



United States Department of the Interior

U.S. Fish and Wildlife Service

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~~AESE~~ to:

02EAAZ00-2013-F-0061

March 12, 2013

Ms. Karla S. Petty, Division Administrator
U.S. Department of Transportation
Federal Highways Administration
4000 North Central Avenue, Suite 1500
Phoenix, Arizona 85012-3500

Dear Ms. Petty:

Thank you for your request for formal consultation with the U.S. Fish and Wildlife Service (FWS) pursuant to section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531-1544), as amended (Act). Your request was dated November 20, 2012, and received by us via electronic mail (email) on the same day. At issue are impacts that may result from the proposed Interstate 15 (I-15) Virgin River Bridge No. 6 Rehabilitation Project in Mohave County, Arizona. The proposed action may affect the endangered Virgin River chub (*Gila seminuda*) and woundfin (*Plagopterus argentissimus*) and designated critical habitat for these two species. In your request for consultation, you also requested our concurrence on findings of may affect, not likely to adversely affect critical habitat for the southwestern willow flycatcher (*Empidonax traillii extimus*). We concur with your findings and include our rationale in Appendix A. You also determined that there may be adverse effects to the conservation agreement species Virgin spinedace (*Lepidomeda mollipsinis mollipsinis*). We do not consult on actions that may affect species that are not proposed or listed under the Act. However, we are providing you with technical assistance for this species in Appendix B.

This biological opinion is based on information provided in the November 20, 2012, biological assessment (BA) and other sources of information. Literature cited in this biological opinion is not a complete bibliography of all literature available on the species of concern, bridge construction on streams or rivers and its effects, or on other subjects considered in this opinion. A complete administrative record of this consultation is on file at this office.

CONSULTATION HISTORY

May 17, 2012: The Virgin River Bridges Feasibility Study agency scoping meeting was conducted.

July 16, 2012: The Virgin River Bridges Feasibility Study biology and water resources technical meeting was conducted.

October 3, 2012: A pre-consultation meeting was conducted regarding the I-15 Bridge No. 6 USFWS Section 7 pre-consultation meeting.

October 24, 2012: A pre-consultation conference call was conducted regarding the I-15 Bridge No. 6 USFWS Section 7.

November 20, 2012: We received the biological assessment, and upon our review of the document, we had several questions concerning aspects of the project. ADOT provided the information as requested.

January 24, 2013: We sent a letter specifying that we had received the information needed to evaluate the project. This response is known as a "30 day letter".

February 19, 2013: We sent the draft biological opinion.

March 5, 2013: We received your comments on the draft biological opinion.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

The following description of the proposed action is taken from the biological assessment (ADOT 2012). Maps, photos, and diagrams of the action area, the proposed new bridge, and the Virgin River are included in the assessment and are incorporated herein by reference.

I-15 spans 29.4 miles across the northwest corner of Arizona and provides a vital link between the states of California, Nevada, Arizona, Utah, and beyond. The Arizona portion of I-15 includes seven bridges over the Virgin River, all constructed in the 1960s and 70s; Bridge No. 6 (Bridge 6) was constructed in 1973. Within the project limits, I-15 is a four-lane, divided highway with two 12-foot-wide travel lanes and shoulders varying from 2 to 10 feet wide. This stretch of interstate carries a high percentage of truck traffic (as high as 38 percent of all traffic) and is the only road in Arizona permitted to carry triple tractor trailers. As I-15 ages, truck traffic can increase the rate at which the roadway pavement and bridge infrastructure deteriorate. In addition, the shoulders within the project limits are as narrow as two feet wide, and do not allow room for trucks or other vehicles to pull safely off the road.

Pier 2 beneath Bridge 6 was constructed within the channel of the Virgin River. While the foundation of Pier 2 is anchored into the bedrock beneath the sediments deposited by the river, flows are eroding

and scouring the sediment around the foundation. Therefore, the foundation of Pier 2 is directly exposed to increased erosion and scour.

In June 2012, ADOT received a Federal Transportation Investment Generating Economic Recovery (TIGER) IV grant award to rehabilitate Bridge 6 and its roadway approaches. The purpose of the project is to better accommodate truck traffic and truck volumes, and to strengthen the Pier 2 foundation against erosion and scouring. The following list provides a point-by-point summary of the construction activities involved in rehabilitating Bridge 6:

- Grading the existing access path and portions of the Virgin River floodplain.
- Construction a temporary bridge across the Virgin River low-flow channel, at least two temporary crane pads, and temporary cofferdams around Pier 2.
- Reconstruction and strengthening all piers and foundations as necessary.
- Widening the new bridge deck from 63 foot-wide to approximately 90 foot-wide.
- Replacing the existing bridge girders and adding new girders to support the wider bridge deck.
- Widening the roadway approaches to match the new 90-foot bridge width.
- Reconstructing the existing rockfall containment measures adjacent to the wider bridge approaches.
- Signing and striping the project area, as necessary.

Project construction is anticipated to begin in late fall 2013 and will last approximately 24 months. All work in the low-flow channel is anticipated to take approximately three months to complete.

The following are expanded descriptions of the proposed construction activities.

Temporary Access and Equipment in the Floodplain

All equipment needed to operate in the floodplain, such as cranes, excavators, drill rigs, and manlifts, will use the existing access path at the northwest corner of the bridge (Figure 4 of the BA–Bridge 6 Construction Limits). This path will be cleared and graded prior to work on the bridge, and it is likely that temporary fill will be placed to create a consistent width down into the bottom of the gorge. It is anticipated that equipment will operate and maneuver in all four quadrants beneath the bridge to access all the piers. Therefore, approximately 4.6 acres of the floodplain adjacent to the low-flow channel will be graded or otherwise disturbed during construction. Because equipment and vehicles will not be permitted to drive through the Virgin River, all work south of the low-flow channel will occur after the temporary bridge is constructed. In conjunction with the access pathways, the contractor will install

sediment-controlling best management practices (BMPs), such as silt fence and wattles, to keep any foreign materials from entering the Virgin River.

To protect the free-flowing nature of the Virgin River through the project area, no temporary culverts or other drainage structures may be installed in the low-flow channel, which will consist of the existing path of the river. With the exception of using cofferdams around Pier 2, as described below, the remaining path of the river will not be altered. In order to maintain the free-flowing nature of the river, a temporary bridge will be constructed in the floodplain such that it will sit above the river channel and maintain typical flows. Fill such as rip-rap will be placed beneath the north end of the bridge to match the elevation of the bottom of the access road. As part of the BMPs, this fill will be contained to prevent debris from entering the river during high flows. The temporary bridge would clear span the active stream channel, would not require a temporary pier or piling, and would be constructed such that it could be picked up by a crane and moved in the event of high flows. All work in the floodplain and/or low-flow channel will occur within 200 yards upstream and 250 yards downstream of the bridge. Work within the low-flow channel will require approximately three months for completion. Cranes and vehicles will be present in the floodplain for the approximately 24 month duration of the project.

Placing the new girders may require a crane. However, operating a traditional crane from on top of the bridge is not feasible due to the weight of the girders, so either a gantry crane will be constructed over the top of the bridge, or the cranes could operate in the floodplain below the bridge. With the latter option, at least two temporary crane pads will be constructed and they will be fortified to prevent debris from breaking off and entering the river during high flows. Crane pads will be constructed within dry areas of the jurisdictional limits and/or the 100-year floodplain of the Virgin River, but no crane pad construction will occur within the low-flow channel. All temporary construction and fills, including, but not limited to, crane pads, the temporary bridge, and cofferdams, will be removed in their entirety and the affected areas returned to pre-construction elevations.

The mitigation measures presented in the BA include BMPs to protect water quality by controlling dust and spills and preventing construction and other materials from entering the water. Examples of potential BMPs are: (1) constructing a temporary sediment basin or filter to restrict sediment from entering the water, (2) installing sediment fences between areas of disturbance and all flowing waters, and (3) regular inspection of sediment fences to maintain proper function. Temporary construction and equipment access within the 100-year floodplain is anticipated to last for the 24-month duration of the project.

Piers and Cofferdams

Prior to reconstructing and widening the bridge deck, one new column will be constructed on either side of the existing columns (two new columns per pier) to support the added width and increase the load-bearing ability of the bridge. Piers 1 and 3 use spread footings to stabilize the columns; these footings will be widened approximately 20 feet to the west and to the east to provide a foundation for the new columns. The footings will be widened using mechanical excavation equipment (likely track-excavators) and possibly finished with a backhoe-mounted hoe-ram. Some minor rock removal may be required for the additional columns for Piers 1 and 3; however, no blasting will be required. Any rock removal will be used with jackhammers or drilling into the rock to cause surface fractures. Piers 1 and 3 are above the low-flow channel; therefore, no work on these piers will require altering the flow of the river.

