U.S. Department of Transportation

Federal Highway Administration
Central Federal Lands Highway Division

Finding of No Significant Impact (FONSI/Final Individual 4(f) Evaluation)

for

AZ FLAP SR88(1),
Apache Trail Project
Maricopa County, AZ

This Finding of No Significant Impact is submitted pursuant to:

42 U.S.C. 4332 (2)(c) and 49 U.S.C. 303

The Federal Highway Administration, Central Federal Lands Highway Division has determined that this project will have no significant impact on the human or natural environment. Principal areas of public controversy have been addressed, and there are no major unresolved issues outstanding. This finding is based on the *Apache Trail Project Environmental Assessment/Draft Individual 4(f) Evaluation* (Environmental Assessment); coordination with local and federal agencies; public involvement; and applicable laws, executive orders, and regulations. The Environmental Assessment, with revisions contained herein, accurately and adequately discusses the need, environmental issues, and impacts of the proposed Federal Highway Administration project and appropriate mitigation measures. It lists environmental commitments to be carried out by the FHWA in order to minimize unavoidable impacts. The Environmental Assessment provides sufficient evidence and analysis for determining that an Environmental Impact Statement is not required. FHWA takes full responsibility for the accuracy, scope, and content of the following Environmental Assessment.

CURTIS R SCOTT Digitally signed by CURTIS R SCOTT
Date: 2021.08.12 12:49:56 -06'00'

Curtis Scott, P.E.
FHWA-CFLHD
Chief of Engineering

08/12/2021
Date

Introduction

This Finding of No Significant Impact (FONSI) concerns the improvements of 11.16 miles of the Apache Trail between milepost 229.2 and milepost 240.6 (Figure 1).

The proposed improvements include applying four inches of aggregate base and a chip seal pavement to the 11.16-mile section. Improvements to sight distance in five spot locations would be completed to improve roadway safety. In addition, the project would replace, repair, and/or extend culverts that are not currently functional or have been damaged by flood events within the project area.

This FONSI has been prepared in cooperation with the U.S. Forest Service (USFS), Tonto National Forest (TNF), the federal land management agency, and ADOT. The Arizona Department of Transportation (ADOT) was granted a highway easement deed of approximately 100 feet in width along SR 88 (i.e., Apache Trail) in 2017 from the Arizona Division of FHWA, as consented to by the USFS in a Memorandum of Understanding between FHWA and the USFS. The FONSI incorporates the Federal Highway Administration, Central Federal Lands Highway Division (FHWA-CFLHD) *Apache Trail Project Environmental Assessment/Draft Individual 4(f) Evaluation* (EA), which was signed by FHWA-CFLHD on May 13, 2021. The EA analyzed the impacts of a No Action Alternative and Action Alternative. The EA was made available to the general public and agencies for review and comment.

Purpose and Need

The purpose of the project is to improve the resiliency of the road corridor, reduce maintenance demands, and improve and maintain accessibility while protecting elements of the historic road, as practicable.

The project is needed because routine maintenance requiring the continual importing of material and regrading of the road surface contributes to watershed damage, places the roadway at further risk of unintentional damage, and requires extensive financial resources as described further below. Undersized culverts cannot handle flows during heavy rain events, resulting in road washouts that lead to further degradation of the watershed and limit public access. The project is needed for the following reasons:

- Vehicular use of the decomposed granite surfacing material on the road emits large volumes of fugitive dust that limits sight distance and contributes to poor air quality.
- Given the erosive nature of the decomposed granite, excess surfacing material is frequently lost to roadside ditches and washes and during rain events it has the potential to impact water quality within the adjacent Apache Lake.
- The decomposed granite surfacing requires frequent blading to maintain a drivable surface and the constant routine maintenance results in the ongoing risk of unintentional damage and/or burying of individual features of the historic roadway.
- Supply of the historically used decomposed granite surfacing is in short supply and ADOT will need to seek an alternative fill source, which may differ in appearance and require substantial funds to bring onsite.
- Damaged and undersized culverts increase flooding of the road during heavy rain events resulting in road washouts.

- Roadway damage has resulted in temporary closures of portions of the project area thereby limiting access for visitors, nearby residents, TNF employees, and local business staff. Significant erosion and continual roadway degradation pose a risk for long-term roadway closure affecting access to the project area.

Selected Alternative

The FHWA EA analyzed a No Action Alternative and an Action Alternative (Preferred Alternative). The Preferred Alternative was chosen as it was determined to meet the purpose and need of the project and would have no significant impact on the human or natural environment.

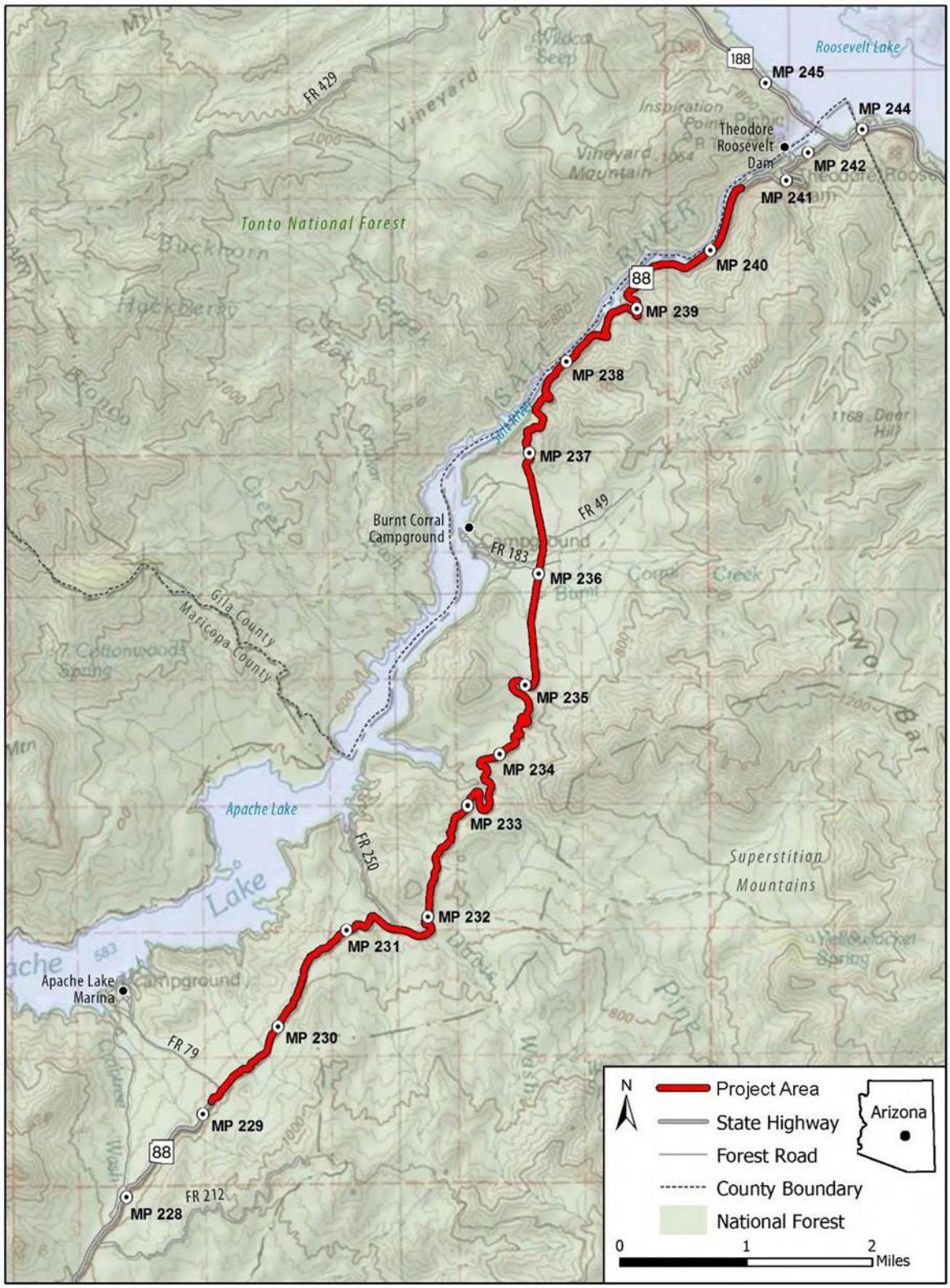
Changes Since the Release of the Environmental Assessment

The following changes and/or revisions have occurred since the release of the Environmental Assessment on May 21, 2021.

- *Section 4(f)*. The Draft Individual 4(f) Evaluation was included in the EA in accordance with 23 CFR § 771.105(a). FHWA-CFLHD provided the draft evaluation for comment to the Official with Jurisdiction, Arizona State Historic Preservation Officer (SHPO), and to the Advisory Council for Historic Preservation (ACHP) and the Department of Interior (DOI)for a 45-day review and comment period, per 23 CFR § 774.5. Comments letters were received from the SHPO and DOI with no objection to the project action (**Appendix A**). Because no comments or correspondence was received from the ACHP within 15 days after the 45-day comment period, FHWA-CFLHD assumes a lack of objection from this agency, in accordance with 23 CFR § 774.5 (a). In addition, no comments were received from the public on the draft Section 4(f) evaluation. Therefore, based upon the above considerations, FHWA-CFLHD, in accordance with 23 CFR § 774.3, has determined that there is no feasible and prudent alternative to the use of land from the historic Apache Trail and the proposed action includes all possible planning to minimize harm to the historic Apache Trail resulting from such use.

- *Memorandum of Agreement*: Changes were made to the Memorandum of Agreement (MOA). The delivery of the final historic context document was changed from "within two years of execution" of the MOA to "three years." The additional year will allow more time for the historic context document to undergo multiple rounds of review by the MOA signatories and other interested parties. Other changes included broadening the subject matter for the interpretive displays to include motorcoach stops along the Apache Trail and the development of the town of Roosevelt or other small communities/trading posts as they relate to the construction of the historic road. Other changes were requested to clarify agency roles if new cultural resources are discovered during construction activities [i.e. post review discoveries, North American Graves Protection and Repatriation Act (NAGPRA)]. These changes were made in consultation with the MOA signatories. No changes were made to the agreed upon mitigation measures.

Figure 1. Action Alternative (Preferred Alternative)



Consultation and Coordination

Provided below is a summary of the activity and comments that occurred during and after the public comment period.

The Notice of Availability for public review of the Environmental Assessment was posted on the FHWA-CFLHD project website on May 21, 2021. Electronic versions of the EA/Draft 4(f) Evaluation were available on the same website. Project partners, TNF and ADOT, had links to the FHWA website on their websites, also posted by May 21, 2021.

Newspaper ads ran as follows:

- Arizona Capitol Times, May 21, 2021
- Payson Roundup, May 21, 2021

The comment period was from May 21 to June 19, 2021.

The FHWA-CFLHD sent the Notice of Availability to interested parties in an email on May 20, 2021. The email list included federal, state, and local government agencies; tribes; local businesses; landowners; outdoor/recreational/environmental organizations; and other interested parties. The list was developed in conjunction with TNF.

Due to continuing COVID-19 pandemic restrictions, hard copies of the EA were not provided in nearby communities for review; however, it was announced in the Notice of Availability that any interested party could contact FHWA-CFLHD and request a hard copy or CD of the document. FHWA-CFLHD received one request for the document on CD.

Comments were received by FHWA-CFLHD via email. No letters were received by the U.S. Postal Service. A total of 66 emails were received and are included in **Appendix B**. One comment letter was a form letter that was emailed to FHWA-CFLHD by 55 separate people. This form letter is identified in Appendix B and is only printed once for brevity.

While comments varied, both in support or opposition to the project, a few common areas of concern emerged and are shows in **Table 1**.

Table 1. Public Comments on Apache Trail EA and FHWA-CFLHD Responses

Comment	Response
The proposed plan would not restore access to Apache Lake for east valley Phoenix residents. The rockfall at Fish Creek Hill should be included in this proposal.	The proposed Apache Trail project termini were identified in the Federal Lands Access Program (FLAP) project application and included work from Roosevelt Dam to the Apache Lake Marina. Damage to other parts of the route are outside the scope of this project.
Federal disaster relief funding has been appropriated to fix damage caused by wildfires in the region. The Federal Highway Administration could acquire some of this funding to	Damage to the other parts of the route are outside the scope of this project. Emergency relief funds would have to be acquired by ADOT through the appropriate means, and ADOT would have to provide a match percentage of the funds allocated.

Comment	Response
include the repair of Fish Creek Hill in this proposal.	
Paving the road would destroy the historical significance of the Apache Trail.	The EA states that paving the road and replacing culverts to accommodate higher flows will have an adverse effect to the historical Apache Trail roadway. FHWA-CFLHD has incorporated measures to mitigate for those effects and will enter into a Memorandum of Agreement with project partners, including the State Historical Preservation Office, to develop those measures. (*Please refer to Section 3.5.3 of Cultural Resources in the EA for a discussion of impacts to cultural resources and Section 3.5.4 for a list of proposed avoidance, minimization, and mitigation measures.)*
Paving the road would invite more visitors on a more frequent basis causing more congestion.	While paving the road may encourage use by visitors who would normally shy away from traveling the currently rugged, dirt road, an increase in visitation as a result of this project is not anticipated to be substantial. *(Please refer to Section 3.4.3 on Recreation and Visitor Experience for a discussion on visitor use.)* The proposed project does not increase the number of travel lanes on the Apache Trail roadway, and thus would not increase the overall traffic capacity of the project corridor to handle more traffic. Minor traffic increases will result from population growth, increases that would occur with or without implementation of the project.
Maintaining the road with one way out is dangerous (i.e. fixing the storm-damaged Fish Creek Hill would provide a through route).	Although having a through route would result in more options for evacuation, damage to other parts of the route are outside the scope of this project. The significant drainage improvements and paving will improve the resiliency of the route (i.e. making it more durable during storm events), thereby reducing the risk of road failure.
The existing dirt road is sufficient for normal traffic (pickup trucks pulling boats, off road vehicles and motorcycles, and cars for that matter) and maintains the rustic beauty of the area. Paving this portion of the Apache Trail would	The current roadway drainage and surfacing facilities are inadequately designed and therefore require an unsustainable maintenance effort to maintain access. The immediate costs of paving the route will result in a dramatic decrease in long term maintenance costs. The EA states that a chip seal (i.e., paving) will alter the appearance of the road surface; however, the coloration

Comment	Response
incur a large unnecessary expense.	of the road surface would fade quickly in the arid, high-sun exposure of the project area. A local aggregate source will be used to produce the rocks for the chip seal, thus blending the road surface with the natural surroundings. (*Please refer to Section 3.6.2 and 3.6.3 of Visual Resources in the EA for discussion on the project's impacts to visual resources.)*
Include fixing Fish Creek Hill in the $11 trillion infrastructure plan being proposed by Congress. After all, this is a true infrastructure project.	The provisions of any proposed Federal legislation are speculative and outside the scope of this project.
Concerned that more people will bring in more trash.	An increase in visitation could lead to a greater amount of visitor-generated trash/graffiti; however, visitor use is not expected to increase substantially as a result of this project. *(Please refer to Section 3.4.3 on Recreation and Visitor Experience for a discussion on visitor use.)*
The drivers on dirt road tend to be more aware and reactive and I believe you will lose that if the road becomes paved. I feel you would attract more fatalities and unruly drivers once that road becomes paved causing emergency personnel to be overused on the road.	The proposed project would result in long-term beneficial impacts to safety as a result of improvements to driver's line of sight in five spot locations, additional signage, and the application of a more durable road surface. While vehicles traveling at speeds faster than is prudent would continue to be a safety concern, a narrower driving surface between MP 229-231 and MP 235-237 is designed to help reduce driving speeds in these two straighter road sections. (*Please refer to Section 3.2 on Transportation in the EA for discussion of safety improvements.)*
Keep the road dirt, and regularly regrade it.	The purpose of the project is to make the adjacent federal lands more accessible to the public. ADOT currently spends an unsustainable percentage of its regional budget maintaining this road, which puts long term access at risk. Paving the route and upgrading drainage facilities will support resiliency during flood events.

Additional Agency Coordination

Revisions to the MOA occurred since the publication of the Environmental Assessment and are currently being reviewed by the Arizona State Historic Preservation Officer (SHPO), Advisory Council for Historic Preservation (ACHP), Arizona Department of Transportation (ADOT), U.S. Forest Service (USFS), and Yavapai-Apache Nation (concurring party). No adverse effects to historic resources would occur until the MOA is finalized and the mitigation for adverse effects is agreed upon by all MOA signatories.

Resource Protection Measures

The environmental commitments that will be implemented to minimize the impacts of the project are included in **Appendix C**.

Appendices

Appendix A: Comments on Individual Section 4(f) Evaluation

Appendix B: Comments on the Environmental Assessment

Appendix C: Environmental Commitments

Appendix D: Apache Trail Project Environmental Assessment/

Draft Individual 4(f) Evaluation

Appendix A

Comments on Individual 4(f) Evaluation

United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
2800 Cottage Way, Rm E-1712
Sacramento, California, 95825

In Reply Refer To:
ER 21/0193

Filed Electronically June 29, 2021

Dustin Robbins
Federal Highway Administration
Central Federal Lands Highway Division
12300 West Dakota Avenue, Suite 380
Lakewood, CO 80228-2583

Subject: Comments on the Section 4(f) Analysis for the Apache Trail Project in Maricopa County, AZ

Dear Mr. Robbins:

The U.S. Department of the Interior (Department) has reviewed the Draft Section 4(f) Evaluation for the Apache Trail Project in Maricopa County, AZ proposed by Federal Highways Administration (FHWA)-Central Federal Lands Highway Division and Arizona Department of Transportation (ADOT). We understand the purpose of the project seeks to chip seal road surface, repair culverts, and address other operational issues along 11 miles of the Apache Trail (SR 88) to improve safety as needed. The proposed action alternatives are analyzed in an individual Section 4(f) Evaluation.

The Department concurs with the Section 4(f) Evaluation that there are no prudent and feasible avoidance alternatives for use of the Section 4(f) historic properties noted, and includes the necessary planning and documentation as defined in 23 CFR§ 774.17. The Department concurs that the 4(f) evaluation describes the affected Section 4(f) resources, including properties that are listed or eligible for listing in the National Register of Historic Places (NRHP). The Department has no objection to Section 4(f) approval of this project contingent upon execution of a Memorandum of Agreement (MOA) with concurrence of the Arizona State Historic Preservation Officer (SHPO) and consultation with the Tribes impacted by the proposal. By following the mitigation commitments listed within the Apache Trail Project Environmental Assessment (EA), ADOT will minimize effects to NRHP-eligible and listed properties.

The Department has a continuing interest in working with ADOT to ensure that impacts to resources of concern to the Department are adequately addressed. For matters related to these comments, please coordinate with Karen Skaar, NEPA Specialist, National Park Service, Serving

Department of the Interior Regions 6, 7, and 8 at 303-349-4160 or karen_skaar@nps.gov. For all other questions, please contact me at (415) 420-0524.

Sincerely,

JANET WHITLOCK

Digitally signed by JANET WHITLOCK
Date: 2021.06.29 15:25:31 -07'00'

Janet Whitlock
Regional Environmental Officer
CA, NV, AZ, and the Pacific Islands

Cc:
Karen Skaar, NPS
Shawn Alam, DOI

Doug Ducey
Governor

ARIZONA
STATE PARKS & TRAILS

Robert Broscheid
Executive Director

June 21, 2021

Dustin Robbins, Project Manager
Federal Highway Administration
12300 W. Dakota Ave.
Lakewood, Colorado 80228

RE: SR 88/Apache Trail Improvements, Roosevelt Dam to Apache Lake Marina
Section 4(f) Evaluation
2017-1261 (159040)

Dear Mr. Robbins:

The Arizona State Historic Preservation Office has reviewed the Environmental Assessment (EA)/Draft Individual 4(f) Evaluation for the Apache Trail Project and offers the following comments:

1. The document is well-crafted and addresses the issues presented in the amended purpose and need, which became necessary with the wildfire and subsequent storms and damage to the roadway.
2. The history of the roadway is selective and does not offer a period of significance for the historic property, the Apache Trail [AR-03-12-06-218(TNF)].
3. Using the 50-year rolling marker for eligibility supports the claim that the unpaved roadway does retain some earlier characteristics, and may continue to with the proposed rehabilitation [including paving] from approximately Milepost (MP) 229 to MP 240. It is clear that the roadway (12 ft wide) starts off for oxen and wagons carrying supplies to the dam construction site, and that the Roosevelt Dam was completed in 1911. Since when the Arizona State Highway Department took responsibility for the roadway in 1922, episodes of changes and upgrades have occurred, altering the roadway's alignment [1927], width [24 ft, 1935-1937], and various roadway features.
4. Overall, the Section 4(f) evaluation is adequate and meets the revised purpose and need.

Thank you for the opportunity to comment.

Sincerely,

David Jacobs, Archaeologist
Arizona State Historic Preservation Office

From:	Kopec, Brett A
To:	Skaar, Karen S; Schroeder, Glenn A; Whitlock, Janet L; Hemesath, Lisa (FHWA)
Cc:	Janowicz, Jon A
Subject:	Fw: ENVIRONMENTAL REVIEW (ER) NEW POSTING NOTIFICATION: ER21/0193 - Draft Individual Section 4f Analysis for the Proposed Apache Trail Project, Maricopa County, Arizona
Date:	Monday, May 24, 2021 6:24:27 AM

Brett Kopec
USGS
Administrative Operations Assistant

From: Gordon, Alison D <agordon@usgs.gov>
Sent: Friday, May 21, 2021 5:39 PM
To: Kopec, Brett A <bkopec@usgs.gov>
Cc: Janowicz, Jon A <jjanowicz@usgs.gov>
Subject: Fw: ENVIRONMENTAL REVIEW (ER) NEW POSTING NOTIFICATION: ER21/0193 - Draft Individual Section 4f Analysis for the Proposed Apache Trail Project, Maricopa County, Arizona

The USGS has no comment at this time. Thank you.

From: oepchq@ios.doi.gov <oepchq@ios.doi.gov>
Sent: Wednesday, May 19, 2021 7:56 AM
To: Reddick, Virginia <Virginia_Reddick@ios.doi.gov>; Treichel, Lisa C <Lisa_Treichel@ios.doi.gov>; Alam, Shawn K <Shawn_Alam@ios.doi.gov>; Braegelmann, Carol <carol_braegelmann@ios.doi.gov>; Kelly, Cheryl L <cheryl_kelly@ios.doi.gov>; Howerton, B J <BJ.Howerton@bia.gov>; Yazzie, Harrilene J <Harrilene.Yazzie@bia.gov>; Hardt, Richard A <rhardt@blm.gov>; Paulete, Francisca (Panchita) E <fpaulete@blm.gov>; Gilbert, Megan A <magilbert@blm.gov>; Taylor, Theresa J <TTaylor@usbr.gov>; Cunningham, Catherine (Cathy) S <ccunningham@usbr.gov>; ERs, FWS HQ <FWS_HQ_ERs@fws.gov>; Stedeford, Melissa <Melissa_Stedeford@nps.gov>; Runkel, Roxanne <Roxanne_Runkel@nps.gov>; Hamlett, Stephanie R <shamlett@osmre.gov>; Gordon, Alison D <agordon@usgs.gov>; Janowicz, Jon A <jjanowicz@usgs.gov>; Padilla, George <George.Padilla@bia.gov>; Ben, Lyle <Lyle.Ben@bia.gov>; Krause, John <John.Krause@bia.gov>; Lytle, Myles <Myles.Lytle@bia.gov>; Lewis, Charles <Charles.Lewis@bia.gov>; oepchq@ios.doi.gov <oepchq@ios.doi.gov>; Schroeder, Glenn A <glenn_schroeder@ios.doi.gov>; Whitlock, Janet L <janet_whitlock@ios.doi.gov>; Schroeder, Glenn A <glenn_schroeder@ios.doi.gov>; Whitlock, Janet L <janet_whitlock@ios.doi.gov>
Subject: ENVIRONMENTAL REVIEW (ER) NEW POSTING NOTIFICATION: ER21/0193 - Draft Individual Section 4f Analysis for the Proposed Apache Trail Project, Maricopa County, Arizona

This e-mail alerts you to a Environmental Review (ER) request from the Office of Environmental Policy and Compliance (OEPC). This ER can be accessed here.

To access electronic ERs visit the Environmental Assignments website: https://ecl.doi.gov/ERs.cfm. For assistance, please contact the Environmental Review Team at 202-208-5464.
Comments due to NPS by: 06/17/21
Comments due to REO by: 06/21/21
Comments due to Agency by: 07/02/21

Appendix B

Comments on the Environmental Assessment

From: Sam Hughes
To: Robbins, Dustin (FHWA)
Subject: road to Apache lake
Date: Monday, June 7, 2021 4:52:54 PM

I have heard this is where we can put our comment in for the road to Apache lake.
My opinion is, KEEP IT DIRT, all we ask is regularly grade it the dirt road.
Thank you for your time
Sam Hughes

Hughes Sanitation Services
(520) 883-5868
www.tucsontrash.com

From: Jimmy Heredia
To: Robbins, Dustin (FHWA)
Subject: Please don"t pave the road to apache lake.. don"t ruin a good thing!
Date: Sunday, June 13, 2021 7:45:27 PM

As of right now the Lake is beautiful, And brings a lot of good people willing to drive the dirt road to this gem in the desert... good people that enjoy fishing, camping and playing in the water.. but once the road is paved, bye bye good lake.. you'll bring in the people you don't want down here.. the hoodlums that graffiti, throw trash on the roads, don't clean up, the desert party teenage groups, that just want to drink n drive..the massive amounts of wakeboard boats and jetskis from the city that don't have any boater etiquette, making trouble, causing accidents on the water as well as the road.. youll definitely have more problems than anticipated... keep it the gem that it is and DO NOT PAVE THE ROAD. make it worth getting here to enjoy it.. :) there's a big difference between people that are willing to get there truck dirty and people that don't..

Sincerely Jim heredia ,

45yr old seasoned boater and fisherman that brings my family of 6 to apache on 3 day trips 8-12 times a summer..

Sent from my Galaxy

From: Marjolaine Deslauriers
To: Robbins, Dustin (FHWA)
Subject: Paving the Apache Trail
Date: Monday, June 7, 2021 5:58:55 PM

I just wanted to voice my opinion on the paving of the Apache Trail. I have been going to this lake for almost all 40 years of my life. I do not believe this would be a benefit to anyone driving this road or having to be part of the emergency personnel responding to incidents on this road.

The drivers on dirt tend to be more aware and reactive and I believe you will lose that if the road becomes paved. I have seen the way people drive on the paved road to Canyon Lake including watching some kids street racing and driving off the cliff at 11pm and begging us not to contact the sheriff.

I feel you will attract more fatalities and unruly drivers once that road becomes paved causing your emergency personnel to be over used on the road.

I also feel the funds would be better utilized to open the closed part of Fish creek and fixing the road to allow an exit in case of emergency on either end.

Thank you

Marjolaine Deslauriers
520-331-0273

From:	Robbins, Dustin (FHWA)
To:	Hemesath, Lisa (FHWA)
Subject:	FW: Feedback on Arizona Apache Trail
Date:	Monday, June 7, 2021 9:49:06 AM

FYI

From: Buster Christenson [mailto:busterama@gmail.com]
Sent: Monday, June 7, 2021 9:46 AM
To: Robbins, Dustin (FHWA) <dustin.robbins@dot.gov>
Subject: Feedback on Arizona Apache Trail

It would be awesome if you didn't pave Apache Trail at all and just completed repairs and fix the Apache Trail between the Marina and Tortilla Flat (Fish Creek Hill), but that seems to be an insurmountable task that no one believes possible.

Since that appears to be impossible, please upgrade an alternate route (FR 49/FR 1080) out of the lake to passenger car friendly dirt roads.

The Apache Trail is one way in, one way out and has been a problem in the past and people have been trapped at the lake because of that.

FR 49 by Burnt Corral Campgrounds heads east up into the hills and connects to FR 1080 that'll take traffic out to highway 188. Upgrading the maintenance on those roads to Passenger Car or Moderate level of comfort (national forest descriptions) would provide an alternate route out in the event of a major accident or damage on the stretch of apache trail that your project is proposed to pave.

--
Thank You,

Buster
602-492-6844

This email is a petition that could be accessed at www.azbackroads.com. FHWA-CFLHD received this signed petition from 55 individuals during the 30-day public comment period. For brevity, only one copy of the petition is provided in the FONSI.

From: Robert Palmer [mailto:rcpalmer4@gmail.com]
Sent: Saturday, June 5, 2021 10:23 AM
To: Robbins, Dustin (FHWA) <dustin.robbins@dot.gov>; calltoaction@azbackroads.com
Subject: Comment on Apache Trail ES

Sign the petition

Thank you for the opportunity to comment on this proposal.

This comment is concerning the Environmental Assessment for repairs to an eleven-mile section of Apache Trail/ State Route 88 between Roosevelt Dam and Apache Lake Mariana. The project is found at the link below.

https://highways.dot.gov/federal-lands/projects/az/apache-trail

Hundreds of thousands of Arizona residents are negatively impacted by access issues in the described project area. Motorized users who rely on open motorized roads to access recreation opportunities such as fishing, hiking, hunting are now facing increased challenges when accessing recreation opportunities along Apache Trail. East Valley residents are cut off from access to important recreation areas, and small businesses have suffered as a result.

The economic impact that recreation activities bring to rural communities in the vicinity of the Apache Trail is enormous. Every weekend, thousands of visitors come to enjoy the vast opportunities for recreation, the fearful road, and the incredible views. The Apache Trail is known worldwide and was a marvelous achievement at its time.

I oppose the proposed plan for a few reasons.

1. The proposed plan would not restore access to Apache Lake for east valley Phoenix residents. The rockfall at Fish Creek Hill should be included in this proposal.
2. the Arizona Department of Transportation has told us that this road is permanently closed because it will simply cost too much money to repair. The money spent on this project would be better allocated towards restoring access, clearing the rockfall, and repairing the road at Fish Creek Hill.
3. Federal disaster relief funding has been appropriated to fix damage caused by wildfires in the region. The Federal Highway Administration could acquire some of this funding to include the repair of Fish Creek Hill in this proposal.
4. Paving the road would destroy the historical significance of the Apache Trail and invite more visitors on a more frequent basis. Recreation in the region is in high demand, and

congestion has always been an issue. Making it easier for visitors to access a popular recreation area with one way out is dangerous and will cause further congestion.

I respectfully request that the Federal Highway Administration, the Tonto National Forest, and the Arizona Department of Agriculture withdraw this proposal and prioritize repairing Fish Creek Hill.

Thank You

-- Mr. Robert Palmer
rcpalmer4@gmail.com

From: Robbins, Dustin (FHWA)
To: Hemesath, Lisa (FHWA)
Subject: FW: Comment on Apache Trail ES
Date: Monday, June 7, 2021 10:21:12 AM

From: Russell Lambert [mailto:rlambert1239@gmail.com]
Sent: Monday, June 7, 2021 10:14 AM
To: Robbins, Dustin (FHWA) <dustin.robbins@dot.gov>; calltoaction@azbackroads.com
Subject: Comment on Apache Trail ES

Comment on Apache Trail ES

I am against the project to pave AZ 88 from the Roosevelt Dam to Apache Lake. The existing dirt road is sufficient for normal traffic (pickup trucks pulling boats, off road vehicles and motorcycles, and cars for that matter) and maintains the rustic beauty of the area. Paving this portion of the Apache Trail would incur a large unnecessary expense.

I'd much rather see repairs made to Fish Creek Hill so that people in the East Valley could reach Apache Lake directly without having to travel an extra 80 miles north or south to get to the Roosevelt Dam. I'm sure this option is more expensive than paving the eastern part of AZ88, but it provides much more functionality and value overall to the generally public.

Include fixing Fish Creek Hill in the $11 trillion infrastructure plan being proposed by Congress. After all, this is a true infrastructure project.

-- Mr. Russell Lambert
rlambert1239@gmail.com

From: Robbins, Dustin (FHWA)
To: Hemesath, Lisa (FHWA)
Subject: FW: Arizona State Route 88
Date: Monday, May 31, 2021 10:14:08 AM

FYI

From: Barry Woody [mailto:barrywoody75@gmail.com]
Sent: Sunday, May 30, 2021 9:03 AM
To: Robbins, Dustin (FHWA) <dustin.robbins@dot.gov>
Subject: Arizona State Route 88

This beautiful and somewhat dangerous, mainly dirt road has been closed too long now.

No! We do not need to spend money paving the road from the lake to the marina. Leave it alone and open it up like it used to be for slow careful driving and views with repairs as needed.
The government wastes money everywhere, so stop trying to pave the world and let us Arizona citizens return to driving Rt. 88 for Sunday drives and launching our boats.

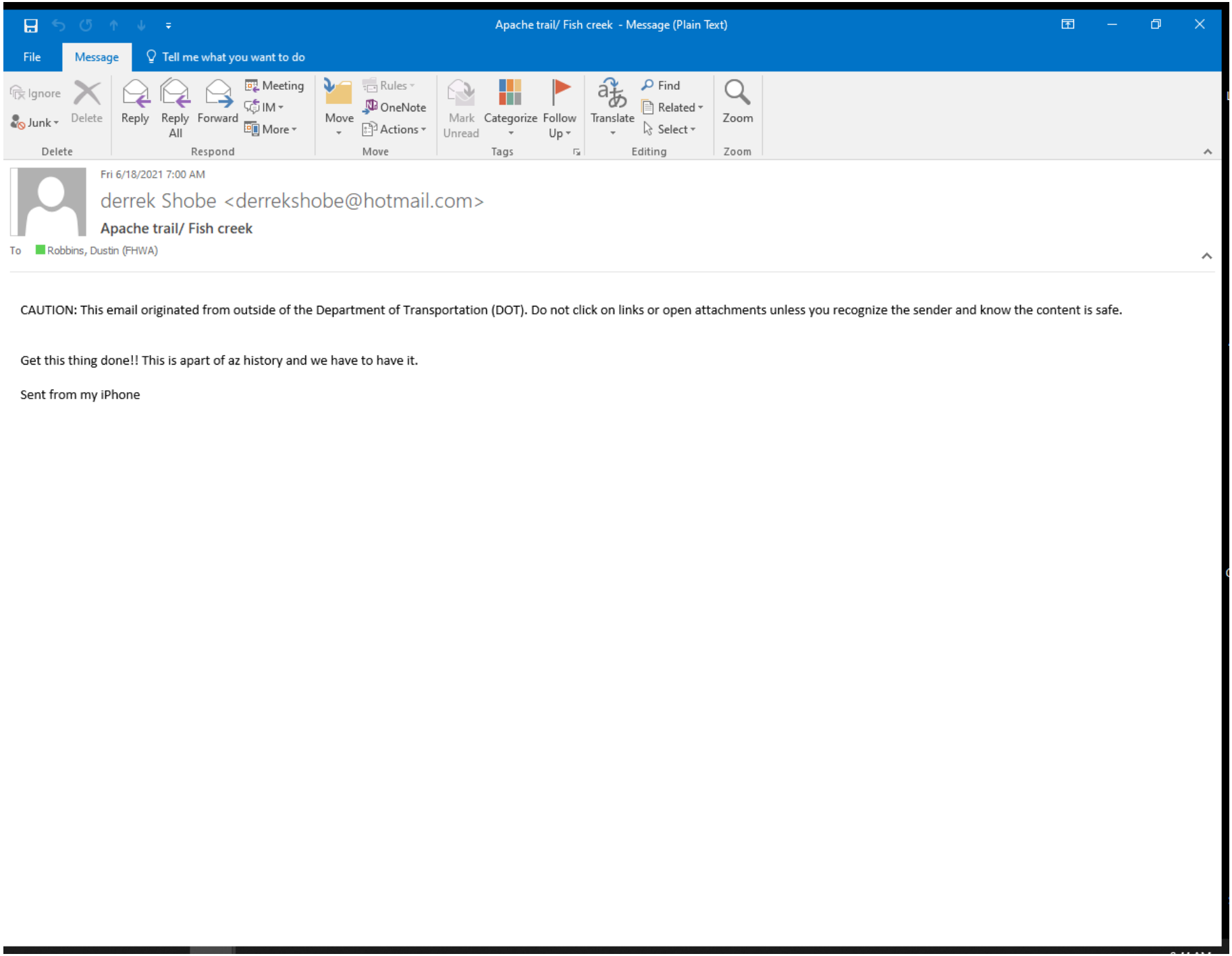
H. Barry Woody
5244 E. 10th. Ave,
Apache Junction,
AZ. 85119
tel. 480.980.2850

copy: Paul Gosar, AZ. state senator

From: Misty McFadden
To: Robbins, Dustin (FHWA)
Subject: Apache Lake
Date: Monday, June 7, 2021 7:01:16 PM

Hello Dustin I am a native to Arizona I lived here for 44 years, I pretty much grew up on that lake I learned how to ski at six years old on Apache Lake we used to take a motorhome pulling a boat down Fish Creek Trail and as scary as it was it was so much fun. Apache lake is left untouched because of the roads nobody wants to go over there I don't feel like we should pave those roads because it would cause more traffic and more people in an already crowded salt River lake system. I stand up paddleboard twice a week down at the salt River and if you saw how many people and how much trash is in that river it would make you cry! We try very hard to have cleanups down there but people especially people who aren't from here do not seem to care to preserve our beautiful desert. At least with the roads not being paved it gives us people who know what it's like to have a gem in the desert like Apache lake stay nice and clean without all the traffic and irresponsible boaters filling up another one of our beautiful ARIZONA Lakes.

Misty McFadden
Honor Thy Home
Interior Designer | Owner
c: 480-202-5049
e: Misty@HonorThyHome.com
w: HonorThyHome.com


Apache trail/ Fish creek - Message (Plain Text)
File
Message
Tell me what you want to do
Ignore
Junk
Delete
Reply
Reply All
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Meeting
IM
More
Move
Rules
OneNote
Actions
Mark Unread
Categorize
Follow Up
Translate
Find
Related
Select
Zoom
Delete
Respond
Move
Tags
Editing
Zoom
Fri 6/18/2021 7:00 AM
derrek Shobe <derrekshobe@hotmail.com>
Apache trail/ Fish creek
To
Robbins, Dustin (FHWA)
CAUTION: This email originated from outside of the Department of Transportation (DOT). Do not click on links or open attachments unless you recognize the sender and know the content is safe.
Get this thing done!! This is apart of az history and we have to have it.
Sent from my iPhone

From: Tylor More
To: Robbins, Dustin (FHWA)
Subject: AZ 88 road construction
Date: Monday, June 7, 2021 3:14:43 PM

Dustin

We support this effort to widen and pave the road from Roosevelt Dam to Apache Lake Marina turnoff.

Please keep us in the loop and mind if we can be of help or assistance to get the word out. We have our database of members and guests we can help communicate with.

Tylor
Apache Lake Marina

From: Robbins, Dustin (FHWA)
To: Hemesath, Lisa (FHWA)
Subject: FW: Apache Trail Project
Date: Tuesday, May 25, 2021 1:23:15 PM

FYI

From: Tylor More [mailto:tylormore@gmail.com]
Sent: Tuesday, May 25, 2021 9:19 AM
To: Robbins, Dustin (FHWA) <dustin.robbins@dot.gov>
Subject: Apache Trail Project

Dustin

This is in regards to the project on the Apache trail to widen and pave the road leading from Roosevelt Dam to Apache Lake Marina.

We support this project!

It is much needed on such a historic trail. We look forward to this road being repaired as a starting point to continue all the way through to Tortilla Flat. Highway 88 is a wonderful road to take with the family and really shows the beauty that Arizona has to offer.

Thank you

Tylor More
480-330-3125

From: Robbins, Dustin (FHWA)
To: Hemesath, Lisa (FHWA)
Subject: FW: Apache Trail Project
Date: Wednesday, May 26, 2021 8:10:58 AM

FYI

From: Brandon Tackett [mailto:brandon@somosdental.com]
Sent: Tuesday, May 25, 2021 5:36 PM
To: Robbins, Dustin (FHWA) <dustin.robbins@dot.gov>
Subject: Apache Trail Project

Dustin

This is in regards to the project on the Apache trail to widen and pave the road leading from Roosevelt Dam to Apache Lake Marina.

We support this project!

It is much needed on such a historic trail. We look forward to this road being repaired as a starting point to continue all the way through to Tortilla Flat. Highway 88 is a wonderful road to take with the family and really shows the beauty that Arizona has to offer.

Thank you

--

Brandon Tackett
Somos Dental Group
brandon@somosdental.com

Appendix C

Summary of Avoidance, Minimization and/or Mitigation Measures (Environmental Commitments)

Summary of Avoidance, Minimization, and/or Mitigation Measures (Environmental Commitments)

This appendix summarizes the avoidance, minimization and mitigation measures discussed in Chapter 3 of the EA published on May 21, 2021. Some measures pertain to the protection of multiple resources.

Transportation

During construction, the following measures will be implemented to help minimize transportation impacts:

- During the majority of the construction period, at least one lane of traffic shall remain open during construction with a maximum daytime 30-minute delay. Temporary full closures would be anticipated to accomplish specific construction activities, such as culvert replacements or blasting. Prior to Memorial Day, an extended delay from 9 am to 3 pm would be permitted with the contractor passing traffic once through this delay to perform blasting operations and major earthwork where maintaining a single traffic lane would not be feasible. Nighttime closures would be considered for culvert replacements or heavy earthwork/blasting as needed. Public notification of anticipated closures and delays would be posted on ADOT's and TNF's website and along the route. Prior to full closures, notice must be provided to the public, relevant local agencies, school districts, and emergency service providers.

- Emergency vehicles shall be permitted to pass through the construction limits during construction without delay.

Socioeconomics

During construction, the following measures will be implemented to help minimize socioeconomic impacts:

- During the majority of construction period, at least one lane of traffic shall remain open, with a maximum daytime 30-minute delay. If any delay longer than 30 minutes is anticipated to accomplish specific construction activities, then notice shall be provided. Prior to Memorial Day, an extended delay from 9 am to 3 pm would be permitted with the contractor passing traffic once through this delay to perform blasting operations and major earthwork where maintaining a single traffic lane would not be feasible. Nighttime closures would be considered for culvert replacements or heavy earthwork/blasting as needed. Public notification of anticipated closures and delays would be posted on ADOT's and TNF's website and along the route. Prior to full closures, notice must be provided to the public, relevant local agencies, school districts, and emergency service providers.

- Emergency vehicles shall be permitted to pass through the construction limits during construction without delay.

- The contractor shall provide the construction schedule to businesses and nearby residences adjacent to the construction limits and notify them at least 48 hours in advance of construction work.

- FHWA will coordinate closely with the Apache Lake Marina & Resort, Apache Trail Tours, private ranch owner, and other entities before and during the project to ensure appropriate public outreach and notification is employed.

Recreation and Visitor Experience

During construction, the following measures will be implemented to help minimize impacts to recreational users:

- At least one lane of traffic will remain open during construction, with a maximum daytime 30-minute delay. If any delay longer than 30 minutes is anticipated to accomplish specific construction activities, then notice shall be provided. Prior to Memorial Day, an extended delay from 9 am to 3 pm would be permitted with the contractor passing traffic once through this delay to perform blasting operations and major earthwork where maintaining a single traffic lane would not be feasible. Nighttime closures would be considered for culvert replacements or heavy earthwork/blasting as needed. Public notification of anticipated closures and delays would be posted on ADOT's and TNF's website and along the route. Prior to full closures, notice must be provided to the public, relevant local agencies, school districts, and emergency service providers.
- Emergency vehicles shall be permitted to pass through the construction limits during construction without delay.

Cultural Resources

The following measures will be implemented to reduce potential impacts to historic properties:

- Any ground disturbing activities in proximity to features with a known potential for buried walls would require the presence of a qualified archaeologist.
- A site boundary and a 50-foot buffer avoidance would be flagged by a qualified archaeologist prior to construction around the historic work camp and the historic site of unknown use in order to avoid impacts to these sites.
- FHWA CFLHD shall, if possible, avoid adverse effects to all types of historic properties, with input from consulting parties. Avoidance measures for historic properties may include (but are not limited to) fencing or flagging of sites during construction, monitoring of construction near site areas within a buffer zone, or placing infrastructure outside of site boundaries. A Monitoring and Discovery Plan (see HPTP measure below) will be in place to ensure avoidance during construction.

The following measures have been proposed to mitigate for those adverse impacts that would result under the Action Alternative:

- Where avoidance is not possible, FHWA-CFLHD shall minimize or mitigate adverse effects to historic properties through the development and implementation of an HPTP. The HPTP will be developed in consultation with the parties to the agreement, and will specify a program of measures to minimize (if applicable) and/or mitigate adverse effects. FHWA-CFLHD shall ensure that the HPTP is consistent with the Secretary of the Interior's Standards and Guidelines for Archaeological Documentation (48 FR 44734-44737). The HPTP will include additional detail regarding the following items:
    - Development of interpretive materials such as signs, kiosks, pamphlets, books and/or electronic documentation for the historic corridor, further described below.

- A data recovery/documentation plan for contributing elements along the Apache Trail.
- The proposed disposition and curation of recovered materials and records in accordance with relevant state and federal laws (ARS 41-842, 844) (36 CFR 79).
- A Monitoring and Discovery Plan with procedures for monitoring, evaluating, and treating existing features and discoveries of unexpected or newly identified cultural resources during construction of the Undertaking, including the consultation process and timelines with appropriate consulting parties.
- A project suspension/termination statement that stipulates the procedures to be followed if the project is halted during data recovery for any reason. This statement shall include the steps to be taken in order to complete any data recovery or other treatment measures that are in progress at the time of project termination; a brief discussion shall also be included that outlines how analysis, interpretation, reporting, and curation of remains obtained during treatment measures at all historic properties will be completed if the project is terminated prior to completion of the archaeological investigations.
- A proposed schedule for the Undertaking tasks, and a schedule for the submittal of draft and final reports (preliminary data recovery reports and data recovery reports) to consulting parties for review and comment.

- Prior to the start of any work that could adversely affect any characteristics that qualify the Apache Trail as a historic property, FHWA-CFLHD shall have a Secretary of the Interior-qualified professional in history or architectural history (as specified in 36 CFR Part 61) complete historical recordation and documentation of up to 15 character-defining features of the Apache Trail to the "outline format: engineering structures" specified in the Historic American Engineering Record (HAER) Guidelines for Historical Reports (2008, updated December 2017).
- FHWA-CFLHD will develop interpretive materials such as signs, kiosks, and/or electronic documentation for the historic corridor as outlined below.
  - Prior to construction completion, FHWA-CFLHD shall develop and install interpretation materials (i.e., signs/kiosk) at up to five currently developed recreation sites (i.e. Needle Vista Recreation Site, Canyon Lake Vista, Tortilla Flat, Fish Creek Hill Vista, and Apache Lake Vista) located along the Apache Trail. Developed and installed interpretive signs/panels shall not exceed 11 in number. The interpretive materials may include topics such as characteristics of the historic road (i.e. drainage features, retaining walls, bridges, etc.); engineering, construction methods and challenges of building the historic road; work force or people involved in designing and building the original road; stagecoach stops along the Apache Trail; tribal occupation and history; desert culture living and cultural landscapes; history of the of town of Tortilla Flat; and/or history of tourism along Apache Trail. Final topics will be determined by FHWA-CFLHD in consultation with SHPO, signatories and concurring parties of the MOA, but shall not deviate from the history of the Apache Trail and the cultural resources associated with it.

- FHWA-CFLHD will document the historic context of the Apache Trail and related resources, including Roosevelt Dam, Apache Lake and Marina, Fish Creek Hill, as well as contributing elements of the Apache Trail to provide a permanent record of how maintenance, fire, and flooding (including the 2019 events) have affected resources in the area. In coordination with ADOT, the historic context document will be made available to interested parties on the ADOT website for a minimum of five years.

- FHWA-CFLHD shall ensure that all artifacts, samples and records resulting from the mitigation program are curated in accordance with 36 CFR Part 79, except as determined through consultations with Tribes carried out in accordance with federal and state laws pertaining to the treatment and disposition of Native American Human Remains, Associated/Unassociated Funerary Objects, and Objects of Cultural Patrimony. FHWA-CFLHD would be responsible for any written agreements or fees associated with the curation.
- All materials and records from any archaeological investigations necessitated by the Undertaking will be curated at the ASM, or other repository that meets the standards set forth in 36 CFR Part 79, in accordance with Archaeological Resources Protection Act (ARPA) (Section 4.b.3) and 36 CFR Part 79.
- If new cultural resources are discovered, or if unanticipated effects on historic properties are identified, FHWA-CFLHD shall implement the project specific Monitoring and Discovery Plan (MDP) that is part of the HPTP.
- Should a discovery of archaeological or historical materials not covered under NAGPRA or the Arizona State Burial Laws occur, FHWA-CFLHD and the Project Contractor will follow procedures detailed in the MDP of the HPTP. FHWA-CFLHD will require that any cultural resources discovered during construction or other ground-disturbing activities be protected immediately in accordance with all applicable laws. The contractor will cease all construction activity in the immediate vicinity and all ground disturbing activities within 50 feet of any discovery, and will notify FHWA-CFLHD of the discovery within 24 hours. FHWA-CFLHD will notify the SHPO and appropriate consulting parties (e.g., the land manager) of the discovery.
- FHWA-CFLHD will consult with all of the consulting parties on the eligibility of newly discovered cultural resources. If eligible, FHWA-CFLHD will ensure that treatment measures follow the final HPTP, as well as the review processes and timelines for all reports as embodied in this agreement document.
- Unanticipated discoveries of cultural items covered under NAGPRA (i.e., human remains, funerary objects, sacred objects, and objects of cultural patrimony) are the responsibility of TNF, the federal landowner. If human remains or NAGPRA cultural items as described in 43 C.F.R. 10 are discovered, the protocol for the treatment of human remains and NAGPRA cultural items found in the HPTP will be followed. All construction within 50 feet of the discovery will cease and TNF will be notified.

Visual

The project design minimizes visual impacts in the following ways:

- Minimize the size of cut and fill slopes to the extent practicable.
- Minimize removal of trees, saguaros and other vegetation to the extent practicable.

- Minimize the number of road signs.
- Design cut slopes to blend into the adjacent natural topography.

Implementation of the following measures will offset the visual changes that would result from the proposed roadway improvements:

- The limits of clearing shall be irregular, and straight clearing lines shall be avoided by varying the width of the area to be cleared or by leaving selected clumps of vegetation, rock formations, and or boulders near the edge of the clearing limit.
- All disturbed areas shall be reseeded to the limits of clearing with native seeding mix.
- The contractor shall preserve and protect all vegetation outside of the approved clearing limits. Removal of vegetation outside of the approved clearing limits shall only occur with the authorization of the contracting officer.
- The contractor shall round and blend new slopes to mimic the existing contours, maintain slope stability, and highlight natural formations.
- Erosion-control fiber rolls shall be of natural earth-tone and biodegradable material.
- Integral natural appearing concrete coloring, natural rock, and/or form liners will be used for highly visible headwalls and/or wingwalls when deemed appropriate.

Noise

During construction, the following measures will be implemented to help reduce noise levels:

- Construction equipment shall have mufflers conforming to original manufacturer specifications that are in good working order and are in constant operation to prevent excessive noise or unusual noise.
- Operators shall avoid leaving equipment idling for more than five minutes when parked or not in use.

Geology and Soils

During construction, the following measures will be implemented to help reduce impacts to geology and soils:

- As part of the National Pollutant Discharge Elimination System (NPDES) Permit, a Stormwater Pollution Prevention Plan shall be implemented which would reduce impacts to soils.
- The area beyond the construction limits shall not be disturbed. Areas impacted from construction-related activity shall be replanted or reseeded with native plants under guidance from TNF and/or ADOT biologists. Revegetated areas shall be protected and cared for until restoration criteria have been met under NPDES standards.

Air Quality

Standard construction BMPs will be implemented to minimize fugitive dust and NOx emissions during construction. Examples of which include the following:

- Maintain roadways during construction as follows:
    - Manage dust on the traveled way such that visibility and air quality are not affected and a hazardous condition is not created.
    - Remove accumulations of soil and other material from traveled way.
- Before grubbing or grading construct sediment controls around the perimeter of the project including filter barriers, diversion, and settling structures.
- Provide an adequate water supply and apply water uniformly across the traveled way as necessary to control dust. Uniformly apply water using pressure-type distributors, pipelines equipped with spray systems, or hoses with nozzles.
- Control dust within the construction limits as necessary including nights, weekends, and periods of non-work when the project is open to public traffic. When the project is not open to public traffic, control dust in areas of the project that have adjacent residences or businesses. Apply water at the locations, rates, and frequencies as ordered.
- Control dust on active haul roads, in pits and staging areas, and on the project during periods not covered above.

Wetlands and Other Waters of the U.S.

There is no practicable alternative to avoid impacting ephemeral streams (i.e. non-jurisdictional waters) while meeting the purpose and need of the project. The following measures will be implemented in order to avoid or minimize impacts:

- Maintain the existing roadway alignment to minimize impacts to adjacent WOTUS.
- In certain locations, the road width and numerous curves will have design exceptions in order to minimize ground disturbance.
- Culvert repair or replacement and associated work shall not be completed if there is flowing water within the ephemeral channel.
- The construction contractor shall use BMPs to prevent the discharge of equipment fluids. All equipment shall be stored, repaired, maintained, and fueled at least 65 feet away from waterways. A plan to allow a prompt and effective response to any accidental spills shall be developed prior to construction.
- The area beyond the construction limits shall not be disturbed. Degraded areas impacted from construction-related activity shall be replanted or reseeded with native plants. FHWA-CFLHD shall work with TNF and ADOT for appropriate seed mixes.

Water Quality and Hydrology

The following measures would be implemented to reduce impacts on water quality:

- The area beyond the construction limits shall not be disturbed. Degraded areas impacted from construction-related activity shall be replanted or reseeded with native plants. FHWA-CFLHD shall work with TNF and ADOT for appropriate seed mixes.
- Certified weed-free permanent and temporary erosion control measures shall be used to minimize erosion and sedimentation during and after construction according to the contract erosion control plan, contract permits, Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects (referred to as FP) Section 107 and FP Section 157.
- Any spill of petroleum products, hazardous materials, or other chemical or biological products released from stationary sources or construction, fleet, or other support vehicles shall be properly cleaned, mitigated, and remedied, if necessary. Any spill of petroleum products or a hazardous material shall be reported to the appropriate federal, state, and local authorities, if the spill is a reportable quantity. Response shall occur in accordance with federal, state, and local regulations.
- The contractor shall repair leaks immediately on discovery. Equipment that leaks shall not be used. Oil pans and absorbent material shall be in place prior to beginning work. The contractor shall be required to provide the "on-scene" capability of catching and absorbing leaks or petroleum product spills, including antifreeze from breakdowns or repair actions, with approved absorbent materials. A supply of acceptable absorbent materials at the job site in the event of spills, as defined in the SWPPP, shall be available. Sand and soil are not approved absorbent materials. Soils contaminated with fluids shall be removed, placed in appropriate safety containers, and disposed of according to state and/or federal regulations.
- The construction contractor shall use BMPs to prevent the discharge of equipment fluids. All equipment shall be stored, repaired, maintained, and fueled at least 65 feet away from waterways, wetlands, and riparian habitat. A plan for prompt and effective response to any accidental spills shall be developed prior to construction.
- Temporary erosion control measures shall be maintained in working condition until the project is complete or the measures are no longer needed.
- Only apply herbicides conforming to U.S. Environmental Protection Agency (EPA), Arizona Department of Agriculture, and/or Arizona Department of Environmental (ADEQ) requirements on project corridor.
- Apply herbicides prior to ground disturbance where there are visible noxious and invasive plant species only.
- Herbicides proposed for use on projects within transportation easements on USFS Lands shall be in conformance with the following current environmental documents including the *Environmental Assessment for Management of Noxious Weeds and Hazardous Vegetation on Public Roads on National Forest System Lands in Arizona* which is available at: http://www.fs.usda.gov/main/r3/landmanagement/projects .

- For the use and application of herbicides, follow the Tonto National Forest EA for Treatment of Noxious Weeds: http://data.ecosystem-management.org/nepaweb/nepa_project_exp.php?project=4454, including information provided at: https://www.fs.usda.gov/detail/tonto/landmanagement/resourcemanagement/?cid=fsbdev3_018789.

Wildlife (Including Special Status Species)

The following BMPs would help avoid and minimize impacts to all species:

- All vehicles and equipment entering the project area must be clean of noxious weeds and free from oil leaks, and are subject to inspection. All construction equipment shall be washed thoroughly to remove all dirt, plant, and other foreign material prior to entering the project area. Particular attention shall be shown to the under-carriage and any surface where soil containing exotic seeds may exist. These efforts are critical to prevent the introduction and establishment of non-native plant species into the project area. Arrangements shall be made for inspections of each piece of equipment before entering the project, and records of inspections shall be maintained. Equipment found operating on the project that has not been inspected or has oil leaks shall be shut down and subject to citation.
- Operators shall avoid leaving equipment and vehicles idling for more than five minutes when parked or not in use.
- Any spill of petroleum products, hazardous materials, or other chemical or biological products released from construction, fleet, or other support vehicles, or stationary sources shall be properly cleaned, mitigated, and remedied, if necessary. Response shall occur in accordance with federal, state, and local regulations. Any spill of petroleum products or a hazardous material shall be reported to the appropriate federal, state, and local authorities, if the spill is a reportable quantity.
- Leaks shall be repaired immediately on discovery. Equipment that leaks shall not be used. Oil pans and absorbent material shall be in place prior to beginning work. The contractor shall be required to provide the "on-scene" capability of catching and absorbing leaks or petroleum product spills, including antifreeze from breakdowns or repair actions, with approved absorbent materials. A supply of acceptable absorbent materials at the job site in the event of spills, as defined in the SWPPP, shall be available. Sand and soil are not approved absorbent materials. Soils contaminated with fluids shall be removed, placed in appropriate safety containers, and disposed of according to state and/or federal regulations.
- The construction contractor shall be required to take appropriate measures to prevent the discharge of equipment fluids. All equipment shall be stored, repaired, maintained, and fueled at least 65 feet away from waterways. A plan to allow a prompt and effective response to any accidental spills shall be developed prior to construction.
- Certified weed-free permanent and temporary erosion control measures shall be implemented to minimize erosion and sedimentation during and after construction.
- FHWA-CFLHD shall conform to the Federal Seed Act, the Federal Noxious Weed Act, and applicable state and local seed and noxious weed laws.

The following measures will be implemented to avoid and minimize impacts to migratory birds:

- No vegetation clearing should occur during the migratory bird breeding season (February 1–August 31). During the non-breeding season (September 1–January 31) vegetation is not subject to this restriction. If vegetation clearing must occur between February 1 and August 31, pre-construction surveys for active migratory bird nests will be conducted by a qualified biologist in all suitable habitat that will be disturbed.

- If active bird nests are identified within the project limits, construction activities will avoid disturbing any active nest. A qualified biologist will determine the appropriate avoidance strategy until the nestlings have fledged and the nest is no longer active.

- In the year of proposed construction, FHWA-CFLHD would contact AGFD to determine if bald or golden eagles were known to be nesting within 0.5 miles of the project corridor between MP 238.6 and the eastern terminus of the project (MP 240.6). If an active eagle nest is present in this area, no work will occur until FHWA-CFLHD has determined that work can commence based on the location of the nest, type of construction, and expected noise levels associated with project activities in that area, consistent with the *National Bald Eagle Management Guidelines* (USFWS 2007).
- In the year of proposed construction, FHWA-CFLHD would contact AGFD to determine if peregrine falcons were known to be nesting within 0.5 miles of the project corridor between MP 237 to the eastern terminus of the project (MP 240.6). If an active falcon nest is present in this area, no work will occur until FHWA-CFLHD has determined that work can commence based on the location of the nest, type of construction, and expected noise levels associated with project activities in that area.

The following measures will be implemented to avoid or minimize potential adverse effects to the Sonoran Desert tortoise:

- During construction, FHWA-CFLHD would ensure the project adheres to the *ADOT Sonoran Desert Tortoise Awareness Program Handout* and AFGD's *Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects* guidance documents which are both available online at: https://azdot.gov/sites/default/files/2019/06/tortoise_awareness_handout.pdf.
- The project contractor would be required to arrange for a qualified biologist to present an environmental awareness program to all personnel who would be onsite that would contain, at minimum, information regarding the desert tortoise and procedures to be implemented in case a desert tortoise is found within the project limits. No work would begin prior to presentation of the environmental awareness program.
- The project contractor shall notify FHWA-CFLHD if a desert tortoise is encountered during construction.
- During construction, FHWA-CFLHD would report all encountered desert tortoises (live, injured, or dead) to the Arizona Department of Transportation Environmental Planning Biologist within 24 (twenty-four) hours of the encounter using the Arizona Department of Transportation Sonoran Desert Tortoise Observation Form. Photos should be taken of tortoises encountered and included in the report, if possible.
- If any desert tortoises were encountered in the project area, the contractor would take any measures necessary to ensure that project activities would not harm or disturb any desert tortoise, while adhering to ADOT's current handling guidelines for Sonoran desert tortoise.

- The contractor would require all on-site workers to check under their parked vehicles and equipment prior to driving to make sure there wasn't a tortoise sheltering underneath. If a desert tortoise were found sheltering underneath a parked vehicle or piece of equipment, the tortoise would be allowed to move out from under the vehicle on its own or be relocated following the current guidelines for Sonoran desert tortoise handling before the vehicle could be moved.
- Before replacement and/or repair of any existing culverts, the culverts must be checked to ensure no Sonoran desert tortoises are present. If a desert tortoise is found inside a culvert, the tortoise shall be allowed to move out from the culvert under its own volition, or relocated by a qualified biologist. The current guidelines for Sonoran desert tortoise handling must be followed if any tortoises must be handled.
- A qualified biologist would be required to be onsite to monitor initial vegetation clearing activities greater than 100 SF for the protection of desert tortoises in that area. For vegetation clearing of less than 100 SF, the area would be checked by construction staff (who have received the environmental awareness program) to ensure no desert tortoise were present immediately prior to commencement of vegetation clearing.
- The contractor would not begin vegetation removal activities of over 100 SF or blasting activities until receiving project engineer approval. Project engineer approval would only be given following an initial survey of the vegetation clearing or blasting area for the presence of desert tortoises or other sensitive species by a qualified biologist immediately prior to commencement of vegetation clearing. The contractor would not conduct initial vegetation removal of over 100 SF unless a qualified biologist was present to handle Sonoran desert tortoises.

Vegetation and Noxious Weeds

The following measures will be implemented to minimize or mitigate impacts to vegetation and reduce the spread of invasive species. These measures are specific to the project area, which encompasses the project construction limits:

- All vehicles and equipment entering the project area shall be clean of noxious weeds and free from oil leaks, and are subject to inspection. All construction equipment shall be washed thoroughly to remove all dirt, plant, and other foreign material prior to entering the project area. Particular attention shall be shown to the under-carriage and any surface where soil containing exotic seeds may exist. These efforts are critical to prevent the introduction and establishment of non-native plant species into the project area.
- Certified weed-free permanent and temporary erosion control measures shall be implemented to minimize erosion and sedimentation during and after construction.
- FHWA-CFLHD shall conform to the Federal Seed Act, the Federal Noxious Weed Act, and applicable state and local seed and noxious weed laws.
- Degraded areas impacted from construction-related activity shall be reseeded with guidance from TNF biologists. Revegetated areas shall be protected and cared for, including watering when needed, until restoration criteria have been met under USACE permits or NPDES standards. Revegetated areas shall be monitored in accordance with the approved restoration plan to ensure success criteria are met.

Appendix D

Apache Trail Project Environmental Assessment/ Draft Individual 4(f) Assessment

Apache Trail Project

In Cooperation with
Arizona Department of Transportation and
Tonto National Forest

AZ FLAP SR 88(1)
MARICOPA COUNTY, AZ

ENVIRONMENTAL ASSESSMENT/ DRAFT INDIVIDUAL 4(F) EVALUATION

Prepared By:

U.S. Department of Transportation
Federal Highway Administration
Central Federal Lands Highway Division
Lakewood, Colorado

May 13, 2021

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U.S. Department of Transportation

Federal Highway Administration

Central Federal Lands Highway Division

In Cooperation with
Arizona Department of Transportation and
Tonto National Forest

ENVIRONMENTAL ASSESSMENT/DRAFT INDIVIDUAL 4(f) EVALUATION

Submitted Pursuant to:

(Federal) 42 U.S.C. 4332(2)(c)

for

Apache Trail Project

AZ FLAP SR 88(1)

Maricopa County, AZ

Additional information may be obtained from the following individuals:

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CURTIS R SCOTT Digitally signed by CURTIS R SCOTT Date: 2021.05.13 07:54:41 -06'00'

05/13/2021

Curtis Scott, P.E.
FHWA-CFLHD, Chief of Engineering

Date

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EXECUTIVE SUMMARY

This Environmental Assessment (EA) documents the impact studies for a proposed project to improve the Apache Trail Roadway. The Federal Highway Administration, Central Federal Lands Highway Division (CFLHD), in cooperation with the Arizona Department of Transportation (ADOT) and the United States Forest Service, Tonto National Forest (TNF), has been planning roadway improvements to 11.20 miles of State Route (SR) 88, the Apache Trail, between mileposts (MP) 229.20 and 240.60, Maricopa County, Arizona. The project is located on TNF lands and an ADOT easement crossing TNF lands. Recent disaster events resulted in significant damage to this roadway facility that affected the preliminary ongoing design. Funding for the project is through the Federal Lands Access Program (FLAP), in conjunction with a local funding match as well as supplemental funding from the Emergency Relief (ER) program as detailed below. FHWA-CFLHD is the lead federal agency for this project and is designing and constructing the project.

The Apache Trail is a 42-mile, winding historic road that links Apache Junction with Roosevelt Lake through the Superstition Mountains and TNF. The Apache Trail is paved from Apache Junction to approximately MP 220, while the remainder of the road is unpaved until just west of Theodore Roosevelt Dam and the junction of Apache Trail and SR 188. The proposed improvements would begin at MP 229.2 and extend approximately 11.16 miles east-northeast to MP 240.6. Within the project limits, the roadway surface consists of decomposed granite (DG), which requires frequent blading to maintain an effective surface. Contractor staging and use areas are proposed to occur within the ADOT right of way or in previously disturbed areas.

On June 8, 2019, the human-caused Woodbury Fire began in the Superstition Wilderness near the Woodbury Trailhead. This Forest Service land is full of rugged terrain with virtually no access which limited the ability of firefighters to safely confront the fire on land. Over the course of the summer, the fire grew burning a total of 123,875 acres. Within Tonto National Monument, 88% (989 acres) of the land was burned. Although previous fires had burned small sections of the Monument, this was the largest in recorded history. Large and severe wildfires present a major threat to watershed health, because they can impair watershed condition, alter hydrologic and geomorphic processes, and ultimately degrade water quality. Wildfires can lead to changes in flow regimes, flood frequency, erosion, and debris flows. Wildfires can also lead to significant changes in stream water chemistry, and post-fire sediment-driven transport can lead to increases in contaminant loads. The historic Woodbury Fire reached full containment in the summer of 2019. However, on September 23, 2019 and November 19, 2019 severe thunderstorms originating from the remnants of Tropical Storms Lorena and Raymond respectively moved over the project area for the Apache Trail project. Excessive rainfall over this denuded and degraded watershed resulted in significant flooding of the Apache Trail roadway. Much of the roadways drainage features, many which were historic character defining features for the Apache Trail (SR 88), were damaged or destroyed.

The Apache trail has qualified for funding under the Emergency Relief program. Congress authorized in Title 23, United States Code (U.S.C.), Section 139(1), a special program from the Highway Trust Fund for the repair or reconstruction of Federal-aid highways and roads on Federal lands which have suffered serious damage as a result of (1) natural disasters or (2) catastrophic failures from an external cause. This program, commonly referred to as the

emergency relief or ER program, supplements the commitment of resources by States, their political subdivisions, or other Federal agencies to help pay for unusually heavy expenses resulting from extraordinary conditions.

In response to changing hydraulic conditions and recent failure events, the FHWA-CFLHD in partnership with the ADOT and U.S. Forest Service (USFS) reassessed the ongoing design approach to the Apache Trail project. Damage to the roadway surface, embankments, culverts and other drainage features have been documented within the project limits. Within the project limits, the scope of the proposed activities would include, roadway paving; replacing, repairing, upsizing, extending and/or cleaning roadway culverts; placement of decomposed granite aggregates to reestablish roadway crown and drainage paths; standardizing roadway width; cutting back slopes to improve line of sight distance; removing decomposed aggregate berms along roadway margins; general maintenance activities; various culvert treatments; and installation of erosion control elements, consisting of constructing gabion baskets in existing roadway ditches and placing rip-rap within existing drainage channels. The total cost of the project is estimated at $13.4 million.

WHAT'S IN THIS DOCUMENT

The Federal Highway Administration (FHWA) Central Federal Lands Highway Division (CFLHD), in cooperation with Arizona Department of Transportation (ADOT) and Tonto National Forest (TNF), has prepared the Apache Trail Project Environmental Assessment (EA), which examines the potential environmental impacts of the alternatives being considered for a 11.16-mile section of the Apache Trail located within TNF, Arizona. This document describes why the Apache Trail Project is being proposed, alternatives for the project, the existing environment that could be affected by the project, the potential impacts from each of the alternatives, and the proposed avoidance, minimization and/or mitigation measures.

What You Should Do

- In accordance with 23 CFR 771.119 this EA will be available for public review and comment for 30-days.

- Please read this document by accessing the project's web site: https://highways.dot.gov/federal-lands/projects/az/apache-trail. Or you can access via ADOT's web site at https://azdot.gov/projects/southeast-district-projects or TNF's web site at https://www.fs.usda.gov/alerts/tonto/alerts-notices.

- We welcome your comments. If you have any comments about the proposed project, please send your written comments to:

  Dustin Robbins
  Project Manager, FHWA-CFLHD
  12300 West Dakota Ave, Suite 380
  Lakewood, Colorado 80228

  or by e-mail to: dustin.robbins@dot.gov.

Before including a personal address, phone number, e-mail address, or other personal identifying information in written comments, anyone providing written comment should be aware their entire comment – including their personal identifying information – may be made publicly available at any time. While anyone wishing to comment may ask the FHWA-CFLHD in their comment to withhold their personal identifying information from public review, the FHWA-CFLHD cannot guarantee it will be able to do so.

- Send comments by the deadline: June 19, 2021

For individuals with sensory disabilities, this document can be made available in Braille, large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please call, email or write to Dustin Robbins at 720-963- 3586, Dustin.Robbins@dot.gov or 12300 West Dakota Ave., Suite 380, Lakewood, CO 80228.

What Happens Next

After comments are received from the public and reviewing agencies, CFLHD, in cooperation with ADOT and TNF, will respond to comments, prepare the final environmental decision document and may: (1) give environmental approval to the proposed project, (2) conduct additional environmental studies, or (3) abandon the project. If the project is given environmental approval, part, or all, of the project can be designed and constructed after all of the required permits or agreements are obtained.

Following public and agency review of the EA, FHWA-CFLHD in coordination with ADOT and TNF, will update the environmental analysis, if necessary, in response to comments received during the 30-day public review of the EA. Mitigation measures may be replaced with equal or more effective measures prior to project approval. If the impacts of the proposed project remain less than significant, then CFLHD will conclude the National Environmental Policy Act (NEPA) process with a Finding of No Significant Impact (FONSI). Because the environmental analyses and impact calculations contained in the EA are based on conceptual design, the impacts represent a worst-case scenario. Refinements undertaken through the design process would be anticipated to lessen both the extent and severity of impacts presented in this EA.

A Federal agency may publish a notice in the Federal Register, pursuant to 23 USC §139(l), indicating that one or more Federal agencies have taken final action on permits, licenses, or approvals for a transportation project. If such notice is published, claims seeking judicial review of those Federal agency actions will be barred unless such claims are filed within 150 days after the date of publication of the notice, or within such shorter time period as is specified in the Federal laws pursuant to which judicial review of the Federal agency action is allowed. If no notice is published, then the periods of time that otherwise are provided by the Federal laws governing such claims will apply.

ACRONYM LIST

AASHTO	American Association of State Highway and Transportation Officials
ACHP	Advisory Council on Historic Preservation
ADEQ	Arizona Department of Environmental Quality
ADOT	Arizona Department of Transportation
ADWR	Arizona Department of Water Resources
AGFD	Arizona Game and Fish Department
AJD	Approved Jurisdictional Determination
APE	area of potential effect
ARPA	Archaeological Resources Protection Act
ASM	Arizona State Museum
ASTM	American Society for Testing and Materials
BA	biological assessment
BMP	best management practices
BLM	Bureau of Land Management
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFLHD	Central Federal Lands Highway Division
CFR	Code of Federal Regulations
CO	carbon monoxide
CWA	Clean Water Act
dBA	A-weighted decibels
DPS	distinct population segment
EA	environmental assessment
EIS	environmental impact statement
EPA	Environmental Protection Agency
FCDMC	Flood Control District of Maricopa County
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FIRM	flood insurance rate map
FLAP	Federal Lands Access Program
GIS	Geographic Informational Systems
GPS	Global Positioning System
HPTP	Historic Properties Treatment Plan
MBTA	Migratory Bird Treaty Act
MIS	management indicator species
MOA	memorandum of agreement
MP	milepost
MDP	Monitoring and Discovery Plan
n.d.	no date
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System

NPS	National Park Service
NRCS	National Resources Conservation Service
NRHP	National Register of Historic Places
PM_{10}	particulate matter less than 10 micrometers in diameter
$PM_{2.5}$	particulate matter less than 2.5 micrometers in diameter
REC	recognized environmental conditions
ROW	right-of-way
SHPO	State Historic Preservation Office
SO_2	sulfur dioxide
SR	state route
SRP	Salt River Project
SWPPP	stormwater pollution prevention plan
TDML	total daily maximum load
TNF	Tonto National Forest
USACE	United States Army Corps of Engineers
USBR	United States Bureau of Reclamation
USDOT	United States Department of Transportation
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Society
WOTUS	waters of the U.S.
WRCC	Western Regional Climate Center
WQLS	water quality limited segments

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CHAPTER 1: PURPOSE AND NEED

1.1 Introduction

The Federal Highway Administration, Central Federal Lands Highway Division (FHWA-CFLHD), in cooperation with Arizona Department of Transportation (ADOT) and Tonto National Forest (TNF), is proposing improvements to a 11.16-mile, gravel section of the Apache Trail (Arizona State Route [SR] 88) between milepost (MP) 229.2 near the Apache Lake Marina and MP 240.6 near the Theodore Roosevelt Dam; herein referred to as the project portion of the Apache Trail, SR88, the project corridor, and/or the project area. The entire project area is within Maricopa County, Arizona. The proposed improvements include applying four inches of aggregate base and a chip seal pavement to the 11.16-mile section. Improvements to sight distance in five spot locations would be completed to improve roadway safety. In addition, the project would replace, repair, and/or extend culverts that are not currently functional or have been damaged by flood events within the project area.

In recent storm events of 2019, ADOT Southeast District has observed severe damages on SR88 (Apache Trail) due to monsoon rains. The monsoons' effects were greatly supplemented by the effects of the Woodbury Fire. This fire destroyed the watershed's vegetation which decreased the infiltration factor while also increasing the rate of sedimentation. The debris and water flows are now too large for the current drainage infrastructure to carry. Culverts have been blocked by high sediment loads transported from the hill sides above the roadway and the resulting drainage paths have aggraded to the point that culvert inlets are no longer visible. Now, water and debris is flowing over the roadway and eroding away the road surface and embankment with every storm. Some culverts have already failed under these conditions with significant scour holes occurring next to embankments, headwalls and wingwalls. These conditions will continue to worsen and repeat until permanent hydraulic solutions, that can pass the water and debris loads, are implemented on this route.

This Environmental Assessment (EA) has been developed to meet FHWA-CFLHD's obligations as the lead agency under the National Environmental Policy Act (NEPA) of 1969, as amended. The analysis in this document concentrates on aspects of the project that could have a significant effect on the environment and/or historic resources, and identifies feasible measures to mitigate (i.e., reduce or avoid) these impacts. Two funding programs are being utilized on this project as discussed below.

1.2 Project Funding

1.1.1 Federal Lands Access Program

The proposed improvements are administered under the Federal Lands Access Program (FLAP), which provides funds for projects on "access transportation facilities." An access transportation facility is a public highway, road, bridge, trail, or transit system that is located on, is adjacent to, or provides access to federal lands for which title or maintenance responsibility is vested in a state, county, town, township, tribal,

municipal, or local government. The FLAP supplements state and local resources for public roads, transit systems, and other transportation facilities, with an emphasis on high-use recreation sites and economic generators.

The proposed project was placed in the FLAP in 2017 with matching funds from ADOT. The estimated cost of construction for road improvements is approximately $9 million. Funding for the project is programmed for obligation in FY 2021, pending environmental reviews and all necessary approvals.

1.1.2 Emergency Relief Program

The proposed hydraulic repairs are administered under the Emergency Relief program. Congress authorized in 23 U.S.C. Section 139(1), a special program from the Highway Trust Fund for the repair or reconstruction of Federal-aid highways and roads on Federal lands which have suffered serious damage as a result of (1) natural disasters or (2) catastrophic failures from an external cause. This program, commonly referred to as the emergency relief or ER program, supplements the commitment of resources by States, their political subdivisions, or other Federal agencies to help pay for unusually heavy expenses resulting from extraordinary conditions.

The applicability of the ER program to a natural disaster is based on the extent and intensity of the disaster. Damage to highways must be severe, occur over a wide area, and result in unusually high expenses to the highway agency. Applicability of ER to a catastrophic failure due to an external cause is based on the criteria that the failure was not the result of an inherent flaw in the facility but was sudden, caused a disastrous impact on transportation services, and resulted in unusually high expenses to the highway agency.[1]

While the majority of Apache Trail is affected by this, an emergency relief funding request for the area between Mile Posts (MP) 229.2 and 240.5 has been approved conditioned upon NEPA clearance. In addition to the FLAP funded improvements, this EA assesses impacts from ER funded repairs approved for this roadway. Under the ER program, approximately $4.4 million in drainage and roadway repairs have been approved. Considering the effects of the past two tropical storms and the damage Apache Trail sustained during these high flow events; it is apparent that adding the additional drainage improvements now means saving millions in emergency repair costs which would be incurred after future storm events.

The ER program funds that are provided following a disaster may be used on repairs that improve the long-term resilience of the Federal-aid highways, if 1) consistent with current standards, or 2) the State DOT demonstrates that the resilience feature is economically justified to prevent future recurring damage.[2]

The FHWA defines resilience as the ability to anticipate, prepare for, and adapt to changing conditions and withstand, respond to, and recover rapidly from disruptions.[3]

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[1] https://www.fhwa.dot.gov/programadmin/erelief.cfm
[2] https://www.fhwa.dot.gov/specialfunding/er/191011.cfm

[3] https://www.fhwa.dot.gov/specialfunding/er/191011.cfm

Transportation agencies across the country are assessing ways to ensure that transportation infrastructure is resilient and is prepared for and able to withstand, respond to, and quickly recover from disasters in the future.

Resilience includes the ability of transportation agencies to adapt State transportation infrastructure and assets to changing conditions. Characteristics that make roads and bridges more resilient include features such as hydraulic structures engineered to accommodate streamflow up to or exceeding the level of the return period storm the agency has decided is the proper level of risk, shoreline stabilization methods such as stone or vegetation that prevent road erosion from flooding, scour protection measures for bridge piers, and the siting of facilities to avoid hazardous areas and minimize exposure.

FHWA-CFLHD's proposed design incorporates features that increase the resiliency of the Apache Trail to reduce repair costs, improve safety, and reduce travel disruption.

The total cost of the project, including roadway improvements and emergency repair, is estimated at $13.4 million.

1.3 Route Description

The Apache Trail is a 42-mile, winding road that links Apache Junction with Roosevelt Lake through the Superstition Mountains. The historic road is considered one of Arizona's transportation "crown jewels" and is listed in the Arizona Register of Historic Places. It has also been previously determined eligible for inclusion in the National Register of Historic Places (NRHP). The road features scenic views of the Salt River, Canyon Lake, Apache Lake, and the adjacent mountains. While the road is on US Forest Service land, it is maintained by ADOT. The Apache Trail is paved from Apache Junction to approximately MP 220, while the remainder of the road is unpaved (historically a decomposed granite surfacing material) until just west of Roosevelt Dam and the junction of the Apache Trail and SR 188. The portion of the road between MP 220 and the Apache Lake Marina includes Fish Creek Hill, a notoriously steep, narrow, and windy portion of the historic route. The proposed project area is defined as the portion of the Apache Trail between MP 229.2 at the turn off to the Apache Lake Marina and MP 240.6 where the gravel road turns to asphalt (Figure 1 and Figure 2). Within the project area, the existing gravel roadway width is between 18 feet and 28 feet. The route passes through mountainous terrain with vertical grades ranging from 0.5% to 18%.

Figure 1. Project Vicinity Map

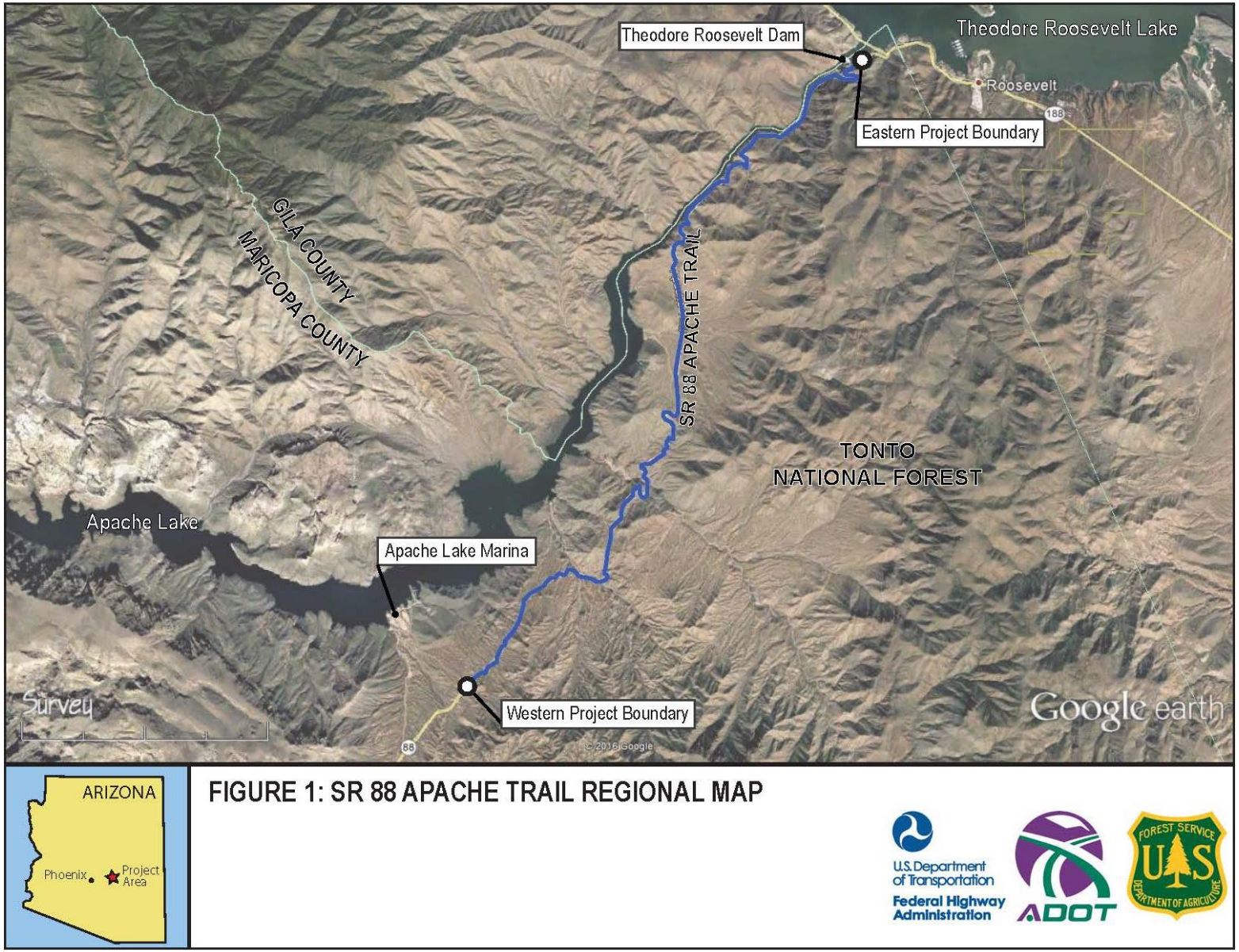
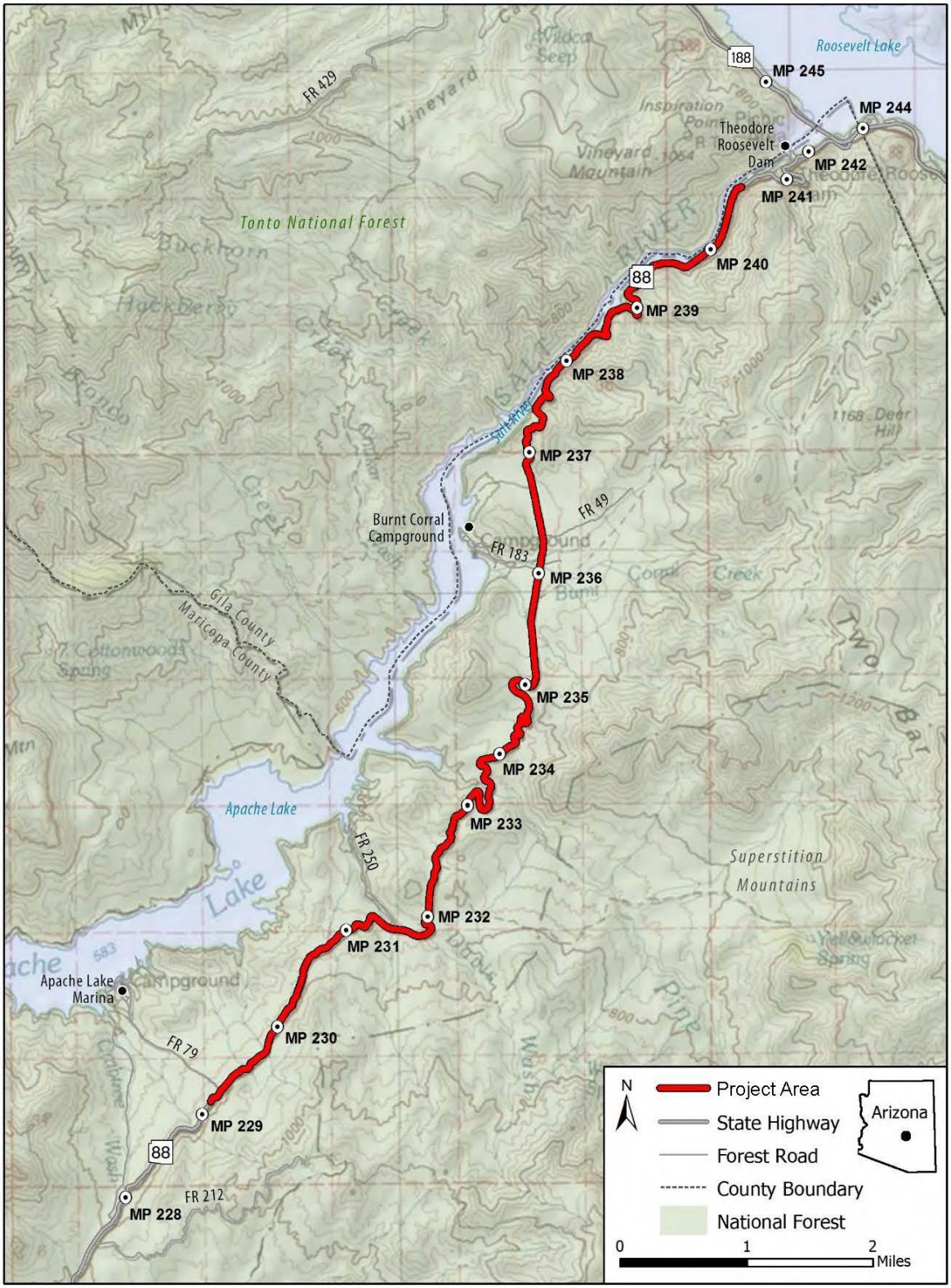


Figure 2. Project Corridor with Mileposts



1.4 Purpose, Need, and Objectives

The purpose of the project is to improve the resiliency of the road corridor to reduce maintenance demands, and improve and maintain accessibility while protecting elements of the historic road, as practicable.

