28.3 cms (1000 cfs the minimum managed spawning flow) (USFWS,1992). Cui-ui spawn over predominantly gravel substrate in water 21 to 110 cm deep, where stream velocities were 27 to 140 cm/s (Scoppetone et. al, 1986).

4.2 LIFE HISTORY

Cui-ui is a large, long-lived and omnivorous lake sucker. It is a long lived fish exceeding 40+ years in age and can weigh over 7.5 pounds. This robust sucker is long and broad. The dorsal side of its coarsely scaled body is blackish-brown with bluish-grey cast that fades to a creamy-white belly (USFWS, 2014).

Cui-ui, like other castostomids, spawn in large groups, depositing their eggs over a broad area at 6 to 12 years of age (Scoppetone et al. 1986). Adult cui-ui congregate in March and April at the mouth of the Truckee River. Spawning runs begin in April or May depending on timing of runoff, river access, and water temperature. Most spawners only spend a few days in the river, but some may remain in the river for up to 16 days. Spawning runs may continue for 4 to 8 weeks, but most fish migrate during a 1 to 2 week period (USFWS, 1992).

The months of April to July are the critical time period for the cui-ui and LCT during “early life” stages. High river flows and turbidity are key factors to when and how cui-ui respond during a spawning event. Cui-ui fry will migrate back to Pyramid Lake by the end of July (PLPT Water Quality Control Plan, 2008).

Upon return to the lake, the spawners do not enter the river again that year. Adult cui-ui seem to have the potential to spawn every year but most only spawn several times a decade because of passage barriers (USFWS, 1992).

Fertilized eggs hatch in 1 to 2 weeks, depending on water temperature. After eggs hatch, yolk-sac larvae remain in the gravel 5 to 10 days prior to emergence. Upon emergence, most larvae are swept immediately downriver to the lake. Some may enter river backwaters and remain for several weeks. Upon reaching the lake, larvae occupy the shallow littoral zone. They disperse into deeper lake waters in late summer, but seem to remain segregated from adults (USFWS 1992). Both male and females grow at a similar rate and reach sexual maturity in 6 to 12 years. While both sexes have been documented to live 40 plus years, females generally live longer and grow faster than males (Scoppetone et al. 1986).

Cui-ui primarily feed on zooplankton, filamentous algae and aquatic insects (USFWS, 2014). Scoppetone et al. (1986) found that cui-ui larvae feed primarily on zooplankton and chironomid larvae, while adults consume mostly zooplankton. Studies indicate that juvenile cui-ui feed on zooplankton (cladocerans, copepods and ostracods), chironomid larvae, and algae; it is suspected that adults also feed on chironomid larvae and ostracods (USFWS, 1992).



Cui-ui (*Chasmistes cujus*)

4.3 RANGE AND DISTRIBUTION

Cui-ui is a lake sucker found in only one place in the world; Pyramid Lake and the lower Truckee River, all within the PLIR. It spends most of its life in Pyramid Lake, leaving only to spawn in the lower Truckee River between March and June when it reaches maturity between 6-12 years of age (USFWS 2014). The lower Truckee River is considered the river segment from Wadsworth, NV to Pyramid Lake.

Historically, cui-ui occupied ancient Lake Lahontan, which covered much of the northwest and west-central Nevada during the Pleistocene and more recently until 5,000-10,000 years ago. Lake Lahontan's water levels declined as a result of climate change until only remnant waters remained (Pyramid Lake, Lake Winnemucca, Walker Lake and Honey Lake). Pyramid Lake, the deepest of the remnant waters apparently remained permanent and thus continued to support cui-ui while the others at some point dried up. At the beginning of the 20th century, cui-ui inhabited Pyramid Lake and Lake Winnemucca. Cui-ui migrated as far up as Wadsworth, NV (25 miles) to spawn. The species was eliminated from Lake Winnemucca in the early 1930s with the completion of the Newlands Project and subsequent unrestricted water diversion at Derby Dam and severe drought.

Current populations of cui-ui in the lower Truckee are maintained by hatchery releases by the PLPT. The PLPT raise cui-ui larvae at the Big Bend Cui-ui Facility within the PLIR. Larvae are then released in the spring at multiple points along the lower Truckee River below the Truckee River Bridge near Wadsworth, NV on Interstate 80. PLPT Fisheries annual goal is to stock up to 2,000,000 cui-ui larvae per year in the Lower Truckee River. Release locations include but are not limited to the Truckee River Bridge on I-80 (near Wadsworth), below Numana Dam and PLPT Fish Hatchery, Nixon Bridge and above Marble Bluff Dam. Release locations are limited by existing flow levels (too high or too low) and accessibility of equipment to the Truckee River. Cui-ui stocking rates since 2010 are as follows: 2010 – 400,000; 2011 – 200,000; 2012 – 0; 2013 – 0; 2014 – 900,000 (Personal Communications, Albert John, PLPT Fisheries 2014).

4.4 REASONS FOR DECLINE OF CUI-UI

Upstream storage and diversion of water in the Truckee River reduced the inflow to Pyramid Lake and endangered the cui-ui. Timber harvesting and irrigated agriculture in the basin in the 19th Century altered the quantity and quality of Truckee River runoff. Derby Dam, completed in 1905, the key feature of the Newlands project, became the largest, single diversion of Truckee River water. Increasing agriculture, municipal, and industrial water demands altered the volume and timing of river flows which disrupted cui-ui reproduction. Also, channelization, grazing, and timber harvesting in and along the Truckee River reduced riparian canopy and increased bank erosion. These conditions have intensified with further urban and agricultural development (USFWS, 1992). Current threats include physical barriers which pose a threat to spawning migration and low water conditions and/or sandbars which can render the mouth of the Truckee River impassable. Cui-ui must also be passed through the Marble Bluff Fish Facility and above the Marble Bluff Dam to access suitable spawning habitat (USFWS, 2014).

4.5 CUI-UI RECOVERY EFFORTS

Recovery Plans

The USFWS has issued three Recovery Plans for the cui-ui; the original recovery plan written in 1978; updated in 1980 and revised in 1983; and the Second Revision in 1992. Recovery plans delineate reasonable actions which are believed to be required to recover and/or protect the species (USFWS, 1992).

The primary objective of the first plan was to “restore the species to a non-endangered status and reclassify from endangered to threatened”. Because little was known of cui-ui life history and habitat, requirements for reclassification were not quantified. Recovery strategy was divided into three elements: 1) protection of the existing population; 2) population augmentation with hatchery-reared fish; and 3) restoration of essential habitat (USFWS 1992).

The 1980 version of the plan retained its original objective. Although the general strategy did not change, the updated plan contained new information. The updated version emphasized: 1) continuation of experimental hatchery operations for rearing both larval and juvenile stages; and 2) establishment of successful spawning runs in the Truckee River. It recommended continuation of the life history and habitat studies, and continued operation and improvement of Marble Bluff Fish Facility and Pyramid Lake Fishway (USFWS, 1992).

The 1983 revision changed both the recovery goal and strategy. The goal became delisting of cui-ui to non-endangered status by restoring and maintaining an optimum, self-sustaining population in the Truckee River - Pyramid Lake system. As with the original plan, the goal was not quantified. Though the recovery strategy was changed considerably, the change was more of format than substance. The three main thrusts were: 1) identification, rehabilitation, and maintenance of sufficient habitat for cui-ui in the Truckee River and Pyramid Lake to maintain the optimum population through natural reproduction; 2) protection and management of the optimum self-sustaining cui-ui population; and 3) education of the public about the recovery effort. Emphasis continued to be placed on identification and rehabilitation of habitat and proper management of the population (USFWS, 1992).

Tribal Fishery

Historically, the Pyramid Lake band of Northern Paiute Indians relied heavily upon annual spawning runs of cui-ui for food. To aid protection and restoration of cui-ui, the Tribal Council passed resolutions in 1969 and 1979 ceasing harvest of cui-ui by non-Indians and tribal members, respectively. These resolutions were reemphasized in 1984 when the Council passed a motion reiterating the moratorium on a cui-ui fishery (USFWS, 1992).

Hatchery Operations

In 1971, the Service urged that immediate action be taken to preserve the cui-ui population in Pyramid Lake. Without such protection it was feared that the species might become extinct within 10 years. A remedial action was the development of cui-ui propagation techniques to supplement the population until it became self-sustaining and to provide a contingency stock in case of catastrophic spawning failure or population loss (USFWS, 1992).

In 1972, David Koch and the USFWS developed cui-ui propagation techniques and established the first cui-ui culture facility at Hardscrabble Creek near Sutcliffe, Nevada. A rudimentary hatchery operation began in 1973 after the USFWS improved the facilities and production techniques. With completion of the David Koch Cui-ui Hatchery by the Tribe and training of Tribal personnel in cui-ui culture techniques, the USFWS transferred operation and control of the program to the Tribe in 1977, which continues to the present (USFWS, 1992).

From 1972 through 1990, millions of hatchery-reared cui-ui larvae and several thousand juveniles were stocked in Pyramid Lake. Though no direct evidence exists as to their contribution to the adult population, information derived from larvae of other long-lived fishes suggests that few larvae would be recruited to the adult population. Because of these concerns, the Tribe, in consultation with the USFWS (mid-1980s), redirected the hatchery program from larvae production to extended rearing to increase recruitment to the adult population. This will require subjecting fewer adult fish to the rigors of artificial spawning. On the negative side, however, use of fewer adults decreases the probability of maintaining genetic variability. This program must therefore, be accompanied by genetic analyses and maintenance of pedigrees in the broodfish to avoid inbreeding and inadvertent production of genetic bottlenecks (USFWS, 1992).

Marble Bluff Dam, Marble Bluff Fish Facility, and Pyramid Lake Fishway

In 1976 under authority of the Washoe Project Act (70 Stat. 775 dated August 1, 1956), the USFWS assisted in the design and the U.S. Bureau of Reclamation (BOR) built Marble Bluff Dam and Marble Bluff Fish Facility (which includes Pyramid Lake Fishway). The dam and fish facility are located on the Truckee River about 4.8 km (3 miles) upstream of Pyramid Lake. The fishway, a clay-lined canal with a terminal structure in Pyramid Lake and 5 fish ladders (including the facility by-pass ladder), provides an alternate access route to stream spawning areas in the Truckee River. The fishway terminates at the fish facility which contains equipment for holding, counting, and handling fish for release upstream. A trap at the base of the dam provides a means of capture and upstream passage over the dam for fish which migrate via the delta (USFWS, 1992).

These structures were intended to enhance conservation of cui-ui by providing passage around the river delta and by helping to control erosion in spawning habitat upstream of the dam. The USFWS initiated operation and maintenance of the fishway in 1977 (USFWS, 1992).

The fishway and fish facility are less effective in attracting and passing cui-ui spawning runs than anticipated. The 35-50 cfs discharge at the terminus of the fishway is small in relation to flow over the delta and inadequate to attract large numbers of cui-ui. Ladders in the fishway were patterned after those used at Ice Harbor Dam on the Snake River for passage of migrating salmon and anadromous trout. They create velocities and turbulence that impede passage of cui-ui (USFWS, 1992).

Once fish enter the fish-handling facility, they are concentrated and mechanically raised for release upstream of the dam. In years when fish passage is available across the delta, cui-ui are captured at the base of the dam in an underwater trap/elevator combination that raises them to the elevation of the impoundment. Many cui-ui have died in the fish facility from stress and physical harm. Although many corrections have been made in recent years, numerous problems still exist and fish continue to be lost (USFWS, 1992).

Stampede Reservoir

The completion of Stampede Dam and Reservoir on the Little Truckee River, nearly 90 miles upstream of Pyramid Lake, was a significant contribution to re-establishing river flows suitable for cui-ui. Built under the authority of the Washoe Project Act, the dam became operational in 1970. The maximum storage capacity of the reservoir is 226,000 acre-feet, with an average annual yield for cui-ui use of roughly 37,000 acre-feet. In the early 1970s, the Secretary of the Interior ordered that the reservoir be operated principally for the benefit of threatened and endangered fishes of Pyramid Lake and for limited flood control. This order was based on the ESA and trust responsibility to the PLPT (USFWS, 1992).

Since 1976, the USFWS has used water from Stampede Reservoir to adjust volume and timing of river flow to enhance cui-ui and LCT spawning runs and to maintain water temperatures suitable for egg incubation. The USFWS produced Stampede Storage Management Plans from 1982 through 1987, the last year water was released for spawning. In 1982 the U.S. District Court for the District of Nevada affirmed the Secretary's authority by ruling that the Secretary was to use "...the waters stored in Stampede Reservoir for the benefit of the Pyramid Lake fishery until such time as the cui-ui and LCT are no longer classified as threatened or endangered, or until sufficient water becomes available from other sources to conserve the cui-ui and LCT." The U.S. Ninth Circuit Court of Appeals affirmed this decision, and the U.S. Supreme Court declined to review the case. This gave cui-ui its only assured water supply (USFWS, 1992).

Spawning Run Management

The management objective of the USFWS, which has the lead responsibility for research and management, is to enhance prospects for cui-ui survival by producing as many year classes as possible. This is done by managing Stampede Reservoir releases to maximize occurrence of suitable river stages and lake conditions during spawning runs, and by operating Marble Bluff Fish Facilities to provide passage around the delta. Managed flows also enable collection of cui-

ui eggs for hatchery incubation. Water in storage is to be used to supplement background flows and to maintain spawning habitat. Only excess storage in Stampede Reservoir is used for LCT spawning in the river (USFWS, 1992).

For cui-ui to reproduce successfully, Truckee River discharge into Pyramid Lake must satisfy several criteria. The volume must be sufficient to attract potential spawners to the delta and to provide a stimulus to initiate the spawning run. Flows must also be adequate for maintenance of spawning, incubation, and rearing habitat in the river, and to provide for outmigration of adults and larvae. It is estimated that a minimum attraction volume of 60,000 acre feet is required from January through April when delta passage is available, and 176,000 acre feet with fishway access alone. The number of fish in the spawning run generally increases with water flows above the minimum attraction volume. The minimum managed spawning flow during May and June is set at 1,000 cfs (approximately 60,000 acre-feet/month) to achieve (with normal air temperature) an average daily maximum water temperature of 17.2° C at Nixon, Nevada. Flows greater than 1,000 cfs will improve egg survival by maintaining lower water temperatures. June flows are managed to equal May flows (but not to exceed 2,500 cfs) to reduce the potential for killing eggs and yolk-sac larvae by scouring and to enable adult movement (USFWS, 1992).

If the spawning migration peaks in late April, then June flows would provide for the completion of incubation and for outmigration. If the spawning migration peaks in May, then June flows would provide for incubation and the beginning of outmigration and July flows (an average of 520 cfs for the month) would be required for completion of outmigration (USFWS, 1992).

The preceding flow regimes are used as a guide for controlling flows in the lower river. Each year, beginning in January, the USFWS, in cooperation with the BOR and the PLPT, develops a water release program for Stampede Reservoir to promote cui-ui spawning. The program is based on information regarding Stampede storage and forecasts of Truckee River runoff, and is updated frequently as new information about the cui-ui prespawning aggregation and spawning run, larvae outmigration, and lower Truckee River water temperatures and forecasts are obtained (USFWS, 1992).

Research

After Cope's taxonomic description of cui-ui in 1883, Snyder in 1917 was the first to describe various aspects of cui-ui life history from observations of the 1913 spawning migration. Little more was written about cui-ui until the mid-1950s when the Nevada Fish and Game Commission began life history investigations of spawning migrations, lake distribution, and food habits. At that time, the population appeared large, but major declines in catch during the 1960s renewed concern for the species. Gill net surveys in 1971 and 1972 by Koch yielded additional evidence that the population was greatly reduced. He also provided information on lake spawning, hatching techniques, and early life history. From 1972 through 1982, the USFWS conducted a cui-ui spawning run monitoring program. Initially this program was intended to monitor population status and collect fish for hatchery propagation. It was expanded later to include an evaluation of the relation between prespawning aggregation and Truckee River flow (USFWS, 1992).

Research in the early 1980s focused on riverine life history requirements, larvae emigration, population estimation, age, and growth. In 1988 the USFWS (Seattle National Fishery Research Center) began an extensive study of cui-ui population dynamics and life history. Objectives were to estimate cui-ui population size, annual survivorship of each life stage, and to determine the species' lake habitat requirements. This information is essential for refining the cui-ui model developed to simulate impacts of different Truckee River water management plans on population dynamics, and to optimize releases from Stampede Reservoir for cui-ui spawning (USFWS, 1992).

Studies have also been conducted on cui-ui embryology, growth and longevity, taxonomy of early life stages, spawning behavior, adult swimming ability, and effects of salinity, nitrogen products, and water temperature on hatching success. Other investigations have included evaluations of temperature tolerance in juvenile and adult cui-ui and salinity bioassay on eggs, larvae, and juveniles (USFWS, 1992).

More recently the USGS has performed multiple studies on the cui-ui (USGS WFC, 2009). These studies include:

Scoppettone, G.G., and G. Vinyard. 1991. Life history and management of four endangered lacustrine suckers. Chapter 18 in Mickley, W.L. and J.E. Deacon (eds.), *Battle Against Extinction: Native Fish Management in the American West*. Arizona State University Press.

Scoppettone, G.G., and M.E. Coleman. 1988. Growth and longevity of the cui-ui and longevity of other castostomids and cyprinids in western North America. *Transactions of the American Fisheries Society*, 117: 301-307.

Scoppettone, G., M.E. Buettner, and P.R. Rissler. 1993. Effect of four fluctuating temperature regimes on cui-ui (*Chasmistes cujus*) survival from egg fertilization to swim-up and size of larvae produced. *Environmental Biology of Fishes*, 38(4): 373-378.

Scoppettone, G.G., P.H. Rissler, and M.E. Buettner. 2000. Reproductive longevity and fecundity associated with nonannual spawning in cui-ui. *Transactions of the American Fisheries Society*, 129: 658-669.

Scoppettone, G.G., and P.H. Rissler. 2007. Effects of population increase on cui-ui growth and maturation. *Transactions of the American Fisheries Society*, 136: 331-340.

Regulation of the Newlands Project Water Diversions

The Newlands Project provides water for irrigation and other purposes to a defined service area in western Nevada along the Truckee Canal near Fernley and in the lower Carson River basin near Fallon. The Project service area consists of approximately 73,800 acres of land that are entitled to receive irrigation water. Water for these lands is supplied from the Truckee and Carson Rivers. Water from the Truckee River is diverted at Derby Dam via the Truckee Canal

for direct delivery to irrigators in the Truckee Division of the Project and to supplement Carson River flows stored in Lahontan Reservoir for later distribution to the Carson Division.