Additionally, no blasting will occur on this, or any, phase of construction. If the foundation area requires additional anchoring, anchors will be drilled into the rock and tied to the foundations to secure the wider footings. The previously described BMPs will be used during work on Piers 1 and 3 to ensure that debris does not enter the Virgin River.

At Pier 2, a drilled shaft supports each column by extending beneath the river bed approximately 50-70 feet to bedrock and connecting to rock sockets drilled approximately 10 feet into the bedrock. Therefore, construction at Pier 2 will extend approximately 80 feet below the river bottom to drill a new shaft for each new column and drill extensions directly into solid rock to reinforce the foundation. As a scour countermeasure, the concrete curtain wall that connects the columns at ground-level will also be constructed between the new columns to stabilize the pier.

Depending on the water level, Pier 2 sits either in the Virgin River or immediately adjacent to (south of) the low-flow channel. Pier 2 construction will most likely require cofferdams, or other water-restricting devices, to be constructed around the foundation to maintain an adequately sized, dry work zone. The low-flow channel is typically located north of Pier 2 and the terrain rises up around the south side of the pier in a gravel bar. The cofferdams will be constructed with no more than a 15-foot perimeter around the north side of the new drilled shaft columns and the existing pier and will tie into the gravel bar on either side of the new pier width. The low-flow channel is not expected to be altered more than 20 feet from its original flow as a result of the cofferdams, and this will only occur for approximately 120 feet along the river channel. The area inside the dams will be dewatered and the dams strengthened to prevent any debris from breaking off and flowing downstream. The river water will be screened as it is pumped out of the work area and then returned to the river channel. Because the dams will be pervious to some degree and groundwater could infiltrate the dry work area, dewatering will occur throughout the duration of the use of the cofferdams. Mitigation measures will be used to protect and/or remove native fish from the project limits during all in-stream activities.

The BMPs discussed in the Temporary Access description will also apply to pier and cofferdam construction. In addition, any native material(s) excavated from the floodplain will be contained so it cannot enter the river and flow downstream. Excess materials resulting from the construction of the new pier foundations or drilled shafts will be removed from the floodplain within 10 days of generation. Any material temporarily stored in the floodplain would be surrounded with devices in accordance with BMPs to prevent the material from entering the river channel in the case of rain or high flows. As previously described, construction within the low-flow channel will require approximately three months. Cranes will be used for work on the bridge throughout the project, and thus will remain in the floodplain over the duration of the project.

Bridge Deck, Girders, and Barriers

After the new columns are constructed and the foundations are widened and strengthened, the work on the bridge deck and girders will start. To widen the bridge deck, the existing deck, girders, median barriers, and exterior barriers will be removed and replaced. Construction will occur in one section of the bridge at a time such that the western, center, and eastern portions of the deck, girders, and barriers will be removed and replaced in separate phases. The center portion will be removed and replaced at the same width. Widening will occur when the western and eastern portions of the bridge are removed and replaced; additional girders will be installed west and east of the existing girders to support the wider deck (Appendix A-Preliminary Project Plans). Ultimately, the new bridge deck will be restriped to

provide two 12-foot travel lanes in each direction, with wider inside and outside shoulders that meet current design criteria. A containment system will be required to prevent dust, chemicals, oils, construction materials, and debris from falling into the floodplain and Virgin River below the bridge. The BMPs discussed in the Temporary Access description will also apply to construction on and around the bridge deck.

Roadway and Ancillary Construction

Following the deck reconstruction, the existing I-15 roadway approaches will be widened and restriped to match the new bridge width and lane configuration. The roadway will taper back to the existing cross-section at milepost (MP) 15.49 south of the bridge and MP 16.04 north of the bridge. Widening the roadway approaches will reduce the width of the rockfall containment ditches that currently abut segments of the shoulders. New rockfall containment fencing or gabion barrier will be installed to minimize rockfall reaching the travel lanes, and the ditches will be widened where feasible to allow rockfall to be removed and the ditches maintained. This project will not include any blasting; however, rock-scaling, or slope modifications may be required for widening on the road approaches to the bridge, but this work will not occur within the floodplain.

A new retaining wall will be constructed to support the wider northbound lanes because the embankment east of I-15 slopes steeply down toward the river. Constructing the wall with geosynthetic reinforced soil will minimize the footprint because major footings will not be required. Preliminary design data estimate the size of the wall will be less than 10 feet tall and approximately 50 feet long. Finally, signing and striping will be removed, replaced, or installed as necessary.

When traffic is shifted to one side of the bridge during construction, the closed portion of the roadway on the other side will be used as a staging area. There are also two locations outside of the main project area that may be used as staging areas: one is located 1,200 feet north of Bridge 6 and west of I-15, and a second is located 1,500 feet north of Bridge 6 and east of I-15 (Figure 3 of the BA). The staging areas will be considered part of the regulated work area, and therefore subject to BMPs to control dust and spills, including a temporary containment system that includes a berm or excavated ditches to impound potential leaks or spills.

Project construction, including potential staging areas, will exceed one acre of ground disturbance; therefore, an Arizona Pollutant Discharge Elimination System (AZPDES) General Construction permit and Stormwater Pollution Prevention Plan (SWPPP) will be required. Additional BMPs will be added as required for dust control and to minimize erosion and sedimentation to protect water quality. The project will require a Clean Water Act Section 404 permit, which is regulated by the U.S. Army Corps of Engineers (Corps). New, permanent impacts to jurisdictional waters and/or wetlands are anticipated.

Pre-finalized data from the National Wetlands Inventory indicates that riverine wetlands could be present along the Virgin River throughout the project area; however, the jurisdictional/wetland determination for this project has not yet been completed. If wetlands are present, an Individual Permit will be prepared for Corps review and approval. If project construction will not affect wetlands, the project could be permitted under Nationwide Permit No. 14, Linear Transportation Projects. Pre-construction notification to the Corps District Engineer will be required in accordance with General Condition No. 31. This reach of the Virgin River is not impaired. However, according to Arizona

Department of Environmental Quality Section 401 General Condition No. 13, an Individual Water Quality Certification may be required depending on the materials used for temporary structures within the ordinary high watermark.

No new easements will be required for project construction or operation. Vegetation removal will occur due to project construction, access, and equipment work zones and will be restricted to areas within the existing ADOT easement. The total disturbance from access, grading, temporary structures, bridge construction, roadway widening, and ditch maintenance will be approximately eight acres. The amount of vegetation that will be potentially disturbed and/or removed will be approximately 3.5 acres, primarily from the floodplain and hillside north of the low-flow channel. Of the 3.5 acres of vegetation removal, only approximately 0.5 acres of riparian vegetation will be removed. All disturbed soils outside the active flow channel that will not be landscaped or otherwise permanently stabilized by construction shall be reseeded using species native to the project vicinity unless otherwise requested by the BLM.

The project described herein includes the maximum extent of construction proposed to rehabilitate Bridge 6, and is the Proposed Action evaluated in the Environmental Assessment. By addressing the maximum extent of construction activities, this biological opinion considers potential impacts from all activities within the range of reasonable alternatives analyzed in the Environmental Assessment.

Conservation Measures

As described above, in conjunction with the access pathways, the contractor will install sediment-controlling devices such as silt fence and straw wattles to keep any foreign materials from entering the Virgin River. All temporary construction and fills, including, but not limited to, crane pads, the temporary bridge, and cofferdams would be removed in their entirety and the affected areas returned to pre-construction elevations. All fill material used within the floodplain will be contained to prevent debris from entering the river. No crane pads will be installed within the low-flow channel. The crane pads will be surrounded by sediment controlling devices, such as wattles or silt fences, as approved in the BMPs. No piers or pilings will be required to support the temporary bridge. Seines will be installed to prevent fish from entering the area of the cofferdam installation and all fish captured will be released immediately downstream of the project area. A complete description of the conservation measures can be found in the BA.

STATUS OF THE SPECIES

Virgin River chub

The Virgin River chub was proposed for listing as endangered, with critical habitat, on August 23, 1978 (43 FR 37668). On September 30, 1980, the proposal was withdrawn because the 1978 amendments to the Act required that all proposals pending for more than two years be withdrawn (45 FR 64853). The Virgin River chub was re-proposed as endangered, with critical habitat, on June 24, 1986 (51 FR 22949). On August 24, 1989, the Virgin River chub was listed as endangered (54 FR 35305) throughout its entire range (50 CFR 17.11) but critical habitat was not designated at that time. When the Virgin River chub was listed it was considered a subspecies of roundtail chub (*Gila robusta*) and its taxonomic classification was *Gila robusta seminuda*. DeMarais et al. (1992) asserted that full species status was warranted for the Virgin River chub

and reclassified it as *Gila seminuda*. On July 24, 1995, a proposed rule was published in the Federal Register (60 FR 37866) proposing a change in rank from subspecies to species as the Virgin River chub, and proposing a change in the status of the Virgin River population of Virgin River chub from a subspecies to a vertebrate population segment. The latter action was necessary because DeMarais' work concluded that the Muddy (=Moapa) River Virgin River chub was the same species as the Virgin River chub in the Virgin River, and only the Virgin River population was included for listing in the final rule. That proposed rule has not been finalized.