The project is needed because routine maintenance requiring the continual importing of material and regrading of the road surface contributes to watershed damage, places the roadway at further risk to unintentional damage, and requires extensive financial resources as described further below. Undersized culverts can't handle flows during heavy rain events resulting in road washouts that lead to further degradation to the watershed and limit public access. The project is needed for the followign reasons:

Culvert pipe damaged from road blading

- Vehicular use of the decomposed granite surfacing material on the road emits large volumes of fugitive dust that limits sight distance and contributes to poor air quality.
- Given the erosive nature of the decomposed granite, excess surfacing material is frequently lost to roadside ditches and washes and during rain events it has the potential to impact water quality within the adjacent Apache Lake.
- The decomposed granite surfacing requires frequent blading to maintain a drivable surface and the constant routine maintenance results in the ongoing risk of unintentional damage and/or burying of individual features of the historic roadway.
- Supply of the historically used decomposed granite surfacing is in short supply and ADOT will need to seek an alternative fill source, which may differ in appearance and require substantial funds to bring onsite.
- Damaged and undersized culverts increase flooding of the road during heavy rain events resulting in road washouts.
- Roadway damage has resulted in temporary closures of portions of the project area thereby limiting access for visitors, nearby residents, TNF employees, and local business staff. Significant erosion and continual roadway degradation poses a risk for long-term roadway closure affecting access to the project area.

Objectives for the project include the following:

- Reduce particulate pollution in Maricopa County to improve air quality.
- Encourage drivers (especially those pulling boat trailers) to access the marina from the north by providing a hardened, resilient, and more trailer-friendly route.
- Enhance the long-term preservation of Fish Creek Hill by reducing the volume of marina-bound traffic on this section of the Apache Trail.

CHAPTER 2: ALTERNATIVES

This section describes the proposed action and the project alternatives that were developed pursuant to NEPA to meet the project purpose and need while avoiding or minimizing environmental impacts. The alternatives evaluated in this EA include the No Action Alternative and the Action Alternative.

2.1 No Action Alternative

Under the No Action Alternative, there would be no changes to the existing roadway.

- The dirt road surface would continue to deteriorate due to age, use, and storm events.
- Ongoing weekly maintenance activities would continue to be required to control washboarding and maintain a drivable surface. These activities would include blading the road surface, which requires the importing of material. The continual importing of material and grading would continue to contribute to ongoing watershed damage and place intact historic features at risk of unintentional damage.
- The fill side windrow (berm) which has been bladed to the outside edge of the fill side along much of the project corridor would remain in place. Maintenance crews would continue to actively take from or add to this material, which informally delineates the edge of the travel way.
- The roadway width would continue to vary along the 11.16-mile stretch of road ranging between 16-30 feet.
- No actions to address sight distance improvements or improve signage would occur.
- No actions would be taken to replace, repair, or extend culverts that are not functioning, failing, or have failed. Erosion and deterioration around non-functional culverts during storm events would continue to cause damage to the road and its remaining historic elements.

2.2 Action Alternative (Proposed Project)

Under the Action Alternative, improvements would be made to 11.16 miles of the Apache Trail between milepost 229.2 and milepost 240.6 (Figure 3). Generally, the project area includes the area approximately 30 feet on either side of the roadway centerline for a total width of approximately 60 feet. The project area widens to varying widths at areas of proposed drainage repair/improvements and/or slope setbacks. All project-related work and ground-disturbing activities, including contractor staging and use areas, would occur within the ADOT right of way, within a temporary easement from TNF, or within previously disturbed areas within TNF such as pullouts and parking areas.

The Action Alternative would be anticipated to take one season (9-12 months) to complete. The majority of the project would be constructed with single lane closures, maintaining a minimum 10-foot lane and minimizing construction-caused delays to public traffic.

The proposed improvements would include the following:

- Rehabilitating and chip sealing the 11.16-mile segment of road.
- Paving under the chip seal in steep segments of the road where the grade exceeds 8%.
- The proposed project would generally maintain the existing roadway widths. The design would include two template widths of 20 feet and 24 feet. Along some straight sections of the road, the 24-foot template width would be narrower than the existing surface. Where possible, spot widening would occur to achieve either the 20- or 24-foot width. In isolated areas where the roadway width varies between 16 feet to 20 feet in bench width, the road would be constructed to the greatest extent possible while remaining on the existing road bench, but would likely remain less than 20 feet.
- Minor safety improvements including sight distance improvements and signage. Five areas were identified by ADOT and FHWA-CFLHD as locations to improve safety by cutting back cut slopes (slope setbacks) to improve sight distance (Table 1). One location in particular would better align sight as drivers approach Pine Creek Bridge (MP 233.5) from the north. These locations are depicted on Figure 3.

Table 1. Action Alternative Site Distance Improvements

Milepost	Which Side of the Road	Proposed Action
MP 229.5	South	10' from toe of slope, lay back at 1:2
MP 229.6	South	10' from toe of slope, lay back at 1:2
MP 229.9	South	5' from toe of slope, lay back at 1:2
MP 233.5	North	10' from toe of slope, lay back at 1:2
MP 234.5	North	10' from toe of slope, lay back at 1:1.5

- The proposed vertical alignment would match the existing vertical curvature, but an overall grade raise would occur with each of the following scenarios:
  - A 1.5-inch chip seal on top of a 4-inch aggregate base would result in a raise of 5.5 inches.
  - In the steepened areas, a total grade raise of 8.5 inches would occur, consisting of 1.5 inches of chip seal, 3 inches of asphalt, and 4 inches of aggregate base.
  - In those spot locations where the bench width is less than 20 feet, 4 inches of subgrade material would be removed, and 4 inches of an aggregate base and 1.5 inches of a chip seal would be added resulting in an overall grade raise of 1.5 inches.
  - In overlapping areas that are steep and narrow, the narrow width would be the controlling criteria. Areas with grade raises would taper to provide a smooth riding surface.

- The excess fill material within the fill side windrow (berms) would be removed and/or regraded back into the roadway. Excess material removed would be carried offsite or stockpiled in a previously disturbed area for future use by ADOT and/or TNF.

- An armored ditch would be constructed along the roadway in spot locations to direct high runoff flows away from steep and narrow sections of the road and towards existing and/or new culverts.

- At numerous locations, culverts within the project area would be replaced, repaired, lined and/or extended. Some culverts will be replaced with concrete box culverts to account for changes in drainage volume and debris passage needs. Additional improvements would be made to stabilize drainage areas that have scoured or aggraded where needed to restore proper hydrologic function. Four culvert treatment options have been identified to address erosion and drainage issues that are affecting the current roadway and the structural integrity of existing roadway structural features. A description of the four proposed scour treatment options follows below, and schematic drawings are contained in Appendix A.

  - **Treatment A:** Treatment would include a standard apron end section, which would serve to spread drainage flow at the transition from the culvert outlet to the natural drainage channel, or to sheet flow where no natural drainage exists. These improvements would be installed below and downslope from existing culvert outlets, and would not modify any existing structural elements. Design elements would include the following:

    - Placement of rip-rap along drainage channels to prevent additional scour and erosion
    - Installation of a geotextile filter topped with fill dirt within existing scour slopes below culvert outlets to match the grade of adjacent slopes
    - Installation of the apron end section below the culvert outlet.

  - **Treatment B**: Treatment B would be a modified version of the Treatment A apron end section, and would serve the same function, which is to distribute drainage flow at the transition from the culvert outlet to the natural drainage channel, or to sheet flow where no natural drainage exists. Design elements for Treatments A and B would be the same, the only exception is that Treatment B would include a thicker end section.

  - **Treatment C1**: Treatment C1 would include a retrofit option for an existing, perched outlet. Many perched pipes in the area have large scour damage at their existing outlet. These improvements would be installed below and downslope from existing culvert outlets, and would consist of extending existing outlet pipes downslope to arrest erosion damage. Design elements would include the following:

    - Filling scour holes to stabilize the slope
    - Adding a bend joint to the existing outlet to extend the existing pipe down the side of the roadway prism. At the toe of slope, another bend

joint would be added to extend the pipe a distance downslope from the roadway prism

- Placement of rip-rap along drainage channels to prevent additional scour and erosion (as needed)
- Installation of a geotextile filter topped with fill dirt within existing scour slopes below culvert outlets to match the grade of adjacent slopes (as needed)
- The extended pipe would terminate with the installation of the Treatment A apron end section.

- **Treatment C2:** Treatment C2 is a modified version of the Treatment C1 retrofit option and would be installed in areas where it would be impractical to extend the existing culvert outlet pipe to the toe of the roadway prism. Design elements would include:
  - Adding a bend joint to the existing outlet to extend the existing pipe down the side of the roadway prism, short of the toe of slope.

2.2.1 Construction

In general, construction activities for the proposed project would include minor clearing and grubbing, grading, placement of crushed aggregate base and paved surface, drainage improvements, installation of signs, and other safety related features necessary to meet current design practice. A summary of construction information and assumptions based on the current design and schedule is provided in Table 2.

In general, construction activities would be within the 20- to 24-foot wide alignment, but there could be temporary disturbance up to 10 feet on either side of the alignment. Additional disturbance could be required where large drainage structures are proposed. In constrained or environmentally sensitive areas, including areas with active farmland and biologically sensitive areas, construction activities outside the 20- to 24-foot wide alignment would be minimized to the extent feasible.

Timing and Duration

It is anticipated that design for the project will be completed in late 2022. Construction of the proposed project could begin as early as late 2021. The actual start of construction will be dependent upon funding availability. The estimated construction duration is approximately 12 months. This period would accommodate construction of the entire alignment.

Utility Relocations and Installations

A telephone utility line runs along and across the Apache Trail within the project area. The utility line would be relocated outside of the area of impact or temporarily moved during construction to avoid any impacts or disruption to service. No other utilities are located within the project area.

Construction Staging

Construction, equipment staging, and stockpiling would take place within the ADOT right of way or within a temporary easement from TNF. To the extent possible, staging

areas will be located within previously disturbed areas such as pullouts and parking areas.

All equipment and materials would be stored, maintained, and refueled in designated portions of the staging areas in accordance with permit requirements. As such, there would be no staging in areas with sensitive biological or cultural resources or adjacent to drainages.

Table 2. Preliminary Construction Estimates[a]

Construction Information	Proposed Project
Construction Duration	9 to 12 months
Construction/Alignment Length	11.16 miles
Estimated Total Disturbance Area	38 acres
Earthwork Quantities[b]	
Excavation	16,000 cubic yards
Estimated Import[c]	
Roadway Aggregate	37,500 tons
Asphalt	6,200 tons
Portland Cement Concrete	2,200 square yards
Estimated Waste[d]	16,000 cubic yards
Estimated Pavement	
Roadway	155,500 square yards
Excavation/Grading Depth	Up to 4 inches (typical)

[a] Estimated quantities are based on preliminary design and subject to change.

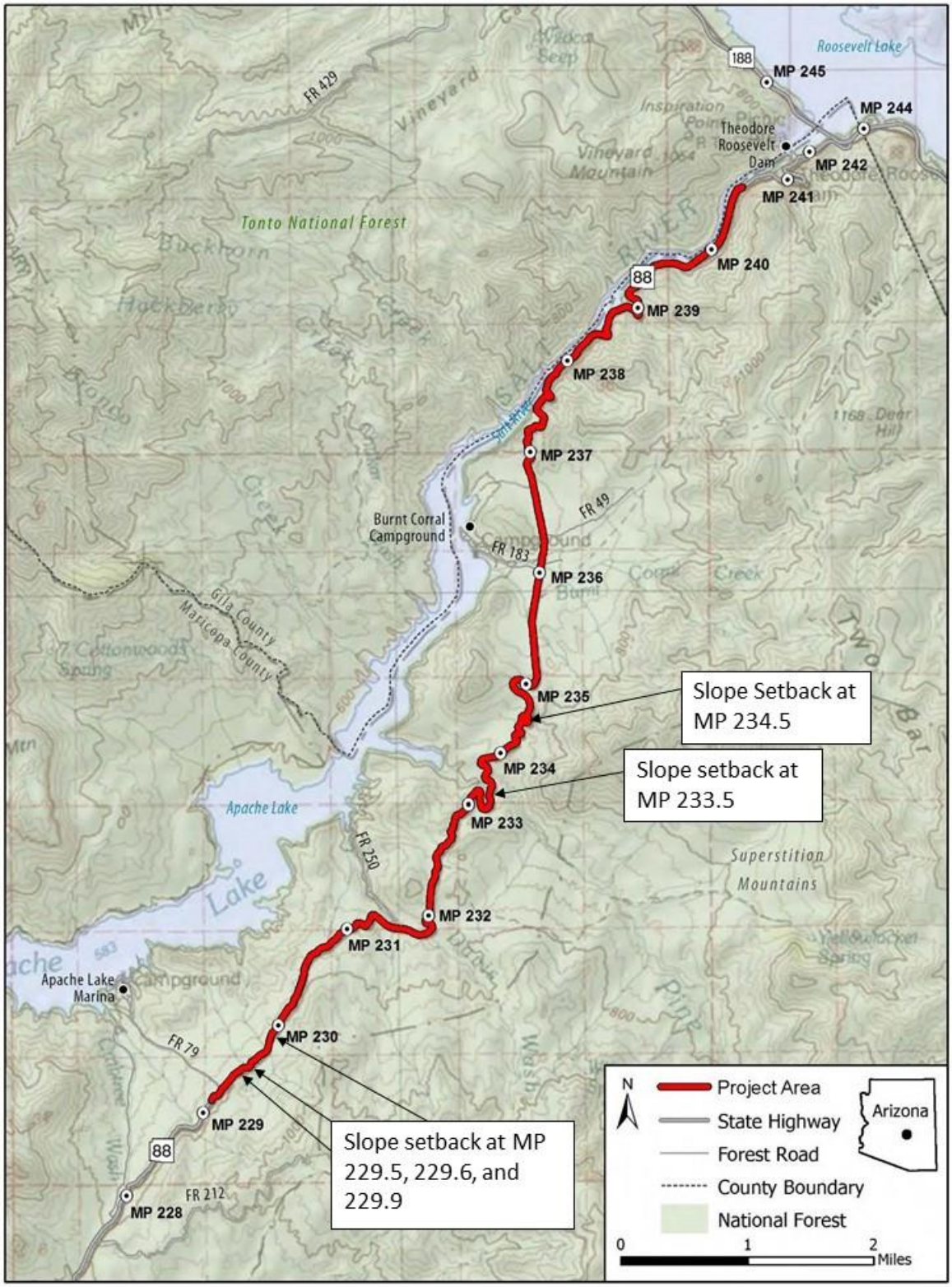
[b] The excavation material would be used to construct embankment/fill, and no fill would be imported. For the Proposed Project, the current estimated earthwork quantities yield a volume of waste identified under "Estimated Waste."

[c] The import materials would be used for paving the roadway and low water crossings. These estimates are independent of and have no direct correlation to the Earthwork Quantities identified above.

[d] This includes the remaining excavation material that is not used for embankment construction/fill. Approximately 10,000 cubic yards would go to a USFS-permitted ADOT waste pit near the project site, with the remaining waste hauled off site.

Source: The construction information is provided by Federal Highway Administration's Central Federal Lands Highway Division based on current design and schedule.

Figure 3. Location of Site Distance Improvements Along Project Corridor



2.3 Preferred Alternative

The benefits and impacts of the No Action Alternative and Proposed Project Alternative, as further discussed in Chapter 3, were analyzed and considered in the identification of a preferred alternative. Based on this analysis and the ability of each alternative to meet the purpose and need of the project, CFLHD has identified the Proposed Project as the Preferred Alternative. This determination is subject to public review and final selection of a Preferred Alternative will occur following the public review and comment period.

After the 30-day public comment period, all comments will be considered and CFLHD will select a Preferred Alternative. A final determination of the project's effects on the environment will be identified at that time. If it is determined the proposed action would not significantly impact the environment, a Finding of No Significant Impact will be issued in accordance with NEPA.

2.4 Alternatives Considered but Dismissed from Further Evaluation

The resiliency of the roadway, maintenance demands, accessibility, and unintentional impacts to the historic elements of the road were identified through project scoping as issues the project needs to resolve. During the scoping process which included two public scoping periods, one conducted July 14, 2017 through October 2, 2017 and a second one conducted on June 23, 2020 through July 23, 2020 (following the addition of ER elements to the project), it also became apparent that options for addressing these issues would be constrained by the Apache Trail's historic significance and its remote and ecologically sensitive location within TNF. Based on this information, the following alternatives or options were considered during preliminary design, but were dismissed either because they were beyond the scope of the project, had unacceptable impacts, or did not meet the project purpose and need.

- **Surfacing with Asphalt Millings:** Use of a milled asphalt surface over the length of the project area was considered for the project; however, this type of surfacing would still require ongoing maintenance. In addition, compared to the existing surfacing, the dark coloring of asphalt millings compared to the existing unpaved surface would result in a greater visual impact to travelers on the historic route. Due to both the high cost of ongoing maintenance and the continued potential for unintentional impacts to historic elements of the road associated with maintenance, this alternative was not considered further.
- **Straight Aggregate Base Surfacing:** Use of a straight aggregate base surface material was considered for the project; however, given the steep gradient of the road and the frequency of flash flood events in the area, concerns were raised over sediment transport, the continued need for maintenance, and the continued potential for maintenance-related unintentional impacts to historic elements of the road. In addition, the cost of resurfacing with an aggregate base would be high when compared to the temporary nature of any maintenance benefits. As a result, this alternative was not considered further.

- **Widening and Paving to Meet AASHTO Design Standards:** To meet AASHTO design standards along the project portion of the Apache Trail, the roadway would need to be widened with shoulders and a clear zone would need to be established. In addition, numerous curves do not meet the design standards. Widening the roadway and improving all substandard curves to meet current design standards would require a substantial amount of ground disturbance. The roadway traverses or is adjacent to special status species habitat, and visual landscapes that are valued and intended for preservation within TNF. In addition, the roadway itself, in its current alignment, is a historic resource. Because of the context-sensitive nature of the project area, improving the roadway to meet current design standards would result in unacceptable impacts to natural and cultural resources, it was not considered further. Instead, the project proposes to narrow the road in areas to either a 24-foot or 20-foot width.

2.5 Permits and Approvals Needed

The following permits and approvals are required prior to construction:

- Section 106 consultation for potential effects to historic resources, with the Arizona State Historical Preservation Office (SHPO)
- National Pollutant Discharge Elimination System (NPDES) General Permit, issued by the Arizona Department of Environmental Quality (ADEQ) for stormwater discharges associated with construction and land disturbance activities.

CHAPTER 3: AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter describes the resources that could be affected by the Action Alternative and an analysis of the impacts that are expected to result from its construction and implementation. The No Action Alternative is also analyzed as a baseline for comparison.

Under NEPA, an EA is used to determine if significant effects to the environment would result from the proposed actions. If yes, then an Environmental Impact Statement (EIS) must be prepared; if no, then a Finding of No Significant Impact (FONSI) is prepared to document the decision of the NEPA lead agency. Under NEPA, significance is based on the context and intensity of an impact. Context refers to who and what would be affected by the action. Intensity refers to the severity of the impact. The Affected Environment sections prepared for each resource, below, describe the context. The Environmental Consequences sections analyze the intensity.

The analyses that follow incorporate a conservative worst-case scenario based on conceptual design of the Action Alternative. The level of impact reported in this EA would be expected to decrease as design progresses.

A project area and individual study areas unique to each resource were defined in order to conduct the impact analyses that follow. For all resources, the project area is the construction limits of the Action Alternative, as described in Chapter 2 and depicted in Figure 3. Because the nature and extent of an impact differs by resource, individual study areas were defined to evaluate the existing condition and potential impact to each resource appropriately. For example, the study area for historic resources is a 200-foot wide corridor following the Apache Trail centerline, that extends up to 300 feet in width around several culverts and in areas being considered for slope setbacks. The study area for recreation and visitor experience is defined by destinations that are served by the Apache Trail.

3.1 Resources with Negligible to No Impact or that Do Not Exist in the Project Area

3.1.1 Environmental Justice

FHWA projects must comply with Executive Order 12898 of February 11, 1994, titled *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations*. This executive order strives to avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects on minority or low-income populations. The project area is entirely within TNF. There are no residences within the project area. SR 88 does provide access to some seasonal housing near the Apache Lake Marina and Resort. Their status as low-income and minority populations is currently unknown; however, the actions proposed under this project are not expected to result in a disproportionately high adverse impact to any populations.

3.1.2 Floodplains

The project is located in an area that has not been delineated on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for the 100-year floodplain. Impacts to floodplains typically occur when the topography within a floodplain is substantially modified either by placement or removal of materials within the floodplain. Because this is resurfacing, drainage improvement, and rehabilitation project on existing alignment, this project will not substantially modify the floodplain topography in the project area. Therefore, no impacts to floodplains are anticipated.

3.1.3 Hazardous Waste and Materials

The Arizona Department of Environmental Quality's Hazardous Material Incident database was searched and no records were found within the project area. A recent ADOT project on a nearby portion of the Apache Trail conducted a Preliminary Initial Site Assessment (PISA) in September of 2016 (ADOT 2017). The study was prompted by proposed modifications to load-bearing structures and the removal of paint striping containing lead-based paint. The PISA gave that project area a "Low Priority" for further hazardous materials study. Due to the findings of the nearby recent survey, the undeveloped nature of the project area, and the absence of pavement and roadway paint, it was determined there is a low potential for hazardous waste and materials within the project area and this topic was not further analyzed. Standard construction practices will be implemented to prevent spills and soil or water contamination from hazardous materials used during construction and ensure proper handling of hazardous materials and waste if generated during construction.

3.1.4 Land Use

The planning, design, and construction of roads is often based on land use development patterns and trends, and affects existing land uses and plans and proposals for future development. Induced growth is an indirect impact that occurs when a project causes changes in the intensity and integrity, location, or pattern of land use.

The project is located within a unit of the National Forest Service, which controls the majority of the land surrounding the Apache Trail. Therefore, no change to land use and no induced growth is expected. The proposed improvements would primarily follow an existing roadway easement that ADOT has for purposes of maintaining the roadway. Drainage improvements would be considered, which could convert small spot locations of existing forest land to a use in correlation with drainage of the roadway. However, use of these areas within proximity of the roadway corridor would be consistent with TNF management plans for the area and would not prevent alternative use of the lands adjacent to the roadway.

3.1.5 Prime or Unique Farmlands and Agricultural Resources

According to the U.S. Department of Agriculture Natural Resources Conservation Service Resource Assessment Division, the project area does not contain any designated prime or unique farmland. In addition, the project area is located within mountainous, desert habitat within the TNF and is not available for farming.

3.1.6 Section 6(f) Properties

Section 6(f) of the Land and Water Conservation Act requires that the conversion of lands or facilities acquired with Land and Water Conservation Act funds be coordinated

with the Department of Interior. Usually replacement in kind is required. No lands that meet this criterion were identified within the study area.

3.1.7 Utilities

A telephone utility line runs along and across the Apache Trail within the project area. The utility line would be relocated outside of the area of impact or temporarily moved during construction to avoid any impacts or disruption to service. No other utilities are located within the project area.

3.1.8 Wild and Scenic Rivers

No rivers officially designated as wild, scenic, or recreational exist within the project study area.

3.2 Transportation

This section evaluates the potential impacts to access, safety, and traffic along the Apache Trail within the study area.

3.2.1 Regulatory Setting

The segment of the Apache Trail within the study area is maintained by ADOT. The Salt River Valley Water Users' Association quitclaimed the roadway to the State of Arizona in 1922. The transaction did not document a defined right of way even though the road was within federal TNF lands. On July 5, 2017, a highway easement deed was granted to ADOT, through the Arizona Division of FHWA, under the jurisdiction of the Department of Agriculture – U.S. Forest Service (USFS) in the State of Arizona. The right of way easement width established along the project corridor is 50 feet from each side of road centerline for a total width of 100 feet.

3.2.2 Affected Environment

Traffic

The Apache Trail is functionally classified as a rural major collector. There is no posted speed. The 2013 average annual daily traffic is approximately 150, with higher traffic volumes typically in winter (USDOT 2015).

In addition to passenger cars, pickup trucks hauling boats, trailers, and other recreation vehicles such as campers, frequently use the Apache Trail, including the portion of the road within the project area. Motorcyclists and bicyclists also travel the route and project area, especially during the winter. Portions of the road may be unsuitable or challenging for these vehicles. For example, motorcyclists may encounter difficulty driving on the unpaved surface, and trucks hauling RVs or boats may not be able to easily navigate Fish Creek Hill, a steep portion of the Apache Trail located west of the project area. Since the Apache Trail is a state highway, users may not anticipate some of these challenges. The Apache Trail is the sole access route for some users, particularly for recreational boaters hauling their boat to Apache Lake, which is accessed within the project area (USDOT 2015). Trucks hauling boats often access Apache Trail from state highway SR188 near the Theodore Roosevelt Dam to avoid using the Fish Creek Hill segment. The northern segment of Apache Trail becomes especially important for access to Apache Lake and its marina during times of closure on the Fish Creek Hill segment.

Safety

The project portion of the Apache Trail is in mountainous terrain with near-vertical rock faces on the cut side and steep drop-offs on the fill side. Vertical grades range from approximately 1% to 18%. The existing roadway is unpaved. Roadway widths vary from 16 feet to 30 feet, with a limited clear zone width (generally less than 5 feet). In dry conditions, dust generated from the decomposed granite surfacing material may negatively affect visibility. The decomposed granite surface is loose, requires frequent maintenance and often creates areas of rutting and/or washboarding. These problems create a raveled surface where cars are more likely to slide out of control and brakes do not work as effectively. Unfortunately, these conditions are frequently worse in areas where vehicles turn and brake, such as curves and steep grades, where vehicle control is most critical.

First-time visitors may not be aware that the Apache Trail is a historic road maintained to preserve historic and scenic value rather than create a fast and direct drive. Unaware visitors may not be prepared to drive the road as prudently as its conditions require. As noted in the U.S. Department of Transportation *Apache Trail, Tonto National Forest Observations, Considerations, and Recommendations from the Interagency Transportation Assistance Group (TAG)* Report (2015), while the conditions of the Apache Trail cause most drivers to reduce their speeds, thrill-seekers, those unaccustomed to the road, or confident frequent users may drive faster than is prudent, especially along the paved portion. These high speeds increase the hazard posed by the road's many curves (USDOT 2015). As noted in the 2001 *State Route 88 (The Apache Trail) Historic Context Analysis for Planning Safety Enhancements to the Trail*, speeding motorists have been a safety concern on the roadway since the early 1900s when accidents resulting from speeding drivers drove the U.S. Reclamation Service to set a speed limit for mountainous sections of the road and letters to drivers seen speeding "warned them that their right to use the road would cease if their bad habits continued" (Stein 2001).

Crash data from 2012 through 2017 was provided by the ADOT Traffic Records Section; however, due to the remoteness of the project area, it is suspected that the records are likely incomplete. During this 6-year time, 30 crashes were reported within the project limits. None of the reported crashes involved fatalities and no pedestrian or bicyclist injuries or fatalities were reported. The most common crash types reported were single vehicle rollovers and run-offs on the east side of the road with half of the crashes occurring on curves. In all the crashes, the roadway surface condition was reported as dry and most of the crashes occurred during the day and in clear weather. The most common contributing factor noted in the crash data was that the vehicle speed was too fast for conditions. The locations with the highest number of crashes were near milepost 237 (7 crashes: 2 sideswipes, 2 head on collisions, 2 runs off road right, 1 run off west side) and near milepost 233 (5 crashes: 4 crossed centerline, 1 ran off east side).

Access

The Apache Trail is a state highway and is signed to reflect this; however, the road is also a state historic road and has a character distinct from most other state highways. In addition, the Apache Trail functions as an access road in that it provides the only method of accessing some of TNF's attractions. As mentioned in the Recreation and Visitor Experience section, within the project area, the Apache Trail accesses several U.S.

Forest Service (USFS) day use sites, scenic overlooks, trailheads, campgrounds, and boat launches. These facilities include the Apache Lake Marina Resort, Davis Wash Shoreline Area, Burnt Corral Campground and Day Use Area, and the Three Mile Wash Shoreline Area. Access is also provided to a four-wheel-drive road network that accesses Deer Hill. Within the project area, the Apache Trail also provides access to telephone and transmission utilities.

Many people access the Apache Lake Marina, and other USFS facilities within the project area from the Phoenix area traveling east through Tortilla Flat and down Fish Creek Hill along the Apache Trail. This route requires people to drive along steep, unpaved and winding portions of the Apache Trail (as seen in Figure 4) to access these facilities. An alternate access route to the project area is available traveling east along U.S. Route 60 and then north on SR 188 and towards Roosevelt.

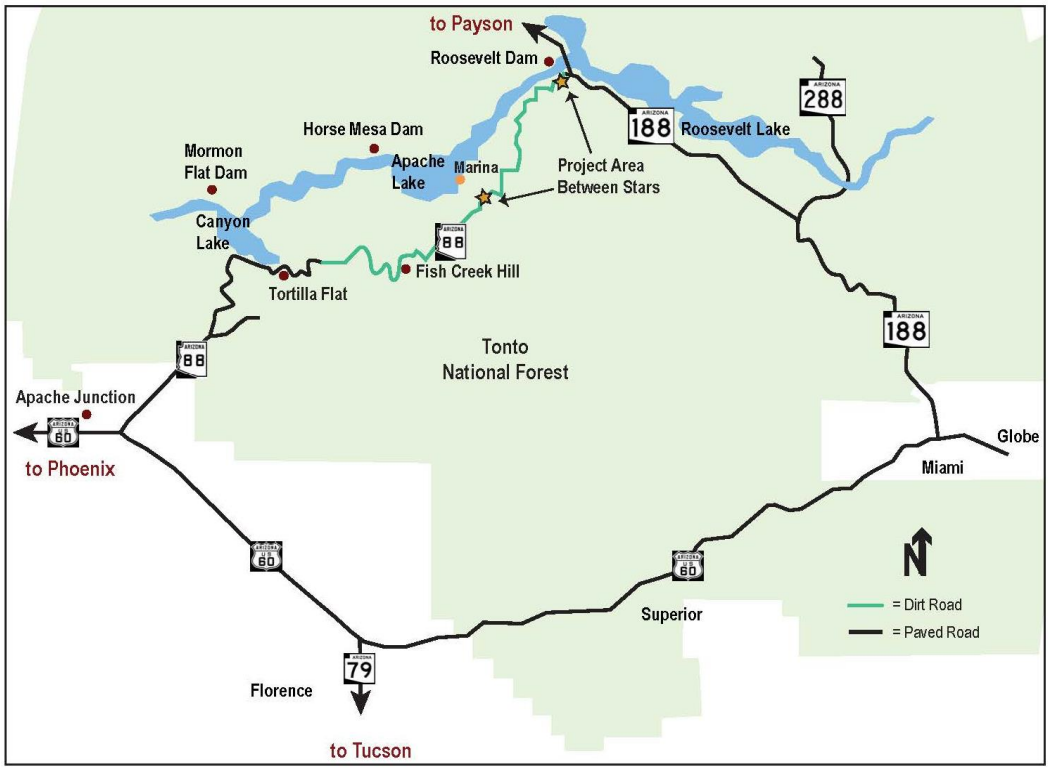


Figure 4. Regional Map

3.2.3 Environmental Consequences

No Action Alternative

Under the No Action Alternative, current roadway conditions would be maintained. There would be no changes to the road surfacing and no safety improvements would be implemented. The road would remain a decomposed granite surface and continue to vary widely in width, with poor sight distance in several areas. A variety of vehicles, including passenger cars, pickup trucks hauling boats, trailers, and other recreation vehicles such as campers would continue to utilize the project route. Many users would have accessed the project area via Tortilla Flats and Fish Creek Hill which would have

been challenging and alarming for some users even in its pre-damaged condition. Access through Fish Creek Hill already caused some users to turn around, limiting the number of people accessing the project area which resulted in minor adverse impacts to transportation. However, now that the Fish Creek Hill segment is closed (MP 220 to MP 229) with no timeline for when access to the area via this route would be restored, transportation impacts have been worsened.

Speed limits would remain unposted and signage along the route would remain limited. Rutting and washboarding would continue to be chronic problems along the project route and would continue to adversely impact vehicle control. Vehicles traveling at speeds faster than is prudent would continue to be a safety concern, especially along the wider straight portions of the road between MP 229-231 and MP 235-237. Between MP 235-237, a lack of pullouts or areas of interest would continue to limit traffic diversity in this area, contributing to the potential for excess vehicle speed and continued adverse impacts to safety. Roadway embankments damaged and narrowed by scour and washouts would remain unrepaired. Stability of compromised culverts with debris plugged inlets would remain, and safe and functional access along the route would be compromised.

The Apache Trail would continue to provide the only access route to several USFS day use sites, overlooks, trailheads, campground, and boat launches, many of them within the project area. As such, access to these amenities would continue to be restricted to those individuals willing to travel on sections of unpaved and unstable roads, resulting in continued adverse impacts to visitors uncomfortable with those driving conditions.

Action Alternative

Traffic

Under the Action Alternative, a chip seal surface would be applied along the project corridor in two template widths of 20 feet and 24 feet, depending on the location.

Implementation of the Action Alternative would provide a fully paved route between Phoenix and the Apache Lake Marina and Resort via U.S. Route 60 and Arizona SR 188. The availability of a fully paved route could entice visitors who were previously uncomfortable driving the unpaved road and thereby increase traffic along the project route. It is anticipated that the Action Alternative may result in a slight increase in trucks hauling boats, trailers, and other larger recreation vehicles along the project corridor, including an increase in those accessing the project area from the east. In response, it is anticipated there would be a decrease in the number of vehicles hauling boats and trailers to Apache Lake along the portion of SR88 between Tortilla Flats and Fish Creek Hill once or if access from that direction is restored.

Construction activities to implement the Action Alternative would temporarily impact access and traffic. A maximum daytime 30-minute delay combined with some temporary full closures would affect visitors; USFS employees and service providers; and ranchers, their families and employees en route to destinations along and beyond the project route. This delay and a temporary reduction to one operating travel lane would create temporary traffic lines and congestion, which would be particularly intensified during the peak spring and summer visitation season. Avoidance,

minimization, and mitigation measures described below would help offset these impacts.

Safety

Under the Action Alternative, speed limits would remain unposted; however, additional signage would be placed along the route, including advisory speeds along some curves. Slope setbacks in five spot locations would improve the driver's line of sight and reduce the potential for head-on collisions and vehicle-animal collisions. The application of a chip seal (and paving under the chip seal in steep segments of the road) would provide a more durable road surface thereby reducing rutting and washboarding and providing a huge benefit in friction and adhesion of tires to the road surface. This would result in a substantial safety benefit in terms of stopping distance and traction on wet roads and curves. Vehicles traveling at speeds faster than is prudent would continue to be a safety concern, especially along the straight portions of the road between MP 229-231 and MP 235-237; however, along these portions of the road, the chip seal surface would be narrower than the existing driving surface. The narrower driving surface could help to reduce driving speeds within these two straighter sections. Existing pull-outs help increase traffic diversity in these road segments. Collectively, these improvements would result in long-term benefits to safety on the project portion of SR88.

Access

Under the action alternative, the Apache Trail would continue to provide the only access route to several USFS day use sites, overlooks, trailheads, campground, and boat launches, many of them within the project area; however, applying a chip seal surface to the project portion of the Apache Trail, would provide the option of a fully paved access route between Phoenix and the Apache Lake Marina and Resort via U.S. Route 60 and Arizona SR 188. By improving access to recreational areas along SR 88, the project would contribute to the Forest Service's objective of managing Forest resources to connect people to the outdoors. Infrastructure improvements such as the proposed project contribute to a higher quality of life that is supported by access to natural environment and nature-based activities. The improved access may encourage additional visitors to Apache Lake who were previously intimidated by the driving conditions of the unpaved road resulting in long-term benefits to transportation access.

Conclusion

Overall, the Action Alternative would result in long-term beneficial impacts to safety as a result of improvements to driver's line of sight in five spot locations, additional signage, and the application of a more durable road surface. While vehicles traveling at speeds faster than is prudent would continue to be a safety concern, a narrower driving surface between MP 229-231 and MP 235-237 could help to reduce driving speeds in these two straighter road sections.

During construction, short-term adverse impacts to traffic would be anticipated because of delays, single lane travel, and temporary full closures; however, these temporary impacts would be mitigated to less than significant levels with implementation of the measures described below.

3.2.4 Avoidance, Minimization, and/or Mitigation Measures

The following measures would be implemented to minimize impacts:

- During the majority of the construction period, at least one lane of traffic shall remain open during construction with a maximum daytime 30-minute delay. Temporary full closures would be anticipated to accomplish specific construction activities, such as culvert replacements or blasting. Prior to Memorial Day, an extended delay from 9 am to 3 pm would be permitted with the contractor passing traffic once through this delay to perform blasting operations and major earthwork where maintaining a single traffic lane would not be feasible. Nighttime closures would be considered for culvert replacements or heavy earthwork/blasting as needed. Public notification of anticipated closures and delays would be posted on ADOT's and TNF's website and along the route. Prior to full closures, notice must be provided to the public, relevant local agencies, school districts, and emergency service providers.
- Emergency vehicles shall be permitted to pass through the construction limits during construction without delay.

3.3 Socioeconomics

This section addresses potential social and economic impacts to ranching operations, community services, and visitor expenditures as a result of the project. The study area includes commercial operations that are served by the project portion of the Apache Trail.

3.3.1 Regulatory Setting

NEPA policy (40 CFR § 1500.2) requires federal agencies to "…restore and enhance the quality of the human environment and avoid or minimize any possible adverse effects of their actions upon the quality of the human environment." NEPA regulations (40 CFR § 1508.14) define human environment as "the natural and physical environment and the relationship of people with that environment." Economic or social effects are to be addressed in a NEPA document when they are interrelated with natural or physical effects.

3.3.2 Affected Environment

Community and Emergency Services

Both the Arizona Highway Patrol and Maricopa County Sheriff's Office (MCSO) respond to motor vehicle accidents on the project portion of the Apache Trail. The MCSO has a station located at Apache Lake near the marina and MCSO deputies work in the area on weekends and some weekdays. Tonto Basin Fire Department, located in Roosevelt, is the closest first responder, providing fire, medical, and rescue emergency services to citizens and visitors in the project area. In the event of an accident within the project area, Gila County Sheriff's Office may assist until the arrival of MCSO. In the event of a wildfire in the project vicinity, USFS Tonto Basin District fire engines respond and may be assisted by the Tonto Basin Fire Department depending on the severity. If needed, additional USFS units respond from the Mesa, Globe and Payson Ranger Districts.

Ranching

The TNF area has a history of mining and cattle ranching. Cattle ranching has been, and continues to be, a traditional economy and lifestyle within and around the project and Globe areas. There are several ranches within TNF that remain in the same families who originally homesteaded the area in the 1870's. Within the vicinity of the project, there is one private ranch in-holding located approximately 2 miles west of the project start and along the Apache Trail. While none of their ranch operations are located within the ADOT right of way along the project corridor, the project does go through three pastures of the Roosevelt Grazing Allotment within TNF. The grazing permittee for the Roosevelt Allotment holds a Forest Service Term Grazing Permit. Cows regularly cross the Apache Trail to access water from Apache Lake in all three pastures. Terrain allows cattle access to and across the Apache Trail from Three Mile Wash (just west of MP 239) down the road to the cattle guard across the Apache Trail near Davis Wash (near MP 232). When cattle occupy these pastures, they utilize the road and road edges for travel between water sources and the areas with best feed when that is the easiest route for them. The project portion of the Apache Trail provides the only access to the Roosevelt Grazing Allotment. While the single ranch and use of the three grazing allotments

within the project area provide income for the local community, they compromise a very small percentage of total agricultural value within Maricopa County.

Visitor Expenditures

Trip-related spending by USFS visitors generates and supports economic activity for TNF and adjacent communities. As mentioned in the Recreation and Visitor Use section, the project portion of the Apache Trail provides access to several TNF day use sites, scenic overlooks, trailheads, campgrounds, and boat launches. Permits and use fees are required for boating, camping, and day use of these areas. While there is no specific revenue or use data available for the use of these sites, they are reported to frequently be at full capacity, especially on weekends, during the peak season between Memorial Day and Labor Day. Use of these areas contributes to the local economy. The Roosevelt/Tonto Basin Arizona area is dependent on the economic activity generated by tourism and recreation on the area lakes and river. The local economies of these small communities are tied to the local transportation network with the majority of recreation trips originating from nearby metropolitan areas outside the local area.

There is a private outfitter guide out of Tortilla Flats, Apache Trail Tours, who conducts multiple Jeep tours of varied length along the Apache Trail. As advertised on their website, one of their tours accesses the Reavis Ranch Trailhead, approximately 1.5 miles south and west of the project starting point at the Apache Lake Marina and Resort turnoff. While this private outfitter approaches the project area, they do not regularly utilize the project portion of the road on their tours.

Apache Lake Marina and Resort is a concessionaire within TNF and is located north of the project area along the shoreline of Apache Lake. It is only accessible by the project portion of the Apache Trail. The proposed project begins at the junction with the marina access road. The resort is the only marina on Apache Lake and operates under a permit from TNF. Amenities at the marina include 58 motel rooms, 101 wet slips, 30 day slips (no overnight docking), 30 RV spots, a restaurant, and a bar. The resort also allows primitive camping at the marina. Apache Lake is one of four reservoirs built along the Salt River as part of the Salt River Project (SRP). Out of all four lakes within the area, Apache Lake, and specifically the Apache Lake Marina and Resort is the only location where motel accommodations are available. Peak visitation occurs between Memorial Day and Labor Day and is heaviest on the weekends. During summer weekends, the resort is typically at full capacity. According to staff, the lowest tourism at the resort occurs between November and January. The resort employs approximately 20 staff year-round and about 36 employees during the peak season with all employees residing onsite during their 5-day work shift. Marina staff estimate that at least 60-70% of visitors come from the Tucson area with most of the remaining visitors coming from the Phoenix area. According to staff, a good percentage of marina patrons, especially those trailing larger boats, access the resort along 188 from the Roosevelt side. Resort staff have received complaints of vehicle, trailer, and boat damage from the condition of the Apache Trail and from the emotional anxiety of driving it. While individualized statistics for the marina and/or the Tonto Ranger District area are not available, trip-related spending by TNF visitors generates and supports a considerable amount of economic activity for forest concessionaires and adjacent communities.

3.3.3 Environmental Consequences

No Action Alternative

Under the No Action Alternative, the road surface would continue to deteriorate and be impacted by flash flood events. Frequent routine maintenance of the dirt road surface under the No Action Alternative could continue to temporarily delay ranchers accessing the Roosevelt Grazing Allotment and visitors, recreationalists, and outfitters utilizing those sections of the roadway. Ranchers and concessionaires who rely on the project portion of the Apache Trail as their sole access could experience short-term adverse economic impacts primarily related to temporary road closures and/or delays.

While many visitors seek out the Apache Trail because of its rugged character, poor road conditions may discourage potential visitors visiting the area and the destinations along the trail. Local businesses have reported that some customers avoid their establishment or do not return because they had a prior negative experience on the road. As mentioned under Recreation and Visitor Use, the intimidating nature of the winding, steep, and unpaved road would continue to deter some visitors from frequenting areas accessed off the project area, which could affect visitor spending over the long-term. Although precise impacts cannot be quantified, they are expected to be slight. In addition, concessionaire and TNF employees would continue to be impacted by road closures or delays and may not be able to reach their work destinations.

Action Alternative

Under the Action Alternative, improved sight distance, and an improved surface would help emergency service providers use the road more safely and efficiently. The improvements would reduce the amount of ongoing roadway maintenance and repair, which would likely increase as the road continues to deteriorate. As a result, emergency services would experience beneficial impacts from reduced delays. Periodic roadway closures due to maintenance would also be less frequent, thereby providing a more reliable transportation route for these community services. Emergency service providers would be given priority to travel with minimal or no delay during construction.

Temporary disruption to ranch operations could occur during construction as their access to their property from the west is currently closed. In addition to the traffic delays discussed in the Transportation Section, traffic could be disrupted when culverts are replaced and partial full closures are implemented on a temporary basis. The year that construction is anticipated, the USFS would work with the Roosevelt Grazing Allotment permittee to adjust the rotation of cattle to avoid conflict as much as possible. Over the long-term, ranchers moving cattle on and off the grazing allotment would experience the same benefits as the emergency providers discussed above.

Under the Action Alternative, increased visitor spending could occur at the Apache Lake Marina and Resort and the numerous TNF facilities accessed by the project route as a result of improved driving surface and roadway function. Ongoing maintenance tasks for grading and other roadway damage, which could result in transportation delays, would be reduced, thereby reducing an impediment to visitor access and a hardened driving surface and improved visibility could decrease some driver's anxiety. During construction, the traffic delays discussed in the Transportation Section could reduce visitation, resulting in a temporary reduction in visitor expenditures.

The Action Alternative would improve the convenience, safety, and reliability of the roadway for access to TNF day use areas, concessionaires and grazing allotments, emergency services, and access to surrounding communities and services. Increased visitor expenditure could also occur. The result would be long-term, beneficial impacts.

Conclusion

The Action Alternative would improve the convenience, safety, and reliability of the roadway for access to TNF visitors, emergency services, ranchers, and access to surrounding communities and services. The improvements would reduce the amount of ongoing roadway maintenance and repair, which would result in fewer closures and delays. Increased visitor expenditure could also occur. The result would be long-term, beneficial impacts. Traffic delays during construction would be mitigated by the measures described below.

3.3.4 Avoidance, Minimization, and/or Mitigation Measures

The following measures would be implemented to minimize impacts to the public:

- During the majority of construction period, at least one lane of traffic shall remain open, with a maximum daytime 30-minute delay. If any delay longer than 30 minutes is anticipated to accomplish specific construction activities, then notice shall be provided. Prior to Memorial Day, an extended delay from 9 am to 3 pm would be permitted with the contractor passing traffic once through this delay to perform blasting operations and major earthwork where maintaining a single traffic lane would not be feasible. Nighttime closures would be considered for culvert replacements or heavy earthwork/blasting as needed. Public notification of anticipated closures and delays would be posted on ADOT's and TNF's website and along the route. Prior to full closures, notice must be provided to the public, relevant local agencies, school districts, and emergency service providers.
- Emergency vehicles shall be permitted to pass through the construction limits during construction without delay.
- The contractor shall provide the construction schedule to businesses and nearby residences adjacent to the construction limits and notify them at least 48 hours in advance of construction work.
- FHWA-CFLHD will coordinate closely with the Apache Lake Marina & Resort, Apache Trail Tours, private ranch owner, and other entities before and during the project to ensure appropriate public outreach and notification is employed.

3.4 Recreation and Visitor Experience

This section describes impacts to people visiting and recreating at TNF destinations that are served by the Apache Trail within the project area. The Apache Trail provides access to popular destinations within TNF, especially Apache Lake. There is no alternative access to these destinations.

3.4.1 Regulatory Setting

The Forest Service Manual (FSM) Series 6000-6800 – Management Services provides directives on safety and health. The Multiple Use Sustained Yield Act of 1960 addresses the establishment and administration of national forests to provide for multiple use and sustained yield of products and services, including recreation, range, timber, watershed, and wildlife and fish purposes.

3.4.2 Affected Environment

TNF includes almost 3 million acres of rugged landscape that ranges from Saguaro cactus-studded desert to pine-forested mountains. TNF is the fifth largest forest in the United States and is one of the most-visited "urban forests in the U.S. with approximately 5.8 million visitors annually" (USDA 2018a).

The Apache Trail is an Arizona Historic Road that is frequently driven purely for its recreational and scenic value. The road is narrow, winding, and often exposed, which is intimidating to many drivers. There is a maximum vehicle length limit of 40 feet (not recommended for trailers over 22 feet) and RVs are not recommended (USDA 2018b). These conditions and restrictions limit the number of people who access the project area as evidenced by the fact that the Apache Lake Marina and Resort has received numerous complaints of vehicle, trailer, and boat damage from the condition of the dirt road as well as complaints related to the emotional anxiety of driving along the route.

Along the entire length of the Apache Trail there are marinas, restaurants, accommodations, and small shops that cater to recreation visitors. Most of the facilities and businesses are concentrated along the paved portion of the road from Apache Junction to Tortilla Flat; however, businesses and accommodations associated with Apache Lake are accessed only by unpaved road and are nearly equidistant from either end of the paved portions of the Trail. Within the project area, the Apache Trail accesses a number of USFS day use sites, scenic overlooks, trailheads, campgrounds, and boat launches. These facilities include the Apache Lake Marina Resort, Davis Wash Shoreline Area, Burnt Corral Campground and Day Use Area, and the Three Mile Wash Shoreline Area. Davis Wash and Three Mile Wash offer dispersed camping while the Burnt Corral Campground offers restroom facilities, potable water, designated camping areas, and requires an additional camping fee. The Apache Lake Marina and Three Mile Wash Shoreline Area provide boat access to Apache Lake. These areas are popular with visitors to Apache Lake during the spring, summer, and fall months. Apache Lake is one of four reservoirs built along the Salt River as part of the SRP. Recreational boating is popular on each of the lakes and requires a permit.

3.4.3 Environmental Consequences

No Action Alternative

Under the No Action Alternative, it is anticipated that annual visitation to the project area and the recreational facilities accessed off the project area would remain similar to current rates with similar seasonal variability. The intimidating nature of the winding, steep, and unpaved road would continue to deter some visitors from frequenting areas accessed off the project area, particularly those traveling with a trailer. For those visitors intimidated by the unpaved roadway surface, the No Action Alternative would result in a continued slight adverse impact to recreation and visitor experience. However, some visitors prefer a more rugged and remote recreational experience and value both the historic condition of the dirt road and the fact that it may contribute to a more secluded (low use volume) visitor experience. For these visitors, the No Action Alternative would result in a continued beneficial effect to their experience.

Visitors would continue to be adversely impacted by dust generated from vehicles driving on the unpaved road surface, which hinders visibility and contributes to poor air quality. These impacts would range in intensity based on weather conditions and the volume of traffic on the road.

Frequent routine maintenance of the dirt road surface under the No Action Alternative would continue to temporarily delay recreationalists and visitors with slower-moving equipment taking up the width of the roadway. During these maintenance activities, there would be short-term adverse impacts to visitors utilizing those sections of the roadway.

Action Alternative

Under the Action Alternative, the availability of a continuous paved/chip sealed surface that provides access to amenities offered along the easternmost portion of the Apache Trail would provide long-term benefits to recreation and the visitor experience for those visitors who have previously been concerned about damage to their vehicles and/or too intimidated by the unpaved driving surface. The reduction of dust and particulate pollution would have a benefit to the visitor experience from a visual and health standpoint. Visitation to the area could increase as a result of the project, although any increase in visitation is not anticipated to be substantial. Long-term benefits would be greatest for those visitors who utilize the project corridor frequently and are impacted by frequent continuous maintenance to the existing decomposed granite surface and by long term exposure to dust from the road.

For those visitors who value the historic nature of the unpaved road and prefer a more rugged and remote recreational experience, implementation of the Action Alternative could diminish their experience within the project area and result in some adverse impacts. However, the proposed actions would not alter the scenic views, alignment, or recreational opportunities along the route and would not be considered significant since the project area would still be approachable from the west through Tortilla Flat and along the unpaved portion of the Apache Trail down Fish Creek Hill once it is repaired and reopened. However slight, an increase in visitation would have its costs, with some visitors preferring the limited activity at the USFS day use sites, scenic overlooks, trailheads, campgrounds, and boat launches. An increase in visitation would lead to a

greater amount of visitor-generated noise from vehicles, motorized boats, or the simultaneous presence of users on available recreation sites, which could diminish the visitor experience for some; however, these impacts are not anticipated to be substantial.

During construction, temporary closures and traffic delays could impact visitors trying to access the project route and visitor amenities along it. For those visitors with an end destination of the Apache Lake Marina and who wish to access the marina from the west along the Apache Trail and down Fish Creek Hill, temporary impacts during construction would not be anticipated since the project begins at the marina turnoff and extends to the east. Visitors accessing the marina from the east along SR 188, or who wish to access any of the USFS facilities along the project route, could experience minor, temporary adverse impacts during construction of the project. These impacts would result from the narrowing of the roadway to a single lane in work zones, which would result in traffic delays, or from planned temporary road closures in some locations during certain construction operations. Except for planned full closures of short duration, access to the facilities and day use sites along the project route would be maintained during construction. As a result, short-term impacts to recreation and visitor experience during construction are anticipated to be minor in intensity.

Conclusion

Impacts to recreation and visitor experience would be both beneficial and adverse, depending on the values and intent of the visitor, as discussed above. The reduction of dust and particulate pollution that would result from applying a chip seal, would have a benefit to the experience of all visitors from a visual and health standpoint. Short-term, adverse impacts that would occur during construction would be minimized with implementation of the measures described below.

3.4.4 Avoidance, Minimization, and/or Mitigation Measures

The following measures would be implemented to minimize impacts:

- At least one lane of traffic will remain open during construction, with a maximum daytime 30-minute delay. If any delay longer than 30 minutes is anticipated to accomplish specific construction activities, then notice shall be provided. Prior to Memorial Day, an extended delay from 9 am to 3 pm would be permitted with the contractor passing traffic once through this delay to perform blasting operations and major earthwork where maintaining a single traffic lane would not be feasible. Nighttime closures would be considered for culvert replacements or heavy earthwork/blasting as needed. Public notification of anticipated closures and delays would be posted on ADOT's and TNF's website and along the route. Prior to full closures, notice must be provided to the public, relevant local agencies, school districts, and emergency service providers.
- Emergency vehicles shall be permitted to pass through the construction limits during construction without delay.

3.5 Cultural Resources (Including Archeological and Historic Resources)

The Apache Trail itself has been identified as an historic road eligible for listing on the National Register with numerous features such as culverts and retaining walls that are character defining/ contributing features. In addition, there are numerous archeological and historic sites throughout TNF and within the vicinity of the Apache Trail project corridor. The cultural resources that could be affected by the action alternative were identified within the Area of Potential Effects (APE) defined for this project as part of cultural survey for the project (Luhnow and Schilling 2018). The APE is the geographic area within which actions may change the character or use of historic properties, and serves as the study area for historic resources. The width of the APE for this project ranges between 100 and 300 feet centered on the Apache Trail centerline. The APE was expanded in areas to include pull-outs, low water crossings, areas where slope setbacks are being considered, and areas of drainage work where culvert replacement and/or repair work would occur.

Following the fire and floods in 2019 and as a result of changed site conditions, FHWA-CFLHD reassessed the ongoing design approach to the Apache Trail project. A cultural resources addendum was developed to document the design changes and their impacts to historic resources along the Apache Trail (Schilling et. al 2021).

3.5.1 Regulatory Setting

NEPA establishes that the federal government use all practicable means to "assure for all Americans . . . culturally pleasing surroundings," and "preserve important historic, cultural, and natural aspects of our national heritage . . . "(42 United States Code [USC] 4331[b][2]).

The National Historic Preservation Act (NHPA) of 1966, as amended (54 USC 300101 - 307108), and its implementing regulations, Protection of Historic Properties (36 CFR 800), requires federal agencies to take into account the effects of their actions on historic properties for any federal undertaking. Historic properties are defined as those that are included in the National Register of Historic Places (NRHP) or that meet specific criteria (are "eligible") for listing in the NRHP, which is the official list of America's historic places worthy of preservation. An effect on a historic property is "an alteration to the characteristics of a historic property qualifying it for inclusion or eligibility for the NRHP" (36 CFR 800.16).

The Arizona Antiquities Act prohibits excavation of historic or prehistoric sites on lands owned or controlled by the State of Arizona, any agency or institution of the state, or any county or municipal corporations within the state without obtaining the written permission of the director of the Arizona State Museum (ASM), and directs those in charge of activities on such lands to notify the director of the ASM of the discovery of any archaeological sites, historical resources, and human remains (ASM 2014) in coordination with the Arizona SHPO. ADOT controls (i.e. maintains) SR 88, the Apache Trail.

3.5.2 Affected Environment

History of Tonto Basin

Geographically, the APE and its vicinity is located in a transitional area between the mountain highlands to the north and the desert lowlands to the south; it is also situated in the Tonto Basin. This transitional aspect is also true from a cultural perspective, particularly during the prehistoric ceramic period, with influences present from the Hohokam core area within the Phoenix Basin, and the Salado culture in the Tonto Basin.

The project area has been occupied by humans for thousands of years. Within the Tonto Basin, there is evidence of habitation ranging from the Paleoindian period (ca. 12,000–7500 B.C.) through modern day Apache and Yavapai, who inhabited the area by at least the late 1600s. To date, the only evidence of Paleoindians within the Tonto Basin consists of isolated projectile point finds (Luhnow and Schilling 2018). Work along SR 260 northeast of the APE has provided significant data regarding the Early Agricultural period. This period is defined by the presence of domesticated plants; in the sub-Mogollon Rim region, ongoing research has found maize in a context dating to 1200 B.C., and the Early Agricultural Period has been tentatively established from 1200 B.C. to A.D. 500 (Luhnow and Schilling 2018). The occupation of the Tonto Basin from A.D. 100 to A.D. 1450 is defined by the use of local and non-local ceramics, and has been divided into various periods and phases by researchers working in different portions of the basin. It is unknown at this time whether an indigenous population occupied the Tonto Basin at the beginning of the Early Ceramic period, or whether it was settled by an outside group, such as the Hohokam (Luhnow and Schilling 2018). The Preclassic period dates from A.D. 650–A.D. 1150. The Deer Creek Site in the Upper Tonto Basin is a well-documented settlement dating to the Snaketown (A.D. 650–750) or early Gila Butte (A.D. 750–850) phases (Luhnow and Schilling 2018). Analyses showed that corn, agave, and little barley grass were important resources to the inhabitants. Shell artifacts and Gila Butte Red-on-buff ceramics indicate that there was interaction between the residents of the Deer Creek site and the Hohokam to the south. In the subsequent Santa Cruz phase (A.D. 850–950), Hohokam buffwares were still prevalent; whiteware ceramics indicate contact with the northern regions as well (Luhnow and Schilling 2018). Corn agriculture was practiced, along with use of agave, plant gathering, and limited hunting.

Between A.D. 950-1150, during the Sacaton phase, permanent settlements become more numerous in the archaeological record. The most archaeologically visible period in the Tonto Basin was the Late Classic period Gila phase (A.D. 1300-1450) with large masonry ruins and numerous polychrome ceramics within the area.

The semi-nomadic Apache utilized agriculture to supplement hunting and gathering subsistence activities. The Apache incorporated the horse (introduced by Coronado) as part of their subsistence, and used it for carrying both people and goods, and as a food source. The horse enabled the Apache to increase their range, and thus increase the resources available to them. By the mid-1700s, the Apache boasted a trade and raiding system that spanned from northern Arizona into Mexico (Luhnow and Schilling 2018).

The ancestral homelands of the Yavapai people encompassed areas in central and west-central Arizona in territory that ranged from the San Francisco Peaks to Ash Fork and

towards the Colorado River, extending southward towards Yuma, and then eastward towards Globe (Khera and Mariella 1983). The Yavapai people were hunter-gatherers who had a strong and varied food supply due to their extensive and rich land base (Khera and Mariella 1983). The Yavapai that occupied the Tonto Basin area were the Kewevkapaya.

In 1865, Fort McDowell was founded to support the war on Native Americans. General George Crook launched his military campaign between 1865 and 1873, and soon many Native Americans were confined to reservations. A military road connecting Fort McDowell with Camp Reno, in the Tonto Basin, was constructed beginning in October of 1867 (Luhnow and Schilling 2018). The Mazatzal Mountains were an imposing obstacle, and the road was constructed on the south side of Mount Ord. The Tonto Basin was attractive to many ranchers and the area was rapidly populated in the 1870s, with most settlers coming from the Globe-Miami area. One of the ranches, owned by Sam Haught, later become the nearby community of Rye, with a post office established in 1883 (Luhnow and Schilling 2018).

TNF was established in 1905 for the primary purpose of protecting the watersheds that are encompassed by the forest. Construction of Roosevelt Dam, a key component of the watershed protection, was begun in 1906; the dam was dedicated in 1911. The region has been used for water control and power generation, ranching, and tourist/recreational purposes throughout the historic and modern era.

History of the Apache Trail (SR88)

The Apache Trail begins near the city of Apache Junction, Maricopa County, Arizona at milepost 193.90, and terminates at its junction with United States Highway 60, near Globe, Gila County, Arizona, at milepost 242.66. The present Apache Trail owes its existence to the need for a dam on the Salt River within Tonto Basin. As Phoenix and its environs grew in the latter part of 19th centurewy, the flooding and drought caused by the unchecked Salt River became a significant impediment to development. Citizens in the Salt River Valley united to petition Congress for a dam to help control the river fluctuations, and to irrigate crops (Luhnow and Schilling 2018). Under the National Reclamation Act, signed into law by President Theodore Roosevelt in 1902, the proposed construction of a dam along the Salt River became a reality.

The dam, initially called Tonto Dam–but later renamed Theodore Roosevelt Dam–was located in a fairly remote area, and the need for an adequate supply route became apparent. After consideration of alternatives, a route along the Salt River from Mesa, Arizona to the dam site was selected, and initial construction of the Apache Trail began in 1903 (Luhnow and Schilling 2018). Construction of the road was conducted by the U.S. Reclamation Service (renamed the U.S. Bureau of Reclamation [USBR] in 1923); the actual labor force was made up largely of Native Americans, including Apaches. The roadbed was constructed of native soil extracted during construction of the road and was unsurfaced. By the end of 1904, the road was sufficient for basic transit, and transportation of construction loads began in early 1905 (Luhnow and Schilling 2018).

The Apache Trail was in constant use, and subjected to maintenance and improvements, during the construction of Roosevelt Dam from 1906 to 1911. With the dedication of the dam in 1911, ownership of the road and its future role were unknown. In 1920, the U.S. Reclamation Service conceded they had no "direct interest in the future care of the road"

and that the Salt River Valley Water User's Association would be the agent in handling the road project and its features (Stein 2001). The Salt River Valley Water Users Association was planning to develop hydroelectric dams downstream from Roosevelt Dam and knew they would need good access to the areas via the Apache Trail. As a result, they passed a resolution in March 1922 urging the U.S. Reclamation Service to transfer ownership of the road to the State of Arizona upon several conditions; including that the road be declared a state highway and that the water users' association could change the location of portions of the road at any time that such changes may become necessary to permit power development on the Salt River (Stein 2001). The Arizona State Highway Department took responsibility for the road's operation and maintenance from the U.S. Reclamation Service and implemented additional improvements and upgrades. Chief among these were widening the original roadway from 12 feet to 14 to 16 feet in some locations; and the repair of deteriorating stretches of roadway and wall structures. With the shift in management oversight came a change in purpose for the Apache Trail from its initial use as a construction supply route. A new road from Phoenix to Globe provided alternate access to the dam and newly-filled Roosevelt Lake, and relegated the Apache Trail to a tourist attraction. By the summer of 1927, the completion of Horse Mesa Dam and subsequent formation of Apache Lake rendered much of the original Apache Trail underwater. A realignment project, which included much of the proposed project area began the relocation of this portion of the road to higher on the hillsides (Stein 2001). Additional large-scale work was completed between the years 1935 and 1937 and included widening much of the unpaved roadway to 24 feet to accommodate increased automotive travel. In 1939, the Davis Wash Bridge was reconstructed using Works Progress Administration labor. Following the construction of the bridge, work along the roadway consisted largely of ongoing repair and maintenance classified as "spot improvements." These spot improvements resulted in the construction of additional structures, such as culverts and retaining walls. In the 1950s and 1960s, ADOT began to modernize, widen, and pave parts of the road. This prompted public concern that the scenic and historic character of the road was in jeopardy, and ADOT halted further changes to the road aside from routine maintenance.

The Apache Trail has been previously determined eligible for inclusion in the NRHP under Criteria A, C, and D for its association with important historic events, unique qualities of design and construction, and potential to yield important data regarding the development of early Arizona roadways. The unpaved stretch of the historic roadway within the APE was determined to contribute to the overall NRHP eligibility of the Apache Trail under the aforementioned criteria. The maintenance history of this roadway segment is quite different from that of the paved section of the Apache Trail, and can be characterized by four major maintenance periods, all of which have historic significance (Sullivan 2017). However, these maintenance activities have not significantly altered the historic characteristics of the roadway, which exhibits a high degree of integrity of workmanship, materials, setting, design, association, feeling, and location. As discussed in Sullivan (2017), the unpaved section of roadway still contours across the landscape, and horizontal and vertical curves force drivers to slow down and enjoy the scenic vistas that are iconic to the alignment. This is quite a different driving experience from that along the paved portions of the roadway, where the historic characteristics of the roadway features have been significantly altered.

In 1986, Arizona designated the Apache Trail as a Historic Road, currently one of three in the state, recognizing its importance in Arizona's history and providing guidelines and rules on road operations and maintenance (Luhnow and Schilling 2018).

From the 1920s to modern times, the Apache Trail has served mainly as a scenic byway. It has undergone many improvements since its initial construction, including grading, realignment, and paving. The portion of the Apache Trail between Mileposts 201.00 and 220.18 is paved. This project studies the portion of the remaining unpaved section of road between MP 229.2 and 240.8. The project area includes approximately half of the remaining unpaved portion of the Apache Trail.

Within the project area, the road maintains its original grades. Consequently, the numerous curves and the relatively narrow roadway that were also of the original design serve to reduce the speed of today's automobile traffic (Luhnow and Schilling 2018). Despite the alterations and maintenance over the years, the Apache Trail still retains some aspects of its historic character. However, many of the culverts which are character defining features /contributing elements of the route have become damaged and degraded overtime from flooding and debris flows.

Cultural Resources within the Area of Potential Effect (APE)

Eleven resources were identified within the APE defined for the proposed project, including the Apache Trail. Each resource was determined to be eligible for listing on the NRHP.

To be determined eligible for inclusion in the NRHP, cultural resources must be important in American history, architecture, archaeology, engineering, or culture; must possess integrity of location, design, setting, materials, workmanship, feeling, or association; and must meet at least one of the following four criteria (36 CFR Part 800):

A. Are associated with events that have made a significant contribution to the broad patterns of our history;

B. Are associated with the lives of persons significant in our past;

C. Embody the distinctive characteristics of a type, period, or method of construction, or that represents the work of a master, or that possesses high artistic values, or that represents a significant distinguishable entity whose components may lack individual distinction;

D. Have yielded, or may be likely to yield, information important in prehistory or history.

Properties may be of local, state, or national importance. Typically, historic properties are at least 50 years old, but younger properties may be considered for listing if they are of exceptional importance (Criteria Consideration G). Once historic properties are evaluated, the federal agencies can determine whether or not historic properties are affected. The NRHP defines *historic property* as any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the NRHP.

The eleven resources and the criteria that makes them eligible for inclusion in the NRHP are listed in Table 3.

Table 3. Cultural Resources Determined Eligible for the National Register of Historic Places

Site/Feature No.	Description	Eligibility
03-555(TNF)/ AZ U:7:7(ASM)	Historic transmission line	Determined eligible (A)
03-556(TNF)/ AZ U:7:8(ASM)	Historic telephone line	Determined eligible (A, D)
06-450(TNF)/ AZ U:8:604(ASM)	Historic work camp	Determined eligible (A, D)
06-2426(TNF)/ AZ U:8:600(ASM)	Historic site of unknown use	Determined eligible (D)
06-2428(TNF)/ AZ U:8:602(ASM)	Historic road and corral	Determined eligible (D)
06-2429(TNF) / AZ U:9:603(ASM)	Yavapai temporary campsite	Determined eligible (D)
06-2430(TNF)/ AZ U:8:605(ASM)	Hohokam limited activity area	Determined eligible (D)
06-2431(TNF)/ AZ U:8:606(ASM)	Historic trash dump	Determined eligible (D)
06-2435(TNF)/ AZ U:8:607(ASM)	Historic work camp and access road	Determined eligible (D)
06-2503(TNF)/ AZ U:8:632(ASM)	Historic blasting cans	Determined eligible (D)
06-218(TNF)/Apache Trail roadway and historic roadway features	Historic roadway	Determined eligible (A, C, D)

Historic Transmission Line

The historic transmission line consists of a series of towers and foundations that was constructed as part of the original power transmission systems between Roosevelt Dam and Mesa (Luhnow and Schilling 2018). The site loosely parallels and crosses the project APE for its length and there are a total of nine features and artifacts associated with the site that fall within the ADOT easement along the project corridor. It has been determined eligible for inclusion in the NRHP due to its association with events that have made a significant contribution to the broad patterns of our history (Criterion A). The features loosely parallel and cross the project corridor, but are outside of the roadway.

Historic Telephone Line

The historic telephone line is a series of poles, pole bases, and related artifacts that represent the historic line built to provide communication with workers during

construction of the Roosevelt Dam (Luhnow and Schilling 2018). The site parallels and crosses the project APE for most of its length and there are a total of 30 features and artifacts associated with the site that fall within the ADOT easement along the project corridor. The site has been determined eligible for inclusion in the NRHP due to its association with events that have made a significant contribution to the broad patterns of our history and due to its ability or potential to yield information important in history or prehistory (Criteria A and D). The features of this historic line are outside of the roadway.

Historic Work Camps Associated with the Construction of the Road

The historic work camp is possibly related to the construction of the northern extension of the Apache Trail in 1923 (Luhnow and Schilling 2018) or work done in 1927. The site has been determined eligible for inclusion in the NRHP due to its association with events that have made a significant contribution to the broad patterns of our history and due to its ability or potential to yield information important in history or prehistory (Criteria A and D). The camp occurs on both sides of the road and within the project area.

Historic Site of Unknown Use

The historic site is poorly preserved with an unknown function (Luhnow and Schilling 2018). The site may be associated with the 1922-1924 initial state maintenance efforts. The site has been determined eligible for inclusion in the NRHP due to its ability or potential to yield information important in history or prehistory (Criterion D). The camp occurs on both sides of the road and within the project area.

Historic Road and Corral

This site is a possible historic road alignment that extends from the Apache Trail alignment and terminates at a corral (Luhnow and Schilling 2018). The site has been determined eligible for inclusion in the NRHP due to its ability or potential to yield information important in history or prehistory (Criterion D). Only the historic road alignment is located within the project APE. Review of aerial imagery reveals that within the APE, the road has been destroyed by modern use as a turnout and the coral is no longer present. The extant features of this site are not within an area where proposed improvements to the roadway would occur.

Yavapai Temporary Campsite

This site is a prehistoric/protohistoric site interpreted as representing a Yavapai temporary campsite (Luhnow and Schilling 2018). The site has been determined eligible for inclusion in the NRHP due to its ability or potential to yield information important in history or prehistory (Criterion D). The site occurs atop a cut bank and does not approach the roadway itself.

Hohokam Limited Activity Area

This site is a prehistoric site interpreted as a Hohokam limited activity area with a potential historic component (Luhnow and Schilling 2018). The site has been determined eligible for inclusion in the NRHP due to its ability or potential to yield information important in history or prehistory (Criterion D). The site occurs on a slope below the roadway and does not approach the roadway itself.

Historic Trash Dump

This site is a historic trash dump. The presence of blasting cans at the site indicates that part of the refuse may be associated with the Apache Trail roadway construction episodes dating to the 1930s and 1940s (Luhnow and Schilling 2018). The site has been determined eligible for inclusion in the NRHP due to its ability or potential to yield information important in history or prehistory (Criterion D). The site is plotted atop and on the west side of a steep bluff along the Apache Trail. Review of an earlier cultural report, revealed that a portion of the site atop the bluff, and adjacent to the roadway, has been demolished by road maintenance blading, and the features and artifacts associated with the site are at an elevation below the roadway along the sides of the bluff (Luhnow and Schilling 2018).

Historic Work Camp and Access Road

This work camp site is interpreted as a work camp associated with the construction of the northern alignment of the Apache Trail. The site has been determined eligible for inclusion in the NRHP due to its ability or potential to yield information important in history or prehistory (Criterion D). The only portion of the site within the project APE is an access road to the camp, which is no longer accessible from the Apache Trail roadway (Luhnow and Schilling 2018).

Historic Blasting Cans

This site includes a scatter of historic blasting cans associated with the blasting of a series of switchback curves along the road alignment. The site has been determined eligible for inclusion in the NRHP due to its ability or potential to yield information important in history or prehistory (Criterion D) (Luhnow and Schilling 2018). The site is atop a cut bank above the roadway.

Historic Roadway and Features of the Roadway – Character-Defining Contributing Elements to the Overall NRHP Eligibility of the Apache Trail

The historic roadway, within the proposed project APE, consists of the historic roadway alignment, including the roadway and numerous roadway features (including culverts, headwalls, Pine Creek Bridge, and Davis Wash Bridge etc.). In total, there are 216 individual features of the Apache Trail within the APE. As described above, the Apache Trail was originally constructed as a wagon road to supply the construction of Roosevelt Dam. The roadway, in its entirety, is 49 miles long. Within the APE, only a small portion of the road (between MP 229.2 and 231.5) was part of the original construction between 1903 and 1905. The remainder of the road within the project area was completed during reroute work in the 1920s after much of the original route was submerged under Apache Lake after the completion of the Horse Mesa Dam. The site has been determined eligible for inclusion in the NRHP due to its association with events that have made a significant contribution to the broad patterns of our history (Criteria A), due to its distinctive characteristics of a type, period, or method of construction that represents the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction (Criteria C), and due to its ability or potential to yield information important in history or prehistory (Criteria D). Of the 216 individual features of the Apache Trail, 67 roadway features are either individually eligible and/or considered character-defining features / contributing elements to the NRHP eligibility of the historic Apache Trail. These features

predominantly consist of culverts and headwalls, but also include some mile markers, turn outs, or other features associated with the roadway. At several features, it appears that widening of the road during previous roadway improvements resulted in culvert extensions and the construction of a new headwall on one end of the extended culvert. In these locations, there is potential that an original headwall was buried.

3.5.3 Environmental Consequences

No Action Alternative

Under the No Action Alternative, there would be no effects to the following cultural resources:

- Historic transmission line
- Historic telephone line
- Yavapai temporary campsite
- Hohokam limited activity area
- Historic blasting cans

Under the No Action Alternative, continued maintenance of the historic Apache Trail road corridor would be needed to prevent degradation and maintain a drivable surface. The dwindling supply of the historically used decomposed granite surfacing material would require ADOT to eventually seek an outside fill source that may differ from the historic color of the road surface.

In addition, ongoing maintenance activities under the No Action Alternative, including blading the road surface, would continue to potentially cause unintentional damage and/or bury individual features of the historic roadway. Exposed culvert pipes would continue to rust further compromising the integrity of the features. In addition, the use of heavy equipment to stockpile and continually relocate excess fill material to and from pull-outs along the road corridor, in combination with visitor use and parking in several pull-outs, could continue to adversely affect the integrity of historic work camps, the historic site of unknown use, the historic trash dump, and the historic road and corral. Maintenance to repair storm damage would also continue.

Overall, the continued degradation and maintenance of the Apache Road within the project area could result in adverse effects to several cultural resources within the project APE.

Action Alternative

Under the Action Alternative, the following effects to cultural resources within the project APE would be anticipated.

Historic Transmission Line

With the exception of some unmaintained roads that access the historic transmission towers, all of the features and artifacts associated with this site and within the project area are outside of the roadway where improvements would occur. Under the Action Alternative, there would be no improvements to the access roads and all other associated features would be avoided. Therefore, there would be *no effect* to the historic transmission line.

Historic Telephone Line

All of the features associated with the historic phone line are outside of the roadway where proposed improvements would occur under the Action Alternative and therefore there would be *no effect* to the historic telephone line.

Historic Work Camps Associated with the Construction of the Road

This historic work camp is located on both sides of the road in an area where proposed improvements would occur under the Action Alternative. To ensure there are no impacts to the site, the site boundary and a 50-foot avoidance buffer would be flagged by a qualified archaeologist prior to construction. With the delineation of the avoidance buffer, the project would have *no effect* to the historic work camp under the Action Alternative.

Historic Site of Unknown Use

This historic site of unknown use is located on both sides of the road in an area where proposed improvements would occur under the Action Alternative. To ensure there are no impacts to the site, the site boundary and a 50-foot avoidance buffer would be flagged by a qualified archaeologist prior to construction. With the delineation of the avoidance buffer, the project would have *no effect* to the historic site under the Action Alternative.

Historic Road and Corral

While a portion of the historic road is within the project APE, this portion of the road has been destroyed by modern use as a turnout and no longer retains integrity. All of the other features associated with this site fall outside of the project APE and would be avoided under the Action Alternative. As a result, there would be *no effect* to the historic road and former corral under the Action Alternative.

Yavapai Temporary Campsite

This campsite occurs atop a cut bank above the roadway and would be avoided. There would be *no effect* to the Yavapai temporary campsite under the Action Alternative.

Hohokam Limited Activity Area

This site is located downslope from the roadway and would be avoided. The project will have *no effect* to the Hohokam Limited Activity Area under the Action Alternative.

Historic Trash Dump

The intact portion of this site would be avoided under the Action Alternative. The project will have *no effect* to the historic trash dump.

Historic Work Camp and Access Road

Under the Action Alternative, the access road portion of this site which falls within the ADOT roadway easement would be avoided. The remainder of the site is located outside the project impact area. The project would have *no effect* to the historic work camp and access road under the Action Alternative.

Historic Blasting Cans

This site occurs atop a cut bank above the roadway in an area proposed for line of sight improvements under the Action Alternative. The site improvements proposed under the Action Alternative will have an *adverse effect* to the historic blasting can site.

Historic Roadway and Features of the Roadway – Character-Defining Contributing Elements to the Overall NRHP Eligibility of the Apache Trail

Under the Action Alternative, roadway improvements such as applying a chip seal, improving line of sight in five locations, and drainage improvements would adversely affect the NRHP qualities, including workmanship, materials, feeling and association of the historic roadway. Improvements to the roadway itself, such as placing a chip seal surface, would not alter the existing NHRP qualities of individual features (such as culverts and headwalls) as character-defining contributing elements to the eligibility of the historic Apache Trail alignment. However, proposed drainage improvements, such as replacing, repairing, and modifying individual character-defining contributing elements (such as culverts and headwalls) of the Apache Trail would adversely impact the existing NRHP qualities of both contributing elements and the Apache Trail roadway.

Due to the condition of the historic and often undersized culverts and the changes to the watershed from recent wildfire and flooding events, the Action Alternative proposes numerous drainage improvements within the project area to restore culvert functionality and stabilize the roadway. Proposed activities that could affect the numerous character-defining contributing elements of the Apache Trail are described below. Documentation, treatment, and proposed actions to mitigate for adverse effects are also discussed below.

- A total of 21 character-defining contributing elements (i.e. culverts and associated headwalls/wingwalls, stand-alone retaining walls) to the NRHP eligibility of the Apache Trail would be avoided by the proposed actions (i.e. no structural work, no cleaning of culvert or nearby ditches, no outlet treatments). Roadway improvements would be done, but the improvements would not alter the existing NRHP qualities of these individual features as character-defining contributing elements to the eligibility of the Apache Trail.
- Clean out of a culvert is required at approximately eight locations where an individual feature is a character-defining contributing element. Cleaning would not significantly alter the existing NRHP qualities of these individual features as character-defining contributing elements to the eligibility of the Apache Trail.
- Only Scour Treatments, as described in Chapter 2, would be applied at approximately 10 culverts, defined as character-defining contributing elements to the Apache Trail. No other structural work is proposed at these culverts. The application of scour treatments would not significantly alter the existing NRHP qualities of these individual features as character-defining contributing elements to the eligibility of the Apache Trail.
- Due to the need for additional drainage capacity at numerous locations, culverts will be upsized to large capacity culverts. Other culverts have been damaged beyond repair and need replacement to function adequately. In some locations damage to headwalls and wingwalls will require replacement. Culvert replacements and/or the addition or replacement of wingwalls and headwalls associated with those culverts would occur at 26 individual features that are defined as character-defining contributing elements to the Apache Trail. Scour Treatments would also be applied

to many of these culverts. These modifications would significantly alter the existing NRHP qualities of these individual features as character-defining contributing elements to the eligibility of the Apache Trail.

- No structural changes are proposed for the two bridges within the project corridor, the NRHP-listed Pine Creek Bridge and the NRHP-eligible Davis Wash Bridge. Roadway improvement would occur at these bridges, but the improvements would not significantly alter the existing NRHP qualities of either bridge and would not impact the NRHP-eligibility of the Apache Trail.
- Several character-defining contributing roadway elements are outside of the existing roadway and would be avoided by the proposed actions. The area around these elements would be marked on the project plans by delineation of construction limits to ensure there would be no inadvertent damage during construction. The project would not significantly alter the existing NRHP qualities of these individual features as character-defining contributing elements to the eligibility of the Apache Trail.
- Buried features may be associated with 25 character-defining contributing elements along the Apache Trail. Any roadway construction that requires excavation greater than 6" in depth would be monitored by a qualified archaeologist as outlined in the MOA and project-specific Historic Properties Treatment Plan (HPTP).
- Numerous features of the roadway were determined to be non-character defining elements of the NRHP eligibility of the Apache Trail. Some of these features will undergo modifications or otherwise be impacted by roadway improvements; however, because these features were determined to be non-character defining elements, modifications of these features would not impact NRHP-eligibility of the Apache Trail.

Chip sealing, standardizing the road width, improving line of sight, and replacing and modifying existing drainage features would diminish the features and attributes that qualify the Apache Trail for NRHP eligibility, including workmanship, materials, feeling and association of the historic roadway and contribute to the diminishment of the Apache Trail's integrity. Therefore, the Action Alternative will have an *adverse effect* to the NRHP eligibility of the Apache Trail.

SHPO Concurrence

The request for concurrence on the recommended APE, eligibilities, and effect determinations was transmitted to SHPO along with the cultural report prepared for this project on June 19, 2018 (cover letter included in Appendix B). The SHPO concurred with the recommended APE, eligibilities, and an adverse finding of effect on July 2, 2018.

Due to the adverse effect finding, the project was submitted to the Advisory Council on Historic Preservation (ACHP) on July 3, 2018. The ACHP sent a letter accepting the invitation to participate in the consultation process on August 14, 2018.

However, on September 23, 2019 and November 19, 2019 severe thunderstorms originating from the remnants of Tropical Storms Lorena and Raymond respectively moved over the project area for the Apache Trail project. Excessive rainfall over this denuded and degraded watershed resulted in significant flooding of the Apache Trail

roadway. Much of the roadways drainage features, many which were historic character defining features for the Apache Trail (SR 88), were damaged or destroyed. The excessive roadway damage required that FHWA-CFLHD reassess the ongoing roadway and drainage design. The FHWA-CFLHD notified the AZ SHPO, ADOT, TNF, and the ACHP that changes to projects scope of work and area of potential effects would occur in numerous meetings during 2020. A revised determination of eligibility and finding of adverse effects along with a cultural report addendum was submitted to the SHPO, ACHP, and partner agencies ADOT and TNF on March 31, 2021. The SHPO concurred with the updated APE, eligibilities, and an adverse effect finding on April 6, 2021.

Coordination with FHWA-CFLHD, ADOT, TNF, AZ SHPO, ACHP and concurring parties on a Memorandum of Agreement (MOA) for the adverse impacts to cultural resources is ongoing and would be completed prior to issuance of a decision document. Please refer to Appendix C to view the draft MOA. See below for additional information regarding the development of the MOA and the proposed mitigation.

Conclusion

The Action Alternative would result in an adverse effect to the historic blasting can site and the historic Apache Trail roadway and 26 character-defining contributing elements to the eligibility of the historic roadway. An appropriate level of documentation and treatment has been outlined in the draft MOA to mitigate the adverse effects to these resources, as described below.

3.5.4 Avoidance, Minimization, and/or Mitigation Measures

In accordance with the finding of adverse effect, an MOA between FHWA-CFLHD, ADOT, TNF, the AZ SHPO, and the ACHP, which requires the development of a Historic Properties Treatment Plan (HPTP), Historic American Engineering Record (HAER) documentation, and historic property interpretative materials, has been drafted to articulate the proposed mitigation for the adverse effects. This document outlines the proposed avoidance, minimization, and mitigation measures described below. The document would be finalized and signed following public comment on this EA and prior to the signing of a decision document.

The following measures will be implemented to reduce or avoid potential impacts to historic properties:

- FHWA-CFLHD shall, if possible, avoid adverse effects to all types of historic properties, with input from consulting parties. Avoidance measures for historic properties may include (but are not limited to) fencing or flagging of sites during construction, monitoring of construction near site areas within a buffer zone, or placing infrastructure outside of site boundaries. A Monitoring and Discovery Plan (MDP) (see HPTP measure below) will be in place to ensure avoidance during construction.
- Any ground disturbing activities in proximity to features with a known potential for buried walls would require the presence of a qualified archaeologist.
- A site boundary and a 50-foot buffer avoidance would be flagged by a qualified archaeologist prior to construction around the historic work camp and the historic site of unknown use in order to avoid impacts to these sites.