Major features of the project were completed by the BOR in 1915. Since that time, the project has been involved in controversy resulting from intense competition for the limited water and adverse impacts of diversions on fish and wildlife resources of Pyramid Lake and wetlands in both the Truckee and Carson basins. This competition resulted in considerable litigation to settle water disputes.

In 1964, the Secretary of the Interior formed a task force to study and report on methods to resolve these controversies. The task force made numerous recommendations for diverting and managing project water. One recommendation was the formulation of Operating Criteria and Procedures (OCAP) for the project that would maximize use of Carson River flows to satisfy project requirements and minimize diversions from the Truckee River for the benefit of Pyramid Lake fish resources. After numerous court challenges over technical and legal issues and several attempts to develop OCAP, the Secretary of the Interior adopted OCAP in 1988 (USFWS, 1992).

From 1918 through 1970, the average net diversion from the Truckee River to the Newlands Project was approximately 250,000 acre-feet/year, nearly 50% of average annual flow. After OCAP are fully implemented in 1992, average annual diversions from the Truckee River to the project were expected to be reduced by over 50% (USFWS, 1992).

Truckee – Carson - Pyramid Lake Settlement Act

The Truckee-Carson-Pyramid Lake Water Rights Settlement Act of 1990 (P.L. 101-618) has tremendous potential for conserving cui-ui. It provides avenues for settling many long-standing disputes over apportionment of water from the Truckee and Carson rivers and for promoting efficient use of these waters. This Act also authorizes the acquisition of sufficient water rights to promote recovery of cui-ui. It emphasizes the rehabilitation of the lower Truckee River and allocates previously uncommitted water in Prosser Creek Reservoir and water conserved from the Fallon Naval Air Station for listed fishes of Pyramid Lake. Provisions governing OCAP for the Newlands Project and management of Truckee River reservoirs may also benefit cui-ui by making more water available in the lower river, particularly during the spawning season. These benefits may not be realized for many years and may be offset somewhat by increased consumptive use of water upstream which is also allowed by the Act (USGS WFC, 2009).

Pyramid Lake Nutrient Loading Study

The PLPT contracted with the Limnological Research Group at the University of California, Davis for a multi-year study of potential effects of nutrient loading on Pyramid Lake. This project provides the PLPT and management agencies with an empirical and mechanistic model to predict hypolimnetic dissolved oxygen from internal and external nutrient loading. Such information is essential to establishing water quality standards for protecting cui-ui lake habitat. Research included Pyramid Lake, Nevada, Water Quality Study 1989-1993, Volume I – Limnological Data, Volume II – Limnological Description, Volume III – Nutrients Budgets, and Volume IV – Modeling Studies (PLPT Water Quality Control Plan, 2008).

Management Actions

The USFWS continues to own and operate the Marble Bluff Fish Facility and to develop annual plans for the effective use of Stampede storage for cui-ui and LCT. The PLPT continues to operate and maintain the David Koch Cui-ui Hatchery (USFWS, 1992).

5.0 EFFECTS OF THE PROPOSED PROJECT

5.1 DIRECT EFFECTS

5.1.1 Mortality

Injury or mortality to cui-ui could occur as a result of the installation and removal of the temporary diversion structure. Equipment will be required to enter the river and install the diversion structure to divert flows from one side of the river and create a temporary dry work zone. The fish may also become trapped within the temporary work zone or injured as a result of the electro-shocking during the fish salvage operation. Following the completion of the installation of riprap scour revetment measures, equipment will be required to enter the river channel to remove all structures associated with the temporary river diversion, again resulting in possible injury or mortality to cui-ui. Any mortality to the species will be considered “take” under the ESA. Any injury or mortality to cui-ui present in the project area would be greatest amongst individuals of early life stages as they are most vulnerable due to limited mobility. Juvenile or adult cui-ui would likely be less impacted as they would be actively seeking habitat outside the disturbance area.

In order to minimize the potential impact to cui-ui from dewatering activities, the water that is isolated within the work zone after the temporary river diversion is installed will be released downstream at a rate of one to three inches of water depth per hour. This slow release of water will aid in minimizing the potential for mortality or injury to any cui-ui in the project area. Construction will be timed to occur in the fall months to avoid the cui-ui spawning season. Cui-ui should not be present in the Truckee River during construction.

5.1.2 Increased Turbidity

Increased turbidity levels and water temperatures also represent a potential adverse effect to the federally listed, endangered cui-ui. The effects of turbidity on fish have been well documented. In-channel construction will also temporarily increase turbidity levels, causing spawning gravel spaces to fill in, which contributes to low dissolved oxygen levels and causing gill damage. Turbidity may result in gill trauma when the suspended sediment clogs the gills of individual cui-ui, which would impede the circulation of water over the gill and subsequently interfere with respiration.

Turbidity is expected to increase during the implementation of the Proposed Action during the dewatering activities at the beginning of the in-stream work and again at the end of the in-stream work when the area is rewatered. This process will then be repeated when work begins on the other side of the river.

Increases in turbidity levels during construction will be avoided or minimized by use of cofferdams to divert flows around the construction area, timing construction during low flows, installing silt screens, and monitoring turbidity levels to avoid exceeding significance thresholds. Construction will be timed to occur in the fall months to avoid the cui-ui spawning season. Cui-ui should not be present in the Truckee River during construction.

5.1.3 Release of Chemicals

Sediment mobilization from dewatering activities and rewatering activities would potentially result in the release of chemicals from sediment. Chemicals, such as PAHs, PCE, trace metals (e.g. mercury), and other chemicals potentially toxic to the cui-ui could be ingested by the cui-ui, potentially affecting reproductive success and survival of juveniles.

In order to minimize the potential for contamination of the Truckee River and cui-ui habitat near the project area, BMPs will be implemented. These include the use of on-site containment, such as the use of an impermeable geotextile liner to seal off the work area. This liner will aid in capturing area contaminants before they reach downstream cui-ui. Any equipment entering the river or material that will be placed within the waterway (riprap fill) will be cleaned prior to entry and placement. Additionally, discharges to the Truckee River associated with project activities will be permitted with appropriate BMPs to minimize the potential release of chemicals hazardous to cui-ui.

5.1.4 Non-Native Species

The Proposed Action will require in-stream work. However, the introduction of non-native fish species is not likely to occur. Other non-native species that have the potential to impact cui-ui include New Zealand mud snails (*Potamopyrgus antipodarum*), *Mysis* shrimp, and Quagga mussels (*Dreissena rostriformis bugensis*) which could alter food supply. These species are not known to occur within the project area so the emphasis is to prevent their introduction. In order to prevent their introduction, all equipment that will enter the Truckee River will be power-washed off-site. Additionally, any material placed in the Truckee River will be cleaned prior to its installation.

5.1.5 Spawning

As mentioned above, spawning for the cui-ui typically begins in April, when individuals begin making their way upstream, and continues through June. The actual spawning period varies annually based on river water temperature and flow characteristics (USFWS, 2014). The proposed project will be timed to avoid impacts to cui-ui during the spawning period. However, long-term impacts to the cui-ui could result as cui-ui require low river flow velocities and gentle slopes to pass over in-stream structures (e.g. rock weir). The project area will not provide spawning habitat post construction.

The Proposed Action will involve changes to the existing river bed. The entire channel will be armored with riprap from 180 feet downstream of the bridge to 50 feet upstream of the bridge. The project area will provide acceptable flow velocities (<4 ft/s) and slopes (~1.4%) over the downstream face of the existing rock weir to aid spawning cui-ui passing through the project area upstream to more favorable spawning habitat. The random placement of large boulders will be

incorporated into the design along the northern half of the river channel to further slow stream flow velocities and provide resting areas for cui-ui passage through the project area. See Chapter 2.1, Figures 4-7. At the request of the USFWS and the PLPT (Design Meeting, 2/4/14), the project will incorporate spawning gravel over the riprap armoring. It is proposed that the USFWS provide guidance as to the placement of the large boulders and the size of the spawning gravel.

5.1.6 Habitat Impacts

Construction could alter in-stream fish habitat and impair the productivity of the benthic organisms which serve as food for the cui-ui. The project area will not provide optimal spawning habitat post construction. The Proposed Action will involve blocking one side of the river and shunting all flow to the other side for the duration of the work. After work on one side is complete, and after a rewatering and dewatering transition, this process will be repeated on the other side. Therefore habitat for cui-ui within the project area will be impacted for a short period.

It was decided and agreed upon by NDOT, USFWS and the PLPT, that the project area post construction will not provide optimal habitat for the cui-ui post construction (Design Meeting 2/4/14). However, it was decided that the project area, post construction, will provide for adequate flow velocities and slopes to provide passage of cui-ui through the project area upstream to more favorable spawning habitat. Incorporation of scattered large boulders (northern half of the channel) and spawning gravels of an appropriate size and depth will be placed over the riprap to enhance habitat within and near the project area.

5.1.7 Accidental Spills

An accidental fuel or hydraulic oil release could temporarily expose cui-ui to various chemical contaminants used during the excavation and construction process. Possible contaminants include pollutants from heavy equipment (e.g. petroleum products), or material entering the river from the channel banks.

To minimize the potential for contaminants to be released into the river, the in-channel work area will be isolated and dewatered. Equipment will be fueled at the proposed staging areas located at the Nixon Store or the Nixon Maintenance Yard. If a spill does occur, it will be immediately isolated and contained in accordance with standard spill response procedures. All equipment working within the river area will be visually inspected daily to ensure there are no leaks from the equipment. The project contractor will be required to pressure wash all equipment prior to entering the river to control contamination from accumulated greases and oils on the machinery and eliminate the possibility of introducing noxious weeds. Fueling will occur on dry ground within appropriate spill containment area in the staging areas.

5.2 INDIRECT EFFECTS

5.2.1 Suspended Bedload

Suspended load and bedload could temporarily increase during the installation and removal of the temporary river diversion. It is expected that any temporary increases in concentration and duration of sediment entrainment will not have any long lasting impacts to aquatic organisms,

with the effective implementation of BMPs discussed in Section 2.4. To minimize sedimentation, all construction activities will implement BMPs to comply with the PLPT Section 401 Water Quality Certification. See Section 5.1.2 above for a discussion on turbidity impacts. Long term impacts from suspended bedloads are not anticipated. It is anticipated that during a flood event, the suspended load and bedload will settle naturally in the river.

5.2.2 Groundwater Impacts

As excavation of the river channel is expected to require groundwater dewatering, there is potential for impact to cui-ui to occur. The volume of water encountered and the presence of contaminants in the water, will determine the appropriate methods for managing this water. Any groundwater will be tested to determine if any contaminants are present. Release of small amounts of uncontaminated water will be covered under existing permits for the project. Control measures, such as Baker Tanks or other containment methods may be required. Although it is not anticipated to be encountered, discharged water must meet specific water quality standards. Treatment of water to reduce contaminant concentrations below federal (EPA) or tribal (PLPT) specified concentrations will be required prior to any discharge of such water.

5.2.3 Increased Water Temperature

Various environmental factors affect stream temperature, including ambient air temperature, the temperature of groundwater inflow, solar radiation, elevation gradient or stream flow velocity, volume of stream flow, vegetation shading, width to depth ratio of the stream channel, precipitation, and tributary temperature and flow. During the installation of the temporary river diversion structures, river discharge and temperature is expected to remain constant. Changes in river temperature as a result of the temporary river diversion are not expected to detrimentally impact the cui-ui.

5.3 ADDITIONAL MITIGATION

Regulatory requirements and BMPs to avoid and minimize impact to the cui-ui are discussed in Section 2.3. Additional mitigation measures to be considered are provided below.

- All monitoring requirements of the applicable permits and certifications for water quality shall be met;
- At one month prior to project construction, a final draft of the river diversion and dewatering plan, water quality monitoring and sampling plan, and fish salvage plan, provided by NDOT's contractor, will be given to the PLPT, USFWS, USACE, and NDOT Environmental Services Division. These plans will fully address concerns or issues identified by the agencies prior to finalizing the plans and implement them accordingly. The fish salvage plan, if using electrofishing, will follow appropriate USFWS guidelines;
- Prior to rewatering, all construction debris will be removed from the dewatering zone.
- For the entire project, separate reports will be provided detailing construction activities in the area (post construction reports). The report for the river encroachment zone will

include, at a minimum:

- A summary demonstrating compliance with all applicable tribal and federal requirements specified in all water quality permits and certifications and BMP activities during the entire construction season.
 - A map of areas that were dewatered and associated dewatering activities.
 - Results of fish salvage operations (e.g. timing and methods used, fish species, numbers, condition, and presence of any tags) during river dewatering activities.
 - A detailed assessment (including photographs) comparing the configuration and placement of design to as-built conditions for all features.
 - Any known adverse effects to cui-ui resulting from the proposed project construction activities including the number and life stages of individuals affected (if known).
- All copies of reports will be provided to the Nevada USFWS within one month of project completion, unless otherwise specified; and
 - Placement of scattered boulders along the north bank to reduce stream flow velocities and provide resting areas for spawning cui-ui. Placement of gravel suitable for salmonid spawning habitat over the riprap within the river channel throughout the construction area.

6.0 CUMULATIVE EFFECTS

The definition of cumulative effects under the ESA differs from the definition under NEPA. Both definitions are provided below. The projects discussed below are other State of Nevada or local government projects, as specified in the definition of cumulative effects under the ESA.

“For the purposes of consultation under the ESA, cumulative effects are the effects of future state or private activities, not involving federal activities that are reasonably certain to occur within the action area of an action subject to consultation.”

Cumulative impact under NEPA is defined as “the impact on the environment which results from the incremental impact of the action when added to past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.”

The affected area has been determined as the lower Truckee River within the limits of the PLIR starting at I-80 downstream to Pyramid Lake (Andy Starostka, USFWS, Personal Communications 6/19/14). The projects described below are State or privately proposed projects on the Truckee River upstream from the proposed Nixon Bridge Scour Countermeasures Project. Private (PLPT) projects in this area are considered any in-river projects that are existing or reasonably certain to occur within the PLIR lands.

There are multiple agricultural diversions within the Lower Truckee River within PLIR land for

irrigation purposes. PLIR diversion structures upstream of the project site include, Herman, Pierson, Proctor, Ollinghouse 1, Fellnagle, Gardella, Ollinghouse 3, and the Numana Dam.

At this time there are no planned State of Nevada projects within the PLIR planned or scheduled which will impact the Truckee River. The PLIR is a sovereign nation governed by the PLPT. The State of Nevada has no jurisdiction, outside of the Nevada Department of Transportation, which has limited jurisdiction for construction and maintenance projects along the highway right of ways of SR-445, SR-447, and SR-446 with the consent of the PLPT. The PLPT, at this time, expressed interest and desire to implement river restoration projects and other projects which may affect the Truckee River. However, at this time, there is no funding or plans for these projects in the immediate future (Autum Bryson, PLPT Environmental Manager, Personal Communication 6/19/14).

Therefore, the proposed Nixon Bridge project on the Truckee River will cumulatively add to the impacts to cui-ui from existing agricultural diversions within the PLIR.

7.0 DETERMINATION OF EFFECTS

The above analysis demonstrates that cui-ui could potentially be adversely impacted as a result of the Nixon Bridge Scour Countermeasures Project. Direct physical injury or mortality as a result of equipment entering the Truckee River channel for installation and removal of the temporary river diversion and during the dewatering process is the most likely, immediate potential impact.

The probability of physical injury or mortality to larvae, juvenile, or adult cui-ui is not expected due to in-stream construction activities occurring outside of the designated spawning window (April through July). The placement of large boulders along the northern channel will help accommodate fish spawning though the project area post construction. Spawning habitat immediately downstream of the bridge and weir structures is expected to improve due to the placement of gravel conducive to spawning. As no critical habitat for the cui-ui has been designated, no impacts to critical habitat will occur. A number of mitigation measures will be in place to aid in minimizing impacts to cui-ui (Section 5.3).

Given the slight potential for cui-ui to occur within the project area, the overall poor habitat for cui-ui within the project area, and the mitigation measures in place to limit direct and indirect effects to cui-ui from the Proposed Action, it is determined that the project **May Affect, Is not Likely to Adversely Affect** the Cui-ui.

8.0 REFERENCES

Personal Communications

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Albert John, PLPT Fisheries Manager, 6/11/14.

Nancy Vucinich, PLPT Fish biologist, 10/23/13

PLPT IDT Meeting, Nixon NV, 2/4/14

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Appendix A – Photographs

B-1351 Site Photographs

North Side / North Pier (Peir 2)



Northeast side looking south at Pier 2.



Northeast side looking south at Pier 2.



Pier 2 looking west downstream.



Pier 2 looking east upstream.



Pier 2 looking east upstream.



Northwest side looking south at downstream bridge face and southern pier (Peir 2).



Northwest side looking southeast at northern Pier 1 upstream.

South Side / South Pier (Pier 1)



Southeast side looking north at Pier 1.



Southwest side looking north at Pier 1 and Pier 2.



Pier 1 looking west downstream.



Pier 2 looking east upstream.



Pier 1 looking northeast upstream.



Pier 1 looking northwest downstream.



Pier 1 looking from Southeast corner.

Rock Weir Downstream of Nixon Bridge



Southeast corner looking north at rock weir.



Northwest corner looking south at rock weir.



Rock weir looking from above on the bridge.



Rock weir looking from northwest corner.

River Banks/Channel Adjacent to the Nixon Bridge



Southwest bank.



Northwest bank.



Southeast bank.



Northeast bank.



Truckee River looking upstream from the bridge.



Truckee River looking downstream from the bridge.

River Access Areas



Southwest access looking north from SR-447.



Southwest access looking north from SR-447.



Northwest access looking southeast at SR-447.



Northwest access looking northwest from SR-447.

Appendix B – ESA Consultation Species Lists and Backup Documentation



United States Department of the Interior



FISH AND WILDLIFE SERVICE
NEVADA FISH AND WILDLIFE OFFICE
1340 FINANCIAL BOULEVARD, SUITE 234
RENO, NV 89502
PHONE: (775)861-6300 FAX: (775)861-6301
URL: www.fws.gov/nevada/

Consultation Tracking Number: 08ENV00-2013-SLI-0346

September 11, 2013

Project Name: NIXON BRIDGE (No. B1351) SCOUR PROTECTIVE MEASURES

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project.

To Whom It May Concern:

The attached species list indicates threatened, endangered, proposed, and candidate species and designated or proposed critical habitat that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act of 1973, as amended (ESA, 16 U.S.C. 1531 *et seq.*), for projects that are authorized, funded, or carried out by a Federal agency. Candidate species have no protection under the ESA but are included for consideration because they could be listed prior to the completion of your project. Consideration of these species during project planning may assist species conservation efforts and may prevent the need for future listing actions. For additional information regarding species that may be found in the proposed project area, visit <http://www.fws.gov/nevada/es/ipac.html>.