Critical habitat was designated on January 26, 2000 (65 FR 4140) and includes 87.5 miles of the Virgin River and its associated 100-year flood plain, extending from the confluence of La Verkin Creek, Utah, to Halfway Wash, Nevada. The physical and biological features (PBFs) of critical habitat determined necessary for the survival and recovery of the Virgin River chub are water, physical habitat, and biological environment (see details below).

The Virgin River chub is most often associated with deep runs or pool habitats of slow to moderate velocities with large boulders or instream cover, such as root snags. Adults and juveniles are often associated together within these habitats; however, the larger adults are collected most often in the deeper pool habitats within the river. Hardy et al. (1989) determined that Virgin River chubs were most often collected in depths ranging from 0.6 feet to 3.0 feet in velocities ranging from 0.0 to 2.5 cubic feet/sec and associated with sand substrates with boulders or instream cover. Schumann (1978) and Deacon et al. (1987) found that the final adult thermal preference was approximately 75 °F. The Virgin River chub is omnivorous, showing considerable dietary shifts with age. Young fish feed almost entirely on macro-invertebrates while adults feed almost exclusively on algae and debris. Spawning is known to occur in the spring, and ripe females have been reported during the months of April, May, and June (Hickman 1987). Hickman (1987) also noted that good spawning years coincided with good spawning years for woundfin. It is likely that Virgin River chub live for many years, perhaps for decades, but they mature rapidly and probably spawn in their second or third year of life (Williams and Deacon 1998).

The historical range of the listed population of Virgin River chub encompassed the Virgin River in Arizona, Nevada, and Utah. The species remains extant throughout its historical range although in reduced numbers.

Woundfin

The woundfin was listed as endangered on October 13, 1970 (35 FR 16047). Subsequent to listing, critical habitat was originally proposed on November 2, 1977 (42 FR 57329). The proposal was withdrawn because the 1978 amendments to the Act required that all proposals pending for more than two years be withdrawn (45 FR 64853). Critical habitat was proposed, finalized, and designated concurrently with that for Virgin River chub. Designated critical habitat and the PBFs of critical habitat are slightly different from those for the Virgin River chub (see details below). A Woundfin Recovery Plan was developed and approved in July 1979 and later revised and updated in March 1984. In 1995, this plan was superseded by the Virgin River Fishes Recovery Plan, which included both the woundfin and the Virgin River chub (USFWS 1995).

Adult woundfin are often collected from runs and quiet waters adjacent to riffles. Larvae are found in backwaters or slowly moving water along the stream margin, and often are associated with dense growths of filamentous algae. Juveniles use habitats that are slower and deeper than those characteristic of adults. Woundfin greater than 1.6 inches total length are collected most frequently at depths between 0.48 and 1.4 feet, in current velocities ranging from 0.78 to 1.6 feet per second, over sand and sand-gravel substrate (Hardy et al. 1989). There is some indication that when water clarity is high, adult woundfin move into deeper water. The critical thermal maximum temperature for woundfin in the Virgin River is about 102⁰F (with acclimation at 77⁰F) with mean preferred temperatures of about 52 to 75⁰F, depending on the overall stream temperature (Deacon et al. 1987). Woundfin feed on a variety of items, including filamentous algae, detrital material, seeds, and aquatic insects; and display a seasonal shift in food selectivity. Dietary overlap with introduced red shiners is greatest when food is most abundant. During periods of lower food abundance, woundfin and red shiners may experience greater competition for food, leading to a more pronounced partitioning of the food niche. Spawning has been documented from April to August (Hickman 1987, Hardy et al. 1989).

The historical range of the woundfin included rivers in Arizona, Nevada, and Utah, extending from near the junction of the Salt and Verde Rivers at Tempe, Arizona, to the mouth of the Gila River at Yuma, Arizona, and the Colorado River from Yuma, Arizona upstream to the Virgin River in Nevada, Arizona, and Utah, and into La Verkin Creek in Utah. Woundfin are extirpated from much of their former range, and are now confined primarily to the mainstem Virgin River from Pah Tempe Springs in Utah to Lake Mead in Nevada.

Physical and Biological Features of Critical Habitat

The PBFs of critical habitat determined necessary for the survival and recovery of the Virgin River chub and woundfin are water, physical habitat, and the biological environment. The desired conditions for each of these elements are further discussed below:

Water:

A sufficient quantity and quality of water (i.e., temperature, dissolved oxygen, contaminants, nutrients, turbidity, etc.) that is delivered to a specific location in accordance with a hydrological regime that is identified for the particular life stage for each species. This includes the following:

- 1) Water quality characterized by naturally seasonally variable temperature, turbidity and conductivity;
- 2) Hydrologic regime characterized by the duration, magnitude, and frequency of flow events capable of forming and maintaining channel and instream habitat necessary for particular life stages at certain times of the year; and
- 3) Flood events inundating the floodplain necessary to provide the organic matter that provides or supports the nutrient and food sources of the listed fishes.

Physical habitat:

Areas of the Virgin River that are inhabited or potentially habitable by a particular life stage for each species, for use in spawning, nursing, feeding, and rearing, or corridors between such areas.

For woundfin these habitats include the following:

- 1) River channels, side channels, secondary channels, backwaters, and springs, and other areas which provide access to these habitats;
- 2) Areas inhabited by adult and juvenile woundfin include runs and pools adjacent to riffles that have sand and sand/gravel substrates;
- 3) Areas inhabited by juvenile woundfin are generally deeper and slower. When turbidity is low, adults also tend to occupy deeper and slower habitats; and
- 4) Areas inhabited by woundfin larvae include shoreline margins and backwater habitats associated with growths of filamentous algae.

For Virgin River chub these habitats include the following:

- 1) River channels, side channels, secondary channels, backwaters, and springs, and other areas which provide access to these habitats; and
- 2) Areas with slow to moderate velocities, within deep runs or pools, with predominantly sand substrates, particularly habitats which contain boulders or other instream cover.

Biological environment:

Food supply, predation, and competition are important elements of the biological environment and are considered components of this constituent element. Food supply is a function of nutrient supply, productivity, and availability to each life stage. Predation and competition, although considered normal components of this environment, are out of balance due to non-native fish species in many areas. For both species, a properly functioning biological environment contains:

- 1) Seasonally flooded areas that contribute to the biological productivity of the river system by producing allochthonous (humus, silt, organic detritus, colloidal matter, and plants and animals produced outside the river and brought into the river) organic matter which provides and supports much of the food base of the listed fishes; and
- 2) Few or no predatory or competitive non-native species in occupied Virgin River fishes' habitats or potential reintroduction sites.

The entire critical habitat reach is considered essential for the conservation of the Virgin River chub and woundfin. At the time of designation of critical habitat in 2000, all PBFs were identified as not being at optimum levels for Virgin River chub and woundfin, with different portions of the reach more

or less suitable for water and physical habitat. Under the biological environment section, it was stated that predation and competition were out of balance in the critical habitat due to the presence of non-native fish species. Red shiner was named as being a significant reason why critical habitat was not able to meet the conservation needs at the time of designation, with additional management identified as required to address this issue. Since the designation in 2000, red shiner have been eliminated in the Utah sections of the critical habitat upstream of the Stateline Fish Barrier, which has enabled that reach of critical habitat to meet conservation needs under biological environment, although portions of the reach may not fully meet physical or water requirements at all times.

Threats and Current Status

Virgin River chub

The abundance and distribution of Virgin River chub have declined significantly due to impacts from water diversions and the introduction of non-native species, particularly red shiner and large predaceous non-native species such as catfish and bass species. Virgin River chub remain extant in the Virgin River in Arizona, particularly in the lower Gorge and the river upstream of Littlefield. The section of Virgin River most negatively impacted by the invasion of red shiner is from Lake Mead in Nevada upstream to the Washington Fields Diversion in Utah. Prior to invasion by red shiner, the fish population in this reach was composed almost exclusively of native fish. For example, at one of the standard Recovery Team monitoring sites within this reach, Atkinville Wash in Utah, fish composition in September 1984, just prior to discovery of the first red shiner, was woundfin (57%), desert sucker (27%), speckled dace (10%), Virgin River chub (4%), and flannelmouth sucker (2%). In 1988, attempts to chemically eradicate red shiner from the reach of the river between the Gorge and the Washington Fields Diversion began with the treatment of the reach between the Washington Fields and Johnson diversions. Successive treatments have focused on treating additional reaches in each year. Prior to all treatments, an extensive salvage operation is conducted, with native fish moved to habitat above the Washington Fields Diversion.