The following measures have been proposed to mitigate for those adverse impacts that would result under the Action Alternative:

- Where avoidance is not possible, FHWA-CFLHD shall minimize or mitigate adverse effects to historic properties through the development and implementation of an HPTP. The HPTP will be developed in consultation with the parties to the agreement, and will specify a program of measures to minimize (if applicable) and/or mitigate adverse effects. FHWA-CFLHD shall ensure that the HPTP is consistent with the Secretary of the Interior's Standards and Guidelines for Archaeological Documentation (48 FR 44734-44737). The HPTP will include additional detail regarding the following items:
    - Development of interpretive materials such as signs, kiosks, pamphlets, books and/or electronic documentation for the historic corridor, further described below.
    - A data recovery/documentation plan for contributing elements along the Apache Trail.
    - The proposed disposition and curation of recovered materials and records in accordance with relevant state and federal laws (ARS 41-842, 844) (36 CFR 79).
    - A Monitoring and Discovery Plan with procedures for monitoring, evaluating, and treating existing features and discoveries of unexpected or newly identified cultural resources during construction of the Undertaking, including the consultation process and timelines with appropriate consulting parties.
    - A project suspension/termination statement that stipulates the procedures to be followed if the project is halted during data recovery for any reason. This statement shall include the steps to be taken in order to complete any data recovery or other treatment measures that are in progress at the time of project termination; a brief discussion shall also be included that outlines how analysis, interpretation, reporting, and curation of remains obtained during treatment measures at all historic properties will be completed if the project is terminated prior to completion of the archaeological investigations.
    - A proposed schedule for the Undertaking tasks, and a schedule for the submittal of draft and final reports (preliminary data recovery reports and data recovery reports) to consulting parties for review and comment.
- Prior to the start of any work that could adversely affect any characteristics that qualify the Apache Trail as a historic property, FHWA-CFLHD shall have a Secretary of the Interior-qualified professional in history or architectural history (as specified in 36 CFR Part 61) complete historical recordation and documentation of up to 15 character-defining features of the Apache Trail to the "outline format: engineering structures" specified in the *Historic American Engineering Record (HAER) Guidelines for Historical Reports* (NPS 2008, updated December 2017).
- FHWA-CFLHD will develop interpretive materials such as signs, kiosks, and/or electronic documentation for the historic corridor as outlined below.
    - Prior to construction completion, FHWA-CFLHD shall develop and install interpretation materials (i.e., signs/kiosk) at up to five currently developed

recreation sites (i.e. Needle Vista Recreation Site, Canyon Lake Vista, Tortilla Flat, Fish Creek Hill Vista, and Apache Lake Vista) located along the Apache Trail. Developed and installed interpretive signs/panels shall not exceed 11 in number. The interpretive materials may include topics such as characteristics of the historic road (i.e. drainage features, retaining walls, bridges, etc.); engineering, construction methods and challenges of building the historic road; work force or people involved in designing and building the original road; stagecoach stops along the Apache Trail; tribal occupation and history; desert culture living and cultural landscapes; history of the of town of Tortilla Flat; and/or history of tourism along Apache Trail. Final topics will be determined by FHWA-CFLHD in consultation with SHPO, signatories and concurring parties of the MOA, but shall not deviate from the history of the Apache Trail and the cultural resources associated with it.

- FHWA-CFLHD will document the historic context of the Apache Trail and related resources, including Roosevelt Dam, Apache Lake and Marina, Fish Creek Hill, as well as contributing elements of the Apache Trail to provide a permanent record of how maintenance, fire, and flooding (including the 2019 events) have affected resources in the area. In coordination with ADOT, the historic context document will be made available to interested parties on the ADOT website for a minimum of five years.

- FHWA-CFLHD shall ensure that all artifacts, samples and records resulting from the mitigation program are curated in accordance with 36 CFR Part 79, except as determined through consultations with Tribes carried out in accordance with federal and state laws pertaining to the treatment and disposition of Native American Human Remains, Associated/Unassociated Funerary Objects, and Objects of Cultural Patrimony. FHWA-CFLHD would be responsible for any written agreements or fees associated with the curation.
- All materials and records from any archaeological investigations necessitated by the Undertaking will be curated at the ASM, or other repository that meets the standards set forth in 36 CFR Part 79, in accordance with Archaeological Resources Protection Act (ARPA) (Section 4.b.3) and 36 CFR Part 79.
- If new cultural resources are discovered, or if unanticipated effects on historic properties are identified, FHWA-CFLHD shall implement the project specific Monitoring and Discovery Plan (MDP) that is part of the HPTP.
- Should a discovery of archaeological or historical materials not covered under NAGPRA or the Arizona State Burial Laws occur, FHWA-CFLHD and the Project Contractor will follow procedures detailed in the MDP of the HPTP. FHWA-CFLHD will require that any cultural resources discovered during construction or other ground-disturbing activities be protected immediately in accordance with all applicable laws. The contractor will cease all construction activity in the immediate vicinity and all ground disturbing activities within 50 feet of any discovery, and will notify FHWA-CFLHD of the discovery within 24 hours. FHWA-CFLHD will notify the SHPO and appropriate consulting parties (e.g., the land manager) of the discovery.

- FHWA-CFLHD will consult with all of the consulting parties on the eligibility of newly discovered cultural resources. If eligible, FHWA-CFLHD will ensure that treatment measures follow the final HPTP, as well as the review processes and timelines for all reports as embodied in this agreement document.
- Unanticipated discoveries of cultural items covered under NAGPRA (i.e., human remains, funerary objects, sacred objects, and objects of cultural patrimony) are the responsibility of TNF, the federal landowner. If human remains or NAGPRA cultural items as described in 43 C.F.R. 10 are discovered, the protocol for the treatment of human remains and NAGPRA cultural items found in the HPTP will be followed. All construction within 50 feet of the discovery will cease and TNF will be notified.

3.6 Visual Resources

This section describes impacts to visual and aesthetic resources expected from implementation of the No Action and Action Alternative. The Apache Trail is designated as a historic road as part of the Arizona State Scenic Roads program. This program includes Scenic Roads, Historic Roads, and Parkways. ADOT oversees the designating and planning of scenic roads within the state. The study area encompasses an 11.16-mile segment of the Apache Trail, including views from the road and of the road. The project area is also designated as a USFS Scenic Byway.

3.6.1 Regulatory Setting

NEPA establishes that the federal government use all practicable means to ensure for all Americans aesthetically and culturally pleasing surroundings (42 United States Code [USC] 4331[b][2]). To further emphasize this point, in its implementation of NEPA (23 USC 109[h]), FHWA directs that final decisions on projects are to be made in the best overall public interest, taking into account adverse environmental impacts, including the destruction or disruption of aesthetic values.

The land within the project area is administered by the USFS and therefore the USFS Visual Management System (VMS) was utilized in analyzing potential impacts to visual resources as a result of the proposed project. The VMS system identifies the visual characteristics of the land and defines objectives to manage the resource.

The initial step in the VMS is to establish the character type or to determine the visual characteristic of the physiographic unit. The identified physiographic unit for this project area is considered a part of the Sonoran Desert Subtype, which contains distinctive and diverse landforms characterized by highly fractured and eroded mountains and mesas with interspersed water bodies and rivers. Predominant vegetation type within the project area is associated with Sonoran Desert types, most commonly the saguaro cactus community.

Using the established character type as a frame of reference, the inherent scenic quality is rated based on the different degrees of landscape variety within the unit. Inherent scenic quality is a measure of the natural landscape's scenic beauty based on its attributes such as landform, vegetation, water forms and rock formations. The basic assumption of the VMS is that all landscapes have some inherent value, but those with the most variety or diversity have the greatest potential for "high scenic value."

Sensitivity levels are defined as the measure of people's concern for the scenic quality of the landscape. Basically, all viewed landscape is rated for a level of sensitivity. These levels are determined by estimating the number of users expressing concern about scenic quality based on their location of travel routes, use areas and water bodies. The assumption is that users of travel routes and adjacent use areas and water bodies are the most sensitive to the changes in the landscape.

By combining the sensitivity levels/distance zone and scenic quality, visual quality objectives (VQO) are determined. VQOs are assigned to the landscape to describe the degree of acceptable alteration of the natural landscape. The VQO classifications are Preservation, Retention, Partial Retention, Modification and Maximum Modification.

As defined in the *National Forest Land Management Plan, Tonto National Forest* (1985), the project falls within the Tonto Basin Ranger District – Roosevelt and Apache Lakes Recreation Area of TNF (Management Area 6F). This entire management area is within the retention VQO class characterization (USFS 1985). Retention (R) areas are managed with a VQO that in general means man's activities are not evident to the casual forest visitor.

A new scenery management system was developed by the U.S. Department of Agriculture (USDA) after the finalization of TNF's land management plan. Under the new scenery management system, a 'retention' VQO correlates to a 'High Scenic Integrity' VQO. This VQO appears unaltered. "High scenic integrity refers to landscapes where the valued landscape character 'appears' intact. Deviations may be present but must repeat the form, line, color, texture, and pattern common to the landscape character so completely and at such scale that they are not evident" (USDA 1995).

Per the scenery management system handbook, *Landscape Aesthetics, A Handbook for Scenery Management* (1995), structures required for serving public use of scenic and recreation resources include viewing platforms, such as roads. They are a part of the expected image of the public being served. However, allowable limits of contrasts only go to the extent that functions of structures are served. They should also reflect design excellence. Such structures should be a positive element of the built environment that does not detract from scenic experiences. Structures should blend into the landscape while still retaining their function. They should be an indicator of sensitive land stewardship (USDA 1995).

Although the portion of the Apache Trail within the project area is designated as a USFS Scenic Byway, there is not currently a management plan available to identify potential impacts related to management goals/objectives or previously documented intrinsic scenic qualities of the byway.

3.6.2 Affected Environment

Visual Environment

The Apache Trail is a designated historic road that offers spectacular views of the surrounding mountains and some of the most rugged terrain in Arizona. Steep-sided canyons, rock outcroppings and magnificent geologic formations occur all along the road. The Apache Trail's natural beauty has long made it a major attraction in Arizona. President Theodore Roosevelt stated that "the Apache Trail combines the grandeur of the Alps, the glory of the Rockies, the magnificence of the Grand Canyon and then adds an indefinable something that none of the others have. To me, it is the most awe-inspiring and most sublimely beautiful panorama nature has ever created" (USDOT 2015).

Road Surface

The westernmost 19 miles of the road and an approximately 1-mile long section near Roosevelt Dam are paved while the remaining mileage is composed of native decomposed granite surfacing material. The unpaved portion of the Apache Trail is surfaced with decomposed granite, which gives the road a distinctive color. Decomposed granite was historically available and reflects the road's distinctive color, but does not have the strength, gradation, and plasticity required to meet compaction

standards. This results in washboarding, loss of material, and fugitive dust. The dust issue, in particular, impacts the visual environment and requires ADOT to constantly spray down the road with water while addressing the frequent issues that arise on the unpaved sections (USDOT 2015). Due to the climate and intense solar exposure, the paved (or chip sealed) portions of the road do not differ drastically in visual appearance from the unpaved portion, as demonstrated below in Figure 5.

Figure 5. Road Surface at Intersection of Marina Access Road and Apache Trail

Visible Historic Road Features

The tops of several culvert headwalls are visible while driving along the project segment of the Apache trail and a few larger out headwalls are visible along the northern side of the project route. In addition, several culvert outlets and headwalls are visible to boaters from Apache Lake. These features contribute to the overall visual setting of the historic Apache Trail, some more strongly than others. In numerous locations, the backs of culvert headwalls are slightly visible from the road, as evidenced in the background of Figure 6 and in the foreground in Figure 8. A few have headwalls that are highly visible from the road and/or Apache Lake and contribute to the driving and recreational experience along the project route as seen in Figure 7. While some of these features survived the floods of 2019, others suffered damage (compare Figure 7 and 9).

Figure 6. Slightly visible culvert headwalls prior to flood damage

Figure 7. Highly visible culvert headwall prior to flood damage

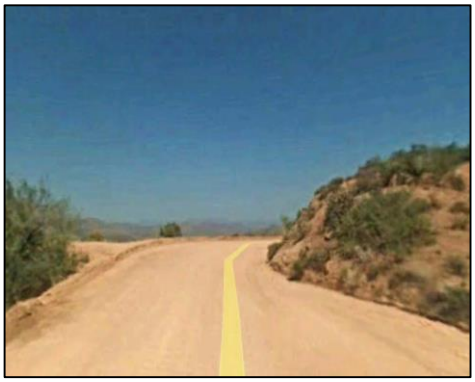
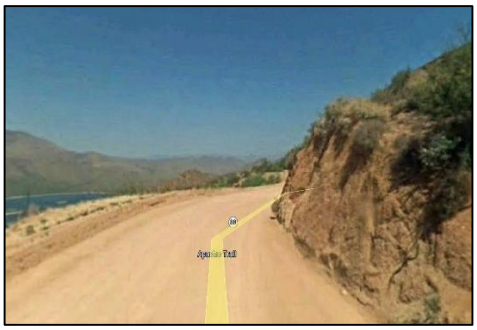
Figure 8. Slightly visible culvert headwalls following flood damage

Figure 9. Highly visible culvert headwall following flood damage

Landforms and Vegetation

There are several locations along the project route where the driver's line of sight is restricted by the adjacent landform. Within the project area, this occurs in five notable locations, as depicted in Figure 10 (see Table 1). None of these landforms are named features or are visually iconic or remarkable when compared to the rest of the project corridor.

Figure 10. Locations of Limited Site Distance

Mile Post	Image	Mile Post	Image
229.5		233.5	
229.6		234.5	
229.9			

The project area is arid and primarily dominated by a desertscrub vegetation community with distinct riparian communities found along the larger drainages. Vegetation is generally characterized by the dominant presence of saguaro cactus, which provide a distinctive desert visual character, and various other cacti and smaller shrubs. Dominant species vary along the route based on elevation, slope, aspect, and soils. There are no large trees within the project area.

Viewer Characteristics

In addition to its status as a designated Arizona Historic Road under the state Scenic Road/Byway system, the natural qualities of the Apache Trail area draw visitors, especially since the road is close to the Phoenix metropolitan areas and is part of TNF,

providing access to campgrounds, trails, and other recreation sites sections (USDOT 2015).

Viewer groups within the project vicinity can be classified as TNF staff, recreationists visiting TNF and Apache Lake, boaters on Apache Lake, commercial business employees, and drivers and passengers commuting along the road corridor.

3.6.3 Environmental Consequences

No Action Alternative

Under the No Action Alternative, no improvements would be made to the Apache Trail within the project area. Activities under the No Action Alternative would include ongoing road maintenance activities to repair and maintain the granite gravel surface. While a future alternative gravel source could differ in color from what is currently used, no intentional long-term visual impacts would occur within the study area under the No Action Alternative; however, ongoing maintenance and natural weather events would be expected to continually impact the road itself and/or some of the historic features along the route, including culverts and headwalls. Depending on the damage, unpredictable changes could result in long-term impacts to the visual character of the road similar to what was observed in the 2019 flood events. Under the No Action Alternative, the project area along the Apache Trail would be maintained consistently with the visual objectives identified within TNF's management plans and policies.

Action Alternative

The application of a chip seal would alter the visual appearance of the road surface along the project route. It is anticipated that this impact would be greatest immediately following construction and any future resurfacing maintenance; however, the coloration of the road surface would fade quickly in the arid, high-sun exposure of the project area. As evidenced in Figure 5, the intersection of SR88 with the Apache Lake Marina and Resort access road depicts a variation in color between the chip sealed surface and the decomposed granite surface, but the color variation is not substantial.

In general, application of a double chip seal process consists of applying a tack coat to the existing gravel surface, followed by placing two layers of binder and rock chips to comprise the new road surface. A local aggregate source would be utilized to produce the rock chips for the chip seal, in anticipation of providing an aggregate surface that would blend visually with the natural surroundings found along Apache Trail. A fog seal is then applied to the top of the chip sealed surface to seal the top and limit water intrusion into the roadway subgrade.

Under the Action Alternative, proposed drainage improvements would avoid impacts to highly visible culvert headwalls, as much as possible. The project would include several drainage improvement approaches that could affect the visual character of historic road features. These options include adding additional elements/improvements to existing culverts, replacing or extending one end of an existing culvert, entirely replacing a culvert, replacing are adding headwalls/wingwalls.

Of all the culverts and stand-alone retaining walls along the route, the project would maintain the original structure at approximately 51 locations. Some of the culverts may require cleaning, but this activity will not impact their visual characteristics.

The addition of culvert end treatments, replacement of culverts, and/or replacement of headwalls/wingwalls would occur at 72 culvert locations. Many of the culvert inlets and outlets along the project route experienced scour damage as the result of the floods in 2019. For this reason, a scour treatment, as described in Chapter 2 (see also Appendix A), will be applied to many of the 72 culverts. The scour treatments are deemed necessary to protect the road prism from future erosion during rain or flood events. Treatments A and B would require the addition of riprap (i.e. rock) and apron end sections to the culverts. A majority of the drainage improvements would not be visible from the roadway. Rock used as riprap will be similar in color to the existing soil and rocks in the project area and would blend in with the surroundings found along Apache Trail. Treatment C will require the extension of culverts down the side of road prisms. These extensions will occur at 10 locations. Some of these extensions may be viewable from Apache Trail.

Under the Action Alternative, modifications to structural drainage features are needed at 57 of the 72 culverts. These modifications include culvert replacements and/or the replacement of associated headwalls and wingwalls. Approximately 12 of these culverts will be replaced with large box culverts. To reduce any potential for visual impacts, culverts, headwalls, wingwalls, and concrete box culverts will be constructed to blend in with the existing structures along the route. For more visible structures, colored concrete may be used to better blend these structures with the colors of the natural surroundings. Form liners may be used to provide texture to some of these concrete structures to further minimize visual impacts. As a result, impacts to the visual quality of the road as a result of these full replacements are anticipated to be negligible. While some visitors may notice the applications, it is not anticipated that they would result in an adverse impact to the visual character of the route.

Of the five locations being considered for slope setbacks under the Action Alternative, none of them are named features or considered to be iconic in nature (see Table 1). The slope setbacks would not dramatically alter the landform or visual character of the project route. While the setback at MP 234.5 (Figure 10) could change the intensity of the "canyon feel" within this tight turn, it is not anticipated that it would considerably alter the visual character or detract from the visual experience of the driver.

Under the Action Alternative, vegetation would be removed in spot locations where drainage improvements and slope setbacks are proposed. Most of the vegetation within the project area is sparse and low in height. The removal of saguaro cacti would be limited to a few occurrences if any is impacted at all. All areas of vegetation would be reseeded with a native seed mix upon completion of the project. Given the limited extent of vegetation removal, the low vertical profile of most of the vegetation proposed for removal, and proposed reseeding efforts, impacts to the visual character resulting from vegetation removal are not anticipated.

Construction of proposed improvements would result in temporary visual changes, including views of construction equipment operations, dust, increased construction worker traffic, and construction signage.

Under the Action Alternative, the types of viewer groups utilizing the project area would not be anticipated to change drastically; however, the availability of an entirely paved route from Phoenix to the Apache Lake Marina and Resort via U.S. Route 60 and

Arizona SR 188 could result in an increase in visitors who were previously intimidated by the unpaved route, an increase in visitors trailing boats, and in commercial business employees driving larger trucks.

Since the road corridor is existing and there are no proposed changes to the horizontal alignment, impacts to the scenic character of the project corridor would not be anticipated. In keeping with the USFS Scenery Management Plan (USDA 1995), deviations to the road corridor would be present in the form of a darker surfacing material, but the form, line, texture, and pattern would be consistent with current conditions such that the road corridor would not appear drastically different. Overall, existing visual character of the project area would be maintained and long-term adverse impacts to visual resources would be minor in intensity. The proposed project would be in keeping with the land-management agency's (TNF) specific visual resource management objectives.

Conclusion

Application of a chip seal under the Action Alternative would alter the visual appearance of the road surface along the project route. It is anticipated that these impacts would be greatest immediately following construction; however, the coloration of the road surface would fade quickly in the arid, high-sun exposure of the project area minimizing the long-term adverse impacts to the visual appearance of the road. Adverse impacts to visual resources would not be anticipated as a result of adding additional elements/improvements to existing culverts or replacing, upsizing, or installing concrete box culverts with aesthetic treatments due to their low visibility and/or the use of similar materials to what is currently present. Due to the low visibility of a majority of the culverts proposed for full replacement, adverse impacts to the visual quality are anticipated to be negligible. Since the road corridor is existing and there are no proposed changes to the horizontal alignment, impacts to the scenic character of the project corridor would not be anticipated. Overall, existing visual character of the project area would be maintained and long-term adverse impacts to visual resources would be minor in intensity. The proposed project would be in keeping with the land-management agency's (TNF) specific visual resource management objectives. Impacts would be less than significant with incorporation of avoidance, minimization, and/or mitigation measures listed below.

3.6.4 Avoidance, Minimization, and/or Mitigation Measures

The Action Alternative was designed to minimize impacts to the existing historic infrastructure and the amount of elevation changes while meeting the project's purpose and need. The project design minimizes visual impacts in the following ways:

- Minimize the size of cut and fill slopes to the extent practicable.
- Minimize removal of trees, saguaros and other vegetation to the extent practicable.
- Minimize the number of road signs.
- Design cut slopes to blend into the adjacent natural topography.

Implementation of the following measures will offset the visual changes that would result from the proposed roadway improvements.

- The limits of clearing shall be irregular, and straight clearing lines shall be avoided by varying the width of the area to be cleared or by leaving selected clumps of vegetation, rock formations, and or boulders near the edge of the clearing limit.
- All disturbed areas shall be reseeded to the limits of clearing with native seeding mix.
- The contractor shall preserve and protect all vegetation outside of the approved clearing limits. Removal of vegetation outside of the approved clearing limits shall only occur with the authorization of the contracting officer.
- The contractor shall round and blend new slopes to mimic the existing contours, maintain slope stability, and highlight natural formations.
- Erosion-control fiber rolls shall be of natural earth-tone and biodegradable material.
- Integral natural appearing concrete coloring, natural rock, and/or formliners will be used for highly visible headwalls and/or wingwalls when deemed appropriate.

3.7 Noise

This section describes temporary noise impacts that would occur during project construction. The study area for noise includes all noise sensitive receptors that could be impacted by construction activities.

3.7.1 Regulatory Setting

23 CFR Part 772 provides procedures for preparing operational and construction noise studies and evaluating noise abatement considered for federal and federal-aid highway projects. Under 23 CFR § 772.7, projects are categorized as Type I, Type II, or Type III projects. FHWA defines a Type I project as a proposed federal or federal-aid highway project for the construction of a highway on a new location, or the physical alteration of an existing highway that significantly changes either the horizontal or vertical alignment, or increases the number of through-traffic lanes. A Type II project is a noise barrier retrofit project that involves no changes to highway capacity or alignment. A Type III project is a project that does not meet the classifications of a Type I or Type II project.

This project is considered a Type III project because it would not significantly alter the vertical or horizontal alignment of the existing roadway, and no additional traffic lanes would be provided. Therefore, the Action Alternative would not result in increased traffic noise impacts, and no long-term operational noise abatement is considered. However, construction of the Action Alternative would temporarily elevate noise levels in the project area, and those potential effects are evaluated below.

According to 23 CFR § 772.19, the following general steps are to be performed for construction noise analysis:

- Identify land uses or activities that may be affected by noise from construction of the project during the project development studies.
- Determine the measures needed in the plans and specifications to minimize or eliminate adverse construction noise impacts to the community. This determination shall include a weighing of the benefits achieved and the overall adverse social, economic, and environmental effects and the costs of the abatement measures.
- Incorporate the needed abatement measures in the plans and specifications.

3.7.2 Affected Environment

The project area is within a remote area of TNF where the primary activities include scenic driving along the Apache Trail as well as other recreational activities including hiking, camping, fishing, boating, and sight-seeing. The noise environment in the vicinity of the project is typical of an undeveloped, rural desertscrub environment. The predominant existing noise source in the corridor is vehicular traffic on the road. Additional noise is generated by off-road vehicle use, motorized boat use (near Apache Lake) by visitors to the TNF, and occasional aircraft overhead. Noise sensitive receptors in the project area include visitors to the national forest that recreate by hiking, camping, boating, and motorized off-road use. The receptors are transient and are typically located greater than 50 feet from the roadway and often much farther.

3.7.3 Environmental Consequences

No Action Alternative

The No Action Alternative would not involve reconstruction or improvement of the roadway. Noise levels in the study area are generally low and would not be anticipated to substantially change with ongoing maintenance activities. The high frequency of maintenance activities would continue. Therefore, no changes to existing noise impacts would be anticipated under the No Action Alternative.

Action Alternative

The Action Alternative would not increase the overall capacity of the project corridor and would not substantially alter the vertical or horizontal alignment. Therefore, no long-term noise impacts are anticipated.

Construction activities associated with the Action Alternative would temporarily elevate noise levels in the study area. Noise resulting from construction activities would depend on the different types of equipment used, the distance between construction noise sources and sensitive noise receptors, and the timing and duration of noise-generating activities.

Construction activities would require the use of heavy equipment such as backhoes, cranes, drills, and diesel-powered earth-moving equipment, such as dump trucks and bulldozers, and back-up alarms on certain equipment. The level of construction noises at receptor locations would depend on the loudest piece of equipment operating at any moment. According to the FHWA Construction Noise Handbook (August 2006), maximum noise levels from diesel-powered equipment range from 80 to 95 dBA at a distance of 50 feet. Impact equipment, such as impact hammers, can generate louder noise levels up to 101 dBA.

The Superstition Wilderness Area is located south of a portion of the project area, and although there would be temporary, construction-related noise from the project, the construction activity would be greater than one quarter mile (1,380 feet) from the wilderness boundary at the closest point. The Apache Lake Marina and Resort is approximately 1 mile northwest of the start of the project area. While there could be temporary, construction-related noise while work took place in that area, the distance, natural topography, and a 600-foot change in elevation would lessen any temporary noise impacts. The Davis Wash Shoreline Area and Burnt Corral Campground and Day Use Area are approximately 0.8- and 0.4-miles, respectively, from the road and within the project area while the Three Mile Wash Shoreline Area is only 0.10-miles from the road within the project area. While there would be temporary, construction-related noise from the project in these locations, construction would not occur along the entire length of the project for the entire duration of the project. Given the temporary nature of construction-related noise in proximity to these areas, the natural topography, distance, and the existing noise source of engine-powered boats on nearby Apache Lake, the impacts from the construction-related noise would not be anticipated to be significant.

A sound level measured from a point source decreases at a rate of 6 dBA per doubling of distance (FHWA 2011). For example, a piece of construction equipment has a noise level of 91 dBA at 25 feet, at 50 feet it reduces to 85 dBA, and at 100 feet it reduces another 6

dBA to 79 dBA. Therefore, the noise from a 91 dBA piece of equipment would attenuate to less than 59 dBA one-quarter mile (1,350 feet) from the equipment.

Based on the maximum noise levels from construction activities and the distance of noise sensitive receptors from the road, temporary noise levels associated with construction activities are anticipated to exceed levels that would be expected in a rural setting. However, these impacts will be of short duration, lasting only during construction and would occur only during the daytime. These temporary noise impacts are anticipated to be minor.

Conclusion

As mentioned above, no changes to noise levels would occur in the long term because the Action Alternative would not increase overall capacity or substantially alter the alignment. Ambient noise levels would increase during construction, temporarily affecting visitors in close proximity to the construction. However, these impacts would not be significant due to their short-term and intermittent nature. In addition, the measures listed below would reduce noise levels during construction.

3.7.4 Avoidance, Minimization, and/or Mitigation Measures

During construction, the following measures will be implemented to help reduce noise levels:

- Construction equipment shall have mufflers conforming to original manufacturer specifications that are in good working order and are in constant operation to prevent excessive noise or unusual noise.
- Operators shall avoid leaving equipment idling for more than five minutes when parked or not in use.

3.8 Geology and Soils

This section describes the soils and geologic hazards within the study area as they relate to public safety and design of the Action Alternative. The study area includes a 20-foot buffer beyond the existing roadway edge, with wider areas at culverts proposed for improvements and at proposed slope setbacks.

3.8.1 Regulatory Setting

Federal regulations protect geologic and topographic features under the Historic Sites Act of 1935, which establishes a national registry of natural landmarks and protects "outstanding examples of major geological features."

3.8.2 Affected Environment

Soils

As noted in the *Apache Trail Biological Assessment/Biological Evaluation Amendment* (BA/BE) (Jacobs 2021a) completed for the project, most of the project area is covered by deep alluvium washed in from the adjacent mountains. These deposits of silt, sand, and gravel are very young in the present-day drainageways and much older on the valley floors and terraces (Jacobs 2021a). Three distinct geological units exist within the project area. The majority of the project area consists of early Proterozoic metamorphic gneiss rock, but the western end of the project area consists of eroded volcanic basalt and andesite from Middle Miocene to Oligocene, and the eastern end of the project area consists of early Proterozoic granite rock. The variations in underlying geology create a noticeable difference in the stream channel morphology and vegetative communities observed onsite.

The Natural Resources Conservation Service (NRCS) has not published soil maps for this section of TNF. The project area is located generally within the Lithic Torriorthents-Lithic Haplustolls-Rock Outcrop Association of soils (TS6), with Torrifluvent soils along drainageways. These soils are well-drained, shallow soils and rock outcrop on semiarid, mid-elevation hills and mountains. The soils formed in residuum weathered from many rocks including granite, gneiss, rhyolite, andesite, tuffs, limestone, sandstone and basalt (Jacobs 2021a).

Topography

The Apache Trail winds through the mountainous terrain of the Superstition Mountains within TNF. Within the project area, the topography varies between rolling rocky slopes and rocky and cliff-dominated terrain. The road crosses numerous desert washes that vary in size and depth. Two of the larger washes within the project area are Davis Wash and Pine Creek.

Geologic Hazards

During heavy seasonal rain storms, water can overflow the roadway in spot locations along the project area. Depending on the severity, flooding sometimes causes damage to the roadway and/or culvert infrastructure. Partial or full closures are sometimes needed to repair the road and/or remove debris. During these events, culverts can plug resulting in roadway overtopping that scours the roadway surface and downstream embankment. In 2019, severe thunderstorms entered the project area in September and

November that caused heavy rains which resulted in roadway flooding, significant debris flows and rock fall to occur along the route.

The decomposed granite road surfacing material does not have the strength, gradation, and plasticity required to meet typical compaction standards (USDOT 2015). This results in washboarding, loss of material to roadside ditches, and dust. As a result, dust stirred up from traveler use may negatively affect visibility and air quality. Please refer to the 'Air Quality' section for further discussion.

3.8.3 Environmental Consequences

No Action Alternative

Under the No Action Alternative, current roadway conditions would be maintained. Regular maintenance activities would continue, as well as maintenance on an as-needed basis to address damages. Impacts to soils would include soil compaction and increased potential for erosion due to regular maintenance activities, inadequate drainage, and vehicles that inadvertently leave the roadway.

Action Alternative

Long-term impacts to soils would result from widening the roadway in spot locations to achieve a 20-foot or 24-foot typical road width, depending on the location and geologic constraints. In addition, impacts to soils would result from applying a chip seal pavement to the currently unpaved 11.16-mile section of road and paving existing pullouts. Temporary impacts to soils would result from clearing vegetation, constructing slope setbacks in several locations, and replacing and installing culverts. Applying a chip seal paving surface to the 11.16-mile decomposed granite stretch of road would create an impervious surface and increase the potential for runoff and erosion in proximity to the roadway. However, the completion of a hydraulic analysis of the project area and implementation of a drainage plan incorporating properly sized culverts and scour protection to handle surface water runoff in drainageways and ditches would reduce the potential for erosion and minimize impacts to soils. In addition, implementation of a Stormwater Pollution Prevention Plan (SWPPP) and Water Quality Construction Best Management Practices (BMPs) would reduce the impacts to soils, including soil erosion and the ability of the soil to support vegetation. As a result, long-term impacts to soils would be less than significant.

Conclusion

Under the Action Alternative, short and long-term adverse impacts to soils would result from soil disturbance from widening of the road in spot locations, clearing vegetation in spot locations, drainage improvements, and slope setbacks. However, long-term beneficial impacts to soils by upgrading drainage features would also occur. In addition, converting the 11.16-mile project area to an impervious surface would increase the potential for runoff and erosion; however, the short- and long-term impacts to geology and soils would be less than significant with incorporation of avoidance, minimization, and/or mitigation measures listed below.

3.8.4 Avoidance, Minimization, and/or Mitigation Measures

During construction, the following measures will be implemented to help reduce impacts to geology and soils:

- As part of the National Pollutant Discharge Elimination System (NPDES) Permit, a Stormwater Pollution Prevention Plan shall be implemented which would reduce impacts to soils.
- The area beyond the construction limits shall not be disturbed. Areas impacted from construction-related activity shall be replanted or reseeded with native plants under guidance from TNF and/or ADOT biologists. Revegetated areas shall be protected and cared for until restoration criteria have been met under NPDES standards.

3.9 Air Quality

Per the transportation conformity rule, this project is exempt from conformity with established air quality goals (40 CFR § 93.126 exempt projects) because the Action Alternative would not increase the overall capacity of the Apache Trail and would not significantly alter the vertical and horizontal alignment. Therefore, no long-term air quality impacts are anticipated. However, short-term air quality impacts from construction activities are anticipated and discussed below. The study area for air quality is Maricopa County.

3.9.1 Regulatory Setting

The Clean Air Act is the federal law that governs air quality. The Environmental Protection Agency (EPA) is responsible for establishing national ambient air quality standards (NAAQS) for six "criteria" pollutants to protect the public from health hazards associated with air pollution. These six criteria pollutants are carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter ($PM_{2.5}$ and PM_{10}), lead (Pb), and sulfur dioxide (SO_2).

The relevant air quality management agencies in Maricopa County include the EPA, ADEQ, and the Maricopa County Air Quality Department. The EPA has established federal standards for which ADEQ and Maricopa County have primary implementation responsibility. ADEQ and Maricopa County are also responsible for ensuring that state standards are met. At the local level, air quality is managed through land use and development planning practices, which are implemented in the county through the general planning process. The Maricopa County Air Quality Department is responsible for establishing and enforcing local air quality rules and regulations that address the requirements of federal and state air quality laws.

Guidance for the determination of significant air quality impacts within Maricopa County is found in the *Maricopa County Air Pollution Control Regulations*, published by the Maricopa County Department of Air Quality.

The nearby Superstition Wilderness Area is a designated Class I area under the Clean Air Act, which is an area that is afforded the highest degree of air quality protection with little allowance for deterioration of air quality.

3.9.2 Affected Environment

Climate Conditions

Average annual precipitation equals 15.74 inches with low intensity winter rains and high intensity monsoon thunderstorms in July and August (WRCC 2018). The data from the local Roosevelt weather station confirms that monsoonal precipitation cycle is the dominant precipitation event which likely drives the geomorphology of the local stream channels (WRCC 2018). The region has experienced annual drought conditions since 2010, with no single rain event exceeding 2 inches during that time. The largest single rain event on record (1905–2012) occurred in March of 1978 with a one-day total of 4.14 inches (WRCC 2018).

In Fall of 2019, a powerful late-season transition event aided by tropical moisture from the remnants of Hurricane Lorena led to widespread rainfall across south-central Arizona during a five-day period beginning September 23rd and ending on September 27th 2019. Maricopa County rain gages measured event totals anywhere from 0.00" - 4.50". Residents in Mesa, Apache Junction, Fountain Hills, Buckeye, Tonopah and several other communities experienced significant flash flooding due to heavy rain from this event (FCDMC 2019).

According to the Western Regional Climate Center (WRCC), the closest, most representative monitoring station to the proposed study area is the Roosevelt 1 WNW station. Climate data at this station was available from years 1905 to 2016 and is summarized in Table 4.

Table 4. Temperature and Precipitation Data (1905-2016) for Roosevelt 1 WNW, Arizona

Month	Temperature (°F)		Precipitation (inches)
	Average Maximum	Average Minimum	Average
January	59.2	37.1	1.9
February	64.2	40.1	1.77
March	70.8	44.7	1.76
April	79.7	51.7	0.67
May	89.3	60.2	0.34
June	99.4	69.2	0.24
July	102.2	75.3	1.47
August	99.7	73.7	1.97
September	94.8	67.8	1.29
October	83.5	56.5	1.09
November	69.8	45.1	1.21
December	59.9	37.8	2.02
Annual	81.0	54.9	15.74

Source: WRCC 2018

Fugitive Dust

The project occurs outside of Phoenix in Maricopa County, which is a (Serious) non-attainment area for PM-10 (1987), as designated by the EPA. A primary source of particulate matter in the area is fugitive dust from unpaved roads.

A report from Volpe noted that the decomposed granite surface on the unpaved portion of the road easily enters the air when dry and disturbed, decreasing visibility and overall air quality. This is a challenge, in particular, for decomposed granite surfacing compared to other unpaved surface materials.

Ozone

Maricopa County is in (Moderate) non-attainment for 8-Hr Ozone (2008). Ozone is not emitted directly into the air, but is created by chemical reactions between nitrogen oxides (NOx) and volatile organic compounds (VOCs). Emissions from industrial processes,

motor vehicle exhaust, and chemical solvents are some of the major sources of nitrogen oxides and VOCs.

Breathing in ozone can trigger a number of health problems including chest pain, coughing, throat irritation, and congestion, as well as worsen existing conditions such as bronchitis, emphysema, and asthma. Ground-level ozone also damages vegetation and ecosystems.

3.9.3 Environmental Consequences

No Action Alternative

Under the No Action Alternative, current roadway conditions would be maintained. Continued vehicular use of the unpaved road surface would continue to emit large volumes of fugitive dust. In addition, ongoing maintenance activities would be required to repair damages, smooth the road surface, and combat washboarding. These activities would continue to require the importing of and movement of additional fill material. Although water would continue to be imported to reduce the amount of dust generated during maintenance, these activities and the equipment used to perform them would continue to contribute fugitive dust and emissions that contribute to the formation of ozone resulting in a long-term localized adverse impact to air quality.

Action Alternative

Under the Action Alternative, rehabilitation and the application of a chip seal hardened surface along the 11.16-mile length of the project, would drastically reduce the generation of fugitive dust from vehicular use of this section of the road. In addition, installation of a chip seal surface would eliminate the need for additional fill material and maintenance activities to combat washboarding. While some road maintenance would still be required, the frequency and magnitude of routine maintenance would be greatly reduced. The reduction of maintenance driven emissions and the generation of fugitive dust along the project area would provide long-term beneficial impacts to air quality.

Construction activities are a source of dust and exhaust emissions that can have substantial impacts on local air quality. Emissions can vary substantially from day to day, depending on level of activity, the specific operations, and the prevailing weather. During construction, the Action Alternative would generate fugitive dust as a result of earthmoving construction operations and hauling materials. In addition, equipment required for these operations would temporarily increase NOx emissions. Given the short-term nature of the project and the relatively small scale of the construction, the emissions are not expected to contribute measurably to the formation of ozone. While BMPs would be implemented to reduce fugitive dust and emissions, minor localized temporary adverse impacts to air quality would result during implementation of the project. The air quality effects would be negligible with respect to the overall air quality within Maricopa County

Conclusion

This project is exempt from transportation conformity requirements. Long-term air quality impacts are anticipated to be beneficial as applying a chip seal surface would reduce the generation of fugitive dust from vehicular use within the project area. Mitigation would be implemented to reduce the impact of temporary impacts to air quality during construction to less-than-significant levels, as described below.

3.9.4 Avoidance, Minimization, and/or Mitigation Measures

Project construction is not anticipated to exceed thresholds of significance for construction-related criteria air pollutants and precursors. Therefore, control measures to reduce temporary construction-related emissions are not required, and therefore not recommended.

Standard construction BMPs will be implemented to minimize fugitive dust and NOx emissions during construction. Examples of which include the following:

- Maintain roadways during construction as follows:
  - Manage dust on the traveled way such that visibility and air quality are not affected and a hazardous condition is not created.
  - Remove accumulations of soil and other material from traveled way.
- Before grubbing or grading construct sediment controls around the perimeter of the project including filter barriers, diversion, and settling structures.
- Provide an adequate water supply and apply water uniformly across the traveled way as necessary to control dust. Uniformly apply water using pressure-type distributors, pipelines equipped with spray systems, or hoses with nozzles.
- Control dust within the construction limits as necessary including nights, weekends, and periods of non-work when the project is open to public traffic. When the project is not open to public traffic, control dust in areas of the project that have adjacent residences or businesses. Apply water at the locations, rates, and frequencies as ordered.
- Control dust on active haul roads, in pits and staging areas, and on the project during periods not covered above.

3.10 Wetlands and Other Waters of the U.S.

The following discussion summarizes the evaluation of existing waters of the U.S. (WOTUS) and potential effects to these resources that could occur with implementation of either the No Action Alternative or the Action Alternative. Additional information on the assessment of these resources is available in *Apache Trail AZ FLAP SR 88(1) Tonto National Forest, Maricopa County, AZ Waters of the U.S. Delineation Report* (Jacobs 2021b). The study area includes the existing roadway corridor, with wider areas at culverts proposed for improvements.

3.10.1 Regulatory Setting

Under Section 404 of the Clean Water Act (CWA), the USACE regulates the discharge of dredged and fill materials into WOTUS. As defined in 33 CFR § 328.3, these waters generally include wetlands and other waters, such as intrastate lakes, rivers, streams, mudflats, and tributaries to those waters. The EPA shares responsibility over WOTUS, with the USACE overseeing the Section 404 permit program. In addition, Executive Order 11990 directs federal agencies to observe a "no net loss" of wetlands in order to "minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands."

3.10.2 Affected Environment

The project area traverses the landscape, generally paralleling the east side of Apache Lake, which is an impounded reach of the Salt River. The study area includes 177 ephemeral or intermittent drainages of varying sizes, including 21 larger streams that are mapped as blue-line intermittent streams by the U.S. Geological Survey (USGS), but which most are actually ephemeral in nature (Jacobs 2021b). The remaining minor drainages are not identified by the USGS or the National Hydrography Dataset (NHD) mapping. The project limits cross three larger named drainages: Davis Wash, Pine Creek, and Burnt Corral Creek.

A delineation was conducted between October 12 and 28, 2020. The survey area was investigated for the presence of wetland indicators (wetland hydrology, hydrophytic vegetation, and hydric soils), other WOTUS, and riparian habitat. Identification of wetland areas within the project area followed the *USACE 1987 Corps of Engineers Wetlands Delineation Manual* (1987 Manual) (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Supplement) (USACE 2008). The survey area was investigated for the presence of wetland hydrology, hydrophytes, and hydric soils. Hydrophytic vegetation was identified utilizing the National Wetland Plant List (NWPL), wetland indicator status for the Arid West Region (Lichvar et al. 2016). Taxonomy was determined utilizing *A Natural History of the Sonoran Desert, Second Edition* (Phillips et al. 2015), and the University of Arizona Herbarium (UAH 2018). Per the Supplement (USACE 2008), if an observed plant species did not occur on the applicable regional list, the plant was assumed to be an upland species. Vegetation was determined to be "naturally problematic" throughout the survey area. The field survey was conducted during a dormant season for most forbs, grasses, and deciduous shrubs.

Due to the extensive, linear nature of the project area, and limited scope of the proposed project, surveys did not extend beyond the immediate road corridor except in areas where proposed drainage improvements/actions were anticipated. Most identified features were mapped using a submeter accuracy Global Positioning System (GPS) unit (Trimble GeoXH). GPS data was post-processed using ArcGIS 10.3 and mapped features were then overlain on aerial imagery. Some drainage features located within the project limits, but not subject to project impacts, were identified in the field and delineated with field map notes and desktop aerial photos.

Wetlands

Due to the steep topography and arid conditions of the landscape, potential WOTUS were limited to mostly ephemeral washes and streams within the project limits. No wetlands were delineated within the project corridor. Apache Lake is adjacent to portions of the project and is an open water, but was not delineated because it was beyond the survey area boundaries

Other Waters of the U.S.

The delineation identified a total of approximately 7.96 acres of potential WOTUS within the survey area. All features delineated were either ephemeral or intermittent streams. Ephemeral streams are those drainages that flow after rain events or temporarily channel snow melt. Intermittent streams have flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Both ephemeral and intermittent streams are classified as intermittent riverine streambed with seasonal flooding (R4SBC) (Cowardin et al. 1979).

Surveys focused on the immediate road corridor except in areas where proposed drainage improvements and/or actions were anticipated. A unique identification number was designated for each delineated feature chronologically from west to east. Streams were further divided with a directional designation (e.g., E, W, N, or S) when the drainage passed through a culvert or was separated by the road. All streams drain into Apache Lake, which is an open water feature north of the project corridor. One hundred seventy-seven (177) potential streams were delineated. The width of the streams ranged from 1 to 300 feet wide at their ordinary high-water mark. At the time of investigation, no surface water was present within any of the features delineated.

3.10.3 Environmental Consequences

No Action Alternative

The No Action Alternative would not improve the roadway and would consist of continuing existing maintenance activities. Maintenance activities, including the continued importing and movement (blading) of additional fill material on the roadway, could result in impacts to jurisdictional and non-jurisdictional waters. Erosion and dispersal of the excess fill material that sits along the shoulders of the Apache Trail ends up in the numerous streambeds that cross under and over the roadway resulting in adverse impacts. While standard BMPs would be implemented during some maintenance activities, weather events and the frequent blading of the road surface would continue to increase the potential for some of the roadway fill material to enter streams where it can wash down into Apache Lake. As a result, the No Action

Alternative would be anticipated to have adverse impacts to WOTUS that range in severity depending on location, weather events, and the proximity of any berms of roadway fill material to WOTUS.

Action Alternative

The Action Alternative may permanently and temporarily impact ephemeral washes as a result of roadway and drainage improvements. Some of these may be determined to be other WOTUS. According to 33 CFR 328.3(a), the limits of federal jurisdiction for "Jurisdictional" WOTUS are defined as follows:

(1) The territorial seas, and waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including waters which are subject to the ebb and flow of the tide.

(2) Tributaries;

(3) Lakes and ponds, and impoundment of jurisdictional waters; and

(4) Adjacent wetlands.

"Non-jurisdictional" waters. Or waters that are not WOTUS are defined as follows:

(1) Waters or water features that are not identified in paragraph (a)(1), (2), (3), or (4) of this section;

(2) Groundwater, including groundwater drained through subsurface drainage systems;

(3) Ephemeral features, including ephemeral streams, swales, gullies, rills, and pools;

(4) Diffuse stormwater run-off and directional sheet flow over upland;

(5) Ditches that are not waters identified in paragraph (a)(1) or (2) of this section, and those portions of ditches constructed in waters identified in paragraph (a)(4) of this section that do not satisfy the conditions of paragraph (c)(1) of this section;

(6) Prior converted cropland;

(7) Artificially irrigated areas, including fields flooded for agricultural production, that would revert to upland should application of irrigation water to that area cease;

(8) Artificial lakes and ponds, including water storage reservoirs and farm, irrigation, stock watering, and log cleaning ponds, constructed or excavated in upland or in non-jurisdictional waters, so long as those artificial lakes and ponds are not impoundments of jurisdictional waters that meet the conditions of paragraph (c)(6) of this section;

(9) Water-filled depressions constructed or excavated in upland or in non-jurisdictional waters incidental to mining or construction activity, and pits excavated in upland or in non-jurisdictional waters for the purpose of obtaining fill, sand, or gravel;

(10) Stormwater control features constructed or excavated in upland or in non-jurisdictional waters to convey, treat, infiltrate, or store stormwater runoff;

(11) Groundwater recharge, water reuse, and wastewater recycling structures, including detention, retention, and infiltration basins and ponds, constructed or excavated in upland or in non-jurisdictional waters; and

(12) Waste treatment systems.

Non-tidal WOTUS, or non 328.3 (a)(1) waters, must meet the definition of (a)(2)-(4) waters to be WOTUS. As defined in 328.3 (c), "*The term tributary means a river, stream, or similar naturally occurring surface water channel that contributes surface water flow to a water identified in paragraph (a)(1) of this section in a typical year either directly or through one or more waters identified in paragraph (a)(2), (3), or (4) of this section. A tributary must be perennial or intermittent in a typical year. The alteration or relocation of a tributary does not modify its jurisdictional status as long as it continues to satisfy the flow conditions of this definition. A tributary does not lose its jurisdictional status if it contributes surface water flow to a downstream jurisdictional water in a typical year through a channelized non-jurisdictional surface water feature, through a subterranean river, through a culvert, dam, tunnel, or similar artificial feature, or through a debris pile, boulder field, or similar natural feature. The term tributary includes a ditch that either relocates a tributary, is constructed in a tributary, or is constructed in an adjacent wetland as long as the ditch satisfies the flow conditions of this definition.*"

The delineation report was submitted to the USACE in February 4, 2021, for an Approved Jurisdictional Determination (AJD). According to the AJD dated March 5, 2021, the USACE determined that all the streams, with the exception of Pine Creek, are ephemeral streams and do not meet the definition of WOTUS. Pine Creek was determined to be an intermittent stream and thus, met the definition of WOTUS. The AJD and maps identifying aquatic features are in Appendix B.

Based on conceptual design, the Action Alternative would permanently impact less than 0.85 acres of ephemeral waters and temporarily impact less than 1 acre of ephemeral waters. No work below the ordinary high water of Pine Creek is proposed. Table 5 summarizes these impacts. Additionally, there would be no impacts to wetlands or riparian habitat since they do not occur within the project impact area. Temporarily impacted areas would be restored shortly after construction, which would include stabilization and erosion control. These impacts are a conservative estimate based on conceptual design. Actual impacts after final design are anticipated to be similar or less.

Table 5. Aquatic Resource Impacts

Water Type	Acres within Study Area	Permanent Impacts (acres)	Temporary Impacts (acres)
Aquatic Resources			
Ephemeral Streambed	7.96	<0.85	<1.0

Along most of the project corridor, these impacts would be associated with drainage improvements to existing culverts. Approximately 91 drainage features would undergo modification or maintenance. These actions include culvert replacement or extension, culvert cleaning, ditch reconditioning, wingwall/headwall replacement and repair, low-

water crossing replacement, and/or addition of one of several scour protection treatments as described in Chapter 2. The majority of these scour protection treatments would add additional infrastructure that would extend the outlet of the culvert onto the floor of the ephemeral channel. While these actions would result in permanent fill within the channels, they would reduce the potential for excessive erosion caused by high volumes of water flowing through undersized culverts or pouring into the channels from a perched culvert outlet during rain events. Permanent impacts would result from the placement of fill and/or infrastructure within the channels. Temporary impacts would result from construction equipment accessing the channels and streambanks. In localized areas of roadway, the impacts would be associated with excavation and fill to widen the roadway a few feet. The largest single impact would occur at the low water crossing located at approximately MP 236.34 as a result of localized reconstruction because the road crosses through the ephemeral channel and the hardened low water crossing would extend approximately 22-feet beyond the road corridor on both sides of the road in this location.

Conclusion

All WOTUS will be avoided in the Action Alternative. Overall, the Action Alternative would initially result in adverse impacts to ephemeral streams (i.e. non-jurisdictional waters), through the direct placement of roadway fill and culvert replacement, repair, or extension. However, with the implementation of BMPs and the restoration and stabilization of temporary impact areas, the impacts would ultimately be expected to be minimal. In addition, long-term beneficial impacts would result from drainage improvements to reduce erosion and improved hydrologic function at the roadway interface.

3.10.4 Avoidance, Minimization, and/or Mitigation Measures

There is no practicable alternative to avoid impacting ephemeral streams while meeting the purpose and need of the project. The following measures will be implemented in order to avoid or minimize impacts:

- Maintain the existing roadway alignment to minimize impacts to ephemeral streams and adjacent WOTUS.
- In certain locations, the road width and numerous curves will have design exceptions in order to minimize ground disturbance.
- Culvert repair or replacement and associated work shall not be completed if there is flowing water within the ephemeral channel.
- The construction contractor shall use BMPs to prevent the discharge of equipment fluids. All equipment shall be stored, repaired, maintained, and fueled at least 65 feet away from waterways. A plan to allow a prompt and effective response to any accidental spills shall be developed prior to construction.
- The area beyond the construction limits shall not be disturbed. Degraded areas impacted from construction-related activity shall be replanted or reseeded with native plants. FHWA-CFLHD shall work with TNF and ADOT for appropriate seed mixes.

3.11 Water Quality and Hydrology

This section discusses the existing hydrology of the project area, existing water quality conditions and standards, and the potential to impact the watershed. The study area used for this assessment encompasses the existing 100-foot wide ADOT easement and select areas beyond the easement that encompass areas of localized improvements. In addition, the study area includes 200 feet downstream of delineated perennial, ephemeral, and intermittent streams and drainages to account for any indirect impacts to water quality during construction.

3.11.1 Regulatory Setting

The Federal Water Pollution Control Act of 1972, as amended by the CWA of 1977, dictates water quality standards and regulates the discharge of pollutants from point sources into WOTUS. The overall goal of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Section 303 of the CWA requires states to develop or adopt and implement water quality standards. This consists of designating the use of waters and setting water quality criteria. In addition, each state identifies impaired waters, also known as the 303(d) list, that require additional measures and a long-term plan to bring such waters up to water quality standards. Under Section 304(a), the EPA also issues recommended water quality criteria that aid states in developing these standards.

Section 402 and Section 404 of the CWA set forth the permitting programs to regulate discharges into WOTUS. Section 402 establishes the NPDES permitting program, which requires a permit for any point source discharge (excluding dredged and fill material) into a water of the U.S. As previously discussed in the Wetlands and Other Waters of the U.S. section, Section 404 regulates the discharge of dredged and fill materials into WOTUS. As part of the goal of maintaining water quality standards, any entity requiring a permit, commonly a Section 404 permit, needs to obtain water quality certification from the state.

3.11.2 Affected Environment

The project is generally located within the Lower Salt River watershed (U.S. Geological Survey [USGS] Hydrologic Unit Code [HUC] 15060106) and spans three sub-watersheds: Pine Creek (HUC 150601060101), Burnt Corral Creek (HUC 150601060102) and Davis Wash (HUC150601060103) (Jacobs 2021b). Apache Lake is a 2,192-acre impoundment (located north and parallel to the project area) that is within the SRP chain of reservoirs which provide water to the Phoenix metropolitan area. The project area traverses the landscape, generally paralleling the south/east side of Apache Lake. The project crosses approximately 177 drainages of varying sizes, including 21 larger ephemeral streams that are mapped as blue-line intermittent streams by USGS (Jacobs 2021b), but are actually ephemeral in nature, with the exception of Pine Creek. The remaining minor drainages delineated are not identified by the USGS or the National Hydrography Dataset (NHD) mapping. The project limits cross three larger named drainages: Davis Wash, Pine Creek, and Burnt Corral Creek. In general, within the project area, the road prism of the Apache Trail intersects numerous drainages

originating from the Superstition Mountains and flowing towards the Salt River/Apache Lake.

The project area is within the Central Highlands Planning Area, as managed by the Arizona Department of Water Resources (ADWR). According to Section 5.2 (Salt River Basin) of the *Arizona Water Atlas Volume 5 Central Highlands Planning Area* (ADWR 2009), water quality standards were not exceeded in Apache Lake when the report was published in 2009. In 2016, ADEQ requested that the EPA add water quality limited segments (WQLS) for Apache Lake to the 2016 list due to measured fish tissue mercury exceedances. ADEQ reached out to the EPA because Arizona does not currently have impairment identification procedures for listing waters based on mercury in fish tissue, but does believe the waters to be impaired. As a result, the EPA proposed to add WQLS for Apache Lake and the lake was proposed for listing as impaired for the designated uses of 'aquatic and wildlife' and 'fish consumption' (EPA 2016). No total daily maximum load (TDML) data has been recorded within Apache Lake, but the probable sources listed as contributing to impairment include the following: dam or impoundment, forest roads (road construction and use), livestock (grazing or feeding operations), other recreational pollution sources, and watershed runoff following forest fire. These sources are listed as potential contributors to impairment of dissolved oxygen and mercury in fish tissue (EPA 2016).

According to the EPA, in many waterbodies, mercury likely originates largely from air sources, such as coal-fired power plants and incinerators, that deposit in waters or nearby lands that then wash-down into nearby waters. The sources may come from a combination of local, regional, or even international contributors. The presence of mercury may also be a remnant of past practices that used mercury, such as historic gold mining, or from geologic deposits.

According to ADEQ's 2012/2014 list of impaired waters, Apache Lake was also listed as impaired for low dissolved oxygen.

The existing decomposed granite surfacing material on the Apache Trail does not have the strength, gradation, and plasticity required to meet compaction standards. As a result, erosion and dust control are a constant maintenance concern along the project corridor. The dust issue requires ADOT to constantly spray down the road with water while addressing the frequent issues that arise on the unpaved sections (USDOT 2015). The decomposed granite material frequently erodes into the numerous ephemeral drainages and ultimately into Apache Lake. While the decomposed granite is not a source of mercury, it is a source of increased sedimentation and turbidity in the lake, which impacts the water quality.

3.11.3 Environmental Consequences

No Action Alternative

Under the No Action Alternative, none of the proposed improvements would occur. Existing maintenance activities would continue, and may include grading and repairing or cleaning culverts, as needed. Generally, maintenance activities are anticipated to stay within the existing road surface; however, grading activities, ditch cleaning and culvert maintenance would result in increased sedimentation and turbidity in waterways within the project area. In particular, ongoing grading activities continually add road surfacing

material to the edges of the roadway. During rain events, grading, and continued use of the roadway, the excess surfacing material would continue to be lost to roadside ditches and washes. The erosive nature of this material would continue to contribute an adverse impact to the water quality of the adjacent Apache Lake.

Action Alternative

The Action Alternative would require excavating, filling, and grading of the road; applying a chip seal to the road surface; laying back cut slopes in five locations; improving low water crossings; repairing, replacing, or extending culverts in numerous locations; and providing scour protection in drainageways, including ditches. Based on conceptual design, a total of approximately 31 acres of impervious surface would be added as a result of chip sealing the road surface and several pullouts adjacent to the road. The increase in impervious surface could permanently affect water quality within the study area by increasing the velocity and amount of stormwater runoff into the study area watershed resulting in long-term adverse impacts to water quality. However; the application of a chip seal along the project route would eliminate 31 acres of decomposed granite surface in addition to the stockpiles and berms of material along the roadway, which are a chronic source of sedimentation and turbidity in washes and streams along the project corridor. The removal of this sedimentation source would result in long-term benefits to water quality within the project area. For these reasons, the increase in impervious surface is expected to have marginal impacts to water quality within the project area watershed.

The Action Alternative would maintain existing drainage patterns by upsizing some culverts and extending numerous existing culverts to improve their longevity and decrease erosion. Additional relief culverts would be added in several locations where there are longer segments between existing culverts to reduce the capacity load of the existing culverts. The improvements to existing culverts, the addition of several relief culverts, and the addition of armored roadside ditches in spot locations would also improve drainage dynamics.

Construction activities, particularly work within the ephemeral streambeds, could temporarily increase sedimentation into surface waters. However, the ephemeral streambeds are dry other than during and immediately following rain events and dewatering activities are not anticipated to be necessary during construction. In addition, BMPs would be implemented to limit and/or prevent sedimentation and turbidity during construction, which would reduce the severity of short-term adverse impacts to be negligible.

Prior to construction, a NPDES construction permit would be obtained. As part of the NPDES permit, a SWPPP would be developed, which would discuss means and methods to reduce potential water quality impacts during construction.

Conclusion

With implementation of avoidance and minimization measures as outlined below, permanent and temporary adverse impacts to water quality within the study area are expected to be less than significant. The Action Alternative would have no impact on fish tissue mercury levels within Apache Lake. Placing a chip seal on the road surface within the project area would eliminate the need for weekly grading activities and the

frequent addition of road surfacing material that contributes to increased sedimentation and turbidity within the ephemeral streambeds and ultimately Apache Lake. As a result, there would be long-term benefits to water quality within the project area which would offset, to a degree, the long-term adverse impacts resulting from the additional impervious surface area.

3.11.4 Avoidance, Minimization, and/or Mitigation Measures

The following measures would be implemented to reduce impacts on water quality:

- The area beyond the construction limits shall not be disturbed. Degraded areas impacted from construction-related activity shall be replanted or reseeded with native plants. FHWA-CFLHD shall work with TNF and ADOT for appropriate seed mixes.
- Certified weed-free permanent and temporary erosion control measures shall be used to minimize erosion and sedimentation during and after construction according to the contract erosion control plan, contract permits, Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects (referred to as FP) Section 107 and FP Section 157.
- Any spill of petroleum products, hazardous materials, or other chemical or biological products released from stationary sources or construction, fleet, or other support vehicles shall be properly cleaned, mitigated, and remedied, if necessary. Any spill of petroleum products or a hazardous material shall be reported to the appropriate federal, state, and local authorities, if the spill is a reportable quantity. Response shall occur in accordance with federal, state, and local regulations.
- The contractor shall repair leaks immediately on discovery. Equipment that leaks shall not be used. Oil pans and absorbent material shall be in place prior to beginning work. The contractor shall be required to provide the "on-scene" capability of catching and absorbing leaks or petroleum product spills, including antifreeze from breakdowns or repair actions, with approved absorbent materials. A supply of acceptable absorbent materials at the job site in the event of spills, as defined in the SWPPP, shall be available. Sand and soil are not approved absorbent materials. Soils contaminated with fluids shall be removed, placed in appropriate safety containers, and disposed of according to state and/or federal regulations.
- The construction contractor shall use BMPs to prevent the discharge of equipment fluids. All equipment shall be stored, repaired, maintained, and fueled at least 65 feet away from waterways, wetlands, and riparian habitat. A plan for prompt and effective response to any accidental spills shall be developed prior to construction.
- Temporary erosion control measures shall be maintained in working condition until the project is complete or the measures are no longer needed.
- Only apply herbicides conforming to U.S. Environmental Protection Agency (EPA), Arizona Department of Agriculture, and/or Arizona Department of Environmental (ADEQ) requirements on project corridor.
- Apply herbicides prior to ground disturbance where there are visible noxious and invasive plant species only.

- Herbicides proposed for use on projects within transportation easements on USFS Lands shall be in conformance with the following current environmental documents including the *Environmental Assessment for Management of Noxious Weeds and Hazardous Vegetation on Public Roads on National Forest System Lands in Arizona* which is available at: http://www.fs.usda.gov/main/r3/landmanagement/projects .
- For the use and application of herbicides, follow the Tonto National Forest EA for Treatment of Noxious Weeds: http://data.ecosystem-management.org/nepaweb/nepa_project_exp.php?project=4454, including information provided at: https://www.fs.usda.gov/detail/tonto/landmanagement/resourcemanagement/?cid=fsbdev3_018789.

3.12 Wildlife (Including Special Status Species)

This section evaluates potential impacts relating to biological resources in and around the project biological study area. The TNF is home to many special status species, as well as sensitive natural communities, and federally designated critical habitat, all of which are discussed in this section. For purposes of this EA, special status species are considered the following:

- General wildlife
- Species designated as sensitive by TNF
- Bald and golden eagles
- Migratory birds
- Arizona State "Species of Greatest Conservation Need"
- Species listed, proposed for listing, or candidates for listing under the state or federal Endangered Species Acts (ESA)

The study area used for this assessment encompasses the existing 100-foot wide ADOT roadway easement and select areas beyond the right-of-way that encompass areas of localized improvements. In addition, the study area includes 200 feet downstream of delineated ephemeral and intermittent streams and drainages to account for any indirect impacts to water quality during construction.

3.12.1 Regulatory Setting

In 1973, the federal Endangered Species Act (FESA) was established for the protection of threatened and endangered species and their habitats. Under Section 7 of this act, federal agencies are required to consult with the USFWS and NMFS to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. Section 9 of the FESA prohibits the take of threatened or endangered species, which is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct."

The Bald and Golden Eagle Protection Act (16 U.S.C. 668–668c) prohibits the take of bald or golden eagles, including their parts, nests, or eggs. In terms of the act, "take" is defined as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb."

Pursuant to the Migratory Bird Treaty Act (MBTA) of 1918, federal law prohibits the taking of migratory birds, their nests, or their eggs (16 U.S.C., Section 703). In 1972, the MBTA was amended to include protection for migratory birds of prey (e.g., raptors). The USFWS enforces the MBTA (16 U.S.C. 703-711).

USFS policy requires that a review of programs and activities be conducted to determine their potential effect on threatened and endangered species, species proposed or designated as candidates for listing, and Regional Forester-designated sensitive species (FSM 2670.3). Sensitive species are plant or animal species identified by the Regional

Forester for which population viability is a concern, as evidenced by either a significant current or predicted downward trend in population numbers or density, or a significant current or predicted downward trend in habitat capability that would reduce the species' existing distribution.

3.12.2 Affected Environment

General Wildlife

On January 30 through February 1, 2018, and again on October 12 through October 28, 2020, a certified wildlife biologist investigated the survey area for general biological characteristics (Jacobs 2021a). A reconnaissance-level vegetation survey was also performed. As noted in the BA/BE completed for the project, typical mammalian wildlife in the area include desert cottontail (*Sylvilagus audubonii*), black tailed jackrabbit (*Lepus californicus*), several species of squirrel (*Sciuridae*), mice and rats (*muridae*), raccoon (*Procyon lotor*), coyote (*Canis latrans*), striped skunk (*Mephitis mephitis*), javelina (*Tayassu tajacu*), bobcat (*Lynx rufus*), mountain lion (*Puma concolor),* and mule deer (*Odocoileus hemionus*). Tracks of raccoon, coyote, and javalina were seen during field investigation and Harris' antelope squirrels (*Ammospermophilus harrisii*) were also noted throughout the project area.

A myriad of reptiles and amphibians occur in the area including turtles, lizards, venomous and non-venomous snakes, and frogs.

An extensive number of bird species are also known to occur in the area including a number of resident and migrant species. More than 45 species of birds were encountered during field surveys.

Special Status Species

In terms of this analysis, special status species are those species that are designated as sensitive by TNF, protected by federal law, and/or noted by the State of Arizona as a "Species of Greatest Conservation Need." Special status plant and habitat observations were made during field surveys. The area evaluated for potential effects to these species includes the project limits and the immediate surrounding area. Due to the relief of the local topography, the action area evaluated generally includes all areas with a direct line of sight within one mile of the project limits. Downstream species, including those beyond the parameters described above, were considered through this process. However, compliance with the National Pollutant Discharge Elimination System (NPDES) provision of the Clean Water Act is anticipated to prevent possible downstream impacts.

The action area was evaluated for the presence of and potential to support eight species listed, proposed, or identified as a candidate for listing as threatened or endangered under the ESA, 16 TNF-sensitive species and one group, for a total of 24 species and one group. Most of the species evaluated have more than one special status designation. Table 6 includes a list of all species and evaluated for the project along with the federal and state status. Those species with potential to occur are discussed further in the analysis below. Many species have multiple special status designations under state and/or federal law. All of the bird species listed are protected under the Migratory Bird Treaty Act, and bald and golden eagles are also protected under the Bald and Golden Eagle Protection Act

Table 6. Special Status Species Evaluated Summary

Common and Species Name	USFWS Status[1] /TNF Status[2] /AGFD Status[3]	General Habitat Association[4]	Habitat Present/ Closest Occurrence to Action Area[5]
Animals			
Allen's lappet-browed bat *Idionycteris phyllotis*	-/FSS/-	Caves and abandoned mine shafts within mountainous pine and oak forests.	**No.** Occurrence data not known.
Pale Townsend's big-eared bat *Corynorhinus townsendii pallescens*	-/FSS/-	Coniferous forests and woodlands, riparian woodlands, semi-desert and montane shrublands and rarely in desert mountains, typically above 3,000 feet.	**No.** Occurrence data not known.
Western red bat *Lasiurus blossevillii*	-/FSS/1A	Statewide, except in desert areas.	**No.** Occurrence data not known.
California least tern, *Sterna antillarum browni*	E/NA/-	Sandy flats, open water	**No**. Nearest confirmed occurrence is within Maricopa County, approximately 30 miles southwest of the project limits. No species records within the action area.
Mexican spotted owl *Strix occidentalis lucida*	T/T/1A	Old growth mixed pine-oak woodland and coniferous forest on steep hillsides; canyonlands	**No**. No old growth woodland or coniferous forest present in the action area. Species not known to use non-forested canyon habitat in this portion of its range. Nearest known occurrence is approximately 3 miles north of the project limits.
Southwestern willow flycatcher *Empidonax trailli extimus*	E/E, FMB/1A	Dense riparian tree and shrub	**No**. Habitat lacking the vegetation density and hydrology to meet nesting habitat criteria within the action area. Nearest known occurrence is approximately 5 miles south of Roosevelt Dam.

Common and Species Name	USFWS Status[1] /TNF Status[2] /AGFD Status[3]	General Habitat Association[4]	Habitat Present/ Closest Occurrence to Action Area[5]
Yellow-billed cuckoo, western DPS *Coccyzus americanus*	T/T, FMB, 1A	Riparian with surface water or damp soil	**No.** Habitat lacking vegetation characteristics and hydrology to meet nesting habitat criteria within the action area. Nearest known occurrence approximately 8 miles east on the inflows to Roosevelt Lake.
Yuma clapper rail *Rallus longirostris yumanensis*	E/E/-	Tall, dense emergent wetland	**No**. No wetland patches of sufficient size are present in the action area. Nearest known location is approximately 8 miles northwest of the project limits.
Peregrine falcon *Falco peregrinus*	-/FSS, FMB/1A	Mountain cliffs and river gorges.	**Yes.** Nesting pairs known within the action area.
Bald eagle *Haliaeetus leucocephalus*	-/FSS, FMB/1A	Seacoasts, rivers, large lakes, and other large areas of open water.	**Yes.** Nesting pairs known within the action area.
Black-throated Sparrow *Amphispiza bilineata*	-/MIS/-	Semi-open with 1-3m shrubs	**Yes.** Species known to occur within action area.
Canyon towhee *Melozene fusca*	-/MIS, FMB/-	Semiarid uplands, riparian, and dry watercourses	**Yes.** Species known to occur within action area.
Golden eagle *Aquila chrysaetos*	-/MIS, FMB/1B	Cliffs, open areas and vista	**Yes.** Species known to occur within and nesting areas known near action area.
Western bluebird *Sialia mexicana*	-/MIS, FMB/-	Variable	**Yes.** Species known to occur within action area.
Colorado pikeminnow *Ptychocheilus lucius*	Ex, NE/E/1A	Warm, swift, turbid mainstream rivers. Prefers eddies and pools	**No**. Closest occurrence not known, but action area lacks all habitat requirements.
Gila topminnow *Poeciliopsis occidentalis*	E/E/-	Small streams and vegetated shallows, springs	**No**. Closest occurrence not known, but action area lacks all habitat requirements.

Common and Species Name	USFWS Status[1] /TNF Status[2] /AGFD Status[3]	General Habitat Association[4]	Habitat Present/ Closest Occurrence to Action Area[5]
Bezy's night Lizard *Xantusia bezyi*	-/FSS/1A	Rock and Granite outcrops, bear live young.	**No.** Habitat within action area falls outside of elevation species occurs in.
Sonoran desert tortoise *Gopherus morafkai*	C/C/1A	Sonoran desertscrub and desert grasslands, bajadas.	**Yes.** Species known to occur within action area.
Lowland leopard frog *Lithobates* [Rana] *yavapaiensis*	-/FSS/-	Permanent waters with aquatic and herbaceous vegetation in desertscrub, grassland, and pine/oak woodlands.	**No.** Occurrence data not known.
PLANTS			
Hohokam agave *Agave murpheyi*	-/FSS/-	Gentle bajada slopes, benches, and terraces above major drainages from 1,300–2,400 ft.	**No.** Occurrence data not known.
Tonto Basin agave *Agave delamateri*	-/FSS/-	South and southwest-facing slope edges on cobbly and gravelly, deep and well-drained soils from 2,300–5,100 ft.	**Yes.** Known to occur within 10 miles of action area
Aravaipa woodfern *Thelypteris puberula* var. *sonorensis*	-/FSS/-	Moist soil in the shade of boulders in mesic canyons. On riverbanks, seepage areas, and meadow habitats.	**No.** Occurrence data not known.
Fish Creek rockdaisy *Perityle saxicola*	-/FSS/1A	Cracks and crevices on cliff faces, large boulders, and rocky outcrops in canyons.	**Yes.** Known to occur within action area.
Mayfly *Fallceon eatoni*	-/FSS/-	Poorly understood, presumably requires standing water.	**No.** Occurrence data not known.
Macro-invertebrates	-/MIS/-	Surface water	**No.** Occurrence data not known.
STATUS CODES:			

Common and Species Name	USFWS Status[1] /TNF Status[2] /AGFD Status[3]	General Habitat Association[4]	Habitat Present/ Closest Occurrence to Action Area[5]
USFWS Status[1] E – Endangered T – Threatened C - Candidate PT – Proposed Threatened Ex, NE – Experimental, Non-essential		USFS Status[2] E – Endangered T – Threatened D – Designated P – Proposed C – Candidate FSS – Forest Sensitive Species MIS – Forest Service Management Indicator Species FMB – Forest Migratory Bird Species of Concern AGFD Status[3] HS – Highly Safeguarded Native Plant 1A – Vulnerable in top 8 categories and Tier 1 for top 5 concerns 1B – Vulnerable in top 8 categories [4]: Vegetation associations and habitat characteristics sourced from TNF-provided Species Abstracts and the IUCN Red List. [5]: Occurrence data sourced from AGFD and IUCN Red List.	

Peregrine Falcon

The peregrine falcon is a USFS sensitive species. They are found in the central part of Arizona year-round, with a summer population occurring farther north and a wintering population occurring in the far southern part of the state. Peregrine Falcon prefer steep, rocky cliffs with adequate ledges for nesting platforms, similar to bald eagles, which occurs at the eastern end of the project area from approximately MP 237 to the Roosevelt Dam. Arizona Game and Fish Department (AGFD) monitors several nests in this area annually. Their foraging habitat varies widely and an adequate prey population, particularly bird populations, is generally the primary limiting factor. Adequate foraging habitat for this species occurs throughout the project area.

Bald and Golden Eagles

The bald eagle is a USFS sensitive species and the golden eagle is a USFS management indicator species. The eagles' habitat includes large rocky cliffs, which can be found along the project corridor in areas where the roadway is adjacent to the Salt River and Apache Lake. Within the project area, these features occur at the eastern end of the project from approximately MP 237 to the Roosevelt Dam. AGFD monitors several nests known to occur in this stretch (Jacobs 2021a). During field surveys in 2018, one nest was actively occupied by a pair of bald eagles that was observable from approximately MP 239.5 to the Roosevelt Dam. Two additional habitat areas occur where the Apache Trail crosses riparian washes (Davis Wash and Burnt Corral Creek) and Apache Lake. These areas are less than a mile from and within the direct line of sight of the proposed project area.

Black-throated Sparrow

The black-throated sparrow is a USFS management indicator species that inhabits semi-open areas with evenly spaced shrubs and trees. They are common in desert alluvial

fans, canyons, washes, flats, badlands, and desertscrub areas commonly found throughout the project area.

Canyon Towhee

The canyon towhee is a USFS management indicator species found in semiarid uplands and areas along dry streambeds, which are common along the proposed project corridor.

Western Bluebird

The Western bluebird is a USFS management indicator species known to occur within the project area. The bluebird may breed in grasslands and edge areas with scattered trees, snags, or other suitable nest and perch sites and winter at lower elevations within breeding range, including desert areas where winter food supply is plentiful.

Sonoran Desert Tortoise

The Sonoran desert tortoise (desert tortoise) is a long-lived terrestrial turtle typically found in Sonoran desertscrub and desert grassland where it prefers rocky slopes and bajadas. (Jacobs 2021a). The Sonoran desert tortoise is a candidate for the FESA, USFS sensitive species and is considered vulnerable by AGFD. The project area is comprised primarily of Sonoran desertscrub on rolling rocky slopes and is considered desert tortoise habitat with records of known occurrence.

Tonto Basin Agave

The Tonto Basin agave is endemic to central Arizona. It is found on gravelly soils on south and southwest facing slopes in desertscrub habitat. The species is known to occur within a 10-mile radius and has some potential to occur within the project area.

Fish Creek Rock-daisy

The Fish Creek rock-daisy is a rare flowering perennial herb endemic to Arizona. It grows in cracks and crevices on cliff faces, large boulders, and rocky outcrops, and is known to occur in areas along the project corridor.

3.12.3 Environmental Consequences

No Action Alternative

Under the No Action Alternative, none of the proposed improvements would occur. Ongoing road maintenance activities would include repair and maintenance of the granite gravel surface. Generally, maintenance activities would be anticipated to stay within the existing road surface; however, repairs needed for any storm-inflicted damage to the road beyond typical wear and tear of the granite surface could impact vegetation in spot locations within the project area. These impacts could directly or indirectly affect special status species, wildlife, and the habitat on which they rely. Implementation of standard BMPs, such as timing restrictions, would minimize any potential impacts. Therefore, the No Action Alternative is expected to have minimal adverse impacts to wildlife or their habitat.

Action Alternative

General Wildlife

The Action Alternative could directly affect wildlife through mortality, harm, harassment, failed breeding attempts, and temporary displacement from project-related

impacts, such as increased noise and the presence of construction equipment and personnel, and the loss or degradation of habitat in spot locations. Direct effects from the project include vegetation removal, disturbance due to culvert repair and/or replacement, noise, and visual disturbance. All of these impacts would be temporary in nature.

Approximately 31 acres of impervious surface would be added as a result of chip sealing and paving 11.16 miles of the Apache Trail and some roadside ditches adjacent to the road. This addition could indirectly affect plants and wildlife through degradation of water quality from increased stormwater runoff. The faster velocity of stormwater runoff could also increase erosion and affect vegetation along the roadway.

During construction, BMPs would be put in place to prevent sediment and chemical releases from construction activities from entering streams, drainageways and/or Apache Lake. Culvert work and slope setbacks would have the greatest potential to increase sedimentation and BMPs would be put in place to minimize any sedimentation potential in the areas where these activities would occur. Noise and visual disturbance may temporarily affect wildlife during construction. Visual disturbance from the presence of people and construction equipment may disrupt wildlife behaviors and species' tendency to reside near the project area.

Future noise levels along the improved alignment are anticipated to remain similar to current conditions because the Action Alternative would not increase the overall capacity of the roadway. Therefore, long-term effects resulting from traffic-related noise are anticipated to remain unchanged from current conditions.

The following discussions address specific effects to special status species.

Peregrine Falcon

During construction, activities and noise associated with implementation of the proposed project could occur in proximity to nesting sites. Because peregrine falcons are generally sensitive to activities within a direct line of site of their nests, these activities could result in short-term impacts to nesting individuals and their young, potentially resulting in failed reproduction or rearing. Direct effects may also occur from construction activities at or near foraging habitat, which occurs along the length of the project. However, due to the extensive similar and remote foraging habitat found immediately adjacent to the project area, individuals would be anticipated to avoid construction activities and utilize the otherwise expansive foraging habitat not immediately adjacent to the project area. Vegetation and other clearing activities are not anticipated to impact nesting or foraging habitat for peregrine falcon.

In the year of proposed construction, FHWA-CFLHD would contact AGFD before any work would begin from MP 237 to the eastern terminus of the project (MP 240.6) between March 1 and August 31 to determine if peregrine falcon were known to be nesting within 0.5 miles of the project corridor. If an active falcon nest is present in this area, no work will occur until FHWA-CFLHD has determined that work can commence based on the location of the nest, type of construction, and expected noise levels associated with project activities in that area. This restriction does not apply from MP 229.2 to MP 237 year-round, nor does it apply from MP 237 to MP 240.6 between September 1 and February 28. With the implementation of appropriate monitoring and

timing of construction activities, impacts would be negligible and not likely to result in a loss of viability nor cause a trend toward federal listing. No long-term impacts would be anticipated as a result of the action alternative.

Bald and Golden Eagles

During construction, direct impacts to bald and golden eagles could occur at nesting sites in close proximity to the construction activity. Noise, vibration, and visual intrusion, may impact nesting individuals and their young, and could potentially result in failed reproduction or rearing. Although these individuals currently nest near the existing, active roadway, construction activities could present a different level of activity than what these individuals are habituated to. Additionally, direct effects could occur from construction activities at or near foraging habitat and foraging eagles. No indirect effects would be anticipated because vegetation and other clearing activities would not impact nesting or foraging habitat for bald and golden eagles.

FHWA-CFLHD will contact AGFD's Raptor Management Coordinator before any work would begin from MP 238.6 to the eastern terminus of the project (MP 240.6) between December 15 and August 1 to determine if an active eagle nest is located within 0.5 mile of the project corridor. If an active eagle nest is present in this area, no work will occur until FHWA-CFLHD has determined that work can commence based on the location of the nest, type of construction, and expected noise levels associated with project activities in that area, consistent with the *National Bald Eagle Management Guidelines* (USFWS 2007). This restriction does not apply from MP 229.2 to MP 238.6 year-round, nor does it apply from MP 238.6 to MP 240.6 between August 2 and December 14. With the implementation of appropriate monitoring and timing of construction activities, impacts would be negligible and not likely to result in a loss of viability nor cause a trend toward federal listing. No long-term impacts would be anticipated as a result of the action alternative.

Black-throated Sparrow, Canyon Towhee, and Western Bluebird

During construction of the Action Alternative, these species could be directly and/or indirectly impacted by the noise and disturbance of construction activities. To the extent possible, vegetation clearing would not occur during the migratory bird breeding season (February 1 – August 31). If vegetation clearing needed to be removed in spot locations during the breeding season, preconstruction surveys for active migratory bird nests would be conducted by a qualified biologist in all suitable habitat that would be disturbed. If an active birds nest was identified within the area to be disturbed, construction activities would avoid disturbing the active nest. A qualified biologist would determine the appropriate avoidance strategy until the nestlings had fledged and the nest is no longer active. As a result, short-term adverse impacts to these TNF management indicator species would be negligible and no long-term impacts would be anticipated.

Sonoran Desert Tortoise

This species likely occurs within the action area. During construction, minimal ground disturbing activities are anticipated outside of the immediate vicinity of the roadway. Short-term, direct impacts could occur from the increased vibrations, noise, and dust associated with the anticipated work, which could result in a disturbance to desert tortoises by causing them to evacuate the area and potential sheltering sites. Under the

Action Alternative, vegetation removal would be minimal, with the only broad vegetation removal area planned at the proposed slope setback near MP 234.5. Otherwise, vegetation removal would be limited to spot areas at culvert work locations. Vegetation removal could result in direct effects to sheltering desert tortoise as well as slight indirect effects through the removal of foraging habitat. However, implementation of standard conservation measures described below for this species would avoid or minimize potential adverse effects.

- During construction, FHWA-CFLHD would ensure the project adheres to the *ADOT Sonoran Desert Tortoise Awareness Program Handout* and AFGD's *Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects* guidance documents which are both available online at: https://azdot.gov/sites/default/files/2019/06/tortoise_awareness_handout.pdf.
- The project contractor would be required to arrange for a qualified biologist to present an environmental awareness program to all personnel who would be onsite that would contain, at a minimum, information regarding the desert tortoise and procedures to be implemented in case a desert tortoise is found within the project limits. No work would begin prior to presentation of the environmental awareness program.
- The project contractor shall notify FHWA-CFLHD if a desert tortoise is encountered during construction.
- During construction, FHWA-CFLHD would report all encountered desert tortoises (live, injured, or dead) to the Arizona Department of Transportation Environmental Planning Biologist within 24 (twenty-four) hours of the encounter using the Arizona Department of Transportation Sonoran Desert Tortoise Observation Form. Photos should be taken of tortoises encountered and included in the report, if possible.
- If any desert tortoises were encountered in the project area, the contractor would take any measures necessary to ensure that project activities would not harm or disturb any desert tortoise, while adhering to the current handling guidelines for Sonoran desert tortoise.
- The contractor would require all on-site workers to check under their parked vehicles and equipment prior to driving to make sure there wasn't a tortoise sheltering underneath. If a desert tortoise were found sheltering underneath a parked vehicle or piece of equipment, the tortoise would be allowed to move out from under the vehicle on its own or be relocated following the current guidelines for Sonoran desert tortoise handling before the vehicle could be moved.
- Before replacement and/or repair of any existing culverts, the culverts must be checked to ensure no Sonoran desert tortoises are present. If a desert tortoise is found inside a culvert, the tortoise shall be allowed to move out from the culvert under its own volition, or relocated by a qualified biologist. The current guidelines for Sonoran desert tortoise handling must be followed if any tortoises must be handled.
- A qualified biologist would be required to be onsite to monitor initial vegetation clearing activities greater than 100 SF for the protection of desert tortoises in that

area. For vegetation clearing of less than 100 SF, the area would be checked by construction staff (who have received the environmental awareness program) to ensure no desert tortoise were present immediately prior to commencement of vegetation clearing.

- The contractor would not begin vegetation removal activities of over 100 SF or blasting activities until receiving project engineer approval. Project engineer approval would only be given following an initial survey of the vegetation clearing or blasting area for the presence of Sonoran desert tortoises or other sensitive species by a qualified biologist immediately prior to commencement of vegetation clearing. The contractor would not conduct initial vegetation removal of over 100 SF unless a qualified biologist was present to handle Sonoran desert tortoises.

The proposed project may affect individual Sonoran desert tortoises. Due to the limited nature of vegetation removal and implementation of the recommended conservation measures these impacts are not likely to result in a trend toward federal listing or loss of viability.

Tonto Basin Agave

Under the Action Alternative, the limited extent of proposed vegetation removal associated with the proposed actions would not adversely affect population viability or trend towards listing.

Fish Creek Rockdaisy

The Action Alternative would not include the removal of any rock cliff areas that could potentially provide habitat for the Fish Creek rockdaisy and therefore there would be no impacts to this species.

Conclusion

While the Action Alternative would permanently and temporarily impact wildlife, including special status species habitat, with an abundance of habitat within and directly adjacent to the study area, the direct and indirect impacts of the Action Alternative are not expected to substantially affect general wildlife and special status species. In addition, temporary impacts to vegetation within the project area would be restored. While short-term disruption of wildlife movement may occur during construction activities, the Action Alternative would not substantially alter species movement within the project area. Numerous species-specific mitigation measures were described for each species as discussed above. In combination with the general measures discussed below, impacts to wildlife, including special status species would be anticipated to be less than significant.