The purpose of the ESA is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the ESA and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Guidelines for preparing a Biological Assessment can be found at: http://www.fws.gov/midwest/endangered/section7/ba_guide.html.

If a Federal action agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species, and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at: <http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>.

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this species list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally listed, proposed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the ESA, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally, as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation, for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the attached list.

The Nevada Fish and Wildlife Office (NFWO) no longer provides species of concern lists. Most of these species for which we have concern are also on the Animal and Plant At-Risk Tracking List for Nevada (At-Risk list) maintained by the State of Nevada's Natural Heritage Program (Heritage). Instead of maintaining our own list, we adopted Heritage's At-Risk list and are partnering with them to provide distribution data and information on the conservation needs for at-risk species to agencies or project proponents. The mission of Heritage is to continually evaluate the conservation priorities of native plants, animals, and their habitats, particularly those most vulnerable to extinction or in serious decline. In addition, in order to avoid future conflicts, we ask that you consider these at-risk species early in your project planning and explore management alternatives that provide for their long-term conservation.

For a list of at-risk species by county, visit Heritage's website (<http://heritage.nv.gov>). For a specific list of at-risk species that may occur in the project area, you can obtain a data request form from the website (http://heritage.nv.gov/get_data) or by contacting the Administrator of Heritage at 901 South Stewart Street, Suite 5002, Carson City, Nevada 89701-5245, (775) 684-2900. Please indicate on the form that your request is being obtained as part of your coordination with the Service under the ESA. During your project analysis, if you obtain new information or data for any Nevada sensitive species, we request that you provide the information to Heritage at the above address.

Furthermore, certain species of fish and wildlife are classified as protected by the State of Nevada (<http://www.leg.state.nv.us/NAC/NAC-503.html>). You must first obtain the appropriate license, permit, or written authorization from the Nevada Department of Wildlife (NDOW) to take, or possess any parts of protected fish and wildlife species. Please visit <http://www.ndow.org> or contact NDOW in northern Nevada (775) 688-1500, in southern Nevada (702) 486-5127, or in eastern Nevada (775) 777-2300.

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the Service's wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

The Service's Pacific Southwest Region developed the *Interim Guidelines for the Development of a Project Specific Avian and Bat Protection Plan for Wind Energy Facilities* (Interim Guidelines). This document provides energy facility developers with a tool for assessing the risk of potential impacts to wildlife resources and delineates how best to design and operate a bird- and bat-friendly wind facility. These Interim Guidelines are available upon request from the NFWO. The intent of a Bird and Bat Conservation Strategy is to conserve wildlife resources while supporting project developers through: (1) establishing project development in an adaptive management framework; (2) identifying proper siting and project design strategies; (3) designing and implementing pre-construction surveys; (4) implementing appropriate conservation measures for each development phase; (5) designing and implementing appropriate post-construction monitoring strategies; (6) using post-construction studies to better understand the dynamics of mortality reduction (*e.g.*, changes in blade cut-in speed, assessments of blade "feathering" success, and studies on the effects of visual and acoustic deterrents) including efforts tied into Before-After/Control-Impact analysis; and (7) conducting a thorough risk assessment and validation leading to adjustments in management and mitigation actions.

The template and recommendations set forth in the Interim Guidelines were based upon the Avian Powerline Interaction Committee's Avian Protection Plan template (<http://www.aplic.org/>) developed for electric utilities and modified accordingly to address the unique concerns of wind energy facilities. These recommendations are also consistent with the Service's wind energy guidelines. We recommend contacting us as early as possible in the planning process to discuss the need and process for developing a site-specific Bird and Bat Conservation Strategy.

The Service has also developed guidance regarding wind power development in relation to prairie grouse leks (sage-grouse are included in this). This document can be found at: http://www.fws.gov/southwest/es/Oklahoma/documents/te_species/wind%20power/prairie%20gr

Migratory Birds are a Service Trust Resource. Based on the Service's conservation responsibilities and management authority for migratory birds under the Migratory Bird Treaty Act of 1918, as amended (MBTA; 16 U.S.C. 703 *et seq.*), we recommend that any land clearing or other surface disturbance associated with proposed actions within the project area be timed to avoid potential destruction of bird nests or young, or birds that breed in the area. Such destruction may be in violation of the MBTA. Under the MBTA, nests with eggs or young of migratory birds may not be harmed, nor may migratory birds be killed. Therefore, we recommend land clearing be conducted outside the avian breeding season. If this is not feasible, we recommend a qualified biologist survey the area prior to land clearing. If nests are located, or if other evidence of nesting (*i.e.*, mated pairs, territorial defense, carrying nesting material, transporting food) is observed, a protective buffer (the size depending on the habitat

requirements of the species) should be delineated and the entire area avoided to prevent destruction or disturbance to nests until they are no longer active.

Guidance for minimizing impacts to migratory birds for projects involving communications towers (*e.g.*, cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

If wetlands, springs, or streams are known to occur in the project area or are present in the vicinity of the project area, we ask that you be aware of potential impacts project activities may have on these habitats. Discharge of fill material into wetlands or waters of the United States is regulated by the U.S. Army Corps of Engineers (ACOE) pursuant to section 404 of the Clean Water Act of 1972, as amended. We recommend you contact the ACOE's Regulatory Section regarding the possible need for a permit. For projects located in northern Nevada (Carson City, Churchill, Douglas, Elko, Esmeralda, Eureka, Humboldt, Lander, Lyon, Mineral, Pershing, Storey, and Washoe Counties) contact the Reno Regulatory Office at 300 Booth Street, Room 3060, Reno, Nevada 89509, (775) 784-5304; in southern Nevada (Clark, Lincoln, Nye, and White Pine Counties) contact the St. George Regulatory Office at 321 North Mall Drive, Suite L-101, St. George, Utah 84790-7314, (435) 986-3979; or in California along the eastern Sierra contact the Sacramento Regulatory Office at 650 Capitol Mall, Suite 5-200, Sacramento, California 95814, (916) 557-5250.

We appreciate your concern for threatened and endangered species. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment



United States Department of Interior
Fish and Wildlife Service

Project name: NIXON BRIDGE (No. B1351) SCOUR PROTECTIVE MEASURES

Official Species List

Provided by:

NEVADA FISH AND WILDLIFE OFFICE
1340 FINANCIAL BOULEVARD, SUITE 234
RENO, NV 89502
(775) 861-6300
<http://www.fws.gov/nevada/>

Consultation Tracking Number: 08ENV00-2013-SLI-0346

Project Type: Transportation

Project Description: Construct scour countermeasures for the bridge. Scour countermeasures include lining the entire bed of the channel beneath the bridge with riprap, (Class 900), and improving the existing rock weir that is located 35 downstream of the bridge. The project size is approximately 0.5 acres.



United States Department of Interior
Fish and Wildlife Service

Project name: NIXON BRIDGE (No. B1351) SCOUR PROTECTIVE MEASURES

Project Location Map:



Project Coordinates: MULTIPOLYGON (((-119.3614225 39.8291032, -119.3613369 39.8294161, -119.3609346 39.8293747, -119.3609829 39.8290081, -119.3614225 39.8291032)))

Project Counties: Washoe, NV



United States Department of Interior
Fish and Wildlife Service

Project name: NIXON BRIDGE (No. B1351) SCOUR PROTECTIVE MEASURES

Endangered Species Act Species List

Species lists are not entirely based upon the current range of a species but may also take into consideration actions that affect a species that exists in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Please contact the designated FWS office if you have questions.

cui-ui (Chasmistes cujus)

Population: Entire

Listing Status: Endangered

Greater sage-grouse (Centrocercus urophasianus)

Population: entire

Listing Status: Candidate

Lahontan cutthroat trout (Oncorhynchus clarkii henshawi)

Population: Entire

Listing Status: Threatened



BRIAN SANDOVAL
Governor

STATE OF NEVADA
DEPARTMENT OF WILDLIFE

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PATRICK O. CATES
Deputy Director

Jason Perock
Environmental Scientist
Nevada Department of Transportation
1263 South Stewart Street
Carson City, Nevada 89712

December 16, 2013

Re: Nixon Bridge Project

Dear Mr. Perock:

I am responding to your request for information from the Nevada Department of Wildlife (NDOW) on the known or potential occurrence of wildlife resources in the vicinity of the Nixon Bridge Project located in Washoe County, Nevada. In order to fulfill your request an analysis was performed using the best available data from the NDOW's wildlife occurrences, raptor nest sites and ranges, greater sage-grouse leks and habitat, and big game distributions databases. No warranty is made by the NDOW as to the accuracy, reliability, or completeness of the data for individual use or aggregate use with other data. These data should be considered **sensitive** and may contain information regarding the location of sensitive wildlife species or resources. All appropriate measures should be taken to ensure that the use of this data is strictly limited to serve the needs of the project described on your GIS Data Request Form. Abuse of this information has the potential to adversely affect the existing ecological status of Nevada's wildlife resources and could be cause for the denial of future data requests.

To adequately provide wildlife resource information in the vicinity of the proposed project the NDOW delineated an area of interest that included a four-mile buffer around the project area provided by you (email, November 26, 2013). Wildlife resource data was queried from the NDOW databases based on this area of interest. The results of this analysis are summarized below.

Big Game – Occupied mule deer distribution exists throughout the entire project area and portions of the four-mile buffer area. Occupied pronghorn antelope distribution exists outside of the project area within portions of the four-mile buffer area. No known occupied bighorn sheep or elk distributions exist in the vicinity of the project area. Please refer to the attached maps for details regarding big game distributions relative to the proposed project area.

Greater Sage-Grouse – Greater sage-grouse habitat in the vicinity of the project area is primarily categorized as Habitat of Moderate Importance. Low Value Habitat/Transitional Range also exists in the vicinity of the project area. Please refer to the attached maps for details regarding greater sage-grouse habitat relative to the proposed project area. There are no known greater sage-grouse lek sites in the vicinity of the project area.

Raptors – Various species of raptors, which use diverse habitat types, may reside in the vicinity of the project area. American kestrel, bald eagle, barn owl, burrowing owl, Cooper's hawk, ferruginous hawk, golden eagle, great horned owl, long-eared owl, merlin, northern goshawk, northern harrier, northern saw-whet owl, osprey, peregrine falcon, red-tailed hawk, rough-legged hawk, sharp-shinned hawk, short-eared owl, Swainson's hawk, turkey vulture, and western screech owl have distribution ranges that include the project area and four-mile buffer area.

Raptor species are protected by State and Federal laws. In addition, bald eagle, burrowing owl, California spotted owl, ferruginous hawk, flammulated owl, golden eagle, northern goshawk, peregrine falcon,

prairie falcon, and short-eared owl are NDOW species of special concern and are target species for conservation as outlined by the Nevada Wildlife Action Plan. Per the *Interim Golden Eagle Technical Guidance: Inventory and Monitoring Protocols; and Other Recommendations in Support of Golden Eagle Management and Permit Issuance* (United States Fish and Wildlife Service 2010) we have queried our raptor nest database to include raptor nest sites within ten miles of the proposed project area. There are six known raptor nest sites within ten miles of the project area:

Probable Use	Last Check	Last Active	Township/Range/Section
Buteo	6/23/2007	6/23/2007	21 0210N 0220E 002
Eagle	7/16/2011		21 0230N 0230E 011
Eagle	7/16/2011		21 0230N 0230E 012
Falcon	1/1/1974		21 0240N 0230E 019
Falcon	1/1/1974		21 0240N 0240E 029
Falcon	4/12/1974	4/12/1974	21 0230N 0230E 015

Other Wildlife Resources

The following species have also been observed in the vicinity of the project area:

Common Name	ESA	State	SWAP_SoCP
blue grosbeak			
brown bullhead			
bullfrog			
California toad			Yes
common carp			
cui-ui	Endangered	Endangered	Yes
desert horned lizard			Yes
desert spiny lizard			
fathead minnow			
Great Basin collared lizard			Yes
Great Basin fence lizard			
Great Basin gophersnake			
Great Basin whiptail			
green sunfish			
Lahontan cutthroat trout	Threatened		Yes
Lahontan redband			
long-nosed leopard lizard			Yes
mountain sucker			
Nevada side-blotched lizard			
northern desert horned lizard			Yes
northern zebra-tailed lizard			
rainbow trout			
Sacramento perch			
speckled dace			
sucker (unknown)			
Tahoe sucker			
terrestrial gartersnake			
western fence lizard			
western mosquitofish			
western patch-nosed snake			
yellow-backed spiny lizard			

zebra-tailed lizard

ESA: Endangered Species Act Status

State: State of Nevada Special Status

SWAP_SoCP: Nevada State Wildlife Action Plan (2012) Species of Conservation Priority

The above information is based on data stored at our Reno Headquarters Office, and does not necessarily incorporate the most up to date wildlife resource information collected in the field. Please contact the Habitat Division Supervising Biologist at our Western Region Reno Office (775.688.1500) to discuss the current environmental conditions for your project area and the interpretation of our analysis. Furthermore, it should be noted that the information detailed above is preliminary in nature and not necessarily an identification of every wildlife resource concern associated with the proposed project. Consultation with the Supervising Habitat biologist will facilitate the development of appropriate survey protocols and avoidance or mitigation measures that may be required to address potential impacts to wildlife resources.

Mark Freese - Western Region Supervising Habitat Biologist (775.688.1145)

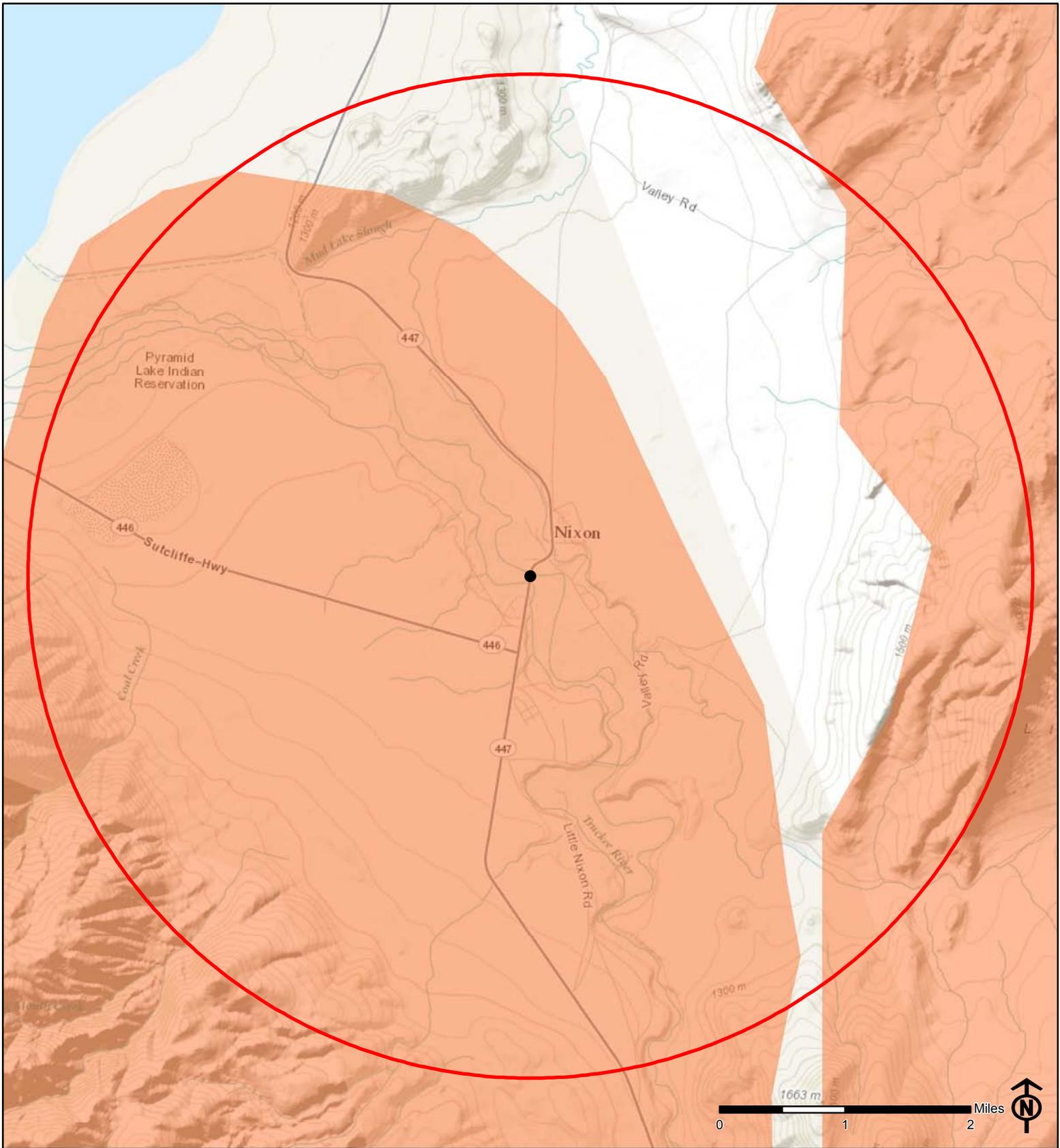
Federally listed Threatened and Endangered species are also under the jurisdiction of the United States Fish and Wildlife Service. Please contact them for more information regarding these species.

If you have any questions regarding the results or methodology of this analysis please do not hesitate to contact our GIS office at (775) 688-1565.