As a result of the treatments, the red shiner has been eliminated from the Virgin River in Utah. However, the numbers of Virgin River chub are also low due to the previous overwhelming numbers of red shiner previous to salvage efforts, inadvertent mortality during treatment, and fish kills resulting from flood events with poor water quality. Above the Washington Fields Diversion, populations of Virgin River chub have not been impacted by red shiner (red shiner were noted in 2002 within the reach, but not since) and the fish community is composed primarily of native fish (Fridell and Morvilius 2005). Virgin River chub populations in this reach declined in 2002 and 2003 due to low flow, low turbidity, and high water temperatures. Populations rebounded dramatically in 2005 due to higher flow levels and lower water temperatures. A return to persistent long-term drought conditions in 2006 and 2007 lowered all native fish populations, including Virgin River chub, back to critical levels. Lethal dissolved oxygen levels were noted throughout most of the upper portion of critical habitat for Virgin River chub in the Virgin River (above Washington Fields Diversion) during two back-to-back flood events in late July and early August 2007. Close to 90% of the remaining native fish population, including Virgin River chub, was lost from La Verkin Creek to Washington Fields Diversion. Sampling from within this reach by UDWR in autumn 2007 and spring 2008 indicates that the populations of native fish within this reach were extremely low. Recently, Virgin River chub and other native species have been reintroduced from upstream and off channel areas, as well as hatcheries in the

hopes of reestablishing a larger, more stable native fish population in this reach. Full pass sampling results from April 5-8, 2010 in the Pah Tempe Springs to Washington Fields Diversion documented 880 Virgin River chub; 731 adults and 149 young-of-the-year (YOY) in the reach. Surveys below Washington Fields Diversion in 2009 documented low numbers of Virgin River chub present down to the Stateline Fish Barrier (Fridell 2009).

The preservation of Virgin River chub in the lower Gorge and in the Littlefield reach in Arizona is very important to ensure the species' survival into the future in the event of another loss of Virgin River chub in Utah. Preservation of the chub population in this reach is also important in the event that Virgin River chubs currently held at Dexter National Fish Hatchery and Technology Center (DNFH&TC) were lost or, due to disease or invasive species concerns, were barred from stocking into the Virgin River in the future. The 2010 documentation of Largemouth Bass Virus at DNFH&TC is an example of a situation where stocking actions can be affected in this way. Due to increasing concerns about the spread of quagga mussels in the Colorado River drainage including the Virgin River, DNFH&TC will not transfer any additional Virgin River fish to that facility to avoid the risk of contamination.

In Arizona, Virgin River chub are found through the Gorge and downstream to Nevada, although most are found in areas upstream of the Arizona-Nevada boundary. Non-native fish species including red shiner, largemouth bass, and channel catfish are present and have effects on Virgin River chub through predation and competition. Streamflows through the Gorge vary seasonally, while the flows from springs in the lower Gorge and at Littlefield maintain a higher baseflow in the river at least to the first significant water diversion at Mesquite. Below the Mesquite Diversion, there are other diversions and return flows which affect the amount of water present to support Virgin River chub, and non-native fish populations are very high.

Woundfin

Woundfin abundance has declined significantly due to the introduction of red shiner. Woundfin were virtually eliminated wherever red shiner became established (Arizona and Nevada, and previously in Utah up to Washington Fields Diversion). Prior to 2007, the only viable populations of woundfin were found above the Washington Fields Diversion (Fridell and Morvilius 2005). In 2005, woundfin and Virgin River chub were the most common species in this reach. However, the 2007 flood events discussed for Virgin River chub functionally extirpated woundfin from this portion of the river. Nearly 10,000 woundfin from DNFH&TC were stocked back into this area in autumn 2007 and spring 2008. The spring 2010 surveys documented 270 woundfin; 110 adults and 117 YOY in the surveyed reach (Fridell 2010). Woundfin are also found below Washington Fields Diversion to the Stateline Fish Barrier (Fridell 2009). Very few woundfin are found in the reach of the Virgin River in Arizona and Nevada, although approximately 12 were observed in the Virgin River Gorge during 2012 sampling efforts (USFWS unpublished data). Repatriations from DNFH&TC into Arizona or Nevada were not made after 2007, and any woundfin in the river now are likely to be those moving downstream from Utah.

ENVIRONMENTAL BASELINE

The environmental baseline includes past and present impacts of all Federal, State, or private actions in the action area, the anticipated impacts of all proposed Federal actions in the action area that have undergone formal or early section 7 consultation, and the impact of State and private actions which are contemporaneous with the consultation process. The environmental baseline defines the current status of the species and its habitat in the action area to provide a platform to assess the effects of the action now under consultation.

DESCRIPTION OF THE ACTION AREA

The action area is larger than the footprint of the project area and represents all areas to be affected directly or indirectly by construction and associated activities described in the proposed action. The action area is defined as Bridge Number 6 and its associated floodplain from one mile above to approximately one mile below the existing bridge. The area upstream of the bridge is included because of potential flow issues through the work area and post-construction resulting from the footprint of the wider bridge piers. Also, fish in this upstream area are the ones most likely to move around the cofferdams during the construction phase. The action area also includes the upland vegetation where access roads will be constructed, where I-15 will be widened, and where construction activities will occur on piers 1 and 3, as well as where staging areas for equipment will be placed.

Bridge 6 is located on I-15 in the Virgin River Gorge at MP 15.58. The project will begin at MP 15.49 and end at MP 16.04. Bridge 6 is approximately 6.7 miles east of the unincorporated communities of Beaver Dam and Littlefield in Mohave County, Arizona (Figures 1 and 2 in the BA). Within the project limits, the land immediately adjacent to I-15 is under the jurisdiction of the Bureau of Land Management (BLM), and ADOT holds an easement from BLM that varies from 550 to 1,155 feet wide (Figure 3 of the BA).

The action area is located in northwestern Mohave County, Arizona, on I-15 in the Virgin River Gorge, where the interstate crosses the Virgin River. The Virgin River is typically perennial; however, it has gone dry in parts due to agricultural diversions farther up river. ADOT personnel and their consultants observed areas at and near Bridge 6 that were mostly dry during a site visit on June 29, 2012, but flowing water was under Bridge 6 during site surveys on May 23, August 23, and October 4, 2012. For this consultation, we will assume that the Virgin River is flowing year-round throughout the action area.

Two vegetation communities occur in the action area: (1) riparian habitat and (2) Mojave desertscrub habitat in drier upland sites away from the river. Riparian vegetation mostly consists of scattered, narrow patches of saltcedar, and several herbaceous species such as Chuckwalla's delight (*Bebbia juncea*) and cocklebur (*Xanthium* sp.). Most saltcedar in the project area were defoliated by the tamarisk leaf beetle (*Diorhabda carinulata*) and were brown and defoliated during ADOT personnel's site visit in June 2012. However, these saltcedar were green during the site visit on October 4, 2012. Moreover, saltcedar does not usually die from a single defoliation by the tamarisk beetles, but repeated defoliation can lead to severe dieback and death of the tree within several years. Biological control by the tamarisk beetle does not necessarily eradicate saltcedar, but it has the potential to suppress saltcedar populations, after which the two species will likely reach equilibrium at lower levels.

The Mojave desertscrub habitat consists of a low to moderate density of various perennial plants that include creosote-bush (*Larrea tridentata*), cheesebush (*Hymenoclea salsola*), saltbush (*Atriplex* sp.), white bursage (*Ambrosia dumosa*), Mormon tea (*Ephedra* sp.), snakeweed (*Gutierrezia sarothrae*), Mohave prickly pear (*Opuntia erinacea*), silver cholla (*Cylindropuntia echinocarpa*), rabbitbrush (*Chrysothamnus* sp.), jimsonweed (*Datura* sp.), and desert straw (*Stephanomeria pauciflora*).

Substrate in and immediately adjacent to the project area consists of gravelly, rocky soils and bouldery, montane habitat with bedrock near the surface. The soil survey for the project limits yielded two soil types: (1) Hindu-Rock outcrop-Gypill complex, 35 to 70 percent slopes (24.1 percent), which occurs in the uplands and mountains, and (2) Riverwash-Torrifluents complex, one to three percent slopes (75.1 percent), which occurs in floodplains (NRCS 2012, as cited in ADOT 2012).

Within the project limits, public lands managed by the BLM are adjacent to I-15. Lands adjacent to the project limits are undeveloped wilderness within the Beaver Dam Mountains and Paiute Wilderness areas. BLM manages these wilderness areas for multiple uses such as protection of habitat for wildlife and non-motorized/non-mechanized recreation; dispersed recreation occurs along the Virgin River. ADOT holds an easement from BLM for the I-15 roadway that varies from 550 to 1,155 feet wide. No new easements will be required for project construction or operation. Because all project activities, including potential staging areas, will remain within the ADOT easement and, therefore, will not extend into the designated wilderness, existing land uses and points of access will not be affected.

A. STATUS OF THE SPECIES WITHIN THE ACTION AREA

Because both Virgin River chub and woundfin occupy similar habitats, we will consider them together as the “Virgin River Fishes” with regards to the analyses of factors that affect the species within the action area as well as the overall effects of the proposed action. Based on the most recent sampling (2012), Virgin River chub occur throughout the Virgin River Gorge. During 2012 sampling efforts, 12 woundfin were observed in the Virgin River Gorge (USFWS unpublished data).