3.12.4 Avoidance, Minimization, and/or Mitigation Measures

Many measures specific to each species have been discussed above and/or incorporated into the Action Alternative to avoid, minimize, or mitigate impacts to special status species and wildlife. These measures are specific to the project area, which encompasses the project construction limits and is slightly smaller than the study area used for special status species analysis. The following BMPs would help avoid and minimize impacts to all species:

- All vehicles and equipment entering the project area must be clean of noxious weeds and free from oil leaks, and are subject to inspection. All construction equipment shall be washed thoroughly to remove all dirt, plant, and other foreign material prior to entering the project area. Particular attention shall be shown to the under-carriage and any surface where soil containing exotic seeds may exist. These efforts are critical to prevent the introduction and establishment of non-native plant species into the project area. Arrangements shall be made for inspections of each piece of equipment before entering the project, and records of inspections shall be maintained. Equipment found operating on the project that has not been inspected or has oil leaks shall be shut down and subject to citation.
- Operators shall avoid leaving equipment and vehicles idling for more than five minutes when parked or not in use.
- Any spill of petroleum products, hazardous materials, or other chemical or biological products released from construction, fleet, or other support vehicles, or stationary sources shall be properly cleaned, mitigated, and remedied, if necessary. Response shall occur in accordance with federal, state, and local regulations. Any spill of petroleum products or a hazardous material shall be reported to the appropriate federal, state, and local authorities, if the spill is a reportable quantity.
- Leaks shall be repaired immediately on discovery. Equipment that leaks shall not be used. Oil pans and absorbent material shall be in place prior to beginning work. The contractor shall be required to provide the "on-scene" capability of catching and absorbing leaks or petroleum product spills, including antifreeze from breakdowns or repair actions, with approved absorbent materials. A supply of acceptable absorbent materials at the job site in the event of spills, as defined in the SWPPP, shall be available. Sand and soil are not approved absorbent materials. Soils contaminated with fluids shall be removed, placed in appropriate safety containers, and disposed of according to state and/or federal regulations.
- The construction contractor shall be required to take appropriate measures to prevent the discharge of equipment fluids. All equipment shall be stored, repaired, maintained, and fueled at least 65 feet away from waterways. A plan to allow a prompt and effective response to any accidental spills shall be developed prior to construction.
- Certified weed-free permanent and temporary erosion control measures shall be implemented to minimize erosion and sedimentation during and after construction.
- FHWA-CFLHD shall conform to the Federal Seed Act, the Federal Noxious Weed Act, and applicable state and local seed and noxious weed laws.

3.13 Vegetation and Noxious Weeds

3.13.1 Regulatory Setting

The Federal Noxious Weed Act (7 U.S.C. §§ 2801–2813 and 7 CFR Part 360) addresses preventing the spread of noxious weeds and seeds across international borders and the transport of weeds within the U.S. on roadways. The Secretary of Agriculture designates which plants are noxious weeds, and coordinates with other federal, state, and local agencies, and private entities to control, eradicate, or prevent the spread of noxious weeds.

There are existing Arizona native plants on TNF lands in the project limits that will be impacted. The Arizona Department of Agriculture has no jurisdiction on federal lands.

3.13.2 Affected Environment

The project area is primarily dominated by a desertscrub community with distinct riparian communities found along the larger drainages. The desertscrub community is generally characterized by the dominant presence of saguaro cactus and various other cacti, jojoba (*Simmondsia chinensis*), velvet mesquite (*Prosopis velutina*), ocotillo (*Fourquieria spledens*), brittlebush (*Encelia farinose*), and foothills paloverde (*Parkinsonia microphylla*).

Dominant species vary through the project area based on elevation, slope, aspect, and soils. Xeric uplands with north and west aspects are generally dominated by jojoba, while south and east aspects are characterized by the dominant presence of saguaro cactus and foothills paloverde. Blue paloverde (*Parkinsonia florida*) and catclaw acacia (*Senegalia greggii*) are dominant in the riparian areas.

The western end of the project area has a notably higher component of Mormon tea (*Ephedra trifurca*) and agave (*Agave sp.*) which gradually give way to a greater and more varying component of cacti, including Engelmann's prickly-pear (*Opuntia engelmannii*), Hedgehog cactus (*Echinocereus engelmannii*), pincushion cactus (*Mammillaria grahamii*), Buckhorn and Teddy bear cholla (*Cylindropuntia acanthocarpa* and *Cylindropuntia bigelobii*, respectively), fishhook barrel cactus (*Ferocactus wislizeni*), and Sotol (*Dasylirion wheeleri*).

A number of plant species were noted that may not have been dominant, but occurred regularly throughout the survey area including desert mistletoe (*Phoradendron californicum*).

3.13.3 Environmental Consequences

No Action Alternative

None of the proposed improvements would occur under the No Action Alternative. Ongoing road maintenance activities would include repair and maintenance of the granite gravel surface. Generally, maintenance activities would be anticipated to stay within the existing road surface; however, repairs needed for any storm-inflicted damage to the road beyond typical wear and tear of the granite surface could impact vegetation in spot locations within the project area. Implementation of standard BMPs, such as those for controlling invasive plant species, would be anticipated to minimize any potential impacts. The No Action Alternative would have negligible to minimal adverse impacts to roadside vegetation.

Action Alternative

Construction of the Action Alternative would require limited areas of permanent and temporary disturbance of vegetation in order to construct one of two consistent template widths of 20- or 24-foot wide roadway, as well as to implement localized improvements, such as slope setbacks, and drainage improvements. Soil removal, grading, paving and chip sealing, trampling by equipment and personnel, and overall removal of habitat would adversely affect vegetation. Based on conceptual design, the Action Alternative would require the permanent disturbance of about 6 acres and the temporary disturbance of approximately 45 acres of land adjacent to the existing driving surface of the road. The amount of proposed disturbance off the existing road prism amounts to less than 1 acre of permanent disturbance, and approximately 31 acres of temporary disturbance. Refinements through the final design process may slightly change these estimates.

Indirect impacts could include the introduction or spread of invasive weeds, surface and subsurface hydrologic alterations, erosion, and removal or reduction of a vegetation buffer between human and natural activities. The increase in impervious surface area could also indirectly affect vegetation through an increase in erosion and sediment runoff. In addition, increased impervious surfaces may contribute chemical runoff from the materials used to construct the road. Runoff may then affect vegetation near roadsides or aquatic vegetation.

Conclusion

The Action Alternative would be expected to have both long- and short-term, adverse impacts to vegetation within the study area. However, impacts would be anticipated to be limited to vegetation within the desertscrub habitat, which is ample within the study area and TNF as a whole. Ultimately, impacts to general vegetation are expected to be minimal following implementation of mitigation and/or restoration (as applicable), and no significant loss of plant populations or vegetation communities would occur.

3.13.4 Avoidance, Minimization, and/or Mitigation Measures

The following measures will be implemented to minimize or mitigate impacts to vegetation and reduce the spread of invasive species. These measures are specific to the project area, which encompasses the project construction limits, and is slightly smaller than the study area used for the vegetation analysis.

- All vehicles and equipment entering the project area shall be clean of noxious weeds and free from oil leaks, and are subject to inspection. All construction equipment shall be washed thoroughly to remove all dirt, plant, and other foreign material prior to entering the project area. Particular attention shall be shown to the under-carriage and any surface where soil containing exotic seeds may exist. These efforts are critical to prevent the introduction and establishment of non-native plant species into the project area.
- Certified weed-free permanent and temporary erosion control measures shall be implemented to minimize erosion and sedimentation during and after construction.
- FHWA-CFLHD shall conform to the Federal Seed Act, the Federal Noxious Weed Act, and applicable state and local seed and noxious weed laws.

- Degraded areas impacted from construction-related activity shall be reseeded with guidance from TNF biologists. Revegetated areas shall be protected and cared for, including watering when needed, until restoration criteria have been met under USACE permits or NPDES standards. Revegetated areas shall be monitored in accordance with the approved restoration plan to ensure success criteria are met.

3.14 Cumulative Impacts

Cumulative impacts are impacts that result from the incremental effect of a proposed action when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR § 1508.7). The purpose of a cumulative effects analysis is to ensure that federal agencies consider the full range of the consequences of their actions when making decisions in order to move towards sustainable development (CEQ 1997).

Cumulative effects were evaluated by combining the effects of the proposed action with other past, present, and reasonably foreseeable future actions in the project corridor. The past, present, and reasonably foreseeable future projects are shown in Table 7.

Table 7. Past, Present, and Reasonably Foreseeable Actions

Action/Responsible Parties	Time Frame	Description
Ash Creek Hill (ADOT)	Past (1961)	This project consists of new roadway alignment, new pipe culverts, concrete curb & spillways, retaining walls, and other incidental work for approximately a 1.7-mile stretch of SR 88 near Ash Creek.
Roosevelt Dam to Roosevelt (ADOT)	Past (1962)	Regrade, widen and pave existing dirt road to improve access to Roosevelt Dam. Construct new culverts, retaining wall, and guardrail. This section of road is now part of SR188.
Willow Creek Bridge, MP 209.6 (ADOT)	Past (1969)	Bridge repair.
Realignment and widening from upstream overlook (Inspiration Point Interpretive Overlook) to the dam access road (USBR)	Past (1990)	This project was done in coordination with work completed on the dam and the construction of the Roosevelt Lake Bridge. Prior to the completion of this project, traffic drove over the top of the Roosevelt Dam. The project included the realignment and widening of the road.
Roosevelt Dam Emergency Flood Repair, MP 241.8 (ADOT)	Past (1994)	Emergency repair to remove rock slide.
First Creek Bridge, MP 209.6 (ADOT)	Past (1995)	Bridge deck repair.
Scenic Drive to Tortilla Flat, MP 196.2 to 213.4 (ADOT)	Past (1995)	Remove and replace chip seal roadway surface.
Pavement Preservation, MP 213.35 to MP 220.20 (ADOT)	Past (1998)	Pavement preservation by applying an asphalt rubber-asphalt concrete friction course.

Action/Responsible Parties	Time Frame	Description
Retaining Wall Project (FHWA-CFLHD)	Past (2010)	This project addressed deterioration and damage at five retaining walls and embankments along the Apache Trail at MP 222.8, 224.6, 225.5, 225.3, and 226.2.
Emergency Spot Repair, MP 196.0 to MP 220.0 (ADOT and FHWA)	Past (2018)	This project consisted of roadway spot repair from flooding. All flood repairs within existing roadway prism. Work included road prism protection, replace culvert end sections, reconstruct ditches embankment curbs, regrout riprap spillways, pavement repair, etc.
State Route 88, Apache Junction to Forest Road 213, MP 203.4 to MP 220.2 (ADOT)	Past (2018)	The improvements associated with this project include addressing the deteriorating roadway surface and providing a safer driving experience by improving roadway geometry and traffic operations while maintaining access to forest recreation areas. The project included, among other maintenance activities, milling and repaving, the repaving and newly paving multiple pullouts, the reconstruction of six curves, modifications to existing culverts in three locations, repair to the concrete ford across Tortilla Creek, and removing a large rock above the roadway in one location.
Mormon Flat Dam Road Improvements (SRP)	Past	Improved access road leading to Horseshoe Dam at MP 208.7 with aggregate base material and provided soil stabilization along the route.
Apache Lake Marina Road Improvements (TNF)	Past	Improved the road to the Apache Lake Resort at MP 229.2 by adding drainage features and a layer of chip seal on the surface of the road.
Recreational Site Improvements (TNF)	Past	The USFS has developed and/or improved approximately 21 recreational sites along the Apache Trail corridor from MP 202 at the Dutchman Creek OHV Staging Area to MP 242 at Inspiration Point. The projects include campgrounds, trailhead access, trails, parking areas, boat ramps, fishing docks, picnic areas, ramadas, sidewalks, restrooms, interpretive signs, staging areas for OHV use, and overlooks.
USFS Permitted Uses (TNF)	Past and Ongoing	The USFS has provided and is continuing to provide permits for recreational support facilities such as the Apache Lake Resort, Tortilla Flat tourist area, and the Canyon Lake Marina. It also has provided recreation residence permits for a small number of cabins. In addition, two permits have been granted to ADOT for source materials to assist in the maintenance of SR 88.

Action/Responsible Parties	Time Frame	Description
Routine Road Maintenance Activities (ADOT)	Past and Ongoing	Due to the current, unpaved decomposed granite surface of the roadway, ongoing maintenance and repair activities are required to control washboarding and maintain a drivable surface. These activities include blading the road surface, which requires the importing of material. Additional maintenance activities include repairs to drainage structures, headwall repairs, erosion repair in spot locations, signage repairs, repairs from storm or accident damage (as needed), and other routine maintenance. In addition, invasive weed reduction is performed to maintain site distance at driveways and reduce vegetative growth into the roadway. Typically, vegetation is managed for tree and brush removal or trimming every 2-3 years, and weeds are treated twice annually or as needed.
Utility Improvements (SRP)	Present	Replace lattice telephone poles along the Apache Trail and develop maintenance access routes.
Bridge Replacement on Horse Mesa Dam Access Road (SRP)	Present	Replace bridge on Horse Mesa Dam access road (Forest Road 80).
Tomahawk Road to Buffalo Road, MP 197.4 to MP 201 (ADOT)	Future Action	The purpose of this project is to reduce the frequency of the roadway closures caused by the storm water overtopping/sedimentation on the roadway due to an inadequate culvert size and roadside ditch. This work includes improving the drainage systems, constructing new channels, installing shotcrete, seeding and other related work.
Dutchman Staging Area Expansion (TNF)	Future Action	TNF is considering expanding the Dutchman OHV Staging Area at MP 202.3.
MP 203 Staging Area Decommissioning (TNF)	Future Action	TNF is considering the obliteration of a user created staging area and the installation of pipe rail fence to prevent public access.
Woodbury Fire Invasive Weed Management (TNF)	Future Action	The Woodbury Fire burned the natural vegetation creating an environment susceptible to noxious and invasive weeds. Treatment money was obtained by the Burned Area Emergency Response team and will be utilized as needed.
Finalization of Apache Trail Maintenance and Operation Plan	Future Action	Programmatic Agreement between ADOT, the AZ SHPO, TNF, FHWA, and other landowners for the Apache Trail corridor regarding maintenance and operations along the route.

Since the 1960s ADOT, TNF, FHWA, USBR, and SRP have been involved in road maintenance and road improvements along the Apache Trail from Apache Junction to the Roosevelt Dam. In addition to the projects listed in Table 7, about eight (8) other transportation projects (i.e. past actions) occurred within the more developed town of Apache Junction near the western terminus of the Apache Trail, between MP 194 and MP 201 (intersection with entrance road to Lost Dutchman State Park) and have not

been listed in Table 7 due to their distance from the project site. These projects included intersection improvements, small paving jobs, and a culvert replacement.

3.14.1 Regulatory Setting

The Council on Environmental Quality (CEQ) developed *Considering Cumulative Effects Under the National Environmental Policy Act*, which recommends identifying those resources that could experience cumulative impacts, and then determining the separate effects of past actions, present actions, the proposed action, and other future actions (CEQ 1997). CEQ notes that, "most often, the historical context surrounding the resource is critical to developing baselines" and supporting decision-making (CEQ 1997).

FHWA guidance states that the degree to which cumulative impacts need to be addressed in an EA depends on the potential for the impacts to be significant, and will vary by resource, project type, geographic location, and other factors.

3.14.2 Environmental Consequences

In general, the overall health of the environmental resources considered for analysis in this document is good. With much of the proposed actions located on either previously disturbed areas, present stressors are limited, and the total impact of the proposed action is relatively minor. Because of these factors few cumulative impacts to natural resources are anticipated to result from the implementation of the proposed action in consideration of past, present, and reasonably foreseeable future projects. The exception is cultural resources, which have been unintentionally adversely impacted by age, use of the roadway, and ongoing maintenance and which are adversely impacted by improvement projects along the entire Apache Trail corridor. A summary of anticipated impacts is shown in Table 8.

The environmental consequences of the No Action Alternative and the Action Alternative on individual resources are presented throughout this EA. Included below are the overall cumulative impacts that may be anticipated when the effects of the Action Alternative (i.e. proposed project) are combined with other past, present, and reasonably foreseeable future actions.

The cumulative impact assessment presented in this EA focuses on resources for which the cumulative projects or plans would have measurable impacts on the resource. The contribution of the Project's impacts to cumulative impacts was then assessed. Resources in which the Action Alternative would have negligible to no impact, or if the resource did not exist in the project area (see Chapter 3.1) are not included in Table 8.

Table 8. Cumulative Effects Summary

Resource Area	Cumulative Impacts
Transportation	Past roadway projects, future and ongoing roadway maintenance, and the implementation of a maintenance and operations plan, in conjunction with the proposed project would have a long-term beneficial effect to transportation by improving road resiliency and driver safety.
Socioeconomics	No cumulative effects are anticipated from implementation of the proposed project.

Resource Area	Cumulative Impacts
Recreation and Visitor Experience	Over the past decades, TNF has developed and permitted recreational facilities along the Apache Trail increasing the public's opportunities to enjoy the natural and scenic resources along the project corridor. Past and present roadway projects constructed by ADOT, FHWA, TNF, USBR, and SRP has provided access to these recreational facilities by maintaining or improving roadways. The proposed project would improve the resiliency of the Apache Trail within the proposed project limits, providing a more consistent and stable road surface, and thus, possibly encouraging increased visitor use due to better road conditions. Long-term, beneficial impacts to recreational resources and visitor experience would result from implementation of these projects.
Cultural Resources	Past roadway projects have realigned and paved the historic road and replaced/modified historic drainage structures. Maintenance of the road has led to inadvertent deterioration of historic contributing elements of the road. The proposed project in conjunction with past actions, natural damage from storm events and future maintenance will have an adverse effect on the historic Apache Trail.
Visual Resources	ADOT has paved the higher use sections of the Apache Trail from Apache Junction to MP 220. Road realignments, curve correction, and drainage improvements have been done on past projects to improve safety and as a response to deteriorating road conditions due to weather events. TNF has added overlooks, parking lots, and interpretive material for recreational users along the Apache Trail to provide opportunities to enjoy the scenic resources safely. Due to the road's location on federally-owned land, development is and will continue to be very limited. The proposed project would be in keeping with the land-management agency's (TNF) specific visual resource management objectives. The proposed project in conjunction with past, present and foreseeable actions maintains the existing visual character and scenic integrity of the Apache Trail. The overall cumulative impact to scenic resources is anticipated to be minor.
Noise	No cumulative effects are anticipated from implementation of the proposed project.
Geology and Soils	Additional impervious surface, through the paving of roads and parking lots, in addition to the development of hard surfaced recreational facilities (i.e. sidewalks, access roads, boat ramps, etc.) along the project corridor would result in an increase in runoff, impacting water quality and increasing the potential for runoff, resulting in long-term adverse impacts. However; paving of the roadway surface and other visitor parking facilities would help with soil stabilization of the road prism and reduce erosion of the graveled surface and the loss of road material.

Resource Area	Cumulative Impacts
Air Quality	Paving of graveled roadways and visitor use facilities along the Apache Trail, in conjunction with the proposed project, are anticipated to result in long-term beneficial effects to air quality as applying a chip seal or paving a currently graveled surface would further reduce the generation of fugitive dust from vehicular use within the project area.
Wetlands and Other Waters of the U.S.	No cumulative effects are anticipated from implementation of the proposed project.
Water Quality	Additional impervious surface, through the paving of roads and parking lots, in addition to the development of hard surfaced recreational facilities (i.e. sidewalks, access roads, boat ramps, etc.) along the project corridor would result in an increase in runoff, impacting water quality and increasing the potential for runoff, resulting in long-term adverse impacts. However, improvements to and repair of stormwater infrastructure along the Apache Trail would minimize erosion and result in long-term benefits to water quality. Paving of the roadway surface would also reduce erosion of the graveled surface and the loss of road material into streams along the project route. Past, present and foreseeable development projects, in combination with the beneficial and adverse impacts of the proposed action, would result in a combination of beneficial and long-term adverse effects to water quality in the area.
Wildlife (Including Special Status Species)	Past, present and foreseeable roadway projects, recreational development, and utility access, along with future and ongoing maintenance, require both temporary and permanent removal of vegetation, short and long-term adverse impacts to wildlife, including special status species, and wildlife habitat would occur. A small permanent reduction in wildlife habitat immediately adjacent to the Apache Trail would occur as a result of the proposed project and on-going and future maintenance actions. However, due to the limited amount of development on TNF property and the abundance of habitat within the project area, the overall cumulative impact is anticipated to be minor.
Vegetation and Noxious Weeds	Past, present and foreseeable roadway projects, recreational development, and utility access, along with future and ongoing maintenance, require both temporary and permanent removal of vegetation, resulting in adverse effects to the vegetation community by reducing the acreage of native plant communities and introducing noxious weeds. A small permanent reduction in the dominant plant community, desertscrub, immediately adjacent to the Apache Trail would occur as a result of the proposed project and on-going and future maintenance actions. However, due to the limited amount of development on TNF property and the abundance of the desertscrub plant community within the project area, the overall cumulative impact is anticipated to be minor.

CHAPTER 4: SECTION 4(F) EVALUATION

4.1 Introduction

This chapter provides an evaluation of the project relative to Section 4(f) of the Department of Transportation Act of 1966 (49 United States Code [U.S.C.] 303) and its implementing regulations, at 23 Code of Federal Regulations (CFR) Part 774.

Section 4(f) of the U.S. Department of Transportation (USDOT) Act of 1966, as amended, and codified in 49 United States Code (U.S.C.) § 303, declares that "[i]t is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites." The Federal Highway Administration (FHWA) has adopted regulations to ensure its compliance with Section 4(f) (23 CFR Part 774).

Section 4(f) regulations specify in 23 CFR § 774.3 that:

The Administration may not approve the use, as defined in 23 CFR § 774.17, of Section 4(f) property unless a determination is made under paragraph (a) or (b) of this section.

(a) The Administration determines that:

(1) There is no feasible and prudent avoidance alternative, as defined in 23 CFR § 774.17, to the use of land from the property; and

(2) The action includes all possible planning, as defined in 23 CFR § 774.17, to minimize harm to the property resulting from such use; or

(b) The Administration determines that the use of the property, including any measure(s) to minimize harm (such as any avoidance, minimization, mitigation, or enhancement measures) committed to by the applicant, will have a *de minimis* impact, as defined in 23 CFR § 774.17, on the property. [Note: Per 23 CFR § 774.17, a *de minimis* impact determination under this paragraph subsumes the requirement for all possible planning to minimize harm by reducing the impacts on the Section 4(f) property to a *de minimis* level. For historic sites, a *de minimis* impact means that the Administration has determined, in accordance with 36 CFR Part 800, that no historic property is affected by the project or that the project will have "no adverse effect" on the historic property in question.]

(c) If the analysis in paragraph (a)(1) above concludes that there is no feasible and prudent avoidance alternative, then the Administration may approve, from among the remaining alternatives that use Section 4(f) property, only the alternative that:

(1) Causes the least overall harm in light of the statute's preservation purpose. The least overall harm is determined by balancing the following factors:

(i) The ability to mitigate adverse impacts to each Section 4(f) property (including any measures that result in benefits to the property);

(ii) The relative severity of the remaining harm, after mitigation, to the protected activities, attributes, or features that qualify each Section 4(f) property for protection;

(iii) The relative significance of each Section 4(f) property;

(iv) The views of the official(s) with jurisdiction over each Section 4(f) property;

(v) The degree to which each alternative meets the purpose and need for the project;

(vi) After reasonable mitigation, the magnitude of any adverse impacts to resources not protected by Section 4(f); and

(vii) Substantial differences in costs among the alternatives.

(2) The alternative selected must include all possible planning, as defined in § 774.17, to minimize harm to Section 4(f) property.

Section 4(f) further requires consultation with the U.S. Department of the Interior and, as appropriate, the U.S. Department of Agriculture and the U.S. Department of Housing and Urban Development, and relevant state and local officials with jurisdiction over the Section 4(f) resource, in developing a transportation project that uses lands protected by Section 4(f).

Documentation of compliance with Section 4(f) is required for a transportation project that receives federal funding and/or approval through USDOT. The Action Alternative developed for this project (FHWA-CFLHD Project AZ FLAP SR88[1]) involves federal funding and, therefore, meets that requirement. Therefore, this Section 4(f) evaluation has been prepared in accordance with FHWA regulations for Section 4(f) compliance codified at 23 CFR Part 774. Additional guidance has been obtained from the FHWA Technical Advisory T 6640.8A (1987) and the revised FHWA Section 4(f) Policy Paper (77 FR 42802, July 20, 2012).

4.2 Proposed Project

4.2.1 Project Purpose and Need

The purpose of the project is to improve the resiliency of the Apache Trail corridor to reduce maintenance demands, and improve and maintain accessibility while protecting elements of the historic road, as practicable. The project is needed because routine maintenance requiring the continual importing of material and regrading of the road surface contributes to watershed damage, places historic features at further risk to unintentional damage, and requires extensive financial resources. In addition, undersized culverts cannot properly accommodate the volume of flows during heavy rain events, resulting in road washouts that lead to further degradation to the watershed and limit public access. These issues are described further below.

- Vehicular use of the decomposed granite surfacing material on the road emits large volumes of fugitive dust that limits sight distance and contributes to poor air quality.
- Given the erosive nature of the decomposed granite, excess surfacing material is frequently lost to roadside ditches and washes and during rain events it has the potential to impact water quality within the adjacent Apache Lake.
- The decomposed granite surfacing requires frequent blading to maintain a drivable surface and the constant routine maintenance results in the ongoing risk of unintentional damage and/or burying of individual features of the historic roadway.
- Supply of the historically used decomposed granite surfacing is in short supply and the Arizona Department of Transportation (ADOT) will need to seek an alternative fill source, which may differ in appearance and require substantial funds to bring onsite.
- Damaged and undersized culverts increase flooding of the road during heavy rain events resulting in road washouts.
- Roadway damage has resulted in temporary closures of portions of the project area thereby limiting access for visitors, nearby residents, Tonto National Forest (TNF) employees, and local business staff. Significant erosion and continual roadway degradation poses a risk for long-term roadway closure affecting access to the project area.

4.2.2 Action Alternative

The Action Alternative is summarized below and shown on Figure 11 (also refer to Figures 1 and 2 in Chapter 1 and Figure 3 in Chapter 2). Refer to Chapter 2 for a full description.

Under the Action Alternative, improvements and repairs would be made to 11.16 miles of the Apache Trail between milepost 229.2 and milepost 240.6, and include the following:

- Rehabilitate and chip seal the 11.16-mile segment of road.

- Pave under the chip seal in steep segments of the road where the grade exceeds eight percent.
- Generally maintain existing road widths. The design includes two template widths of 20 feet and 24 feet, which would require spot widening and narrowing. In isolated areas where the roadway bench width varies between 16 feet to 20 feet, the road would be widened to the greatest extent possible while remaining on the existing road bench, but would likely remain less than 20 feet.
- Make minor safety improvements, including sight distance improvements (see Figures 12 through 15) and signage. Five areas were identified by ADOT and FHWA-CFLHD as potential locations to improve safety by cutting back cut slopes (slope setbacks) to improve the driver's line of sight (see Table 9) (also refer to Table 1 and Figure 3 in Chapter 2).

Table 9: Action Alternative Sight Distance Improvements

Milepost	Side of the Road	Improvements
MP 229.5	South	Cut back slope 10 ft. from existing toe of slope, lay back slope at 1:2 ratio
MP 229.6	South	Cut back slope 10 ft. from existing toe of slope, lay back slope at 1:2 ratio
MP 229.9	South	Cut back slope 5 ft. from existing toe of slope, lay back slope at 1:2 ratio
MP 233.5	North	Cut back slope 10 ft. from existing toe of slope, lay back slope at 1:2 ratio
MP 234.5	North	Cut back slope 10 ft. from existing toe of slope, lay back slope at 1:1.5 ratio

- Remove excess fill material within the fill side window (berms) and/or regrade it back into the roadway. Excess material removed would be carried offsite or stockpiled in a previously disturbed area for future use by ADOT and/or TNF.

Figure 11: Project Regional Map

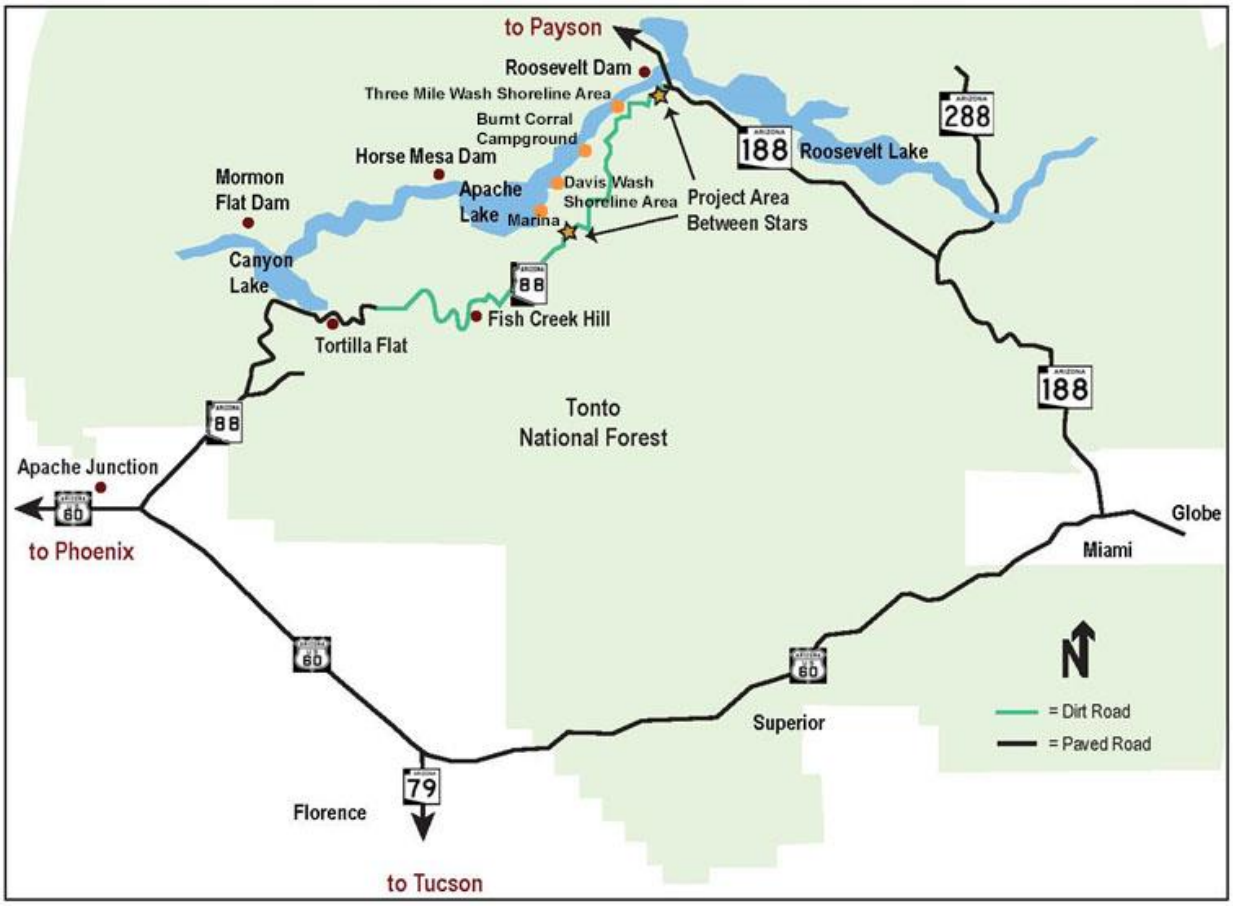


Figure 12: Location of Historic Road Features and Sight Distance Improvements (1 of 4)

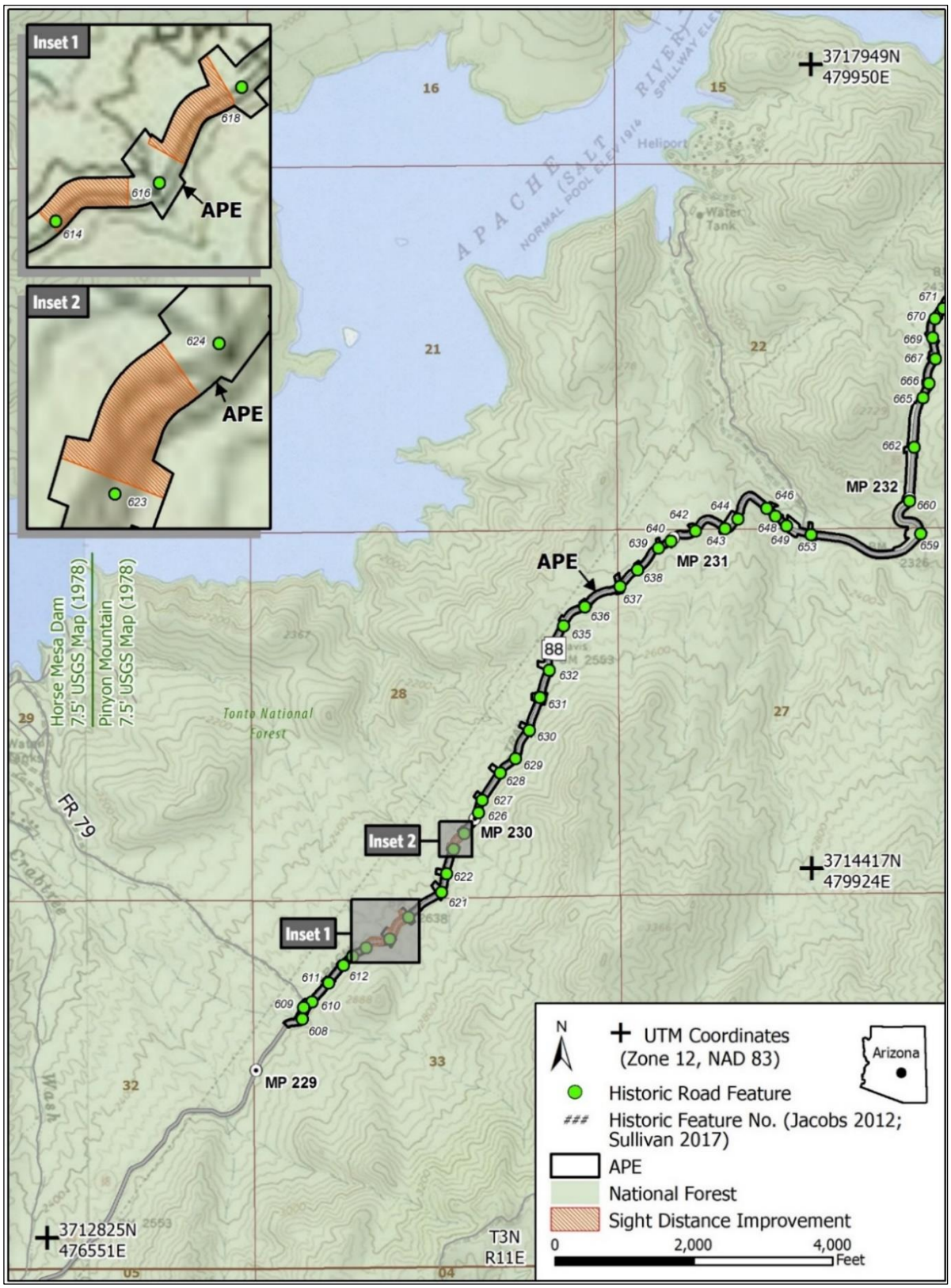


Figure 13: Location of Historic Road Features and Sight Distance Improvements (2 of 4)

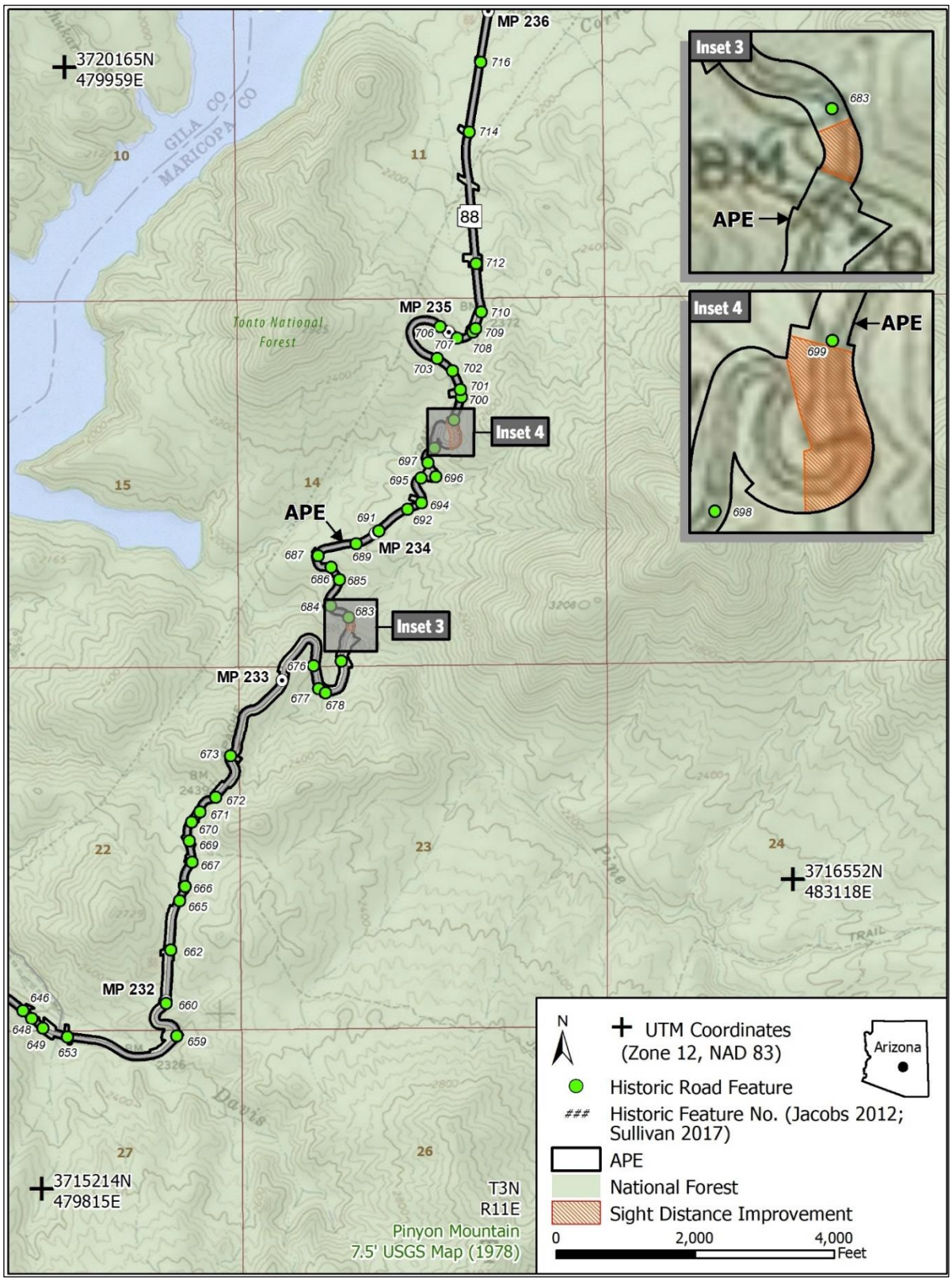


Figure 14: Location of Historic Road Features and Sight Distance Improvements (3 of 4)

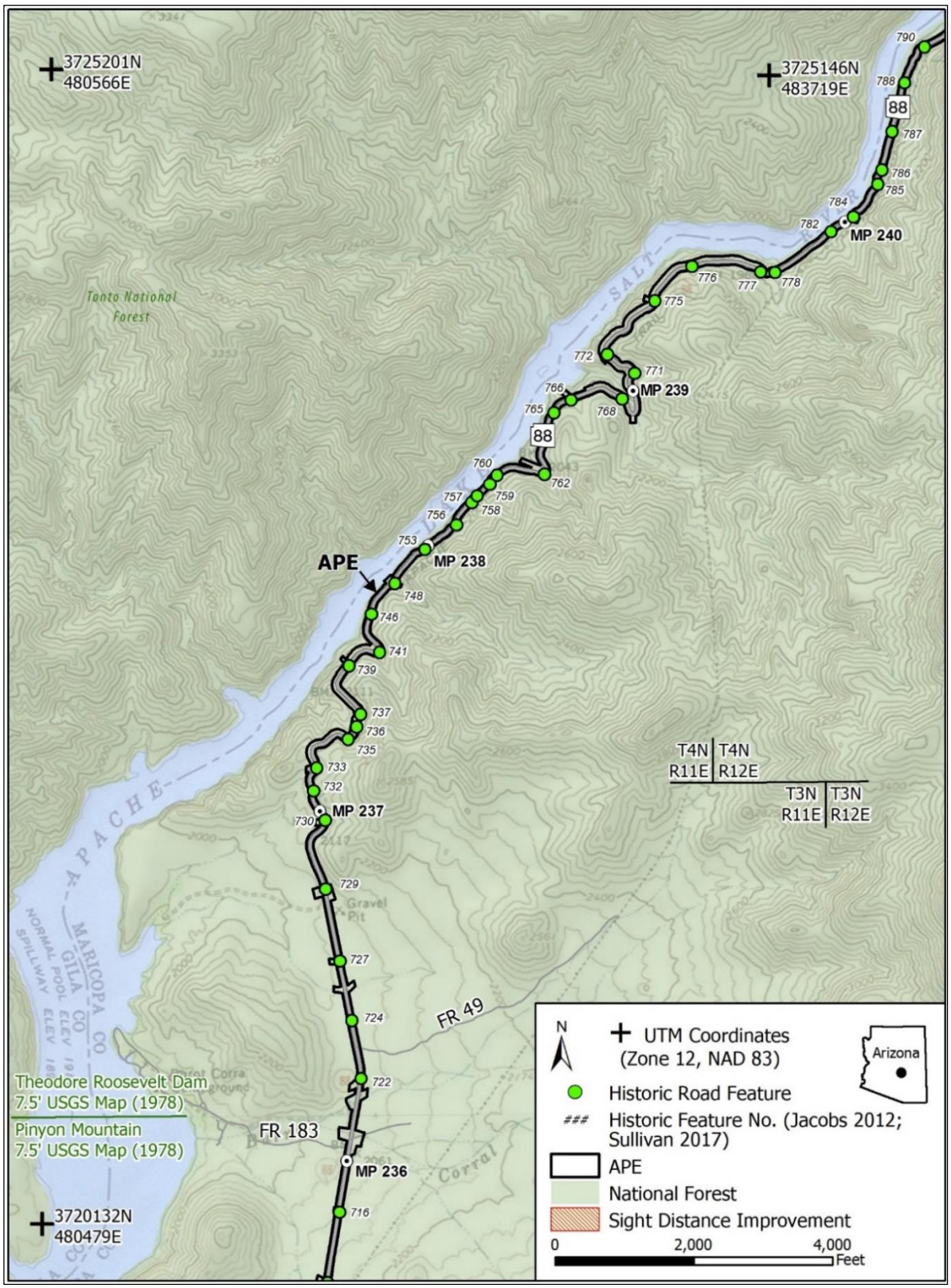
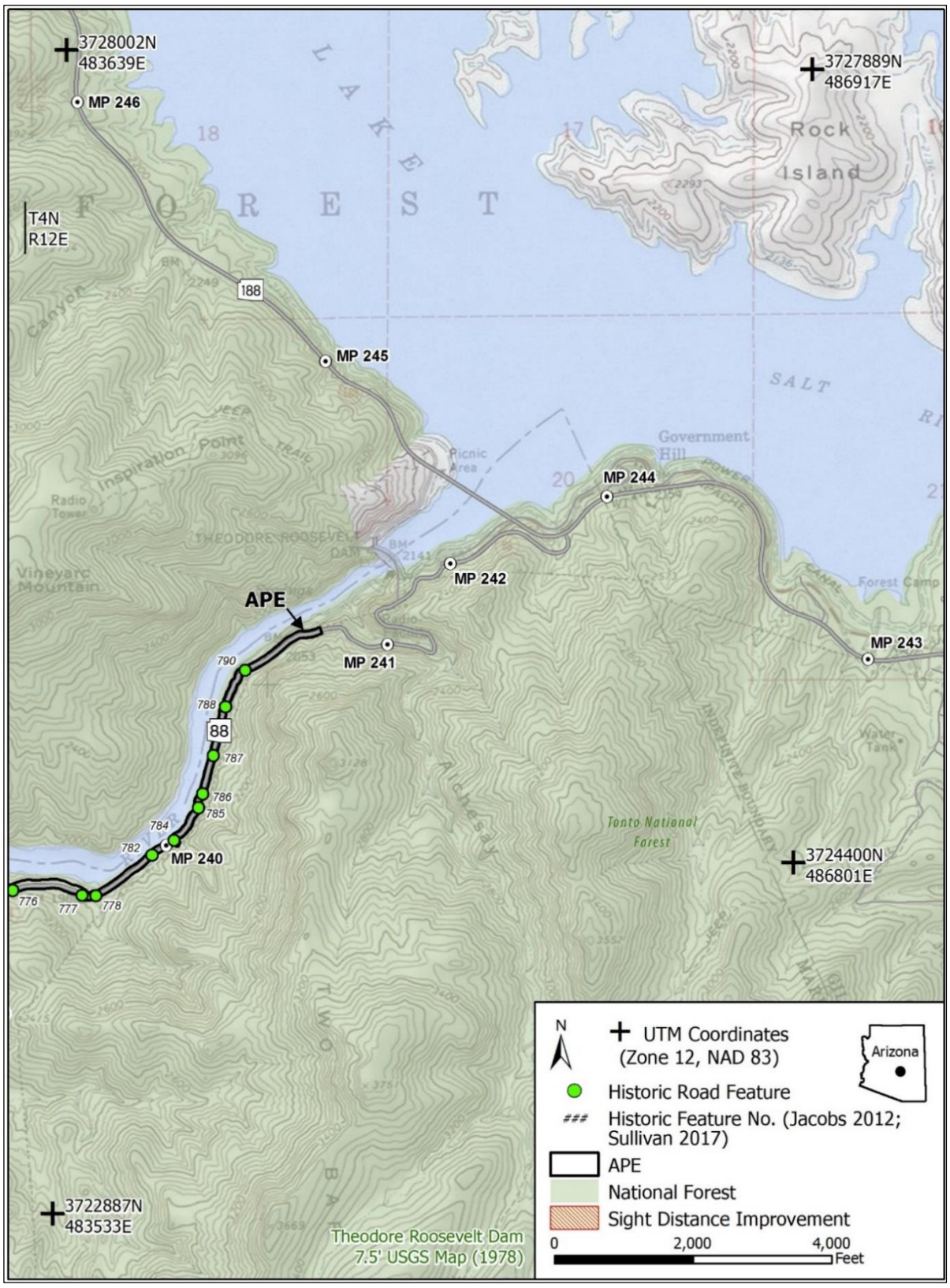


Figure 15: Location of Historic Road Features and Sight Distance Improvements (4 of 4)



- Construct an armored ditch along the roadway in spot locations to direct high runoff flows away from steep and narrow sections of the road and toward existing and/or new culverts.
- No changes to the roadway's horizontal alignment would occur, and elevation changes would be minor.
- Replace, repair, line and/or extend culverts at numerous locations within the project area. Some culverts would be replaced with concrete box culverts to account for changes in drainage volume and debris passage needs. Additional improvements would be made where needed to stabilize drainage areas that have been either scoured or filled in to restore proper hydrologic function. Four culvert treatment options have been identified to address erosion and drainage issues that are affecting the current roadway and the structural integrity of existing roadway structural features, as described below:
    - **Treatment A**: Treatment A would include a standard apron end section, which would serve to spread drainage flow at the transition from the culvert outlet to the natural drainage channel, or to sheet flow where no natural drainage exists. These improvements would be installed below and downslope from existing culvert outlets, and would not modify any existing structural elements. Design elements would include:
        - Placement of rip-rap along drainage channels to prevent additional scour and erosion
        - Installation of a geotextile filter topped with fill dirt within existing scour slopes below culvert outlets to match the grade of adjacent slopes
        - Installation of the apron end section below the culvert outlet.
    - **Treatment B**: Treatment B would be a modified version of the Treatment A apron end section, and serve the same function, which is to distribute drainage flow at the transition from the culvert outlet to the natural drainage channel, or to sheet flow where no natural drainage exists. Design elements for Treatments A and B would be the same, the only exception is that Treatment B would include a thicker end section.
    - **Treatment C1**: Treatment C1 would include a retrofit option for an existing, perched outlet. Many perched pipes in the area have large scour damage at their existing outlet. These improvements would be installed below and downslope from existing culvert outlets, and would consist of extending existing outlet pipes downslope to arrest erosion damage. Design elements would include:
        - Filling scour holes to stabilize the slope
        - Adding a bend joint to the existing outlet to extend the existing pipe down the side of the roadway prism. At the toe of slope, another bend joint would be added to extend the pipe a distance downslope from the roadway prism

- Placing rip-rap along drainage channels to prevent additional scour and erosion (as needed)
- Installing a geotextile filter topped with fill dirt within existing scour slopes below culvert outlets to match the grade of adjacent slopes (as needed)
- Terminating the extended pipe with the installation of the Treatment A apron end section.

- **Treatment C2**: Treatment C2 is a modified version of the Treatment C1 retrofit option and would be installed in areas where it would be impractical to extend the existing culvert outlet pipe to the toe of the roadway prism. Design elements would include:
  - Filling scour holes to stabilize the slope
  - Adding a bend joint to the existing outlet to extend the existing pipe down the side of the roadway prism, short of the toe of slope
  - Placing rip-rap along drainage channels to prevent additional scour and erosion (as needed)
  - Installing a geotextile filter topped with fill dirt within existing scour slopes below culvert outlets to match the grade of adjacent slopes (as needed)
  - Terminating the extended pipe with the installation of the Treatment A apron end section.

Construction

Construction activities for the Proposed Project are summarized below; refer to Section 2.2.1 for details.

Construction generally would include excavating material sources, clearing and grubbing, grading, placing crushed aggregate base and chip seal surface, revegetating, installing signs, and other safety related features necessary to meet current design standards. Construction activities generally would occur within the Apache Trail alignment, but temporary disturbance could occur up to 10 feet on both sides of the alignment. In constrained or environmentally sensitive areas, including areas with active farmland and biologically sensitive areas, construction activities outside the existing Apache Trail corridor would be minimized to the extent feasible.

Construction may require locating existing utilities, such as gas, electric, telecommunications, water, and sanitary sewer. The FHWA-CFLHD will coordinate with utility providers during final design. Construction, equipment staging, and stockpiling areas would be limited to existing disturbed areas along the road corridor to the extent feasible. Any activities required to occur outside those areas will be minimized to the extent feasible and comply with permit requirements. No staging would occur in areas with sensitive biological resources or adjacent to drainages or wetlands.

4.3 Section 4(f) Resources

4.3.1 Parks and Recreational Resources

Marinas, restaurants, accommodations, and small shops are located along the entire length of the Apache Trail that cater to recreation visitors. While the majority of the Apache Trail is unpaved, most of these facilities are concentrated along the portion of the road that is paved between Apache Junction and just east of Tortilla Flat (see Figure 11). However, the sole access to businesses and accommodations associated with Apache Lake is from the unpaved portion of Apache Trail. Those facilities are approximately equal distance between the paved portions of Apache Trail located to the south at Tortilla Flat and to the north near Roosevelt Dam. Within the project area, the Apache Trail accesses a number of TNF day use sites, scenic overlooks, trailheads, campgrounds, and boat launches. Public recreational facilities include the Davis Wash Shoreline Area, Burnt Corral Campground and Day Use Area, and the Three Mile Wash Shoreline Area. The Three Mile Wash Shoreline Area provides boat access to Apache Lake, where recreational boating is popular.

While the Apache Trail provides direct access to numerous recreational sites, the proposed project would not directly impact or incorporate land from those individual sites. Traffic volumes along the corridor are low. The average annual daily traffic in 2013 was approximately 150. The peak visitation seasons are spring and summer. However, the 2019 natural disasters resulted in reduced use of the recreational areas along Apache Trail and more difficult accessibility. The middle section of Apache Trail at Fish Creek Hill has been closed indefinitely.

The Action Alternative would not alter the scenic views, alignment, or recreational opportunities along the route. The Action Alternative would reduce dust and particulate pollution, which would benefit the visitor experience. Visitation to the area may increase as a result of the project, which could lead to increased visitor-generated noise from vehicles and motorized boats, or increased presence of users that could diminish the user experience. However, the increase in visitation is expected to be minor such that these impacts are anticipated to be minimal. Also, long-term benefits are expected for those visitors who utilize the project corridor frequently and are impacted by frequent continuous maintenance to the existing decomposed granite surface and by long-term exposure to dust from the road.

Construction activities may include detours and/or short closures, and temporary narrowing of the roadway to a single lane in work zones, all of which would result in traffic delays. These impacts would be short-term and are anticipated to be minor, especially considering that recreational uses and associated traffic along Apache Trail have been reduced since the 2019 natural disasters. Construction activities will be coordinated to account for recreational traffic and seasonal fluctuations, such that no substantial impairment of other Section 4(f) resources will result from the project. Therefore, there would be no direct or indirect impacts to recreational resources during construction that would result in a Section 4(f) use.

4.3.2 Historic Resources

The area of potential effects (APE) is located along the Apache Trail between milepost 229.20 and milepost 240.60 (Figure 16 and 17). The total length of the APE is 11.16 miles,

with a variable width ranging between 200 and 300 feet. Land jurisdiction in the APE is ADOT easement crossing public lands under the jurisdiction of the TNF, and TNF lands. The APE is a total of 165.5 acres, all of which are on TNF lands. Of this, 138.9 acres are operated and maintained by ADOT under an existing easement across TNF lands.

Figure 16: Area of Potential Effects: Southern Extent of Project Corridor

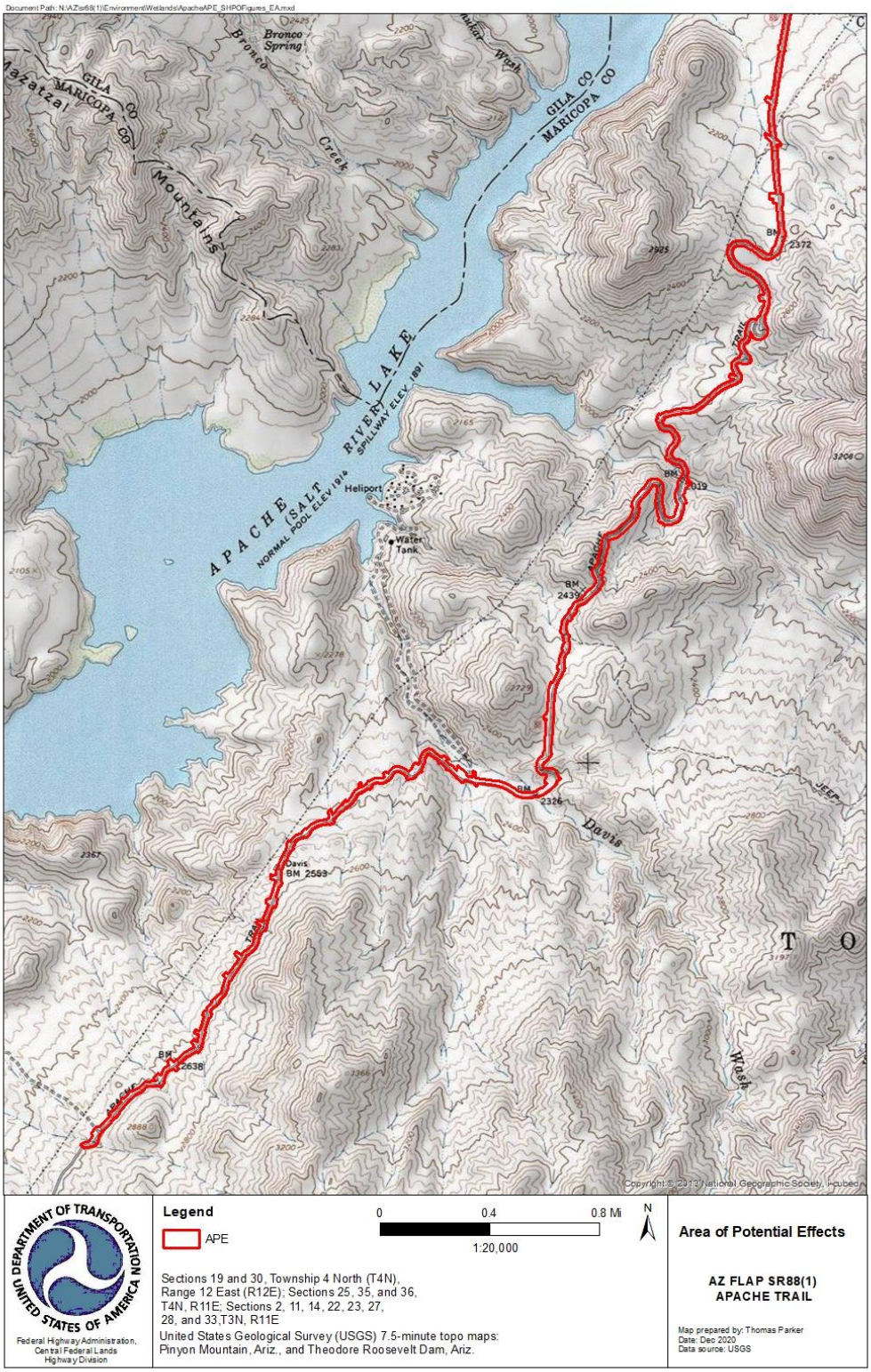


Figure 17: Area of Potential Effects: Northern Extent of Project Corridor

A total of 11 historic properties within the project's APE were determined to be eligible for listing in the National Register of Historic Places (NRHP) and considered Section 4(f) resources potentially used by the proposed project. Of the 11 historic properties:

- Nine historic properties are avoided by the Action Alternative (resulting in a Section 106 finding of *no historic properties affected*), and have no Section 4(f) use.
- Two historic properties will be impacted by the Action Alternative:
  - **Apache Trail (AR-03-12-06-218):** Impacts from the Action Alternative will result in an *adverse effect* under Section 106 of the National Historic Preservation Act. A Historic Properties Treatment Plan (HPTP) and Memorandum of Agreement (MOA) will be prepared under Section 106 to address the *adverse effect* to the Apache Trail. The Action Alternative would result in a Section 4(f) use of the Apache Trail.
  - **Blast Can Site (AR-03-12-06-2503):** This site is an artifact scatter consisting of a dispersal of blasting powder cans and other features such as a rock ring, wall corner, possible roasting pit, small rock cluster, and surficial cleared area. The site is eligible for the NRHP under Criterion A based on its association with the 1927 road reconstruction. Field mapping and recording have exhausted its data potential (Criterion D). An HPTP and MOA will be prepared under Section 106 to address the *adverse effect* to the Blast Can Site. This site is an artifact scatter that meets the criteria for the Section 4(f) exception under 23 CFR § 774.13(b) because it is important chiefly because of what can be learned by data recovery, has minimal value for preservation in place, and the State Historic Preservation Officer (SHPO) did not object to this finding. Therefore, this site is not discussed further in this evaluation.

To better inform the avoidance and least harm analysis below, the character defining attributes and features of the Apache Trail are discussed in greater detail below.

4.4 Detailed Resource Description for Section 4(f) Property Used by Project

4.4.1 Apache Trail (State Route [SR] 88)

The Apache Trail (AR-03-12-06-218 [TNF site reference number]) refers to the historic road alignment, including the roadway and features, of SR 88/Apache Trail. The APE contains a portion of the last remaining unpaved section of the Apache Trail. The road was originally constructed between 1903 and 1905 as a wagon road to supply construction of Roosevelt Dam. In its entirety, the Apache Trail is 49 miles long. As a whole, the Apache Trail is considered to be one of Arizona's transportation "crown jewels." It begins near the city of Apache Junction, Maricopa County, Arizona at milepost 193.90, and terminates at its junction with United States Highway 60, near Globe, Gila County, Arizona, at milepost 242.66.

The roadbed was constructed of native soil extracted during construction of the road and was unsurfaced. Upgrades to increase the road's hauling efficiency began almost immediately and were ongoing until the completion of Roosevelt Dam in 1911. The Arizona State Highway Department took responsibility for the road's operation and

maintenance from the U.S. Reclamation Service in 1922 and implemented additional improvements and upgrades. Chief among these were widening the original roadway from 12 feet to 14 to 16 feet in some locations; and the repair of deteriorating stretches of roadway and wall structures.

In 1927, a reroute of the original road alignment was required to accommodate the filling of Apache Lake. The rerouted section of road is located between MP 231.46 and MP 239.90 and is included in the APE. Additional large-scale work was completed between the years 1935 and 1937 and included widening much of the unpaved roadway to 24 feet to accommodate increased automotive travel. In 1939, the Davis Wash Bridge was reconstructed using Works Progress Administration labor. Following the construction of the bridge, work along the roadway consisted largely of ongoing repair and maintenance classified as "spot improvements." These spot improvements resulted in the construction of additional structures, such as culverts and retaining walls.

The Apache Trail has been previously determined eligible for inclusion in the NRHP under Criteria A, C, and D for its association with important historic events, unique qualities of design and construction, and potential to yield important data regarding the development of early Arizona roadways. The unpaved stretch of the historic roadway within the APE was determined to contribute to the overall NRHP eligibility of the Apache Trail under the aforementioned criteria. The maintenance history of this roadway segment is quite different from that of the paved section of the Apache Trail, and can be characterized by four major maintenance periods, all of which have historic significance (Sullivan 2017). However, these maintenance activities have not significantly altered the historic characteristics of the roadway, which exhibits a high degree of integrity of workmanship, materials, setting, design, association, feeling, and location. As discussed in Sullivan (2017), the unpaved section of roadway still contours across the landscape, and horizontal and vertical curves force drivers to slow down and enjoy the scenic vistas that are iconic to the alignment. This is quite a different driving experience from that along the paved portions of the roadway, where the historic characteristics of the roadway features have been significantly altered.

In addition, this segment exhibits a complex arrangement of retaining walls, culverts, and other roadway features. In total, 216 individual features of the Apache Trail are located within the APE. These features include the roadway and non-structural features within the roadway, such as turnouts and scenic overlooks; individual structural features of the roadway, such as two bridges, numerous culverts, low water crossings, and retaining walls; and "minor" features of the Apache Trail, such as survey markers and mile markers. Of the 216 features, 67 are individually eligible and/or contributing features to the Apache Trail's historic significance.

4.5 Description of Use

Improvements are proposed to the SR 88/Apache Trail roadway and to many of the 67 individually eligible and/or contributing features within the project limits, including culverts and retaining walls. Improvements to the 11.16-mile segment of road include rehabilitating and chip sealing the road; spot widening or narrowing; improving sight distance at five locations involving rock cuts, fill, and/or grading; removing excess fill material from the fill side windrow (berm at side of road) and/or regrading it back into

the roadway; building an armored ditch along the road in spot locations; and improving signage. One of the three treatment options (Treatment A through C2) described in Chapter 2 would be employed to replace, repair, line, and/or extend drainage features at numerous locations. Treatment options include varying combinations of placing rip-rap along drainage channels, installing gabion baskets in roadway ditches, installing geotextile filter topped with fill dirt, filling scour holes, installing apron end sections below culvert outlets, replacing culverts with concrete box culverts to accommodate drainage volumes and debris flows, replacing and/or resetting culvert headwalls and wingwalls, or adding bend joints to outlets to extend existing pipes.

Chip sealing, standardizing the road width, improving line of sight, and replacing and modifying existing drainage features would diminish the features and attributes that qualify the Apache Trail for NRHP eligibility, including workmanship, materials, feeling and association of the historic roadway and contribute to the diminishment of the Apache Trail's integrity. Therefore, the Action Alternative will have an adverse effect to the Apache Trail and 26 of its character-defining contributing features, resulting in a Section 4(f) use of this property.

4.6 Alternatives Analysis

There are two components to the Section 4(f) alternatives evaluation. First, under Section 4(f), if a project alternative uses a Section 4(f) property, a determination must be made whether there are any feasible and prudent alternatives that do not use the Section 4(f) property. If a feasible and prudent avoidance alternative exists, it must be selected. A "feasible and prudent avoidance alternative" is one that avoids using Section 4(f) property and does not cause other severe problems of a magnitude that substantially outweigh the importance of protecting the Section 4(f) property. More specifically, an alternative is feasible if it can be constructed as a matter of sound engineering judgment, and in accordance with 23 CFR § 774.17 an alternative is not prudent if the following is true:

1. It compromises the project to a degree that it is unreasonable to proceed with the project in light of its stated purpose and need;
2. It results in unacceptable safety or operational problems;
3. After reasonable mitigation, it still causes
    a. Severe social, economic, or environmental impacts;
    b. Severe disruption to established communities;
    c. Severe disproportionate impacts to minority or low income populations; or
    d. Severe impacts to environmental resources protected under other Federal statutes;
4. It results in additional construction, maintenance, or operational costs of an extraordinary magnitude;
5. It causes other unique problems or unusual factors; or

6. It involves multiple factors in items 1 through 5, above, that while individually minor, cumulatively cause unique problems or impacts of extraordinary magnitude.

The Action Alternative would result in a Section 4(f) use of the Apache Trail (AR-03-12-06-218); therefore, an analysis of feasible and prudent avoidance alternatives was conducted, and is presented in the following section.

4.6.1 Avoidance Alternatives

Three alternatives were evaluated as avoidance alternatives using 23 CFR § 774.17 prudent and feasible criteria — the No Action and two Build Alternatives.

No Action Alternative: Under this action, no changes to the existing roadway would occur. The dirt road surface would continue to deteriorate due to age, use, and storm events. Ongoing weekly maintenance activities would continue to be required to control wash boarding and maintain a drivable surface, which includes blading the road surface that requires hauling in material approximately once a month. The continual importing of material and grading would continue to contribute to ongoing watershed damage and place historic features at risk of unintentional damage. Regular road blading has created berms of excess materials alongside the roadway margins and maintenance crews would continue to actively take from or add to this material. This berm material is on the fill-side edge (opposite the hillside) of the road and adjacent to historic roadway features, thus creating drainage, maintenance, and preservation issues. The roadway width would continue to vary along the 11.16-mile stretch of road ranging between 16 feet and 30 feet. No actions to address sight distance improvements or improve signage would occur. No actions would be taken to replace, repair, or extend culverts that are not functioning. Erosion and deterioration around non-functional culverts during storm events would continue to cause damage to the road and its historic features.

The No Action Alternative would not meet the purpose and need of the project to improve the resiliency of the road corridor to reduce maintenance demands, and improve and maintain accessibility while protecting elements of the historic road, as practicable. Therefore, the No Action Alternative is not a prudent avoidance alternative.

New Location Eastern Alignment Alternative: Under this action, the existing SR 88/Apache Trail would be abandoned and a new alignment would be constructed to the east and upslope of the existing historic road. ADOT would abandon the existing Apache Trail easement and would no longer be responsible for maintaining the existing road. The Apache Trail would then be abandoned, or potentially be subject to an alternate use, such as a jeep trail, hiking trail, or USFS access road, and maintained by another entity for that alternate use. Because of the hilly topography in the project area, creating a new alignment that maintains continuity of SR 88/Apache Trail and existing recreational access points would require extensive rock cuts, substantial amounts of earthwork, several retaining walls, and drainage structures ranging from pipe culverts to bridges. A new alignment also would require substantial additional right-of-way from the TNF. This work would fragment primarily undisturbed, sensitive desert habitat and result in a high level of impacts to natural resources, including protected plants and animals, water resources and water quality, and visual impacts to road users. The work also would result in substantially high design and construction costs, which are estimated at approximately

$41 million. However, the new road would require a lower level of maintenance than the existing Apache Trail. As such, the current high costs to operate and maintain the entire existing Apache Trail, which run between $700,000 to $900,000 annually, would be considerably reduced. The Three Mile Wash, Upper Burnt, Burnt Corral and Lower Burnt, and Davis Wash public recreation areas are currently accessed via the existing SR 88/Apache Trail. This alternative would construct intersections to provide vehicular access from the new alignment to those resources. The new intersections would incorporate and/or intersect portions of the historic road, which would impact the Section 4(f) resource.

Because the New Location Eastern Alignment Alternative would not avoid the use of all Section 4(f) resources, it is not an avoidance alternative. This alternative was included in the least harm analysis presented later in this chapter.

New Location Western Alignment Alternative: Under this action, the existing SR 88/Apache Trail would be abandoned and a new alignment would be constructed to the west of the existing historic road. Similar to the eastern alignment alternative, ADOT would abandon the existing Apache Trail easement and would no longer be responsible for maintaining the existing road. The Apache Trail would then be abandoned, or potentially be subject to an alternate use, such as a jeep trail, hiking trail, or USFS access road, and maintained by another entity for that alternate use. This alternative would require the construction of either a viaduct in the northern section of the project corridor where the existing historic road is located immediately adjacent to the Salt River on a steep slope, or would require fill in the Salt River that would require Clean Water Act permitting and considerable mitigation for impacts to water resources. A new alignment also would require substantial additional right-of-way from the TNF. This work would result in a high level of impacts to natural resources, including impacts to protected plants and animals, fragmentation of desert habitat, high number of water crossings and impacts to water resources and water quality, and visual impacts to users of adjacent recreation areas that would impact the visitor experience. The work also would result in substantially high design and construction costs to construct a viaduct or construct within the river. However, the new road would require a lower level of maintenance than the existing Apache Trail. This action would avoid the use of the Apache Trail and would provide access to public recreational areas such as Davis Wash Shoreline Area, Burnt Corral Campground and Day Use Area, and the Three Mile Wash Shoreline Area without resulting in a use of other Section 4(f) resources.

While the New Location Western Alignment Alternative would reduce the maintenance demands of the Apache Trail, it would fail to improve the resiliency of the Apache Trail corridor and improve and maintain its accessibility while protecting elements of the historic road, as practicable. The new road alignment, after reasonable mitigation, would result in severe environmental impacts to plants, animals, water resources and water quality, including severe impacts to resources protected by the Clean Water Act. Further, it would result in high design and construction costs due to the rugged topography, proximity to the river, and viaduct construction. Therefore, the New Location Western Alignment Alternative is not a prudent avoidance alternative.

4.6.2 Alternatives Evaluated for Least Overall Harm

This section provides a least overall harm analysis in accordance with 23 CFR § 774.3(c)(1). FHWA-CFLHD may approve only the alternative that causes the least overall harm. To determine which of the alternatives would cause the least overall harm, FHWA-CFLHD must compare seven factors set forth in 23 CFR § 774.3(c)(1) concerning the alternatives under consideration. The first four factors relate to the net harm that each alternative would cause to Section 4(f) property:

1. The ability to mitigate adverse impacts to each Section 4(f) property (including any measures that result in benefits to the property);
2. The relative severity of the remaining harm, after mitigation, to the protected activities, attributes, or features that qualify each Section 4(f) property for protection;
3. The relative significance of each Section 4(f) property;
4. The views of the official(s) with jurisdiction over each Section 4(f) property;

The remaining three factors enable FHWA to take into account any substantial problem with any of the alternatives remaining under consideration on issues beyond Section 4(f). These factors are:

5. The degree to which each alternative meets the purpose and need for the project;
6. After reasonable mitigation, the magnitude of any adverse impacts to resources not protected by Section 4(f); and
7. Substantial differences in costs among the alternatives.

Because no prudent and feasible avoidance alternative was identified to the proposed improvements resulting in the use of the Apache Trail, an analysis was conducted to identify alternatives that would result in least harm to the Section 4(f) resource.

As discussed in Section 2.4 of this EA, several alternatives were considered to address the purpose and need of the project. Through the scoping process, it became evident that options for addressing issues in the project corridor would be limited based on the historic significance of the Apache Trail and its remote and ecologically-sensitive location within TNF.

Three alternatives were evaluated for least harm: **New Location Eastern Alignment Alternative**, **Widening and Paving to Meet AASHTO Design Standards Alternative** (hereinafter referred to as the **Widen and Pave Alternative**), and **Action Alternative.** The **Widen and Pave Alternative** is a full build alternative that would improve the existing road to meet AASHTO design standards along the Apache Trail within the project limits. It is the only other alternative considered in the alternatives screening conducted for the EA (see Chapter 2 of the EA) that meets most of the purpose and need elements. However, through coordination with the officials with jurisdiction (OWJ) over the Apache Trail, it was apparent that designing to meet these standards throughout the entire project limits would not result in a practicable solution that would protect elements of the historic road.

Therefore, the project team developed an alternative that incorporated design variances into the project to minimize harm to the Section 4(f) resource while still addressing the purpose and need of the project, which is the **Action Alternative**.

In addition, to minimize harm to the Apache Trail, the **New Location Eastern Alignment Alternative** was developed. This alternative is described in the avoidance alternatives section above. The **Widen and Pave Alternative** and the **Action Alternative** are described below:

- **Widen and Pave Alternative**: Under this alternative, the road would be improved to meet AASHTO design standards along the project portion of the Apache Trail. The roadway would be widened with shoulders, and a clear zone would be established. All substandard curves would be improved to meet current design standards, which would require a substantial amount of ground disturbance.
- **Action Alternative**: The Action Alternative would include rehabilitating and chip sealing, and paving under the chip seal in steep road segments (see the *Action Alternative* section above and Chapter 2 of the EA for a detailed description of this alternative). This alternative incorporates several measures and design variances to minimize harm, including reduced lane and shoulder widths, maintaining existing horizontal curves and substandard grades, limiting areas of line-of-sight improvements, providing a narrower clear zone, leaving the two historic bridges undisturbed, using temporary single-lane closures and flaggers during construction instead of constructing a temporary adjacent detour route, and revegetating unpaved disturbed areas after construction completion. These measures are detailed later in the *All Possible Planning to Minimize Harm* section.

Table 11 presents the least harm analysis conducted for these three alternatives, broken out by the seven factors listed at the beginning of this section.

Table 11: Application of Least Harm Factors [23 CFR § 774.3(c)(1)] to Alternatives.

New Location Eastern Alignment Alternative	Widen and Pave Alternative	Action Alternative
• If the analysis in paragraph 23 CFR § 774.3(a)(1) concludes that there is no feasible and prudent avoidance alternative, then the Administration may approve, from among the remaining alternatives that use Section 4(f) property, only the alternative that: • (1) Causes the least overall harm in light of the statute's preservation purpose. The least overall harm is determined by balancing the following factors: (i) The ability to mitigate adverse impacts to each Section 4(f) property (including any measures that result in benefits to the property)		
• Adverse effects to the Apache Trail would be mitigated by the measures established and agreed upon in a project-specific Memorandum of Agreement that would be executed by the SHPO, FHWA-CFLHD, ADOT, and TNF, which would include measures such as historic documentation and public education materials.	• Adverse effects to the Apache Trail would be mitigated by the same measures noted for the **New Location Eastern Alignment Alternative**. Therefore, the ability of this alternative to mitigate impacts is the same as the **New Location Eastern Alignment Alternative.**	• Adverse effects to the roadway and many of its contributing features would experience much less degradation over time and be far better protected from damage caused by storm event washouts with the **Action Alternative**. The remaining adverse effects to the Apache Trail would be mitigated by the same measures noted for the other two alternatives.
• (ii) relative severity of the remaining harm, after mitigation, to the protected activities, attributes, or features that qualify each Section 4(f) property for protection		
• Mitigation measures for the **New Location Eastern Alignment Alternative** would be the same as the other two alternatives**. The New Location Eastern Alignment Alternative** would only impact the Section 4(f) resource and its setting where five new intersections would be built to access public recreation areas west of the existing Apache Trail. While the severity of direct impacts to individually eligible and/or contributing features is less than the other two alternatives, no improvements would be made to the Apache Trail. Therefore, the historic road features would continue to degrade over time.	• Mitigation measures for the **Widen and Pave Alternative** would be the same as the other two alternatives. However, the relative severity of the remaining harm after mitigation would be higher than the **New Location Eastern Alignment** and the **Action Alternatives.** This alternative would construct a wider road and correct substandard curves resulting in a higher level of impacts to the resource's contributing features—likely to result in adverse effects to nearly all, if not all, of the 67 individually eligible and/or contributing features. Further, it would require more extensive rock cuts and fills to accommodate the wider road and	• Mitigation measures for the **Action Alternative** would be the same as the other two alternatives. However, the relative severity of the remaining harm after mitigation is substantially lower than the **Widen and Pave Alternative** because this alternative would have a lower level of impacts to the roadway and its character-defining contributing features (culverts, drainages, walls, setting) through minimization measures incorporated into its design. Those measures include generally maintaining existing grades and alignment, providing narrower lanes, shoulders, and clear zones, and minimizing areas for line-of-sight

Table 11: Application of Least Harm Factors [23 CFR § 774.3(c)(1)] to Alternatives.

New Location Eastern Alignment Alternative	Widen and Pave Alternative	Action Alternative
	horizontal and vertical curves to meet AASHTO design standards. This would substantially alter the historic setting and feeling of the resource.	improvements. These measures minimize impacts to the resource's contributing features by adversely affecting only 26 of the 67 contributing features, which reduces adverse effects to these features by more than 50 percent compared to the **Widen and Pave Alternative**. • Compared to the **New Location Eastern Alignment Alternative,** the severity of remaining harm under the **Action Alternative** after mitigation would be somewhat greater because more contributing features would be adversely affected, although the historic roadway and many of its contributing features would experience much less degradation over time and be far better protected from damage caused by storm event washouts.
• (iii) The relative significance of each Section 4(f) property		
• The **New Location Eastern Alignment Alternative**, **Action Alternative,** and **Widen and Pave Alternative** affect the same Section 4(f) resource (Apache Trail). The significance of the Section 4(f) property is the same for all alternatives.	• The **New Location Eastern Alignment Alternative**, **Action Alternative,** and **Widen and Pave Alternative** affect the same Section 4(f) resource (Apache Trail). The significance of the Section 4(f) property is the same for all alternatives.	• The **New Location Eastern Alignment Alternative, Action Alternative** and **Widen and Pave Alternative** affect the same Section 4(f) resource (Apache Trail). The significance of the Section 4(f) property is the same for all alternatives.

Table 11: Application of Least Harm Factors [23 CFR § 774.3(c)(1)] to Alternatives.

New Location Eastern Alignment Alternative	Widen and Pave Alternative	Action Alternative
• (iv) The views of the official(s) with jurisdiction over each Section 4(f) property		
• FHWA-CFLHD, ADOT, and TNF developed the alternatives with input from and collaboration with the AZ SHPO. Through this collaboration, it was indicated that the goal is to improve the road while minimizing impacts to the historic resources. The **New Location Eastern Alignment Alternative** would not meet this goal. The SHPO will have the opportunity to review and comment on this Draft Section 4(f) evaluation.	• FHWA-CFLHD, ADOT, and TNF developed the alternatives with input from and collaboration with the AZ SHPO. Through this collaboration, it was indicated that the goal is to improve the road while minimizing impacts to the historic resources. The **Widen and Pave Alternative** would not meet this goal. The SHPO will have the opportunity to review and comment on this Draft Section 4(f) evaluation.	• FHWA-CFLHD, ADOT, and TNF developed the alternatives with input from and collaboration with the AZ SHPO. Through this collaboration, it was indicated that the goal is to improve the road while minimizing impacts to the historic resources. The **Action Alternative** best meets this goal. The SHPO will have the opportunity to review and comment on this Draft Section 4(f) evaluation.
• v) The degree to which each alternative meets the purpose and need for the project		
• The **New Location Eastern Alignment Alternative** would meet the element of the project's purpose and need that relates to reducing maintenance demands of the corridor. However, no improvements would be made to the Apache Trail and, therefore, it would fail to improve the resiliency of the corridor and maintain its accessibility while protecting elements of the historic road, as practicable, because the historic road features would degrade over time.	• The **Widen and Pave Alternative** would meet the elements of the project's purpose and need to reduce maintenance demands and improve and maintain accessibility. However, it would fail to meet the need to protect elements of the historic road, as practicable.	• The **Action Alternative** fully meets the stated purpose of the project by improving the resiliency of the Apache Trail corridor to reduce maintenance demands, and improving and maintaining accessibility while protecting elements of the historic road, as practicable.
• vi) After reasonable mitigation, the magnitude of any adverse impacts to resources not protected by Section 4(f)		
• The Apache Trail traverses or is adjacent to special status species habitat and visual landscapes that are valued and intended for preservation within TNF. A new 11.16-mile, 24-foot wide road would result in new permanent impacts to approximately 33	• The Apache Trail traverses or is adjacent to special status species habitat and visual landscapes that are valued and intended for preservation within TNF. Because of the context-sensitive nature of the project area, improving the roadway to meet current design	• The Apache Trail traverses or is adjacent to special status species habitat and visual landscapes that are valued and intended for preservation within TNF. Because of the context-sensitive nature of the project area, the **Action Alternative** narrows the roadway

Table 11: Application of Least Harm Factors [23 CFR § 774.3(c)(1)] to Alternatives.

New Location Eastern Alignment Alternative	Widen and Pave Alternative	Action Alternative
acres within this sensitive area, and require construction of new crossings of the extensive dry washes in the area. Construction of this alternative would fragment primarily undisturbed, sensitive desert habitat that is not easily mitigated. The extensive rock cuts and fill required to build a road on a new alignment in this topographically challenging landscape would result in a high level of visual impacts. While context-sensitive solutions would be implemented to minimize or mitigate impacts to visual resources, extensive alteration of the desert landscape would still be required to construct the road with a horizontal and vertical alignment that meets current design and safety standards. In addition, without drainage improvements along the existing road that would improve resiliency and minimize road washouts, watershed damage would be an ongoing issue. As such, the **New Location Eastern Alignment Alternative** would result in the highest level of impacts to natural resources amongst all three alternatives.	standards under the **Widen and Pave Alternative** would result in a higher level of impacts to special status species and their associated habitat, as well as visual landscapes, not protected by Section 4(f) as compared to the **Action Alternative**. This is because more extensive rock cuts and fill and more extensive improvements to contributing features, such as culverts and bridges, to accommodate the wider road are required to meet AASHTO standards. However, after reasonable mitigation, the adverse impacts to these resources would be less severe than the **New Location Eastern Alignment Alternative** because the **Widen and Pave Alternative** is within an existing, disturbed road corridor.	in areas to 24-foot or 20-foot widths to minimize adverse impacts to the Apache Trail, as well as other resources not protected by Section 4(f). As such, this alternative would have the lowest impacts to these resources amongst all three alternatives.
• (vii) Substantial differences in costs among the alternatives		
• Constructing the **New Location Eastern Alignment Alternative** ($41 million) would result in less cost than the **Widen and Pave Alternative**, but would be three times the cost of the **Action Alternative.** The high costs are associated with the large amount of earthwork for cut and fill slopes, shoulders, drainage work, and multiple wash crossings	• Constructing the **Widen and Pave Alternative** ($60 million) would result in the highest costs amongst all three alternatives—nearly two times more than the **New Location Eastern Alignment Alternative** and more than four times the cost of the **Action Alternative.** The higher cost is due to additional earthwork for cut and fill slopes,	• The **Action Alternative** ($13.4 million) would cost substantially less than the **New Location Eastern Alignment Alternative and the Widen and Pave Alternative** by staying on the existing road corridor and reducing the width of the roadway and number of culvert extensions, minimizing the amount of cut and fill areas, and reducing the

Table 11: Application of Least Harm Factors [23 CFR § 774.3(c)(1)] to Alternatives.

New Location Eastern Alignment Alternative	Widen and Pave Alternative	Action Alternative
involved in building a road on a new alignment through this rugged terrain. However, costs are lower than the **Widen and Pave Alternative** primarily because the alignment could be sited at narrower points of major dry washes and minimize the need for bridges or size of bridge structures.	shoulders, drainage work to address design standards for sight distance and roadway curves, and replacement of the existing bridges.	amount of pavement.

4.6.3 Summary of Least Harm Analysis

Although the **New Location Eastern Alignment Alternative** would result in somewhat lower impacts to the Section 4(f) resource and would reduce maintenance demands on the corridor, it would fail to improve the resiliency of the corridor and maintain its accessibility while protecting elements of the historic road, as practicable. It is estimated to be three times the cost of the **Action Alternative** to build, and would fragment primarily undisturbed, sensitive desert habitat. It would result in the highest magnitude of adverse impacts to non-Section 4(f) resources, such as special status species habitat, visual landscapes, and water resources, amongst all three alternatives. The **Widen and Pave Alternative** would fail to protect elements of the historic road, as practicable, because it would result in the highest impacts to the historic features of the Apache Trail compared to the other build alternatives. It would also result in the highest costs to construct. The **Action Alternative** would impact fewer individually eligible and/or contributing features of the Section 4(f) resource than the **Widen and Pave Alternative**; it fully meets the stated purpose of the project; it is the most cost-effective alternative by a substantial margin; and it does not cause severe impacts to Section 4(f) or other resources. For these reasons, the **Action Alternative** is the alternative that causes the least overall harm in light of Section 4(f)'s preservation purpose (23 CFR § 774.17).

4.7 Coordination

During the Section 106 process, FHWA-CFLHD in coordination with ADOT and TNF, determined that the Action Alternative would result in an *adverse effect* (36 CFR § 800.5) to the Apache Trail. The SHPO concurred with the finding of *adverse effect* for this resource in correspondence dated April 6, 2021 and participated in the development and execution of the MOA.

The Advisory Council on Historic Preservation (ACHP), TNF, and ADOT were also notified of the adverse effect and invited to participate as concurring parties in the resolution of adverse effects and development of the MOA.

FHWA-CFLHD will submit this draft Section 4(f) Evaluation to the Director, Office of Environmental Policy and Compliance, U.S. Department of the Interior (DOI) for review and comment. The National Park Service Inter-Mountain Regional Office (on behalf of the DOI), will comment on whether there are any feasible and prudent alternatives to the Action Alternative and whether all measures have been taken to minimize harm (contingent upon the execution of the MOA). The results of coordination with the DOI will be considered by FHWA-CFLHD.

In addition to Section 106 consultation, FHWA-CFLHD engaged stakeholders and the public through the NEPA scoping process to identify and determine the breadth of environmental issues and alternatives to be addressed in the EA. FHWA-CFLHD sent out an initial scoping letter on September 14, 2017 to Native American Tribes traditionally associated with the project area, TNF, others with whom the TNF regularly consults, local concessionaires that operate within the project area, and to area residents near Roosevelt, Arizona. Comments were received from three individuals, one agency, and one organization. All of the comments were in support of the project.

The Tribes with known ancestral ties or interest in the project area listed below were contacted and invited to participate in the environmental review process for the project. Three tribal responses were received to FHWA-CFLHD's scoping letters sent in September 2017. One tribal response was received to FWHA-CFLHD's 2020 scoping letter regarding a change in scope after the 2019 storm damage. And in 2021, seven Tribes responded to a request from FHWA-CFLHD to participate in the development of mitigation measures for impacts to the NRHP-eligible Apache Trail. Five of the seven Tribes requested involvement with development of interpretive materials. One of the five Tribes expressed interest in signing the MOA as a concurring party.

When the EA is released for public review, FHWA-CFLHD will send announcements to the following Tribes to solicit any additional comments on the proposed project.

- Ak-Chin Indian Community
- Fort McDowell Yavapai Nation
- Gila River Indian Community
- Hopi Tribe
- Mescalero Apache Tribe
- Pascua Yaqui Tribe
- Salt River Pima-Maricopa Indian Community
- San Carlos Apache Tribe
- Tonto Apache Tribe
- Tonto O'odham Nation
- White Mountain Apache Tribe
- Yavapai-Apache Nation
- Yavapai-Prescott Tribe
- Zuni Pueblo

4.8 All Possible Planning to Minimize Harm

Based on the above analysis, there are no prudent and feasible alternatives that would avoid use of the Apache Trail. Through Section 106 consultation with the SHPO, TNF, and ADOT, FHWA-CFLHD identified measures to mitigate the adverse effect to the Apache Trail as a result of the Action Alternative.