Sincerely,



Timothy M. Herrick
Biologist



- Project Area
- Four Mile Buffer Area Boundary
- Mule Deer Distribution



Nixon Bridge Project Mule Deer Distribution

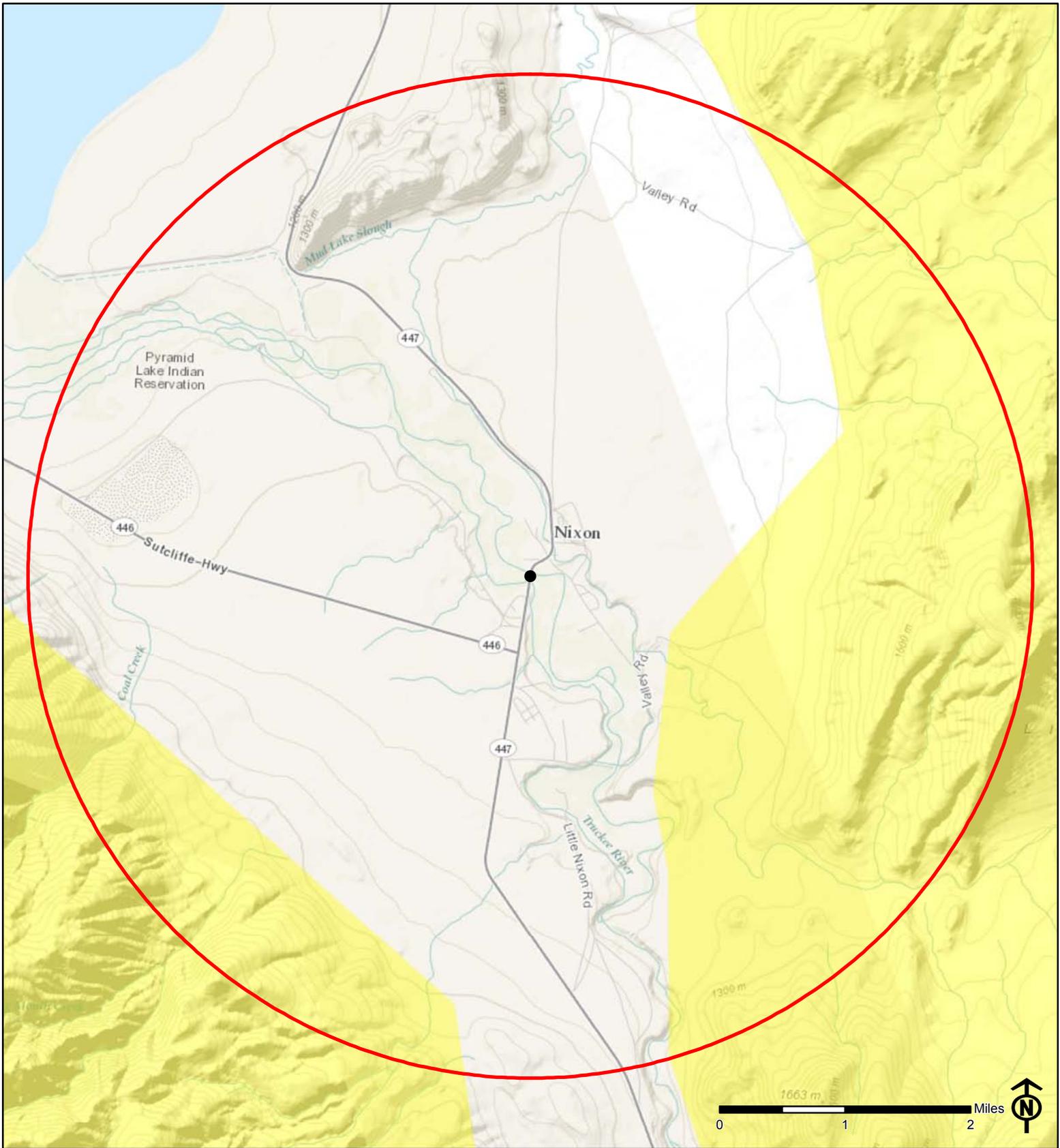


December 11, 2013

Projection: UTM Zone 11 North, NAD83

No warranty is made by the Nevada Department of Wildlife as to the accuracy, reliability, or completeness of the data for individual use or aggregate use with other data.





- Project Area
- Four Mile Buffer Area Boundary
- Pronghorn Antelope Distribution



Nixon Bridge Project Pronghorn Antelope Distribution

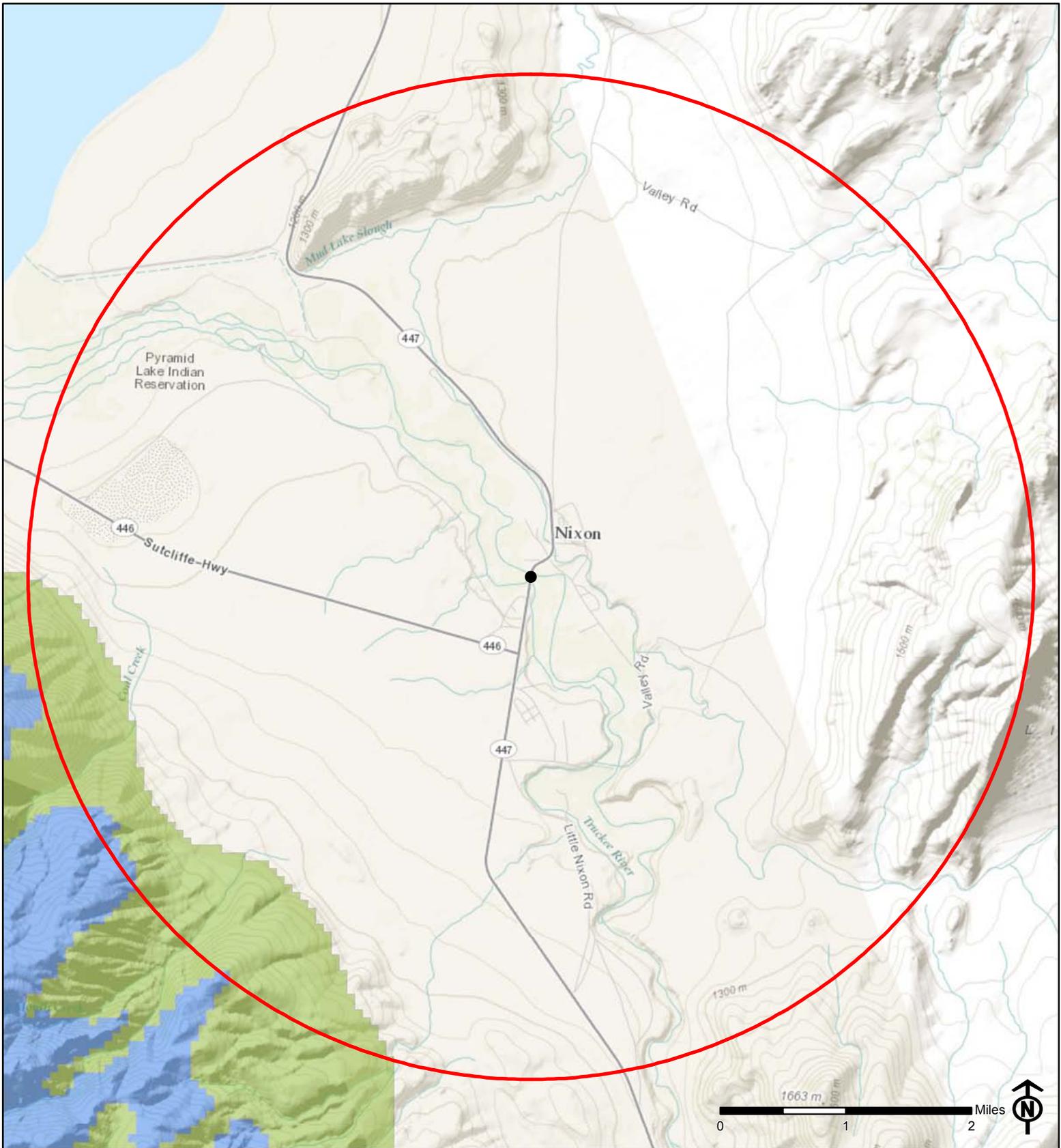


December 11, 2013

Projection: UTM Zone 11 North, NAD83

No warranty is made by the Nevada Department of Wildlife as to the accuracy, reliability, or completeness of the data for individual use or aggregate use with other data.





● Project Area

□ Four Mile Buffer Area Boundary



Nixon Bridge Project Greater Sage-Grouse Habitat



Greater Sage-Grouse Habitat

- | | |
|-------------------------------------|--|
| 1 - Essential/Irreplaceable Habitat | 4 - Low Value Habitat/Transitional Range |
| 2 - Important Habitat | 5 - Unsuitable Habitat |
| 3 - Habitat of Moderate Importance | Pending Completion |

December 11, 2013

Projection: UTM Zone 11 North, NAD83

No warranty is made by the Nevada Department of Wildlife as to the accuracy, reliability, or completeness of the data for individual use or aggregate use with other data.



LEO DROZDOFF
Director

Department of Conservation
and Natural Resources

JENNIFER E. NEWMARK
Administrator

BRIAN SANDOVAL
Governor



Nevada Natural Heritage Program
Richard H. Bryan Building
901 S. Stewart Street, suite 5002
Carson City, Nevada 89701-5245
U.S.A.

tel: (775) 684-2900
fax: (775) 684-2909



STATE OF NEVADA
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
Nevada Natural Heritage Program
<http://heritage.nv.gov>

05 June 2013

Jason Perock
Environmental Services Division
Nevada Department of Transportation
1263 South Stewart Street
Carson City, NV 89712

RE: Data request received 04 June 2013

Dear Mr. Perock:

We are pleased to provide the information you requested on endangered, threatened, candidate, and/or at risk plant and animal taxa as well as Noxious Weeds recorded on or near the Proposed Scour Protection Project area below Bridge 1351 on SR 447 in Washoe County. We searched our database and maps for the following, a two kilometer radius around:

Township 23N Range 23E Section 26

The enclosed printout lists the taxa recorded within the given area. Please be aware that habitat may also be available for, the pale kangaroo mouse, *Microdipodops pallidus*, a Taxon determined to be Imperiled by the Nevada Natural Heritage Program, and the American White Pelican, *Pelecanus erythrorhynchos*, a Nevada Bureau of Land Management Proposed Special Status Species. The Nevada Department of Wildlife (NDOW) manages, protects, and restores Nevada's wildlife resources and associated habitat. Please contact Chet Van Dellen, NDOW GIS Coordinator (775.688.1565) to obtain further information regarding wildlife resources within and near your area of interest. Removal or destruction of state protected flora species (NAC 527.010) requires a special permit from Nevada Division of Forestry (NRS 527.270).

Please note that our data are dependent on the research and observations of many individuals and organizations, and in most cases are not the result of comprehensive or site-specific field surveys. Natural Heritage reports should never be regarded as final statements on the taxa or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments.

Thank you for checking with our program. Please contact us for additional information or further assistance.

Sincerely,

A blue ink signature of Eric S. Miskow.

Eric S. Miskow
Biologist/Data Manager

At Risk Taxa Recorded Near the Bridge Scour Protection Project Area on SR 447

Compiled by the Nevada Natural Heritage Program for the Nevada Department of Transportation

05 June 2013

<u>Scientific name</u>	<u>Common name</u>	<u>Usfws</u>	<u>Blm</u>	<u>Usfs</u>	<u>State</u>	<u>Srank</u>	<u>Grank</u>	<u>UTME</u>	<u>UTMN</u>	<u>Prec</u>	<u>Last observed</u>
Fishes											
<i>Chasmistes cujus</i>	Cui-ui	LE	S		YES	S1	G1	295350.81	4414100.34	S	2012-04-15
<i>Oncorhynchus clarkii henshawi</i>	Lahontan cutthroat trout	LT	S	T	YES	S3	G4T3	295350.81	4414100.34	S	2012-04-15
Mammals											
<i>Myotis yumanensis</i>	Yuma myotis		N;C			S3S4	G5	289506.91	4413487.52	M	1945-PRE
Birds											
<i>Charadrius nivosus nivosus</i>	Western Snowy Plover		N		YES	S3B	G3T3	296915.26	4417483.58	G	1985-PRE

U. S. Fish and Wildlife Service (Usfws) Categories for Listing under the Endangered Species Act:

- LE Listed Endangered - in danger of extinction in all or a significant portion of its range
- LT Listed Threatened - likely to be classified as Endangered in the foreseeable future if present trends continue

Nevada Natural Heritage Program Global (Grank) and State (Srank) Ranks for Threats and/or Vulnerability:

- G Global rank indicator, based on worldwide distribution at the species level
- T Global trinomial rank indicator, based on worldwide distribution at the infraspecific level
- S State rank indicator, based on distribution within Nevada at the lowest taxonomic level
- 1 Critically imperiled and especially vulnerable to extinction or extirpation due to extreme rarity, imminent threats, or other factors
- 2 Imperiled due to rarity or other demonstrable factors
- 3 Vulnerable to decline because rare and local throughout its range, or with very restricted range
- 4 Long-term concern, though now apparently secure; usually rare in parts of its range, especially at its periphery
- 5 Demonstrably secure, widespread, and abundant
- A Accidental within Nevada
- B Breeding status within Nevada (excludes resident taxa)
- H Historical; could be rediscovered
- N Non-breeding status within Nevada (excludes resident taxa)
- Q Taxonomic status uncertain
- U Unrankable
- Z Enduring occurrences cannot be defined (usually given to migrant or accidental birds)
- ? Assigned rank uncertain

Bureau of Land Management (Blm) Species Classification:

- S Nevada Special Status Species - USFWS listed, proposed or candidate for listing, or protected by Nevada state law
- N Nevada Special Status Species - designated Sensitive by State Office
- C California Special Status Species (see definition S and N)

United States Forest Service (Usfs) Species Classification:

- T Region 4 and/or Region 5 Threatened species

Nevada State Protected (State) Species Classification:

- Fauna: YES Species protected under NRS 501.

Precision (Prec.) of Mapped Occurrence:

- Precision, or radius of uncertainty around latitude/longitude coordinates:
- S Seconds: within a three-second radius
- M Minutes: within a one-minute radius, approximately 2 km or 1.5 miles
- G General: within about 8 km or 5 miles, or to map quadrangle or place name

Pyramid Lake Paiute Tribe

Post Office Box 256

Nixon, Nevada 89424

Telephone: (775) 574-1000 / 574-1001 / 574-1002

FAX (775) 574-1008

Thursday, February 20, 2014

Department of Transportation
State of Nevada
1263 S. Stewart Street
Carson City, NV 89712

Attn: Mr. James Moore, P.E. CFM

Re: Nixon Bridge

Dear Mr. Moore,

This letter in response to your request for the Pyramid Lake Paiute Tribe's preferred design alternative for the Nixon Bridge Scour Project. On February 4th, 2014, NDOT presented plans "A", "B", and "C" to our Interdisciplinary Team (IDT). The Pyramid Lake Paiute Tribe discussed the three proposed alternatives and has selected "Plan B" for the Nixon Bridge Scour Project as the preferred alternative. This approval is based on the fact that "Plan B" allows more favorable conditions for the Cui-ui to successfully migrate upstream of the bridge to suitable spawning habitat.

Due to the sensitive ecosystem that lies within the proposed project area, we request that NDOT takes extra precautions in the design and construction of the Nixon Bridge Scour Project. As discussed in February's IDT meeting, Plan B has a slope of approximately 1.7% and has the option of staggering large boulders across the riverbed, creating resting areas for migrating fish. We request that these boulders are included in the project plans, to increase chances of spawning success.

Please keep us informed as the project progresses. If there are any questions regarding the selection of the preferred alternative or the conditions described herein, please contact the Water Quality Standards Specialist, Kameron Morgan at (775) 997-5343 ext. 19, or kmorgan@plpt.nsn.us.

Sincerely,



Elwood Lowery
Tribal Chairman
Pyramid Lake Paiute Tribe

Perock, Jason E

From: Starostka, Andy [andy_starostka@fws.gov]
Sent: Thursday, July 24, 2014 11:40 AM
To: Perock, Jason E
Subject: Re: FW: Nixon Bridge Tribal Water Quality Protocols

For past consultations for similar projects, we have referenced the NDEP monitoring requirements and water quality standards for in-water work. This coupled with working when no listed species will be in the project area should be sufficient. This would include both upstream migrating adults and downstream migrating juveniles.

A

On Thu, Jul 24, 2014 at 11:19 AM, Perock, Jason E <JPerock@dot.state.nv.us> wrote:

Hi Andy,

As you know I have been working on a draft BA for the Nixon Bridge. I am just about finished but have been waiting on the Pyramid Lake Paiute Tribe to help fill in any water quality monitoring protocols and protocols if any water quality standards are exceeded during construction. Please see Kameron's and my emails below. Basically the tribe does not have any due to the reason that the Tribe has not dealt with "In-stream" construction activities in the Truckee River (River Diversions, etc). With this being said, and Kameron's response that the tribe may require monitoring (but will not be determined until right before construction), will the USFWS require in stream monitoring for water quality? NDOT would like to get ahead of the game and get any monitoring requirements into the BA and future contract documents to avoid any potential delays and costly change orders at the time of construction. My thought was to add in NDEP's basic monitoring requirements to cover this hole in our plan or use any protocols which you may have. Can you provide me your thoughts on this matter? Also I believe I asked you previously, but would you be open to reviewing a draft of the BA prior to submittal so we can address any holes? I was going to send a draft over to Kristine at the Army Corps and the Tribe as well for review and comments. As always thanks for the help.

Jason

Jason Perock

Environmental Scientist

Environmental Services

Nevada Department of Transportation

1263 S. Stewart Street

Carson City, NV 89712

(775) 888-7690

From: Kameron Morgan [mailto:KMorgan@plpt.nsn.us]
Sent: Monday, July 21, 2014 10:53 AM
To: Perock, Jason E
Cc: Murphy, James D
Subject: RE: Nixon Bridge Tribal Water Quality Protocols

Good Morning Jason,

Sorry I have not had a chance to respond to your email. We've been busy on our end and needed some time to ask some individuals to properly address your question. The Tribe does not have any water quality protocols for in-stream projects. As discussed before, the Tribe has 401 certification authority for projects that discharge pollutants in to surface waters (including sediment). After NDOT submits a 401 application to the Tribe, the Interdisciplinary Team (IDT) may decide that there should be water quality monitoring during the time of construction, in order to move forward with the project. We will not know this much until we receive the 401/SWPPP application and IDT makes their decision.

After talking to a few departments, the main concern is that the project does not occur within spawning season and that proper Best Management Practices are implemented through the 401/SWPPP permits. If you have anymore questions, I will be in the office the remainder of the day at (775) 574-0101 x19. Thank you for your patience regarding this matter.

Kameron

From: Perock, Jason E <JPerock@dot.state.nv.us>
Sent: Monday, July 14, 2014 12:17 PM
To: Kameron Morgan
Cc: Murphy, James D
Subject: Nixon Bridge Tribal Water Quality Protocols

Hi Kameron,

I was wondering if you had made any progress in finding the PLPT's water quality protocols (i.e. water quality monitoring – turbidity), for NDOT's proposed Nixon Bridge Scour Project for our work in the Truckee River. We are planning on having a water diversion and work on half of the river channel at a time. I am looking for any monitoring requirements and associated protocols if water quality standards happen to be exceeded during construction. As discussed I would like to include this into our Biological Assessment for the project. Once I get this information, I should have a draft to review a week or two later. As always thanks for the help.

Jason

Jason Perock

Environmental Scientist

Environmental Services

Nevada Department of Transportation

1263 S. Stewart Street

Carson City, NV 89712

(775) 888-7690

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--

Andy Starostka
Fish Biologist
Nevada Fish and Wildlife Office
1340 Financial Boulevard, Suite 234
Reno, Nevada 89502-7147

Tel: (775) 861-6386

Fax: (775) 861-6301

andy_starostka@fws.gov

Perock, Jason E

From: Starostka, Andy [andy_starostka@fws.gov]
Sent: Thursday, January 16, 2014 3:59 PM
To: Perock, Jason E
Subject: Nixon Bridge consultations

FYI, we have done some consultations in the past. the file #'s are FWS #'s and I am going over to the warehouse this afternoon pull these hard copies.