The importance of the Gorge as historical habitat for both species is uncertain; it likely acted as a connecting reach between the upstream and downstream habitat areas, with perennial pools providing seasonal habitats during dry periods. The PBFs for water and physical habitat have been affected by changes to the natural hydrograph, but those features that historically occurred are currently maintained within the action area. However, the presence of red shiner and other non-native species is compromising the conservation value of this area for these species.

B. FACTORS AFFECTING SPECIES’ ENVIRONMENT WITHIN THE ACTION AREA

The Virgin River fishes have declined in numbers largely due to the introduction and proliferation of non-native fishes such as red shiner and loss or degradation of habitat (USFWS 1995). The introduction and proliferation of red shiner into the aquatic ecosystem has contributed significantly to the species’ decline because it competes with the Virgin River fishes for food resources and space, and may be a predator of the larval and young-of-the year life stages, thereby reducing survival and recruitment of these native fishes.

Activities that have contributed to loss or degradation of habitat include channelization, impoundments, water diversions, and groundwater pumping. These actions affect the amount of water available in the Virgin River within the action area, the timing of that availability (based on changes to the natural hydrograph), connectivity to the historical floodplain, and physical changes to the habitat through changes in sediment processes and water temperature. Effects to the physical components of the aquatic habitats may be subtle or obvious, and the response of the Virgin River fishes to those changes is reflected in the decline of the species. The action area itself has been impacted by the construction of I-15; however, the free flow of water through the river channel is not impeded by the highway or its existing bridges.

EFFECTS OF THE ACTION

Effects of the action refer to the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated and interdependent with that action that will be added to the environmental baseline. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. Indirect effects are those that are caused by the proposed action and are later in time, but are still reasonably certain to occur.

We note that this biological opinion does not rely on the regulatory definition of “destruction or adverse modification” of critical habitat at 50 CFR 402.02. Instead, we have relied upon the statute and the August 6, 2004, Ninth Circuit Court of Appeals decision in *Gifford Pinchot Task Force v. U.S. Fish and Wildlife Service* (No. 03-35279) to complete the following analysis with respect to critical habitat.

Virgin River Fishes

During construction in the streambed, active flows will be diverted around Pier 2 as described in the proposed action. Since a relatively small area of up to 120 feet by 20 feet of the low-flow channel will be diverted by the use of cofferdams and the diversion of water will be minimal, we do not anticipate significant effects to the stream flow. Block seines will be placed upstream and downstream of the cofferdam locations before they are installed. Fish between the seines will be netted and moved downstream of the lower block seine by qualified fisheries’ biologists, permitted by AGFD and FWS. Additionally, any pools left as a result of the diversion will be seined to salvage any fish left in those pools. As with the seines and salvage work associated with the cofferdam installation, all fish salvaged from pools will be moved downstream of the project area. After all fish salvage work has been completed, the cofferdams and the temporary bridge will be installed by cranes, thus minimizing the work completed within the active channel. Upon completion of the cofferdams and temporary bridge, the block seines will be removed. If Virgin River fishes occur in the project area at this time, they will safely be conveyed through the project area by way of the diverted Virgin River channel.

Both species of Virgin River fishes are known to occur in the project area, so there is the potential for direct effects from the placement and removal of the cofferdams and associated netting of fish. Biologists involved with construction of the block seines and subsequent netting of fish will be required to possess State and Federal permits authorizing capture of Virgin River fishes.

Indirect effects on the Virgin River fishes include effects of the action on the physical environment inhabited by the species downstream of the construction site but still within the action area. Through

alterations of the habitat, individual Virgin River fishes in the project area may be affected. Indirect effects could include (1) siltation and erosion in the river channel in the vicinity of the construction; (2) spills of oil, fuel, or other hazardous materials into the river; and (3) loss of riparian vegetation and subsequent changes in erosion and sedimentation rates and nutrient flow. While we do not anticipate these effects will likely occur, they would be localized and temporary should they occur, and would be mitigated by the included conservation measures. Furthermore, upon completion of the work in the active stream channel, all cofferdams and the temporary bridge will be removed with the cranes, serving to minimize disturbance in the active channel. Due to the design components and relatively small width of the bridge expansion, long-term effects to stream flows and associated hydrologic processes are unlikely to occur.

Virgin River Fishes Critical Habitat

The proposed bridge construction is expected to have short-term, and possibly long-term adverse effects to critical habitat for the Virgin River fishes. These effects are expected to appear in the form of loss of fish living space from the additions to Pier 2, short-term increased sedimentation, and short-term changes in channel geomorphology. FHWA and ADOT have provided some conservation measures to reduce and minimize these effects.

Adverse effects of roads and road crossings on streams have been documented for many types of stream and fish species (Dobyns 1981, Meehan 1991, Megahan et al. 1992, Waters 1995, Young 1994). Effects include direct mortality of fish and fish eggs, direct destruction of habitat, increased sediment and changes in sediment patterns, destruction of riparian vegetation, alteration of stream morphology, and accelerated erosion.

Installation of piers for the bridge will effectively remove a small area of critical habitat for the Virgin River fishes. The permanent nature of the bridge and its new piers will reduce and remove a small area of living space for fish. The additional piers are in line with the existing piers and have some additional effects to immediate flows under the bridge and downstream. This is likely to be minor and not result in significant erosion effects downstream.

The total disturbance from access, grading, temporary structures, bridge construction, roadway widening, and ditch maintenance will be approximately eight acres. Of these eight acres, approximately 3.5 acres of vegetation will be potentially disturbed and/or removed, primarily from the floodplain and hillside north of the low-flow channel (ADOT 2012). Loss of vegetation, including 0.5 acre of riparian vegetation, may temporarily destabilize stream banks, reduce cover and nutrient input, increase water temperature, and remove or deplete the filtering capacity of the riparian zone for sediment and pollutants. However, disturbed soils outside the active flow channel that will not be landscaped or otherwise permanently stabilized by construction will be reseeded using species native to the project vicinity, unless otherwise specified by the BLM. Road construction and activity adjacent to the stream, even though vehicles are not entering the stream, may result in minor changes in riparian vegetation and stream channel morphology that could reduce the quality and availability of Virgin River fishes PBFs of critical habitat.

Drilling of the piers and future maintenance of the bridge will require vehicles to operate in the floodplain, but outside of the active channel. Critical habitat for the fish can be affected by increased

sediment deposition on the stream bottom. Adverse effects of stream sedimentation to fish habitat have been extensively documented (Murphy et al. 1981, Wood et al. 1990, Newcombe and MacDonald 1991, Barrett 1992, Waters 1995). Operation of vehicles in the dry channel and/or floodplain can result in release of loose sediment into the stream, and compaction of the floodplain. As a result, there may be a short-term, temporary increase in sediment to the stream during installation and removal of the cofferdams, temporary bridge, and crane pads, as well as during construction of the new support columns for Pier 2.

As described above in the proposed action, the low-flow channel will be redirected approximately 20 feet from Pier 2 as a result of the cofferdams. This diversion will occur for approximately 110 feet. Drilling shafts for support columns will occur in the dewatered portion near Pier 2 and will extend approximately 80 feet below the river bottom. These new support columns will allow for the extension of the bridge deck above. Excess materials resulting from the construction of the new pier foundations or drilled shafts will be removed from the floodplain within 10 days of generation. Any material temporarily stored in the floodplain would be surrounded with BMP-approved sediment control devices to prevent the material from entering the river channel in the case of rain or high flows. Work pads in the flood plain will occur at grade; however, all work areas will be surrounded by similar sediment control devices, such as wattles or silt-fencing, to reduce the amount of sediment that is discharged into the river as a result of construction activities. Because the spoils will be removed from the river bed, and all work pads will have silt-fencing, we do not anticipate significant short-term effects to the PBFs of critical habitat for the Virgin River fishes as a result of the construction activities that occur within the flood plain. Long-term effects to the PBFs are associated with the placement of additional support columns for Pier 2. These new support columns will be perpendicular to the flow of the river, and it is possible that they will contribute to the natural alterations of the river's flow. Because the Virgin River is highly dynamic and constantly shifts as a result of natural processes, we do not anticipate that the new support columns will contribute significantly to changes to the long-term flow of the river.

Additionally, the temporary bridge required for equipment access to the sandbar would span the active stream channel without the use of temporary piers, and would be constructed such that it could be picked up and moved in the event of high flows. The temporary bridge will be constructed such that normal flows will not be disrupted, although it is possible that the bridge could impede water or sediment movement during higher flows while it is present. All work within the low-flow channel is planned to be completed within three months in order to minimize the chance of high-flow events occurring while the cofferdams are in place. Because the temporary bridge will be constructed to allow for normal flows of the river, we do not anticipate significant long-term effects to the PBFs of critical habitat for the Virgin River fishes. Short-term effects will include the temporary disruption of the stream flow as the piers are placed and removed as well as some increased sedimentation in the river. These short-term effects are not anticipated to impede the ability of the PBFs of critical habitat to provide for the conservation and recovery of the Virgin River fishes.