The Action Alternative includes the following design variances and elements to minimize impacts to the Section 4(f) resource and adjacent areas, and minimize impacts to the public during the construction phase:

- **Lane and Shoulder Width**: The existing roadway varies between 16 and 30 feet. The proposed roadway will have a typical 10-foot wide lane and a varying shoulder width to fit on the existing road bench. In isolated areas with a narrow existing road bench, the total width will be 16 to 20 feet. Two template roadway widths, 20 feet and 24 feet will be used. The reason for this is that there are isolated areas where the road bench width varies from 16 to 20 feet. In those locations, the road will be built to the greatest width possible to remain on the existing bench but is expected to be less than the 20-foot template. Also, a 1:4 paved ditch will be constructed in select narrow areas to allow vehicles to use the ditch as necessary to maneuver around approaching vehicles. In the wider areas, a 24-foot template will be used with a 2-foot unstriped shoulder. This includes areas that are up to 30 feet wide that have been inadvertently widened. Only a 24-foot width would be formalized as part of the Action Alternative in order to reduce permanent impacts. If a wider road were built to meet design standards, it would impact all 67 individually eligible and/or contributing features of the resource, likely causing adverse effects to all of those features, whereas the narrower road included under the Action Alternative would only adversely affect 26 of those features.
- **Horizontal Curve Radius**: The horizontal alignment will match the existing horizontal curvature. Because of the mountainous terrain and sensitive environment, many substandard horizontal curves exist along the route. However, to achieve the minimum curve radius, major realignment would be required, which is not included in the Action Alternative. If all the substandard curves were straightened to meet design standards, more rock cuts would be required, which would impact a higher number of contributing features of the resource. Further, visual changes caused by the additional rock cuts and straighter road would substantially impact the setting of the resource. This design variance included in the Action Alternative will minimize impacts to the resource's contributing features and setting.
- **Maximum Grade**: Because of the mountainous terrain in the project area, sections of the existing roadway exceed the maximum grade. Five locations will require asphalt paving to provide a stable foundation for the chip seal. The reason for this is that existing grades vary from 0.5 percent to approximately 18 percent. However, correcting grades is not included in the Action Alternative because it would change roadside slopes and require grading to blend with adjacent grades. Those activities would impact a higher number of contributing features of the resource and impact its setting. By maintaining existing grades, the Action Alternative reduces these impacts.
- **Road Design**: As previously mentioned, because of the sensitive environment and mountainous terrain, the horizontal alignment will match existing conditions. ADOT and FHWA-CFLHD identified five areas where existing cut slopes will be cut back to improve line of sight. Also, the proposed vertical

alignment will match the existing vertical curvature, but an overall minor grade raise between 5.5 and 8.5 inches will occur. As mentioned above, changing the horizontal or vertical alignment of the road would impact a higher number of the resource's contributing features and its setting. Limiting the number of areas where line-of-sight improvements would occur reduces impacts to the resource's contributing features and setting.

- **Safety**: The Action Alternative will provide a clear zone that is narrower than the recommended clear zone for the Apache Trail's "Very Low Volume Roads" classification. The existing clear zone (two feet maximum) is predominately on the cut slope side and varies depending on the cut slope location. There is no clear zone on the fill slope side. Because of the steep terrain and winding nature of the roadway, more extensive impacts would be required to meet the recommended standard. An additional clear zone will be provided, where possible, to remain on the existing bench and minimize impacts to the sensitive environment. Because of the steep slopes along the corridor, widening the bench is not part of the Action Alternative. If a wider clear zone were provided throughout the project area, a higher number of the resource's contributing features would be impacted. The narrower clear zone proposed under the Action Alternative would minimize impacts to contributing features of the resource.
- **Structural Design**: The two historic bridges located in the project area, Pine Creek Bridge and Davis Wash Bridge, will be left undisturbed. The chip seal will terminate at the bridge approaches and taper down to the bridge elevation to provide a smooth transition, thereby avoiding impacts to those individually eligible and contributing features.
- **Traffic Control**: Most of the project can be constructed using single-lane closures, maintaining a minimum 10-foot lane to minimize construction delays for the public. Standard traffic controls, such as flaggers and a pilot car, will be required. Construction delays to public traffic will be limited to 30 minutes through the project between the 8:00 a.m. to 5:00 p.m. Monday through Friday. In coordination with TNF, delays may be reduced to 15 minutes based on seasonal considerations. An option such as building a temporary detour to maintain two lanes during construction would impact a higher number of the resource's contributing features and impact other sensitive ecological resources, and additional delays related to a detour could impact access to public recreational sites.
- **Revegetation**: A seed mix provided by TNF will be used in all unpaved disturbed areas, unvegetated, and/or designated areas, with mulch used to help establish seed, thereby mitigating impacts to the visual setting of the resource.

The above actions and the following mitigation measures represent "all possible planning to minimize harm" under Section 4(f) and will be included in the project to minimize harm to the Section 4(f) resource.

4.8.1 Summary of Mitigation Commitments

FHWA-CFLHD, SHPO, TNF, and ADOT developed an MOA that outlines mitigation measures that will be undertaken to address the adverse effect to Apache Trail. The draft MOA is provided in Appendix C. A summary of the agreed upon mitigation commitments is as follows:

- Where avoidance is not possible, FHWA-CFLHD shall minimize or mitigate adverse effects to historic properties through the development and implementation of an HPTP. The HPTP will be developed in consultation with the MOA parties and will specify a program of measures to minimize (if applicable) and/or mitigate adverse effects. FHWA-CFLHD shall ensure that the HPTP is consistent with the Secretary of the Interior's Standards and Guidelines for Archaeological Documentation (48 FR 44734-44737).
- Prior to the start of any work that could adversely affect any characteristics that qualify the Apache Trail as a historic property, FHWA-CFLHD shall have a Secretary of the Interior-qualified professional in history or architectural history (as specified in 36 CFR Part 61) complete historical recordation and documentation of up to 15 character-defining features of the Apache Trail to the "outline format: engineering structures" specified in the *Historic American Engineering Record (HAER) Guidelines for Historical Reports* (2008, updated December 2017).
- Prior to construction completion, FHWA-CFLHD shall develop and install interpretation materials (i.e., signs/kiosk) at up to five currently developed recreation sites (i.e., Needle Vista Recreation Site, Canyon Lake Vista, Tortilla Flat, Fish Creek Hill Vista, and Apache Lake Vista) located along the Apache Trail. Developed and installed interpretive signs/panels shall not exceed 11 in number. The interpretive materials may include topics such as characteristics of the historic road (i.e., drainage features, retaining walls, bridges, etc.); engineering, construction methods and challenges of building the historic road; work force or people involved in designing and building the original road; history of stagecoach stops along the Apache Trail; tribal occupation and history; desert culture living and cultural landscapes; history of the town of Tortilla Flat; and/or history of tourism along Apache Trail. Final topics will be determined by FHWA-CFLHD in consultation with SHPO, TNF, ADOT, MOA concurring parties, and interested Tribes, but shall not deviate from the history of the Apache Trail and the cultural resources associated with it. Once the interpretive materials are installed, they will be maintained by the TNF.
- FHWA-CFLHD will document the historic context of resources of Apache Trail, including Roosevelt Dam, Apache Lake and Marina, Fish Creek Hill, as well as contributing features of Apache Trail, to provide a permanent record of how maintenance, fire, and flooding have affected resources in the area. This will include documentation of the 2020 wildfire and flooding events. FHWA-CFLHD shall consult with the SHPO, TNF, ADOT, and MOA concurring parties on the format and content of the historic documentation and ensure that all documentation activities will be performed or directly supervised by, architects, historians, photographers, and/or other professionals meeting the qualification

standards for their field in the Secretary of Interior's Professional Qualifications Standards (36 CFR 61, Appendix A). A draft of the document will be provided the SHPO, TNF, ADOT, and MOA concurring parties within two years of execution of the MOA, and the final document provided prior to completion of project construction. FHWA-CFLHD will make the completed document available to interested parties in the format of their choosing (either hard copy or electronic format) and post the documentation through the ADOT website for a minimum of five years.

4.9 Next Steps

This draft Section 4(f) evaluation is included in this EA in accordance with 23 CFR § 771.105(a). FHWA-CFLHD will provide this draft evaluation to the OWJs (SHPO and ACHP), U.S. DOI, and USFS for a 45-day review and comment period, per 23 CFR § 774.5. If the OWJ or agencies raise any issues with the evaluation, FHWA-CFLHD will work with them to resolve the issues. If no comments are received within 15 days after the comment deadline, FHWA-CFLHD may assume a lack of objection and proceed with the action. This draft evaluation also will be provided to the public for review and comment through distribution of this EA. After review of the aforementioned considerations and comments received, in accordance with 23 CFR § 774.3, FHWA-CFLHD will make the final determination, likely within the NEPA decision document, on whether there is no feasible and prudent alternative to the use of the Apache Trail, determine which remaining build alternative results in the least overall harm, and affirm that the project includes all possible planning to minimize harm to the Section 4(f) property resulting from such use.

CHAPTER 5: COMMENTS AND COORDINATION

Continuous coordination with the public and project stakeholders is essential to the development of a project and the associated environmental document. Early coordination with both project stakeholders and the public can aid in identifying project-related concerns and potential environmental impacts. This chapter summarizes the coordination efforts for the project.

5.1 Project Scoping

Scoping is an early and open process to identify and determine the breadth of environmental issues and alternatives to be addressed in an environmental assessment. The project scoping process involves informing agencies, organizations, and interested citizens of the proposed project. A variety of formal and informal methods were used to conduct the project scoping for this project. These methods include interagency scoping meetings and scoping letters. Comments were received via mail and email during the scoping efforts, which were used to identify project issues and modify or improve the impacts analysis. These comments are essential to the decision-making process under NEPA.

FHWA-CFLHD sent out an initial scoping letter on September 14, 2017 to Native American Tribes traditionally associated with the project area, TNF's mailing list with whom the national forest regularly consults, local concessionaires that operate within the project area, and to Gila County Roosevelt area residents. Comments were received from three individuals, one agency, and one organization. All of the comments were in support of the project.

Following the 2019 floods, the design of the project was reassessed and new design elements were added to the scope of proposed activities. The same Tribes were contacted again in June 2020 and invited to provide feedback on the proposed action.

Traditionally associated Tribes include those listed below. The following Native American Tribes were contacted and invited to participate in the planning process:

- Ak-Chin Indian Community
- Fort McDowell Yavapai Nation
- Gila River Indian Community
- Hopi Tribe
- Mescalero Apache Tribe
- Pascua Yaqui Tribe
- Salt River Pima-Maricopa Indian Community
- San Carlos Apache Tribe
- Tonto Apache Tribe
- Tonto O'odham Nation
- White Mountain Apache Tribe
- Yavapai-Apache Nation
- Yavapai-Prescott Tribe
- Zuni Pueblo

When this EA is released to the public, FHWA-CFLHD will again alert people and agencies on the project mailing list and all associated Tribes formally asking for their input.

5.2 Project Correspondence

Correspondence with various federal, state, and local agencies and organizations occurred throughout project development. Correspondence is categorized by subject below and included in Appendix B.

5.2.1 Cultural Resources

Cultural resource specialists and project team members from TNF and ADOT, FWHA-CFLHD, and the Arizona SHPO's office met on May 16, 2017 regarding the historic road corridor and other known cultural resources in the project area. Tribal consultation was conducted by FHWA-CFLHD during the course of project development. A letter requesting concurrence on the area of potential effects, determinations of eligibility, and finding of adverse effect was sent to the Arizona SHPO on June 19, 2018. The SHPO's office concurred on July 2, 2018.

Due to the adverse effect finding, the project was submitted to the ACHP on July 3, 2018. The ACHP sent a letter accepting the invitation to participate in the consultation process on August 14, 2018.

Tribes were invited to be a consulting party on the proposed project in September 2017. Three tribal responses were received, two requesting further consultation in October 2017. Results of the cultural survey were sent to the two Tribes for comment in June 2018. One Tribe responded in June 2018. Following the floods of 2019, the Tribes listed in Section 5.1 were contacted again in June 2020. One tribe responded in June 2020. A third letter was sent to the Tribes in February or April of 2021 requesting input on mitigation measures for adverse impacts to the Apache Trail. Tribes were also asked if they would like to sign the Memorandum of Agreement (MOA) along with the MOA's signatories. Seven Tribes responded to the request, with five Tribes requesting involvement with development of interpretive materials. One of the five Tribes expressed interest in signing the MOA as a concurring party.

5.2.2 Biological Resources

Resource specialists from USFWS, TNF, and ADOT were consulted regarding biological resources including general wildlife and vegetation as well as species of concern and rare plants. Coordination consisted of email and phone correspondence.

A project evaluation request was submitted to Arizona Game and Fish Department (AGFD) in September 2017. Correspondence with the AGFD occurred in October 2017 regarding special status species.

5.2.3 Waters of the U.S.

Correspondence in the form of email and phone calls with the USACE was initiated in spring of 2018. A request for an AJD was submitted to the USACE on February 4th, 2021. According to the AJD dated March 5, 2021, the USACE determined that all the streams, with the exception of Pine Creek, are ephemeral streams and do not meet the definition

of WOTUS. Pine Creek was determined to be an intermittent stream and thus, met the definition of WOTUS.

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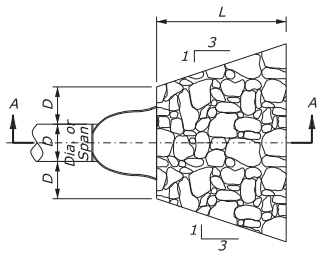
Appendix A

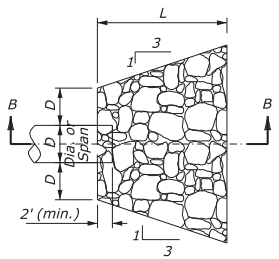
Action Alternative Scour Treatment Options

STATE	PROJECT	SHEET NUMBER
AZ	FLAP SR88(1) APACHE TRAIL	G1



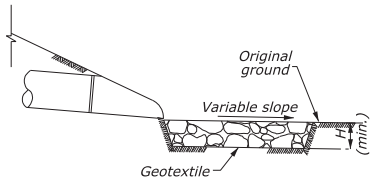
PLAN VIEW

CULVERT WITH STANDARD END SECTION

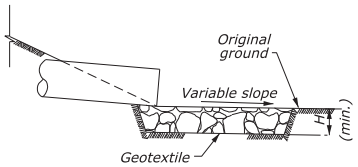


PLAN VIEW

CULVERT WITHOUT STANDARD END SECTION



SECTION A-A



SECTION B-B

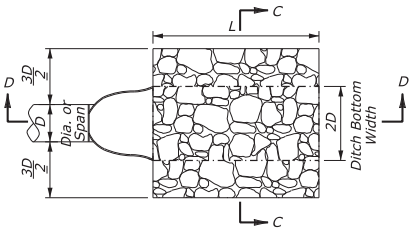
OUTLET WITHOUT DITCH
PROTECTIVE APRON DIMENSIONS AND ESTIMATED QUANTITIES

	CULVERT SIZE D (inches)	RIPRAP CLASS	LENGTH OF APRON L (feet)	DEPTH OF APRON H (feet)	ESTIMATED RIPRAP QUANTITY (CY)	ESTIMATED GEOTEXTILE QUANTITY (SY)
WITH END SECTION	12	2	4	1.5	1	5
	18	2	6	1.5	2.2	9
	24	2	8	1.5	3.9	14
	30	3	12.5	2	10.9	28
	36	3	16	2	15.6	37
	42	4	21	2.5	34.1	63
	48	4	24	2.5	44.5	79
WITHOUT END SECTION	12	2	6	1.5	1.7	8
	18	2	8	1.5	3.2	12
	24	2	10	1.5	5.2	17
	30	3	14.5	2	13.3	33
	36	3	17	2	18.5	43
	42	4	23	2.5	38.7	70
	48	4	26	2.5	49.8	87
	Double 48	4	26	2.5	66.2	110
	54	4	30	2.5	65.3	109
	Double 54	4	30	2.5	86.6	139

NOTE:

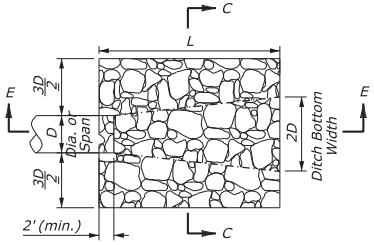
1. Use for aprons serving culverts with slopes of less than 10%.
2. Furnish geotextile conforming to Subsection 714.01(a).
3. Excavation for placement of riprap will not be measured for payment.

PROTECTIVE APRON AT CULVERT OUTLET WITHOUT DITCH



PLAN VIEW

CULVERT WITH STANDARD END SECTION

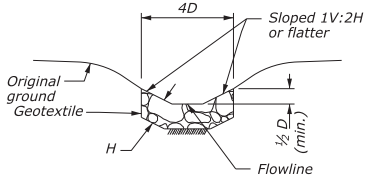


PLAN VIEW

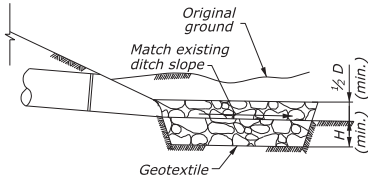
CULVERT WITHOUT STANDARD END SECTION

OUTLET WITH DITCH
PROTECTIVE APRON DIMENSIONS AND ESTIMATED QUANTITIES

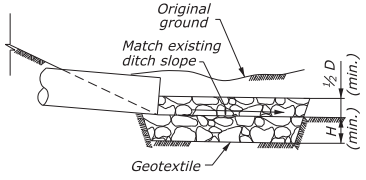
	CULVERT SIZE D (inches)	RIPRAP CLASS	LENGTH OF APRON L (feet)	DEPTH OF APRON H (feet)	ESTIMATED RIPRAP QUANTITY (CY)	ESTIMATED GEOTEXTILE QUANTITY (SY)
WITH END SECTION	12	2	4	1.5	0.9	5
	18	2	6	1.5	2	8
	24	2	8	1.5	3.6	13
	30	3	12.5	2	9.3	24
	36	3	15	2	13.4	32
	42	4	21	2.5	27.3	53
	48	4	24	2.5	35.6	65
WITHOUT END SECTION	12	2	6	1.5	1.4	6
	18	2	8	1.5	2.7	10
	24	2	10	1.5	4.5	15
	30	3	14.5	2	10.8	27
	36	3	17	2	15.2	36
	42	4	23	2.5	29.9	57
	48	4	26	2.5	38.6	70



SECTION C-C



SECTION D-D



SECTION E-E

PROTECTIVE APRON AT CULVERT OUTLET WITH DITCH

NO SCALE

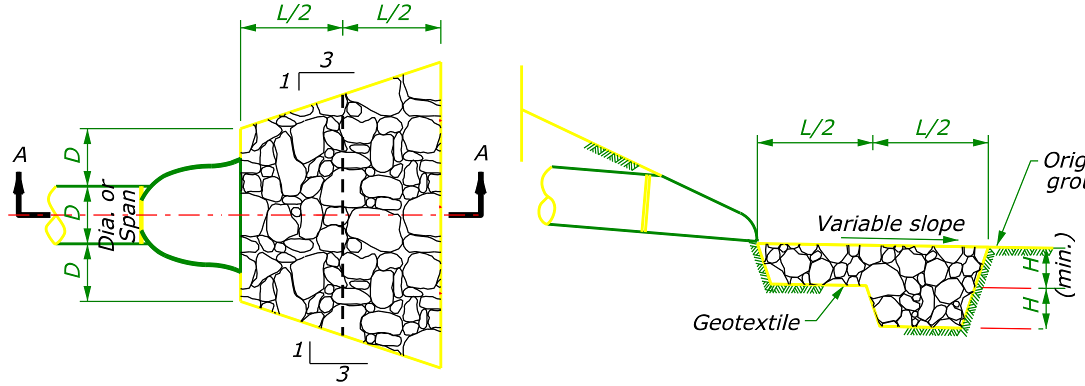
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

U.S. CUSTOMARY SPECIAL

PLACED RIPRAP AT CULVERT OUTLETS

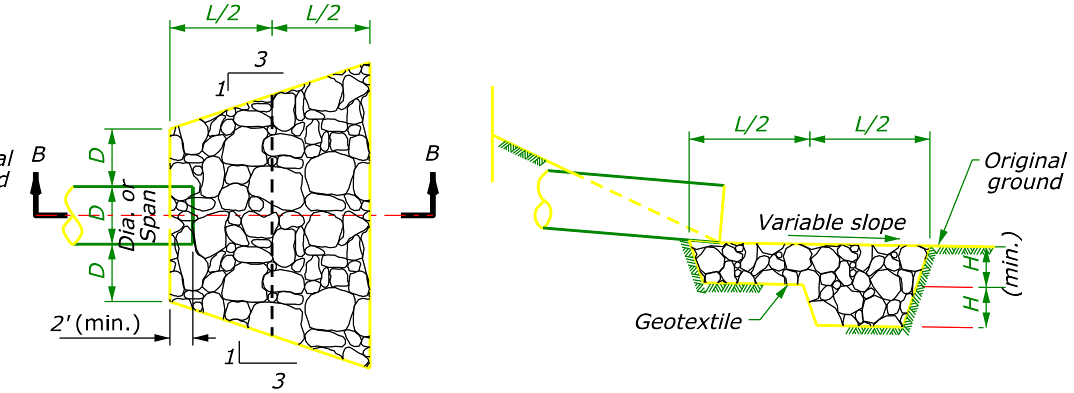
SPECIAL
C251-50

STATE	PROJECT	SHEET NUMBER
AZ	FLAP SR88(1) APACHE TRAIL	T11



PLAN VIEW SECTION A-A

CULVERT WITH STANDARD END SECTION

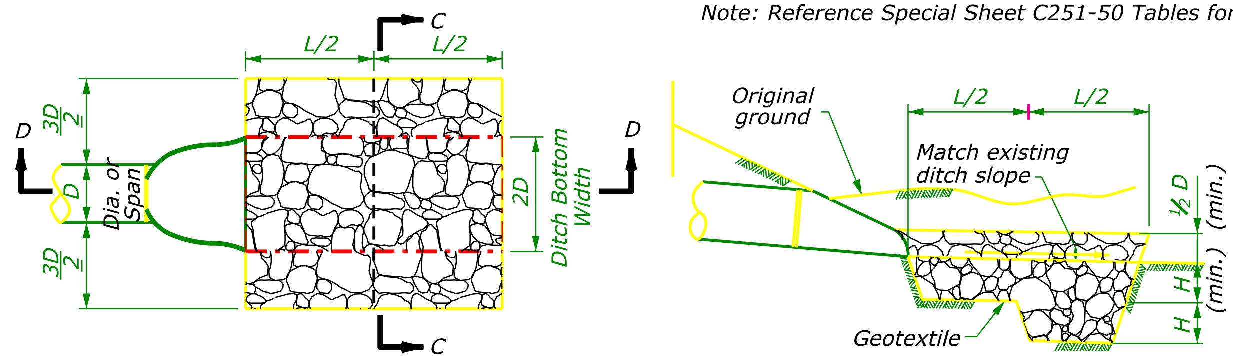


PLAN VIEW SECTION B-B

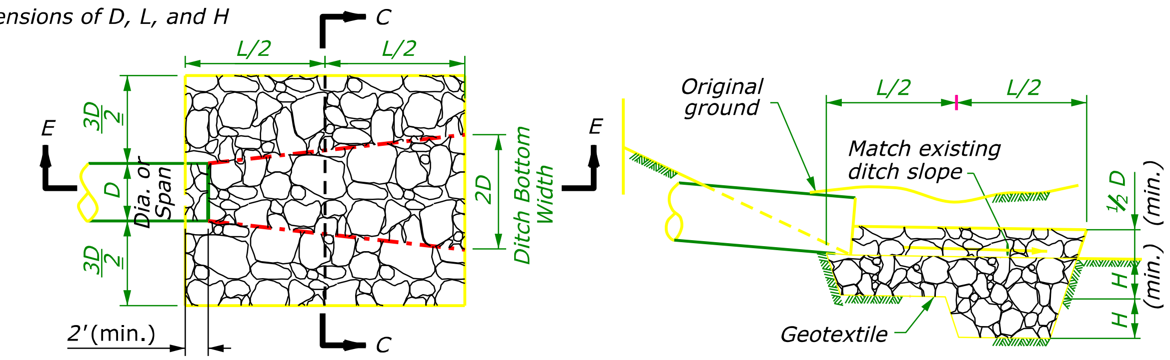
CULVERT WITHOUT STANDARD END SECTION

TREATMENT B
PROTECTIVE APRON AT CULVERT
OUTLET WITHOUT DITCH

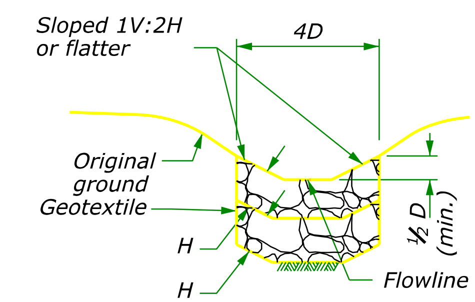
Note: Reference Special Sheet C251-50 Tables for dimensions of D, L, and H



PLAN VIEW SECTION D-D



PLAN VIEW SECTION E-E



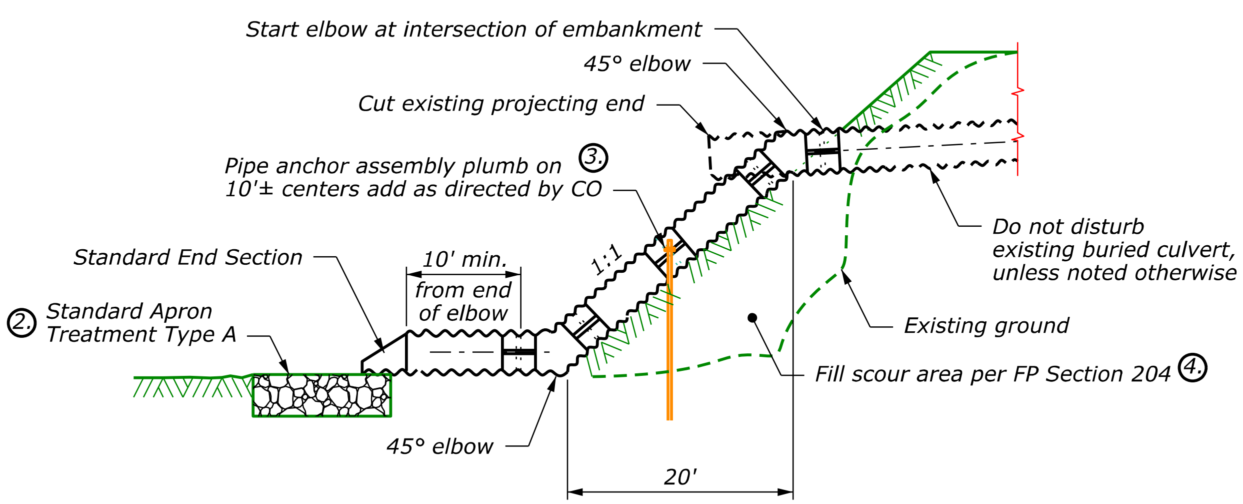
SECTION C-C

CULVERT WITH STANDARD END SECTION

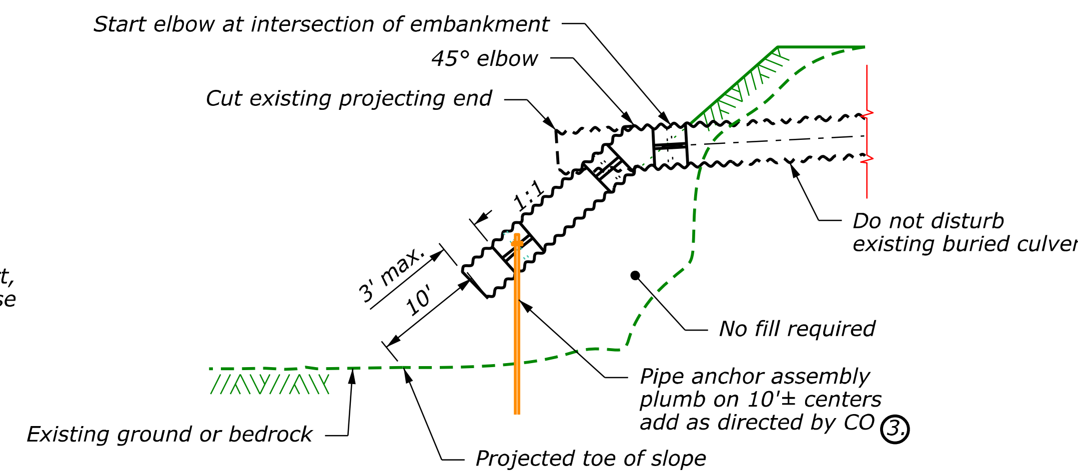
CULVERT WITHOUT STANDARD END SECTION

TREATMENT B
PROTECTIVE APRON AT
CULVERT OUTLET WITH DITCH

Note: Reference Special Sheet C251-50 Tables for dimensions of D, L, and H



TREATMENT C1
PIPE ANCHOR ASSEMBLY WITH
RIPRAP FOR SCOURED AREA



TREATMENT C2
PROJECTING PIPE ANCHOR
ASSEMBLY FOR SCOURED AREA

NOTE:

1. See Drainage Summary for Treatment Type.
2. End Treatment Type A is standard riprap apron. See Special Sheet C251-50 for details.
3. See Special 606-B for Pipe Anchor Assembly Detail. Pipe Anchors are incidental to the Pipe Anchor Assembly Item.
4. Fill scour area as directed in the Drainage Summary remarks. Embankment incidential to the Pipe Anchor Assembly Item.

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

U.S. CUSTOMARY SPECIAL

END TREATMENTS FOR PIPE CULVERTS

SPECIAL 606-A

$USER$ $$$$DGN$$$ $TIME$ $$$$DATE$$$$

Appendix B

Project-Related Agency Correspondence

Correspondence Regarding Biological Resources

THE STATE OF ARIZONA
GAME AND FISH DEPARTMENT
5000 W. CAREFREE HIGHWAY
PHOENIX, AZ 85086-5000
(602) 942-3000 • WWW.AZGFD.GOV

October 6, 2017

FHWA Central Federal Lands Highway Division
c/o Micah Leadford
12300 West Dakota Avenue, Suite 380
Lakewood, Colorado 80228

Re: Review of the Apache Trail Improvements

Dear Mr. Leadford:

The Arizona Game and Fish Department (Department) reviewed your Project Evaluation Request dated September 5, 2017, and received September 11, 2017, regarding the improvements planned to Apache Trail between milepost 229.2 and milepost 241.6 in Maricopa County, AZ. As seen on the Department's Heritage Data Management System (HDMS)'s Online Environmental Tool report generated for you (enclosed) on September 23, 2017, the Sonoran desert tortoise (*Gopherus morafkai*) has been reported in the vicinity of your proposed project.

Based on the information provided in your letter, the Department has the following recommendations:

- Suitable habitat for the Sonoran desert tortoise may be present along or adjacent to the existing dirt roadway to be improved. While work is being conducted within suitable Sonoran Desert tortoise habitat, construction crews should refer to the *Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects* should a tortoise be encountered.
  https://www.azgfd.com/PortalImages/files/wildlife/2014%20Tortoise%20handling%20guidelines.pdf
- If proposed ground disturbance (both temporary and permanent), in areas with native vegetation, will meet or exceed 0.25 acre, please comply with the Arizona Native Plant Law regulations. Please determine if a Native Plant Inventory should be conducted to identify, record, and coordinate plant salvage efforts for species that are Protected under the Arizona Native Plant Law. In addition, the applicable land management agencies should be consulted regarding guidelines for revegetation efforts.
  https://agriculture.az.gov/plantsproduce/native-plants
  http://riester-az-agriculture.pantheonsite.io/sites/default/files/Native%20Plant%20Rules%20-%20AZ%20Dept%20of%20Ag.pdf
- The trees and/or vegetation within the project area may provide nesting opportunities for avian species that are regulated under the Migratory Bird Treaty Act (MBTA). A qualified

biologist should conduct a survey for nesting birds within the project area prior to removal or trimming of trees/vegetation during the breeding season. Breeding season for birds is generally May through late August, depending on the species and habitat, and for raptors it is generally January through late June. If you anticipate your project will not be in compliance with MBTA, the Department recommends you contact the U.S. Fish and Wildlife Service (USFWS) for their Technical Assistance. The USFWS will provide options to comply with the MBTA.

- Minimize impacts to vegetation during project construction. Staging areas should be located in previously disturbed sites, and kept as small as possible. Implement erosion and drainage control measures during the project to prevent the introduction of sediment-laden runoff into adjacent surface waters, and to prevent impacts to surface water quality. Stabilize exposed soils, particularly on slopes, with native vegetation as soon as possible to prevent excess erosion.
- Minimize the potential introduction or spread of exotic invasive species, including aquatic and terrestrial plants, animals, insects and pathogens. Precautions should be taken to wash and/or decontaminate all equipment utilized in the project activities before entering and leaving the site. To view a list of documented invasive species in or near your project area visit http://login.imapinvasives.org/azimi/login/?next=/azimi/ . To build a list: login, go to Query and Reports, select a geography value relevant to your project area, and select "View Report" for a list of reported species.
    - Arizona has noxious weed regulations (Arizona Revised Statutes, Rules R3-4-244 and R3-4-245); please see the Arizona Department of Agriculture website for prohibited and restricted noxious weeds.
      https://www.invasivespeciesinfo.gov/unitedstates/az.shtml
      https://agriculture.az.gov/pests-pest-control/agriculture-pests/noxious-weeds
      https://plants.usda.gov/java/noxious?rptType=State&statefips=04

The Department appreciates the opportunity to provide an evaluation of impacts to wildlife or wildlife habitats associated with the Apache Trail Improvements project. If you have any questions regarding this letter, please contact me at (623) 236-7615, and visit our website for additional guidelines at https://www.azgfd.com/wildlife/planning/wildlifeguidelines/.

Sincerely,

Cheri A. Bouchér
Project Evaluation Program Specialist, Habitat Branch
Arizona Game and Fish Department

cc: Laura Canaca, Project Evaluation Program Supervisor
Kelly Wolff-Krauter, Habitat Program Manager, Region VI

AGFD# M17-09153231

Arizona Environmental Online Review Tool Report

Arizona Game and Fish Department Mission
To conserve Arizona's diverse wildlife resources and manage for safe, compatible outdoor recreation opportunities for current and future generations.

Project Name:
Apache Trail Improvements (MP 229.2-241.6)

Project Description:
Maintain 2 travel lanes and to improve resiliency of the road corridor to reduce maintenance demands

Project Type:
Transportation & Infrastructure, Road Improvements, Paving dirt roads

Contact Person:
Melissa Swain

Organization:
AZGFD

On Behalf Of:
OTHER_FED

Project ID:
HGIS-06181

Please review the entire report for project type and/or species recommendations for the location information entered. Please retain a copy for future reference.

Disclaimer:

1. This Environmental Review is based on the project study area that was entered. The report must be updated if the project study area, location, or the type of project changes.
2. This is a preliminary environmental screening tool. It is not a substitute for the potential knowledge gained by having a biologist conduct a field survey of the project area. This review is also not intended to replace environmental consultation (including federal consultation under the Endangered Species Act), land use permitting, or the Departments review of site-specific projects.
3. The Departments Heritage Data Management System (HDMS) data is not intended to include potential distribution of special status species. Arizona is large and diverse with plants, animals, and environmental conditions that are ever changing. Consequently, many areas may contain species that biologists do not know about or species previously noted in a particular area may no longer occur there. HDMS data contains information about species occurrences that have actually been reported to the Department. Not all of Arizona has been surveyed for special status species, and surveys that have been conducted have varied greatly in scope and intensity. Such surveys may reveal previously undocumented population of species of special concern.
4. HabiMap Arizona data, specifically Species of Greatest Conservation Need (SGCN) under our State Wildlife Action Plan (SWAP) and Species of Economic and Recreational Importance (SERI), represent potential species distribution models for the State of Arizona which are subject to ongoing change, modification and refinement. The status of a wildlife resource can change quickly, and the availability of new data will necessitate a refined assessment.

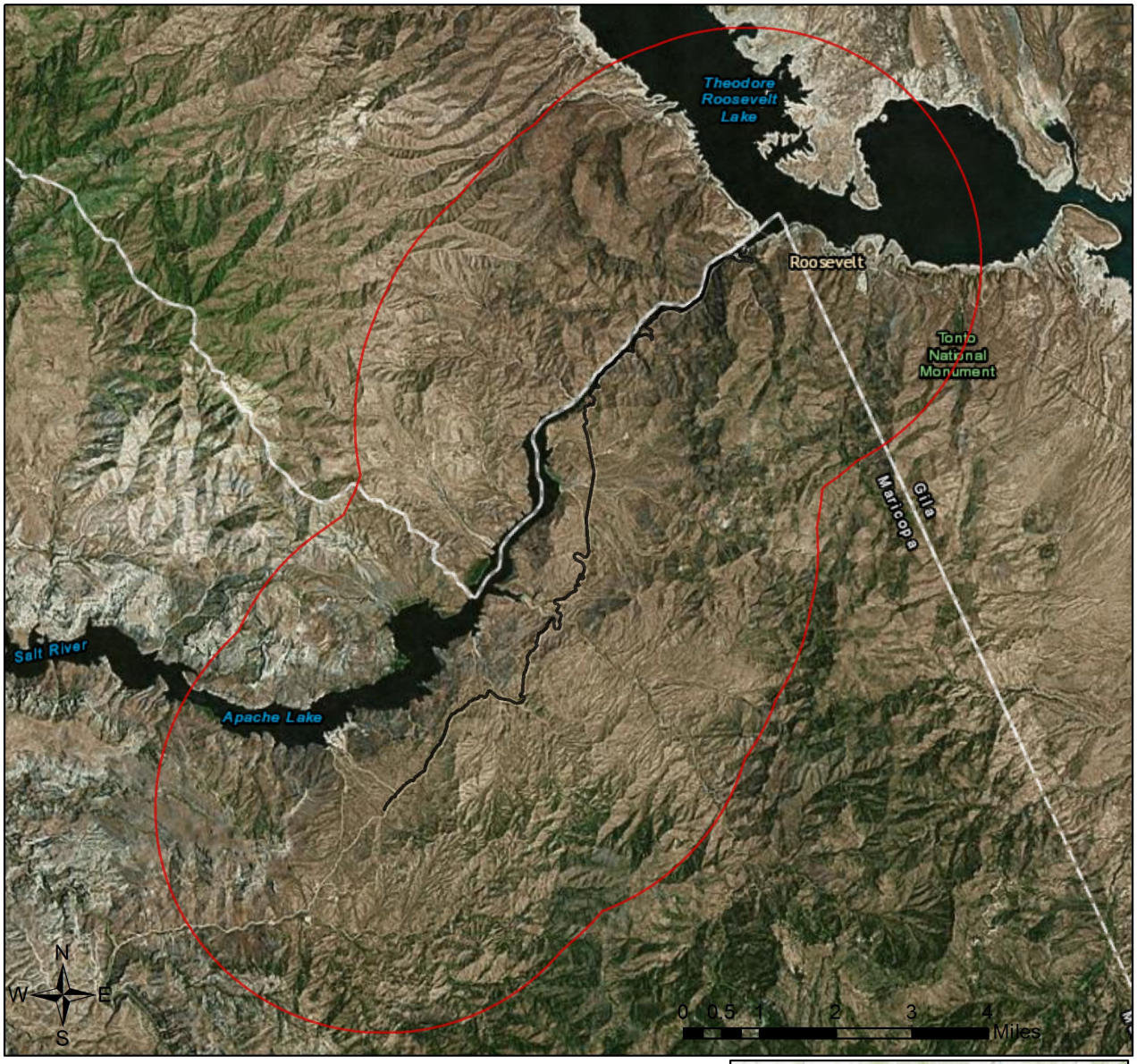
Locations Accuracy Disclaimer:
Project locations are assumed to be both precise and accurate for the purposes of environmental review. The creator/owner of the Project Review Report is solely responsible for the project location and thus the correctness of the Project Review Report content.

Recommendations Disclaimer:

1. The Department is interested in the conservation of all fish and wildlife resources, including those species listed in this report and those that may have not been documented within the project vicinity as well as other game and nongame wildlife.
2. Recommendations have been made by the Department, under authority of Arizona Revised Statutes Title 5 (Amusements and Sports), 17 (Game and Fish), and 28 (Transportation).
3. Potential impacts to fish and wildlife resources may be minimized or avoided by the recommendations generated from information submitted for your proposed project. These recommendations are preliminary in scope, designed to provide early considerations on all species of wildlife.
4. Making this information directly available does not substitute for the Department's review of project proposals, and should not decrease our opportunity to review and evaluate additional project information and/or new project proposals.
5. Further coordination with the Department requires the submittal of this Environmental Review Report with a cover letter and project plans or documentation that includes project narrative, acreage to be impacted, how construction or project activity(s) are to be accomplished, and project locality information (including site map). Once AGFD had received the information, please allow 30 days for completion of project reviews. Send requests to:
   Project Evaluation Program, Habitat Branch
   Arizona Game and Fish Department
   5000 West Carefree Highway
   Phoenix, Arizona 85086-5000
   Phone Number: (623) 236-7600
   Fax Number: (623) 236-7366
   Or
   PEP@azgfd.gov
6. Coordination may also be necessary under the National Environmental Policy Act (NEPA) and/or Endangered Species Act (ESA). Site specific recommendations may be proposed during further NEPA/ESA analysis or through coordination with affected agencies

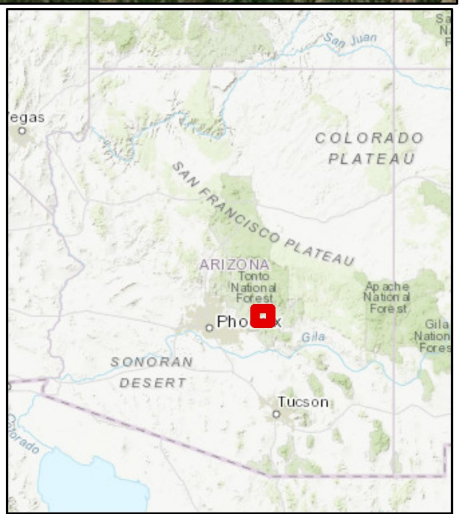
Apache Trail Improvements (MP 229.2-241.6)

Aerial Image Basemap With Locator Map



Project Boundary

Buffered Project Boundary



Project Size (acres): 99.56

Lat/Long (DD): 33.6027 / -111.2012

County(s): Maricopa

AGFD Region(s): Mesa

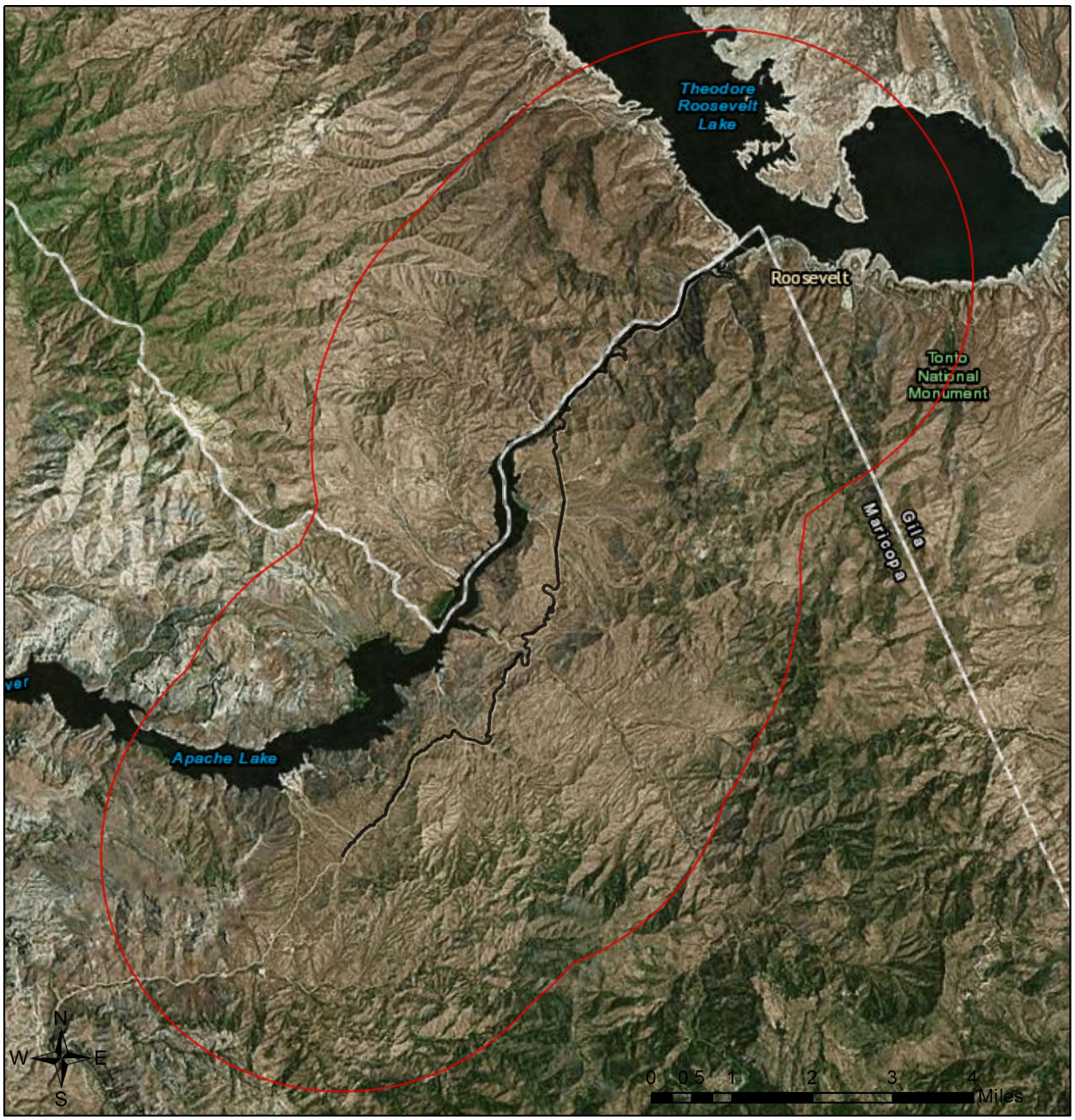
Township/Range(s): T3N, R11E; T4N, R11E; T4N, R12E

USGS Quad(s): PINYON MOUNTAIN; THEODORE ROOSEVELT DAM

Service Layer Credits: Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong),

Apache Trail Improvements (MP 229.2-241.6)

Web Map As Submitted By User



Project Boundary

Buffered Project Boundary

Project Size (acres): 99.56

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County(s): Maricopa

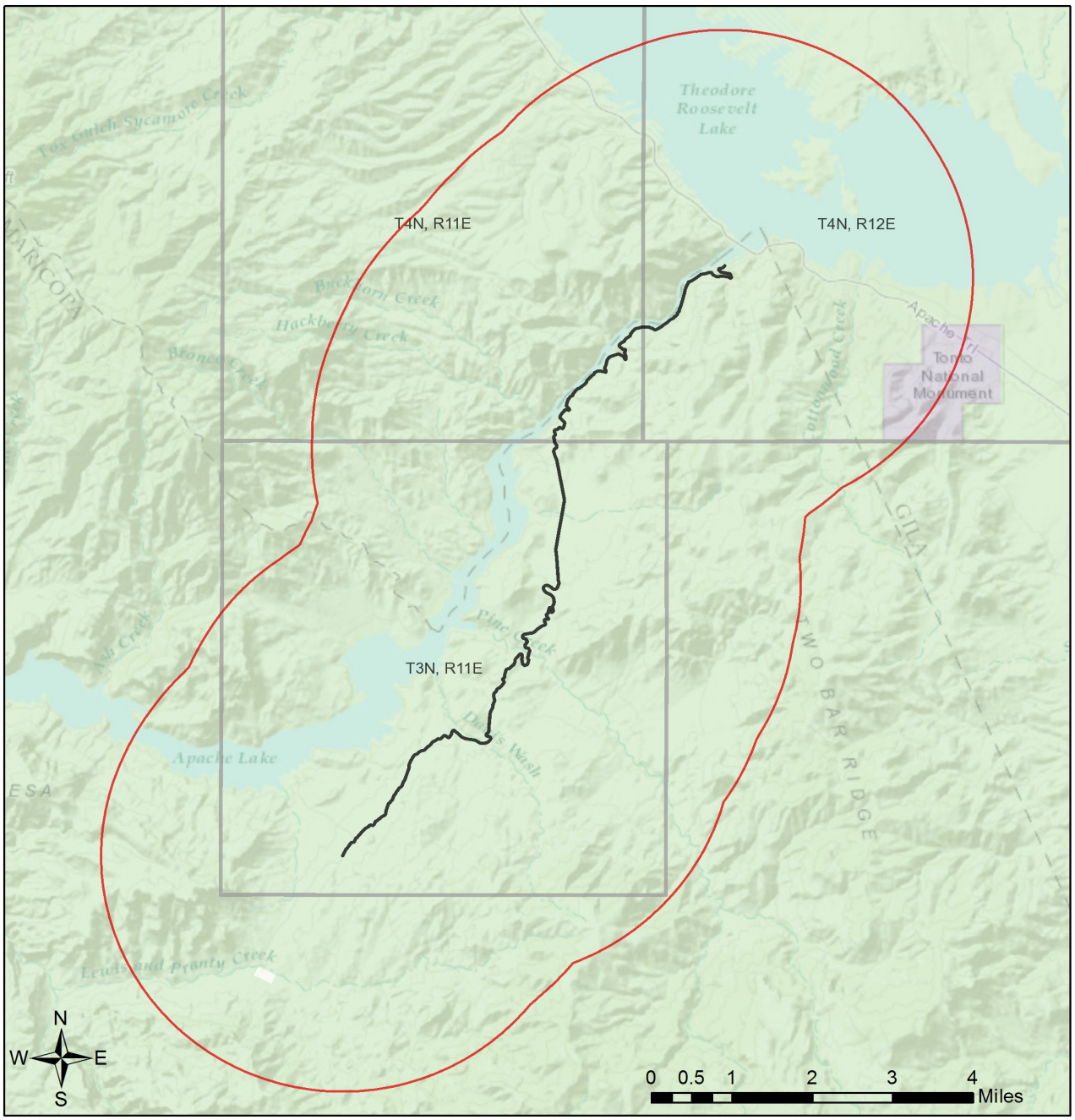
AGFD Region(s): Mesa

Township/Range(s): T3N, R11E; T4N, R11E; T4N, R12E

USGS Quad(s): PINYON MOUNTAIN; THEODORE ROOSEVELT DAM

Apache Trail Improvements (MP 229.2-241.6)

Topo Basemap With Township/Ranges and Land Ownership



- Project Boundary
- Buffered Project Boundary
- Township/Ranges
- AZ Game and Fish Dept.
- BLM
- BOR
- Indian Res.
- Military
- Mixed/Other
- National Park/Mon.
- Private
- State and Regional Parks
- State Trust
- US Forest Service
- Wildlife Area/Refuge

Project Size (acres): 99.56

Lat/Long (DD): 33.6027 / -111.2012

County(s): Maricopa

AGFD Region(s): Mesa

Township/Range(s): T3N, R11E; T4N, R11E; T4N, R12E

USGS Quad(s): PINYON MOUNTAIN; THEODORE ROOSEVELT DAM

Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Special Status Species and Special Areas Documented within 3 Miles of Project Vicinity

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Agave delamateri	Tonto Basin Agave	SC	S		HS	
Agave murpheyi	Hohokam Agave	SC	S	S	HS	
Aquila chrysaetos	Golden Eagle	BGA		S		1B
Bat Colony						
CH for Strix occidentalis lucida	Mexican Spotted Owl Designated Critical Habitat					
Empidonax traillii extimus	Southwestern Willow Flycatcher	LE				1A
Eremogone aberrans	Mt. Dellenbaugh Sandwort		S			
Eumops perotis californicus	Greater Western Bonneted Bat	SC		S		1B
Ferocactus cylindraceus	Desert Barrel Cactus				SR	
Gopherus morafkai	Sonoran Desert Tortoise	CCA	S	S		1A
Haliaeetus leucocephalus (wintering pop.)	Bald Eagle - Winter Population	SC,BGA	S	S		1A
Haliaeetus leucocephalus pop. 3	Bald Eagle - Sonoran Desert Population	SC,BGA	S	S		1A
Heloderma suspectum cinctum	Banded Gila Monster	SC				1A
Heloderma suspectum	Gila Monster					1A
Lithobates yavapaiensis	Lowland Leopard Frog	SC	S	S		1A
Myotis velifer	Cave Myotis	SC		S		1B
Myotis yumanensis	Yuma Myotis	SC				1B
Perityle saxicola	Fish Creek Rock Daisy	SC	S			

Note: Status code definitions can be found at https://www.azgfd.com/wildlife/planning/wildlifeguidelines/statusdefinitions/
.

Species of Greatest Conservation Need
Predicted within Project Vicinity based on Predicted Range Models

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Agosia chrysogaster	Longfin Dace	SC		S		1B
Aix sponsa	Wood Duck					1B
Ammodramus savannarum ammolegus	Arizona grasshopper sparrow		S	S		1B
Ammodramus savannarum perpallidus	Western Grasshopper Sparrow					1B
Ammospermophilus harrisii	Harris' Antelope Squirrel					1B
Anaxyrus microscaphus	Arizona Toad	SC		S		1B
Aquila chrysaetos	Golden Eagle			S		1B
Aspidoscelis flagellicauda	Gila Spotted Whiptail					1B
Aspidoscelis pai	Pai Striped Whiptail					1B
Botaurus lentiginosus	American Bittern					1B
Buteo regalis	Ferruginous Hawk	SC		S		1B

Species of Greatest Conservation Need
Predicted within Project Vicinity based on Predicted Range Models

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Castor canadensis	American Beaver					1B
Catostomus clarkii	Desert Sucker	SC	S	S		1B
Catostomus insignis	Sonora Sucker	SC	S	S		1B
Chilomeniscus stramineus	Variable Sandsnake					1B
Chordeiles minor	Common Nighthawk					1B
Coccyzus americanus	Yellow-billed Cuckoo (Western DPS)	LT	S			1A
Colaptes chrysoides	Gilded Flicker			S		1B
Coluber bilineatus	Sonoran Whipsnake					1B
Corynorhinus townsendii pallescens	Pale Townsend's Big-eared Bat	SC	S	S		1B
Crotalus cerberus	Arizona Black Rattlesnake					1B
Crotalus tigris	Tiger Rattlesnake					1B
Empidonax traillii extimus	Southwestern Willow Flycatcher	LE				1A
Euderma maculatum	Spotted Bat	SC	S	S		1B
Eugenes fulgens	Magnificent Hummingbird					1B
Eumops perotis californicus	Greater Western Bonneted Bat	SC		S		1B
Falco peregrinus anatum	American Peregrine Falcon	SC	S	S		1A
Gila robusta	Roundtail chub	CCA	S	S		1A
Gopherus morafkai	Sonoran Desert Tortoise	CCA	S	S		1A
Haliaeetus leucocephalus	Bald Eagle	SC	S	S		1A
Heloderma suspectum	Gila Monster					1A
Idionycteris phyllotis	Allen's Lappet-browed Bat	SC	S	S		1B
Incilius alvarius	Sonoran Desert Toad					1B
Kinosternon sonoriense sonoriense	Desert Mud Turtle			S		1B
Lasiurus blossevillii	Western Red Bat		S			1B
Lasiurus xanthinus	Western Yellow Bat		S			1B
Leopardus pardalis	Ocelot	LE				1A
Leptonycteris curasoae yerbabuenae	Lesser Long-nosed Bat	LE				1A
Lithobates yavapaiensis	Lowland Leopard Frog	SC	S	S		1A
Lontra canadensis sonora	Southwestern River Otter	SC				1B
Macrotus californicus	California Leaf-nosed Bat	SC		S		1B
Melanerpes uropygialis	Gila Woodpecker					1B
Melospiza lincolnii	Lincoln's Sparrow					1B
Melozone aberti	Abert's Towhee		S			1B
Microtus mexicanus	Mexican Vole					1B
Micruroides euryxanthus	Sonoran Coralsnake					1B
Myiarchus tuberculifer	Dusky-capped Flycatcher					1B
Myiodynastes luteiventris	Sulphur-bellied Flycatcher		S			1B
Myotis occultus	Arizona Myotis	SC		S		1B

Species of Greatest Conservation Need
Predicted within Project Vicinity based on Predicted Range Models

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Myotis velifer	Cave Myotis	SC		S		1B
Myotis yumanensis	Yuma Myotis	SC				1B
Nyctinomops femorosaccus	Pocketed Free-tailed Bat					1B
Odocoileus virginianus	White-tailed Deer					1B
Ovis canadensis mexicana	Mexican Desert Bighorn Sheep					1B
Panthera onca	Jaguar	LE				1A
Passerculus sandwichensis	Savannah Sparrow					1B
Perognathus amplus	Arizona Pocket Mouse					1B
Phrynosoma solare	Regal Horned Lizard					1B
Phyllorhynchus browni	Saddled Leaf-nosed Snake					1B
Poeciliopsis occidentalis occidentalis	Gila Topminnow	LE				1A
Progne subis hesperia	Desert Purple Martin			S		1B
Ptychocheilus lucius	Colorado Pikeminnow	LE,XN				1A
Rhinichthys osculus	Speckled Dace	SC		S		1B
Setophaga petechia	Yellow Warbler					1B
Strix occidentalis lucida	Mexican Spotted Owl	LT				1A
Tadarida brasiliensis	Brazilian Free-tailed Bat					1B
Troglodytes pacificus	Pacific Wren					1B
Vireo bellii arizonae	Arizona Bell's Vireo					1B
Vulpes macrotis	Kit Fox	No Status				1B
Xantusia bezyi	Bezy's Night Lizard		S			1B
Xyrauchen texanus	Razorback Sucker	LE				1A

Species of Economic and Recreation Importance Predicted within Project Vicinity

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Callipepla gambelii	Gambel's Quail					
Odocoileus hemionus	Mule Deer					
Odocoileus virginianus	White-tailed Deer					1B
Ovis canadensis mexicana	Mexicana Desert Bighorn Sheep					1B
Patagioenas fasciata	Band-tailed Pigeon					1C
Pecari tajacu	Javelina					
Puma concolor	Mountain Lion					
Sciurus aberti	Abert's Squirrel					
Ursus americanus	American Black Bear					
Zenaida asiatica	White-winged Dove					
Zenaida macroura	Mourning Dove					

Project Type: Transportation & Infrastructure, Road Improvements, Paving dirt roads

Project Type Recommendations:
Fence recommendations will be dependant upon the goals of the fence project and the wildlife species expected to be impacted by the project. General guidelines for ensuring wildlife-friendly fences include: barbless wire on the top and bottom with the maximum fence height 42", minimum height for bottom 16". Modifications to this design may be considered for fencing anticipated to be routinely encountered by elk, bighorn sheep or pronghorn (e.g., Pronghorn fencing would require 18" minimum height on the bottom). Please refer to the Department's Fencing Guidelines located on Wildlife Friendly Guidelines page, which is part of the WIldlife Planning button at https://www.azgfd.com/wildlife/planning/wildlifeguidelines/.

During the planning stages of your project, please consider the local or regional needs of wildlife in regards to movement, connectivity, and access to habitat needs. Loss of this permeability prevents wildlife from accessing resources, finding mates, reduces gene flow, prevents wildlife from re-colonizing areas where local extirpations may have occurred, and ultimately prevents wildlife from contributing to ecosystem functions, such as pollination, seed dispersal, control of prey numbers, and resistance to invasive species. In many cases, streams and washes provide natural movement corridors for wildlife and should be maintained in their natural state. Uplands also support a large diversity of species, and should be contained within important wildlife movement corridors. In addition, maintaining biodiversity and ecosystem functions can be facilitated through improving designs of structures, fences, roadways, and culverts to promote passage for a variety of wildlife. Guidelines for many of these can be found at: https://www.azgfd.com/wildlife/planning/wildlifeguidelines/.

Consider impacts of outdoor lighting on wildlife and develop measures or alternatives that can be taken to increase human safety while minimizing potential impacts to wildlife. Conduct wildlife surveys to determine species within project area, and evaluate proposed activities based on species biology and natural history to determine if artificial lighting may disrupt behavior patterns or habitat use. Use only the minimum amount of light needed for safety. Narrow spectrum bulbs should be used as often as possible to lower the range of species affected by lighting. All lighting should be shielded, canted, or cut to ensure that light reaches only areas needing illumination.

Minimize potential introduction or spread of exotic invasive species. Invasive species can be plants, animals (exotic snails), and other organisms (e.g., microbes), which may cause alteration to ecological functions or compete with or prey upon native species and can cause social impacts (e.g., livestock forage reduction, increase wildfire risk). The terms noxious weed or invasive plants are often used interchangeably. Precautions should be taken to wash all equipment utilized in the project activities before leaving the site. Arizona has noxious weed regulations (Arizona Revised Statutes, Rules R3-4-244 and R3-4-245). See Arizona Department of Agriculture website for restricted plants, https://agriculture.az.gov/. Additionally, the U.S. Department of Agriculture has information regarding pest and invasive plant control methods including: pesticide, herbicide, biological control agents, and mechanical control, http://www.usda.gov/wps/portal/usdahome. The Department regulates the importation, purchasing, and transportation of wildlife and fish (Restricted Live Wildlife), please refer to the hunting regulations for further information https://www.azgfd.com/hunting/regulations.

Minimization and mitigation of impacts to wildlife and fish species due to changes in water quality, quantity, chemistry, temperature, and alteration to flow regimes (timing, magnitude, duration, and frequency of floods) should be evaluated. Minimize impacts to springs, in-stream flow, and consider irrigation improvements to decrease water use. If dredging is a project component, consider timing of the project in order to minimize impacts to spawning fish and other aquatic species (include spawning seasons), and to reduce spread of exotic invasive species. We recommend early direct coordination with Project Evaluation Program for projects that could impact water resources, wetlands, streams, springs, and/or riparian habitats.

The Department recommends that wildlife surveys are conducted to determine if noise-sensitive species occur within the project area. Avoidance or minimization measures could include conducting project activities outside of breeding seasons.

Based on the project type entered, coordination with State Historic Preservation Office may be required (http://azstateparks.com/SHPO/index.html).

Design culverts to minimize impacts to channel geometry, or design channel geometry (low flow, overbank, floodplains) and substrates to carry expected discharge using local drainages of appropriate size as templates. Reduce/minimize barriers to allow movement of amphibians or fish (e.g., eliminate falls). Also for terrestrial wildlife, washes and stream corridors often provide important corridors for movement. Overall culvert width, height, and length should be optimized for movement of the greatest number and diversity of species expected to utilize the passage. Culvert designs should consider moisture, light, and noise, while providing clear views at both ends to maximize utilization. For many species, fencing is an important design feature that can be utilized with culverts to funnel wildlife into these areas and minimize the potential for roadway collisions. Guidelines for culvert designs to facilitate wildlife passage can be found on the home page of this application at https://www.azgfd.com/wildlife/planning/wildlifeguidelines/.

Based on the project type entered, coordination with Arizona Department of Environmental Quality may be required (http://www.azdeq.gov/).

Based on the project type entered, coordination with U.S. Army Corps of Engineers may be required (http://www.usace.army.mil/)

The Department requests further coordination to provide project/species specific recommendations, please contact Project Evaluation Program directly. PEP@azgfd.gov

Project Location and/or Species Recommendations:
HDMS records indicate that one or more native plants listed on the Arizona Native Plant Law and Antiquities Act have been documented within the vicinity of your project area. Please contact:
Arizona Department of Agriculture
1688 W Adams St.
Phoenix, AZ 85007
Phone: 602.542.4373
https://agriculture.az.gov/environmental-services/np1

HDMS records indicate that one or more listed, proposed, or candidate species or Critical Habitat (Designated or Proposed) have been documented in the vicinity of your project. The Endangered Species Act (ESA) gives the US Fish and Wildlife Service (USFWS) regulatory authority over all federally listed species. Please contact USFWS Ecological Services Offices at http://www.fws.gov/southwest/es/arizona/ or:

Phoenix Main Office
2321 W. Royal Palm Rd, Suite 103
Phoenix, AZ 85021
Phone: 602-242-0210
Fax: 602-242-2513

Tucson Sub-Office
201 N. Bonita Suite 141
Tucson, AZ 85745
Phone: 520-670-6144
Fax: 520-670-6155

Flagstaff Sub-Office
SW Forest Science Complex
2500 S. Pine Knoll Dr.
Flagstaff, AZ 86001
Phone: 928-556-2157
Fax: 928-556-2121

HDMS records indicate that Sonoran Desert Tortoise have been documented within the vicinity of your project area. Please review the Tortoise Handling Guidelines found at: https://www.azgfd.com/wildlife/nongamemanagement/tortoise/

Correspondence Regarding Cultural and Tribal Resources

Preserving America's Heritage

August 14, 2018

Ms. Brandye Hendrickson
Deputy Administrator
U.S. Department of Transportation
Federal Highway Administration
1200 New Jersey Ave S.E.
Washington, D.C. 20590

Ref: *Apache Trail Improvement Project*
Maricopa County, Arizona
ACHPCONNECT Log Number: 012968

Dear Ms. Hendrickson:

In response to a notification by the Federal Highway Administration (FHWA), the Advisory Council on Historic Preservation (ACHP) will participate in consultation regarding the Apache Trail Improvement Project in Maricopa County, Arizona. Our decision to participate in this consultation is based on the *Criteria for Council Involvement in Reviewing Individual Section 106 Cases*, contained within our regulations. The criteria are met because the project could have substantial impacts on important historic properties and it has the potential for presenting procedural problems.

Section 800.6(a)(1)(iii) of our regulations requires that we notify you, as the head of the agency, of our decision to participate in consultation. By copy of this letter, we are also notifying Ms. Karla Petty, FHWA Arizona Division Administrator, and Ms. Alexa Miles, an Environmental Protection Specialist at FHWA.

Our participation in this consultation will be handled by Sarah Stokely who can be reached at 202-517-0224 or via e-mail at sstokely@achp.gov. We look forward to working with your agency and other consulting parties to consider alternatives to this undertaking that could avoid, minimize, or mitigate potential adverse effects on historic properties and to reach a resolution.

Sincerely,

John M. Fowler
Executive Director

SHPO - 2017-126 (143251)
ARIZONA STATE HISTORIC PRESERVATION OFFICE

U.S. Department of Transportation
Federal Highway Administration

Central Federal Lands Highway Division

12300 West Dakota Avenue
Suite 380
Lakewood, CO 80228-2583
Micah Leadford Office: 720-963-3498
Alexa Miles Office: 720-963-3398
Fax: 720-963-3596
Micah.Leadford@dot.gov

June 19, 2018

In Reply Refer To:
HFPM-16

RECEIVED
JUN 21 2018
ARIZONA STATE HISTORIC PRESERVATION OFFICE

Ms. Kathryn Leonard, SHPO
Arizona State Parks
1100 W. Washington Street
Phoenix, AZ 85007

Subject: Continuing Section 106 Consultation for the Proposed Apache Trail Project (SR88(1) APACHE TRAIL) Maricopa County, Arizona: Revised Area of Potential Effect (APE), Report Adequacy, Determination of Eligibility for Selected Roadway Features, and Determination of Project Effect

Dear Ms. Leonard,

The Federal Highway Administration, Central Federal Lands Highway Division (CFLHD), in cooperation with the Arizona Department of Transportation (ADOT) and the United States Forest Service, Tonto National Forest (TNF), is planning roadway improvements to 11.20 miles of State Route (SR) 88, the Apache Trail between mileposts (MP) 229.20 and 240.60, Maricopa County, Arizona (Figure 1). The project is located on ADOT easement crossing TNF lands, and TNF land. Funding for the project is through the Federal Lands Access Program, in conjunction with a local funding match. Given that this project is federally funded and crosses federal lands, it is considered to be an undertaking subject to compliance with Section 106 of the National Historic Preservation Act of 1966, as amended.

SR 88/Apache Trail is considered to be one of Arizona's transportation "crown jewels," and is listed in the Arizona Register of Historic Places (ARHP). It has also been previously determined eligible for inclusion in the National Register of Historic Places (NRHP) under Criteria A, C, and D for its association with important historic events; unique qualities of design and construction; and potential to yield important data regarding the development of early Arizona roadways. The segment of the Apache Trail under consideration for improvements is a portion of the last remaining unpaved segment of the road, is considered to be a contributor to the roadway's NRHP eligibility, and contains numerous significant historic roadway features.

Within the project limits, the roadway surface consists of decomposed granite (DG), which requires frequent blading to maintain an effective surface. In some locations, the blading has created berms of excess materials along the roadway margins and adjacent to historic roadway elements, thus creating drainage, maintenance, and preservation issues. The purpose of the project would be to improve the resiliency of the road corridor and reduce maintenance demands; improve and maintain accessibility; and protect historic roadway elements.

Within the project limits, the scope of the proposed activities would consist of:

- Applying a chip seal containing layers of asphalt and aggregate or paving the existing DG road surface
- General maintenance activities, such as cleaning culverts, to improve drainage flow
- Installation of erosion control elements, consisting of constructing gabion baskets in existing roadway ditches; placing embankment matting along roadway side slopes; and placing rip-rap within existing drainage channels
- Removing berms of excess DG along roadway margins caused by road maintenance and blading

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Federal Highway Administration

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June 19, 2018

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- Applying a standard width of 20 to 24 feet (with exception segments less than 20 feet) to the roadway within the project limits
- Replacing, repairing, and/or extending existing culverts that are not currently functional
- Cutting back the toe of existing slopes at a grade of 1:2 in five spot locations to improve line-of-sight distance:
    - MP 229.46 to MP 229.51
    - MP 229.55 to MP 229.61
    - MP 229.94 to MP 229.90
    - MP 233.44 to MP 233.50
    - MP 234.50 to MP 234.58.

CFLHD has identified five culvert treatment options to address erosion and drainage issues that are affecting the current roadway and the structural integrity of existing roadway structural features. Description of the five proposed treatment options follows below, and schematic drawings are contained in Attachment A.

Treatment A: Treatment is CFLHD's standard apron end section, which serves to spread drainage flow at the transition from the culvert outlet to the natural drainage channel, or to sheet flow where no natural drainage exists. These improvements would be installed below and downslope from existing culvert outlets, and would not modify any existing structural elements. Design elements include:

- Placement of rip-rap along drainage channels to prevent additional scour and erosion
- Installation of a geotextile filter topped with fill dirt within existing scour slopes below culvert outlets to match the grade of adjacent slopes
- Installation of the apron end section below the culvert outlet.

Treatment B: Treatment B is a modified version of the Treatment A apron end section, and serves the same function, which is to distribute drainage flow at the transition from the culvert outlet to the natural drainage channel, or to sheet flow where no natural drainage exists. Design elements for Treatments A and B are the same, the only exception is that Treatment B exhibits a thicker end section.

Treatment C1: Treatment C1 is a retrofit option for an existing, perched outlet. Many perched pipes in the area have large scour damage at their existing outlet. These improvements would be installed below and downslope from existing culvert outlets, and would consist of extending existing outlet pipes downslope to arrest erosion damage. Design elements include:

- Filling scour holes to stabilize the slope
- Adding a bend joint to the existing outlet to extend the existing pipe down the side of the roadway prism. At the toe of slope, another bend joint would be added to extend the pipe a distance downslope from the roadway prism
- Placement of rip-rap along drainage channels to prevent additional scour and erosion (as needed)
- Installation of a geotextile filter topped with fill dirt within existing scour slopes below culvert outlets to match the grade of adjacent slopes (as needed)
- The extended pipe would terminate with the installation of the Treatment A apron end section.

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Federal Highway Administration

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Treatment C2: Treatment C2 is a modified version of the Treatment C1 retrofit option and would be installed in areas where it would be impractical to extend the existing culvert outlet pipe to the toe of the roadway prism. Design elements would include:

- Filling scour holes to stabilize the slope
- Adding a bend joint to the existing outlet to extend the existing pipe down the side of the roadway prism, short of the toe of slope
- Placement of rip-rap along drainage channels to prevent additional scour and erosion (as needed)
- Installation of a geotextile filter topped with fill dirt within existing scour slopes below culvert outlets to match the grade of adjacent slopes (as needed)
- The extended pipe would terminate with the installation of the Treatment A apron end section.

Treatment D: Treatment D would include the installation a 4-foot cutoff wall at the base of an existing drainage outlet. The wall would be a buried element constructed to arrest the erosional undermining of the existing roadway feature.

CFLHD initiated initial Section 106 consultation with your office on October 3, 2017. The initial Section 106 consultation introduced the project purpose, need, and objectives; and outlined the limits of a preliminary area of potential effects (APE).

PRELIMINARY APE AND CULTURAL RESOURCES INVESTIGATIONS

Review of the preliminary APE revealed that within the project limits, the ADOT easement had been previously investigated for cultural resources by Archaeological Research Services, Inc. (ARS), and the results reported in "*Cultural Resources Survey of Approximately 28.6 Miles of State Route 88, the Apache Trail, Between Tortilla Flat and the Theodore Roosevelt Dam, Maricopa County, Arizona*" (Barz 1995). SHPO concurrence with the adequacy of the report and eligibility assessments are available (Howard [SHPO] to Martin [TNF], 8/20/1998). Review of the methods employed by Barz (1995) in accordance with SHPO Guidance Point No. 5, *Relying on Old Survey Data* (SHPO 2004), revealed that they meet current agency standards. As a result, no resurvey of those areas previously investigated by Barz (1995) was considered to be warranted for the current project.

A total of 86 locations within the preliminary APE where drainage improvements were considered could not be demonstrated to have been previously investigated for cultural resources. As a result, these 86 areas were subject to Class III survey by Jacobs Engineering Group Inc. (Jacobs). The Class III survey was conducted on December 4–6, 2017.

REVISED APE AND CULTURAL RESOURCES INVESTIGATIONS

Following the Class III survey, the limits of the preliminary APE were reduced in an effort to minimize potential impacts to historic roadway features. The results of the Class III survey and the newly defined limits of the APE are provided in "*Results of Class I Literature Review, Historic Feature Documentation, and Class III Cultural Resources Survey between Milepost 229.20 and Milepost 240.60 of State Route 88/Apache Trail, Maricopa County, Arizona*" (Luhnow and Schilling 2018). The report includes the results of a Class I literature review, a compilation of previously recorded cultural resources sites and

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historic SR 88/Apache Trail roadway features within the newly defined APE limits, and recommendations for 13 previously unevaluated historic roadway features as character-defining contributing or non-contributing elements to the NRHP eligibility of SR 88/Apache Trail (Appendix D in Luhnow and Schilling 2018). A copy of the report is enclosed for your review and comment.

CULTURAL RESOURCES IN THE APE

AR-03-12-06-218 (TNF) refers to the historic alignment, including the roadway and features, of SR 88/Apache Trail. The Apache Trail was originally constructed in 1903 as a wagon road to supply the construction of Roosevelt Dam. In its entirety, the Apache Trail is 49 miles in length. It begins near the City of Apache Junction, Maricopa County, Arizona at MP 193.90, and terminates at its junction with United States (US) Highway 60, near Globe, Gila County, Arizona, at MP 242.66. The Apache Trail has been previously determined eligible for inclusion in the NRHP under Criteria A, C, and D (Howard [SHPO] to Martin [TNF], 8/20/1998).

The portion of the historic roadway within the current APE (MP 229.20 to MP 240.60) was assessed by Sullivan (2017) and determined to be a character-defining contributing element to the overall NRHP-eligibility of the Apache Trail (Jacobs [SHPO] to Greenspan [ADOT], 2/2/2017; Bosworth [TNF] to Greenspan [ADOT], n.d.). The proposed improvements consist of paving the roadway, replacing and/or modifying roadway features, and improving line of sight at five locations. These activities would adversely impact the roadway's existing NRHP qualities.

A total of 169 historic roadway features of the Apache Trail are located within the APE. Of these, 156 individual features of the roadway were assessed by Sullivan (2017) and resulted in the determination of specific features as character-defining contributing and non-contributing elements of the Apache Trail (Jacobs [SHPO] to Greenspan [ADOT], 2/2/2017; Bosworth [TNF] to Greenspan [ADOT], n.d.). Improvements to the roadway would not alter the existing NHRP qualities of individual features as character-defining contributing elements to the eligibility of the historic SR 88/Apache Trail alignment. However, proposed drainage improvements, such as replacing, repairing, and modifying individual character-defining contributing elements of SR 88/Apache Trail may adversely impact the existing NRHP qualities of both contributing elements and the SR 88/Apache Trail roadway (Table 1). In addition to the historic Apache Trail and its historic roadway features, a total of 10 additional previously recorded cultural resources sites are located within the newly defined limits of the APE (Table 2). These sites were recorded or revisited during a previous Class III survey of the SR 88/Apache Trail APE (Barz 1995), and were not revisited or re-recorded during Jacobs' Class III survey in 2017. Table 2 itemizes the eligibility status, specific project effects (as currently known), and management recommendations for the 10 additional cultural resources sites.

PROJECT EFFECT

Based on the Class I research and Class III fieldwork, CFLHD has determined that the project would result in an adverse effect to historic properties. CFLHD recommends that an appropriate level of documentation and treatment be outlined in a project-specific Memorandum of Agreement (MOA) to mitigate the adverse effect.

As part of the environmental process for this undertaking, FHWA must also comply with Section 4(f) of the U.S. Department of Transportation (USDOT) Act of 1966. The intent of the Section 4(f) Statute, 49

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June 19, 2018

U.S.C. Section 303, and the policy of the FHWA is to strive to avoid transportation use of historic sites and publicly owned recreational areas, parks, wildlife and waterfowl refuges. FHWA CFLHD will complete an individual 4(f) analysis over the upcoming months.

CONSULTATION SUMMARY AND REQUEST FOR CONCURRENCE

Please review the enclosed report, and information contained in this letter. At this time, CFLHD is seeking your concurrence on the adequacy of the enclosed cultural resources report, the limits of the revised APE, the eligibility recommendations of 13 newly assessed historic roadway features as contributing/non-contributing elements to the eligibility of the historic SR 88/Apache Trail alignment, CFLHD's determination of adverse effect for the undertaking resulting from impacts to the 06-218(TNF)/Apache Trail roadway and historic roadway features, and the need for a project-specific MOA to resolve adverse effects.

We would appreciate a written response within 30 days from date of receipt, by email at Micah.Leadford@dot.gov or Alexa.Miles@dot.gov or by US Postal Service to 12300 West Dakota Avenue, Suite 280, Lakewood, CO 80228-2583. If you have any questions about the undertaking or would like to discuss the content of this letter further, please email or call Alexa Miles at Alexa.Miles@dot.gov or 720-963-3398.

Sincerely,

Micah Leadford
Project Manager, CFLHD

CONCUR

2 JULY 18

Arizona State Historic Preservation Office

Enclosure: Regional Map and APE Figures
Tables 1 and 2
Appendix A: Design Schematics for Culvert Treatment Options
Class III Cultural Resources Report

Cc: David Jacobs, Compliance Specialist, Arizona State Historic Preservation Office
Michael Sullivan, Section 106 Consulting Party
Kris Hill, Forest Archeologist, Tonto National Forest
Tribes that requested participation in the Section 106 process: Gila River Indian Community, Hopi Tribe

U.S. Department of Transportation
Federal Highway Administration

Central Federal Lands Highway Division

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Micah Leadford Office: 720-963-3498
Alexa Miles Office: 720-963-3398
Fax: 720-963-3596
Micah.Leadford@dot.gov
In Reply Refer To:
HFPM-16

September 13, 2017

Honorable [CHAIRPERSON NAME]
[TRIBE]
[ADDRESS]

Subject: Tribal Consultation for the Apache Trail Project (AZ FLAP SR88(1))

Dear Chairman/woman ////,

Improvements to 12.4 miles of the Apache Trail (AZ 88) between milepost 229.2 and milepost 241.6 in Maricopa County, Arizona are under study by the Federal Highway Administration (FHWA) Central Federal Lands Highway Division (CFLHD), in cooperation with Arizona Department of Transportation (ADOT) and U.S. Forest Service Tonto National Forest (TNF). The route passes through mountainous terrain with varying grades up to 18%. The existing gravel roadway is between 18 feet and 28 feet wide. The improvement project would include some form of surface chip seal or other surfacing option of the 12.4-mile section. The proposed project would maintain the existing roadway widths and would replace, repair, and/or extend drainage culverts, as needed, within the project area. Minor safety improvements including sight distance improvements and signage would be considered.

TNF and ADOT have identified your Tribe as having an interest in the area. In compliance with Section 106 of the National Historic Preservation Act (NHPA), we are seeking your knowledge of historic properties of traditional religious or cultural importance that may be affected by the proposed road improvements. FHWA-CFLHD is serving as the lead federal agency for the project and will be the lead for Section 106 consultation.

The Apache Trail is a 42-mile, winding historic route that links Apache Junction with Roosevelt Dam through the Superstition Mountains and Tonto National Forest, with the northern 22 miles being unpaved. The proposed project addresses the northern most 12.4-mile gravel section of the Apache Trail between the Apache Lake Marina and the Roosevelt Dam. Funding for the project is through the Federal Lands Access Program, in conjunction with an ADOT local funding match.

The purpose of the project is to improve the resiliency of the road corridor to reduce maintenance demands, improve and maintain all-weather accessibility, and protect elements of the historic road. The project is needed because routine maintenance requiring the continual importing of material and regrading of the road surface contributes to watershed damage, places historic features at further risk to unintentional damage, and requires extensive financial resources.

Objectives for the project include the following:

- Reduce particulate pollution in Maricopa County to improve air quality.
- Encourage drivers (especially those pulling boat trailers) to access the marina from the north end by providing a hardened, resilient, and more trailer-friendly route.
- Enhance the long-term preservation of Fish Creek Hill by reducing the volume of marina-bound traffic on the western section of the Apache Trail.

FHWA-CFLHD is aware that previous surveys in the vicinity of the project area have identified archeological sites and historic features. FHWA-CFLHD has retained a contractor to conduct a cultural resources investigation. As part of the investigation and the environmental analysis, we will identify and

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Federal Highway Administration

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Micah.Leadford@dot.gov
In Reply Refer To:
HFPM-16

September 13, 2017

evaluate historic properties in the project area and assess the potential for the project to affect those properties. Please inform us if your Tribe has a religious or cultural affiliation to resources that have been identified in the project area, and we will continue to consult with you on the nature and level of impacts and potential measures to avoid or reduce impacts. FHWA-CFLHD is also reviewing the project under Section 4(f) of the Department of Transportation Act and may follow up with you if further evaluation of impacts on historic properties is required under this Act.

Your knowledge of the area is of great value and your feedback is important. Please reply with information you wish to share and to confirm your interest in being a consulting party on this project. Please be assured that, in accordance with confidentiality and disclosure stipulations in Section 304 of the NHPA, we will maintain strict confidentiality about certain types of information regarding historic properties. We would also appreciate any suggestions you have about other groups or individuals that we should contact regarding this project.

If you have any comments regarding the proposed project or desire to participate in the Section 106 review process, please respond within 30 days by letter to: Micah Leadford, Federal Highway Administration, 12300 W. Dakota Ave., Suite 380, Lakewood, CO 80228 or by email to ApacheTrail@dot.gov. Also, if you have any questions about the project or would like to schedule a meeting, I can be reached at 720-963-3498 or you may contact Alexa Miles at 720-963-3398.

Sincerely,

Micah Leadford
Project Manager, CFLHD

Enclosure: Project Location Map
Project Area Figures

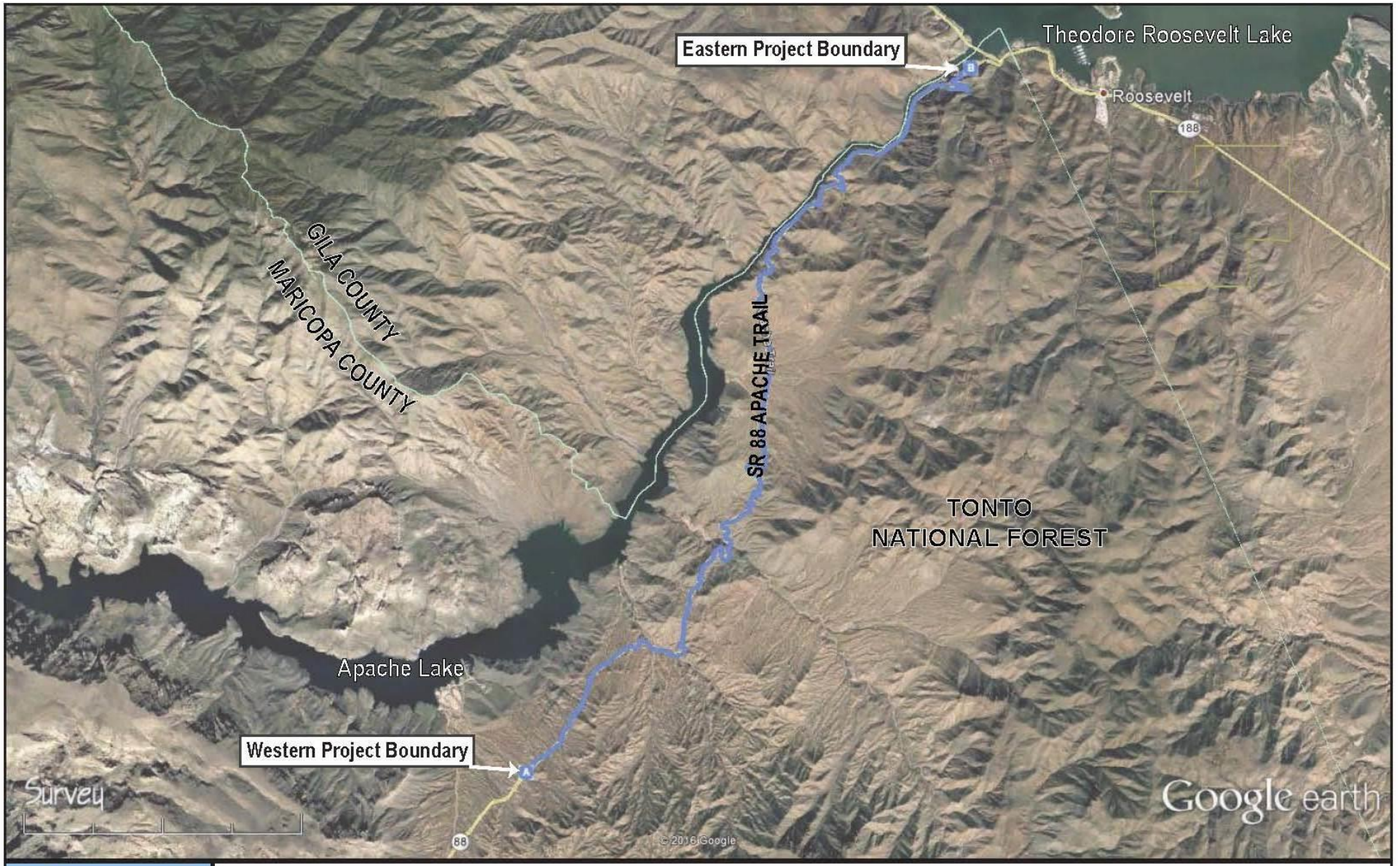

FIGURE 1: SR 88 APACHE TRAIL REGIONAL MAP

U.S. Department of Transportation
Federal Highway Administration

ADOT

FOREST SERVICE
U S
DEPARTMENT OF AGRICULTURE

THE HOPI TRIBE

Herman G. Honanie
CHAIRMAN

Alfred Lomahquahu Jr.
VICE-CHAIRMAN

October 13, 2015

Micah Leadford, Project Manager
Attention: Alexa Miles
Federal Highway Administration, Central Federal Lands Highway Division
12300 West Dakota Avenue, Suite 380
Lakewood, Colorado 80228-2583

Dear Mr. Leadford,

Thank you for your correspondence dated October 4, 2017, regarding the Federal Highway Administration (FHWA), Arizona Department of Transportation (ADOT) and Tonto National Forest proposing to improve 12.4 miles of the Apache trail, AZ 88 in Maricopa County. The Hopi Tribe claims cultural affiliation to earlier identifiable cultural groups in Tonto National Forest. The Hopi Cultural Preservation Office supports the identification and avoidance of our ancestral sites and Traditional Cultural Properties, and we consider the archaeological sites of our ancestors to be "footprints" and Traditional Cultural Properties. Therefore, we appreciate the FHWA, the ADOT and the Forest's continuing solicitation of our input and your efforts to address our concerns.