Search ES Archives (1979-2002) by Project Name			
File #	Reference File #	Agency	Project Name
78-F-018	Case # 61	FHA	Truckee River Bridge - Nixon
78-F-061		FHA	Truckee River Bridge Construction - Nixon
84-TA-012		NDOT	Truckee River - Nixon Bridge Repair
99-I-038		NDOT	Nixon Bridge Repair

--
Andy Starostka
Fish Biologist
Nevada Fish and Wildlife Office
1340 Financial Boulevard, Suite 234
Reno, Nevada 89502-7147

Tel: (775) 861-6386
Fax: (775) 861-6301
andy_starostka@fws.gov

Perock, Jason E

From: Starostka, Andy [andy_starostka@fws.gov]
Sent: Friday, November 01, 2013 9:32 AM
To: Perock, Jason E
Subject: Re: FW: Nixon Bridge, SR 447, Washoe County

Talked with Fisheries here yesterday and the number they provided were velocities no more than 3 ft/s and no more than a 1/10 slope. If you need a citation for this, let me know. These numbers seem to line up with the other information I provided earlier.

As you know, there has been a lot of turnover as of late with the Pyramid Paiute Tribe. Names that should be included in conversations/communications with the tribe should include Norm Harry, Bev Harry and Olin Anderson. I think most are related to the positions in the Natural Resource branch.

A

On Wed, Oct 30, 2013 at 4:04 PM, Perock, Jason E <JPerock@dot.state.nv.us> wrote:

Thanks Andy. I will pass this on to our hydraulics engineer.

Jason

From: Starostka, Andy [mailto:andy_starostka@fws.gov]
Sent: Wednesday, October 30, 2013 4:02 PM
To: Perock, Jason E
Subject: Re: FW: Nixon Bridge, SR 447, Washoe County

Went down stairs and talked with Pete Rissler, sounds like you guys just missed him. Pete said to look at the specs. for the fish passage projects and use those as a baseline. Whatever maximum velocity that you decide on for cui-ui, I would use it conservatively, so cui-ui do not stack up below the structure and be subjected to increased predation. I suspect that you have found the majority of these documents already.

here are a few.

http://www.usbr.gov/pmts/hydraulics_lab/pubs/PAP/PAP-0802.pdf 4 ft/s for short distances 2 ft/s overall.

I will see if I can come up with some newer/better numbers for you.

Andy

On Wed, Oct 30, 2013 at 3:39 PM, Perock, Jason E <JPerock@dot.state.nv.us> wrote:

Andy,

Here is the email sent to Peter Rissler, USGS requesting information about acceptable velocity ranges for Cui-ui passage as discussed today at your office. Thanks for your help with getting us the information.

Jason Perock

Environmental Scientist

Environmental Services

Nevada Department of Transportation

1263 S. Stewart Street

Carson City, NV 89712

(775) 888-7690

From: Moore, James L
Sent: Thursday, October 24, 2013 6:27 AM
To: 'peter_rissler@usgs.gov'
Cc: Perock, Jason E; Loveless, John C; Wolf, Charles P
Subject: Nixon Bridge, SR 447, Washoe County

Good morning Mr. Rissler –

I am writing to follow up the email I sent to you on October 8 regarding acceptable velocities in the Truckee River at the bridge at Nixon. As I stated in the previous email, NDOT is in the design process for a scour mitigation project at this bridge. As of now, the project will consist of placing large riprap at the existing weir just downstream of the bridge to reinforce the weir and stop the ongoing upstream headcut.

The issue with the design is acceptable velocities in the Truckee River. Cui-ui and Lahontan Cutthroat Trout have been reported at the bridge by the Pyramid Lake Paiute Tribe, and they are very insistent that any work done at this bridge will not impact spawning of the Cui-ui and the LCT. We looked at several different alternatives, including reinforcing the weir with steel sheet piling, but we feel that our current alternative of using large riprap to reinforce the weir and stop the headcut is best based on construction time and cost.

The NDOT Hydraulics and Environmental Divisions have done research into allowable passage velocities for the cui-ui, and we have found velocities as follows:

- "...The cui-ui prefers depths of water for spawning that range from 9 to 43 cm; velocities that range from 23 to 87 cm/sec, and substrate with about 60% gravel." (Taken from "Life History of the Cui-ui, *Chasmistes cujus* Cope, in Pyramid Lake, Nevada: A Review" by William F. Sigler, Steven Vigg, and Mimi Bres, "The Great Basin Naturalist," October 31, 1985).
- "Cui-ui spawned over predominantly gravel substrate in water 21 to 110 cm deep, where stream velocities were 27 to 140 cm/sec and near-bed velocities were 21 to 90 cm/sec." (Taken from "Life History and Status of the Endangered Cui-ui of Pyramid Lake, Nevada" by G. Gary Scoppetone, Mark Coleman, and Gary A. Wedemeyer, United States Department of the Interior, U.S. Fish & Wildlife Service, 1986).
- "From observations made in the stamina chamber and Numana Dam fish ladder, velocities less than 2.4 m/s do not seem inhibiting to cui-ui. Velocities greater than 2.3 m/s tend to bring early exhaustion and premature release of gametes." (Taken from "Life History Information on the Cui-ui Lakesucker (*Chasmistes cujus*, Cope, 1883) Endemic to Pyramid Lake, Washoe County, Nevada," by David L. Koch, Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy in Zoology, University of Nevada at Reno, December, 1972).

- We also received an email from John Mosley from the Pyramid Lake Paiute Tribe, who stated that the cui-ui "required a hydraulic velocity of 0.31 to 0.61 meters/sec."

As you can see, the velocities have a decent range, between 23 cm/s (0.75 ft/sec) and 2.4 m/s (7.9 ft/sec). The article written by Gary Scoppetone in 1986 recommends velocities between 27 and 140 cm/sec (0.89-4.59 ft/sec).

For the proposed design, the velocities for the Minimum Spawning Flow (1,000 cfs; taken from "Cui-ui (Chasmistes cujus), Second Revision, Recovery Plan" by Cui-ui Recovery Team, U.S. Fish & Wildlife Service, approved May 15, 1992) range from 2.39 ft/second to 6.09 ft/second. For the Maximum Spawning Flow (same source as before), the velocities range from 3.84 ft/second to 8.28 ft/second. These velocities were determined from a HEC-RAS model, and the model used LIDAR data supplied by DRI.

Please review the attached PDF and let us know at your earliest convenience whether the velocities shown would be acceptable for Cui-ui/LCT. We need to get a handle on what velocity range we need to design for, so we can determine (A) if the proposed work will impact spawning and (B) if spawning is impacted, how to tweak our design. We have discussed this issue with both the US Fish & Wildlife Service and the Pyramid Lake Paiute Tribe, and have received no definite answers to date. The USFWS recommended that we contact Gary Scoppetone, but at a meeting with the Pyramid Lake Paiute Tribe, we were told he had retired, and they gave us your contact information.

Thank you in advance for your assistance with this issue. Please call or email me with any questions or concerns you may have.

Best Regards,

James L. Moore, PE, CFM

Nevada Department of Transportation -- Hydraulics Division

1263 S. Stewart St.

Carson City, NV 89712

PHONE (775) 888-7799

FAX (775) 888-7177

jmoore2@dot.state.nv.us

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--

Andy Starostka

Fish Biologist

Nevada Fish and Wildlife Office

1340 Financial Boulevard, Suite 234

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Appendix C – Streamflow Data for the USGS Nixon Gage



USGS Home
 Contact USGS
 Search USGS

National Water Information System: Web Interface

[USGS Water Resources](#)

Data Category: Geographic Area:

[Click for News Bulletins](#)

USGS Surface-Water Monthly Statistics for the Nation

The statistics generated from this site are based on approved daily-mean data and may not match those published by the USGS in official publications. The user is responsible for assessment and use of statistics from this site. For more details on why the statistics may not match, [click here](#).

USGS 10351700 TRUCKEE RV NR NIXON, NV

Available data for this site Time-series:

Washoe County, Nevada Hydrologic Unit Code 16050103 Latitude 39°46'38.54", Longitude 119°20'15.08" NAD83 Drainage area 1,827 square miles Gage datum 3,940.00 feet above NGVD29	Output formats <input type="button" value="HTML table of all data"/> <input type="button" value="Tab-separated data"/> <input type="button" value="Reselect output format"/>
---	--

00060, Discharge, cubic feet per second,												
YEAR	Monthly mean in ft ³ /s (Calculation Period: 1957-10-01 -> 2013-09-30)											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1957										35.7	38.9	52.3
1958	33.2	125.1	74.7	2,605	4,289	1,168	47.2	109.9	27.5	29.7	60.2	35.2
1959	51.6	61.4	29.9	21.0	26.3	19.0	20.8	25.5	29.9	23.5	24.2	25.5
1960	26.7	79.6	41.0	33.2	65.5	14.8	20.2	31.3	35.2	27.9	29.0	29.0
1961	22.5	24.2	22.4	19.8	27.2	23.6	16.6	36.0	24.2	16.1	19.2	18.2
1962	18.5	48.4	24.7	314.9	229.2	31.3	18.8	16.4	26.7	227.9	34.1	40.7
1963	69.1	2,316	146.1	183.4	1,391	925.6	53.7	35.0	42.3	42.8	62.8	36.3
1964	31.4	26.5	207.4	53.4	93.2	48.3	26.2	34.4	30.4	32.4	34.2	1,547
1965	1,191	998.5	573.1	579.8	1,325	515.0	62.2	315.8	67.0	60.4	290.4	737.3
1966	591.4	360.9	210.6	64.6	61.4	47.0	33.2	37.5	49.0	41.5	49.8	58.9
1967	156.9	79.4	1,094	610.1	3,116	3,795	1,188	88.9	290.6	418.8	322.2	453.1
1968	537.3	901.6	836.4	231.1	67.9	52.4	38.8	70.0	68.8	46.6	43.3	169.7
1969	1,287	1,631	2,198	3,392	3,454	3,469	429.8	45.7	54.0	47.2	36.6	345.0
1970	2,087	2,293	1,471	530.0	212.5	290.9	445.4	89.1	76.3	124.5	79.0	570.3
1971	969.5	928.8	864.4	769.7	1,234	1,744	450.7	239.0	501.9	661.5	141.5	329.7

1972	537.5	563.2	743.8	236.4	248.7	109.5	43.3	119.1	60.3	64.5	128.0	579.2
1973	534.2	573.5	645.4	854.0	990.8	452.7	321.0	331.8	345.5	168.7	327.9	525.1
1974	1,296	805.4	1,518	2,034	1,875	1,247	862.3	409.0	327.6	315.6	353.5	179.2
1975	291.5	211.6	649.0	877.6	2,575	1,847	759.7	696.2	436.4	225.4	463.2	546.1
1976	534.6	533.4	596.1	316.9	357.8	220.1	258.7	281.4	232.4	182.8	102.6	84.4
1977	84.2	83.4	47.0	51.3	58.0	33.3	26.9	30.8	27.0	21.3	29.6	69.7
1978	69.0	43.2	166.9	164.0	875.5	112.2	44.7	37.0	52.5	51.8	53.8	42.4
1979	173.7	251.4	50.7	55.2	532.2	70.2	45.5	40.0	43.2	90.2	59.3	38.7
1980	1,170	883.7	604.1	784.7	1,689	1,002	197.7	74.1	84.7	180.7	259.2	80.6
1981	297.8	402.7	41.6	139.8	1,012	126.4	33.1	29.5	44.7	63.7	631.1	1,019
1982	627.4	1,696	1,115	2,480	4,049	2,565	599.9	72.9	436.2	916.8	2,164	2,694
1983	1,635	2,704	3,639	3,380	4,066	5,398	2,786	815.6	1,172	423.5	2,659	3,905
1984	3,430	2,067	1,559	1,106	1,539	1,289	278.8	98.6	148.3	402.6	573.4	566.9
1985	356.3	173.3	183.9	744.0	981.3	154.3	47.6	37.8	74.1	71.5	134.7	488.6
1986	457.6	3,311	4,764	2,901	2,424	1,236	257.8	170.7	158.5	328.0	227.9	89.0
1987	98.4	111.5	212.9	576.8	971.9	222.3	49.5	30.5	37.0	47.9	48.1	45.2
1988	41.2	38.1	35.7	41.0	49.3	39.2	25.7	34.8	30.5	29.7	57.4	43.1
1989	41.6	38.7	212.3	192.9	117.6	61.9	37.4	47.0	42.3	71.1	49.4	45.7
1990	41.6	35.7	33.2	64.7	59.1	21.7	32.8	29.4	21.4	19.9	21.2	21.7
1991	28.7	20.7	38.6	47.6	62.2	26.3	21.9	27.3	19.7	18.3	27.8	28.3
1992	26.4	24.3	29.4	39.8	21.9	20.8	15.2	19.5	17.5	22.8	18.0	17.5
1993	42.4	28.2	382.0	649.3	1,276	1,075	291.7	99.7	79.8	106.2	35.0	23.1
1994	20.4	20.5	90.3	597.8	1,044	333.7	23.8	22.5	16.3	15.2	27.7	23.0
1995	174.3	32.5	1,187	1,040	2,446	2,332	1,536	632.5	279.7	314.2	277.0	435.7
1996	398.2	1,725	1,850	2,138	3,642	1,789	760.4	295.8	433.4	405.7	550.3	2,047
1997	7,378	3,887	2,620	1,785	1,665	1,305	397.0	296.5	366.1	374.2	308.0	475.3
1998	544.5	621.1	1,734	2,243	2,722	3,221	1,333	527.5	649.3	647.8	559.3	927.8
1999	872.0	2,322	2,135	1,971	3,067	2,146	717.3	446.0	440.7	422.7	435.0	436.2
2000	515.4	611.3	771.6	1,039	1,033	423.7	281.5	306.7	367.9	403.3	427.6	235.2
2001	145.8	96.9	94.9	47.2	58.0	120.2	138.4	124.9	154.0	95.3	58.5	61.3
2002	335.9	151.4	68.1	354.2	513.1	268.1	100.8	114.1	249.9	116.8	60.1	43.2
2003	262.6	70.9	57.3	266.2	776.0	564.9	220.6	216.7	253.8	288.0	88.1	73.2
2004	67.8	77.1	176.6	350.6	271.5	177.9	136.5	134.0	87.4	51.4	54.1	45.3
2005	143.0	353.4	526.9	693.3	1,563	947.1	450.9	188.4	222.0	314.3	349.8	1,031
2006	2,031	927.0	1,502	2,058	2,707	1,443	783.4	340.6	375.2	487.2	427.1	455.4
2007	440.0	152.5	142.8	293.9	293.5	140.8	123.0	112.3	104.1	85.5	73.4	60.7
2008	371.1	361.8	349.0	372.0	450.3	193.3	202.5	213.4	208.7	132.6	119.3	103.3
2009	97.7	110.6	255.0	211.4	470.1	180.6	143.5	156.9	172.8	210.8	103.5	58.1
2010	48.3	94.1	227.7	306.0	422.6	880.0	283.5	186.7	175.7	473.4	386.9	698.1
2011	477.8	425.4	806.6	1,778	2,120	2,386	1,456	425.5	412.4	451.1	576.0	549.9
2012	542.2	491.1	616.4	706.9	613.6	395.8	217.1	155.7	138.7	159.8	131.8	482.7

2013	458.4	181.8	252.6	257.2	387.2	266.1	166.3	146.9	158.9			
Mean of monthly Discharge	611	664	724	815	1,210	875	346	174	187	198	263	425
** No Incomplete data have been used for statistical calculation												

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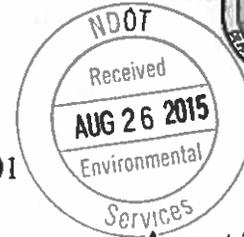


United States Department of the Interior

Pacific Southwest Region
FISH AND WILDLIFE SERVICE

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August 21, 2015
File No. 2015-F-0232

Federal Highway Administration - Nevada Division
Abdelmoez A. Abdalla
Environmental Program Manager
Nevada Department of Transportation
705 Plaza Street, Suite 220
Carson City, Nevada 89701

Dear Mr. Abdalla:

Subject: Biological Opinion for the Nixon Bridge (B-1351) Scour Protection Project,
Washoe County, Nevada

This document transmits the U.S. Fish and Wildlife Service's (Service) Biological Opinion (BO) on the proposed Nixon Bridge (B-1351) scour protection project (Project) and its effects on threatened Lahontan cutthroat trout (LCT; *Oncorhynchus clarkii henshawi*) and endangered cui-ui (*Chasmistes cujus*) in accordance with section 7 of the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. 1531 *et seq.*). The Project entails construction of riprap scour countermeasures below B-1351 (Nixon Bridge) on SR-447, mile post WA 15.47 within the town of Nixon on the Truckee River in Washoe County, Nevada. The Nevada Department of Transportation (NDOT) is the authorized project lead for the Federal Highway Administration (FHA) for this consultation. Written request for formal consultation regarding effects to LCT and cui-ui was dated March 2, 2015, and received by our office on March 4, 2015. No other listed or proposed species and/or designated or proposed critical habitat occur in the Action Area or would be affected by implementation of the project.

This BO is based on the Biological Assessment (BA) provided by NDOT (NDOT 2015), telephone conversations with technical experts, site visits of the project area, published literature and unpublished reports, Short-Term Action Plan for LCT in the Truckee River Basin (TRIT 2003), the 5-year Review for LCT (Service 2009), and cui-ui recovery plan (Service 1992). A complete administrative record of this consultation is on file in the Service's Reno Fish and Wildlife Office (RFWO).

For relevant sections of this BO, the Service has attempted to maintain brevity by summarizing from the BA and other documents. Additional details can be obtained from the referenced sections identified herein.