As previously described, upon completion of the work in the active stream channel, all cofferdams and the temporary bridge will be removed with the cranes, again minimizing disturbance in the active channel. Because of the localized nature of the project, these structures are not anticipated to change the hydrologic regime or flood events in or near the project area. Although Piers 1 and 3 will also have additional support columns installed within the 100-year flood plain, these piers are above the low-flow channel. All work areas for Piers 1 and 3 will have silt fencing surrounding them; therefore,

construction activities associated with these piers are not anticipated to result in significant effects on the flow of the river or the PBFs of critical habitat for the Virgin River fishes.

In general, we do not anticipate that the effects of the proposed action will result in a long-term decrease in the function of the PBFs of critical habitat associated with water quantity and quality and physical habitat features necessary to aid in the conservation and recovery of the species. The action will not affect features of the biological environment. Furthermore, the conservation measures described in the proposed action are expected to minimize the adverse effects of the project and ensure that the proposed action will not impede the ability of the PBFs of critical habitat to continue to contribute to the conservation and recovery of the Virgin River Fishes.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. 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 Act.

Outside of the action area, the Virgin River Valley is likely to continue to experience additional urbanization over the near future. Change in use of existing water supplies, both surface and groundwater, as well as additional groundwater pumping to serve both agricultural and municipal uses may result from this growth and affect flows in the Virgin River, including within the action area.

CONCLUSION

After reviewing the current status of the Virgin River fishes, the environmental baseline for the action area, the effects of the proposed rehabilitated Bridge 6 and the cumulative effects, it is our biological opinion that the new Bridge 6 improvements as proposed, are not likely to jeopardize the continued existence of the Virgin River fishes nor are they anticipated to result in the destruction or adverse modification of critical habitat for these species.

Our determination is based on the following rationale:

- 1) The total area affected by the construction action is a minor part of the total habitat area supporting both the Virgin River chub and woundfin. The effects to the river channel due to construction are not permanent and habitat values will be recovered after temporary facilities are removed.
- 2) The conservation measures included in the proposed action minimize the risk of taking individuals of the Virgin River chub and woundfin during the construction period.
- 3) The bridge expansion will not result in changes to water flow under the bridge that could adversely affect habitat conditions for these species in the Virgin River.

The conclusions of this biological opinion are based on full implementation of the project as described in the Description of the Proposed Action section of this document, including any Conservation Measures that were incorporated into the project design.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulations pursuant to section 4(d) of the Act 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 to attempt to engage in any such conduct. "Harm" is defined (50 CFR 17.3) 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. Harass is defined (50 CFR 17.3) as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. "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 Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

AMOUNT OR EXTENT OF TAKE

Take of the Virgin River chub and woundfin is likely to occur during the shifting of the low flow channel and placement of the cofferdams at Pier 2. Take could result from handling of these fish during salvage operations. Based on approved sampling and handling techniques, we anticipate that no more than five percent of Virgin River chub handled during these efforts will be taken as a result of this proposed action. Because of their rarity in the action area, we anticipate that no more than one woundfin will be taken. The incidental take is expected to be in the form of direct mortality and harm or harassment from operations to place and remove the cofferdams as well as from salvaging fish from the area of the cofferdams after they are installed.

EFFECT OF THE TAKE

In the accompanying biological opinion, the FWS determined that this level of anticipated take is not likely to result in jeopardy to the Virgin River chub or woundfin or destruction or adverse modification of their critical habitat.

REASONABLE AND PRUDENT MEASURES AND TERMS AND CONDITIONS

The conservation measures included in the proposed action are appropriate to minimize the take of the Virgin River chub and woundfin and additional reasonable and prudent measures and terms and conditions to address the potential for take are not needed. We are including monitoring and reporting requirement as a reasonable and prudent measure to document any take that occurs.

1. The FHWA shall monitor incidental take resulting from the proposed action and report to the FWS the findings of that monitoring.

- a) The FHWA will designate a responsible party to monitor the project area and other areas that could be affected by the proposed action to ascertain take of individuals of Virgin River chub and woundfin. This monitoring will be accomplished by the fisheries biologists involved in placing the cofferdams as described in conservation measures included in the proposed action.
 - i) All native fish species captured during the placement and removal of the cofferdams will be placed downstream of the work area as provided for in the conservation measures. The number of each species captured and moved will be recorded.
 - ii) Any Virgin River chub or woundfin found injured or dead will be salvaged and the body placed in a freezer to preserve the tissues for later research. If any of these fish are found, notify the Arizona Ecological Services Office for further direction.
- b) The FHWA shall submit a report of the monitoring to the Arizona Ecological Services Field Office within 90 days after completion of the work within the low-flow channel. This report will briefly document the implementation of the conservation measures, report on the number of native fish encountered, and document any mortalities of Virgin River chub or woundfin.

Disposition of Dead or Injured Listed Species

Upon locating a dead, injured, or sick listed species initial notification must be made to the U.S. Fish and Wildlife Service, Office of Law Enforcement, (Resident Agent in Charge), 4901 Paseo del Norte NE, Suite D, Albuquerque, New Mexico, 87113, telephone: 505/248-7889, within three working days of its finding. Written notification must be made within five calendar days and include the date, time, and location of the animal, a photograph if possible, and any other pertinent information. The notification shall be sent to the Office of Law Enforcement, with a copy to this office. Care must be taken in handling sick or injured animals, to ensure effective treatment and care, and in handling dead specimens to preserve the biological material in the best possible state.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

We have not identified any conservation recommendations for the proposed action.


REINITIATION NOTICE

This concludes formal consultation on the action(s) outlined in the request. 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 retained (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 opinion; (3) the

agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; 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 cease pending reinitiation.

We appreciate the FHWA's efforts to identify and minimize effects to listed species from this project. For further information please contact Brian Wooldridge (928) 556-0210 or Brenda Smith (928) 556-2157. Please refer to the consultation number 02EAAZ00-2013-F-0061 in future correspondence concerning this project.

Sincerely,



Steven L. Spangle
Field Supervisor

cc (Electronic):

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Biologist, ADOT Environmental Planning Group, Phoenix, AZ (Attn: Kris Gade)
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cc (Hard Copy):

Director, Hopi Cultural Preservation Office, Kykotsmobi, AZ
Director, Resource Center, Chemehuevi Tribe, Havasu Lake, CA
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APPENDIX A

Concurrence with May Affect, Not Likely to Adversely Affect

Southwestern Willow Flycatcher Critical Habitat

We concur with the finding of “may affect, not likely to adversely affect” based on the following:

- The project area consists of isolated, linear patches of saltcedar that grow along a narrow terrace; within the project area, these saltcedar patches total approximately 0.4 acres. Approximately 0.35 acres will be removed as a result of the proposed action. The removal of this small area of saltcedar will be an insignificant effect to this critical habitat.

APPENDIX B

Technical Assistance for Adverse Effects to Conservation Agreement Species

Virgin Spinedace

Virgin spinedace is a species covered by a conservation agreement that includes the spinedace habitat in the Virgin River. It could be directly affected during the removal of existing piers and construction of new pier columns in the low-flow channel. Spinedace downstream of the project area could be affected by debris and/or sediment carried through the action area as a result of demolition activities or a change in the flow of the Virgin River. It is not expected that the diversions necessary for work on bridge piers will be large enough to affect the quality or quantity of water downstream. Since the new columns will be added in alignment with the existing pier columns, no permanent changes to downstream flow or sedimentation patterns are expected.

During construction in the streambed, active flows will be shifted using the cofferdams described in the biological assessment. Block seines will be placed upstream and downstream of the cofferdams and temporary bridge before they are installed. Fish between the seines will be netted and moved downstream of the lower block seine by qualified fisheries' biologists permitted by AGFD and USFWS. Then, the cofferdams will be installed and the block seines will be removed. If Virgin spinedace occur in the project area at this time, they will be safely conveyed through the project area in the shifted low-flow channel.

Virgin spinedace are found in the action area, so there is a likelihood of direct effects occurring from implementation of the proposed project. Biologists conducting the preconstruction surveys and netting will be required to possess State and Federal permits authorizing capture of Virgin spinedace. Virgin spinedace may be netted and moved downstream during the placement and removal of the cofferdams. Once those are placed, Virgin spinedace should be able to move through the area. There will be no long-term adverse effect to the flows due to the bridge improvements.

Indirect effects on the Virgin spinedace include effects of the action on the physical environment inhabited by the species. Through alterations of the habitat, individual Virgin spinedace in the project area may be affected. Indirect effects could include (1) potential siltation and erosion in the river channel in the vicinity of the construction; (2) potential spills of oil, fuel, or other hazardous materials into the river; and (3) loss of riparian vegetation and subsequent changes in erosion and sedimentation rates and nutrient flow. While these effects are expected to be unlikely, they will be localized and temporary should they occur, and will be largely mitigated by conservation measures incorporated into the proposed action.