The Hopi Cultural Preservation Office requests consultation on any proposal in Arizona that has the potential to effect prehistoric sites. We understand FHWA is aware of previous surveys in the vicinity that have identified archaeological sites and retained a contractor to conduct a cultural resources investigation.

Therefore, we request continuing consultation on this proposal including being provided with a copy of the survey report for review and comment. If the cultural resource survey of the area of potential effect identifies prehistoric cultural resources that may be adversely affected by project activities, we will request continuing consultation including being provided with a copy of any proposed treatment plans for review and comment. Should you have any questions or need additional information, please contact Terry Morgart at the Hopi Cultural Preservation Office. Thank you again for your consideration.

Respectfully,

Leigh J. Kuwanwisiwma, Director
Hopi Cultural Preservation Office

xc: Arizona State Historic Preservation Office
Arizona Department of Transportation
Tonto National Forest

GILA RIVER INDIAN COMMUNITY
POST OFFICE BOX 2193, SACATON, AZ 85147

TRIBAL HISTORIC PRESERVATION OFFICE

(520) 562-7162
Fax: (520) 562-5083

October 25, 2017

Micah Leadford, Project Manager
U.S. Department of Transportation
Federal Highway Administration
Central Federal Lands Highway Division
12300 West Dakota Avenue, Suite 380
Lakewood, Colorado 80228-2583

RE: HFPM-16, Tribal Consultation for the Apache Trail Project (AZ FLAP SR88(1)), Maricopa County, Arizona

Dear Mr. Leadford,

The Gila River Indian Community Tribal Historic Preservation Office (GRIC-THPO) has received your consultation letter dated October 4, 2017. The Federal Highway Administration (FHWA) Central Federal Lands Highway Division (CFLHD) in cooperation with Arizona Department of Transportation (ADOT) and the U.S. Forest Service Tonto National Forest (TNF) are planning an undertaking to improve Arizona State Route 88, the Apache Trail (SR 88) between mileposts 229.2 to 241.6, Maricopa County, Arizona. The GRIC-THPO is aware of this proposed undertaking and provided written responses to the FHWA on March 10, 2015 and March 3, 2016. At that time, the FHWA made a finding of adverse effect for this undertaking.

The GRIC-THPO will participate in the Section 106 consultation process for this undertaking. The proposed project area is within the ancestral lands of the Four Southern Tribes (Gila River Indian Community; Salt River Pima-Maricopa Indian Community; Ak-Chin Indian Community and the Tohono O'Odham Nation). The GRIC-THPO defers to the Salt River Pima-Maricopa Indian Community as lead in the consultation process for this undertaking.

Thank you for consulting the GRIC-THPO regarding this undertaking. If you have any questions please do not hesitate to contact me or Archaeological Compliance Specialist Larry Benallie, Jr. at 520-562-7162.

Respectfully,

Barnaby V. Lewis
Tribal Historic Preservation Officer
Gila River Indian Community

White Mountain Apache Tribe

Office of Historic Preservation
PO Box 1032
Fort Apache, AZ 85926
Ph: (928) 338-3033 Fax: (928) 338-6055

To: Micah Leadford, Project Manager, CFLHD

Date: November 1, 2017

Re: Tribal Consultation for the Apache Trail Project (AZ FLAP SR88(1))

The White Mountain Apache Tribe Historic Preservation Office appreciates receiving information on the proposed project, dated October 4, 2017. In regards to this, please attend to the following checked items below.

Please refer to the additional notes in regards to the proposed project:

Thank you for allowing the White Mountain Apache tribe the opportunity to review and respond to the above proposed road improvement projects on SR88 Apache Trail road, within Maricopa County, Arizona. Although the APE lies within Apache aboriginal territory, we have determined the proposed project plans ***will not have an impact*** on the White Mountain Apache tribe's historic properties and/or traditional cultural properties.

Regardless, any/all ground disturbing activities should be monitored ***"if"*** there are reasons to believe that there are human remains and/or funerary objects present, and if such remains are encountered they shall be treated with respect and handled accordingly until such remains are repatriated to the affiliated tribe(s).

Thank you. We look forward to continued collaborations in the protection and preservation of places of cultural and historical importance.

Sincerely,

Mark T. Altaha

White Mountain Apache Tribe - THPO

U.S. Department of Transportation
Federal Highway Administration

Central Federal Lands Highway Division

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Lakewood, CO 80228-2583
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Alexa Miles Office: 720-963-3398
Fax: 720-963-3596
Micah.Leadford@dot.gov

June 19, 2018

Leigh Kuwanwisiwma, Director
Hopi Tribe
P.O. Box 123
Kykotsmovi, AZ 86039

RE: Apache Trail Project (AZ FLAP SR88(1))

Dear Leigh Kuwanwisiwma,

Per your letter request, dated October 13, 2017, please see the attached copy of the Federal Highway Administration Central Federal Lands Highway Division's Section 106 consultation submittal and a copy of the completed cultural resource report.

If you have any questions, please do not hesitate to contact me at 720-963-3398 or Alexa.Miles@dot.gov.

Sincerely,

Alexa Miles
Environmental Protection Specialist, CFLHD

Cc: Herman Honanie, Chairman

U.S. Department of Transportation
Federal Highway Administration

Central Federal Lands Highway Division

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Alexa Miles Office: 720-963-3398
Fax: 720-963-3596
Micah.Leadford@dot.gov

June 19, 2018

Barnaby V. Lewis, THPO
Gila River Indian Community
P.O. Box 2140
Sacaton, AZ 85147

RE: Apache Trail Project (AZ FLAP SR88(1))

Dear Mr. Lewis,

Per your letter request, dated October 25, 2017, please see the attached copy of the Federal Highway Administration Central Federal Lands Highway Division's Section 106 consultation submittal and a copy of the completed cultural resource report.

If you have any questions, please do not hesitate to contact me at 720-963-3398 or Alexa.Miles@dot.gov.

Sincerely,

Alexa Miles
Environmental Protection Specialist, CFLHD

Cc: Stephen Roe Lewis

CPO

U.S. Department of Transportation
Federal Highway Administration

Central Federal Lands Highway Division

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Alexa Miles Office: 720-963-3398
Fax: 720-963-3596
Micah.Leadford@dot.gov
In Reply Refer To:
HFPM-16

June 19, 2018

Ms. Kathryn Leonard, SHPO
Arizona State Parks
1100 W. Washington Street
Phoenix, AZ 85007

Subject: Continuing Section 106 Consultation for the Proposed Apache Trail Project (SR88(1) APACHE TRAIL) Maricopa County, Arizona: Revised Area of Potential Effect (APE), Report Adequacy, Determination of Eligibility for Selected Roadway Features, and Determination of Project Effect

Dear Ms. Leonard,

The Federal Highway Administration, Central Federal Lands Highway Division (CFLHD), in cooperation with the Arizona Department of Transportation (ADOT) and the United States Forest Service, Tonto National Forest (TNF), is planning roadway improvements to 11.20 miles of State Route (SR) 88, the Apache Trail between mileposts (MP) 229.20 and 240.60, Maricopa County, Arizona (Figure 1). The project is located on ADOT easement crossing TNF lands, and TNF land. Funding for the project is through the Federal Lands Access Program, in conjunction with a local funding match. Given that this project is federally funded and crosses federal lands, it is considered to be an undertaking subject to compliance with Section 106 of the National Historic Preservation Act of 1966, as amended.

SR 88/Apache Trail is considered to be one of Arizona's transportation "crown jewels," and is listed in the Arizona Register of Historic Places (ARHP). It has also been previously determined eligible for inclusion in the National Register of Historic Places (NRHP) under Criteria A, C, and D for its association with important historic events; unique qualities of design and construction; and potential to yield important data regarding the development of early Arizona roadways. The segment of the Apache Trail under consideration for improvements is a portion of the last remaining unpaved segment of the road, is considered to be a contributor to the roadway's NRHP eligibility, and contains numerous significant historic roadway features.

Within the project limits, the roadway surface consists of decomposed granite (DG), which requires frequent blading to maintain an effective surface. In some locations, the blading has created berms of excess materials along the roadway margins and adjacent to historic roadway elements, thus creating drainage, maintenance, and preservation issues. The purpose of the project would be to improve the resiliency of the road corridor and reduce maintenance demands; improve and maintain accessibility; and protect historic roadway elements.

Within the project limits, the scope of the proposed activities would consist of:

- Applying a chip seal containing layers of asphalt and aggregate or paving the existing DG road surface
- General maintenance activities, such as cleaning culverts, to improve drainage flow
- Installation of erosion control elements, consisting of constructing gabion baskets in existing roadway ditches; placing embankment matting along roadway side slopes; and placing rip-rap within existing drainage channels
- Removing berms of excess DG along roadway margins caused by road maintenance and blading

U.S. Department of Transportation
Federal Highway Administration

Central Federal Lands Highway Division

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Alexa Miles Office: 720-963-3398
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Micah.Leadford@dot.gov

June 19, 2018

In Reply Refer To:
HFPM-16

- Applying a standard width of 20 to 24 feet (with exception segments less than 20 feet) to the roadway within the project limits
- Replacing, repairing, and/or extending existing culverts that are not currently functional
- Cutting back the toe of existing slopes at a grade of 1:2 in five spot locations to improve line-of-sight distance:
    - MP 229.46 to MP 229.51
    - MP 229.55 to MP 229.61
    - MP 229.94 to MP 229.90
    - MP 233.44 to MP 233.50
    - MP 234.50 to MP 234.58.

CFLHD has identified five culvert treatment options to address erosion and drainage issues that are affecting the current roadway and the structural integrity of existing roadway structural features. Description of the five proposed treatment options follows below, and schematic drawings are contained in Attachment A.

Treatment A: Treatment is CFLHD's standard apron end section, which serves to spread drainage flow at the transition from the culvert outlet to the natural drainage channel, or to sheet flow where no natural drainage exists. These improvements would be installed below and downslope from existing culvert outlets, and would not modify any existing structural elements. Design elements include:

- Placement of rip-rap along drainage channels to prevent additional scour and erosion
- Installation of a geotextile filter topped with fill dirt within existing scour slopes below culvert outlets to match the grade of adjacent slopes
- Installation of the apron end section below the culvert outlet.

Treatment B: Treatment B is a modified version of the Treatment A apron end section, and serves the same function, which is to distribute drainage flow at the transition from the culvert outlet to the natural drainage channel, or to sheet flow where no natural drainage exists. Design elements for Treatments A and B are the same, the only exception is that Treatment B exhibits a thicker end section.

Treatment C1: Treatment C1 is a retrofit option for an existing, perched outlet. Many perched pipes in the area have large scour damage at their existing outlet. These improvements would be installed below and downslope from existing culvert outlets, and would consist of extending existing outlet pipes downslope to arrest erosion damage. Design elements include:

- Filling scour holes to stabilize the slope
- Adding a bend joint to the existing outlet to extend the existing pipe down the side of the roadway prism. At the toe of slope, another bend joint would be added to extend the pipe a distance downslope from the roadway prism
- Placement of rip-rap along drainage channels to prevent additional scour and erosion (as needed)
- Installation of a geotextile filter topped with fill dirt within existing scour slopes below culvert outlets to match the grade of adjacent slopes (as needed)
- The extended pipe would terminate with the installation of the Treatment A apron end section.

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Federal Highway Administration

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June 19, 2018

In Reply Refer To:
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Treatment C2: Treatment C2 is a modified version of the Treatment C1 retrofit option and would be installed in areas where it would be impractical to extend the existing culvert outlet pipe to the toe of the roadway prism. Design elements would include:

- Filling scour holes to stabilize the slope
- Adding a bend joint to the existing outlet to extend the existing pipe down the side of the roadway prism, short of the toe of slope
- Placement of rip-rap along drainage channels to prevent additional scour and erosion (as needed)
- Installation of a geotextile filter topped with fill dirt within existing scour slopes below culvert outlets to match the grade of adjacent slopes (as needed)
- The extended pipe would terminate with the installation of the Treatment A apron end section.

Treatment D: Treatment D would include the installation a 4-foot cutoff wall at the base of an existing drainage outlet. The wall would be a buried element constructed to arrest the erosional undermining of the existing roadway feature.

CFLHD initiated initial Section 106 consultation with your office on October 3, 2017. The initial Section 106 consultation introduced the project purpose, need, and objectives; and outlined the limits of a preliminary area of potential effects (APE).

PRELIMINARY APE AND CULTURAL RESOURCES INVESTIGATIONS

Review of the preliminary APE revealed that within the project limits, the ADOT easement had been previously investigated for cultural resources by Archaeological Research Services, Inc. (ARS), and the results reported in "*Cultural Resources Survey of Approximately 28.6 Miles of State Route 88, the Apache Trail, Between Tortilla Flat and the Theodore Roosevelt Dam, Maricopa County, Arizona*" (Barz 1995). SHPO concurrence with the adequacy of the report and eligibility assessments are available (Howard [SHPO] to Martin [TNF], 8/20/1998). Review of the methods employed by Barz (1995) in accordance with SHPO Guidance Point No. 5, *Relying on Old Survey Data* (SHPO 2004), revealed that they meet current agency standards. As a result, no resurvey of those areas previously investigated by Barz (1995) was considered to be warranted for the current project.

A total of 86 locations within the preliminary APE where drainage improvements were considered could not be demonstrated to have been previously investigated for cultural resources. As a result, these 86 areas were subject to Class III survey by Jacobs Engineering Group Inc. (Jacobs). The Class III survey was conducted on December 4–6, 2017.

REVISED APE AND CULTURAL RESOURCES INVESTIGATIONS

Following the Class III survey, the limits of the preliminary APE were reduced in an effort to minimize potential impacts to historic roadway features. The results of the Class III survey and the newly defined limits of the APE are provided in "*Results of Class I Literature Review, Historic Feature Documentation, and Class III Cultural Resources Survey between Milepost 229.20 and Milepost 240.60 of State Route 88/Apache Trail, Maricopa County, Arizona*" (Luhnow and Schilling 2018). The report includes the results of a Class I literature review, a compilation of previously recorded cultural resources sites and

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In Reply Refer To:
HFPM-16

June 19, 2018

historic SR 88/Apache Trail roadway features within the newly defined APE limits, and recommendations for 13 previously unevaluated historic roadway features as character-defining contributing or non-contributing elements to the NRHP eligibility of SR 88/Apache Trail (Appendix D in Luhnow and Schilling 2018). A copy of the report is enclosed for your review and comment.

CULTURAL RESOURCES IN THE APE

AR-03-12-06-218 (TNF) refers to the historic alignment, including the roadway and features, of SR 88/Apache Trail. The Apache Trail was originally constructed in 1903 as a wagon road to supply the construction of Roosevelt Dam. In its entirety, the Apache Trail is 49 miles in length. It begins near the City of Apache Junction, Maricopa County, Arizona at MP 193.90, and terminates at its junction with United States (US) Highway 60, near Globe, Gila County, Arizona, at MP 242.66. The Apache Trail has been previously determined eligible for inclusion in the NRHP under Criteria A, C, and D (Howard [SHPO] to Martin [TNF], 8/20/1998).

The portion of the historic roadway within the current APE (MP 229.20 to MP 240.60) was assessed by Sullivan (2017) and determined to be a character-defining contributing element to the overall NRHP-eligibility of the Apache Trail (Jacobs [SHPO] to Greenspan [ADOT], 2/2/2017; Bosworth [TNF] to Greenspan [ADOT], n.d.). The proposed improvements consist of paving the roadway, replacing and/or modifying roadway features, and improving line of sight at five locations. These activities would adversely impact the roadway's existing NRHP qualities.

A total of 169 historic roadway features of the Apache Trail are located within the APE. Of these, 156 individual features of the roadway were assessed by Sullivan (2017) and resulted in the determination of specific features as character-defining contributing and non-contributing elements of the Apache Trail (Jacobs [SHPO] to Greenspan [ADOT], 2/2/2017; Bosworth [TNF] to Greenspan [ADOT], n.d.). Improvements to the roadway would not alter the existing NHRP qualities of individual features as character-defining contributing elements to the eligibility of the historic SR 88/Apache Trail alignment. However, proposed drainage improvements, such as replacing, repairing, and modifying individual character-defining contributing elements of SR 88/Apache Trail may adversely impact the existing NRHP qualities of both contributing elements and the SR 88/Apache Trail roadway (Table 1).
In addition to the historic Apache Trail and its historic roadway features, a total of 10 additional previously recorded cultural resources sites are located within the newly defined limits of the APE (Table 2). These sites were recorded or revisited during a previous Class III survey of the SR 88/Apache Trail APE (Barz 1995), and were not revisited or re-recorded during Jacobs' Class III survey in 2017. Table 2 itemizes the eligibility status, specific project effects (as currently known), and management recommendations for the 10 additional cultural resources sites.

PROJECT EFFECT

Based on the Class I research and Class III fieldwork, CFLHD has determined that the project would result in an adverse effect to historic properties. CFLHD recommends that an appropriate level of documentation and treatment be outlined in a project-specific Memorandum of Agreement (MOA) to mitigate the adverse effect.

As part of the environmental process for this undertaking, FHWA must also comply with Section 4(f) of the U.S. Department of Transportation (USDOT) Act of 1966. The intent of the Section 4(f) Statute, 49

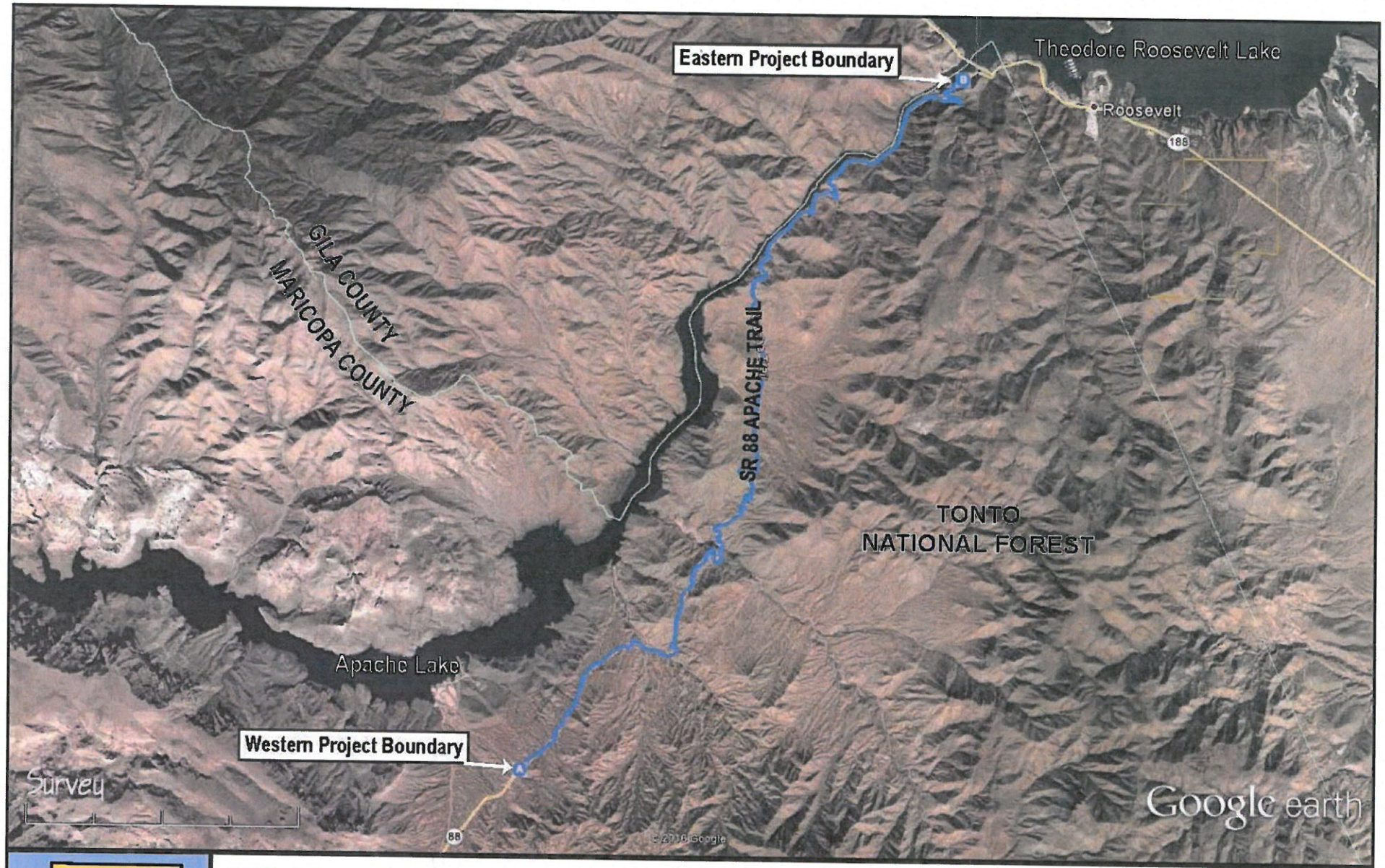

FIGURE 1: SR 88 APACHE TRAIL REGIONAL MAP

U.S. Department of Transportation
Federal Highway Administration

ADOT

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DEPARTMENT OF AGRICULTURE

U.S. Department of Transportation
Federal Highway Administration

Central Federal Lands Highway Division

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HFPM-16

June 19, 2018

U.S.C. Section 303, and the policy of the FHWA is to strive to avoid transportation use of historic sites and publicly owned recreational areas, parks, wildlife and waterfowl refuges. FHWA CFLHD will complete an individual 4(f) analysis over the upcoming months.

CONSULTATION SUMMARY AND REQUEST FOR CONCURRENCE

Please review the enclosed report, and information contained in this letter. At this time, CFLHD is seeking your concurrence on the adequacy of the enclosed cultural resources report, the limits of the revised APE, the eligibility recommendations of 13 newly assessed historic roadway features as contributing/non-contributing elements to the eligibility of the historic SR 88/Apache Trail alignment, CFLHD's determination of adverse effect for the undertaking resulting from impacts to the 06-218(TNF)/Apache Trail roadway and historic roadway features, and the need for a project-specific MOA to resolve adverse effects.

We would appreciate a written response within 30 days from date of receipt, by email at Micah.Leadford@dot.gov or Alexa.Miles@dot.gov or by US Postal Service to 12300 West Dakota Avenue, Suite 280, Lakewood, CO 80228-2583. If you have any questions about the undertaking or would like to discuss the content of this letter further, please email or call Alexa Miles at Alexa.Miles@dot.gov or 720-963-3398.

Sincerely,

Micah Leadford
Project Manager, CFLHD

Concur
for
6-25-18

Enclosure: Regional Map and APE Figures
Tables 1 and 2
Appendix A: Design Schematics for Culvert Treatment Options
Class III Cultural Resources Report

Cc: David Jacobs, Compliance Specialist, Arizona State Historic Preservation Office
Michael Sullivan, Section 106 Consulting Party
Kris Hill, Forest Archeologist, Tonto National Forest
Tribes that requested participation in the Section 106 process: Gila River Indian Community, Hopi Tribe

U.S. Department of Transportation
Federal Highway Administration

Central Federal Lands Highway Division

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Thomas Parker Office: 720-963-3688
Fax: 720-963-3596
Dustin.Robbins@dot.gov
In Reply Refer To:
HFPM-16

June 23, 2020

Honorable [CHAIRPERSON NAME]

[TRIBE]

[ADDRESS]

Dear Chairman/woman////,

The Federal Highway Administration, Central Federal Lands Highway Division (CFLHD), in cooperation with the Arizona Department of Transportation (ADOT) and the United States Forest Service, Tonto National Forest (TNF), has been planning roadway improvements to 11.20 miles of State Route (SR) 88, the Apache Trail, between mileposts (MP) 229.20 and 240.60, Maricopa County, Arizona (Figure 1). The project is located on TNF lands and an ADOT easement crossing TNF lands. The Apache Trail is a 42-mile, winding historic road that links Apache Junction with Roosevelt Lake through the Superstition Mountains and TNF. The Apache Trail is paved from Apache Junction to approximately MP 220, while the remainder of the road is unpaved until just west of Theodore Roosevelt Dam and the junction of Apache Trail and SR 188. The proposed improvements would begin at MP 229.2 and extend approximately 11.12 miles east-northeast to MP 240.6. Within the project limits, the roadway surface consists of decomposed granite (DG), which requires frequent blading to maintain an effective surface. Contractor staging and use areas are proposed to occur within the limits of the environmental study area.

In the fall and winter of 2017/2018, public outreach began on the proposed project. Interested parties such as yourself were contacted to solicit input and comments on the proposed action as well as issues and concerns that should be considered in the environmental analysis. The feedback received was very informative and helped to shape the project and resources of consideration. As project design was progressing recent disaster events have resulted in significant damage to this roadway facility and its surrounding landscape and require that the project design and coordination efforts be reinitiated to account for changes to the projects design approach and repair philosophy. Funding for the project is through the Federal Lands Access Program, in conjunction with a local funding match. Additional funding is now being added to the project through the Emergency Relief Program as detailed below to account for damage that has occurred along the route.

The Apache trail has qualified for funding under the emergency relief program. Congress authorized in Title 23, United States Code, Section 125, a special program from the Highway Trust Fund for the repair or reconstruction of Federal-aid highways and roads on Federal lands which have suffered serious damage as a result of (1) natural disasters or (2) catastrophic failures from an external cause. This program, commonly referred to as the emergency relief or ER program, supplements the commitment of resources by States, their political subdivisions, or other Federal agencies to help pay for unusually heavy expenses resulting from extraordinary conditions.

On June 8, 2019, the human-caused Woodbury Fire began in the Superstition Wilderness near the Woodbury Trailhead. This Forest Service land is full of rugged terrain with virtually no access which

limited the ability of firefighters to safely confront the fire on land. Over the course of the summer, the fire grew burning a total of 123,875 acres. Within Tonto National Monument, 88% (989 acres) of the land was burned. Although previous fires had burned small sections of the Monument, this was the largest in recorded history. Large and severe wildfires present a major threat to watershed health, because they can impair watershed condition, alter hydrologic and geomorphic processes, and ultimately degrade water quality. Wildfires can lead to changes in flow regimes, flood frequency, erosion, and debris flows. Wildfires can also lead to significant changes in stream water chemistry, and post-fire sediment-driven transport can lead to increases in contaminant loads. The historic Woodbury fire reached full containment in the summer of 2019. However, on September 23, 2019 and November 19, 2019 severe thunderstorms originating from the remnants of Tropical Storms Lorena and Raymond respectively moved over the project area for the Apache Trail project. These storms released intense rainfall over this denuded and degraded watershed which resulted in significant flooding and debris flows over segments of the Apache Trail roadway. Much of the roadways drainage features, many which were historic character defining features (CDF) for the Apache Trail (SR 88), were damaged or destroyed. During project development a Class I literature review, historic feature documentation, and class III cultural resources survey for the proposed segment of Apache trail was completed. A total of 66 eligible structural character defining features of the historic apache trail, such as culverts, retaining walls, low water crossings, guardrails, and cattle guards were documented within this segment of the Apache Trail. Of this 66 CDFs, a total of 37 now require some form of repair ranging from minor/less invasive work, to total replacement. A total of 18 will require minor/less invasive work and 19 will require major work. Of the major work, 12 are proposed to be reset(rebuilt), 5 are proposed to be replaced, and 2 are proposed to be a combination of resetting historic elements and new construction. Consultation and suitable mitigations for impacts to historic properties and contributing elements, including but not limited to Historic American Engineering Records (HAER) will be completed to offset adverse impacts.

In response to changing hydraulic conditions and recent failure events, the FHWA in partnership with the ADOT and USFS must reevaluate the design approach to the Apache Trail project to ensure the safe continued operation of this roadway. To date detailed damage inspection reports (DDIRs) for the route documenting the extent of damage to the roadway infrastructure have been completed. Approximately 8.5 million dollars in damage to the roadway surface, embankments, culverts and other drainage features have been documented. These DDIRs have evaluated the need for replacement of CDF and non CDF structural features along the route including 8 damaged pipe culverts with larger Reinforced Concrete Box Culverts, entirely replacing 9 damaged pipe culverts with larger pipes, performing various repairs at 45 sites (remove/reset headwalls, add riprap aprons, line pipes, etc.), and placing approximately 38,300 cubic yards (cy) of Decomposed Granite (DG) that was eroded off of the roadway and embankments to reestablish the road crown and drainage paths damaged by the September and November flood events. These improvements amend and supplement proposed design activities originally proposed and disclosed to you during past coordination events for the proposed FLAP funded work on the Apache Trail.

Within the project limits, the scope of the proposed activities would consist of the following activities. New design elements added as a result of roadway damage are italicized:

- Applying a chip seal containing layers of asphalt and aggregate or paving the existing DG road surface
- *Replacing, repairing, upsizing, and/or extending existing culverts that are not currently functional or were damaged to meet current hydrologic conditions.*
- *Placement of Decomposed Granite (DG) to reestablish roadway crown and drainage paths.*
- General maintenance activities, such as cleaning culverts, to improve drainage flow

- Installation of erosion control elements, consisting of constructing gabion baskets in existing roadway ditches; placing embankment matting along roadway side slopes; and placing rip-rap within existing drainage channels
- Removing berms of excess DG along roadway margins caused by road maintenance and blading
- Applying a standard width of 20 to 24 feet (with exception segments less than 20 feet) to the roadway within the project limits
- Cutting back the toe of existing slopes at a grade of 1:2 in five spot locations to improve line-of-sight distance:
    - MP 229.46 to MP 229.51
    - MP 229.55 to MP 229.61
    - MP 229.94 to MP 229.90
    - MP 233.44 to MP 233.50
    - MP 234.50 to MP 234.58.
- Additional work would include various culvert treatment options to address erosion and drainage issues that are affecting the current roadway and the structural integrity of existing roadway structural features.

The purpose of the project is to improve the resiliency of the road corridor to reduce maintenance demands, improve and maintain accessibility, and protect elements of the historic road where practicable. The project is needed because routine maintenance requiring the continual importing of material and regrading of the road surface contributes to watershed damage, places historic features at further risk to unintentional damage, and requires extensive financial resources. Objectives for the project include the following:

- Reduce particulate pollution in Maricopa County to improve air quality.
- Encourage drivers (especially those pulling boat trailers) to access the marina from the north by providing a hardened, resilient, and more trailer-friendly route.
- Enhance the long-term preservation of Fish Creek Hill by reducing the volume of marina-bound traffic on this section of the Apache Trail.
- Improve response times and access for emergency services (firefighting; medical, search and rescue and law enforcement) in the project area.

To improve communication with the public, the ADOT has established a website to disclose the apache trail roadways status. Currently the fish creek hill segment of Apache Trail is closed indefinitely due to damage. If you wish to see the current roadway closure status you may access the ADOT website at: https://azdot.gov/projects/southeast-district-projects/state-route-88-apache-trail

Additionally, the apache trail project that is under development by the FHWA in partnership with the ADOT and USFS has a project website which p project details, documents, and anticipated schedule for development. This website may be accessed at: https://highways.dot.gov/federal-lands/projects/az/apache-trail

Your feedback on the proposed action is appreciated. Written comments or questions should be submitted to the FHWA Central Federal Lands Highway Division, Attention: Dustin Robbins, Federal Highway Administration, 12300 W. Dakota Ave., Suite 380, Lakewood, CO 80228 or by email to dustin.robbins@dot.gov or you can reach Thomas Parker, Environmental Protection Specialist at thomas.w.parker@dot.gov.

Sincerely,

Dustin Robbins
Project Manager, CFLHD

Enclosure: Project Location Map

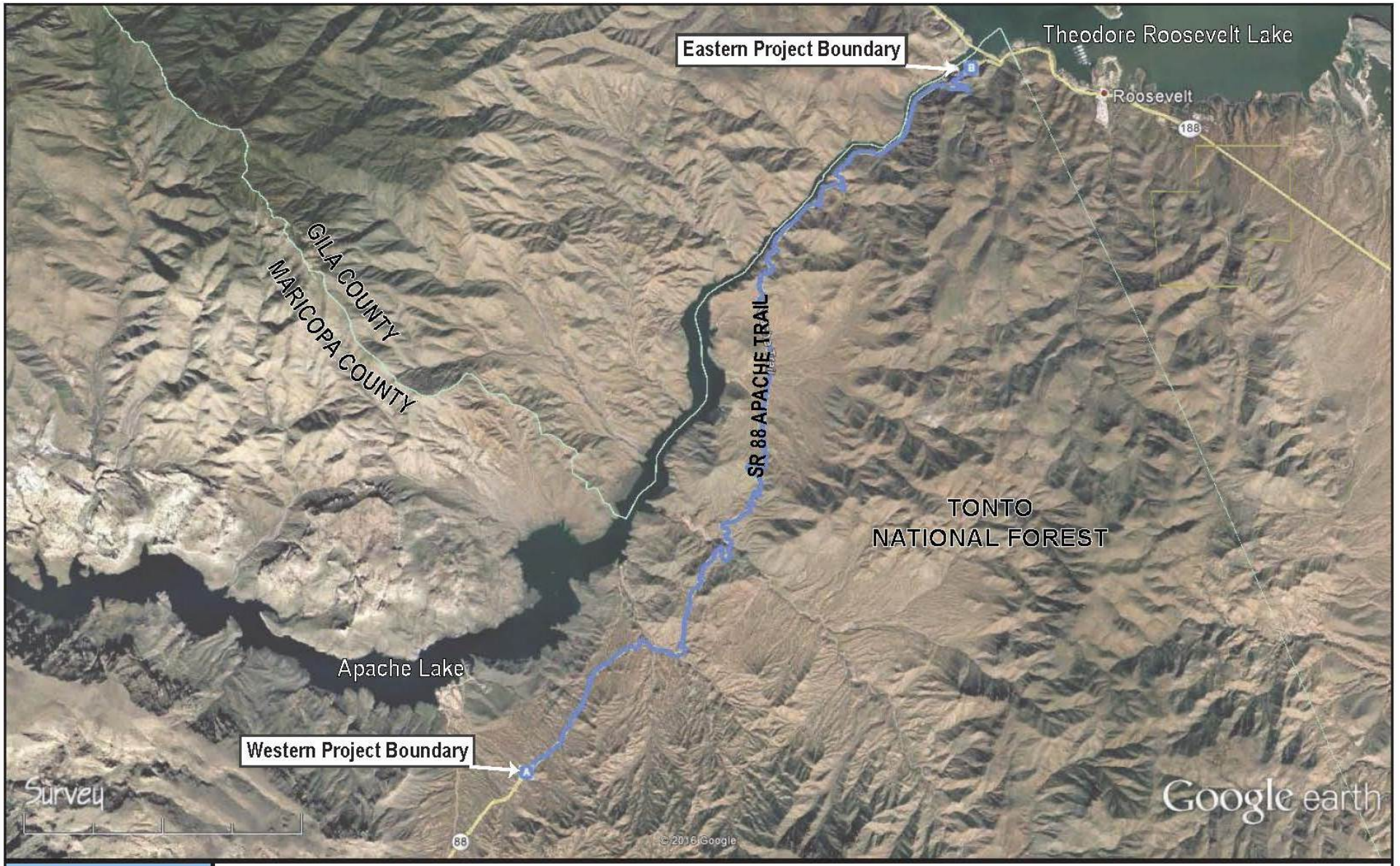

FIGURE 1: SR 88 APACHE TRAIL REGIONAL MAP

U.S. Department of Transportation
Federal Highway Administration

ADOT

FOREST SERVICE
U S
DEPARTMENT OF AGRICULTURE

White Mountain Apache Tribe

Office of Historic Preservation
PO Box 1032
Fort Apache, AZ 85926
Ph: (928) 338-3033 Fax: (928) 338-6055

To: Dustin Robbins, Project Manager, CFLHD

Date: July 23, 2020

Re: *Tonto National Forest State Route 88 Apache Trail Road Improvement Project*

The White Mountain Apache Tribe Historic Preservation Office appreciates receiving information on the project dated; June 23, 2020. In regards to this, please attend to the following statement below.

Thank you for allowing the White Mountain Apache tribe the opportunity to review and respond to the proposed road improvement project for the State Route 88 Apache Trail road, on the Tonto National Forest, in Maricopa County, Arizona.

Please be advised, we've determined a ***"No Historic Properties Affected"*** would apply in regards the White Mountain Apache tribe's historic properties and/or traditional cultural resources. No further consultation regarding this proposed project is necessary and/or required.

Thank you for your continued collaborations in protecting and preserving places of cultural and historical importance.

Sincerely,

Mark T. Altaha

White Mountain Apache Tribe – THPO
Historic Preservation Office

U.S. Department of Transportation
Federal Highway Administration

Central Federal Lands Highway Division

12300 West Dakota Avenue
Suite 380
Lakewood, CO 80228-2583
Dustin Robbins Office: 720-963-3586
Fax: 720-963-3596
Dustin.Robbins@dot.gov
In Reply Refer To:
HFPM-16

February 22, 2021

[CHAIRPERSON NAME]

[TRIBE]

[ADDRESS]

Dear Chairman/woman/President,

The Federal Highway Administration, Central Federal Lands Highway Division (CFLHD), in cooperation with the Arizona Department of Transportation (ADOT) and the United States Forest Service, Tonto National Forest (TNF), has been planning roadway improvements to 11.20 miles of State Route (SR) 88, the Apache Trail, between mileposts (MP) 229.20 and 240.60, Maricopa County, Arizona (Figure 1). The project is located on TNF lands and an ADOT easement crossing TNF lands. The Apache Trail is a 42-mile, winding historic road that links Apache Junction with Roosevelt Lake through the Superstition Mountains and TNF. The Apache Trail is paved from Apache Junction to approximately MP 220, while the remainder of the road is unpaved until just west of Theodore Roosevelt Dam and the junction of Apache Trail and SR 188. The proposed improvements would begin at MP 229.2 and extend approximately 11.16 miles east-northeast to MP 240.6. Within the project limits, the roadway surface consists of decomposed granite (DG), which requires frequent blading to maintain an effective surface. Contractor staging and use areas are proposed to occur within the limits of the environmental study area.

In the fall and winter of 2017/2018, public outreach began on the proposed project. Interested parties, including tribes, were contacted to solicit input and comments on the proposed action as well as issues and concerns that should be considered in the environmental analysis. The [TRIBAL NAME] (Tribe) did not respond to the consultation request. A cultural resources report was produced in 2018. As required under Section 106 of the National Historic Preservation Act, the report and FHWA-CFLHD's effects determination was submitted to the Arizona State Historic Preservation Officer (SHPO). SHPO concurred with FHWA-CFLHD's determination that the proposed project would have an **adverse effect to historic properties**.

As project design was progressing fire and flood events in 2019 resulted in significant damage to this roadway facility and its surrounding landscape, requiring that the project design and coordination efforts be reinitiated to account for changes to the project's design approach and repair philosophy. A letter dated June 23rd, 2020, was sent to the Tribe outlining the project changes and requesting any feedback you may have on the revised scope of work. We did not receive a response from the Tribe.

Due to the change in scope, additional cultural resource surveys were conducted in the project area. A cultural resources addendum to the 2018 cultural resources report was produced. The results of the report do not change FHWA-CFLHD's initial effects determination. The proposed project will have an **adverse effect** to historic properties.

Due to the adverse effect determination, FHWA-CFLHD, ADOT, and TNF are preparing a Memorandum of Agreement (MOA) outlining mitigation measures for impacts to the Apache Trail. One of the proposed mitigation measures is the development of interpretive materials (i.e. signs/kiosks) along

the Apache Trail roadway. Included in the list of topics for the interpretive materials are history of the Apache Tribe in the project area, desert cultural living and cultural landscapes. Your tribe may have information that would add value to this interpretive material. For this reason, FHWA-CFLHD is inviting the Tribe to sign the MOA as a concurring party. The draft MOA has been attached for your review. The Tribe does not need to be a signatory of the MOA to be involved in the development of the interpretive material. If the Tribe would like to be a signatory and/or be involved in the development of the interpretive material, please respond to this request in 30 days from receipt of this letter. If additional time is needed to make these decisions, please contact FHWA-CFLHD using the contact information provided below. Development of the interpretive material is expected to begin in summer of 2021.

To improve communication with the public, the ADOT has established a website to disclose the apache trail roadways status. Currently the fish creek hill segment of Apache Trail is closed indefinitely due to damage. If you wish to see the current roadway closure status you may access the ADOT website at: https://azdot.gov/projects/southeast-district-projects/state-route-88-apache-trail

Additionally, the apache trail project that is under development by the FHWA in partnership with the ADOT and USFS has a project website which p project details, documents, and anticipated schedule for development. This website may be accessed at: https://highways.dot.gov/federal-lands/projects/az/apache-trail

Written comments or questions should be submitted to the FHWA Central Federal Lands Highway Division, Attention: Dustin Robbins, Federal Highway Administration, 12300 W. Dakota Ave., Suite 380, Lakewood, CO 80228 or by email to dustin.robbins@dot.gov or you can reach Lisa Hemesath, Environmental Protection Specialist at lisa.hemesth@dot.gov.

Sincerely,

Dustin Robbins
Project Manager, CFLHD

Enclosure:
Figure 1
Draft Memorandum of Agreement

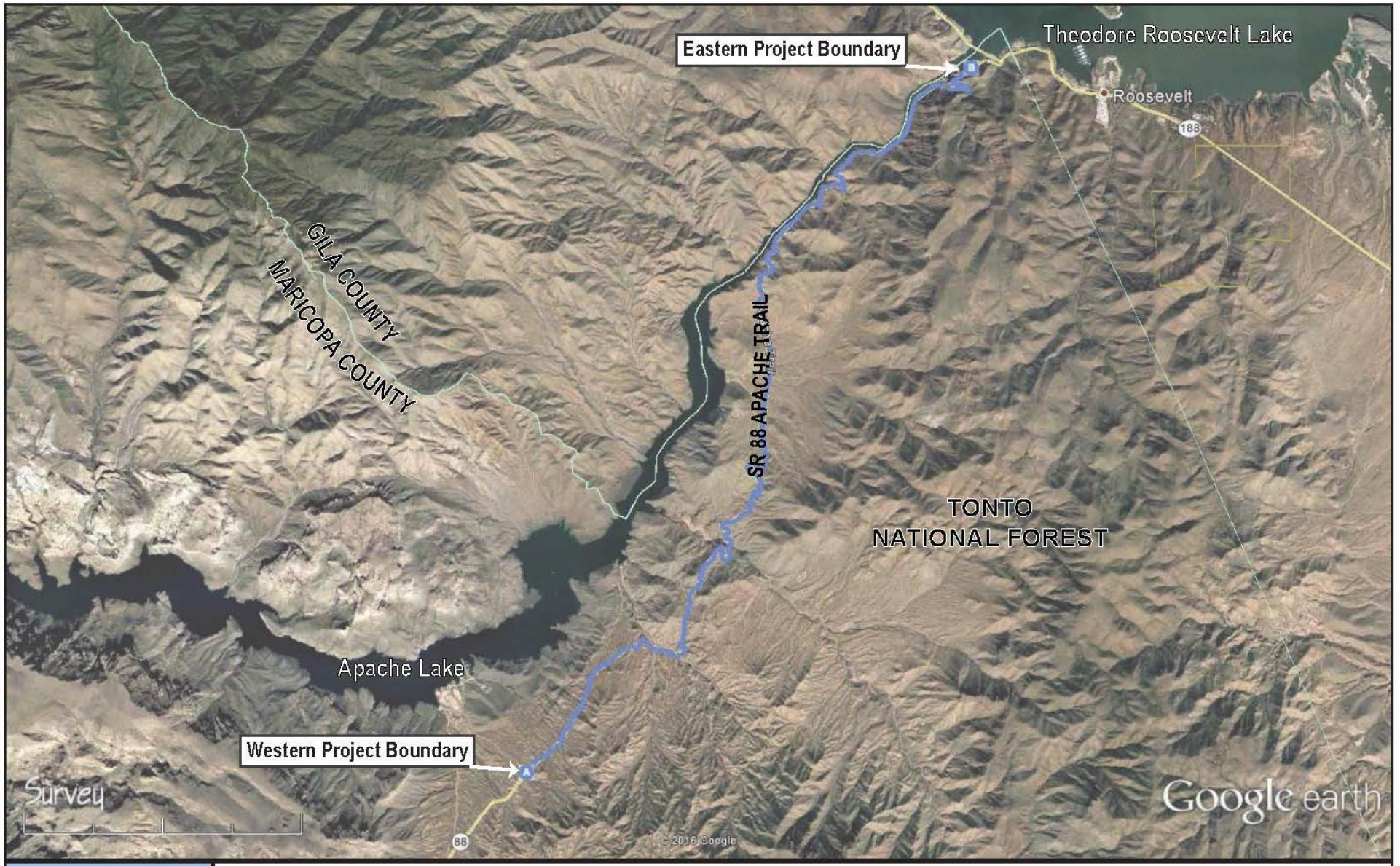

FIGURE 1: SR 88 APACHE TRAIL REGIONAL MAP

U.S. Department of Transportation
Federal Highway Administration

ADOT

FOREST SERVICE
U S
DEPARTMENT OF AGRICULTURE

White Mountain Apache Tribe

Office of Historic Preservation
PO Box 1032
Fort Apache, AZ 85926
Ph: (928) 338-3033 Fax: (928) 338-6055

To: Lisa Hemesath, Federal Highway Administration - Central Federal Highway Admin.

Date: March 30, 2021

Re: *Memorandum of Agreement for mitigation measures for impacts to Apache Trail Road*

The White Mountain Apache Tribe Historic Preservation Office appreciates receiving information on the project dated; March 24, 2021. In regards to this, please attend to the following statement below.

Thank you for allowing the White Mountain Apache tribe the opportunity to review and respond to the proposed development of the MOA outlining mitigation measures for impacts to the Apache trail and the development of interpretive materials along the roadway in central Arizona.

Please be advised, we reviewed the consultation letter and the information provided, and we've determined that the proposed project plans will ***"Not have an Adverse Effect"*** on the tribe's cultural heritage resources and/or traditional cultural properties. Although we would like to participate in the development and review of the interpretive panels, we feel it is not necessary to be a concurring party to the MOA.

Thank you for your continued collaborations in protecting and preserving places of cultural and historical importance.

Sincerely,

Mark T. Altaha

White Mountain Apache Tribe – THPO
Historic Preservation Office

From: Hemesath, Lisa (FHWA)
To: Greg Glassco
Cc: Robbins, Dustin (FHWA)
Subject: RE: HFPM-16 _ Apache Trail Consultation_Yavapai_
Date: Wednesday, March 24, 2021 12:05:00 PM

Thanks Greg. We will put the Yavapai-Prescott Indian Tribe on the list of tribes that will provide input on the interpretive panel(s) regarding cultural resources. You will be hearing from us in June. I will direct my email correspondence to you on this issue. Expect an invitation in June (probably a Zoom meeting) to kick off the interpretive panel development.

If you have any questions, contact me, or the Project Manager, Dustin Robbins.

Lisa Hemesath
Federal Highway Administration
Central Federal Highway Administration
12300 West Dakota Ave.
Lakewood, CO 80228
Phone: 720-963-3473

From: Greg Glassco [mailto:gglassco@ypit.com]
Sent: Wednesday, March 24, 2021 12:00 PM
To: Hemesath, Lisa (FHWA) <lisa.hemesath@dot.gov>
Subject: RE: HFPM-16 _ Apache Trail Consultation_Yavapai_

Hi Lisa,
Our Director Linda Ogo usually does not move to get MOA's approved by our Tribal Board of Directors, so I would not anticipate us signing that MOA.
You could try and get an official response back from Linda but its more likely she would not respond.
I know the Tribe would like to review and provide input on the interpretive panels though since much of the project is in Yavapai aboriginal territory, if you can keep us updated on that.
Any questions let me know, thanks for looking at my edits.
Sincerely,
Greg

From: Hemesath, Lisa (FHWA) <lisa.hemesath@dot.gov>
Sent: Wednesday, March 24, 2021 10:34 AM
To: Greg Glassco <gglassco@ypit.com>
Subject: RE: HFPM-16 _ Apache Trail Consultation_Yavapai_

Greg,

Thanks for reviewing and providing edits to the MOA.

As the letter states and requests,

Due to the adverse effect determination, FHWA-CFLHD, ADOT, and TNF are preparing a Memorandum of Agreement (MOA) outlining mitigation measures for impacts to the Apache Trail. One of the proposed mitigation measures is the development of interpretive materials (i.e. signs/kiosks) along the Apache Trail roadway. Included in the list of topics for the interpretive materials are history of the Apache Tribe in the project area, desert cultural living and cultural landscapes. Your tribe may have information that would add value to this interpretive material. For this reason, FHWA-CFLHD is inviting the Tribe to sign the MOA as a concurring party. The draft MOA has been attached for your review. The Tribe does not need to be a signatory of the MOA to be involved in the development of the interpretive material. If the Tribe would like to be a signatory and/or be involved in the development of the interpretive material, please respond to this request in 30 days from receipt of this letter. If additional time is needed to make these decisions, please contact FHWA-CFLHD using the contact information provided below. Development of the interpretive material is expected to begin in summer of 2021.

Does the Yavapai-Prescott Indian Tribe want to sign the MOA and/or be involved in the development of the interpretive panels?

Please let us know so that we can make accommodations moving forward. You can provide a response via a formal letter or just with an email.

Thanks,

Lisa Hemesath
Federal Highway Administration
Central Federal Highway Administration
12300 West Dakota Ave.
Lakewood, CO 80228
Phone: 720-963-3473

From: Robbins, Dustin (FHWA)
Sent: Monday, March 22, 2021 12:59 PM
To: Hemesath, Lisa (FHWA) <lisa.hemesath@dot.gov>
Subject: FW: HFPM-16

FYI

From: Greg Glassco [mailto:gglassco@ypit.com]
Sent: Monday, March 22, 2021 12:04 PM
To: Robbins, Dustin (FHWA) <dustin.robbins@dot.gov>
Subject: RE: HFPM-16

Sure Dustin, I'm sure they were probably fixed already:

Page 3, line 6 should be Tohono O'odham
Page 3, line 7 should be Yavapai-Prescott Indian Tribe
Page 10, line 38 should be Tohono O'odham
Page 10, line 39 should be Yavapai-Prescott Indian Tribe
Figure 2, could delete extra space between site and distance

Treatment Plan
Introduction, is excavation data recovery a proper term?
Definitions, add line before Unassociated Funerary Objects
Font for Cultural Patrimony definition needs fixing
Cultural Affiliation definition, should that be Forest Service?
Cultural Affiliation section, should be Ak-Chin, should be Tohono O'odham, should be Yavapai-Prescott Indian Tribe, should be Fort McDowell Yavapai Nation

---

From: Robbins, Dustin (FHWA) <dustin.robbins@dot.gov>
Sent: Monday, March 22, 2021 10:01 AM
To: Greg Glassco <gglassco@ypit.com>
Subject: RE: HFPM-16

Hi Greg.

You can send them to me and I will forward on to our staff that has developed the document.

Sorry for the delayed response.

Thanks!

Dustin Robbins, P.E.
Project Manager

FHWA – Central Federal Lands
12300 West Dakota Avenue
Lakewood, Colorado 80228
Direct: 720-963-3586
Cell: 202-913-3938
dustin.robbins@dot.gov

From: Greg Glassco [mailto:gglassco@ypit.com]
Sent: Friday, March 12, 2021 3:08 PM
To: Robbins, Dustin (FHWA) <dustin.robbins@dot.gov>
Subject: HFPM-16

Hi Dustin,
We are reviewing the MOA you sent for the work on SR 88 Apache Trail.
I found one or more typos in the MOA, who should I send those to when I finish my review?
Thank you,
Greg Glassco
Yavapai-Prescott Indian Tribe

From: Karl Hoerig
To: Hemesath, Lisa (FHWA); Peter Yucupicio
Subject: Re: Apache Trail: Tribal Consultation
Date: Monday, March 29, 2021 4:28:19 PM

Hi Lisa,

Please continue to consult with Pascua Yaqui Tribe regarding the development of the interpretive panels for the Apache Trail project. At this time I am not recommending to the Tribal Council the need to be a signatory to the MOA. There is the possibility that Yaqui people participated in the construction of the road and we can most likely provide some valuable perspectives on the panel content.

Thanks,
Karl

Karl A. Hoerig, Ph.D.
Tribal Historic Preservation Officer
Pascua Yaqui Tribe
7777 S. Camino Huivisim, Building C
Tucson, AZ 85757
(520) 883-5116
karl.hoerig@pascuayaqui-nsn.gov

From: Hemesath, Lisa (FHWA) <lisa.hemesath@dot.gov>
Sent: Wednesday, March 24, 2021 12:46 PM
To: Peter Yucupicio <Peter.S.Yucupicio@pascuayaqui-nsn.gov>; Karl Hoerig <Karl.Hoerig@pascuayaqui-nsn.gov>
Subject: Apache Trail: Tribal Consultation

CAUTION: This email originated from outside of the PYT Organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good afternoon,

On February 22nd, the Federal Highway Administration sent the attached letter to the Pascua Yaqui Tribe as part of tribal consultation for the Apache Trail project. An excerpt of the letter

is below:

"Due to the adverse effect determination, FHWA-CFLHD, ADOT, and TNF are preparing a Memorandum of Agreement (MOA) outlining mitigation measures for impacts to the Apache Trail. One of the proposed mitigation measures is the development of interpretive materials (i.e. signs/kiosks) along the Apache Trail roadway. Included in the list of topics for the interpretive materials are history of the Apache Tribe in the project area, desert cultural living and cultural landscapes. Your tribe may have information that would add value to this interpretive material. For this reason, FHWA-CFLHD is inviting the Tribe to sign the MOA as a concurring party. The draft MOA has been attached for your review. The Tribe does not need to be a signatory of the MOA to be involved in the development of the interpretive material. If the Tribe would like to be a signatory and/or be involved in the development of the interpretive material, please respond to this request in 30 days from receipt of this letter. If additional time is needed to make these decisions, please contact FHWA-CFLHD using the contact information provided below. Development of the interpretive material is expected to begin in summer of 2021."

Does the Pascua Yaqui Tribe want to sign the MOA and/or be involved in the development of the interpretive panels?

Please let us know so that we can make accommodations moving forward. You can provide a response via a formal letter or just with an email.

Thanks,

Lisa Hemesath
Federal Highway Administration
Central Federal Highway Administration
12300 West Dakota Ave.
Lakewood, CO 80228
Phone: 720-963-3473

From: Chris Coder
To: Hemesath, Lisa (FHWA)
Cc: "vincent Randall"; Tanya Lewis
Subject: RE: Apache Trail: Tribal Consultation
Date: Wednesday, March 31, 2021 4:02:26 PM

Hi Lisa,
#1 NO

#2A YES (I read the draft)

#2B YES

Thanks,
chris

From: Hemesath, Lisa (FHWA) [mailto:lisa.hemesath@dot.gov]
Sent: Wednesday, March 31, 2021 2:42 PM
To: Chris Coder <ccoder@yan-tribe.org>; Matilda Cassadore <mcassadore@yan-tribe.org>; Robbins, Dustin (FHWA) <dustin.robbins@dot.gov>
Cc: 'vincent Randall' <randall.ve1959@yahoo.com>; Tanya Lewis <tlewis@yan-tribe.org>; Jon Huey <jhuey@yan-tribe.org>
Subject: RE: Apache Trail: Tribal Consultation

Hi Chris,

I noted you wanted to be a consulting party on the Apache Trail job. That's great. Questions I need answered:

1) We just finished the cultural resources addendum and will be sending the report to SHPO for Section 106 concurrence. **Do you want to see a copy of the Addendum Report?**

2) In the most recent letter FHWA-CFLHD sent the Yavapai-Apache Nation asked two questions:

   a. **Do you want to be a signatory of the MOA?** A draft of copy of the MOA was attached to the letter.

   b. You don't have to be a signatory of the MOA to be involved in the development of interpretive panels/signs that will be placed along the Apache Trail. The signs may include information on the history of local tribes in the area and how they contributed to the construction of Apache Trail, Roosevelt Dam, and other public works projects tied to the Apache Trail. **Does the Yavapai-Apache Nation want to involved in the interagency committee that provides input and review of these interpretive panels?**

We expect work on the interpretive panels to start in June. If you decide your tribe wants to be involved, we will contact you for a "kick off" meeting at that time.

Please let me know so that I can make arrangements going forward.

Thanks,

Lisa Hemesath
Environmental Protection Specialist
Federal Highway Administration
Central Federal Highway Administration
12300 West Dakota Ave.
Lakewood, CO 80228
Phone: 720-963-3473

From: Chris Coder [mailto:ccoder@yan-tribe.org]
Sent: Wednesday, March 31, 2021 2:56 PM
To: Hemesath, Lisa (FHWA) <lisa.hemesath@dot.gov>; Matilda Cassadore <mcassadore@yan-tribe.org>; Robbins, Dustin (FHWA) <dustin.robbins@dot.gov>
Cc: 'vincent Randall' <randall.ve1959@yahoo.com>; Tanya Lewis <tlewis@yan-tribe.org>; Jon Huey <jhuey@yan-tribe.org>
Subject: RE: Apache Trail: Tribal Consultation

Hi Lisa & Dustin,

Thank-you for the information regarding the proposed ROADWAY IMPROVEMENTS T0 11.2 MILES OF STATE ROUTE 88 ON THE APACHE TRAIL THROUGH THE SUPERSTITION MOUNTAINS. Please be informed the Yavapai-Apache Nation of Camp Verde would like to be a consulting party on this project in reference to Section 106 of the Antiquities Act.
At this point we just ask that you keep us in the loop as the project gains steam.
Cordially,
Chris Coder/archaeologist/YAN

From: Hemesath, Lisa (FHWA) [mailto:lisa.hemesath@dot.gov]
Sent: Wednesday, March 24, 2021 12:59 PM
To: Chris Coder <ccoder@yan-tribe.org>; Matilda Cassadore <mcassadore@yan-tribe.org>
Subject: Apache Trail: Tribal Consultation

Good afternoon,

On February 22nd, the Federal Highway Administration sent the attached letter to the Yavapai-

Apache Nation as part of tribal consultation for the Apache Trail project. An excerpt of the letter is below:

"Due to the adverse effect determination, FHWA-CFLHD, ADOT, and TNF are preparing a Memorandum of Agreement (MOA) outlining mitigation measures for impacts to the Apache Trail. One of the proposed mitigation measures is the development of interpretive materials (i.e. signs/kiosks) along the Apache Trail roadway. Included in the list of topics for the interpretive materials are history of the Apache Tribe in the project area, desert cultural living and cultural landscapes. Your tribe may have information that would add value to this interpretive material. For this reason, FHWA-CFLHD is inviting the Tribe to sign the MOA as a concurring party. The draft MOA has been attached for your review. The Tribe does not need to be a signatory of the MOA to be involved in the development of the interpretive material. If the Tribe would like to be a signatory and/or be involved in the development of the interpretive material, please respond to this request in 30 days from receipt of this letter. If additional time is needed to make these decisions, please contact FHWA-CFLHD using the contact information provided below. Development of the interpretive material is expected to begin in summer of 2021."

Does the Yavapai-Apache Nation want to sign the MOA and/or be involved in the development of the interpretive panels?

Please let us know so that we can make accommodations moving forward. You can provide a response via a formal letter or just with an email.

Thanks,

Lisa Hemesath
Federal Highway Administration
Central Federal Highway Administration
12300 West Dakota Ave.
Lakewood, CO 80228
Phone: 720-963-3473

-----Original Message-----
From: Peter Steere [mailto:Peter.Steere@tonation-nsn.gov]
Sent: Wednesday, March 3, 2021 11:23 AM
To: Robbins, Dustin (FHWA) <dustin.robbins@dot.gov>
Cc: Vernalda Grant <apachevern@yahoo.com>
Subject: Apache Trail

Dustin

Received your letter and draft MOA for improvements to Apache Trail

I did not receive earlier mailings you mentioned in letter of February 22, 2021

The Tohono O'odham Nation does not wish to consult on this project and will not sign MOA

The Tohono O'odham Nation defers to Apache Tribes on this project.

Peter L. Steere
THPO
Tohono O'odham Nation

Sent from my Verizon, Samsung Galaxy smartphone Get Outlook for Android<https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Faka.ms%2Fghei36&data=04%7C01%7Clisa.hemesath%40dot.gov%7C8a0db5d0d96441abe16208d8e4a9685c%7Cc4cd245b44f04395a1aa3848d258f78b%7C0%7C0%7C637510763570746122%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=d42K1nHnbmoJRMVIQl0iyVrpS%2FIK9fgSp%2B9UpsvZxdk%3D&reserved=0

U.S. Department of Transportation
Federal Highway Administration

Central Federal Lands Highway Division

12300 West Dakota Avenue
Suite 380
Lakewood, CO 80228-2583
Dustin Robbins Office: 720-963-3586
Fax: 720-963-3596
Dustin.Robbins@dot.gov
In Reply Refer To:
HFPM-16

April 1, 2021

Mr. Stewart Koyiyumptewa, Director
Cultural Preservation Office
The Hopi Tribe
P.O. Box 123
Kykotsmovi, AZ 86039

Dear Director Koyiyumptewa,

The Federal Highway Administration, Central Federal Lands Highway Division (CFLHD), in cooperation with the Arizona Department of Transportation (ADOT) and the United States Forest Service, Tonto National Forest (TNF), has been planning roadway improvements to 11.20 miles of State Route (SR) 88, the Apache Trail, between mileposts (MP) 229.20 and 240.60, Maricopa County, Arizona. The project is located on TNF lands and an ADOT easement crossing TNF lands. The Apache Trail is a 42-mile, winding historic road that links Apache Junction with Roosevelt Lake through the Superstition Mountains and TNF. The Apache Trail is paved from Apache Junction to approximately MP 220, while the remainder of the road is unpaved until just west of Theodore Roosevelt Dam and the junction of Apache Trail and SR 188. The proposed improvements would begin at MP 229.2 and extend approximately 11.16 miles east-northeast to MP 240.6. Within the project limits, the roadway surface consists of decomposed granite (DG), which requires frequent blading to maintain an effective surface. Contractor staging and use areas are proposed to occur within the limits of the environmental study area.

In the fall and winter of 2017/2018, public outreach began on the proposed project. Interested parties, including tribes, were contacted to solicit input and comments on the proposed action as well as issues and concerns that should be considered in the environmental analysis. The Hopi Tribe (Tribe) responded and requested to enter consultation on the project. As required under Section 106 of the National Historic Preservation Act, a cultural resources report was produced, and a copy of the report was sent to the Hopi Tribe on June 19th, 2018, along with the effects determination submitted to the Arizona State Historic Preservation Officer (SHPO). The Hopi Tribe concurred with the adverse effect determination on June 25th, 2018.

As project design was progressing fire and flood events in 2019 resulted in significant damage to this roadway facility and its surrounding landscape, requiring that the project design and coordination efforts be reinitiated to account for changes to the project's design approach and repair philosophy. A letter dated June 23rd, 2020, was sent to the Tribe outlining the project changes and requesting any feedback you may have on the revised scope of work. We did not receive a response.

Due to the change in scope, additional cultural resource surveys were conducted in the project area. A cultural resources addendum to the 2018 cultural resources report was produced. The results of the report do not change FHWA-CFLHD's initial effects determination. The proposed project will have an **adverse effect** to historic properties.

Because the Hopi Tribe requested to consult on the project, we are enclosing a copy of our Section 106 consultation with the Arizona SHPO and a copy of the cultural resources addendum (Attachment 1). Please let us know if you have any questions or comments.

Due to the adverse effect determination, FHWA-CFLHD, ADOT, and TNF are preparing a Memorandum of Agreement (MOA) outlining mitigation measures for impacts to the Apache Trail. One of the proposed mitigation measures is the development of interpretive materials (i.e. signs/kiosks) along the Apache Trail roadway. Included in the list of topics for the interpretive materials are the history of the local tribes in the project area, desert cultural living and cultural landscapes. Your tribe may have information that would add value to this interpretive material. For this reason, FHWA-CFLHD is inviting the Tribe to sign the MOA as a concurring party. The draft MOA has been attached for your review (Attachment 2). The Tribe does not need to be a signatory of the MOA to be involved in the development of the interpretive material. If the Hopi Tribe would like to be a signatory and/or be involved in the development of the interpretive material, please respond to this request in 30 days from receipt of this letter. If additional time is needed to make these decisions, please contact FHWA-CFLHD using the contact information provided below. Development of the interpretive material is expected to begin in summer of 2021.

To improve communication with the public, the ADOT has established a website to disclose the Apache Trail roadways status. Currently the Fish Creek hill segment of Apache Trail is closed indefinitely due to damage. If you wish to see the current roadway closure status you may access the ADOT website at: https://azdot.gov/projects/southeast-district-projects/state-route-88-apache-trail

Additionally, the Apache Trail project that is under development by the FHWA in partnership with the ADOT and USFS has a project website which provides project details, documents, and anticipated schedule for development. This website may be accessed at: https://highways.dot.gov/federal-lands/projects/az/apache-trail

Written comments or questions should be submitted to the FHWA Central Federal Lands Highway Division, Attention: Dustin Robbins, Federal Highway Administration, 12300 W. Dakota Ave., Suite 380, Lakewood, CO 80228 or by email to dustin.robbins@dot.gov or you can reach Lisa Hemesath, Environmental Protection Specialist at lisa.hemesath@dot.gov.

Sincerely,

Dustin Robbins
Project Manager, CFLHD

Cc: Timothy Nuvangyaoma, Chairman

Enclosure:
Attachment 1 - Section 106 Consultation Letter and Cultural Resources Addendum
Attachment 2 - Draft Memorandum of Agreement

APR 29 2021 CFLHD

U.S. Department of Transportation
Federal Highway Administration

Central Federal Lands Highway Division

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Dustin.Robbins@dot.gov
In Reply Refer To:
HFPM-16

April 1, 2021

Rec'd 4/14/21 CPO

Mr. Stewart Koyiyumptewa, Director
Cultural Preservation Office
The Hopi Tribe
P.O. Box 123
Kykotsmovi, AZ 86039

Dear Director Koyiyumptewa,

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In the fall and winter of 2017/2018, public outreach began on the proposed project. Interested parties, including tribes, were contacted to solicit input and comments on the proposed action as well as issues and concerns that should be considered in the environmental analysis. The Hopi Tribe (Tribe) responded and requested to enter consultation on the project. As required under Section 106 of the National Historic Preservation Act, a cultural resources report was produced, and a copy of the report was sent to the Hopi Tribe on June 19th, 2018, along with the effects determination submitted to the Arizona State Historic Preservation Officer (SHPO). The Hopi Tribe concurred with the adverse effect determination on June 25th, 2018.

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Written comments or questions should be submitted to the FHWA Central Federal Lands Highway Division, Attention: Dustin Robbins, Federal Highway Administration, 12300 W. Dakota Ave., Suite 380, Lakewood, CO 80228 or by email to dustin.robbins@dot.gov or you can reach Lisa Hemesath, Environmental Protection Specialist at lisa.hemesath@dot.gov.

4-19-21
defer to SHPO
for
Kevin Werkheiser

Sincerely,

DUSTIN ROBBINS

Digitally signed by DUSTIN ROBBINS
Date: 2021.04.01 10:03:35 -06'00'

Dustin Robbins
Project Manager, CFLHD

Cc: Timothy Nuvangyaoma, Chairman

Enclosure:
Attachment 1 - Section 106 Consultation Letter and Cultural Resources Addendum
Attachment 2 - Draft Memorandum of Agreement

U.S. Department of Transportation
Federal Highway Administration

Central Federal Lands Highway Division

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Dustin.Robbins@dot.gov
In Reply Refer To:
HFPM-16

April 1, 2021

Mr. Barnaby V. Lewis
Tribal Historic Preservation Officer
Gila River Indian Community
P.O. Box 2140
Sacaton, AZ 85247

Dear Mr. Lewis,

The Federal Highway Administration, Central Federal Lands Highway Division (CFLHD), in cooperation with the Arizona Department of Transportation (ADOT) and the United States Forest Service, Tonto National Forest (TNF), has been planning roadway improvements to 11.20 miles of State Route (SR) 88, the Apache Trail, between mileposts (MP) 229.20 and 240.60, Maricopa County, Arizona. The project is located on TNF lands and an ADOT easement crossing TNF lands. The Apache Trail is a 42-mile, winding historic road that links Apache Junction with Roosevelt Lake through the Superstition Mountains and TNF. The Apache Trail is paved from Apache Junction to approximately MP 220, while the remainder of the road is unpaved until just west of Theodore Roosevelt Dam and the junction of Apache Trail and SR 188. The proposed improvements would begin at MP 229.2 and extend approximately 11.16 miles east-northeast to MP 240.6. Within the project limits, the roadway surface consists of decomposed granite (DG), which requires frequent blading to maintain an effective surface. Contractor staging and use areas are proposed to occur within the limits of the environmental study area.

In the fall and winter of 2017/2018, public outreach began on the proposed project. Interested parties, including tribes, were contacted to solicit input and comments on the proposed action as well as issues and concerns that should be considered in the environmental analysis. The Gila River Indian Community (Tribe) responded that they would like to participate in Section 1066 consultation in a letter dated October 25, 2017, but deferred the consultation to the Salt River Pima-Maricopa Indian Community. The Salt River Pima-Maricopa Indian Community did not respond to our request for consultation. For this reason, FHWA-CFLHD continued to correspond directly with the Gila River Indian Community. As required under Section 106 of the National Historic Preservation Act, a cultural resources report was produced, and a copy of the report was sent to the Tribe on June 19th, 2018, along with the effects determination submitted to the Arizona State Historic Preservation Officer (SHPO). The Tribe did not respond to this submittal.

As project design was progressing fire and flood events in 2019 resulted in significant damage to this roadway facility and its surrounding landscape, requiring that the project design and coordination efforts be reinitiated to account for changes to the project's design approach and repair philosophy. A letter dated June 23rd, 2020, was sent to the Tribe outlining the project changes and requesting any feedback you may have on the revised scope of work. We did not receive a response.

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Because the Gila River Indian Community requested to consult on the project, we are enclosing a copy of our Section 106 consultation with the Arizona SHPO and a copy of the cultural resources addendum (Attachment 1). Please let us know if you have any questions or comments.

Due to the adverse effect determination, FHWA-CFLHD, ADOT, and TNF are preparing a Memorandum of Agreement (MOA) outlining mitigation measures for impacts to the Apache Trail. One of the proposed mitigation measures is the development of interpretive materials (i.e. signs/kiosks) along the Apache Trail roadway. Included in the list of topics for the interpretive materials are history of the Apache Tribe in the project area, desert cultural living and cultural landscapes. Your tribe may have information that would add value to this interpretive material. For this reason, FHWA-CFLHD is inviting the Tribe to sign the MOA as a concurring party. The draft MOA has been attached for your review (Attachment 2). The Tribe does not need to be a signatory of the MOA to be involved in the development of the interpretive material. If the Gila River Indian Community would like to be a signatory and/or be involved in the development of the interpretive material, please respond to this request in 30 days from receipt of this letter. If additional time is needed to make these decisions, please contact FHWA-CFLHD using the contact information provided below. Development of the interpretive material is expected to begin in summer of 2021.

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Sincerely,

Dustin Robbins
Project Manager, CFLHD

Cc: Stephen R. Lewis, Governor

Enclosure:
Attachment 1 - Section 106 Consultation Letter and Cultural Resources Addendum
Attachment 2 - Draft Memorandum of Agreement

From:	Larry Benallie Jr
To:	Robbins, Dustin (FHWA); Hemesath, Lisa (FHWA)
Cc:	Barnaby Lewis
Subject:	HFPM-16, Apache Trail Project (AZ FLAP SR88(1)) State Route 88 (SR 88), Maricopa County, Arizona
Date:	Friday, April 23, 2021 11:49:41 AM

FHWA Central Federal Lands Highway Division, HFPM-16, Apache Trail Project (AZ FLAP SR88(1)) State Route 88 (SR 88), Maricopa County, Arizona
April 23, 2021

Project Manager Robbins,

The GRIC-THPO is in receipt of your consultation documents dated April 1, 2021. The Federal Highway Administration, Central Federal Lands Highway Division (CFLHD), the Arizona Department of Transportation (ADOT) and the Tonto National Forest (TNF) are planning a roadway improvements undertaking for the Apache Trail (SR 88). Consultation for this undertaking began in 2017. Wildland fire and flooding has delayed the development of this project. Additional proposed repairs required additional archaeological survey of the project area which was completed in 2020. The CFLHD has submitted a Class III addendum archaeological survey report (prepared by Jacobs Engineering Group Inc.) and a draft Memorandum of Agreement (MOA) for review. The CFLHD has made a finding of adverse effect for this undertaking.

The entire project area has been archaeologically surveyed. The Apache Trail is considered a Register eligible property and is listed on the Arizona Register of Historic Places. The current report, An Addendum Class III Cultural Resources Survey and Effects Analysis between Milepost 229.15 and Milepost 240.80 of State Route 88/Apache Trail, Maricopa County, Arizona, is an acceptable cultural resource management document/report. The MOA clearly defines agency roles and responsibilities. The MOA also proposes an acceptable timeline for deliverables.

The GRIC-THPO concurs with a finding of adverse effect for this undertaking. The GRIC-THPO respectfully declines to sign the MOA as a concurring party. We will continue to participate in the consultation process for this undertaking. The proposed project area is within the ancestral lands of the Four Southern Tribes (Gila River Indian Community; Salt River Pima-Maricopa Indian Community; Ak-Chin Indian Community and the Tohono O'Odham Nation). The GRIC-THPO defers to the Salt River Pima-Maricopa Indian Community Historic Preservation Office as lead in the consultation process for this undertaking.
Thank you for consulting with the GRIC-THPO on this undertaking. Please do not hesitate to contact us if you should have any questions.

Respectfully,

Larry Benallie, Jr.
Archaeological Compliance Specialist

Tribal Historic Preservation Office
Gila River Indian Community
P.O. Box 2193
Sacaton, Arizona 85147
(520) 562-7153
Larry.BenallieJr@gric.nsn.us

Government to Government Consultation Toolkit

2017-1261 (158339)

U.S. Department of Transportation
Federal Highway Administration

Central Federal Lands Highway Division

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Lisa Hemesath Office: 720-963-3473
Fax: 720-963-3596
Dustin.Robbins@dot.gov
In Reply Refer To:
HFPM-16

March 31, 2021

Ms. Kathryn Leonard, SHPO
Arizona State Parks
1100 W. Washington Street
Phoenix, AZ 85007

Subject: Continuing Section 106 Consultation for the Proposed Apache Trail Project [SR88(1) APACHE TRAIL] Maricopa County, Arizona: Cultural Resources Addendum Report

Dear Ms. Leonard,

The Federal Highway Administration, Central Federal Lands Highway Division (FHWA-CFLHD), in cooperation with the Arizona Department of Transportation (ADOT) and the United States Forest Service, Tonto National Forest (TNF), is planning roadway improvements to 11.16 miles of State Route (SR) 88, the Apache Trail between mileposts (MP) 229.20 and 240.60, Maricopa County, Arizona. The project is located on ADOT easement crossing TNF lands. Funding for the project is through the Federal Lands Access Program (FLAP) and the Emergency Relief (ER) Program, in conjunction with a local funding match. Given that this project is federally funded and crosses federal lands, it is considered to be an undertaking subject to compliance with Section 106 of the National Historic Preservation Act of 1966, as amended.

SR 88/Apache Trail is considered to be one of Arizona's transportation "crown jewels," and is listed in the Arizona Register of Historic Places (ARHP). It has also been previously determined eligible for inclusion in the National Register of Historic Places (NRHP) under Criteria A, C, and D for its association with important historic events; unique qualities of design and construction; and potential to yield important data regarding the development of early Arizona roadways. The segment of the Apache Trail under consideration for improvements is a portion of the last remaining unpaved segment of the road, is considered to be a contributor to the roadway's NRHP eligibility, and contains numerous significant historic roadway features.

Within the project limits, the roadway surface consists of decomposed granite (DG), which requires frequent blading to maintain an effective surface. In some locations, the blading has created berms of excess materials along the roadway margins and adjacent to historic roadway elements, thus creating drainage, maintenance, and preservation issues. The purpose of the project would be to improve the resiliency of the road corridor and reduce maintenance demands; improve and maintain accessibility; and improve safety for the traveling public.

A Class I literature review, historic feature documentation, and Class III cultural resources survey for the proposed project segment of Apache Trail was completed ["*Results of Class I Literature Review, Historic Feature Documentation, and Class III Cultural Resources Survey between Milepost 229.20 and Milepost 240.60 of State Route 88/Apache Trail, Maricopa County, Arizona*" (Luhnow and Schilling 2018)]. A total of 66 eligible structural character defining features of the historic apache trail, such as culverts, retaining walls, low water crossings, guardrails, and cattle guards were documented within this segment of the Apache Trail. The report was submitted to the Arizona State Historic Preservation Office

U.S. Department of Transportation
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Lisa Hemesath Office: 720-963-3473
Fax: 720-963-3596
Dustin.Robbins@dot.gov

March 31, 2021

In Reply Refer To:
HFPM-16

(SHPO) for Section 106 concurrence on June 19th, 2018. On July 2nd, 2018, the Arizona SHPO concurred with FHWA-CFLHD's determination of eligibility and determination of an **adverse effect** for the undertaking resulting from impacts to the 06-218(TNF) Apache Trail roadway and historic roadway features.

During the summer of 2019 a fire began in the Superstition Wilderness. The fire swept through Tonto National Monument and burned 88% of the land. In the fall of 2019 severe thunderstorms moved over the project area. These storms released intense rainfall over this denuded and degraded watershed which resulted in significant flooding and debris flows over segments of the Apache Trail roadway. Much of the roadways drainage features, many which were historic character defining features (CDF) for the Apache Trail (SR 88), were damaged or destroyed.

It was at this time that the Apache Trail qualified for ER funding. Congress authorized in Title 23, United States Code, Section 125, a special program from the Highway Trust Fund for the repair or reconstruction of Federal-aid highways and roads on Federal lands which have suffered serious damage as a result of (1) natural disasters or (2) catastrophic failures from an external cause. This program, commonly referred to as the emergency relief or ER program, supplements the commitment of resources by States, their political subdivisions, or other Federal agencies to help pay for unusually heavy expenses resulting from extraordinary conditions.

In response to changing hydraulic conditions and recent failure events, the FHWA-CFLHD in partnership with the ADOT and USFS reevaluated the design approach to the Apache Trail project to ensure the safe continued operation of this roadway. Damage reports from the flood indicated that additional drainage improvements, along with improvements to the damaged road need to be completed.

Within the project limits, the revised scope of the proposed activities would consist of the following activities. New design elements added or modified are italicized:

- Applying a chip seal containing layers of asphalt and aggregate or paving the existing DG road surface
- *Replacing, repairing, upsizing, and/or extending existing culverts that are not currently functional or were damaged to meet current hydrologic conditions.*
- *Placement of Decomposed Granite (DG) to reestablish roadway crown and drainage paths.*
- *Safety striping (i.e. fog line and possibly centerline)*
- General maintenance activities, such as cleaning culverts, to improve drainage flow
- Installation of erosion control elements, consisting of constructing gabion baskets in existing roadway ditches; placing embankment matting along roadway side slopes; and placing rip-rap within existing drainage channels
- Removing berms of excess DG along roadway margins caused by road maintenance and blading
- Applying a standard width of 20 to 24 feet (with exception segments less than 20 feet) to the roadway within the project limits
- Cutting back the toe of existing slopes at a grade of 1:2 in five spot locations to improve line-of-sight distance:

U.S. Department of Transportation
Federal Highway Administration

Central Federal Lands Highway Division

March 31, 2021

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Lisa Hemesath Office: 720-963-3473
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Dustin.Robbins@dot.gov
In Reply Refer To:
HFPM-16

- MP 229.46 to MP 229.51
- MP 229.55 to MP 229.61
- MP 229.94 to MP 229.90
- *MP 233.51 to MP 233.54*
- MP 234.50 to MP 234.58.

- Additional work would include various culvert treatment options to address erosion and drainage issues that are affecting the current roadway and the structural integrity of existing roadway structural features.

CONTINUING CULTURAL RESOURCES INVESTIGATIONS

Given that the current scope of the improvements amend and supplement proposed design activities originally proposed for the project, FHWA-CFLHD requested that Jacobs conduct a supplemental Class III survey of additional areas where project improvements would be required, and to update the analysis of potential effects to historic features of the Apache Trail. The newly surveyed areas consist of 52 small, discontinuous areas where drainage improvements would be required.

The results of the survey are provided in *"An Addendum Class III Cultural Resources Survey and Effects Analysis Between Milepost 229.15 and Milepost 240.80 of State Route 88/Apache Trail, Maricopa County, Arizona"* (Schilling et al. 2021). A copy of the report is provided for your review and comment.

Table 4 in the report provides updated repair activities for structural features along the project route and within the APE. This is an update to the information provided under "Proposed Action" in Table 4 of Luhnow and Shilling (2018).

In Appendix B of the report Table B-3 provides updates to Table 8 as presented in Luhnow and Shilling (2018). The table lists NRHP eligible sites and provides recommendations for avoidance, minimization and/or mitigation based on project effects. Impacts to individual features to the Apache Trail [06-218(TNF)] have been grouped based on proposed repair activities and if the activity would adversely affect the existing qualities of the individual features as a contributing element of the NRHP-eligible roadway.

The report also provides updated descriptions for the different scour treatments that will be applied to drainage features in order to protect the road from future erosional events (See Appendix C).

PROJECT EFFECT

The effects analysis has not changed from our 2018 determination. Based on the attached report, FHWA-CFLHD has determined that the project would result in an **adverse effect** to historic properties. FHWA-CFLHD is currently working with our project partners on a project-specific Memorandum of Agreement (MOA) to mitigate the adverse effect.

U.S.Department
of Transportation
Federal Highway Administration

Central Federal Lands Highway Division

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Fax: 720-963-3596
Dustin.Robbins@dot.gov
In Reply Refer To:
HFPM-16

March 31, 2021

As part of the environmental process for this undertaking, FHWA must also comply with Section 4(f) of the U.S. Department of Transportation (USDOT) Act of 1966. The intent of the Section 4(f) Statute, 49 U.S.C. Section 303, and the policy of the FHWA is to strive to avoid transportation use of historic sites and publicly owned recreational areas, parks, wildlife and waterfowl refuges; unless (1) there is no prudent and feasible alternative to the use of such land, and (2) any such program or project includes all possible planning to minimize harm to these resources. Section 4(f) applies only to the actions of agencies within the USDOT, including the FHWA. The finding of Adverse effect to the Apache Trail constitutes a "use" under Section 4(f) as such FHWA will be preparing an individual Section 4(f) analysis in compliance with our regulations. Your agency, as an official with jurisdiction (OWJ) over the Section 4(f) resource will have an opportunity to review the evaluation.

CONSULTATION SUMMARY AND REQUEST FOR CONCURRENCE

Please review the enclosed report, and information contained in this letter. At this time, CFLHD is seeking Section 106 concurrence for CFLHD's determination of **adverse effect** for the undertaking resulting from impacts to the Apache Trail roadway [06-218(TNF)] and historic roadway features, and the historic blasting can site [06-2503 (TNF), AZ U:8:632(ASM)].

We would appreciate a written response within 30 days from date of receipt, by email at dustin.robbins@dot.gov or lisa.hemesath@dot.gov or by US Postal Service to 12300 West Dakota Avenue, Suite 280, Lakewood, CO 80228-2583. If you have any questions about the undertaking or would like to discuss the content of this letter further, please email or call Lisa Hemesath at 720-963-3473.

CONCUR

6 APRIL 21

Arizona State Historic Preservation Office

Sincerely,

Dustin Robbins
Project Manager, CFLHD

Enclosure: Cultural Resources Addendum

Cc: David Jacobs, Compliance Specialist, Arizona State Historic Preservation Office
Kristina Powell, Cultural Resource Program Manager, Arizona Dept. of Transportation
Michael Sullivan, Section 106 Consulting Party
Travis Bone, Forest Archeologist, Tonto National Forest
Sarah Stokely, Advisory Council on Historic Preservation
Gila River Indian Community
Hopi Tribe

Correspondence Regarding Waters of the U.S.

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT
3636 NORTH CENTRAL AVENUE SUITE 900
PHOENIX, AZ 85012-1939

March 5, 2021

SUBJECT: Approved Jurisdictional Determination

Lisa Hemesath
Federal Highway Administration
12300 West Dakota Avenue
Lakewood, Colorado 80228

Dear Ms. Hemesath:

I am responding to your request dated February 4, 2021 for an approved Department of the Army jurisdictional determination (JD) for the Apache Trail Road Improvement Project (Central Federal Highway Administration) project site (File No. SPL-2021-00063). The proposed project is located in Pine Creek, Davis Wash, and several unnamed washes, near Apache Lake, Maricopa County, Arizona (Latitude 33.6186793074896°, Longitude -111.196900420514°).

The Corps' evaluation process for determining whether or not a Department of the Army permit is needed involves two tests. If both tests are met, a permit would likely be required. The first test determines whether or not the proposed project is located within the Corps' geographic jurisdiction (i.e., it is within a water of the United States). The second test determines whether or not the proposed project is a regulated activity under Section 10 of the Rivers and Harbors Act or Section 404 of the Clean Water Act. This evaluation pertains only to geographic jurisdiction.