Consultation History

The following previous consultations occurred within the project area:

- File No 78-F-018, FHA, Truckee River Bridge – Nixon
- File No 78-F-061, FHA, Truckee River Bridge Construction – Nixon
- File No 84-TA-012, NDOT, Truckee River – Nixon Bridge Repair
- File No 99-I-038, NDOT, Truckee River Repair

Pre-project coordination history is provided below organized by date:

- **9/23/13:** A project kickoff meeting occurred on site at the Nixon Bridge with Andy Starostka, Fish Biologist, USFWS; Kristine Hansen, Regulatory Project Manager, USACE; Jason Perock, Environmental Scientist, NDOT; Nova Simpson, Environmental Scientist, NDOT; John Loveless, Designer NDOT; Jim Moore Senior Hydraulics Engineer, NDOT; and Donald Naquin, Environmental Scientist, NDOT. Pyramid Lake Paiute Tribe (PLPT) was invited to the meeting but was not in attendance. After a brief review of the project, it was determined that NDOT will consult on both LCT and cui-ui.
- **10/23/13:** Telephone correspondence with Nancy Vucinich, PLPT Fish Biologist, regarding fish salvage activities. The discussion involved the PLPT level of involvement with the proposed fish salvage activities. Nancy indicated that the tribe was not interested in performing the fish salvaging activities but requested to be present during these activities.
- **11/1/13:** Andy Starostka, USFWS Biologist, provided target velocities and slopes to aid in the design to accommodate cui-ui passage through the project area, via electronic mail to Jason Perock, Environmental Scientist, NDOT. With assistance from Lahontan National Fish Hatchery Complex staff, it was determined that velocities at the downstream face of the rock weir should be no more than 3ft/s and the slope should be no more than 1/10 to accommodate the passage of cui-ui.
- **1/16/14:** Andy Starostka, USFWS Biologist, provided documentation of previous formal consultations with the USFWS for work on the Nixon Bridge, via electronic mail to Jason Perock, NDOT.
- **1/22/14:** A design meeting was held at the RFWO with the Service, NDOT and the PLPT. This meeting was to discuss design options following 2-D modeling by NDOT to achieve target velocities and slope requirements. The Service indicated that more project details were needed to inform the PLPT on design options and would defer to the PLPT's preferred option.

- **2/4/14:** NDOT presented 4 design options to the PLPT Inter-Disciplinary Team (IDT). NDOT staff in attendance included Jason Perock, Environmental Scientist, NDOT; John Loveless, Designer NDOT; Jim Moore Senior Hydraulics Engineer, NDOT; and Chris Young, Environmental Services Supervisor, NDOT.
- **3/5/14:** The PLPT provided NDOT with a final design determination. The PLPT chose Plan B which includes riprap armoring of the river channel approximately 180 feet downstream of the bridge and approximately 50 feet upstream of the bridge. Large boulders will be randomly placed along the northern channel bank to further reduce velocities and provide resting areas for cui-ui through the project area.

NDOT requested a species list from the Service via online IPAC on February 26, 2015. The Species List identified that LCT and cui-ui may occur within the project area. Request for Formal Consultation was sent by NDOT on March 2, 2015 and received by the Service on March 4, 2015

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

Action Area

Regulations implementing the ESA (50 CFR §402.02) define the action area as all areas to be affected directly or indirectly by the proposed Federal action and not merely in the immediate area involved in the action (50 CFR §402.02).

The NDOT will be constructing riprap scour revetment countermeasures around the two existing bridge pier footings of the Nixon Bridge within the Truckee River. Riprap countermeasures are necessary to protect the structure from scouring effects of the river and repair an existing rock weir that is protecting the bridge from a head cut immediately downstream of the bridge. The placement of riprap will require entry into the Truckee River stream channel to access the bridge pier footings and rock weir.

The action area includes the area in and around the construction foot print, but also extends downstream in the Truckee River since activities related to the scour protection project may have direct and indirect effects to the river and biota that could extend for miles. Examples of these impacts include sediment and turbidity plumes or accidental spills of hydrocarbons that can travel extended distances from the source.

Construction Methods

The following summary is derived from Section 2.0 Proposed Action, and in particular, Section 2.1 Conceptual Design, of the BA (pp.12-15, NDOT 2015), which includes additional descriptions and details of methods to be employed throughout the project.

The conceptual construction sequencing for the construction of the riprap scour countermeasures will consist of the activities listed below in chronological order. Actual sequencing is dependent on final design, permitting requirements, and other contractor needs.

1. Procurement of Class 900 Riprap (~3' diameter) and larger boulders (~6' diameter);
2. Truckee River diversion (north or south half);
3. Fish salvage;
4. Removal/excavation of existing riprap and gabion mats (if necessary);
5. Placement and keying-in (secured in place) of riprap and large boulders;
6. Flip Truckee River diversion (north to south or south to north);
7. Fish salvage;
8. Removal/excavation of existing riprap and gabion mats (if necessary);
9. Placement and keying-in of riprap and large boulders;
10. Removal of Truckee River diversion;
11. Restoration and rehabilitation of access roads, planting and seeding of disturbed areas; and
12. Final detailing.

A temporary river diversion will be installed to divert Truckee River flows to approximately half of the river channel (north or south), creating a dry work zone within the river channel and between the existing piers. It is estimated that the limits of the temporary river diversion will begin 150 feet upstream and end 300 feet downstream of the B-1351 structure, for a total of 492 feet (including the bridge width of 42 feet), creating an in-stream work zone of approximately 0.35 acres in size (Figure 9. Plan Sheet DD5 of the BA).

Once access is gained to the river, and the in-river work area is dewatered, the riprap scour protection can be constructed. The existing riprap within the channel and gabion baskets will be excavated and removed (if necessary). The river channel will then be excavated to an approximate depth of up to 12 feet to accommodate the placement of new class 900 riprap (average rock diameter of 3 feet) and large boulders (average boulder diameter of 6 feet). Riprap bedding material, class 900 riprap and large boulders (northern half of the river only) will be placed within the river channel and keyed-in to prevent movement during high flows. Large boulders, placed within the class 900 riprap, along the northern half of the river only, are incorporated into the design to provide resting/refuge areas and reduce stream flow velocities to accommodate passage of federally protected fish species to spawning areas upstream of the project area post construction. Spawning gravel (0.25 – 3 inch) will be placed over the riprap scour countermeasures. It is anticipated this material will be flushed down river into the existing scour hole downstream of the rock weir to improve habitat downstream of the project.

All areas of disturbance will be recontoured and revegetated including temporary staging areas and access roads. Revegetation includes but is not limited to hydroseeding, pole plantings and planting of containerized stock of native species. Pole plantings will be incorporated into the riprap along the channel banks where feasible and do not interfere with river flows to provide additional erosion control, shade and aesthetics.

Timing

All in-channel construction will occur within the months of October and November. Construction will be timed to avoid spring spawning of LCT and cui-ui, typically the months of February through July, and allow for development and out-migration to Pyramid Lake of juvenile LCT and cui-ui.

STATUS OF THE SPECIES

Species description

LCT

Cutthroat trout (*Oncorhynchus clarkii*) have the most extensive range of any inland trout species in western North America and occur in anadromous, non-anadromous, fluvial, and lacustrine populations (Behnke 1979). Differentiation of the species into approximately 14 recognized subspecies occurred during subsequent general desiccation and isolation of the Great Basin and Inter-mountain Regions since the end of the Pleistocene, and indicates presence of cutthroat trout in most of their historic range prior to the last major Pleistocene glacial advance (Loudenslager and Gall 1980). LCT is an inland subspecies of cutthroat trout endemic to the Lahontan Basin of northern Nevada, eastern California and southern Oregon (Behnke 1992).

LCT were listed as endangered by the Service on October 13, 1970 (Service 1970), and subsequently reclassified as threatened on July 16, 1975, under the ESA, to facilitate management and allow regulated angling (Service 1975). The combined impacts of loss of habitat, nonnative introductions and habitat fragmentation were the primary reasons LCT were listed under the ESA (Service 2009). There is no designated critical habitat for LCT.

Additional information on the status of LCT and its habitat requirements, life history traits, population dynamics, distribution, and management can be found in the LCT Recovery Plan (Service 1995), the LCT Short-Term Action Plan for the Truckee River Basin (Truckee River Basin Recovery Implementation Team 2003), and the LCT 5-year Review (Service 2009).

Cui-ui

Cui-ui is a lake sucker endemic to Pyramid Lake, Washoe County Nevada. It was federally listed as endangered on March 11, 1967 (Service 1967), under the Endangered Species Preservation Act of 1966, and retained its endangered status under the ESA. No critical habitat has been designated for this species. Cui-ui spend the majority of its life in Pyramid Lake and only enter the Truckee River to spawn. Cui-ui congregate and migrate up the lower Truckee River as obligate stream spawners, usually from April to June (Scoppettone *et al.* 1986). Spawning runs may continue from 4 to 8 weeks, but most fish migrate during a 1-2 week period. After cui-ui adults have successfully spawned, they immediately migrate back to Pyramid Lake. Upon emergence, most larvae are immediately swept passively downstream to Pyramid Lake.

This is usually completed about 16 days after the end of spawning (Scoppettone *et al.* 1986). The maximum extent of cui-ui spawning habitat and occupancy in the lower Truckee River currently is limited to the 39-mile reach from Derby Dam downstream to Pyramid Lake.

ENVIRONMENTAL BASELINE

Regulations implementing the ESA (50 CFR §402.02) define the environmental baseline as the past and present impacts of all Federal, state, or private actions and other human activities in the action area. Also included in the environmental baseline are the anticipated impacts of all proposed Federal projects in the action area which have already undergone section 7 consultations, and the impacts of state and private actions which are contemporaneous with the consultations in progress. The environmental baseline is a snapshot of a species' health at a specified point in time. It does not include the effects of the actions under review in this consultation.

Status of the Species in the Action Area

LCT

The combination of the construction and operation of Derby Dam, over-fishing, and nonnative salmonid introductions led to the extirpation of the original strain of Pyramid Lake LCT (TRIT 2003, Service 2009). This strain of LCT historically migrated out of Pyramid Lake and entered the lower Truckee River to spawn. Decades of diversions at Derby Dam and increased urbanization throughout the Truckee River have eliminated or severely modified the habitat, lowered water quality, and increased water temperature in the lower Truckee River (TRIT 2003). Diversions and structural barriers have inhibited the upstream passage of lacustrine LCT and eliminated much of their historical spawning and rearing habitat. Populations of LCT in the Truckee River are supplemented and maintained by hatchery propagation by the Pyramid Lake Paiute Tribe, Nevada Department of Wildlife (NDOW), and the Service.

In recent years, large mature LCT (the result of prior stockings of Pilot Peak strain LCT by the Service's Lahontan National Fish Hatchery Complex, in collaboration the Pyramid Lake Paiute Tribe) have migrated and successfully reproduced for the first time since the late 1930's. Two new naturally reproduced year classes were documented to have successfully made their way by to Pyramid Lake as an F1 population.

Though LCT have been documented spawning in the lower Truckee River, currently LCT are not allowed to pass above Marble Bluff dam, however this is expected change in the future as more recovery actions are undertaken. As such, the action area addressed in this consultation occurs in a reach of the lower Truckee River where LCT spawning is not known to occur. The Service believes the action area could be occupied by LCT from upstream sources; however, the likelihood of encountering LCT during construction is low because of the long distances and low densities of upstream populations.

Cui-ui

Cui-ui are currently found only in Pyramid Lake and in the Truckee River downstream of Derby Dam. They were extirpated from Lake Winnemucca when it dried up in the 1930's. Historical habitat included the Truckee River from Hunter Creek (western Reno) downstream to and including Pyramid Lake and its tributaries.

The primary reason for cui-ui decline was the construction of Derby Dam and the interbasin water transfer that resulted. This resulted in a lower water level for Pyramid Lake, dewatering of Lake Winnemucca, massive downcutting and loss of riparian habitat on the lower Truckee River, and difficult passage for adult cui-ui spawners especially at the Truckee River delta. In 1966, only three year classes of cui-ui existed (1942, 1946, and 1950), which represented an aging population that was not reproducing. The 1969 year class dominated the population throughout the 1970's and the 1980's.

A series of wet years with above-average precipitation and runoff increased flows to Pyramid Lake and raised the lake level more than 30 feet during the 1980's and the 1990's. Increasing lake level inundates the delta that has formed at the mouth of the river. A Pyramid Lake elevation of 3,800 feet provides adequate fish passage over the delta. Passage at this elevation was documented in 1995 and is less than the minimum lake elevation identified for passage in the Cui-ui Recovery Plan (Service 1992) of 3,812 feet. These wet cycles and reconstruction and improved operation of the Marble Bluff Fish Facility have resulted in additional year classes in the population over the past two decades. Over the past several years the adult pre-spawning aggregate population has fluctuated around 1 million fish and now appears stable. With these large spawning aggregates the species requires access to additional historical spawning habitat to achieve recovery.

The Tribe manages water releases from Stampede Reservoir in the upper Truckee River basin, California, for the benefit and enhancement of listed fishes in Pyramid Lake. Releases are also managed for cottonwood tree regeneration along the lower Truckee River. With the reestablishment of a riparian corridor, the lower river has also recovered some of its form and function by being deepened and shaded.

As mentioned previously, adult cui-ui use the lower 32 miles of the Truckee River during the spawning season (from as early as March to as late as June) (Table 1), but only in years when there is sufficient attraction flow and passage above or around the delta (Scoppettone *et al.* 1986). Adults remain in the river from 4 to 17 days (Scoppettone *et al.* 1986). Depending on temperature, eggs hatch in 1-2 weeks and yolk-sac larvae remain in the gravel 5-10 days before they emerge. Once they have emerged, most larvae are swept downstream to Pyramid Lake over a period of a few days.

Factors Affecting the Species in the Action Area

LCT

Nonnative fish, especially salmonid species, are currently the greatest threat to LCT rangewide, resulting in loss of available habitat and range constrictions primarily through competition, hybridization, and predation (Service 2009). The introduction of nonnative salmonids has been documented as a global threat to native fish species (Townsend 1996, Cambray 2003, Kitano 2004, Jug *et al.* 2005, Spens *et al.* 2007, Crawford and Muir 2008). In the western United States, Lomnický *et al.* (2007) found that over half of stream lengths surveyed contained nonnative vertebrates and that increased stream order (larger streams) had higher occupancy of nonnative vertebrates. They also found that the most common nonnative vertebrates were brook trout (17 percent of all nonnative vertebrates present), brown trout (16 percent), and rainbow trout (14 percent) (Lomnický *et al.* 2007).

The lower Truckee River has suffered ecological and physical degradation from many human-caused changes over the past century; this degradation has significantly damaged the ecological integrity and functioning of the river and associated riparian habitat. Of particular significance are the diversions associated with Derby Dam and the channelization of the river in the 1960s by the ACOE. Impacts have included channel downcutting, depression of the local groundwater table, loss of riparian vegetation, proliferation of invasive and nonnative plant species, and general degradation of riparian and aquatic habitats. Ecosystem restoration in the Truckee River has been, and continues to be, implemented to improve the river environment in support of wildlife and fishery resources. Restoration of the lower Truckee River floodplain is also identified as a high priority action by the TRIT (TRIT 2003).

Cui-ui

Adult cui-ui are susceptible to predation by American white pelicans (*Pelecanus erythrorhynchos*) when they congregate near the Truckee River delta, Marble Bluff Fish Facility, and Numana Dam. Preliminary evidence suggests that predation by pelicans reduces cui-ui density sufficiently to accelerate growth rates and cause early maturation (G. Scoppettone, U.S. Geological Survey, unpub. data). Passage through the fish ladder at Numana Dam is difficult for cui-ui spawners due to the ladder design and cui-ui physique and physiology. Lack of passage at Numana Dam during years with large cui-ui migrations limits cui-ui reproduction to reaches below Numana Dam. When cui-ui spawning numbers reach 200,000 adults, there is inadequate spawning habitat available. Cui-ui spawn on top of existing spawning areas and disturb previously laid eggs. Unrestricted access to habitat upstream of Numana Dam provides approximately 25 miles of additional spawning habitat for cui-ui between Derby Dam and Numana Dam.

Table 1. Number of adult cui-ui passing through the Marble Bluff Fish Facility. The fish lock system was first used in 1998. Water data presented are the amount of water entering Pyramid Lake from March through June. The water gauging station is located at Nixon, Nevada.

Year	Number of cui-ui passing Marble Bluff Dam	Water entering Pyramid Lake (acre feet) ¹
1995	112,685	424,062
1996	171,668	571,378
1997	306,976	447,389
1998	495,000	599,153
1999	583,972	564,892
2000	182,734	198,001
2001	6	19,354
2002	38,719	72,763
2003	159,800	100,692
2004	169	55,967
2005	1,331,000	226,110
2006	953,193	467,130
2007	62,312	52,690
2008	105,136	82,790
2009	8,073	67,920
2010	416,507	110,557
2011	904,090	427,747
2012	7,201	141,240
2013	15,116	70,476
2014	0	56,570

¹Discharge at the Nixon USGS stream gauge for the months of March through June.

A variety of factors have degraded water quantity and quality which periodically have adversely affected cui-ui spawning and nursery areas in the Truckee River. Increased temperatures and sediment loading, decreased dissolved oxygen and wetted perimeter, and other parameters have all reduced habitat quality for cui-ui. Pollutants from point and non-point sources enter from municipal, agricultural, and industrial sources along the entire river. This results in high levels of nutrient loading to the Truckee River and Pyramid Lake.

EFFECTS OF THE PROPOSED ACTION

Service regulations for implementing the Act (50 CFR §402.02) define effects of the action as the direct and indirect effects of an action on the species or critical habitat together with the effects of other activities that are interrelated or interdependent with that action, that will be added to the environmental baseline (50 CFR §402.02). *Direct effects* are defined as the direct or immediate effects of the action on the species or its habitat. Direct effects result from the agency action, including the effects of interrelated and interdependent actions. *Indirect effects* are those

that are caused by or result from the proposed action and are later in time, but still are reasonably certain to occur. Indirect effects may occur outside of the immediate footprint of the area of the project, but would occur within the action areas, as defined.

The Service considers proximity, distribution, timing (duration, frequency), type, intensity, and severity of effects in order to evaluate the degree of effect resulting from project implementation. The Service typically expresses degree of effect in terms of impacts to individual fish and fish populations and deviations of habitat from baseline conditions. Individual LCT and cui-ui using the Truckee River in the action area may be affected by the proposed action both during project implementation and after completion. Habitat quantity, complexity and quality in the Truckee River within the action area are also likely to be affected by the proposed action.

In determining effects to LCT and cui-ui, the Service also considered the current use of the action area and the likelihood of individuals to be present during the period of disturbance.

Direct Effects

Direct, short-term effects to LCT and cui-ui are possible from construction and temporary operations associated with the proposed project during the construction season (October 1 to November 30). This would involve sedimentation and turbidity, compaction, and habitat displacement and dewatering and watering of work areas. The installation and removal of silt-fences, and heavy precipitation events could also mobilize sediments and increase turbidity. However, due to the timing of construction it is highly unlikely that LCT or cui-ui of any life stage will be in the action area.

Turbidity

In the action area, silt and sand from construction could be mobilized during excavation and introduction of flows. Removal of trees and shrubs followed by construction access and re-contouring of the banks will temporarily destabilize sections of the banks. Reclamation and revegetation of construction access roads will be initiated after construction has been completed. Re-planting within the action areas will accelerate stabilization of the banks, minimizing the duration of the effects of the project on streambank condition.