The FWS appreciates the incorporation of protective measures for the Virgin spinedace into the proposed action. The proposed action may affect, and is likely to adversely affect this subspecies; however, all actions are in accordance with the existing conservation agreement and are not expected to appreciably reduce the population of this subspecies.



United States Department of the Interior

U.S. Fish and Wildlife Service
Arizona Ecological Services Office
2321 West Royal Palm Road, Suite 103
Phoenix, Arizona 85021-4951
Telephone: (602) 242-0210 Fax: (602) 242-2513



In reply refer to:
AESO/SE
02EAAZ00-2013-F-0061

January 9, 2014

Ms. Karla S. Petty, Division Administrator
U.S. Department of Transportation
Federal Highways Administration
4000 North Central Avenue, Suite 1500
Phoenix, Arizona 85012-3500

Dear Ms. Petty:

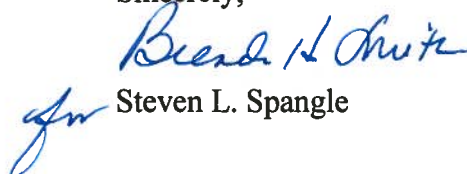
Thank you for your correspondence dated December 23, 2013, received in our office December 24, 2013 describing project modifications associated with our March 2013 biological opinion for the rehabilitation of Bridge 6 along the Virgin River in Mohave County, Arizona. Your letter describes modifications to the project design related to the construction of the coffer dam, drill rig pads, and the columns associated with Pier 2. Your letter requests our agreement that the proposed modifications to the project design and construction methods around Pier 2 conform to the original biological opinion and that reinitiation of formal consultation is not required.

We have reviewed the proposed changes described in your letter and agree that those changes do not alter our original affects determinations, conclusion, or incidental take statement provided in our March 2013 biological opinion. Therefore, reinitiation of formal consultation is not required at this time. We have signed the last page of your letter, as requested, and provided that along with this letter.

In keeping with our trust responsibility to American Indian Tribes, for proposed actions that may affect Indian lands, Tribal trust resources, or Tribal rights, we encourage you to invite the affected Tribes and Bureau of Indian Affairs to participate in the comment process and, by copy of this letter, are notifying the Hopi, Kaibab Band of Paiute, and the Colorado River Indian tribes, as well as the Bureau of Indian Affairs. We also encourage you to coordinate the review of this project with the Arizona Game and Fish Department.

We appreciate your cooperation throughout this consultation. If you have any questions or concerns about this consultation or the consultation process in general, please contact Brian Wooldridge (928) 556-2106 or Brenda Smith (928) 556-2157.

Sincerely,


Steven L. Spangle

Attachment

cc: (electronic)

Chief, Habitat Branch, Arizona Game and Fish Department, Phoenix, AZ

Supervisor, Region 2, Arizona Game and Fish Department, Flagstaff, AZ

(Attn: Steve Rosenstock)

Environmental Coordinator, Federal Highways Administration, Phoenix, AZ

(Attn: Rebecca Yedlin)

Biologist, ADOT Environmental Planning Group, Phoenix, AZ (Attn: Kris Gade)

Field Manager, Arizona Strip Field Office, Bureau of Land Management, St. George, AZ

Assistant Field Supervisor, Fish and Wildlife Service, Phoenix, AZ (Attn: Lesley Fitzpatrick)

Assistant Field Supervisor, Fish and Wildlife Service, Phoenix, AZ (Attn: Greg Beatty)

cc (hard copy):

Director, Hopi Cultural Preservation Office, Kykotsmovi, AZ

Director, Resource Center, Chemehuevi Tribe, Havasu Lake, CA

Cultural Compliance Technician, Museum, Colorado River Indian Tribes, Parker, AZ

Environmental Specialist, Environmental Services, Western Regional Office, Bureau of
Indian Affairs, Phoenix, AZ



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

ARIZONA DIVISION

4000 North Central Avenue
Suite 1500
Phoenix, Arizona 85012-3500
Phone: (602) 379-3646
Fax: (602) 382-8998
<http://www.fhwa.dot.gov/azdiv/index.htm>

December 23, 2013

In Reply Refer To:
015-A(208)S
HOP-AZ

015-A(208)S
015 MO 015 H8574 01C
Virgin River Bridge #6 (STR #1619)
AESO/SE 02EAAZ00-2013-F-0061
Continuing communication

Mr. Steve Spangle, Field Supervisor
U.S. Fish & Wildlife Service
Arizona Ecological Services Field Office
2321 West Royal Palm Road, Suite 102
Phoenix, Arizona 85021-4951

Attention: Brian Wooldridge

Dear Mr. Spangle:

The Federal Highway Administration (FHWA), as the lead federal agency, and the Arizona Department of Transportation (ADOT), as the project sponsoring agency, propose to rehabilitate Virgin River Bridge No. 6 at milepost (MP) 15.58 on Interstate 15 (I-15). The overall project limits, from milepost (MP) 15.49 to MP 16.04, are located approximately 6.7 miles east of the unincorporated communities of Beaver Dam and Littlefield in Mohave County, Arizona.

In March 2013, the U.S. Fish and Wildlife Service (USFWS) produced a Biological Opinion for this project based on the Proposed Action and findings presented in ADOT's November 2012 Biological Evaluation. The Proposed Action included the construction of cofferdams around the foundation of Pier 2 to maintain an adequately-sized dry work zone for widening and anchoring the pier. Dewatering behind the cofferdams was also anticipated, accompanied by several mitigation measures to minimize impacts to endangered Virgin River fish species. The cofferdams were described as a 15-foot perimeter around the north side of the existing pier and the new columns, tying into the gravel bar on either side of the new pier width. The overall length of the cofferdams along the river channel was estimated to be 120 feet, with a maximum 20-foot shift of the low-flow channel of the Virgin River.

As the project design has progressed, the construction methods for widening Pier 2 have been refined to accommodate the drill rigs required to construct the new columns and FHWA would like to apprise USFWS of these changes. The new design calls for the placement of temporary concrete barrier along the south bank of the Virgin River. Approximately 250 feet of the initial barrier will be placed within the low-flow channel, but the maximum shift will remain approximately 20 feet (refer to enclosure titled Drill Layout-Initial Barrier).

The area behind the barrier will be dewatered according to the mitigation measures set forth in the Biological Opinion and the Environmental Assessment, and the inside of the barrier will be lined with a membrane material designed to prevent native material and debris from entering the river. Fill will be placed behind the barrier to create a flat work area that extends across the gravel bar south of the low-flow channel to the gorge wall. Drill rigs will be placed on either side of Pier 2 to drill the shafts for the



new columns; metal casings will be installed as the shafts are excavated to hold the shafts open; and a non-toxic slurry will be pumped into the casings to hold the forms in place as the columns are constructed.

Once the shafts are drilled and columns constructed, the metal casings, slurry, and drill rigs will be removed. The majority of the flat work area behind the initial concrete barrier will be retained for crane and other equipment access. A second concrete barrier will be placed behind the initial barrier, then the interstitial fill and initial barrier will be removed (refer to enclosure titled Drill Layout-Secondary Barrier). Most of the second barrier is anticipated to be outside of the low-flow channel on the gravel bar. Once the initial barrier is removed, depending on flow levels, the second barrier would shift the low-flow channel approximately 5 feet to the north for a distance of approximately 50 feet upstream and downstream of the existing pier.

An additional 130 feet along the length of the low-flow channel would be altered from the construction of the initial barrier versus the previous cofferdam design. However, the design changes would not increase the overall action area and ADOT would adhere to all dewatering, spill containment, and sedimentation mitigation measures and best management practices intended to minimize impacts to the endangered Virgin River fish species. Therefore, FHWA does not believe the changes to the Proposed Action would change the affect determinations, conclusions, or incidental take statement presented in the Biological Opinion.

With the submittal of this letter, FHWA is requesting USFWS agreement that the proposed changes to the construction methods around Pier 2 conform to the Biological Opinion and that re-initiation of formal consultation pursuant to Section 7 of the Endangered Species Act is not required. Please review the enclosed information and respond by January 17, 2013. If you have questions, please contact Rebecca Yedlin, FHWA Environmental Coordinator, at 602.382.8979 or Rebecca.Yedlin@dot.gov, or Kris Gade, ADOT Project Biologist, at 602.712.7649 or kgade@azdot.gov. Thank you for your continued cooperation and interest in this project.