Based on available information, I have determined there are waters of the United States on the project site, as well as non-jurisdictional aquatic resources, in the locations depicted on the enclosed drawing. The basis for our determination can be found in the enclosed approved jurisdictional determination form.

This letter includes an approved jurisdictional determination for the Apache Trail Road Improvement Project (Central Federal Highway Administration) project site. If you wish to submit new information regarding this jurisdictional determination, please do so within 60 days. We will consider any new information so submitted and respond within 60 days by either revising the prior determination, if appropriate, or reissuing the prior determination. If you object to this or any revised or reissued jurisdictional determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) and Request for Appeal (RFA) form. If you wish to appeal this decision, you must submit a

completed RFA form within 60 days of the date on the NAP to the Corps South Pacific Division Office at the following address:

Tom Cavanaugh
Administrative Appeal Review Officer
U.S. Army Corps of Engineers
South Pacific Division, CESPD-PDO
450 Golden Gate Ave.
San Francisco, CA 94102

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR Part 331.5 (see below), and that it has been received by the Division Office by **May 4, 2021**.

This determination has been conducted to identify the extent of the Corps' Clean Water Act jurisdiction on the particular project site identified in your request, and is valid for five years from the date of this letter, unless new information warrants revision of the determination before the expiration date. This determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service prior to starting work.

Thank you for participating in the regulatory program. If you have any questions, please contact me at (602) 230-6854 or via email at Jesse.M.Rice@usace.army.mil. Please help me to evaluate and improve the regulatory experience for others by completing the customer survey form at http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey.

Sincerely,

Michael Langley
Senior Project Manager
Regulatory Division

Enclosures

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL		
Applicant: Central Federal Highway Administration	File Number: SPL-2021-00063	Date: MARCH 5, 2021
Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
X	APPROVED JURISDICTIONAL DETERMINATION	D
	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://www.usace.army.mil/cecw/pages/reg_materials.aspx or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.

- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:

Jesse Rice
U.S. Army Corps of Engineers
Los Angeles District
3636 North Central Avenue Suite 900
Phoenix, AZ 85012-1939
Phone: (602) 230-6854
Email: Jesse.M.Rice@usace.army.mil

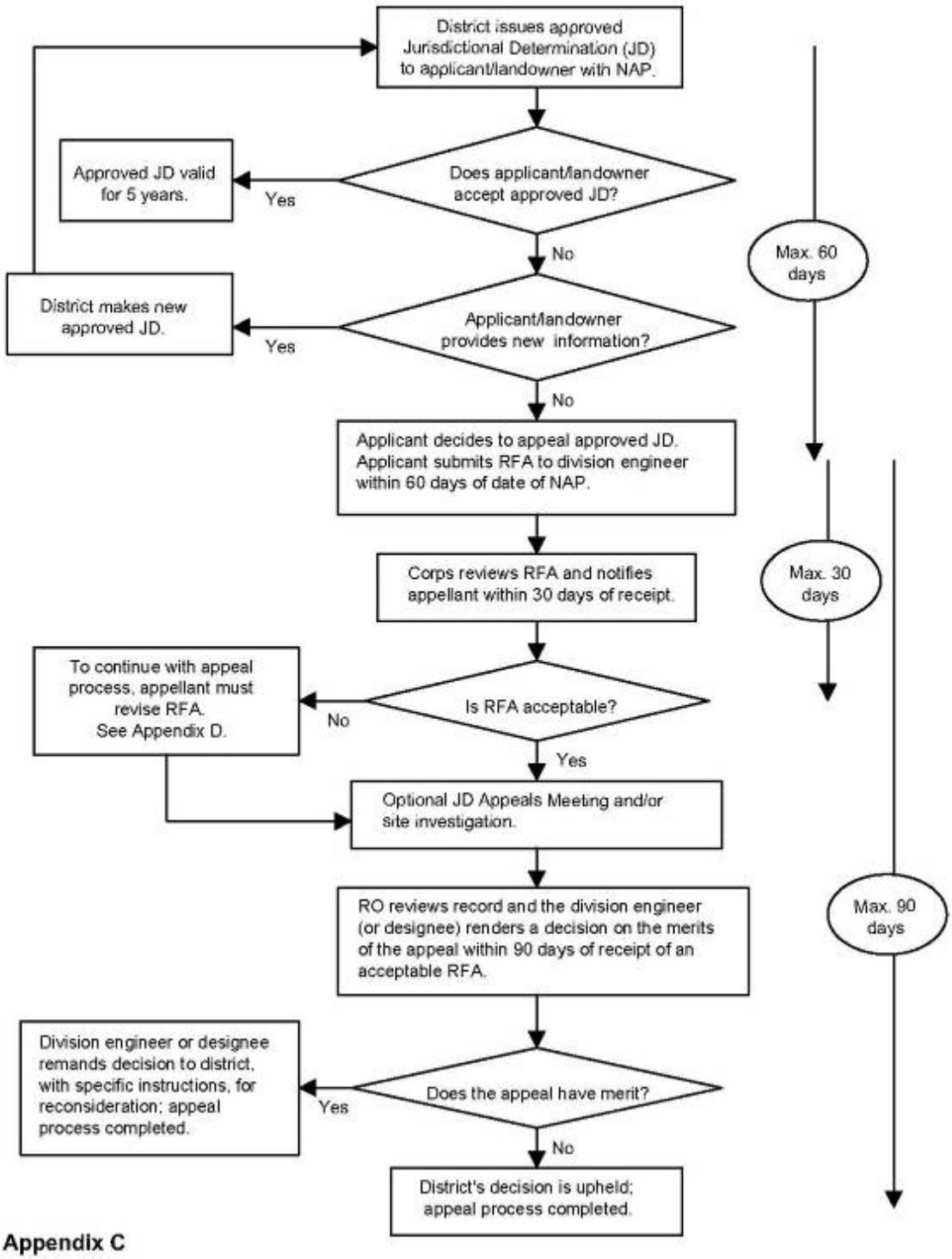
If you only have questions regarding the appeal process you may also contact: Thomas J. Cavanaugh

Administrative Appeal Review Officer
U.S. Army Corps of Engineers
South Pacific Division
450 Golden Gate Ave.
San Francisco, CA 94102
Phone: (415) 503-6574 Fax: (415) 503-6646
Email: thomas.j.cavanaugh@usace.army.mil

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

_____ Signature of appellant or agent.	Date:	Telephone number:

Administrative Appeal Process for Approved Jurisdictional Determinations



Appendix C

§ 331.5 Criteria.

(a) *Criteria for appeal* —(1) *Submission of RFA.* The appellant must submit a completed RFA (as defined at §331.2) to the appropriate division office in order to appeal an approved JD, a permit denial, or a declined permit. An individual permit that has been signed by the applicant, and subsequently unilaterally modified by the district engineer pursuant to 33 CFR 325.7, may be appealed under this process, provided that the applicant has not started work in waters of the United States authorized by the permit. The RFA must be received by the division engineer within 60 days of the date of the NAP.

(2) *Reasons for appeal.* The reason(s) for requesting an appeal of an approved JD, a permit denial, or a declined permit must be specifically stated in the RFA and must be more than a simple request for appeal because the affected party did not like the approved JD, permit decision, or the permit conditions. Examples of reasons for appeals include, but are not limited to, the following: A procedural error; an incorrect application of law, regulation or officially promulgated policy; omission of material fact; incorrect application of the current regulatory criteria and associated guidance for identifying and delineating wetlands; incorrect application of the Section 404(b)(1) Guidelines (see 40 CFR Part 230); or use of incorrect data. The reasons for appealing a permit denial or a declined permit may include jurisdiction issues, whether or not a previous approved JD was appealed.

(b) *Actions not appealable.* An action or decision is not subject to an administrative appeal under this part if it falls into one or more of the following categories:

(1) An individual permit decision (including a letter of permission or a standard permit with special conditions), where the permit has been accepted and signed by the permittee. By signing the permit, the applicant waives all rights to appeal the terms and conditions of the permit, unless the authorized work has not started in waters of the United States and that issued permit is subsequently modified by the district engineer pursuant to 33 CFR 325.7;

(2) Any site-specific matter that has been the subject of a final decision of the Federal courts;

(3) A final Corps decision that has resulted from additional analysis and evaluation, as directed by a final appeal decision;

(4) A permit denial without prejudice or a declined permit, where the controlling factor cannot be changed by the Corps decision maker (e.g., the requirements of a binding statute, regulation, state Section 401 water quality certification, state coastal zone management disapproval, etc. (See 33 CFR 320.4(j));

(5) A permit denial case where the applicant has subsequently modified the proposed project, because this would constitute an amended application that would require a new public interest review, rather than an appeal of the existing record and decision;

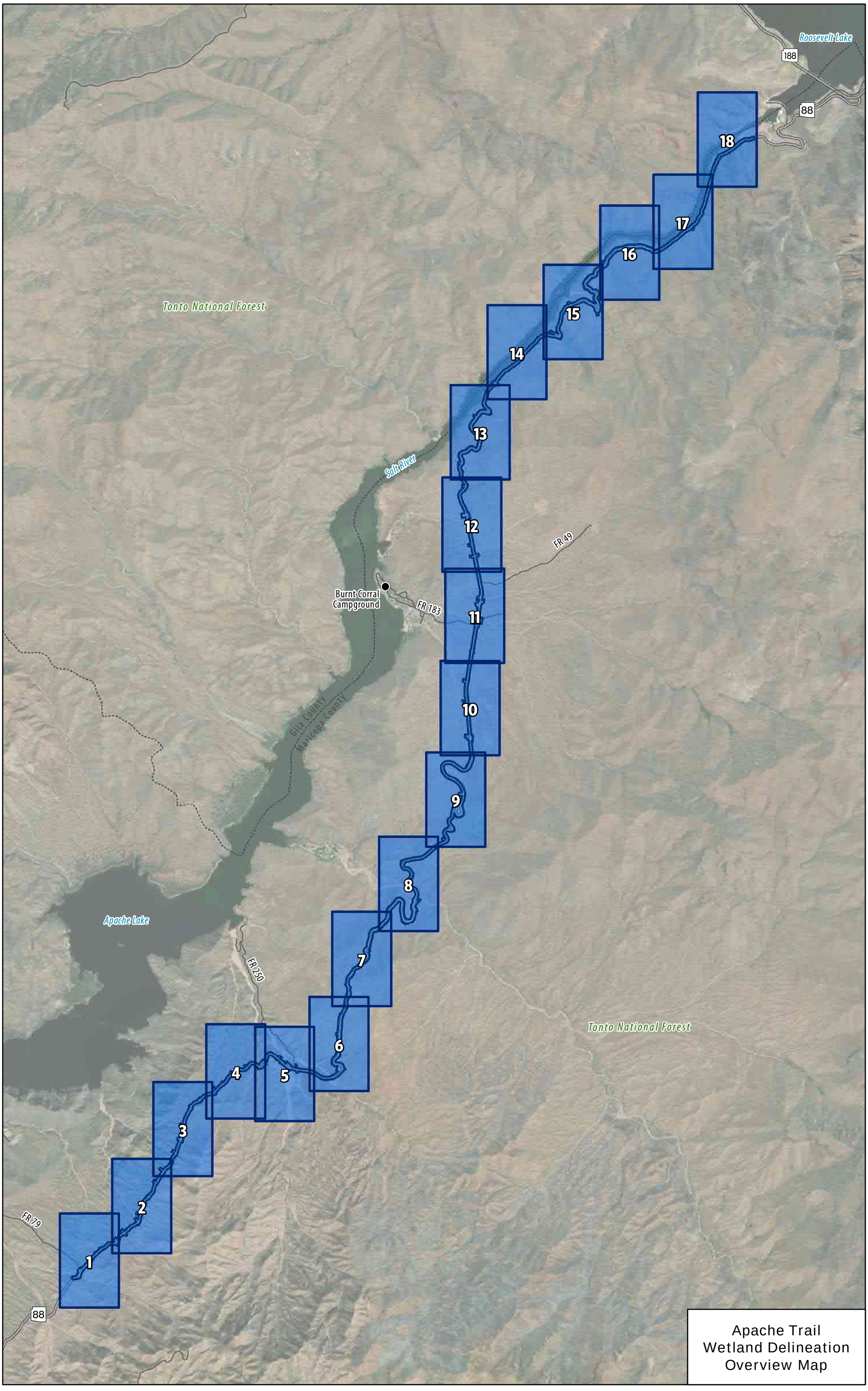
(6) Any request for the appeal of an approved JD, a denied permit, or a declined permit where the RFA has not been received by the division engineer within 60 days of the date of the NAP;

(7) A previously approved JD that has been superceded by another approved JD based on new information or data submitted by the applicant. The new approved JD is an appealable action;

(8) An approved JD associated with an individual permit where the permit has been accepted and signed by the permittee;

(9) A preliminary JD; or

(10) A JD associated with unauthorized activities except as provided in §331.11.


Roosevelt Lake
188
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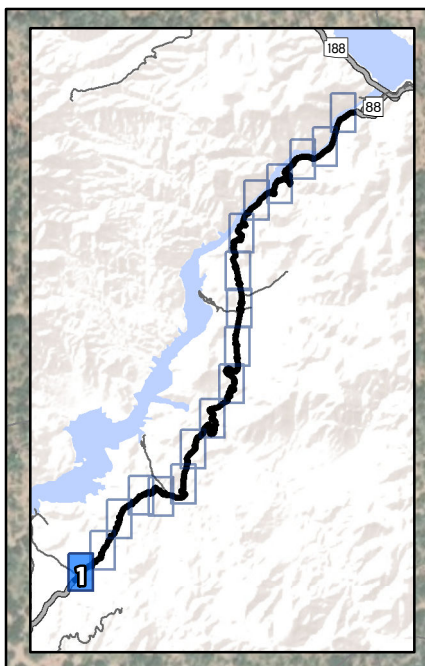
Tonto National Forest
Salt River
Burnt Corral Campground
FR 183
FR 49
Gila County
Maricopa County
Apache Lake
FR 250
FR 79
88
Tonto National Forest
Apache Trail
Wetland Delineation
Overview Map



33.568474
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2520
2440
2480
2560
2720
2640
2800
2840
2880
2600
2680
FR 79
1265+00
1260+00
1255+00
1250+00

12W
3-6.5 ft. wide
0.0019 acres
20 LF

8W
3 ft. wide
0.0056 acres
55 LF

12E-a
0.5 ft. wide
0.0016 acres
130 LF

12E-b
2.5-5.2 ft. wide
0.0070 acres
73 LF

10E-a
0.6 ft. wide
0.0006 acres
40 LF

11E
1.3 ft. wide
0.0013 acres
50 LF

9E
0.3 ft. wide
0.0003 acres
34 LF

10E-b
0.3 ft. wide
0.0001 acres
15 LF

7W
2.3-13 ft. wide
0.0103 acres
55 LF

8E
4 ft. wide
0.0058 acres
45 LF

5W
5 ft. wide
0.0067 acres
52 LF

7E
7 ft. wide
0.0072 acres
37 LF

6E
1.3 ft. wide
0.0012 acres
40 LF

4W
1.6 ft. wide
0.0024 acres
30 LF

6E-b
0.6 ft. wide
0.0001 acres
12 LF

3W
2.5 ft. wide
0.0024 acres
25 LF

5E
13 ft. wide
0.0240 acres
226 LF

2W
7 ft. wide
0.0042 acres
37 LF

3E
28 ft. wide
0.0264 acres
110 LF

1W-b
0.33 ft. wide
0.0006 acres
68 LF

1E-b
5 ft. wide
0.0011 acres
42 LF

1W-a
30 ft. wide
0.0586 acres
81 LF

1E-a
34 ft. wide
0.0466 acres
57 LF

610
611
612
613
614
616
608

1
2
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Transect Line
Culvert
Flow Direction
1 Photo Point, Number and Direction
Wash Name XX-XX ft. wide X.XXX acres XXX LF — Wash Name, Width (Feet), Area (Acres), and Length (LF)
Control Point

0 50 100 200 Feet 1" = 200'

N

Corps File No. SPL-2020-TBD
Apache Trail - AZ FLAP SR 88(1)
Datum: NAD 83
Horse Mesa (1978), Pinyon Mountain (1978), Theodore Roosevelt Dam (1978) USGS 7.5' Topographic Quadrangle
Imagery Source: Maxar
Imagery Date: October 2019
Date Prepared: December 10, 2020
Preparer: Jacobs Engineering Group Inc.

33.561521
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APPROVED JURISDICTIONAL DETERMINATION
SECTION 404 JURISDICTIONAL DELINEATION

U.S. Army Corps of Engineers, Los Angeles District
Application No. SPL-2021-00063

Boundary of area surveyed for jurisdictional waters of the United States
Approximate Ordinary High Water Mark
Waters of the United States

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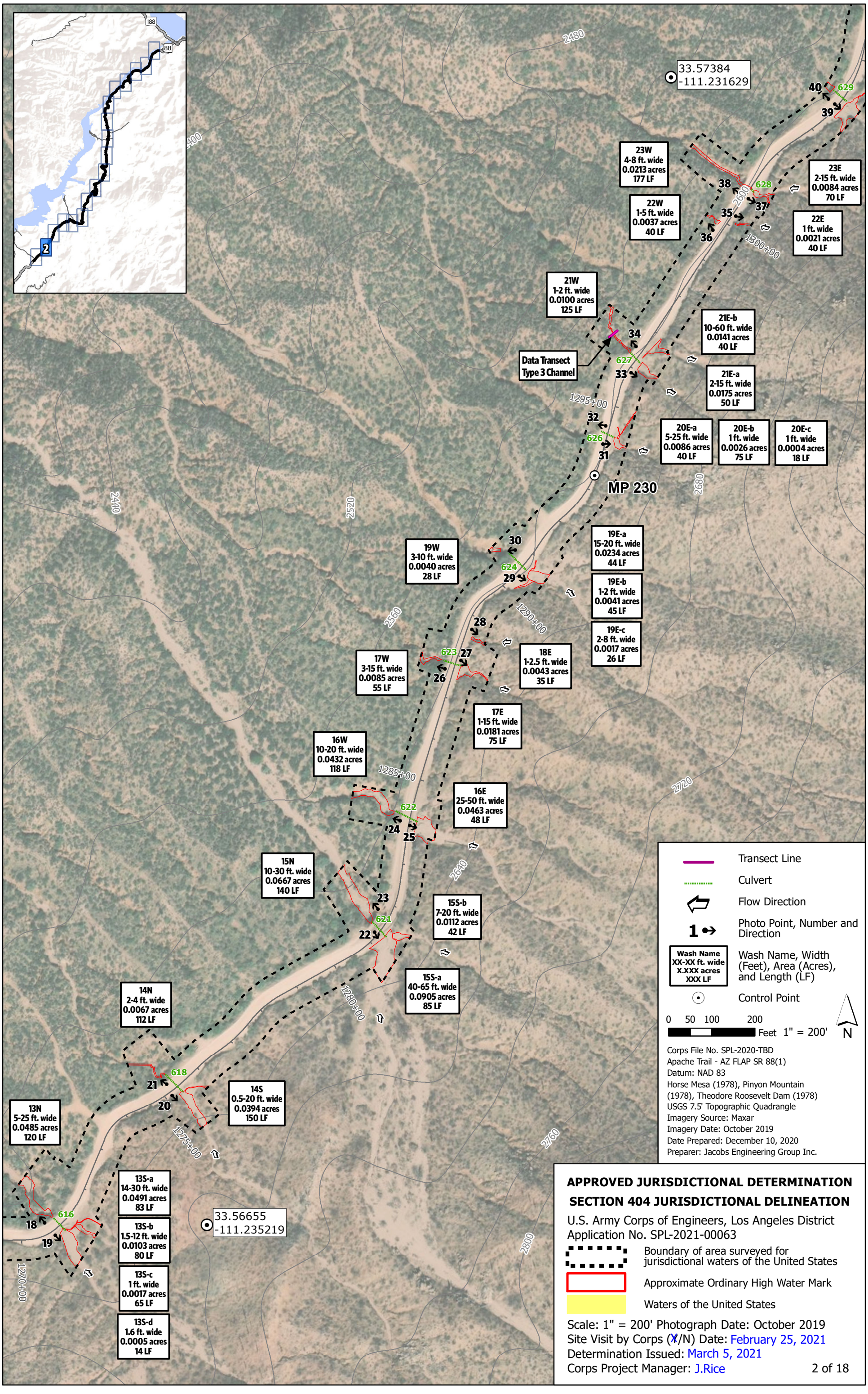
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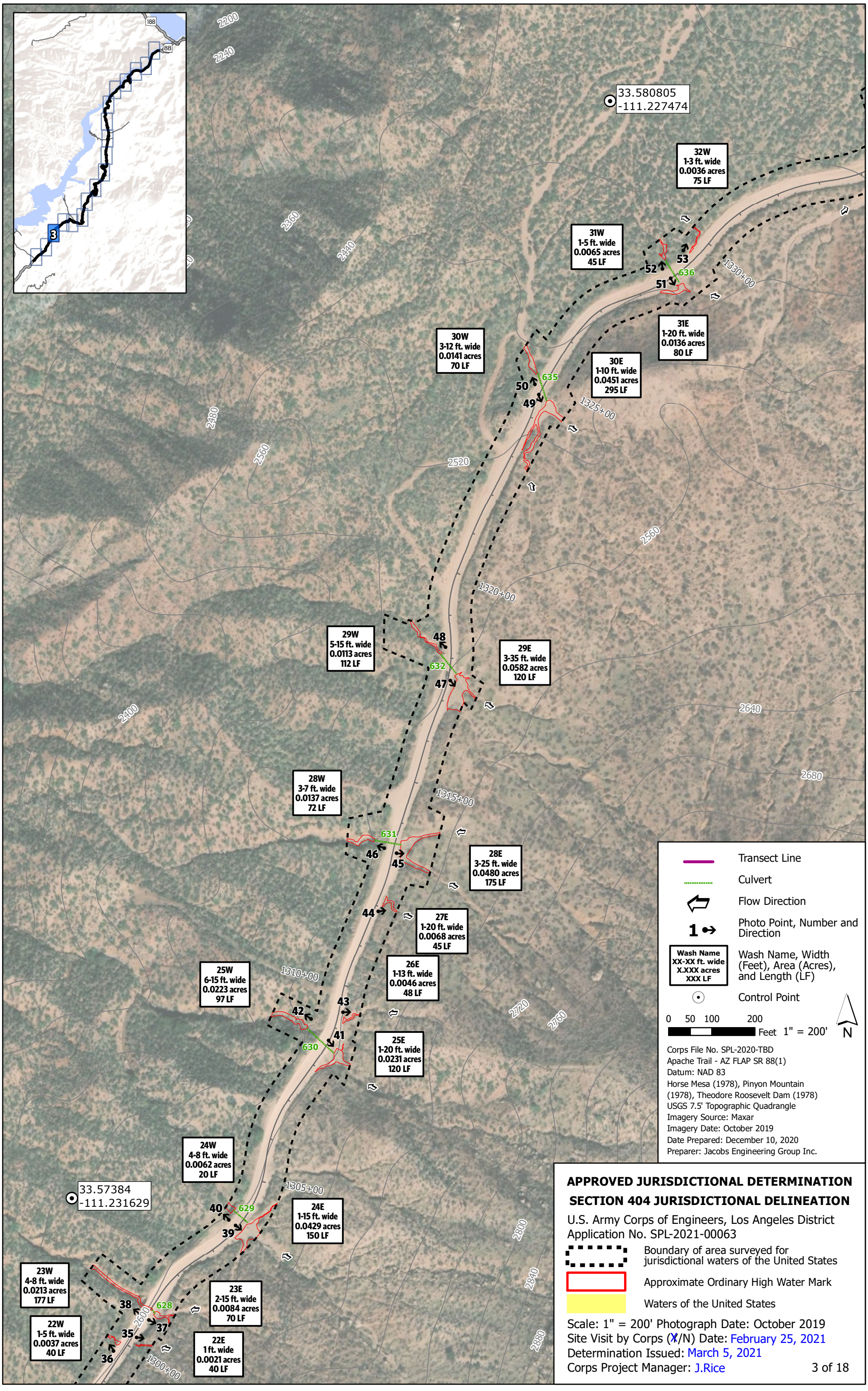
2400
2440
2520
2560
2600
2640
2680
2720
2760
2800
1300+00
1295+00
1290+00
1285+00
1280+00
1275+00
1270+00
40
629
39
38
628
37
35
36
34
627
33
32
626
31
30
624
29
28
623
27
26
25
24
623
22
621
21
618
20
19
616
18
23W
4-8 ft. wide
0.0213 acres
177 LF
22W
1-5 ft. wide
0.0037 acres
40 LF
23E
2-15 ft. wide
0.0084 acres
70 LF
22E
1 ft. wide
0.0021 acres
40 LF
21W
1-2 ft. wide
0.0100 acres
125 LF
Data Transect
Type 3 Channel
21E-b
10-60 ft. wide
0.0141 acres
40 LF
21E-a
2-15 ft. wide
0.0175 acres
50 LF
20E-a
5-25 ft. wide
0.0086 acres
40 LF
20E-b
1 ft. wide
0.0026 acres
75 LF
20E-c
1 ft. wide
0.0004 acres
18 LF
19W
3-10 ft. wide
0.0040 acres
28 LF
19E-a
15-20 ft. wide
0.0234 acres
44 LF
19E-b
1-2 ft. wide
0.0041 acres
45 LF
19E-c
2-8 ft. wide
0.0017 acres
26 LF
17W
3-15 ft. wide
0.0085 acres
55 LF
18E
1-2.5 ft. wide
0.0043 acres
35 LF
17E
1-15 ft. wide
0.0181 acres
75 LF
16W
10-20 ft. wide
0.0432 acres
118 LF
16E
25-50 ft. wide
0.0463 acres
48 LF
15N
10-30 ft. wide
0.0667 acres
140 LF
15S-b
7-20 ft. wide
0.0112 acres
42 LF
15S-a
40-65 ft. wide
0.0905 acres
85 LF
14N
2-4 ft. wide
0.0067 acres
112 LF
14S
0.5-20 ft. wide
0.0394 acres
150 LF
13N
5-25 ft. wide
0.0485 acres
120 LF
13S-a
14-30 ft. wide
0.0491 acres
83 LF
13S-b
1.5-12 ft. wide
0.0103 acres
80 LF
13S-c
1 ft. wide
0.0017 acres
65 LF
13S-d
1.6 ft. wide
0.0005 acres
14 LF
Transect Line
Culvert
Flow Direction
1 ↔ Photo Point, Number and Direction
Wash Name
XX-XX ft. wide
X.XXX acres
XXX LF
Wash Name, Width (Feet), Area (Acres), and Length (LF)
Control Point
0 50 100 200
Feet 1" = 200'
N
Corps File No. SPL-2020-TBD
Apache Trail - AZ FLAP SR 88(1)
Datum: NAD 83
Horse Mesa (1978), Pinyon Mountain (1978), Theodore Roosevelt Dam (1978)
USGS 7.5' Topographic Quadrangle
Imagery Source: Maxar
Imagery Date: October 2019
Date Prepared: December 10, 2020
Preparer: Jacobs Engineering Group Inc.
APPROVED JURISDICTIONAL DETERMINATION
SECTION 404 JURISDICTIONAL DELINEATION
U.S. Army Corps of Engineers, Los Angeles District
Application No. SPL-2021-00063
Boundary of area surveyed for jurisdictional waters of the United States
Approximate Ordinary High Water Mark
Waters of the United States
Scale: 1" = 200' Photograph Date: October 2019
Site Visit by Corps (Y/N) Date: February 25, 2021
Determination Issued: March 5, 2021
Corps Project Manager: J.Rice
2 of 18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88
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32W
1-3 ft. wide
0.0036 acres
75 LF
31W
1-5 ft. wide
0.0065 acres
45 LF
53
52
51
636
1330+00
31E
1-20 ft. wide
0.0136 acres
80 LF
30W
3-12 ft. wide
0.0141 acres
70 LF
30E
1-10 ft. wide
0.0451 acres
295 LF
635
50
49
1325+00
1320+00
29W
5-15 ft. wide
0.0113 acres
112 LF
48
632
47
29E
3-35 ft. wide
0.0582 acres
120 LF
28W
3-7 ft. wide
0.0137 acres
72 LF
1315+00
631
46
45
28E
3-25 ft. wide
0.0480 acres
175 LF
44
27E
1-20 ft. wide
0.0068 acres
45 LF
25W
6-15 ft. wide
0.0223 acres
97 LF
1310+00
26E
1-13 ft. wide
0.0046 acres
48 LF
43
42
41
630
25E
1-20 ft. wide
0.0231 acres
120 LF
24W
4-8 ft. wide
0.0062 acres
20 LF
33.57384
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1305+00
40
629
39
24E
1-15 ft. wide
0.0429 acres
150 LF
23W
4-8 ft. wide
0.0213 acres
177 LF
38
628
37
35
36
23E
2-15 ft. wide
0.0084 acres
70 LF
22W
1-5 ft. wide
0.0037 acres
40 LF
22E
1 ft. wide
0.0021 acres
40 LF
1300+00
2200
2240
2360
2440
2480
2560
2520
2400
2640
2680
2720
2760
2800
2840
2880
Transect Line
Culvert
Flow Direction
1
Photo Point, Number and Direction
Wash Name
XX-XX ft. wide
X.XXX acres
XXX LF
Wash Name, Width (Feet), Area (Acres), and Length (LF)
Control Point
0 50 100 200
Feet 1" = 200'
N
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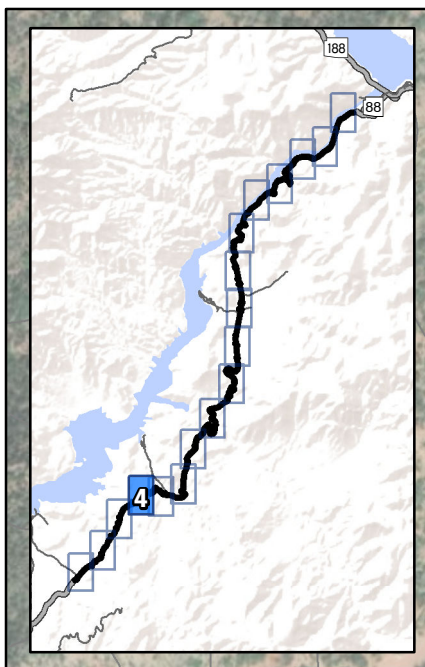

33.585945
-111.221949

MP 231

Data Transect
Type 2 Channel

33N	1-25 ft. wide, 0.1166 acres, 225 LF
33S	15-28 ft. wide, 0.1023 acres, 155 LF
34N	3-6 ft. wide, 0.0265 acres, 215 LF
34S	1-10 ft. wide, 0.0162 acres, 218 LF
35N	1-3 ft. wide, 0.0090 acres, 85 LF
36N	4-20 ft. wide, 0.0151 acres, 95 LF
36S	1-13 ft. wide, 0.0189 acres, 70 LF
37N	4-10 ft. wide, 0.0141 acres, 40 LF
37S	1-8 ft. wide, 0.0136 acres, 115 LF
38N	1-5 ft. wide, 0.0092 acres, 90 LF
38S	1-3 ft. wide, 0.0056 acres, 92 LF
39N	1-2 ft. wide, 0.0071 acres, 88 LF
40N-a	2-20 ft. wide, 0.0631 acres, 220 LF
40N-b	5-8 ft. wide, 0.0157 acres, 88 LF
40S	20-60 ft. wide, 0.1067 acres, 90 LF

Transect Line
Culvert
Flow Direction
1 → Photo Point, Number and Direction
Wash Name XX-XX ft. wide X.XXX acres XXX LF — Wash Name, Width (Feet), Area (Acres), and Length (LF)
Control Point

0 50 100 200 Feet 1" = 200'

N

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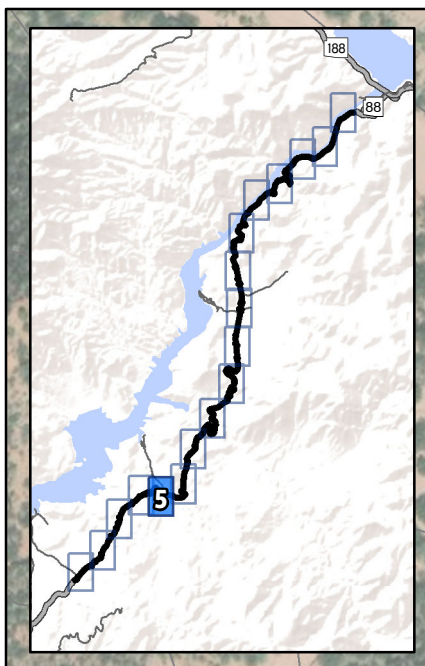

33.585668
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FR 250

2520
2600
2560
2320
2200
2280
2360
2480
2520
2560
2440

41N-a
2-4 ft. wide
0.0107 acres
100 LF

41N-b
1-3 ft. wide
0.0010 acres
38 LF

40N-a
2-20 ft. wide
0.0631 acres
220 LF

40N-b
5-8 ft. wide
0.0157 acres
88 LF

42N
1-4 ft. wide
0.0086 acres
48 LF

43S
1-12 ft. wide
0.0063 acres
73 LF

41S
10-15 ft. wide
0.0337 acres
68 LF

40S
20-60 ft. wide
0.1067 acres
90 LF

43N
3-6 ft. wide
0.0201 acres
120 LF

44N
2-4 ft. wide
0.0006 acres
5 LF

44S
1-5 ft. wide
0.0060 acres
85 LF

45N
150+ ft. wide
0.5266 acres
175 LF

45S
300 ft. wide
0.2912 acres
50 LF

46N
150 ft. wide
0.1753 acres
158 LF

47N
1-17 ft. wide
0.0153 acres
80 LF

46S
15-100 ft. wide
0.1060 acres
100 LF

48S
1-15 ft. wide
0.0959 acres
360 LF

1360+00
1365+00
1355+00
1370+00
2240

66 643 67
68 644 69 70
71 646
72 648 73
74 649 75
76 653 77 78 79

Transect Line
Culvert
Flow Direction
1 → Photo Point, Number and Direction
Wash Name XX-XX ft. wide X.XXX acres XXX LF — Wash Name, Width (Feet), Area (Acres), and Length (LF)
Control Point

0 50 100 200 Feet 1" = 200'

N

Corps File No. SPL-2020-TBD
Apache Trail - AZ FLAP SR 88(1)
Datum: NAD 83
Horse Mesa (1978), Pinyon Mountain (1978), Theodore Roosevelt Dam (1978) USGS 7.5' Topographic Quadrangle
Imagery Source: Maxar
Imagery Date: October 2019
Date Prepared: December 10, 2020
Preparer: Jacobs Engineering Group Inc.

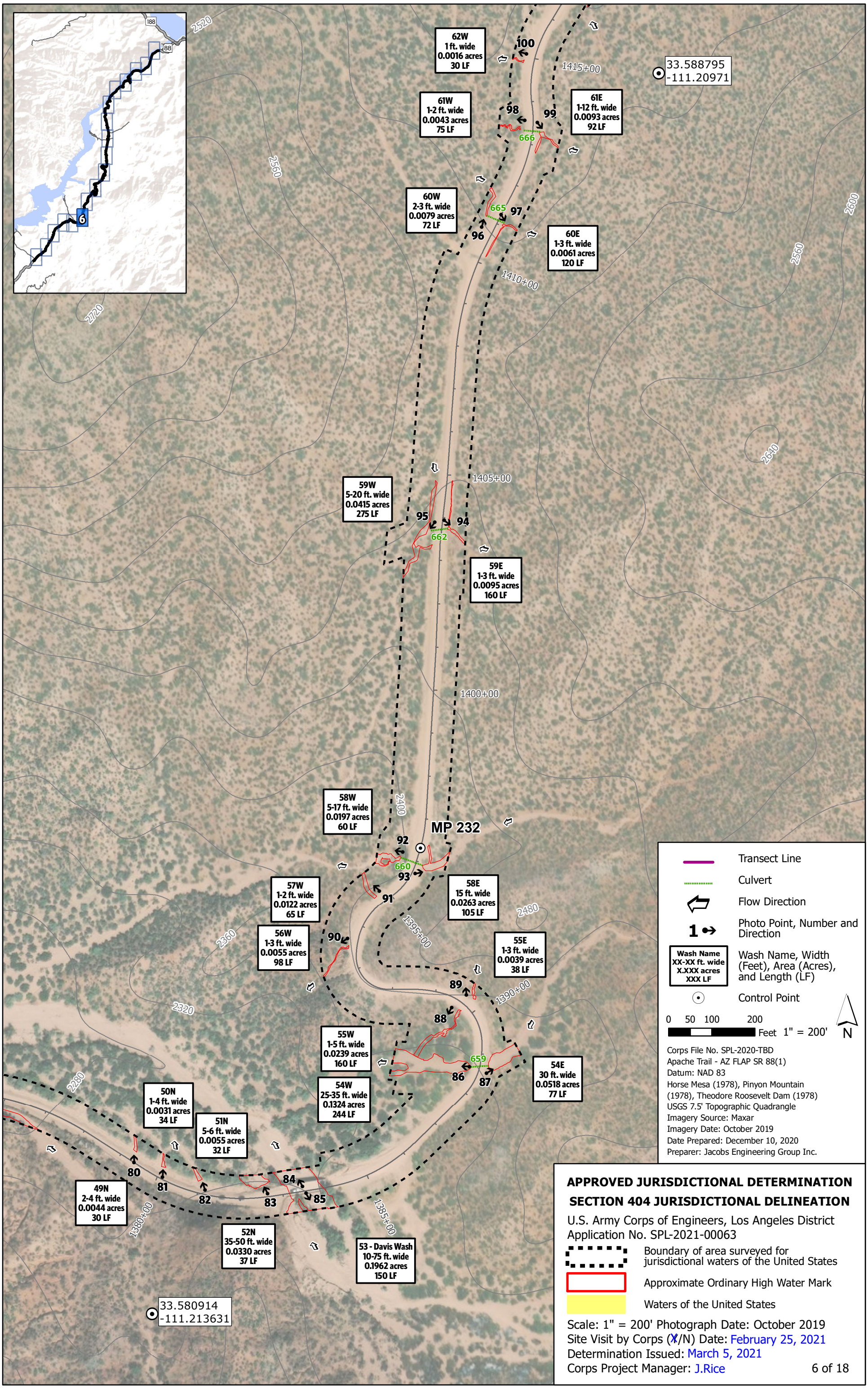
33.578712
-111.219224

APPROVED JURISDICTIONAL DETERMINATION
SECTION 404 JURISDICTIONAL DELINEATION

U.S. Army Corps of Engineers, Los Angeles District
Application No. SPL-2021-00063

Boundary of area surveyed for jurisdictional waters of the United States
Approximate Ordinary High Water Mark
Waters of the United States

Scale: 1" = 200' Photograph Date: October 2019
Site Visit by Corps (Y/N) Date: February 25, 2021
Determination Issued: March 5, 2021
Corps Project Manager: J.Rice


188
88
6
2520
2560
2720
62W
1 ft. wide
0.0016 acres
30 LF
100
1415+00
33.588795
-111.20971
61W
1-2 ft. wide
0.0043 acres
75 LF
98
99
666
61E
1-12 ft. wide
0.0093 acres
92 LF
60W
2-3 ft. wide
0.0079 acres
72 LF
665
97
96
60E
1-3 ft. wide
0.0061 acres
120 LF
1410+00
2600
2640
59W
5-20 ft. wide
0.0415 acres
275 LF
95
94
662
1405+00
59E
1-3 ft. wide
0.0095 acres
160 LF
1400+00
58W
5-17 ft. wide
0.0197 acres
60 LF
2400
MP 232
92
660
93
91
58E
15 ft. wide
0.0263 acres
105 LF
57W
1-2 ft. wide
0.0122 acres
65 LF
2480
56W
1-3 ft. wide
0.0055 acres
98 LF
90
2360
1395+00
55E
1-3 ft. wide
0.0039 acres
38 LF
89
1390+00
2320
88
55W
1-5 ft. wide
0.0239 acres
160 LF
659
86
87
54E
30 ft. wide
0.0518 acres
77 LF
54W
25-35 ft. wide
0.1324 acres
244 LF
2280
50N
1-4 ft. wide
0.0031 acres
34 LF
51N
5-6 ft. wide
0.0055 acres
32 LF
80
81
82
83
84
85
49N
2-4 ft. wide
0.0044 acres
30 LF
1380+00
52N
35-50 ft. wide
0.0330 acres
37 LF
1385+00
53 - Davis Wash
10-75 ft. wide
0.1962 acres
150 LF
33.580914
-111.213631
Transect Line
Culvert
Flow Direction
1
Photo Point, Number and Direction
Wash Name
XX-XX ft. wide
X.XXX acres
XXX LF
Wash Name, Width (Feet), Area (Acres), and Length (LF)
Control Point
0 50 100 200
Feet 1" = 200'
N
Corps File No. SPL-2020-TBD
Apache Trail - AZ FLAP SR 88(1)
Datum: NAD 83
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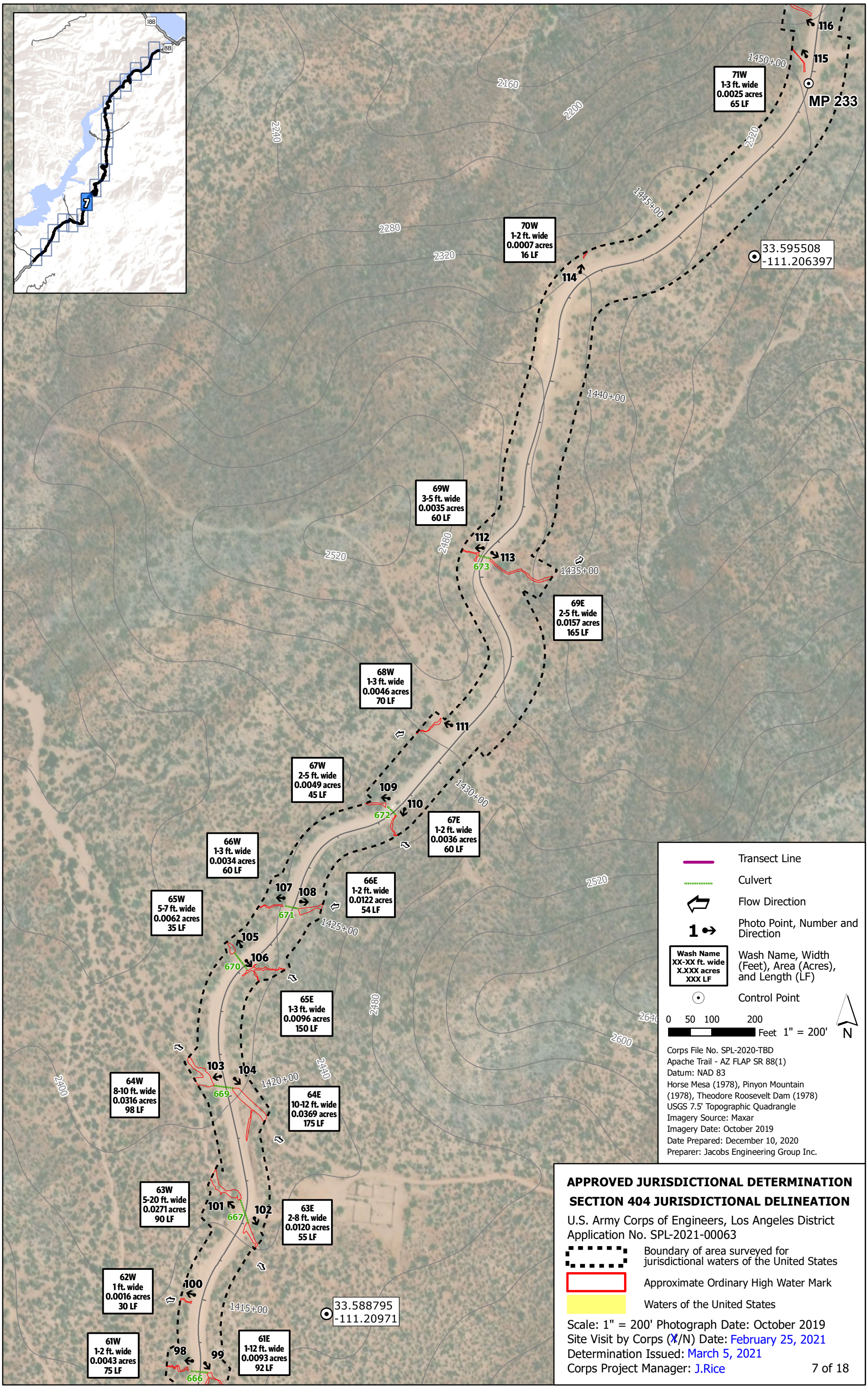
188
88
7
116
115
MP 233
1450+00
71W
1-3 ft. wide
0.0025 acres
65 LF
2160
2200
2240
2320
1445+00
70W
1-2 ft. wide
0.0007 acres
16 LF
2280
2320
33.595508
-111.206397
114
1440+00
69W
3-5 ft. wide
0.0035 acres
60 LF
112
113
673
2480
2520
1435+00
69E
2-5 ft. wide
0.0157 acres
165 LF
68W
1-3 ft. wide
0.0046 acres
70 LF
111
67W
2-5 ft. wide
0.0049 acres
45 LF
109
110
672
1430+00
67E
1-2 ft. wide
0.0036 acres
60 LF
66W
1-3 ft. wide
0.0034 acres
60 LF
66E
1-2 ft. wide
0.0122 acres
54 LF
65W
5-7 ft. wide
0.0062 acres
35 LF
107
108
671
1425+00
105
106
670
65E
1-3 ft. wide
0.0096 acres
150 LF
2480
2520
2600
2400
2440
103
104
669
1420+00
64W
8-10 ft. wide
0.0316 acres
98 LF
64E
10-12 ft. wide
0.0369 acres
175 LF
63W
5-20 ft. wide
0.0271 acres
90 LF
101
102
667
63E
2-8 ft. wide
0.0120 acres
55 LF
62W
1 ft. wide
0.0016 acres
30 LF
100
1415+00
33.588795
-111.20971
61W
1-2 ft. wide
0.0043 acres
75 LF
98
99
666
61E
1-12 ft. wide
0.0093 acres
92 LF
Transect Line
Culvert
Flow Direction
1
Photo Point, Number and Direction
Wash Name
XX-XX ft. wide
X.XXX acres
XXX LF
Wash Name, Width (Feet), Area (Acres), and Length (LF)
Control Point
0 50 100 200
Feet 1" = 200'
N
Corps File No. SPL-2020-TBD
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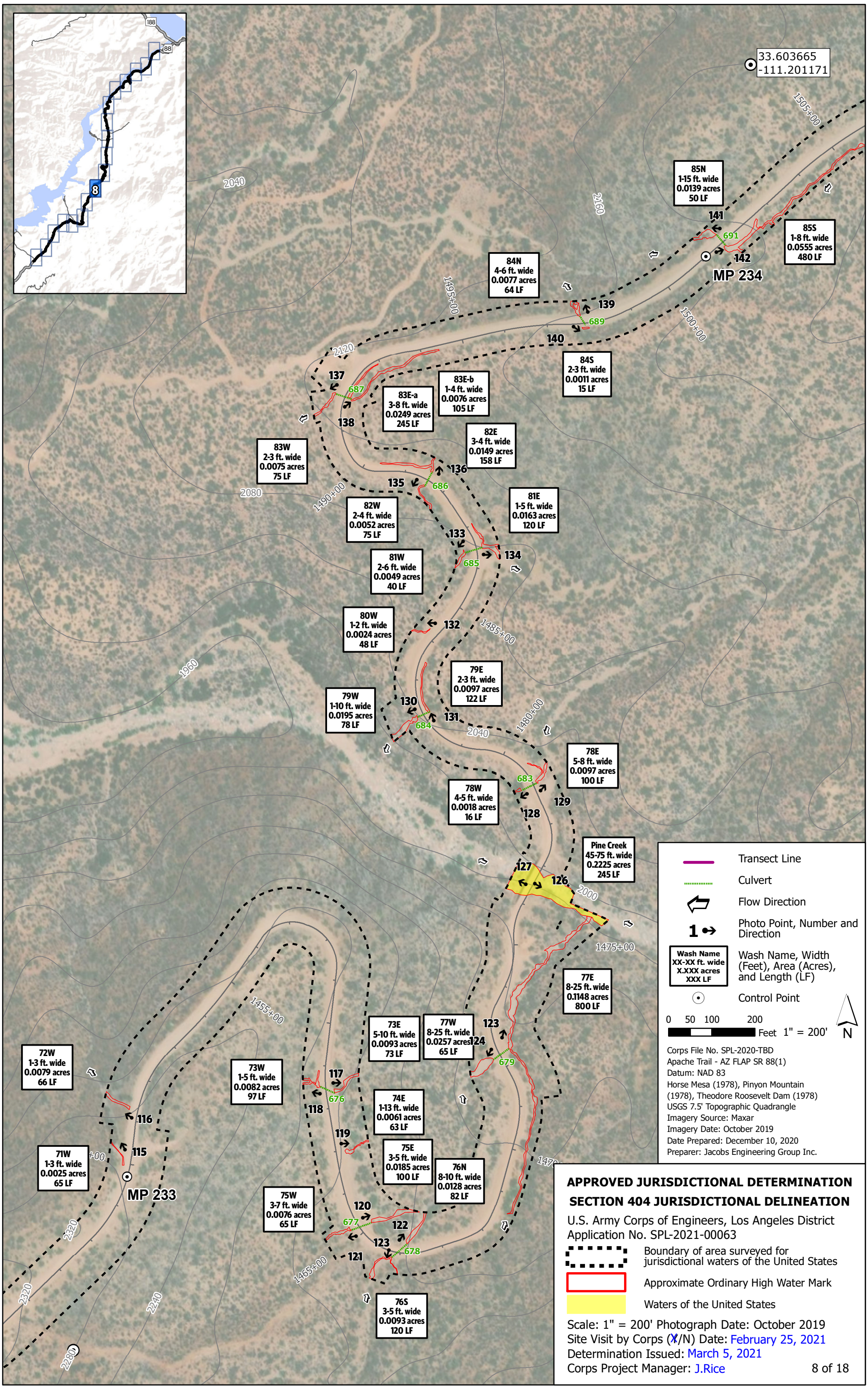
33.603665
-111.201171
MP 234
MP 233
85N
1-15 ft. wide
0.0139 acres
50 LF
85S
1-8 ft. wide
0.0555 acres
480 LF
84N
4-6 ft. wide
0.0077 acres
64 LF
84S
2-3 ft. wide
0.0011 acres
15 LF
83E-b
1-4 ft. wide
0.0076 acres
105 LF
83E-a
3-8 ft. wide
0.0249 acres
245 LF
83W
2-3 ft. wide
0.0075 acres
75 LF
82E
3-4 ft. wide
0.0149 acres
158 LF
82W
2-4 ft. wide
0.0052 acres
75 LF
81E
1-5 ft. wide
0.0163 acres
120 LF
81W
2-6 ft. wide
0.0049 acres
40 LF
80W
1-2 ft. wide
0.0024 acres
48 LF
79E
2-3 ft. wide
0.0097 acres
122 LF
79W
1-10 ft. wide
0.0195 acres
78 LF
78E
5-8 ft. wide
0.0097 acres
100 LF
78W
4-5 ft. wide
0.0018 acres
16 LF
Pine Creek
45-75 ft. wide
0.2225 acres
245 LF
77E
8-25 ft. wide
0.1148 acres
800 LF
77W
8-25 ft. wide
0.0257 acres
65 LF
73E
5-10 ft. wide
0.0093 acres
73 LF
74E
1-13 ft. wide
0.0061 acres
63 LF
73W
1-5 ft. wide
0.0082 acres
97 LF
72W
1-3 ft. wide
0.0079 acres
66 LF
71W
1-3 ft. wide
0.0025 acres
65 LF
75E
3-5 ft. wide
0.0185 acres
100 LF
76N
8-10 ft. wide
0.0128 acres
82 LF
75W
3-7 ft. wide
0.0076 acres
65 LF
76S
3-5 ft. wide
0.0093 acres
120 LF
141
142
139
140
137
138
136
135
134
133
132
131
130
129
128
127
126
124
123
122
121
120
119
118
117
116
115
691
689
687
686
685
684
683
679
678
677
676
1505+00
1500+00
1495+00
1490+00
1485+00
1480+00
1475+00
1470+00
1465+00
1455+00
2160
2120
2080
2040
2000
1960
2320
2240
2280
Transect Line
Culvert
Flow Direction
Photo Point, Number and Direction
Wash Name XX-XX ft. wide X.XXX acres XXX LF
Wash Name, Width (Feet), Area (Acres), and Length (LF)
Control Point
0 50 100 200
Feet 1" = 200'
N
Corps File No. SPL-2020-TBD
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U.S. Army Corps of Engineers, Los Angeles District
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Waters of the United States
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Corps Project Manager: J.Rice
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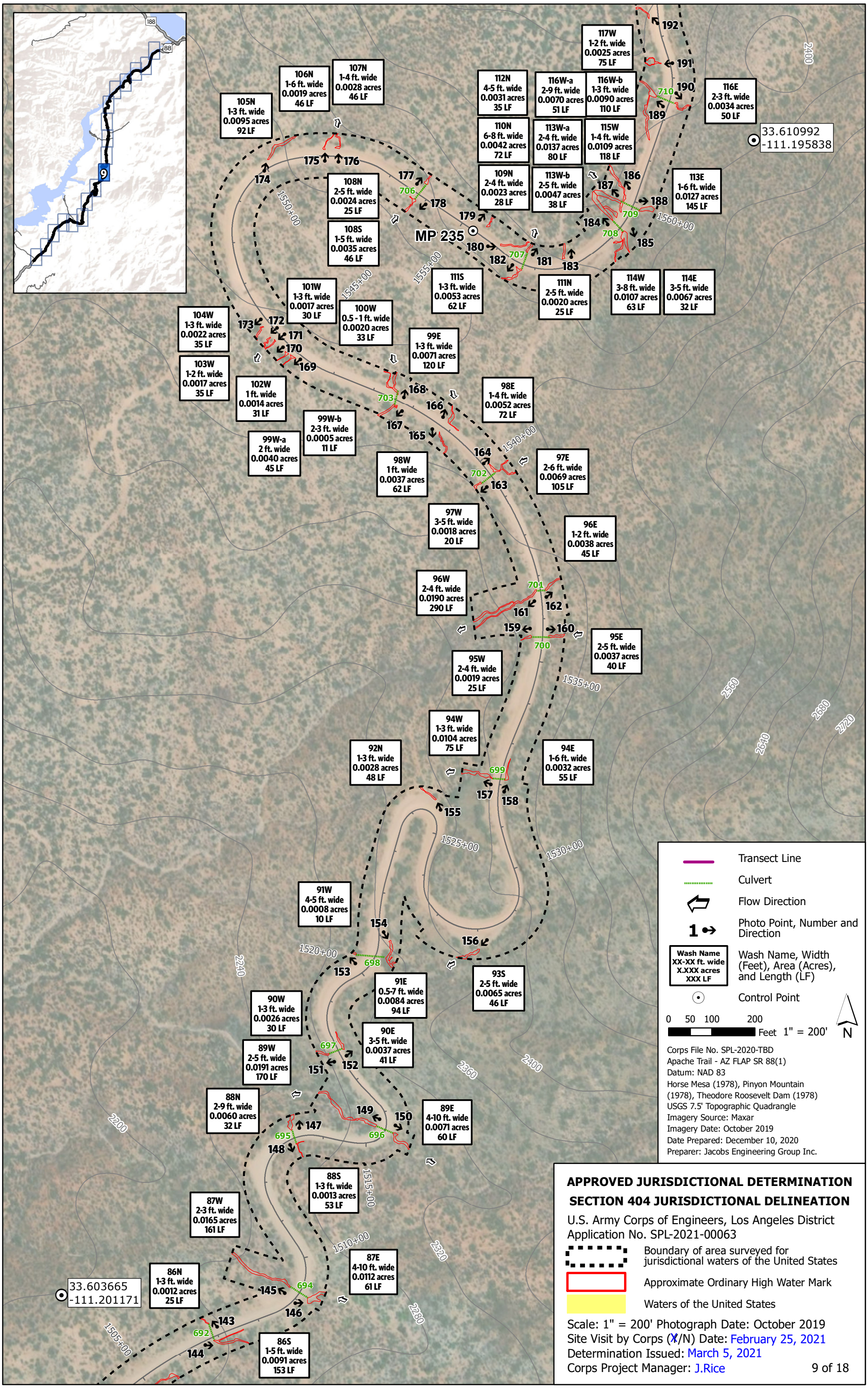
105N
1-3 ft. wide
0.0095 acres
92 LF
106N
1-6 ft. wide
0.0019 acres
46 LF
107N
1-4 ft. wide
0.0028 acres
46 LF
108N
2-5 ft. wide
0.0024 acres
25 LF
108S
1-5 ft. wide
0.0035 acres
46 LF
101W
1-3 ft. wide
0.0017 acres
30 LF
100W
0.5 - 1 ft. wide
0.0020 acres
33 LF
104W
1-3 ft. wide
0.0022 acres
35 LF
103W
1-2 ft. wide
0.0017 acres
35 LF
102W
1 ft. wide
0.0014 acres
31 LF
99W-a
2 ft. wide
0.0040 acres
45 LF
99W-b
2-3 ft. wide
0.0005 acres
11 LF
99E
1-3 ft. wide
0.0071 acres
120 LF
98W
1 ft. wide
0.0037 acres
62 LF
98E
1-4 ft. wide
0.0052 acres
72 LF
97W
3-5 ft. wide
0.0018 acres
20 LF
97E
2-6 ft. wide
0.0069 acres
105 LF
96W
2-4 ft. wide
0.0190 acres
290 LF
96E
1-2 ft. wide
0.0038 acres
45 LF
95W
2-4 ft. wide
0.0019 acres
25 LF
95E
2-5 ft. wide
0.0037 acres
40 LF
94W
1-3 ft. wide
0.0104 acres
75 LF
94E
1-6 ft. wide
0.0032 acres
55 LF
92N
1-3 ft. wide
0.0028 acres
48 LF
91W
4-5 ft. wide
0.0008 acres
10 LF
91E
0.5-7 ft. wide
0.0084 acres
94 LF
90W
1-3 ft. wide
0.0026 acres
30 LF
90E
3-5 ft. wide
0.0037 acres
41 LF
89W
2-5 ft. wide
0.0191 acres
170 LF
89E
4-10 ft. wide
0.0071 acres
60 LF
88N
2-9 ft. wide
0.0060 acres
32 LF
88S
1-3 ft. wide
0.0013 acres
53 LF
87W
2-3 ft. wide
0.0165 acres
161 LF
87E
4-10 ft. wide
0.0112 acres
61 LF
86N
1-3 ft. wide
0.0012 acres
25 LF
86S
1-5 ft. wide
0.0091 acres
153 LF
111S
1-3 ft. wide
0.0053 acres
62 LF
111N
2-5 ft. wide
0.0020 acres
25 LF
112N
4-5 ft. wide
0.0031 acres
35 LF
110N
6-8 ft. wide
0.0042 acres
72 LF
109N
2-4 ft. wide
0.0023 acres
28 LF
116W-a
2-9 ft. wide
0.0070 acres
51 LF
116W-b
1-3 ft. wide
0.0090 acres
110 LF
113W-a
2-4 ft. wide
0.0137 acres
80 LF
113W-b
2-5 ft. wide
0.0047 acres
38 LF
117W
1-2 ft. wide
0.0025 acres
75 LF
115W
1-4 ft. wide
0.0109 acres
118 LF
116E
2-3 ft. wide
0.0034 acres
50 LF
113E
1-6 ft. wide
0.0127 acres
145 LF
114W
3-8 ft. wide
0.0107 acres
63 LF
114E
3-5 ft. wide
0.0067 acres
32 LF
MP 235
33.610992
-111.195838
33.603665
-111.201171
1550+00
1545+00
1555+00
1560+00
1540+00
1535+00
1530+00
1525+00
1520+00
1515+00
1510+00
1505+00
2400
2560
2680
2720
2640
2240
2360
2200
2320
2280
Transect Line
Culvert
Flow Direction
Photo Point, Number and Direction
Wash Name XX-XX ft. wide X.XXX acres XXX LF
Wash Name, Width (Feet), Area (Acres), and Length (LF)
Control Point
0 50 100 200
Feet 1" = 200'
N
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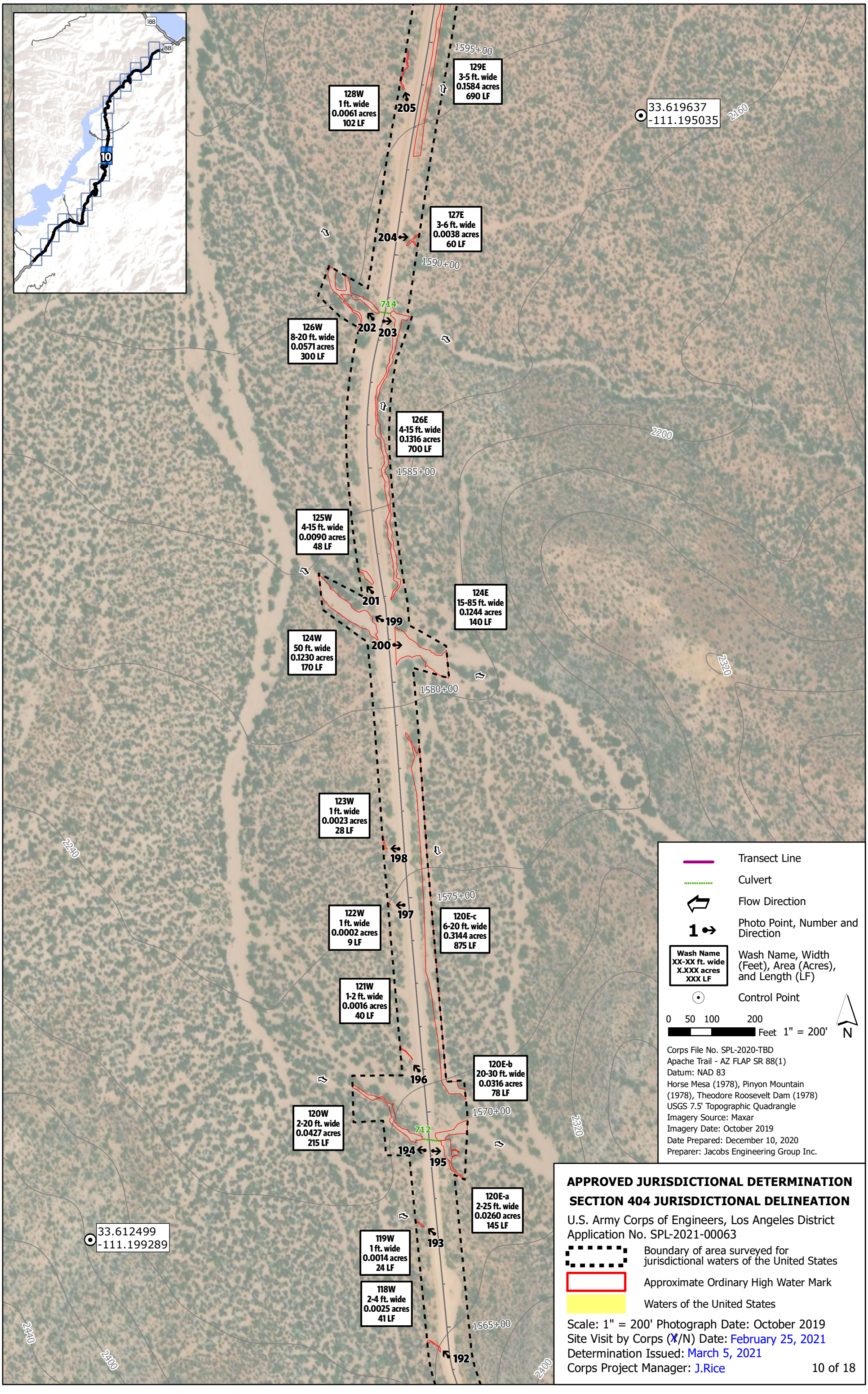
188
88
10
128W
1 ft. wide
0.0061 acres
102 LF
205
1595+00
129E
3-5 ft. wide
0.1584 acres
690 LF
33.619637
-111.195035
2160
204
127E
3-6 ft. wide
0.0038 acres
60 LF
1590+00
714
126W
8-20 ft. wide
0.0571 acres
300 LF
202
203
126E
4-15 ft. wide
0.1316 acres
700 LF
1585+00
2200
125W
4-15 ft. wide
0.0090 acres
48 LF
201
124E
15-85 ft. wide
0.1244 acres
140 LF
199
124W
50 ft. wide
0.1230 acres
170 LF
200
1580+00
2320
123W
1 ft. wide
0.0023 acres
28 LF
2240
198
1575+00
122W
1 ft. wide
0.0002 acres
9 LF
197
120E-c
6-20 ft. wide
0.3144 acres
875 LF
121W
1-2 ft. wide
0.0016 acres
40 LF
196
120E-b
20-30 ft. wide
0.0316 acres
78 LF
120W
2-20 ft. wide
0.0427 acres
215 LF
1570+00
712
194
195
120E-a
2-25 ft. wide
0.0260 acres
145 LF
33.612499
-111.199289
119W
1 ft. wide
0.0014 acres
24 LF
193
118W
2-4 ft. wide
0.0025 acres
41 LF
1565+00
2440
2400
192
Transect Line
Culvert
Flow Direction
1
Photo Point, Number and Direction
Wash Name
XX-XX ft. wide
X.XXX acres
XXX LF
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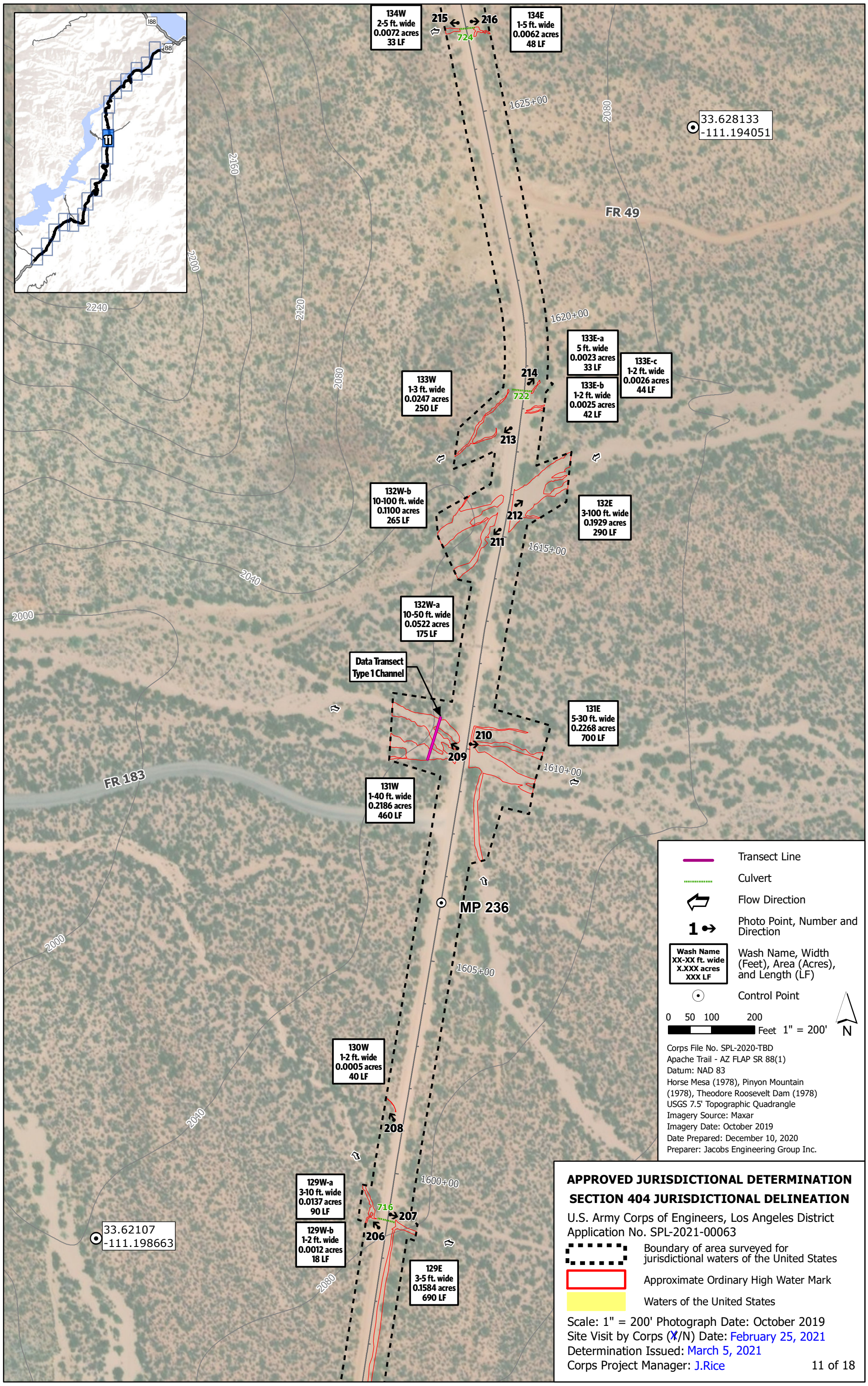
134W
2-5 ft. wide
0.0072 acres
33 LF
134E
1-5 ft. wide
0.0062 acres
48 LF
215
216
724
1625+00
2080
33.628133
-111.194051
FR 49
2160
2200
2240
2120
1620+00
133E-a
5 ft. wide
0.0023 acres
33 LF
133E-c
1-2 ft. wide
0.0026 acres
44 LF
133E-b
1-2 ft. wide
0.0025 acres
42 LF
133W
1-3 ft. wide
0.0247 acres
250 LF
214
722
213
132W-b
10-100 ft. wide
0.1100 acres
265 LF
132E
3-100 ft. wide
0.1929 acres
290 LF
212
211
1615+00
2040
2000
132W-a
10-50 ft. wide
0.0522 acres
175 LF
Data Transect
Type 1 Channel
131E
5-30 ft. wide
0.2268 acres
700 LF
210
209
1610+00
FR 183
131W
1-40 ft. wide
0.2186 acres
460 LF
MP 236
1605+00
130W
1-2 ft. wide
0.0005 acres
40 LF
208
2040
1600+00
129W-a
3-10 ft. wide
0.0137 acres
90 LF
716
207
206
129W-b
1-2 ft. wide
0.0012 acres
18 LF
33.62107
-111.198663
2080
129E
3-5 ft. wide
0.1584 acres
690 LF
Transect Line
Culvert
Flow Direction
Photo Point, Number and Direction
Wash Name
XX-XX ft. wide
X.XXX acres
XXX LF
Wash Name, Width (Feet), Area (Acres), and Length (LF)
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Corps Project Manager: J.Rice
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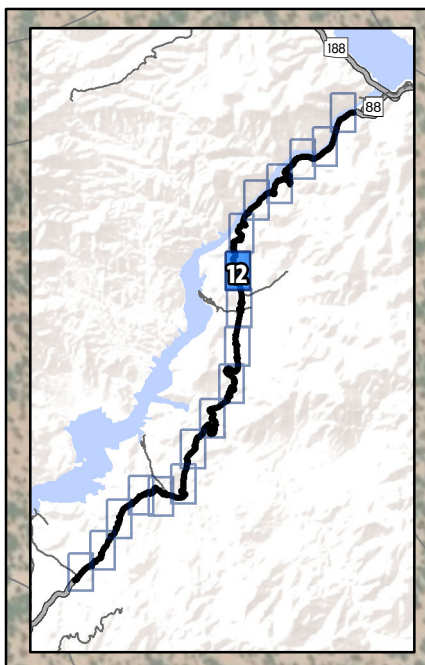

MP 237

138E-b
2-5 ft. wide
0.0097 acres
125 LF

138W
3-8 ft. wide
0.0374 acres
125 LF

138E
3-5 ft. wide
0.0064 acres
44 LF

224
223
730

33.636622
-111.194055

2400
2320
2360
2350
2240
2280
2200
2160
2120
2080
2040
2000

1655+00
1650+00
1645+00
1640+00
1635+00
1630+00

137W
4-14 ft. wide
0.0263 acres
160 LF

137E
6-12 ft. wide
0.0624 acres
245 LF

729
221
222

136W
3-5 ft. wide
0.0171 acres
126 LF

136E-a
3-5 ft. wide
0.0046 acres
48 LF

136E-b
1-4 ft. wide
0.0017 acres
25 LF

727
219
220

135W-a
3-20 ft. wide
0.0667 acres
168 LF

135E
30-40 ft. wide
0.1027 acres
202 LF

217
218

135W-b
2-4 ft. wide
0.0010 acres
21 LF

33.62965
-111.198713

134W
2-5 ft. wide
0.0072 acres
33 LF

215
216
724

Transect Line
Culvert
Flow Direction
1 Photo Point, Number and Direction
Wash Name XX-XX ft. wide X.XXX acres XXX LF — Wash Name, Width (Feet), Area (Acres), and Length (LF)
Control Point

0 50 100 200 Feet 1" = 200'

N

Corps File No. SPL-2020-TBD
Apache Trail - AZ FLAP SR 88(1)
Datum: NAD 83
Horse Mesa (1978), Pinyon Mountain (1978), Theodore Roosevelt Dam (1978)
USGS 7.5' Topographic Quadrangle
Imagery Source: Maxar
Imagery Date: October 2019
Date Prepared: December 10, 2020
Preparer: Jacobs Engineering Group Inc.

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SECTION 404 JURISDICTIONAL DELINEATION

U.S. Army Corps of Engineers, Los Angeles District
Application No. SPL-2021-00063

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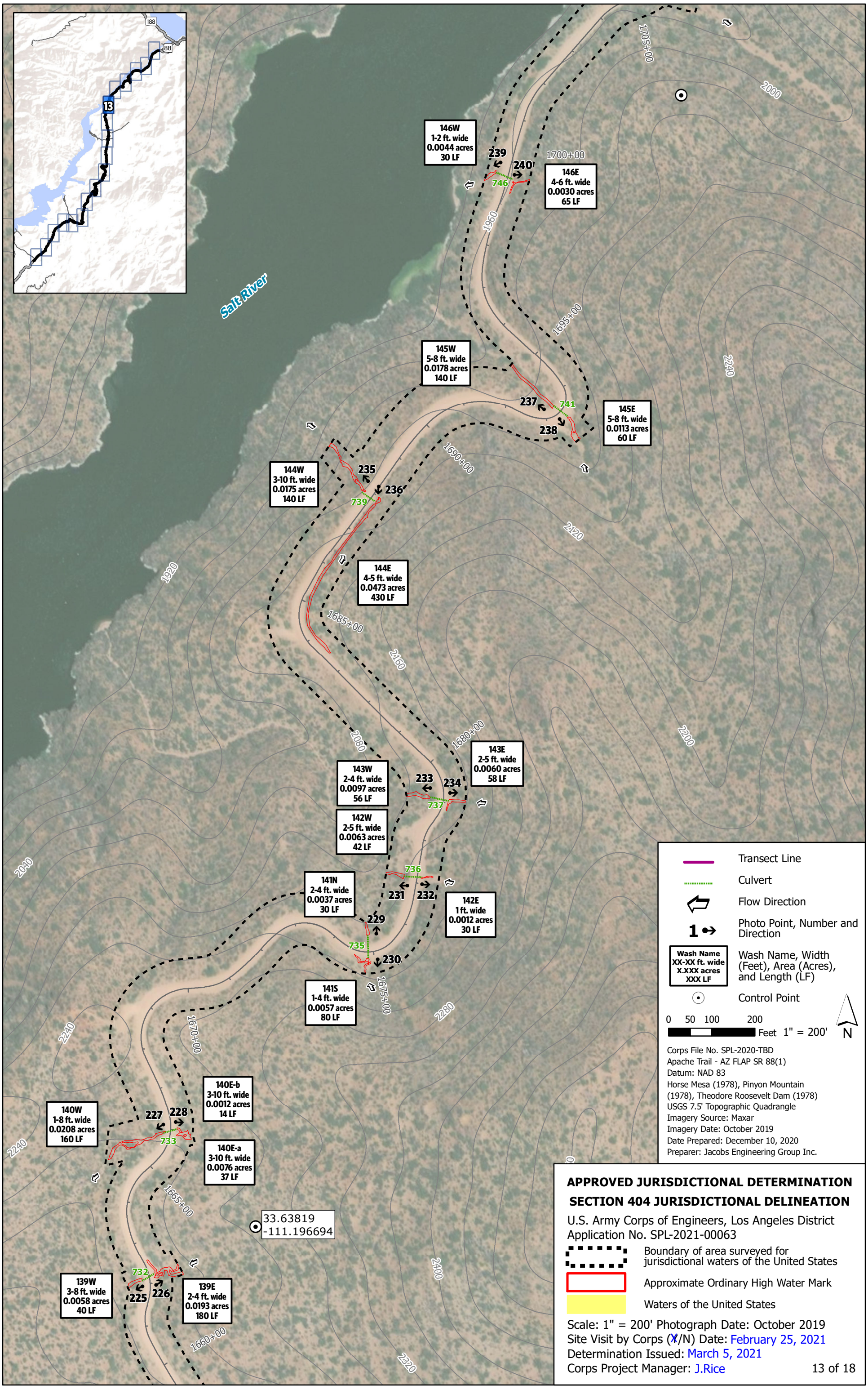
188
88
13
Salt River
146W
1-2 ft. wide
0.0044 acres
30 LF
239
240
746
146E
4-6 ft. wide
0.0030 acres
65 LF
1700+00
1705+00
2000
1960
1695+00
145W
5-8 ft. wide
0.0178 acres
140 LF
237
741
238
145E
5-8 ft. wide
0.0113 acres
60 LF
144W
3-10 ft. wide
0.0175 acres
140 LF
235
236
739
1690+00
2120
144E
4-5 ft. wide
0.0473 acres
430 LF
1920
1685+00
2160
2080
1680+00
143E
2-5 ft. wide
0.0060 acres
58 LF
143W
2-4 ft. wide
0.0097 acres
56 LF
233
234
737
142W
2-5 ft. wide
0.0063 acres
42 LF
2200
2040
736
141N
2-4 ft. wide
0.0037 acres
30 LF
231
232
142E
1 ft. wide
0.0012 acres
30 LF
229
735
230
1675+00
141S
1-4 ft. wide
0.0057 acres
80 LF
2280
1670+00
2240
140E-b
3-10 ft. wide
0.0012 acres
14 LF
140W
1-8 ft. wide
0.0208 acres
160 LF
227
228
733
140E-a
3-10 ft. wide
0.0076 acres
37 LF
1665+00
33.63819
-111.196694
2400
732
139W
3-8 ft. wide
0.0058 acres
40 LF
225
226
139E
2-4 ft. wide
0.0193 acres
180 LF
1660+00
2320
Transect Line
Culvert
Flow Direction
1
Photo Point, Number and Direction
Wash Name
XX-XX ft. wide
X.XXX acres
XXX LF
Wash Name, Width (Feet), Area (Acres), and Length (LF)
Control Point
0 50 100 200
Feet 1" = 200'
N
Corps File No. SPL-2020-TBD
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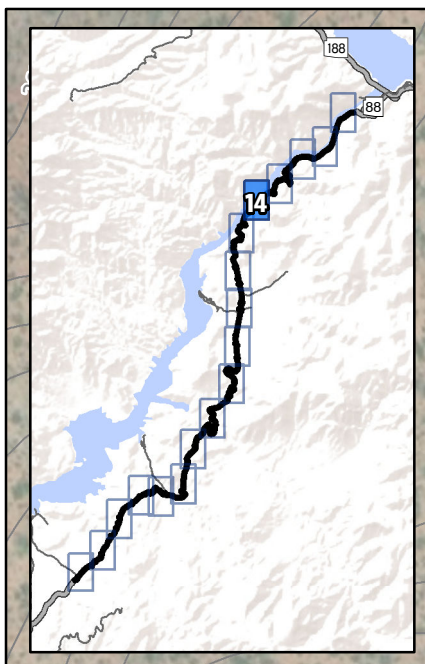

33.652699
-111.190071

2320
2280
2240
2200
1960
2160
2120
2040
1920
2080
1730+00
1725+00
1720+00
1715+00
1710+00
1705+00
1700+00
2280
2160
2240
2120
2200

Salt River

153W
1-3 ft. wide
0.0048 acres
22 LF

152W
3-8 ft. wide
0.0071 acres
60 LF

153E
1-3 ft. wide
0.0087 acres
63 LF

151W
1-2 ft. wide
0.0020 acres
25 LF

152E
1-5 ft. wide
0.0117 acres
100 LF

150W
2-3 ft. wide
0.0013 acres
21 LF

151E
1-2 ft. wide
0.0008 acres
30 LF

150E
1-3 ft. wide
0.0040 acres
68 LF

149W
1-3 ft. wide
0.0023 acres
38 LF

149E
1-3 ft. wide
0.0019 acres
36 LF

148W
1-3 ft. wide
0.0043 acres
48 LF

148E
1-5 ft. wide
0.0047 acres
64 LF

147W
5-80 ft. wide
0.0628 acres
93 LF

147E
5-10 ft. wide
0.0074 acres
78 LF

252
760
252
250
759
251
248
758
249
757
246
247
756
245
243
753
MP 238
244
241
242
748

33.645377
-111.193392

Transect Line
Culvert
Flow Direction
1 → Photo Point, Number and Direction
Wash Name XX-XX ft. wide X.XXX acres XXX LF — Wash Name, Width (Feet), Area (Acres), and Length (LF)
Control Point

0 50 100 200
Feet 1" = 200'

N

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Imagery Date: October 2019
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Waters of the United States

Scale: 1" = 200' Photograph Date: October 2019
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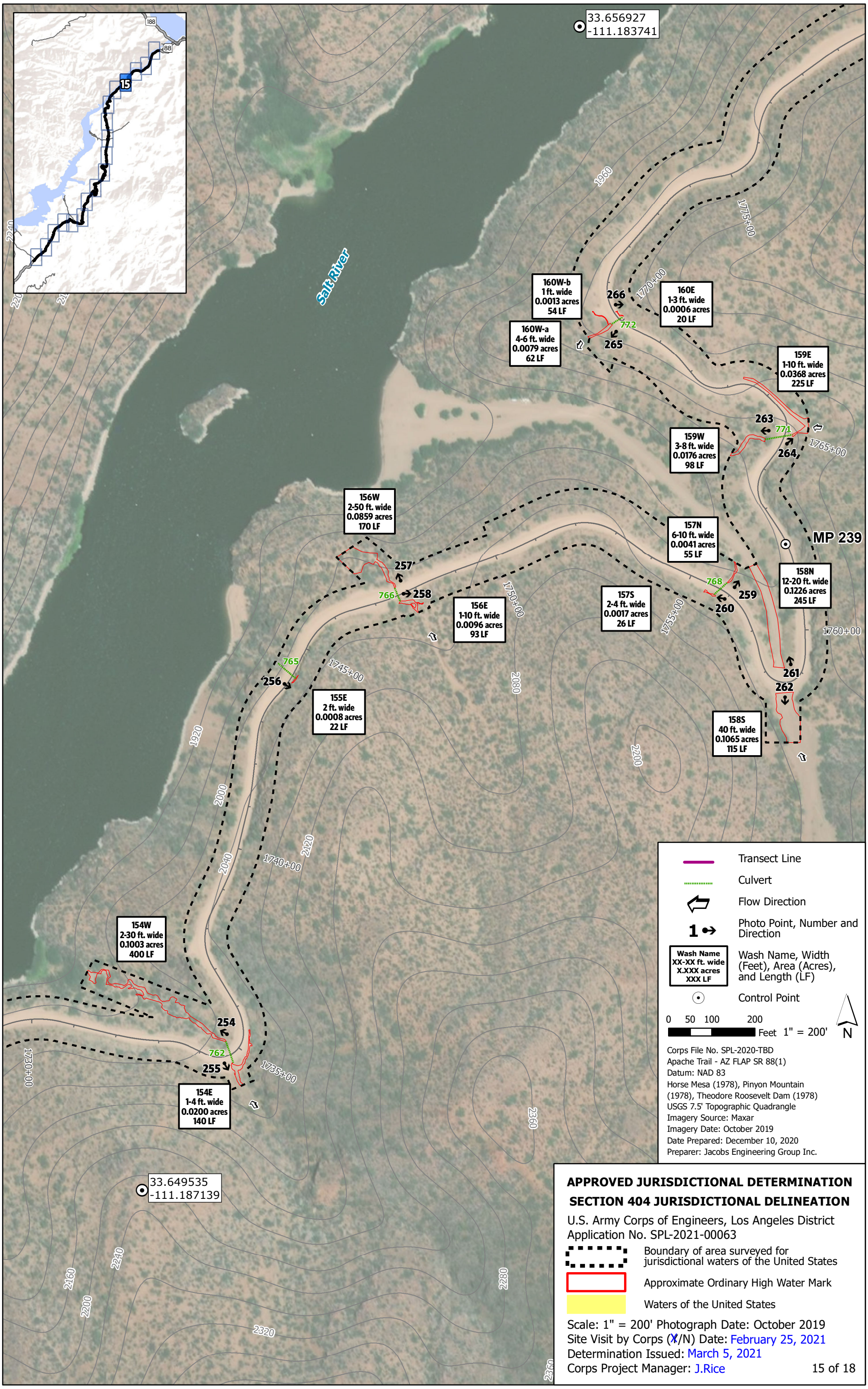
Corps Project Manager: J.Rice


33.656927
-111.183741
Salt River
160W-b
1 ft. wide
0.0013 acres
54 LF
160W-a
4-6 ft. wide
0.0079 acres
62 LF
160E
1-3 ft. wide
0.0006 acres
20 LF
159E
1-10 ft. wide
0.0368 acres
225 LF
159W
3-8 ft. wide
0.0176 acres
98 LF
156W
2-50 ft. wide
0.0859 acres
170 LF
157N
6-10 ft. wide
0.0041 acres
55 LF
157S
2-4 ft. wide
0.0017 acres
26 LF
156E
1-10 ft. wide
0.0096 acres
93 LF
158N
12-20 ft. wide
0.1226 acres
245 LF
158S
40 ft. wide
0.1065 acres
115 LF
155E
2 ft. wide
0.0008 acres
22 LF
154W
2-30 ft. wide
0.1003 acres
400 LF
154E
1-4 ft. wide
0.0200 acres
140 LF
MP 239
33.649535
-111.187139
Transect Line
Culvert
Flow Direction
Photo Point, Number and Direction
Wash Name XX-XX ft. wide X.XXX acres XXX LF
Wash Name, Width (Feet), Area (Acres), and Length (LF)
Control Point
0 50 100 200
Feet 1" = 200'
N
Corps File No. SPL-2020-TBD
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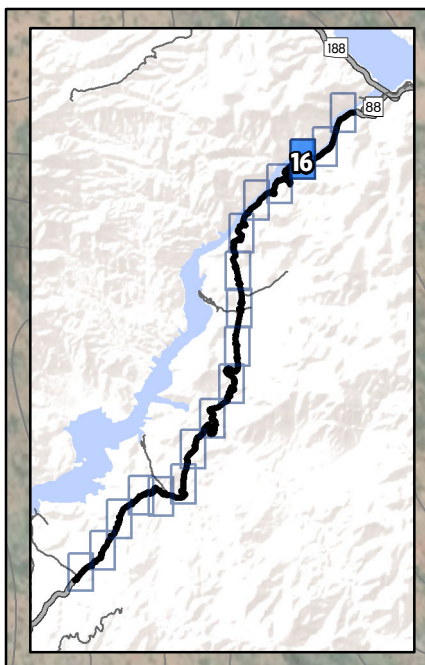

2320
2240
2280
2160
2200
33.661932
-111.177005
2120
2000
Salt River
1920
1960
2040
2080
2160
2120
2200
2240
2280
2400
2480
2440
2360
1795+00
1790+00
1785+00
1780+00
1800+00

163N
8-12 ft. wide
0.0098 acres
25 LF

271
776
272

163S
1-8 ft. wide
0.0128 acres
96 LF

164N-a
3-10 ft. wide
0.0169 acres
58 LF

164N-b
1-2 ft. wide
0.0014 acres
36 LF

165N
4-10 ft. wide
0.0065 acres
58 LF

274
777
273
275
778
276

164S
4-8 ft. wide
0.0066 acres
33 LF

165S
8-10 ft. wide
0.0106 acres
53 LF

162W
3-7 ft. wide
0.0189 acres
108 LF

161W
5-8 ft. wide
0.0186 acres
135 LF

269
270
775
267
268

162E
1-6 ft. wide
0.0073 acres
142 LF

161E
4-6 ft. wide
0.0177 acres
120 LF

33.654853
-111.180988

Transect Line

Culvert

Flow Direction

1 ↠ Photo Point, Number and Direction

Wash Name
XX-XX ft. wide
X.XXX acres
XXX LF
Wash Name, Width (Feet), Area (Acres), and Length (LF)

Control Point

0 50 100 200
Feet 1" = 200'

N

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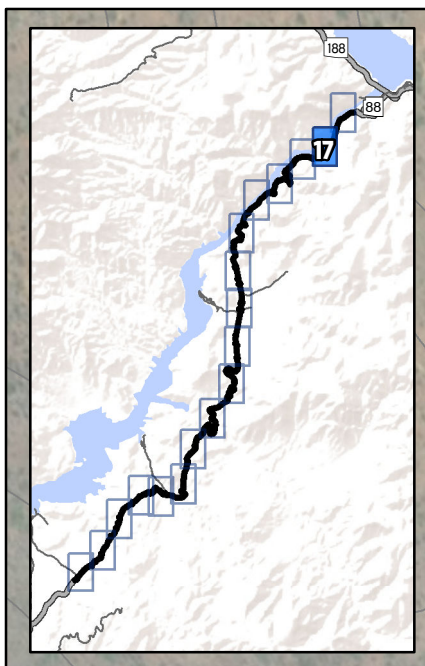

33.664838
-111.172041

Salt River

170W
3-6 ft. wide
0.0020 acres
32 LF

170E
1-2 ft. wide
0.0030 acres
40 LF

169W
3-5 ft. wide
0.0016 acres
20 LF

169E
1-4 ft. wide
0.0021 acres
33 LF

168W
5-15 ft. wide
0.0028 acres
16 LF

168E
2-5 ft. wide
0.0061 acres
60 LF

167W
4-6 ft. wide
0.0047 acres
40 LF

167E
2-16 ft. wide
0.0118 acres
88 LF

166W
5-13 ft. wide
0.0049 acres
24 LF

166E
2-6 ft. wide
0.0046 acres
53 LF

Wetland Vegetation
12-15 ft. wide
0.0433 acres
155 LF

165N
4-10 ft. wide
0.0065 acres
58 LF

165S
8-10 ft. wide
0.0106 acres
53 LF

Data Transect
Type 4 Channel

MP 240

289 288 287 285 787 286 1835+00 1830+00

283 284 786 1825+00

281 282 785 1920

279 280 784 1820+00

277 278 782 1815+00

296 1810+00

275 778 276 1805+00

1960 2200 2160 2120 2080 2040 2000 2280 2240 2200 2360 2320

Transect Line
Culvert
Flow Direction
1 Photo Point, Number and Direction
Wash Name XX-XX ft. wide X.XXX acres XXX LF — Wash Name, Width (Feet), Area (Acres), and Length (LF)
Control Point

0 50 100 200 Feet 1" = 200'

N

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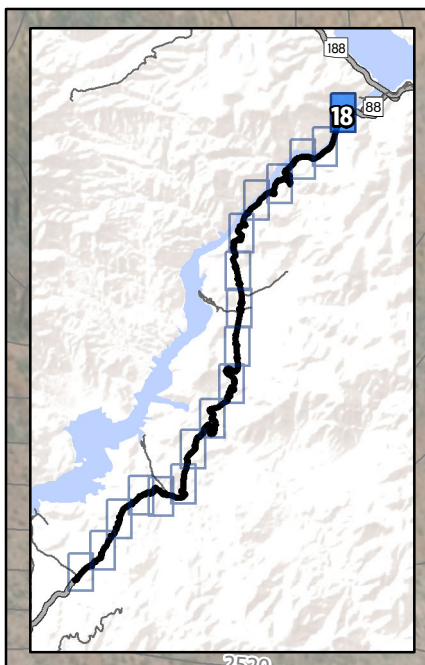

33.672268
-111.166002

2480
2600
2560
2400
2520
2440
2280
2360
2200
2080
2320
2040
2000
2240
2120
2160
1960
1920

Salt River

176N
2-3 ft. wide
0.0040 acres
32 LF

294
295

176S
2-3 ft. wide
0.0012 acres
13 LF

1855+00
1850+00
1845+00
1840+00
1835+00

175N
2-3 ft. wide
0.0030 acres
30 LF

292
790
293

175S
3-4 ft. wide
0.0040 acres
37 LF

174W
6-10 ft. wide
0.0042 acres
27 LF

174E
2-5 ft. wide
0.0099 acres
103 LF

290
788
291

173E-a
2-3 ft. wide
0.0032 acres
36 LF

33.665246
-111.168642

173E-c
1 ft. wide
0.0258 acres
485 LF

289

173E-b
1-2 ft. wide
0.0028 acres
36 LF

288

172E
4-10 ft. wide
0.0078 acres
40 LF

171E
7-12 ft. wide
0.0083 acres
35 LF

287

Transect Line
Culvert
Flow Direction
1 ➔ Photo Point, Number and Direction
Wash Name XX-XX ft. wide X.XXX acres XXX LF — Wash Name, Width (Feet), Area (Acres), and Length (LF)
Control Point

0 50 100 200
Feet 1" = 200'
N

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U.S. ARMY CORPS OF ENGINEERS
REGULATORY PROGRAM
APPROVED JURISDICTIONAL DETERMINATION FORM (INTERIM)
NAVIGABLE WATERS PROTECTION RULE

I. ADMINISTRATIVE INFORMATION

Completion Date of Approved Jurisdictional Determination (AJD): March 5, 2021
ORM Number: SPL-2021-00063
Associated JDs: N/A
Review Area Location[1]:
State/Territory: AZ City: N/A County/Parish/Borough: Maricopa County
Center Coordinates of Review Area: Latitude 33.618679 Longitude -111.1969

II. FINDINGS

A. Summary: Check all that apply. At least one box from the following list MUST be selected. Complete the corresponding sections/tables and summarize data sources.