The introduction of sediment and resulting increase in turbidity (usually measured as nephelometric turbidity units or NTUs) can have multiple effects on stream channel condition and processes as well as aquatic biota, especially fish (Table 2). Sediment can degrade fish spawning and rearing habitats by simplifying and damaging habitat structure and complexity, reducing the area of suitable habitat, decreasing connectivity between habitats, and diminishing water quality (Bash *et al.* 2001). The biological implications of this habitat damage include avoidance and underutilization of stream habitat, abandonment of traditional spawning habitat, displacement of fish from their habitat (Newcombe and Jensen 1996), decreased survival of fish, and changes in food web dynamics. The deposit of fine sediments in food-producing riffles may also reduce the abundance and availability of aquatic insects on which juvenile and adult salmonids (including LCT) and cui-ui feed and result in the loss of cover for juveniles (Bjornn

and Reiser 1991). Fine sediments fill interstitial spaces between gravel and cobble substrates which may force juveniles to abandon these areas and use cover that is more susceptible to ice scour, predation, and decreased food availability.

Table 2. Summary of adverse effects to fish resulting from elevated sediment levels.

Impact Type	Description
Gill trauma	Clogs gills which impedes circulation of water over the gills and interferes with respiration.
Prey base	Disrupts both habitat for and reproductive success of macroinvertebrates and other salmonids (LCT prey) that spawn and rear downstream of the construction activities.
Feeding efficiency	Reduces visibility and impacts feeding rates and prey selection.
Habitat	Fills pools, simplifies and reduces suitable habitat.
Physiological	Increases stress, resulting in decreased immunological competence, growth and reproductive success.
Behavioral	Results in avoidance and abandonment of preferred habitat.

The Service anticipates several pulses of sediment during construction. The Service also expects that runoff from disturbed areas, water seepage from the dewatered construction areas, revegetation activities, and sediment mobilized from the next year’s spring high flows will also contribute additional sediment to the Truckee River. It is expected that some project-generated suspended sediments may be transported downstream of the project segments, but will largely be contained within the action area due to the timing of construction and low-flow conditions.

In summary, with project implementation that includes SWPPP and BMPs, the timing of sediment pulses in relation to LCT and cui-ui life history, and the timing of proposed construction, there is little likelihood that sediment concentrations will be high enough to cause any significant adverse biological effects to LCT or cui-ui. Over the long-term, the proposed project will improve streambank stability and reduce scour within the action area. Temporary short-term deposits of fine sediments resulting from the proposed action are insignificant and will be overshadowed by the long-term benefits to aquatic organisms resulting from the completion of the proposed action.

Contaminants

Chemical contamination from the proposed project would only result from an accidental release, primarily associated with petroleum products used by heavy equipment (e.g., diesel fuel and hydraulic fluids). If any LCT or cui-ui are within or downstream of project segment, they may be exposed to degraded water quality as a result of such an incident. However, this effect is unlikely given the implementation of the aforementioned SWPPP and BMPs, particularly the commitment to restrict fueling activities to a minimum of 100 ft from the river channel. If a spill does occur, it will be quickly isolated and contained as a contingency measure. Consequently, the Service expects that the risk of adverse effects to LCT or cui-ui and their habitat from chemical contamination is minor.

Compaction

Construction activities could result in fish being compacted or buried from heavy equipment, temporary in-channel structures, and fill material. LCT and cui-ui orient to the substrate, making them susceptible to being trapped or crushed when they hide in interstitial spaces. This may result in direct injury or death of juvenile or adult LCT or cui-ui present (if any) at the time of the work. The Service believes the likelihood of injury or death to LCT or cui-ui from compaction is low due to the timing of the construction activities.

Indirect Effects

Indirect, long-term effects to LCT and cui-ui are possible associated with maturation of the proposed project as described below.

Anticipated future expansions of the LCT population within the Truckee River basin is likely to result in large numbers of migratory (spawning) adults moving upstream from Pyramid Lake and passing through the project segment. The proposed project would benefit these LCT by enhancing conditions for passage through the project area. The improved fish passage over the existing rock weir and resting areas from the placed boulders is of even more benefit to the weaker swimming cui-ui during the spawning run.

Effects Summary

In general, we expect elements of the proposed project will have short-term adverse effects on river habitat, in the form of increased sedimentation/turbidity, potential chemical contamination, and temporary riparian vegetation and in-channel habitat loss. Individual LCT or cui-ui may be adversely affected by being displaced from areas that are disturbed, being compacted in areas used by heavy equipment, and poor water quality associated with increased sediment/turbidity levels and contaminants. However, due to the timing (fall) of in-channel construction, it is unlikely that the lower Truckee River will be occupied by any life stage of LCT or cui-ui and these effects will be insignificant.

The Service expects these adverse effects to be primarily limited to the construction period. Beneficial effects will be improved fish passage through the construction area from enhancement of the head cut structure. These changes are expected to be beneficial to LCT and cui-ui over the long-term.

The balance of adverse and beneficial effects from the proposed project are difficult to estimate. Negative impacts from the proposed action are not expected to be measurable to any life stages of LCT or cui-ui (*e.g.*, eggs, alevin, fry, juveniles, adults) or population-level indicators.

The Service also expects future improved habitat conditions and fish passage to increase growth and survival within the Truckee River and Pyramid Lake population of LCT and cui-ui. Overall, long-term beneficial effects are expected to outweigh the short-term adverse effects associated with implementation of the project.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future state, tribal, local or private actions that are reasonably certain to occur in the action areas considered in this BO. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the ESA. An example of a future Federal action occurring in the action area addressed by this consultation is the ACOE's proposed Truckee Meadows Flood Control Project (TMFCP). A number of reasonably foreseeable future recreational activities on private land within the action area will continue to affect LCT and cui-ui habitat. Examples of such activities include activities such as boating, angling, and swimming activities in the action area. However, the extent of that impact is unknown at this time. Activities on private lands could also exacerbate the potential adverse effects of activities occurring on public lands described previously and cause further degradation and fragmentation of LCT and cui-ui habitat. However, as with ongoing recreational impacts, the extent of impacts to LCT and cui-ui resulting from these ongoing actions on private lands is unknown at this time.

Recreational fishing for LCT can also affect both abundance and age class distribution of the population and deplete age class structure of populations during periods of low abundance which may delay recovery of population levels. Introduction of nonnative species is frequently attributed to use of live bait for fishing and unauthorized introductions of nonnative gamefish species are sometimes associated with recreational fishing. Introduced species have adversely affected LCT through competition, predation, and hybridization and may contribute to disease problems (Service 2009).

Fishing for cui-ui by non-tribal members is prohibited by Tribal regulation and the ESA (section 9 take prohibitions). Cui-ui fishing by Tribal members is regulated by the Tribal Council under a separate resolution. No other non-Federal actions have been identified which could be considered cumulative to the proposed action for cui-ui.

CONCLUSION

After reviewing the current status of LCT and cui-ui, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that implementation of the proposed action is not likely to jeopardize the continued existence of LCT or cui-ui. No critical habitat has been designated for LCT or cui-ui; therefore, none will be affected.

The Service's conclusion is based on the following: (1) The majority of adverse impacts of the proposed project will be minimized or eliminated by specific conservation measures, including those measures found in the project SWPPP and BMPs; (2) LCT and cui-ui use of the action area is limited or nonexistent during the fall when in-channel construction will occur; (3) LCT do not spawn in the action area since LCT are currently not allowed to pass upstream of Marble Bluff Dam; (4) short-term increases in suspended sediment have the potential to adversely affect LCT and cui-ui that may be within the action area, but with implementation of the SWPPP and BMPs, are not expected to reach levels lethal to fish or likely to substantially degrade habitat from current conditions; and (5) the project will provide for long-term enhancement of LCT and cui-ui

habitat by improving water quality, stabilizing streambanks, and enhancing fish passage. The Service believes that any negative effects will be short in duration and that the long term benefits of improving aquatic and riparian habitat outweigh any short term negative impacts from project implementation.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulations pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering (50 CFR §17.3). Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering (50 CFR §17.3). Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the ESA provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary and must be undertaken by NDOT so that they become binding conditions of any grant or permit issued to responsible parties as appropriate, for the exemption in section 7(o)(2) to apply. The NDOT has a continuing duty to regulate the activity covered by this incidental take statement. If NDOT fails to assume and implement the terms and conditions of the incidental take statement or fails to require responsible parties to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, NDOT must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement [50 CFR §402.14(i)(3)].

AMOUNT OR EXTENT OF TAKE ANTICIPATED

The Service anticipates the proposed project will result in incidental take of LCT or cui-ui in the form of harm and harass. The primary mechanisms of incidental take will be: (1) Exposure to increased sediment/turbidity levels and potential contaminants during construction; (2) compaction from in-channel construction activities; and (3) construction-related disturbance associated with the temporary and permanent alteration of habitat. Activities within and adjacent to the stream corridor in the area of the project may result in additional non-lethal taking of juvenile and adult LCT or cui-ui in the form of harm and harassment related to disruptions of fish passage, bank stability, food supplies, and foraging. The majority of these impacts is expected to be of relatively short duration, but could last until high spring flows flush out any sediment deposited during construction and until the reconstructed streambanks revegetate and stabilize. The Service anticipates that it will take several growing seasons (3 to 5 years) for

stabilization. Over the long-term, the Service believes the adverse effects resulting from the project are not expected to be measurable in terms of LCT or cui-ui habitat conditions or population levels.

The Service anticipates incidental take of LCT or cui-ui via harm in the action area will be difficult to detect for the following reasons: (1) The inherent biological characteristics of aquatic species (small body size, behavioral modification before death); (2) the likelihood of discovering an individual death or injury and relating it to the proposed action given the extensive action areas and stream flows; and (3) the rapid rate of fish carcass decomposition and probability of scavenging by predators. The best scientific and commercial data available are not sufficient to enable the Service to estimate a specific amount of incidental take of the species themselves.

In instances such as this, the Service has determined that incidental take is quantified in terms of water quality conditions as surrogate measures to identify when take has been exceeded, and is limited to the action area. The authorized level of take of LCT or cui-ui from the proposed action will be exceeded if the following conditions are met:

During construction, discharge of sediment or substances from the project causes an increase in turbidity that exceeds 10 NTU above turbidity at the upstream sampling location, and shall not resume until a subsequent test is less than 10 NTU above turbidity at the upstream sampling location.

Turbidity is good surrogate measure for determining incidental take because: (1) It relates to beneficial uses that include fish; (2) it is directly related to anticipated disturbance associated with the projects; (3) it is easily measured in the field; and (4) assessment methodology is clearly defined in the associated PLPT's construction permits.

The Reasonable and Prudent Measures (RPMs) listed below, with their implementing Terms and Conditions (T&Cs), are designed to minimize the impact of incidental take that might otherwise result from the proposed action. If, during the course of project implementation, this level of incidental take is exceeded, such incidental take represents new information requiring reinitiation of consultation and review of the RPMs provided. The NDOT must immediately provide an explanation of the causes of the taking and review with the Service the need for reinitiation of consultation.

EFFECT OF TAKE

The Truckee River within the action area is unlikely to be occupied by LCT since they are not allowed to pass upstream of Marble Bluff Dam and upstream populations are distant. Consequently, potential effects to LCT and their habitat is unlikely. Use of the action area by cui-ui is for spawning in the spring and early summer. Construction of the proposed project is scheduled for the fall to ensure that no cui-ui are in the action area during project related in-channel work. The likelihood of encountering LCT or cui-ui of any life stage during project implementation is very low. Project related impacts to habitat are anticipated to be moderate to low, with a long term beneficial improvements to fish passage.

Major excavation work will be constructed when dry, is of limited duration, and effective measures to reduce or eliminate harm and harassment of LCT or Cui-ui will be employed (*i.e.*, SWPPP and BMPs). Furthermore, the short-term, potentially deleterious effects are expected to be offset by the long-term beneficial effects of the project that provide enhanced fish passage, in-river and riparian habitat. It is unlikely that effects from the project will appreciably reduce the likelihood of the survival and recovery of LCT or cui-ui in the wild by reducing reproduction, numbers, or distribution of the species. In the accompanying BO, the Service determined that the level of anticipated take is not likely to result in jeopardy to the species.

REASONABLE AND PRUDENT MEASURES

Minimizing the amount and extent of take is essential to avoid jeopardy to listed species. The Service believes that the following RPMs are necessary and appropriate to minimize take of LCT and cui-ui:

- RPM 1. Measures shall be taken to minimize mortality, injury, harm, and harassment of LCT and cui-ui.
- RPM 2. Monitor and report compliance with Terms and Conditions and implementation of Conservation Recommendations in this BO.

TERMS AND CONDITIONS

In order to be exempt from the prohibitions of section 9 of the Act, NDOT must comply with the following T&Cs which implement the RPMs described above, and outline monitoring/reporting requirements. These T&Cs shall be incorporated into construction contracts and subcontracts, permits, grants, and/or agreements to ensure that the work is carried out in the manner prescribed. These T&Cs are non-discretionary.

To implement RPM 1:

- T&C 1. The NDOT shall be responsible for implementation of all conservation measures/BMPs in the BA.
- T&C 2. The NDOT shall be responsible to meet monitoring requirements of all applicable permits and certifications for water quality.
- T&C 3. In instances when permits or certifications are violated, NDOT must immediately halt construction activities, identify and rectify the sources of the violations. NDOT must implement corrective problems before construction resumes.

To implement RPM 2:

T&C 1. The NDOT shall be responsible to collect, analyze, and report data results for identified water quality parameters of background and with-project levels during the construction season as specified (in terms of methods, timing, and sampling location) in the applicable water quality permits and certifications.

- Daily reports should be provided to the Service within 24 hours in instances when the turbidity standard exceeds applicable PLPT, and ACOE permits. The report should include remediation measures implemented to reduce project contributions.
- Summary reports displaying results for all water quality parameters identified in applicable water quality permits and certifications.

T&C 2. The NDOT shall provide copies of all reports annually to the Reno Fish and Wildlife Office by February 28 of the year following initiation of the proposed action:

Field Supervisor
U.S. Fish and Wildlife Service
1340 Financial Boulevard, Suite 234
Reno, Nevada 89502
Telephone: (775) 861-6300

The Service believes that the take of LCT and cui-ui previously described will not be exceeded as a result of the proposed action. The RPMs, with their implementing T&Cs, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. If, during the course of the project, this level of incidental take is exceeded, such incidental take represents new information requiring reinitiation of consultation and review of the RPMs provided. The NDOT must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the RPMs.

REPORTING REQUIREMENTS

In order to monitor the impact of incidental take, NDOT must report the progress of the action and its impact on the species to the Service as specified in the Terms and Conditions section under the incidental take statement. The NDOT shall prepare a report describing progress of the proposed project, including implementation of the associated T&Cs, and impacts to LCT and cui-ui [50 CFR §402.14(i)(3)]. The report(s), which shall be submitted to the RFWO before February 28 each year (if needed), shall list and describe:

1. The construction activities in terms of schedule and work completed for the past 12 months.
2. Compliance with identified conservation measures/BMPs and their effectiveness.

3. Water quality monitoring results showing project contributions during the construction season in accordance with applicable water quality permits and certifications. The reports should specifically address project contributions to turbidity and its attenuation throughout the action area over sampling events.
4. Adverse effects to LCT and cui-ui resulting from project activities including number and life stages of individuals affected (if known).
5. Deviations from proposed designs and procedures.
6. Recommendations for changes to project-related activities that would benefit LCT and/or cui-ui to be implemented during ongoing or future project-related activities.

Upon locating dead, injured, or sick LCT or cui-ui in the action area, initial notification must be made to the Service's Division of Law Enforcement in Reno, Nevada at telephone number 775-861-6360 within 3 working days. Instructions for proper handling and disposition of such specimens will be issued by the Division of Law Enforcement. Caution must be taken in handling sick or injured LCT or cui-ui to ensure effective treatment and care, and in handling dead specimens to preserve biological material in the best possible state. In conjunction with the care of sick and injured fish and the preservation of biological materials from a dead specimen, NDOT has the responsibility to ensure that information relative to the date, time, and location of the fish, when found, and possible cause of injury or death of each must be recorded and provided to the Service.

REINITIATION—CLOSING STATEMENT

This concludes formal consultation for the potential effects of the NDOT project on LCT and cui-ui. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if: (1) The amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this BO; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this BO; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must be stopped in the interim period between the initiation and completion of the new consultation if any additional taking is likely to occur.

We appreciate the cooperation and coordination of NDOT, and other entities in developing the proposed project. Please reference File No. 2015-F-0232 in future correspondence concerning this consultation. Any questions or comments should be directed to me or Andy Starostka of my staff at (775) 861-6300.

Sincerely,

A handwritten signature in black ink, appearing to read "Edward D. Koch". The signature is fluid and cursive, with the first name being the most prominent.

Edward D. Koch
Field Supervisor

cc:s

Nevada Department of Transportation, Reno Nevada (Attn: Nova Simpson)
Program Manager, Reno Regulatory Field Office, Army Corps of Engineers, Reno, Nevada
Tribal Chairman, Pyramid Lake Paiute Tribe, Nixon, Nevada
Tribal Chairman, Reno-Sparks Indian Colony, Reno, Nevada
Tribal Chairman, Washoe Tribe of Nevada and California, Gardnerville, Nevada

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Appendix C

Tribal Historic Preservation Officer
Concurrence Letter

Pyramid Lake Paiute Tribe
P.O. Box 256
Nixon, NV 89424
Scour Mitigation for Bridge B 1351
Aug. 8, 2014

U.S. Department of Transportation
Federal Highway Administration
705 N. Plaza Street, suite 220
Carson City, NV 89701
Abdelmoez A. Abdalla



Dear Mr. Abdalla

Pursuant to Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, the Pyramid Lake Paiute Tribe's Tribal Historic Preservation Office (THPO) concurs with the Federal Highway Administration that there is no adverse effect to historic properties concerning the Scour Mitigation for Bridge B-1351 on SR 447.

If, however, any buried or previously unidentified resources are located during the project activities, the THPO recommends that all work in the vicinity of the find cease and this office be contacted at 574-1088 for additional consultation.

Upon discovery of human remains and/or associated funerary objects all work will immediately stop and the THPO and/or Cultural Resources Committee member Ralph Burns be contacted at 574-1088. All measures will be made to secure and protect areas in which human remains and funeral objects have been discovered. No photographs of human remains or funerary objects will be permitted.