Sincerely,



Karla S. Petty
Division Administrator



Signature for USFWS Agreement that Re-Initiation is Not Required
015-A(208)S

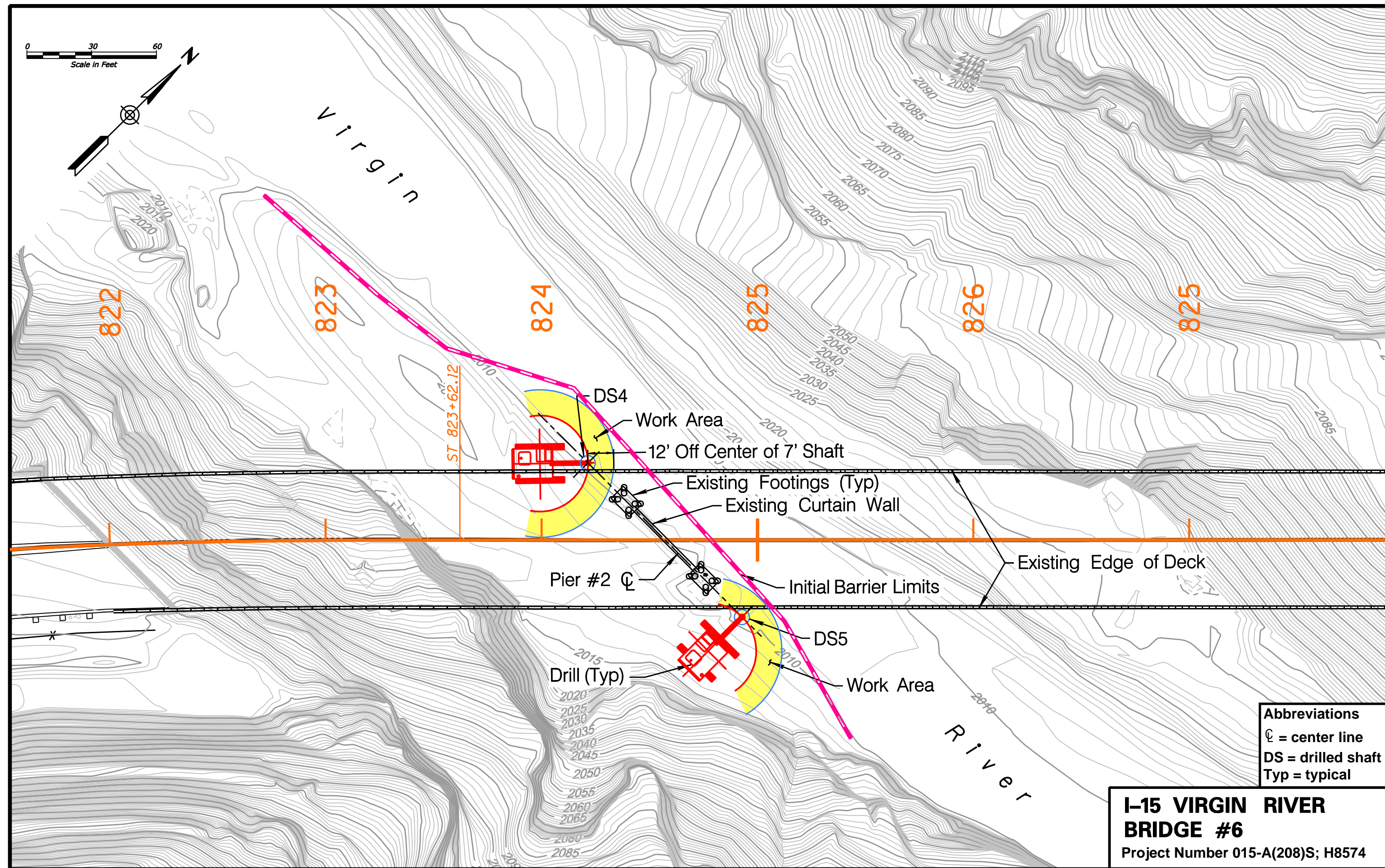
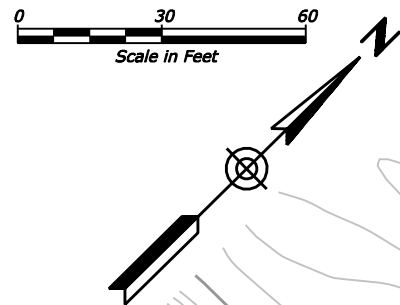


Date

Enclosures

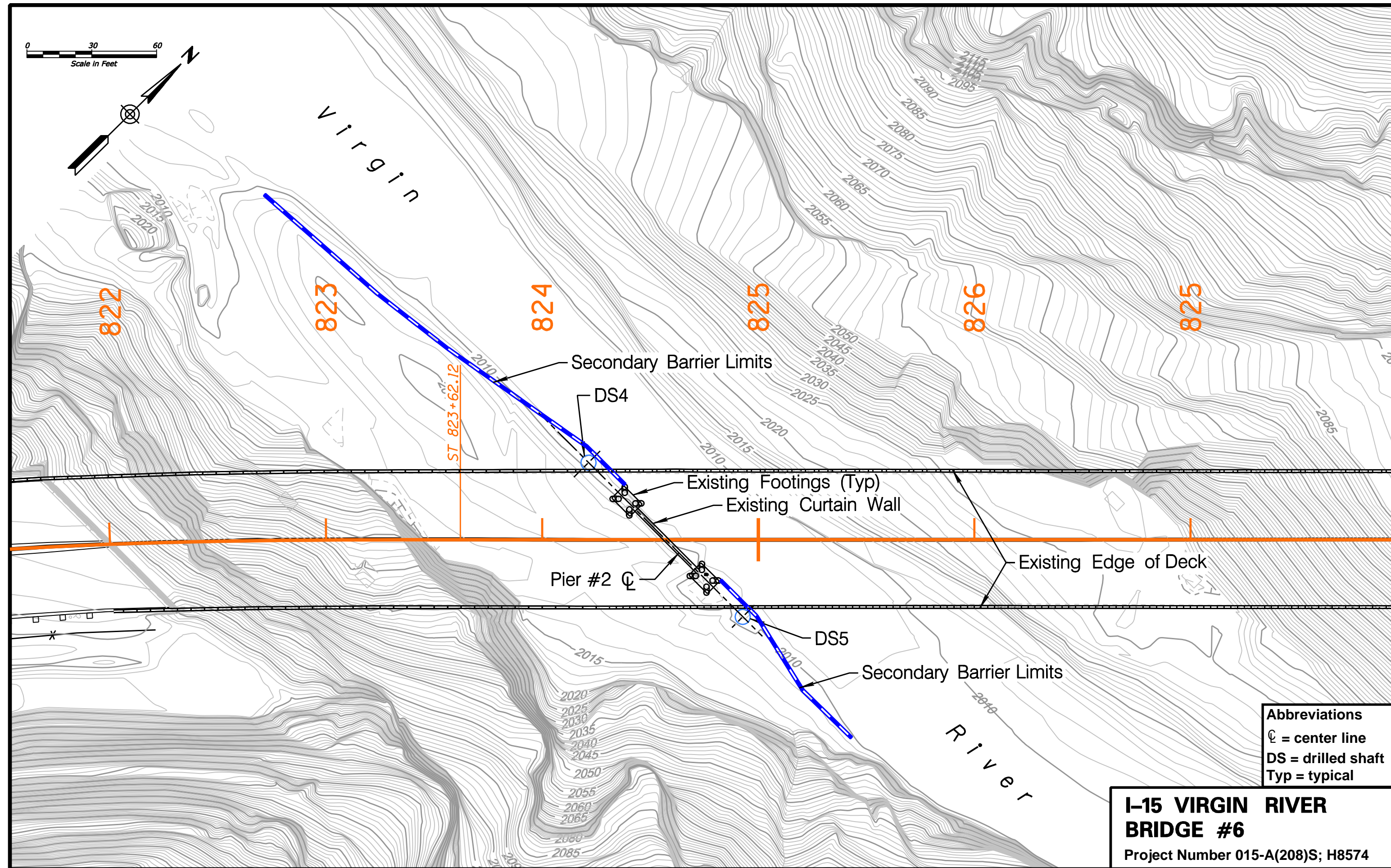
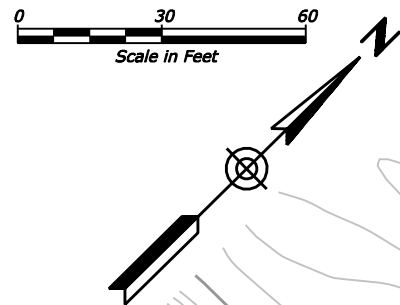
cc:

Laurie Ford [Lands and Geological Science Team Lead, Bureau of Land Management Arizona Strip Field Office, 345 East Riverside Drive, St. George, UT 84790-6714] (with enclosures)



Abbreviations
CL = center line
DS = drilled shaft
Typ = typical

**I-15 VIRGIN RIVER
BRIDGE #6**
Project Number 015-A(208)S; H8574



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CL = center line
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**I-15 VIRGIN RIVER
BRIDGE #6**
Project Number 015-A(208)S; H8574