Faunal remains representing a deliberate interment of animals (i.e. dog wrapped in netting or tule) will receive the same treatment as with the human remains. If you have any questions concerning this letter, please contact THPO Betty Aleck at 775-574-1088 or by email at thpo@plpt.nsn.us

Sincerely,

Betty Aleck
PLPT THPO

Appendix D

Environmental Justice Review

Environmental Justice Review Nixon Bridge Scour Countermeasures Nixon, NV

This Environmental Justice (EJ) review identifies whether the repairs to the Nixon Bridge Scour Countermeasures Project (Project) would create disproportionately high and adverse impacts on minority and low-income populations (see *Figure 1-1 Vicinity Map* and *Figure 1-2 Project Design/Easements/Access*). EJ is grounded in the practice of making sure that both benefits and burdens of transportation investments are shared as equitably as possible among all affected communities. Effective and equitable transportation decision-making depends on understanding and properly addressing the unique needs of different socio-economic groups. Key legislation for promoting equitable treatment of all people was catalyzed with the Civil Rights Act of 1964-Title VI, which prohibits discriminatory practices in programs receiving Federal funds. The National Environmental Policy Act (NEPA) of 1969 requires Federal agencies to analyze the effects of proposed actions that significantly impact the quality of the human and natural environment.

Executive Order 12898, Federal Actions to Address EJ in Minority and Low-Income Populations, was signed by President Bill Clinton on February 11, 1994 and directs Federal agencies to take appropriate and necessary steps to identify and address disproportionately high adverse effects of Federal projects on the health or environment of minority and low-income populations to the extent practicable and permitted by law.

The Executive Order (EO)¹ and accompanying Presidential Memorandum focus Federal attention on the environmental and human health conditions in minority and low-income communities, enhances efforts to assure nondiscrimination in federal programs affecting human health and the environment, and promotes meaningful opportunities for access to public information and for public participation in matters related to minority and low-income communities and the environment. The US Department of Transportation (DOT) and Federal Highway Administration (FHWA) have taken steps to ensure compliance with the EO, most recently outlined in the Guidance Memo of December 16, 2011.² This guidance supplements the FHWA Technical Advisory

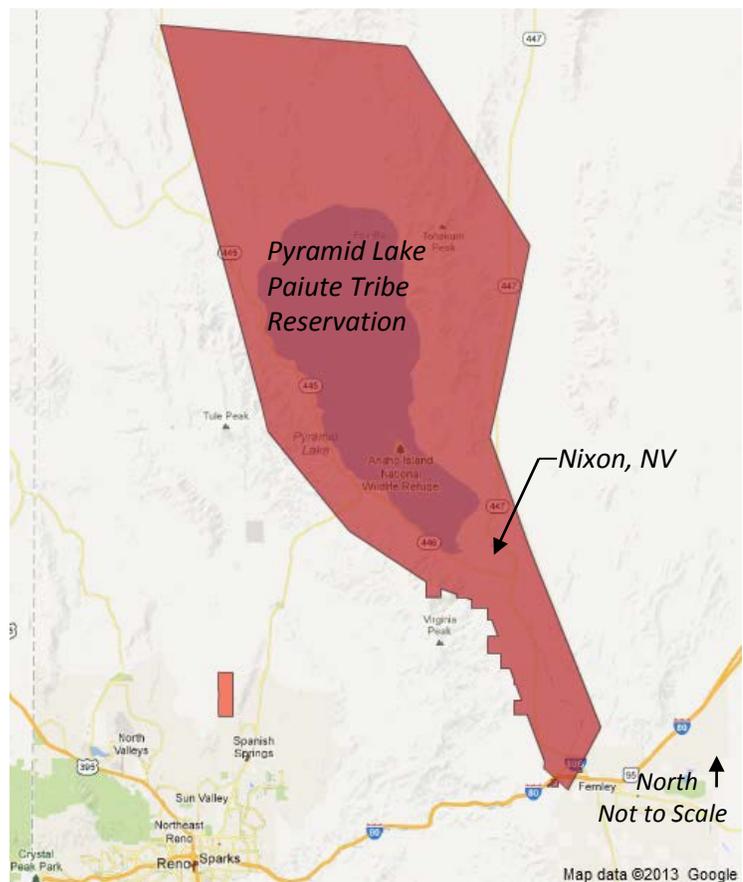


Figure 1-1 Location Map

¹ Available online at <http://www.dotcr.ost.dot.gov/documents/ycr/eo12898.pdf> (last accessed August 30, 2011)

² Guidance Memorandum on Environmental Justice and NEPA FHWA/HEP-1 December 16, 2011

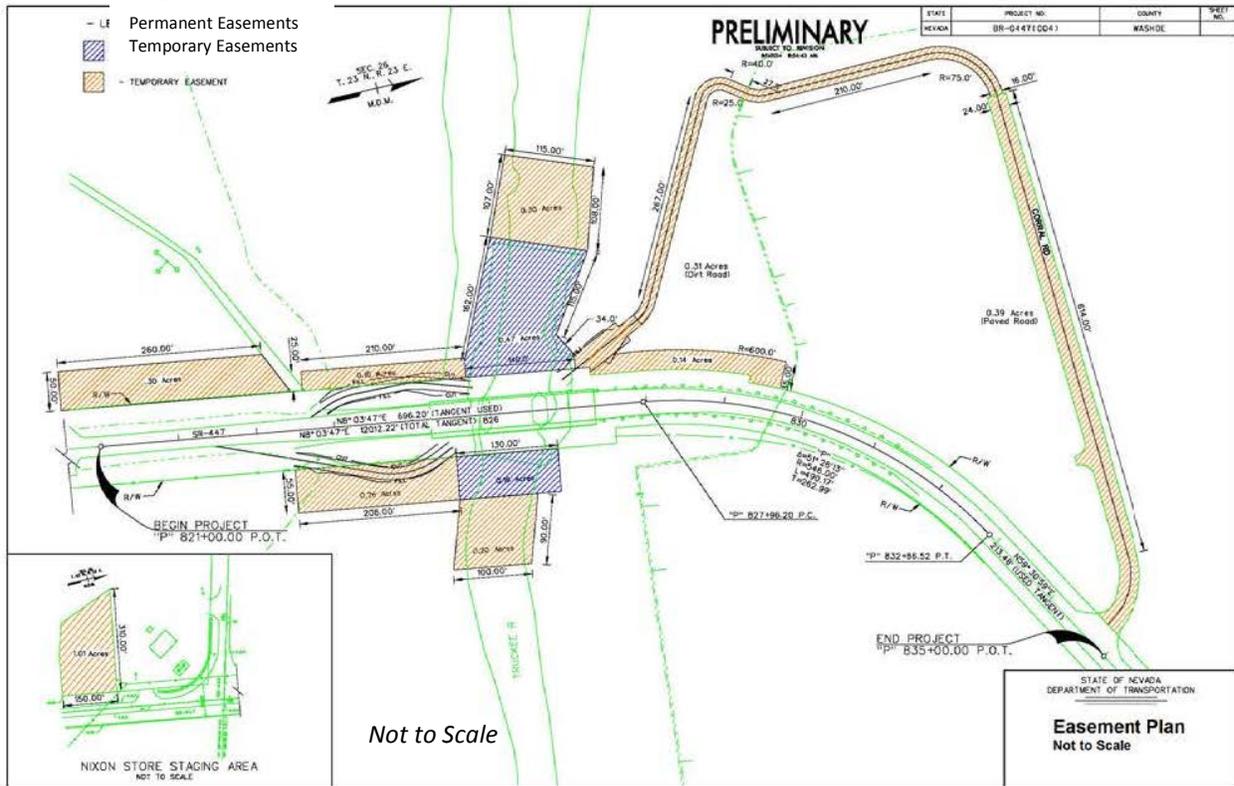


Figure 1-3 Project Design/Easements/Access

6640.8A, which provides guidance for documenting the potential social, economic, and environmental impacts considered in the selection and implementation of highway projects.

The general principles required under EO 12898 are as follows:

- To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority and low-income populations;
- To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process;
- To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations.

Disproportionately high and adverse impacts on minority populations and/or low-income populations have been defined as an adverse effect that:

- Is predominately borne by a minority population and/or low-income population; or
- Will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority population and/or low-income population.

On December 2, 1998 FHWA's EJ Order 6640.23 was signed by the Administration and this supplements the FHWA Technical Advisory 6640.8A, which provides guidance for documenting the potential social, economic, and environmental impacts considered in the selection and implementation of highway projects.

This EJ Evaluation will identify existing minority and low-income populations. Minority populations include: Black or African American, Hispanic, Asian American, American Indian/Alaskan Native, and Native Hawaiian or Pacific Islander. Low-income populations are defined by the poverty guidelines provided by the Department of Health and Human Services on an annual basis.³ For 2014, the poverty guidelines are established at \$23,850 for a family of four.

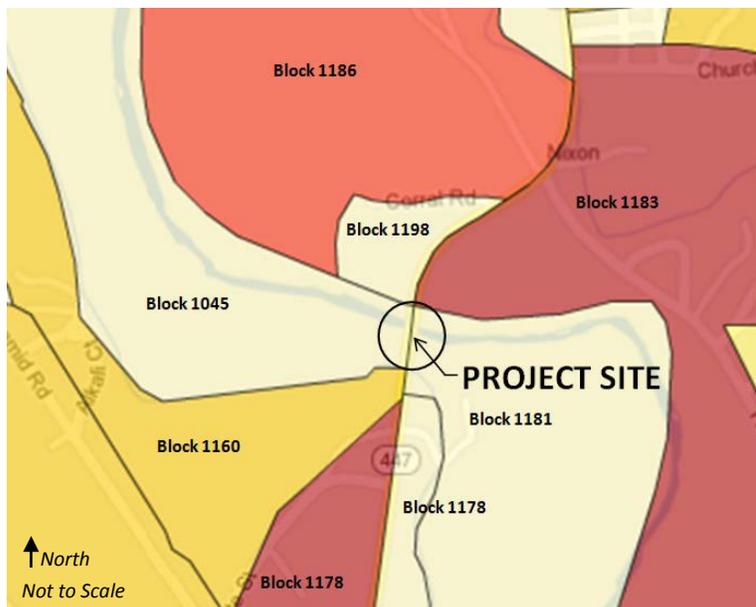


Figure 1-3 Census Tract 9402, Block Group 1

EJ populations are communities that meet at least one of the following criteria:

- A minority population should be identified where the minority population of the affected area exceeds 50 percent of the total population of the community.
- The low-income or minority population is meaningful if greater than the City or County average.⁴

To begin the analysis of EJ effects, FHWA requires a determination be made as to whether EJ populations may be affected by the proposed project. Unfortunately, no demographic data collected by government entities neatly line up to meet the criteria of what comprises an EJ population. The best source for population data is the US Census Bureau's decennial census. To protect privacy, the Census Bureau does not publish detailed house-by-house data, but instead compiles the information into larger geographic units. Data aggregated at the Block Group level is the smallest geographic unit for which Census Bureau publishes both demographic data (e.g. age, race) and socioeconomic data (e.g. income, poverty levels). Block Groups are generally the size of several city blocks; therefore, they are often useful for representing the characteristics of a "community" (See Figure 1-3 Census Tract 9402, Block Group 1). The Census Bureau, however, does provide limited demographic data, including race data, for its smallest geographic unit, the Census Block, as depicted on Figure 1-3. As can be seen in Table 1-1, the project area is overwhelming populated by American Indians. This is consistent with population totals represented by the Pyramid Lake Paiute Reservation, which contains a total American Indian population of 1,251 of the total population of 1,660, or 75% to the total reservation population. Block 1183 and 1178 have the majority of population, with the areas within these blocks corresponding with the developed area of Nixon, NV.

³ Available online at <http://aspe.hhs.gov/poverty/>

⁴ Council on Environmental Quality, *Environmental Justice Guidance under the National Environmental Policy Act*, December 10, 1997, p. 25; it has become generally accepted in environmental planning practice for federal projects that "meaningful greater" is 10 percent or greater than the jurisdiction against which the social and economic data is compared.

Table 1-1 Race and Ethnicity*

Geographic Area (Nixon, NV)	White	Black/ African American	American Indian/Alaskan Native	Asian	Native Hawaiian Other Pacific Islander	Some Other Race
Census Tract 9402, Block Group 1 Block 1186	2	0	38	0	0	0
Census Tract 9402, Block Group 1 Block 1183	0	2	71	0	0	0
Census Tract 9402 , Block Group 1 Block 1181	0	0	0	0	0	0
Census Tract 9402, Block Group 1 Block 1178	2	0	69	0	0	1
Census Tract 9402, Block Group 1 Block 1160	1	0	15	0	0	1
Census Tract 9402, Block Group 1 Block 1045	0	0	0	0	0	0
Census Tract 9402, Block Group 1 Block 1198	0	0	1	0	0	0
Washoe County	324,070	9,209	7,209	21,790	2,542	40,038
State of Nevada	1,786,688	218,626	32,062	195,436	16,871	324,793

*US Census RACE - 2010 Interactive Map

Since American Indians account for 75% of the population and this is well in excess of the percentage in the county as a whole, it is demonstrated that a minority population does exist within the project area.

Since no socioeconomic data (e.g. income, poverty levels) are available at the Block level it is necessary to use the Block Group to obtain data representing the characteristics of a "community".

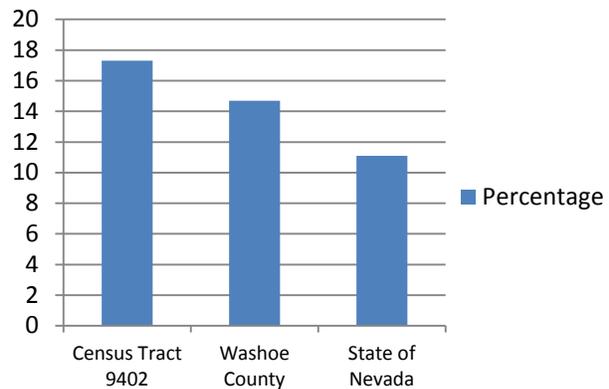
Table 1-2 and *Graph 1-2* indicate the percentage of poverty status in the Census Tracts based on 2010 US Census.

Table 1-2 Poverty Status

Poverty Status	Percent*
Census Tract 9402	17.3%
Reno/Washoe County	14.7%
State of Nevada	11.1%

*US Census Poverty Status 2010 – B1702
State/County 2005-2009 Census QuickFacts

Graph 1-2 Poverty Status



The local data indicate that a larger percentage of people residing in the project area were living below the federal poverty level threshold than was true of Washoe County; therefore, for the purposes of screening EJ concerns, the project area is considered a low-income community. The percentage below poverty status was also higher than the State as a whole.

This information covers the first full calendar year after the December 2007-June 2009 recession.⁵ Since 2007, the year before the most recent recession, real median household income has declined 6.4 percent and is 7.1 percent below the median household income peak that occurred prior to the 2001 recession in 1999. The percentages are not statistically different from each another.

The poverty rate in 2010 was the highest since 1993 but was 7.3 percentage points lower than the poverty rate in 1959, the first year for which poverty estimates are available. Since 2007, the poverty rate has increased by 2.6 percentage points. In 2010, the national family poverty rate and the number of families in poverty were 11.7 percent and 9.2 million, respectively, up from 11.1 percent and 8.8 million in 2009.

Poverty statistics in American Community Survey (ACS) Census adhere to the standards specified by the Office of Management and Budget in Statistical Policy Directive 14. The Census Bureau uses a set of dollar value thresholds that vary by family size and composition to determine who is in poverty. Further, poverty thresholds for people living alone or with nonrelatives (unrelated individuals) vary by age (under 65 years or 65 years and older). The poverty thresholds for two-person families also vary by the age of the householder. If a family's total income is less than the dollar value of the appropriate threshold, then that family and every individual in it are considered to be in poverty. Similarly, if an unrelated individual's total income is less than the appropriate threshold, then that individual is considered to be in poverty.⁶

Poverty status is determined by comparing annual income to a set of dollar values called poverty thresholds that vary by family size, number of children and age of householder. If a family's before tax money income is less than the dollar value of their threshold, then that family and every individual in it are considered to be in poverty. For people not living in families, poverty status is determined by comparing the individual's income to his or her poverty threshold.

⁵ US Census S1903 MEDIAN INCOME IN THE PAST 12 MONTHS (IN 2010 INFLATION-ADJUSTED DOLLARS) 2006-2010 ACS 5-Year Estimates

⁶ US Census Bureau, American Community Survey, 5-Year Estimates. Updated every year. <http://factfinder2.census.gov>

The poverty thresholds are updated annually to allow for changes in the cost of living using the Consumer Price Index (CPI-U). They do not vary geographically. The ACS is a continuous survey and people respond throughout the year. Since income is reported for the previous 12 months, the appropriate poverty threshold for each family is determined by multiplying the base-year poverty threshold (1982) by the average of monthly CPI values for the 12 months preceding the survey month.

EJ Determination(s)

As demonstrated previously, the populations within the project area meet the definition of an EJ population(s). The project area population meets the definition for both percentage of minority residents and population living below the poverty level.

As discussed in the following sections, however, the Project will not have disproportionately high and adverse effects on low-income populations, despite the presence of EJ populations within the project area. It should be noted that no access will be closed or limited based on the Project.

No-Build Alternative:

The No-Build Alternative may not accommodate future travel needs. The bridge piles need protection from scour to prevent undermining of the bridge support. Taking no action will result in having to perform emergency repairs in the future. The bridge is a vital link for the community of Nixon and its closure would affect routine services such as mail delivery. Based on US Census data, an estimated 98.4% of Nixon residents commute to work.⁷ Any loss in bridge access would directly impact the transportation needs of the EJ population.

Build Alternative:

The proposed Project would not directly or adversely impact minority population households because no residents are located in Blocks 1445 and 1181. The Project is contained totally within Census Tract 9402 and is zoned TL or Tribal Lands by the Washoe County. No other land uses are indicated as this area is within Pyramid Lake Paiute Tribe lands.

Although significant minority populations are present in Nixon, the Project will not cause any displacement of residents. The immediate Project area contains no businesses or residents. Although access will be required to complete the Project, the amount of direct impacts to residents will be very low in the form of traffic control and construction activities. Since this not considered to be a capacity project, it is not a Type 1 project as defined by 23 CFR 772, and there is no further traffic noise analysis required. The Project will not affect the bridge deck, and current pedestrian and vehicle access will be maintained during Project construction.

Rather than being burdened by the proposed project, the local community would experience net benefits because the Project work will maintain and improve safety for the bridge structure. All populations, including EJ populations, would benefit from the Project.

The Project would:

- repair and provide long range protection to the bridge;
- not hinder vehicular access and maintains pedestrian access throughout the Project;

⁷ US Census 2007-2011 ACS Survey 5-Year Estimate (DP03)

- not affect direct access to any neighborhood or community facility; and would
- not displace or affect any community resources known to be important to minority populations.

Conclusion:

Although minority and low-income populations have been identified in the project area, no adverse impacts would result from the proposed Project, as determined above. Therefore, in accordance with the provisions of E.O. 12898 and FHWA Order 6640.23, no further EJ analysis is required.