- ☐ The review area is comprised entirely of dry land (i.e., there are no waters or water features, including wetlands, of any kind in the entire review area). Rationale: N/A or describe rationale.
- ☐ There are "navigable waters of the United States" within Rivers and Harbors Act jurisdiction within the review area (complete table in section II.B).
- ☒ There are "waters of the United States" within Clean Water Act jurisdiction within the review area (complete appropriate tables in section II.C).
- ☒ There are waters or water features excluded from Clean Water Act jurisdiction within the review area (complete table in section II.D).

B. Rivers and Harbors Act of 1899 Section 10 (§ 10)[2]

§ 10 Name	§ 10 Size	§ 10 Criteria	Rationale for § 10 Determination
N/A	N/A	N/A	N/A

C. Clean Water Act Section 404

Territorial Seas and Traditional Navigable Waters ((a)(1) waters)[3]

(a)(1) Name	(a)(1) Size	(a)(1) Criteria	Rationale for (a)(1) Determination
N/A	N/A	N/A	N/A

Tributaries ((a)(2) waters):

(a)(2) Name	(a)(2) Size	(a)(2) Criteria	Rationale for (a)(2) Determination
Pine Creek	0.2225 acres	(a)(2) Intermittent tributary contributes surface water flow directly or indirectly to an (a)(1) water in a typical year	Pine Creek exhibits intermittent flows and contributes flow in a typical year to Apache Lake, which is the second of a chain of four reservoirs on the Salt River. From these reservoirs, the Salt River contributes flow in a typical year to the nearest downstream (a)(1) water on the Gila River between Powers Butte and Gillespie Dam. See Section III.B-C for more information.

Lakes and ponds, and impoundments of jurisdictional waters ((a)(3) waters):

(a)(3) Name	(a)(3) Size	(a)(3) Criteria	Rationale for (a)(3) Determination
N/A	N/A	N/A	N/A

[1] Map(s)/Figure(s) are attached to the AJD provided to the requestor.
[2] If the navigable water is not subject to the ebb and flow of the tide or included on the District's list of Rivers and Harbors Act Section 10 navigable waters list, do NOT use this document to make the determination. The District must continue to follow the procedure outlined in 33 CFR part 329.14 to make a Rivers and Harbors Act Section 10 navigability determination.
[3] A stand-alone TNW determination is completed independently of a request for an AJD. A stand-alone TNW determination is conducted for a specific segment of river or stream or other type of waterbody, such as a lake, where independent upstream or downstream limits or lake borders are established. A stand-alone TNW determination should be completed following applicable guidance and should NOT be documented on the AJD form.
[4] Some excluded waters, such as (b)(2) and (b)(4), may not be specifically identified on the AJD form unless a requestor specifically asks a Corps district to do so. Corps Districts may, in case-by-case instances, choose to identify some or all of these waters within the review area.
[5] Because of the broad nature of the (b)(1) exclusion and in an effort to collect data on specific types of waters that would be covered by the (b)(1) exclusion, four sub-categories of (b)(1) exclusions were administratively created for the purposes of the AJD Form. These four sub-categories are not new exclusions, but are simply administrative distinctions and remain (b)(1) exclusions as defined by the NWPR.

Adjacent wetlands ((a)(4) waters):

(a)(4) Name	(a)(4) Size	(a)(4) Criteria	Rationale for (a)(4) Determination
N/A	N/A	N/A	N/A

D. Excluded Waters or Features

Excluded waters ((b)(1) – (b)(12))[4]:

Exclusion Name	Exclusion Size	Exclusion[5]	Rationale for Exclusion Determination
01E-a	0.0466 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
01E-b	0.0011 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
01W-a	0.0586 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
01W-b	0.0006 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
02W	0.0042 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
03E	0.0264 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
03W	0.0024 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.

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[3] A stand-alone TNW determination is completed independently of a request for an AJD. A stand-alone TNW determination is conducted for a specific segment of river or stream or other type of waterbody, such as a lake, where independent upstream or downstream limits or lake borders are established. A stand-alone TNW determination should be completed following applicable guidance and should NOT be documented on the AJD form.
[4] Some excluded waters, such as (b)(2) and (b)(4), may not be specifically identified on the AJD form unless a requestor specifically asks a Corps district to do so. Corps Districts may, in case-by-case instances, choose to identify some or all of these waters within the review area.
[5] Because of the broad nature of the (b)(1) exclusion and in an effort to collect data on specific types of waters that would be covered by the (b)(1) exclusion, four sub-categories of (b)(1) exclusions were administratively created for the purposes of the AJD Form. These four sub-categories are not new exclusions, but are simply administrative distinctions and remain (b)(1) exclusions as defined by the NWPR.

04W	0.0024 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
05E	0.024 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
05W	0.0067 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
06E	0.0012 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
06E-b	0.0001 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
07E	0.0072 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
07W	0.0103 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
08E	0.0058 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
08W	0.0056 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic

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			vegetation present. Please see Section III.B-C for more information.
09E	0.0003 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
100W	0.002 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
101W	0.0017 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
102W	0.0014 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
103W	0.0017 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
104W	0.0022 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
105N	0.0095 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
106N	0.0019 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.

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107N	0.0028 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
108N	0.0024 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
108S	0.0035 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
109N	0.0023 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
10E-a	0.0006 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
10E-b	0.0001 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
110N	0.0042 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
111N	0.002 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
111S	0.0053 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic

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			vegetation present. Please see Section III.B-C for more information.
112N	0.0031 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
113E	0.0127 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
113W-a	0.0137 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
113W-b	0.0047 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
114E	0.0067 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
114W	0.0107 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
115W	0.0109 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
116E	0.0034 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.

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116W-a	0.007 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
116W-b	0.009 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
117W	0.0025 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
118W	0.0025 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
119W	0.0014 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
11E	0.0013 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
120E-a	0.026 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
120E-b	0.0316 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
120E-c	0.3144 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic

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			vegetation present. Please see Section III.B-C for more information.
120W	0.0427 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
121W	0.0016 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
122W	0.0002 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
123W	0.0023 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
124E	0.1244 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
124W	0.123 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
125W	0.009 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
126E ext	0.1316 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.

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126W	0.0571 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
127E	0.0038 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
128W	0.0061 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
129E	0.1584 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
129W-a	0.0137 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
129W-b	0.0012 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
12E-a	0.0016 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
12E-b	0.007 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
12W	0.0019 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic

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[3] A stand-alone TNW determination is completed independently of a request for an AJD. A stand-alone TNW determination is conducted for a specific segment of river or stream or other type of waterbody, such as a lake, where independent upstream or downstream limits or lake borders are established. A stand-alone TNW determination should be completed following applicable guidance and should NOT be documented on the AJD form.
[4] Some excluded waters, such as (b)(2) and (b)(4), may not be specifically identified on the AJD form unless a requestor specifically asks a Corps district to do so. Corps Districts may, in case-by-case instances, choose to identify some or all of these waters within the review area.
[5] Because of the broad nature of the (b)(1) exclusion and in an effort to collect data on specific types of waters that would be covered by the (b)(1) exclusion, four sub-categories of (b)(1) exclusions were administratively created for the purposes of the AJD Form. These four sub-categories are not new exclusions, but are simply administrative distinctions and remain (b)(1) exclusions as defined by the NWPR.

			vegetation present. Please see Section III.B-C for more information.
130W	0.0005 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
131E	0.2268 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
131W	0.2186 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
132E	0.1929 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
132W-a	0.0522 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
132W-b	0.11 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
133E-a	0.0023 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
133E-b	0.0025 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.

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133E-c	0.0026 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
133W	0.0247 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
134E	0.0062 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
134W	0.0072 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
135E	0.1027 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
135W-a	0.0667 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
135W-b	0.001 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
136E-a	0.0046 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
136E-b	0.0017 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic

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			vegetation present. Please see Section III.B-C for more information.
136W	0.0171 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
137E	0.0624 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
137W	0.0263 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
138E	0.0064 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
138E-b	0.0097 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
138W	0.0374 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
139E	0.0193 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
139W	0.0058 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.

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13N	0.0485 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
13S-a	0.0491 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
13S-b	0.0103 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
13S-c	0.0017 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
13S-d	0.0005 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
140E-a	0.0076 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
140E-b	0.0012 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
140W	0.0208 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
141N	0.0037 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic

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			vegetation present. Please see Section III.B-C for more information.
141S	0.0057 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
142E	0.0012 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
142W	0.0063 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
143E	0.006 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
143W	0.0097 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
144E	0.0473 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
144W	0.0175 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
145E	0.0113 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.

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145W	0.0178 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
146E	0.003 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
146W	0.0044 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
147E	0.0074 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
147W	0.0628 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
148E	0.0047 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
148W	0.0043 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
149E	0.0019 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
149W	0.0023 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic

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			vegetation present. Please see Section III.B-C for more information.
14N	0.0067 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
14S	0.0394 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
150E	0.004 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
150W	0.0013 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
151E	0.0008 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
151W	0.002 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
152E	0.0117 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
152W	0.0071 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.

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[3] A stand-alone TNW determination is completed independently of a request for an AJD. A stand-alone TNW determination is conducted for a specific segment of river or stream or other type of waterbody, such as a lake, where independent upstream or downstream limits or lake borders are established. A stand-alone TNW determination should be completed following applicable guidance and should NOT be documented on the AJD form.
[4] Some excluded waters, such as (b)(2) and (b)(4), may not be specifically identified on the AJD form unless a requestor specifically asks a Corps district to do so. Corps Districts may, in case-by-case instances, choose to identify some or all of these waters within the review area.
[5] Because of the broad nature of the (b)(1) exclusion and in an effort to collect data on specific types of waters that would be covered by the (b)(1) exclusion, four sub-categories of (b)(1) exclusions were administratively created for the purposes of the AJD Form. These four sub-categories are not new exclusions, but are simply administrative distinctions and remain (b)(1) exclusions as defined by the NWPR.

153E	0.0087 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
153W	0.0048 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
154E	0.02 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
154W	0.1003 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
155E	0.0008 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
156E	0.0096 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
156W	0.0859 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
157N	0.0041 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
157S	0.0017 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic

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			vegetation present. Please see Section III.B-C for more information.
158N	0.1226 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
158S	0.1065 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
159E	0.0006 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
159W	0.0176 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
15N	0.0667 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
15S-a	0.0905 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
15S-b	0.0112 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
160E	0.0006 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.

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160W-a	0.0079 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
160W-b	0.0013 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
161E	0.0177 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
161W	0.0186 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
162E	0.0073 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
162W	0.0189 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
163N	0.0098 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
163S	0.0128 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
164N-a	0.0169 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic

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164N-b	0.0014 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
164S	0.0066 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
165N	0.0065 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
165S	0.0106 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
166E	0.0046 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
166W	0.0049 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
167E	0.0118 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
167W	0.0047 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.

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168E	0.0061 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
168W	0.0028 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
169E	0.0021 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
169W	0.0016 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
16E	0.0463 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
16W	0.0432 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
170E	0.003 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
170W	0.002 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
171E	0.0083 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic

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172E	0.0078 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
173E-a	0.0032 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
173E-b	0.0028 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
173E-c	0.0258 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
174E	0.0099 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
174W	0.0042 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
175N	0.003 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
175S	0.004 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.

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176N	0.004 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
176S	0.0012 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
17E	0.0181 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
17W	0.0085 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
18E	0.0043 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
19E-a	0.0234 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
19E-b	0.0041 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
19E-c	0.0017 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
19W	0.004 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic

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			vegetation present. Please see Section III.B-C for more information.
20E-a	0.0086 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
20E-b	0.0026 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
20E-c	0.0004 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
21E-a	0.0175 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
21E-b	0.0141 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
21W	0.01 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
22E	0.0021 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
22W	0.0037 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.

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23E	0.0084 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
23W	0.0213 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
24E	0.0429 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
24W	0.0062 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
25E	0.0231 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
25W	0.0223 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
26E	0.0046 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
27E	0.0068 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
28E	0.048 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic

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			vegetation present. Please see Section III.B-C for more information.
28W	0.0137 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
29E	0.0582 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
29W	0.0113 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
30E	0.0451 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
30W	0.0141 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
31E	0.0136 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
31W	0.0065 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
32W	0.0036 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.

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33N	0.1166 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
33S	0.1023 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
34N	0.0265 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
34S	0.0162 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
35N	0.009 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
36N	0.0151 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
36S	0.0189 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
37N	0.0141 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
37S	0.0136 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic

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			vegetation present. Please see Section III.B-C for more information.
38N	0.0092 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
38S	0.0056 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
39N	0.0071 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
40N-a	0.0631 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
40N-b	0.0157 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
40S	0.1067 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
41N-a	0.0107 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
41N-b	0.001 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.

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41S	0.0337 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
42N	0.0086 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
43N	0.0201 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
43S	0.0063 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
44N	0.0006 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
44S	0.006 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
45N	0.5266 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
45S	0.2912 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
46N	0.1753 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic

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[4] Some excluded waters, such as (b)(2) and (b)(4), may not be specifically identified on the AJD form unless a requestor specifically asks a Corps district to do so. Corps Districts may, in case-by-case instances, choose to identify some or all of these waters within the review area.
[5] Because of the broad nature of the (b)(1) exclusion and in an effort to collect data on specific types of waters that would be covered by the (b)(1) exclusion, four sub-categories of (b)(1) exclusions were administratively created for the purposes of the AJD Form. These four sub-categories are not new exclusions, but are simply administrative distinctions and remain (b)(1) exclusions as defined by the NWPR.

			vegetation present. Please see Section III.B-C for more information.
46S	0.106 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
47N	0.0153 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
48S	0.0959 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
49N	0.0044 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
50N	0.0031 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
51N	0.0055 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
52N	0.033 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
53 - Davis Wash	0.1962 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.

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54E	0.0518 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
54W	0.1324 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
55E	0.0039 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
55W	0.0239 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
56W	0.0055 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
57W	0.0122 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
58E	0.0263 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
58W	0.0197 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
59E	0.0095 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic

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			vegetation present. Please see Section III.B-C for more information.
59W	0.0415 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
60E	0.0061 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
60W	0.0079 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
61E	0.0093 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
61W	0.0043 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
62W	0.0016 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
63E	0.012 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
63W	0.0271 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.

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64E	0.0369 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
64W	0.0316 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
65E	0.0096 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
65W	0.0062 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
66E	0.0122 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
66W	0.0034 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
67E	0.0036 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
67W	0.0049 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
68W	0.0046 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic

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69E	0.0157 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
69W	0.0035 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
70W	0.0007 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
71W	0.0025 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
72W	0.0079 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
73E	0.0093 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
73W	0.0082 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
74E	0.0061 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.

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75E	0.0185 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
75W	0.0076 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
76N	0.0128 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
76S	0.0093 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
77E	0.1148 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
77W	0.0257 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
78E	0.0097 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
78W	0.0018 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
79E	0.0097 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic

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[5] Because of the broad nature of the (b)(1) exclusion and in an effort to collect data on specific types of waters that would be covered by the (b)(1) exclusion, four sub-categories of (b)(1) exclusions were administratively created for the purposes of the AJD Form. These four sub-categories are not new exclusions, but are simply administrative distinctions and remain (b)(1) exclusions as defined by the NWPR.

			vegetation present. Please see Section III.B-C for more information.
79W	0.0195 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
80W	0.0024 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
81E	0.0163 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
81W	0.0049 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
82E	0.0149 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
82W	0.0052 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
83E-a	0.0249 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
83E-b	0.0076 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.

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83W	0.0075 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
84N	0.0077 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
84S	0.0011 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
85N	0.0139 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
85S	0.0555 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
86N	0.0012 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
86S	0.0091 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
87E	0.0112 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
87W	0.0165 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic

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			vegetation present. Please see Section III.B-C for more information.
88N	0.006 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
88S	0.0013 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
89E	0.0071 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
89W	0.0191 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
90E	0.0037 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
90W	0.0026 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
91E	0.0084 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
91W	0.0008 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.

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92N	0.0028 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
93S	0.0065 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
94E	0.0032 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
94W	0.0104 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
95E	0.0037 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
95W	0.0019 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
96E	0.0038 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
96W	0.019 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
97E	0.0069 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic

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97W	0.0018 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
98E	0.0052 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
98W	0.0037 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
99E	0.0071 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
99W-a	0.004 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.
99W-b	0.0005 acres	(b)(3) Ephemeral feature, including an ephemeral stream, swale, gully, rill, or pool	Feature exhibits Ordinary High Water Mark indicators such as a developed bed and bank, sediment sorting, change in vegetation cover, and change in bank slope. However, there is no water present and no hydrophytic vegetation present. Please see Section III.B-C for more information.

III. SUPPORTING INFORMATION

A. Select/enter all resources that were used to aid in this determination and attach data/maps to this document and/or references/citations in the administrative record, as appropriate.

_X_ Information submitted by, or on behalf of, the applicant/consultant: *Apache Trail Aquatic Resources Delineation Report (January 2021).*
This information *is and is not* sufficient for purposes of this AJD.
Rationale: *The report contains a delineation of all aquatic features located in the survey area and documentation of flow regime status was provided for Pine Creek. However, the report only considered conditions during observed during the consultant's October 2020 site visit, which was during a severe drought during the dry season. Sonoran Desert intermittent*

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streams are more likely to be active during the winter and spring months. Additionally, No discussion or analysis was provided for other periods of time when flows were readily observable in Pine Creek in satellite imagery.

_X_ Data sheets prepared by the Corps: *New Mexico Environment Department Surface Water Quality Bureau Level 1 Hydrology Determination Sheet, prepared February 25, 2021.*

_X_ Photographs: *Requestor's site photos from October 2020; Corps' site photos taken February 25, 2021; Maxar Satellite Imagery taken October 2019 and 12/03/2016; Google Earth Satellite Imagery dated 10/03/2003, 5/13/2005, 6/7/2007,6/4/2010, 6/24/2011, 06/05/2012,01/07/2014, 3/14/2015, 2/14/2016, 2/24/2017, 12/17/2017, 1/13/2018, 06/27/2019, 6/30/2019, 5/18/2020.*

_X_ Corps Site visit(s) conducted on: *February 25, 2021.*

_X_ Previous Jurisdictional Determinations (AJDs or PJDs): *SPL-2020-00501 (AJD).*

_X_ Antecedent Precipitation Tool: *provide detailed discussion in Section III.B.*

___ USDA NRCS Soil Survey:

___ USFWS NWI maps:

_X_ USGS topographic maps: *Horse Mesa (1978), Pinyon Mountain (1978), Theodore Roosevelt Dam (1978).*

Other data sources used to aid in this determination:

Data Source (select)	Name and/or date and other relevant information
USGS Sources	NHD Dataset (ORM)
USDA Sources	N/A.
NOAA Sources	National Weather Service/University of Utah's MesoWest weather observation data.
USACE Sources	N/A.
State/Local/Tribal Sources	Flood Control District of Maricopa County Precipitation Data (Accessed 2/25/21); Arizona Department of Environmental Quality Flow Regime datalayer (2020); Arizona Department of Water Resources Well Registry; New Mexico Environment Department Surface Water Quality Bureau Level 1 Hydrology Protocol.
Other Sources	

B. Typical year assessment(s): A typical year assessment was conducted for Pine Creek using the Corps' Antecedent Precipitation Tool (APT) to determine if flows observed during a February 2021 site visit and in various years of satellite imagery were: a) occurring during typical year conditions (times when precipitation and other climatic variables are within the normal periodic range) and b) were demonstrating an intermittent flow regime (continuously during certain times of the year more than in direct response to precipitation).

Typical Year Conditions:

In order to select the dates to run the APT for, all readily accessible satellite imagery was reviewed for evidence of surface flows. During this review, flow events were observed only during winter or spring months, which is one of two times of year when precipitation peaks in this region of Arizona (National

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Weather Service). No flow events were observed during the summer months, which is when the other peak occurs during the North American Monsoon. Based on this observation, the APT was ran for the dates of all available imagery taken in the winter or spring months as well as for the dates of two site visits.

Twelve dates occurring in nine different years between May 2005 and February 2021 were analyzed with the APT tool. Four of the 12 dates were indicated as occurring in the dry season and eight were during the wet season (per The Web-based, Water-Budget, Interactive, Modeling Program or WebWIMP). Flows were observed on eight dates occurring in eight different years, while pools of water and moist soils where only observed on one date. Of the nine dates where water was visible, only three had a Palmer Drought Severity Index (PDSI) class (a regional measure of long-term drought conditions) of 'moderate wetness' to 'extreme wetness'. The remaining six dates had classes ranging from 'mild drought' to 'extreme drought'. On the date of the Corps' site visit, the PDSI was 'severe drought'.

The APT also provides an indication of short-term, antecedent precipitation conditions for the 90 days prior to the date entered and provides rain gauge data at selected stations (refer to the APT documentation for full details). Of the nine dates where water was observable, all but one date had 'normal' conditions or 'drier than normal' conditions for the preceding 90 days. On the date of the Corps' site visit, conditions were indicated as being 'drier than normal'.

Based on this analysis, flows in Pine Creek are mostly likely to occur during the wet season when evapotranspiration is less than precipitation. Flows can occur during drier than normal short-term and during long-term drought conditions. Therefore, flows in Pine Creek are likely to occur in a typical year.

Flow Regime:
During the Corps' site visit on February 25, 2021, water was observed flowing in Pine Creek (see photos in project folder). To assist in determining if the flows were a result of wetter than normal conditions or were a result of recent precipitation, the APT results for February 25th were reviewed along with weather station data from the local area.

As stated earlier, the APT results for the date of the Corps' site visit showed a PDSI in 'Severe Drought' for the region but that the time of year was considered the wet season based on WebWIMP. The previous 90 days were considered to be drier than normal. Of the 8 weather stations used by the APT, a trace of precipitation was observed around the middle of February. However, within January, several days of precipitation was observed and the 30-day rolling total was approximately 0.30 inches (declining from 1.5 inches shortly before the site visit). The APT used weather stations as far away as 20 miles away on the west side of the Superstition Mountains, which frequently experiences drier

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[5] Because of the broad nature of the (b)(1) exclusion and in an effort to collect data on specific types of waters that would be covered by the (b)(1) exclusion, four sub-categories of (b)(1) exclusions were administratively created for the purposes of the AJD Form. These four sub-categories are not new exclusions, but are simply administrative distinctions and remain (b)(1) exclusions as defined by the NWPR.

weather conditions due to the effects of the mountains. To address this climatic variability, local weather station data (within 10 miles of the site and located within the same topography) was also reviewed from the Maricopa County Flood Control District and the National Weather Service. No precipitation was observed in the previous two weeks prior to the site visit. Based on this information, it was determined that the flows observed in Pine Creek during the site visit were not in direct response to precipitation and were not a result of wetter-than-normal conditions. To determine if previous flows seen in satellite imagery were also not in direct response to precipitation, a similar review of the APT results was conducted for the selected dates of satellite imagery. This review found that precipitation often occurred in the days, weeks, or months prior to the imagery being shot, but in every instance there was no precipitation observed immediately preceding the observed flows. This suggests that the flows in Pine Creek are likely augmented by precipitation, but they do not occur in direct response since the flows generally persist for some time after the event In order to confirm the intermittent flows regime, the Corps conducted a flow regime assessment using the protocol developed by the New Mexico Environment Department Water Quality Bureau, which is discussed in III.C.

C. Additional comments to support AJD:

Ephemeral Features: With the exception of Pine Creek, all features within the survey area were determined to be ephemeral. During site visits conducted by the requestor's consultant and the Corps, no flowing water was observed in these features and soils were dry. Ordinary high water mark features primarily consist of a change in vegetation cover and sediment texture, a change in slope at the banks, and signs of erosion or scour. There was no evidence of water staining, mudcracks, or ripples. All vegetation observed in or along the edges of these aquatic features consisted of upland vegetation common to this region including saguaro cactus (*Carnegiea gigantea*) and various other cacti, jojoba (*Simmondsia chinensis*), velvet mesquite (*Prosopis velutina*), ocotillo (*Fouquieria splendens*), brittlebush (*Encelia farinosa*), and foothills paloverde (*Parkinsonia microphylla*), sotol (*Dasylirion wheeleri*) Mormon tea (*Ephedra trifurca*) and agave (*Agave sp.*).

Pine Creek: During the Corps' site visit on February 25, 2021, considerable flows were observed within Pine Creek (See photo documentation). However, the documentation provided by the requestor did not report any flows during their site visit in late October 2021, but photographs did show an area of wet soil in the stream channel. Information from the Arizona Department of Environmental Quality (ADEQ) indicates that this reach of Pine Creek is unknown, but a tributary located above the survey area (Reevis Creek) was determined to be intermittent. Well logs from the Arizona Department of Water Resources shows that groundwater in the area is 18-50 feet below the surface, but shallow bedrock in the canyon (indicated by the large outcroppings of rock) may be responsible for forcing groundwater flows up to the surface in this canyon.

The APT was ran for the date of the Corps' site visit and conditions were determined to be drier than normal (previous 90 days) with a severe drought (per the PDSI) (See III.B). Although precipitation had

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not occurred in the previous two weeks, it had been recorded during the past two months and February was determined to be in the wet season (per the WebWIMP). In order to determine which flow regime may be present in Pine Creek, the Corps completed the Hydrology Protocol developed by the New Mexico Environment Department's Water Quality Bureau. While this protocol has not been calibrated or approved for use in Arizona, several of the indicators are applicable due to similar climate, soils, and topography between the two states. After completing the Level 1 evaluation, a score of 17 was given for the reach which indicates an intermittent stream system. Notable observations during this evaluation included the presence of water low in turbidity, filamentous algae, the presence of benthic macroinvertebrates, and pioneer riparian tree saplings such as Coyote Willow (*Salix exigua)* (Facultative-Wet), cottonwoods (*Populus fremontii)* (Facultative), and Arizona Ash (*Fraxinus veluntina)* (Facultative) trees. Satellite imagery from past years and Google Streetview imagery from 2008 indicates that show more riparian vegetation may have been present in the canyon bottom, but high flows in 2019 following the Woodbury Fire may have removed most of the vegetation.

Based on the Typical Year Assessment and the information discuss here, Pine Creek is determined to be an intermittent stream.

Pine Creek Connectivity to an (a)(1) Traditional Navigable Water:
In order for Pine Creek to be a jurisdictional tributary under the Navigable Waters Protection Rule, the reach being considered must have an intermittent or perennial flow regime and contribute flow directly or indirectly to an (a)(1) water (Traditional Navigable Water or Territorial Sea) in a typical year. The nearest Traditional Navigable Water (TNW) downstream from Pine Creek is the Gila River between Powers Butte and Gillespie Dam, approximately 98 miles downstream of the confluence of Pine Creek with Apache Lake. To reach the Gila River TNW, Pine Creek flows 0.5 mile from the surveyed reach into Apache Lake. This lake is an impoundment of the Salt River and is the second of a chain of four consecutive reservoirs operated by the Salt River Project (SRP). Approximately 8 miles from Pine Creek, Apache Lake releases water directly into Canyon Lake, which then releases water directly into Saguaro Lake 9 miles downstream. Saguaro lake then releases water into the Lower Salt River 8.5 miles downstream. Since all of SRP's reservoirs on the Salt River supply hydroelectric power and water for agricultural and municipal uses, water is consistently released from the lakes down to Granite Reef Diversion Dam (GRDD), which is a diversion structure 13 miles downstream from Saguaro Lake and 3.3 miles downstream from the mouth of the Verde River (a perennial stream). Up to this point, the Salt River can be considered perennial from Pine Creek to Granite Reef, which is approximately 39 miles.

The GRDD diverts waters in canals for the delivery of water. However, water may spill over the GRDD when flows exceed the rate of diversion. The typical year flow contribution from the GRDD to the Gila River TNW was previously considered in an AJD issued by the Corps (SPL-2020-00501). Data used in this determination included ADEQ flow regime data layer, was collected for ambient water

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monitoring and is a collection of several sources of data. This data layer shows all the Salt River and the Gila River downstream of the GRDD as being intermittent or perennial through the designated TNW reach at Powers Butte. Other data used in the determination for SPL-2020-00501 included an analysis from SRP on the frequency and threshold for spills (releases over GRDD) and their connectivity to the TNW. The determination in SPL-2020-00501 concluded that the Salt River is perennial and intermittent downstream of the GRDD and that a connection exists to the downstream TNW in a typical year. The AJD's determination is incorporated by reference.

Based on the information reviewed, Pine Creek is an intermittent stream which contributes flow to an (a)(1) TNW in a typical year and is therefore jurisdictional under the Navigable Waters Protection Rule.

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[2] If the navigable water is not subject to the ebb and flow of the tide or included on the District's list of Rivers and Harbors Act Section 10 navigable waters list, do NOT use this document to make the determination. The District must continue to follow the procedure outlined in 33 CFR part 329.14 to make a Rivers and Harbors Act Section 10 navigability determination.
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Appendix C

Draft Memorandum of Agreement (MOA)

DRAFT MEMORANDUM OF AGREEMENT AMONG THE FEDERAL HIGHWAY ADMINISTRATION, ARIZONA DEPARTMENT OF TRANSPORTATION, USDA FOREST SERVICE (TONTO NATIONAL FOREST), ARIZONA STATE HISTORIC PRESERVATION OFFICE, AND THE ADVISORY COUNCIL ON HISTORIC PRESERVATION REGARDING THE TREATMENT OF HISTORIC PROPERTIES FOR THE SR88 – APACHE TRAIL MP 229.2 TO 240.6 PROJECT MARICOPA COUNTY, ARIZONA

WHEREAS, the Federal Highway Administration, Central Federal Lands Highway Division (FHWA-CFLHD) proposes rehabilitation, drainage improvements, and chip sealing along approximately 11.16 miles of State Route (SR) 88, also known as the Apache Trail, in Maricopa County, Arizona (hereafter referred to as "Undertaking"); and

WHEREAS, the Undertaking occurs on federal land under the jurisdiction of the United States Department of Agriculture Forest Service (USFS), Tonto National Forest (TNF), and within the existing Arizona Department of Transportation (ADOT) easement; and

WHEREAS, FHWA-CFLHD has assumed lead responsibilities for compliance under Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and will consult with the Arizona State Historic Preservation Office (SHPO) pursuant to Section 106 of the NHPA of 1966, as amended, 54 United States Code (U.S. C.) 300101 et seq., and pursuant to 36 Code of Federal Regulations (CFR) § 800.2 (c)(1)(i) and 36 CFR § 800.6(b)(1); and

WHEREAS, the area of potential effect (APE) is located along the Apache Trail between MP 229.20 and MP 240.60 for a total of 11.46 miles; width is variable and ranges between 200 and 300 feet. Land jurisdiction in the APE is ADOT easement (100 feet in width centered on the roadway) crossing public lands under the jurisdiction of TNF. Total acreage of the APE is 165.5 acres (Attachment A), all of which are on TNF lands. Of the 165.5 acres, 138.9 acres are operated and maintained by ADOT under an existing easement across TNF lands; and

WHEREAS, much of the APE has been previously investigated for cultural resources (Barz 1995) and those areas that could not be demonstrated to have been previously investigated were subject to a Class III survey by Jacobs Engineering Group Inc. (Jacobs) conducted on December 4–6, 2017 (Luhnow and Schilling 2018); and

WHEREAS, a fire in the Superstition Wilderness in the summer of 2019 followed by storm events later that year caused significant damage to the Apache Trail, FHWA-CFLHD reassessed the ongoing roadway design and requested Jacobs to conduct a

supplemental Class III survey of additional areas (Luhnow, Schilling and Stubing 2021). The newly surveyed areas consist of 52 small, discontinuous areas where drainage improvements would be required adjacent to the previously surveyed APE and project limits; and

WHEREAS, the SHPO has concurred that eleven historic properties identified within the APE of this Undertaking (Attachment B) are eligible for inclusion in the National Register of Historic Places (NRHP); and

WHEREAS, through Section 106 consultation with the SHPO, ADOT, and TNF, and consulting parties, FHWA-CFLHD determined that nine of the eleven historic properties would be avoided and will not be adversely impacted by the Undertaking; and

WHEREAS, FHWA-CFLHD in consultation with TNF and SHPO has determined that the Undertaking will result in an adverse effect to two historic properties: AR-03-12-06-218(TNF)/AZ V:5:197(Arizona State Museum [ASM] and AR-03-12-06-2503(TNF)/AZ U:8:632(ASM) (see Attachment B); and

WHEREAS, the SHPO is authorized to enter this Memorandum of Agreement (MOA) in order to fulfill its role of advising and assisting federal agencies in carrying out Section 106 responsibilities and the SHPO is a signatory to this MOA; and

WHEREAS, the Advisory Council on Historic Preservation (ACHP) has been invited to participate in consultation pursuant to 36 CFR § 800.6(a)(1) and has accepted the invitation and is a signatory to this MOA; and

WHEREAS, ADOT, the project sponsor, has participated in consultation and is an invited signatory to this MOA; and

WHEREAS, ADOT has responsibility to consider the effects of their projects on cultural resources under the State Historic Preservation Act (SHPA) (ARS § 41-861 et seq.). As lead federal agency for the Undertaking, FHWA-CFLHD is fulfilling its Section 106 responsibilities, and ADOT will fulfill their SHPA responsibilities via the FHWA-CFLHD Section 106 consultation process; and

WHEREAS, FHWA-CFLHD has consulted with TNF as a land managing agency pursuant to 36 CFR § 800.2(c), and TNF is an invited signatory to this MOA; and

WHEREAS, the FHWA-CFLHD, in accordance with 36 CFR § 800.2(c)(2), has consulted with the Ak-Chin Indian Community, Fort McDowell Yavapai Nation, Gila River Indian Community, Hopi Tribe, Mescalero Apache Tribe, Pascua Yaqui Tribe, Salt River Pima-Maricopa Indian Community, San Carlos Apache Tribe, Tonto Apache Tribe, Tonto O'odham Nation, White Mountain Apache Tribe, Yavapai-Apache Nation, Yavapai-Prescott Tribe, and Zuni Pueblo, hereinafter referred to as Tribes; and

WHEREAS, the FHWA-CFLHD consulted again with the Tribes following the 2019 storm damage of the Apache Trail to inform the Tribes of changes to ongoing roadway design; and

WHEREAS, the FHWA-CFLHD invited the Tribes to sign as concurring parties to the MOA and the Yavapai-Apache Nation accepted the invitation; and

WHEREAS, all materials and records from any archaeological investigations necessitated by the Undertaking will be curated at the ASM, or other repository that meets the standards set forth in 36 CFR Part 79, in accordance with the Archaeological Resources Preservation Act (ARPA) (Section 4.b.3) and 36 CFR Part 79, and ASM has been invited to be a concurring party in this MOA, and ASM has declined to participate; and

WHEREAS, the FHWA-CFLHD, ACHP, ADOT, TNF, and the SHPO collectively will be referred to as the MOA Signatories; and

NOW, THEREFORE, the FHWA-CFLHD, ACHP, ADOT, TNF, and the SHPO agree that this MOA shall be implemented in accordance with the following stipulations in order to take into account the effects of the Undertaking on historic properties.

STIPULATIONS

The FHWA-CFLHD will ensure that the following measures are carried out:

I. Roles and Responsibilities

FHWA-CFLHD is the lead agency for Section 106 of the NHPA. These responsibilities include but are not limited to consulting and coordinating with the consulting parties; conducting Government-to-Government consultation with the Tribes; ensuring that all signatories and invited signatories (i.e. MOA Signatories) carry out their responsibilities; overseeing all cultural resource work, including any additional cultural resources inventory work, drafting and implementing a Historic Properties Treatment Plan (HPTP); providing all submissions to the consulting parties, including additional cultural resources inventory reports (if needed), the HPTP, and the preliminary and final data recovery reports; and seeking SHPO concurrence with agency compliance decisions as appropriate.

II. Professional Qualifications and Permits

A. FHWA-CFLHD shall ensure that all cultural resources work carried out pursuant to this MOA is conducted by or under the supervision of a person, or persons, meeting the Secretary of the Interior's Professional Qualifications Standards (48 FR 44738-44739) as per Section 112(a)(1)(A) of the NHPA and 36 CFR § 800.2(a)(1).

III. Project Finding of Effect and Avoiding, Minimizing, or Mitigating Adverse Effects

A. FHWA-CFLHD shall, if possible, avoid adverse effects to all types of historic properties, with input from consulting parties. Avoidance measures for historic properties may include (but are not limited to) flagging or fencing of sites during construction, monitoring of construction activities near site areas within a buffer zone, or placing infrastructure outside of site boundaries. A Monitoring and Discovery Plan (see HPTP discussion in Stipulation IV section below) will be in place to ensure avoidance.

B. Prior to the start of any work that could adversely affect any characteristics that qualify the Apache Trail as a historic property, FHWA-CFLHD shall have a Secretary of the Interior-qualified professional in history or architectural history (as specified in 36 CFR Part 61, Appendix A) complete historical recordation and documentation of specific character-defining features of the Apache Trail to the outline format for engineering structures specified in: *Historic American Engineering Record (HAER) Guidelines for Historical Reports* (2008, updated December 2017).

1. This work will include large format photographs of 15 character-defining features of the Apache Trail in their context. These features, as listed in

Attachment C, were chosen by the MOA Signatories as representative of the many similar character-defining features found along the Apache Trail and were features that remained intact following natural disaster events.

2. This list of features can be modified by the MOA Signatories as needed without an amendment to this Agreement.

3. Photos shall follow the standards set forth in the *National Register Photo Policy Factsheet* (updated 5/15/2013).

4. FHWA-CFLHD shall also include copies of any historic construction drawings of these character-defining features in an 11"x17" format.

5. FHWA-CFLHD will provide an electronic copy of the draft HAER documentation to the SHPO and ADOT for review. Within 30 days of receipt, the SHPO and ADOT will provide FHWA-CFLHD with comments on the draft documentation. FHWA-CFLHD will incorporate the comments and produce one paper copy and one electronic copy of the final documentation for the SHPO, TNF, and ADOT records.

6. Printed materials shall be produced on archival, acid-free paper and an electronic copy will be provided on an archival gold Compact Disc (CD) that includes a Portable Document Format (PDF) version of the documentation and digital Tag Image File Format (TIFF) images of the photos.

7. Character-defining features shall not be altered or demolished until FHWA-CFLHD has submitted digital photos for review and approval by the SHPO and ADOT.

C. Prior to construction completion, FHWA-CFLHD shall develop and install interpretation materials (i.e. signs/kiosks) at currently developed recreation sites located along the Apache Trail.

1. Interpretive material shall be installed at one or more of the five following sites: Needle Vista Recreation Site, Canyon Lake Vista, Tortilla Flat, Fish Creek Hill Vista, and Apache Lake Vista. Developed and installed interpretive signs/panels shall not exceed 11 in number.

2. The interpretive materials may include topics such as characteristics of the historic road (i.e. drainage features, retaining walls, bridges, etc.); engineering, construction methods and challenges of building the historic road; work force or people involved in designing and building the original road; stagecoach stops along the Apache Trail; tribal occupation, desert culture living and cultural landscapes; history of the town of Tortilla Flat; and/or history of tourism along Apache Trail. Final topics will be determined by FHWA-CFLHD in consultation

with SHPO, TNF, ADOT, concurring parties, and interested tribes but shall not deviate from the history of the Apache Trail and the cultural resources associated with it.

3. The FHWA-CFLHD will prepare the interpretive materials and will consult with the SHPO, TNF, ADOT, concurring parties, and interested tribes during the development of such materials.

4. FHWA-CFLHD shall develop an outline, which summarizes the contents of the interpretive materials to be developed, and will hold a scoping meeting with the above mentioned parties prior to interpretive material development.

5. Two draft interpretive material reviews with the SHPO, TNF, ADOT, concurring parties, and interested tribes will be conducted at 50% and 90% complete milestones. All listed parties will be afforded 30 calendar days to review and comment on the design and content of the interpretive materials.

6. FHWA-CFLHD will coordinate with the SHPO, TNF, ADOT, concurring parties and interested tribes to identify an appropriate site(s), out of the five aforementioned developed recreational sites, for installing each of the interpretive sign/kiosk materials. Once the interpretive materials are installed, they will be maintained by the TNF.

D. FHWA-CFLHD will document the historic context of the Apache Trail and related resources, including Roosevelt Dam, Apache Lake and Marina, Fish Creek Hill, as well as contributing elements of the Apache Trail to provide a permanent record of how maintenance, fire, and flooding (including the 2019 events) have affected resources in the project area. In developing the historic context, FHWA-CFLHD shall:

1. Consult with the SHPO, TNF, ADOT, and concurring parties on the format and content of the historic context documentation; and
2. Ensure that all documentation activities will be performed or directly supervised by, architects, historians, photographers, and/or other professionals meeting the qualification standards for their field in the Secretary of Interior's Professional Qualifications Standards (36 CFR 61, Appendix A); and
3. Provide a draft of the documentation to the SHPO, TNF, ADOT, and concurring parties within two years of execution of this MOA, and the final documentation prior to completion of the construction of this Undertaking; and
4. Make the documentation available to interested parties by coordinating with ADOT to post the historic context document on the ADOT website for a minimum of five years.

E. Where avoidance is not possible, FHWA-CFLHD shall minimize or mitigate adverse effects to historic properties through the development and implementation of an HPTP. The HPTP will be developed in consultation with the parties to the MOA (see Stipulation IV regarding development of the HPTP), and will specify a program of measures to minimize (if applicable) and/or mitigate adverse effects.

IV. Content and Development of an HPTP

A. FHWA-CFLHD shall ensure that a HPTP for the treatment of historic properties, including archaeological sites, buildings, structures, objects, districts, and Traditional Cultural Places (TCPs) that cannot be avoided by project activities is prepared. The HPTP will be consistent with Archeology and Historic Preservation; the Secretary of the Interior's Standards and Guidelines, and with SHPA and Arizona Antiquities Act standards, and will specify:

1. The properties or portions of properties where historical recordation and documentation of specific character-defining features of the Apache Trail treatment as outlined in Stipulation III(B) is to be carried out. The HPTP also will specify any potential portion of specific character-defining features of the Apache Trail that would be destroyed or altered without treatment and the justification for lack of treatment;
2. The results of previous research relevant to the subject Undertaking, the research questions to be addressed through historic documentation, with an explanation of their relevance and importance within an appropriate historic context;
3. The field and archival analysis methods to be used, with an explanation of their relevance to the historic context and research questions;
4. The procedures by which the content of interpretive materials and facilities outlined in Stipulation III(C) will be developed and implemented by FHWA-CFLHD, in coordination with the SHPO, TNF, ADOT, concurring parties, and interested tribes;
5. The procedures by which the content and format of the historic context of the Apache Trail and its relevant resources as outlined in Stipulation III(D) will be developed and implemented by FHWA-CFLHD, in coordination with the SHPO, TNF, ADOT, and concurring parties;
6. A Monitoring and Discovery Plan that outlines the procedures for monitoring, evaluating and treating discoveries of unexpected or newly identified properties during geotechnical investigations or construction of the project, the proposed disposition and curation of any recovered materials and records in accordance with 36 CFR 79 and ARS 41-844, and protocols for consultation with other parties;
7. A protocol for the treatment of human remains, in the event that such remains are encountered, describing methods and procedures for the recovery, inventory, treatment, and disposition of Human Remains, Funerary Objects, Sacred Ceremonial Objects, or Objects of Cultural

Patrimony. This protocol will reflect concerns and/or conditions identified as a result of consultations among parties to this MOA and as specified by the ASM;

8. The methods to be used for disseminating data to the professional community and the public;
9. A proposed schedule for project tasks, and a schedule for the submission of draft and final reports to SHPO, TNF, ADOT, concurring parties, and interested tribes;
10. A Project Suspension/Termination Plan that stipulates the procedures to be followed if the Undertaking is halted for any reason, including:
    a) a program outlining the steps to be taken in order to complete any treatment measures that are in progress at the time of project termination; and
    b) a component outlining how treatment measures at all historic properties will be completed.
11. A strategy for a public outreach program with the goal of disseminating information to the general public about the results of the cultural resources investigations associated with the Undertaking. The public outreach program will include the following:
    a) interpretive displays as outlined in Stipulation III(C).
    b) a historic context resource document as outlined in Stipulation III(D).

B. Review and Comment on the HPTP

1. FHWA-CFLHD will distribute the draft HPTP to all MOA Signatories and concurring parties who will have 30 calendar days from receipt to review the HPTP and provide comments to FHWA-CFLHD. All comments are to be in writing. Lack of response within this review period will be taken as concurrence with the adequacy of the HPTP.
2. If revisions to the HPTP are made, FHWA-CFLHD will distribute the revised HPTP to all MOA signatories and concurring parties, who will have 15 calendar days from receipt to review the revisions and provide comments to FHWA-CFLHD in writing. If no response is received, FHWA-CFLHD may proceed with finalization of the document.
3. The final HPTP will be provided to all MOA signatories and concurring parties.
4. Once parties to this MOA have reviewed the HPTP, and agreed with its adequacy, FHWA-CFLHD shall issue authorization to proceed with the implementation of the HPTP by the institution, firm, or consultant responsible for the work, subject to that entity obtaining all necessary permits.
5. Agreement with the HPTP will occur prior to advertisement of the construction contract for the Undertaking.

V. Review and Comment Process

A. Except for the documentation developed in Stipulations III(B) and III(C), and IV(A), FHWA-CFLHD will submit all remaining documentation related to the Undertaking (e.g., survey reports, determination of eligibility and findings of effect, data recovery reports, etc.) to the consulting parties for review and comment within 30 calendar days of receipt. If a party does not comment on a submittal during this time period, FHWA-CFLHD will follow-up by telephone or e-mail with the party. If, after such reasonable and good faith efforts to reach an unresponsive consulting party, there has still been no response, FHWA-CFLHD will proceed to the next step prescribed by this agreement.

VI. Communication Among Parties to this MOA

A. Electronic mail (e-mail) may serve as the official correspondence method for all communications regarding this MOA and its provisions. See Attachment D for a list of contacts and e-mail addresses. Contact information in Attachment D may be updated as needed without an amendment to this MOA. It is the responsibility of each MOA Signatory and concurring party to immediately inform FHWA-CFLHD of any change in name, email address, or phone number for any point-of-contact. FHWA-CFLHD will forward this information to all parties to the MOA by e-mail.

VII. Confidentiality

A. To the maximum extent allowed by federal and state law, FHWA-CFLHD will maintain confidentiality of sensitive information regarding historic properties that could be damaged through looting or disturbance, and/or to help protect a historic property to which a Tribe attaches religious or cultural significance. However, any documents or records FHWA-CFLHD has in its possession are subject to the Freedom of Information Act (FOIA) (5 U.S.C. 552 et. seq.) and its exemptions, as applicable. FHWA-CFLHD shall evaluate whether a FOIA request for records or documents would involve a sensitive historic property, or a historic property to which a Tribe attaches religious or cultural significance, and if such documents contain information that FHWA-CFLHD is authorized to withhold from disclosure by other statutes including Section 304 of the NHPA, as well as ARPA. If so authorized, then FHWA-CFLHD will consult with the Keeper of the National Register and the ACHP regarding withholding the sensitive information. If a tribally sensitive property is involved, FHWA-CFLHD will also consult with the relevant Tribe prior to making a determination in response to a FOIA request.

VIII. Curation

A. FHWA-CFLHD shall ensure that all artifacts, samples and records resulting from the mitigation program are curated in accordance with 36 CFR Part 79, except as determined through consultations with Tribes carried out in accordance with

federal and state laws pertaining to the treatment and disposition of Native American Human Remains, Associated/Unassociated Funerary Objects, and Objects of Cultural Patrimony.

B. All materials and records from any archaeological investigations necessitated by the Undertaking will be curated at the ASM, or other repository that meets the standards set forth in 36 CFR Part 79, and in accordance with ARPA (Section 4.b.3).

IX. Annual Review of Agreement, Annual Report, and Annual Meeting

A. The MOA Signatories and consulting parties shall evaluate the implementation and operation of this MOA on an annual basis until the year following the completion of construction. An annual conference call among the MOA Signatories and consulting parties may occur, if needed, after the annual letter report has been submitted. FHWA-CFLHD would be responsible for setting up this meeting, in coordination with all the consulting parties.

B. Prior to the annual meeting, the FHWA-CFLHD will provide MOA Signatories and consulting parties with an annual letter report (Annual Report) to review the progress under this MOA and under the approved HPTP. The Annual Report will include an update on project schedule, status, and any ongoing cultural resource monitoring or mitigation activities, discovery situations, proposed future actions, or outstanding tasks to be completed under this MOA or the HPTP. MOA Signatories and consulting parties will have 30 calendar days to review the Annual Report and provide comments to FHWA- CFLHD. If a signatory or concurring party does not respond within the comment period, FHWA-CFLHD will follow-up to verify the party has no comments. If the attempt at follow-up consultation is unsuccessful, FHWA-CFLHD will assume that the party has no comments on the annual report.

C. Within 14 days after the annual meeting, FHWA-CFLHD will summarize the meeting, including proposed action items and how they are to be addressed, in a letter to consulting parties. MOA Signatories and consulting parties will have 20 days to review and comment on the meeting notes and, if necessary, provide FHWA-CFLHD with any edits to the meeting notes. If changes are needed, FHWA-CFLHD will produce revised meeting notes within 30 days of receipt of comments, and will provide the final notes to the consulting parties.

D. Evaluation of the implementation of this MOA may also include in-person meetings or conference calls among the MOA Signatories and consulting parties, and suggestions for possible modifications or amendments to this MOA. If possible, all MOA Signatories and consulting parties should be included in these consultations.

X. Post-Review Discoveries

A. If new cultural resources are discovered, or if unanticipated effects on historic properties are identified, FHWA-CFLHD shall implement the project specific Monitoring and Discovery Plan (MDP) that is part of the HPTP.

B. Should a discovery of archaeological or historical materials not covered under the Native American Graves Protection and Repatriation Act (NAGPRA) or the Arizona State Burial Laws occur, FHWA-CFLHD will follow procedures detailed in the MDP of the HPTP. FHWA-CFLHD will require that any cultural resources discovered during construction or other ground-disturbing activities be protected immediately in accordance with all applicable laws. If a cultural resource is discovered, FHWA-CFLHD will cease all construction activity and ground disturbance within 50 feet of the discovery, and will notify the SHPO, ADOT and TNF, along with any other consulting parties.

C. FHWA-CFLHD will consult with all of the consulting parties on the eligibility of newly discovered cultural resources. If eligible, FHWA-CFLHD will ensure that treatment measures follow the final HPTP, as well as the review processes and timelines for all reports as embodied in this MOA.

D. Unanticipated encounter of cultural items covered under NAGPRA (i.e., human remains, funerary objects, sacred ceremonial objects, and objects of cultural patrimony) are the responsibility of TNF. If human remains or NAGPRA cultural items as described in 43 CFR 10 are encountered, the protocol for the treatment of human remains and NAGPRA cultural items found in the HPTP will be followed. All construction within 50 feet of the encounter will cease, and TNF will be notified immediately by telephone, followed by written confirmation within 24 hours. TNF will then notify the SHPO of the discovery.

XI. Dispute Resolution

A. Should any party to this MOA object at any time to any actions proposed or the manner in which the terms of this MOA are implemented, FHWA-CFLHD shall consult with such party to resolve the objection, and shall notify the MOA Signatories and concurring parties of the objection. If FHWA-CFLHD determines that such objection cannot be resolved, FHWA-CFLHD will:

1. Forward all documentation relevant to the dispute, including FHWA-CFLHD's proposed resolution, to the ACHP. The ACHP shall provide FHWA-CFLHD with its opinion on the resolution of the objection within 30 days of receiving adequate documentation. Prior to reaching a final decision on the dispute, FHWA-CFLHD shall prepare a written response that takes into account any timely opinion or comments regarding the dispute from the MOA signatories and concurring parties, and provide them with a copy of this written response. FHWA-CFLHD will then proceed according to its final decision.

2. If the ACHP does not provide comments regarding the dispute within the 30-day time period, FHWA-CFLHD may make a final decision on the dispute and proceed accordingly. Prior to reaching a final decision, FHWA-CFLHD shall prepare a written response that takes into account any timely comments regarding the dispute from the MOA Signatories and concurring parties to the MOA, and provide them and the ACHP with a copy of such written response.
3. The responsibilities of FHWA-CFLHD to carry out all other actions subject to the terms of this MOA that are not the subject of the dispute remain unchanged.
4. At any time during implementation of the measures stipulated in this MOA, should an objection pertaining to this MOA or the effect of the Undertaking on historic properties be raised by a member of the public, FHWA-CFLHD shall notify the parties to this MOA and take the objection into account, consulting with the objector and with relevant parties to this MOA to resolve the objection.

XII. Amendments

A. This MOA may be amended when such an amendment is agreed to in writing by all MOA Signatories. Any signatory to this Agreement may propose an amendment in writing to FHWA-CFLHD.

B. FHWA-CFLHD shall consult with the signatories to this MOA to consider the proposed amendment. If there is agreement among all MOA Signatories, the MOA shall be amended accordingly and the amendment will be effective on the date a copy signed by all of the signatories is filed with the ACHP. FHWA-CFLHD shall provide all MOA Signatories and concurring parties with a copy of the executed amendment.

XIII. Termination

A. If any MOA Signatory determines that its terms will not or cannot be carried out, that party shall immediately consult with the other signatories to attempt to develop an amendment per Stipulation XII. If, within thirty (30) days, an amendment cannot be reached, any MOA Signatory may terminate the MOA upon written notification to the other signatories.

B. Once the MOA is terminated, and prior to work continuing on the Undertaking, FHWA-CFLHD must either (a) execute an agreement pursuant to 36 CFR § 800.6 or (b) request, take into account, and respond to the comments of the ACHP under 36 CFR § 800.7. FHWA-CFLHD shall notify the MOA Signatories as to the course of action it will pursue.

XIV. Duration

A. This MOA will expire if its terms are not carried out within 10 years from the date

of its execution. At least six months prior to the end of the expiration date, if the Undertaking will be continuing beyond the expiration date, the MOA Signatories shall consult to determine if an extension of the MOA's duration is warranted. If it is decided that an extension is needed, the MOA Signatories shall consult to determine whether this MOA remains satisfactory or if its terms need to be amended pursuant to the Amendment stipulation (Stipulation XII).

XV. Anti-Deficiency Act

A. FHWA-CFLHD's obligations under this MOA are subject to the availability of funds, and the stipulations of this MOA are subject to the provisions of the Anti-Deficiency Act (31 USC 1341). FHWA-CFLHD will make a reasonable and good faith effort to secure the necessary funds to implement this MOA in its entirety. If compliance with the Anti-Deficiency Act alters or impairs the FHWA-CFLHD's ability to implement the stipulations of this MOA, FHWA-CFLHD will consult with the SHPO and ACHP in accordance with the amendment and termination procedures in Stipulations XII and XIII respectively.

XVI. Counterpart Signatures

A. This MOA and any amendments may be executed in counterparts, each of which shall be deemed an original and all of which together shall constitute one and the same instrument.

SIGNATURE BLOCKS

EXECUTION of this MOA by the FHWA-CFLHD, the SHPO, and the ACHP, and implementation of its terms is evidence that FHWA-CFLHD has taken into account the effects of the Undertaking on historic properties, and has afforded the ACHP an opportunity to comment on the Apache Trail Project.

SIGNATORIES:

Federal Highway Administration – Central Federal Lands Highway Division

By:_____ Date:_____

Name: Curtis Scott, P.E. Title: Chief of Engineering

Arizona State Historic Preservation Officer

By:_____ Date:_____

Name: Kathryn Leonard Title: State Historic Preservation Officer

Advisory Council on Historic Preservation

By:_____ Date:_____

Name: Reid J. Nelson Title: Executive Director, Acting

INVITED SIGNATORIES:

USDA Forest Service, Southwest Region

By:_____ Date:_____

Name: Michiko Martin Title: Regional Forester

Arizona Department of Transportation

By:_____ Date:_____

Name: Kurtis J. Harris Title: Assistant District Engineer

CONCURRING PARTIES:

Yavapai-Apache Nation

By:_____ Date:_____

Name: John Huey Title: Chairman

MOA
Attachment A.
Description and Maps of the
Area of Potential Effect

The Undertaking is located within portions of Sections 19 and 30, Township 4 North (T4N), Range 12 East (R12E); Sections 25, 35, and 36, T4N, R11E; and Sections 2, 11, 14, 22, 23, 27, 28, and 33, T3N, R11E (Gila and Salt River Baseline and Meridian [GSRB&M]) as depicted on the United States Geological Survey (USGS) Pinyon Mountain, Ariz., and Theodore Roosevelt Dam, Ariz., 7.5-minute topographic maps.

The area of potential effect (APE) defined for this project is located along the Apache Trail between MP 229.20 and MP 240.60. Total length of the APE is 11.20 miles; width is variable and ranges between 200 and 300 feet. Land jurisdiction in the APE is ADOT easement (100 feet in width centered on the roadway) crossing public lands under the jurisdiction of TNF, and TNF lands. Total acreage of the APE is 165.5 acres, all of which are on TNF lands. Of this, 138.9 acres are maintained and operated by ADOT under an existing across TNF lands. The APE is depicted graphically on the subsequent pages. The project's APE was originally delineated by FHWA CFLHD using the following maximum extents for each proposed activity:

- Road resurfacing and berm removal: 20 feet upslope and 30 feet downslope of the existing road alignment
- Line-of-sight slope cutbacks: 50 feet upslope of the existing road alignment
- Culvert improvements/replacements/removals: 20 feet (width) by 25 feet (length) beyond the existing road alignment for upslope inlets, and 80 feet to 120 feet beyond the existing road alignment for downslope outlets (depending on the size of the existing culvert), with exceptions
- Low water crossings: 120 feet (length) by 80 feet (width) on each side of the existing roadway, with exceptions
- A buffer beyond the edge of these limits to account for construction access.

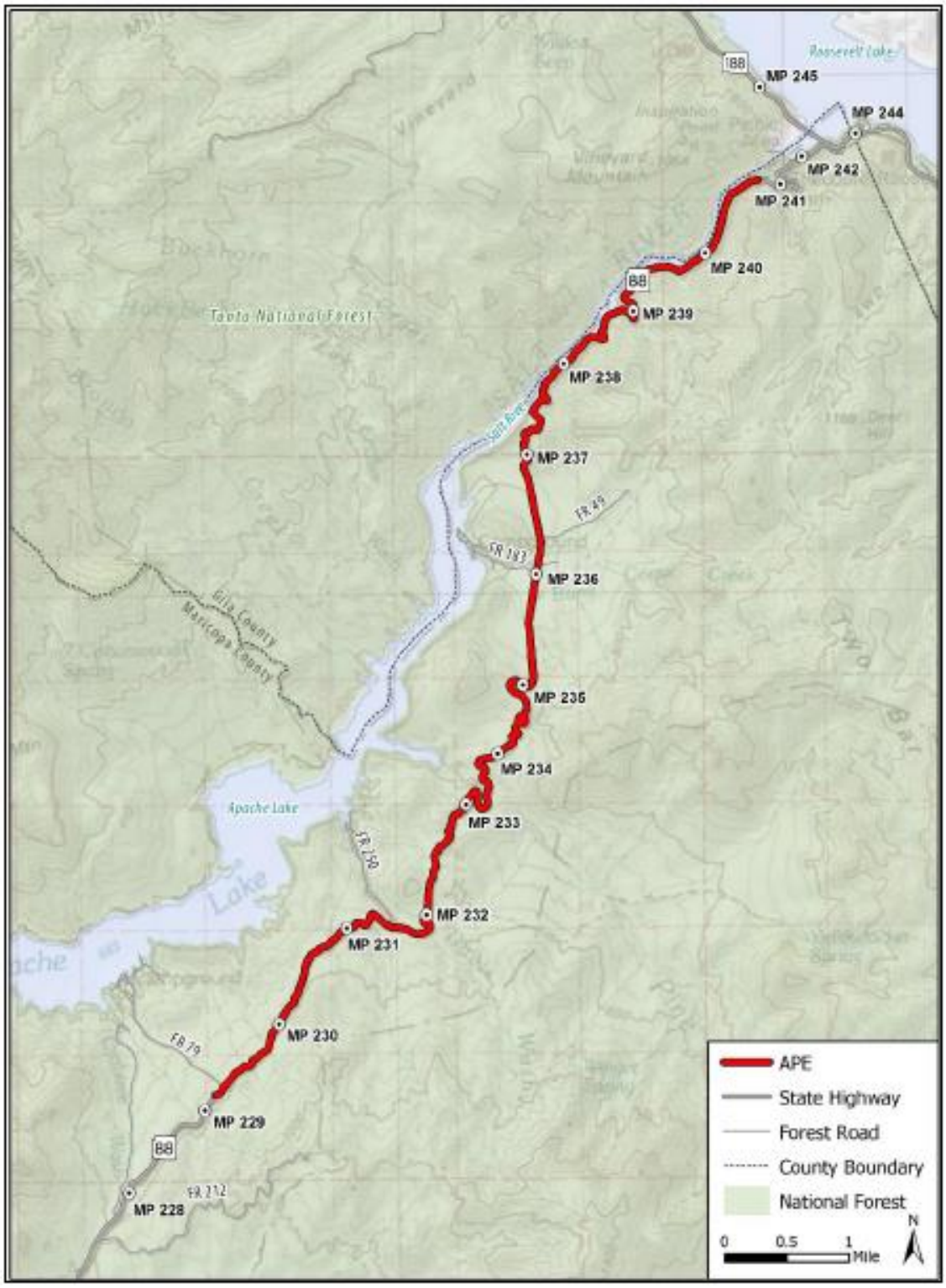

Figure 1: Location of the APE and Land Jurisdiction.

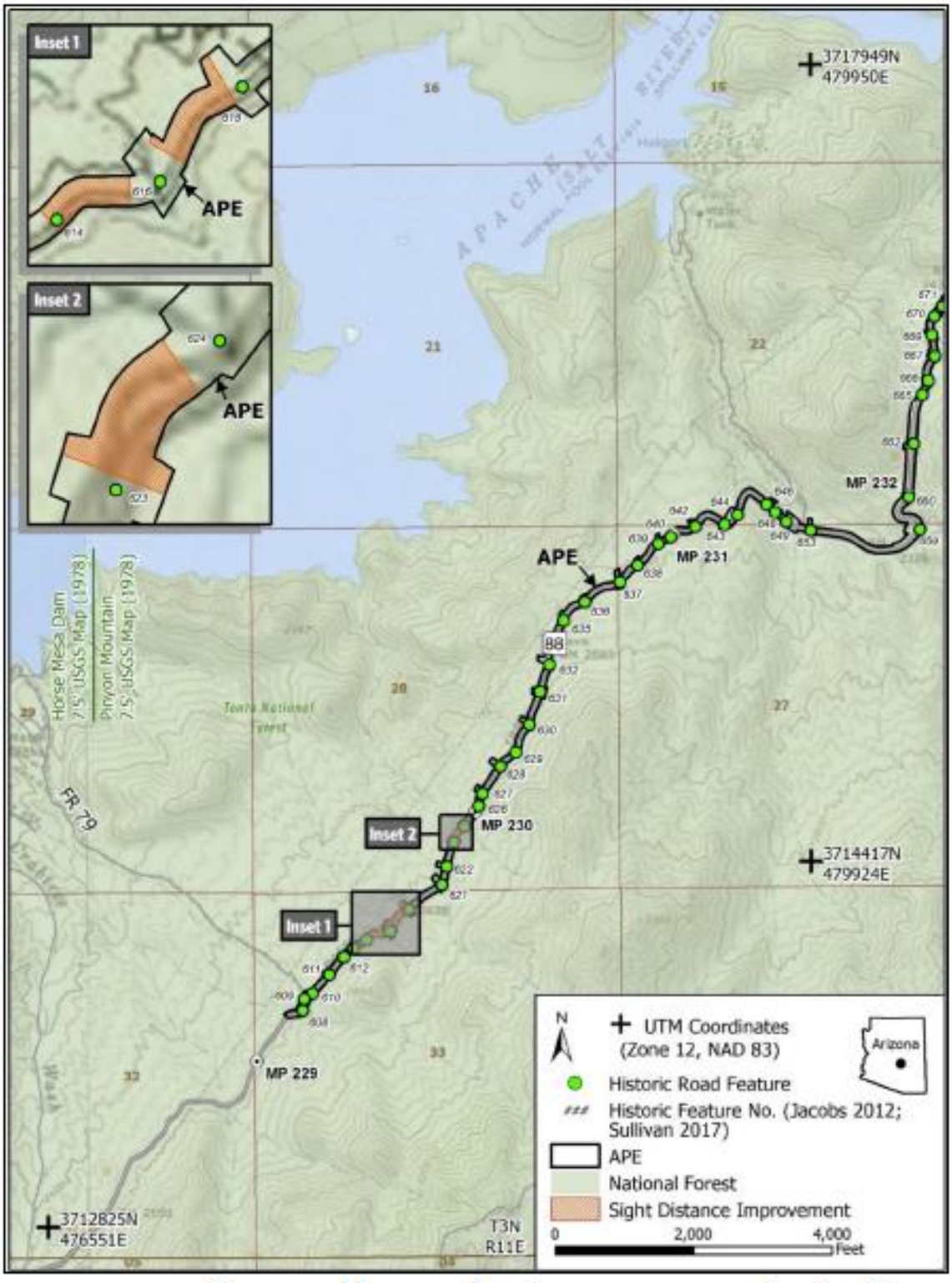

Figure 2: Locations of historic road feature and site distance improvements (panel 1 of 4).

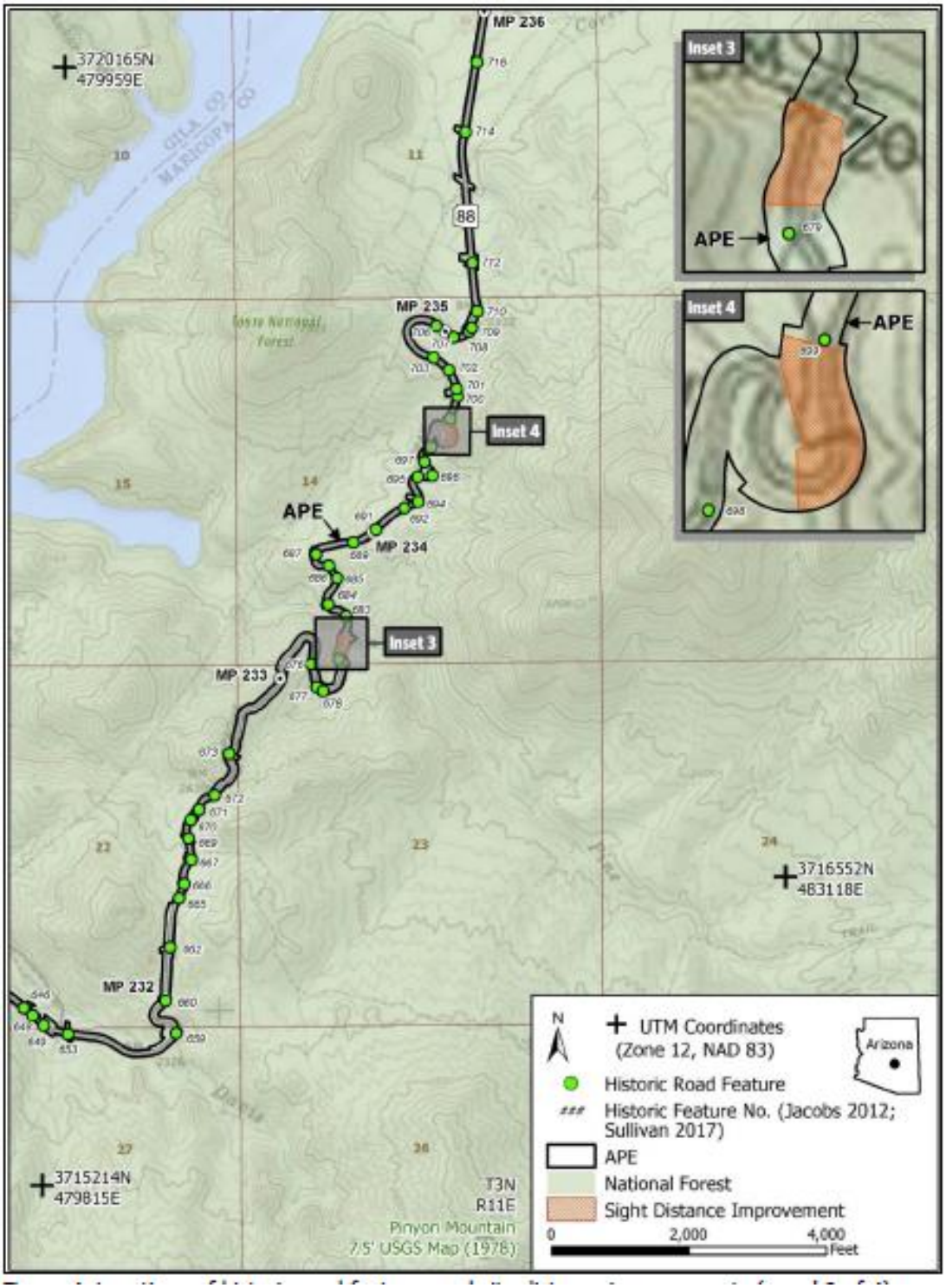

Figure 3: Locations of historic road feature and site distance improvements (panel 2 of 4).

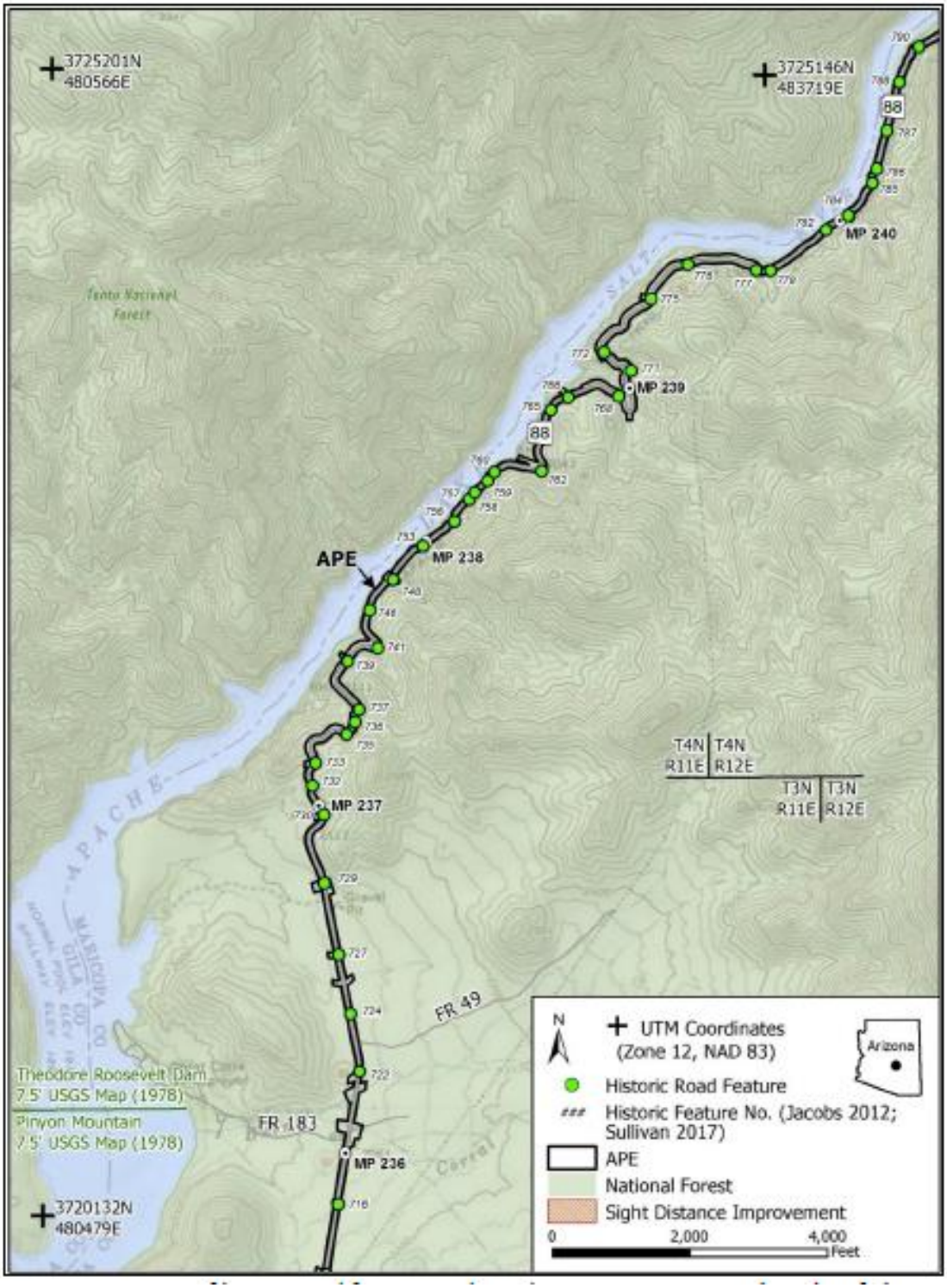

Figure 4: Locations of historic road feature and site distance improvements (panel 3 of 4).

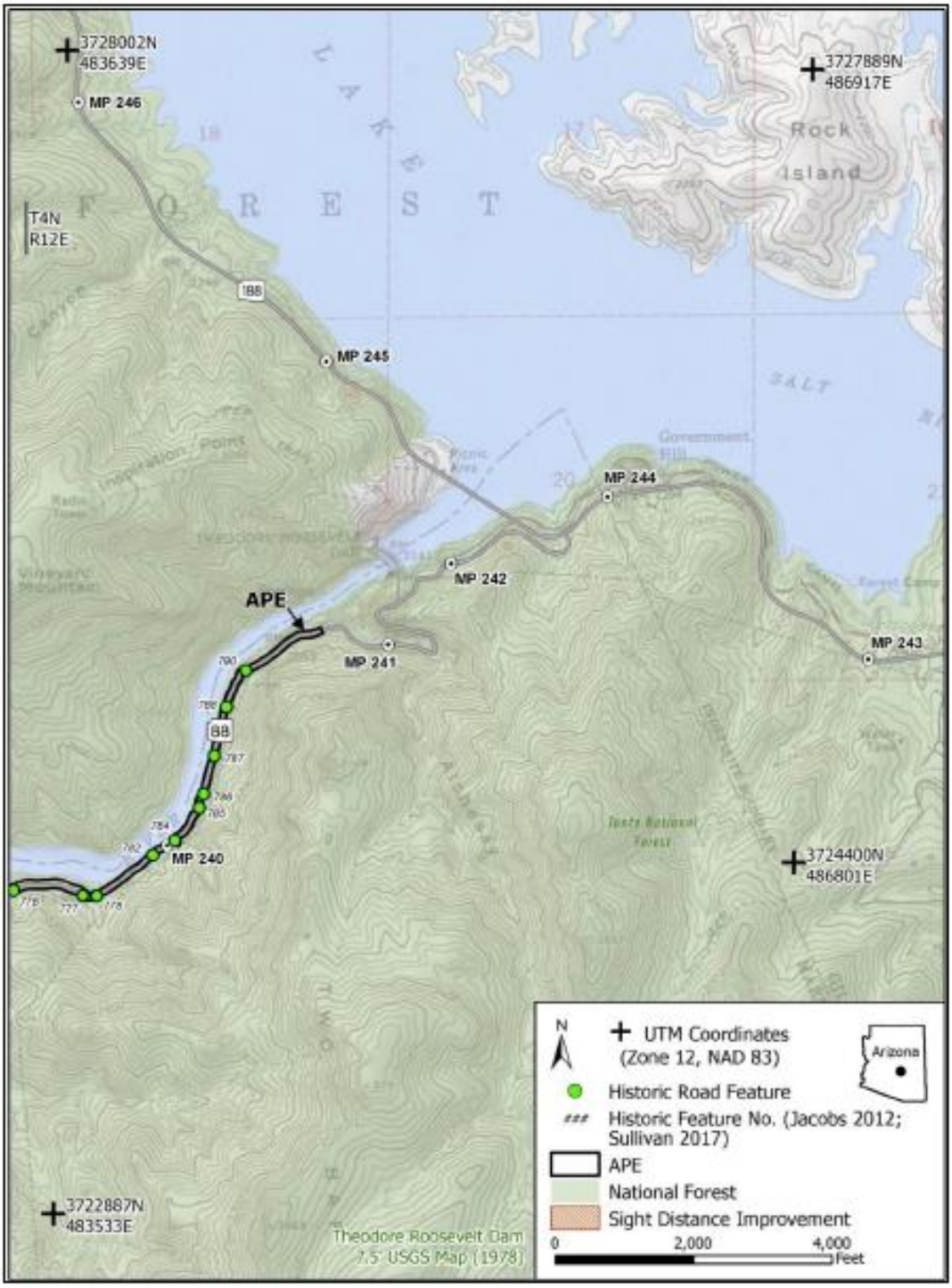

Figure 5: Locations of historic road feature and site distance improvements (panel 4 of 4).

MOA
Attachment B.
Eligible Historic Properties

Site/Feature No.	MP	Description	Eligibility	Proposed Activity	Management Recommendations
03-555(TNF)/ AZ U:7:7(ASM)	Not specified	Historic transmission line	Determined eligible (A)	Roadway improvements	This site loosely parallels and crosses the project APE for its length. A total of nine features and artifacts were recorded by Barz (1995) within the ADOT easement. With the exception of some unmaintained access roads, these are outside of the roadway where improvements would occur. There would be no improvements to these access roads as a result of the project, and the other extant features of this site would be avoided by construction. No further work is recommended for this site.
03-556(TNF)/ AZ U:7:8(ASM)	Not specified	Historic telephone line	Determined eligible (A, D)	Roadway improvements	This site parallels and crosses the project APE for most of its length. A total of 30 features and artifacts were recorded by Barz (1995) within the ADOT easement. These are outside of the roadway where improvements would occur. The extant features of this site would be avoided by construction. No further work is recommended for this site.
06-450(TNF)/ AZ U:8:604(ASM)	236.16-236.21	Historic work camp	Determined eligible (A, D)	Roadway improvements	This site is plotted on both sides of the road in an area where improvements to the roadway are planned. Avoidance is recommended. To ensure avoidance, it is recommended that the site boundary and a 50-foot buffer avoidance be flagged by a qualified archaeologist prior to construction.
06-2426(TNF)/ AZ U:8:600(ASM)	MP 229.28-MP 229.54	Historic site of unknown use	Determined eligible (D)	Roadway improvements	The site is plotted on both sides of the road in an area where improvements to the roadway are planned. Avoidance is recommended. To ensure avoidance, it is recommended that the site boundary and a 50-foot avoidance buffer be flagged by a qualified archaeologist prior to construction.
06-2428(TNF)/ AZ U:8:602(ASM)	234.93	Historic road and corral	Determined eligible (D)	Roadway improvements	Only the historic road is located within the project APE. Review of aerial imagery reveals that within the project APE, the road has been destroyed by modern use as a turnout and no longer retains integrity. All of the extant features of the site are outside of the project APE and would be avoided. No further cultural resources work is recommended for this site.
06-2429(TNF) / AZ U:9:603(ASM)	MP 234.15	Yavapai temporary campsite	Determined eligible (D)	Roadway improvements	The site is plotted atop a cut bank above the roadway and would be avoided by project activities. No further cultural resources work is recommended.
06-2430(TNF)/ AZ U:8:605(ASM)	MP 238.12	Hohokam limited activity area	Determined eligible (D)	Roadway improvements	The site is plotted in the APE below the roadway and the extant features of this site would be avoided by project activities. No further cultural resources work is recommended.
06-2431(TNF)/ AZ U:8:606(ASM)	MP 238.88	Historic trash dump	Determined eligible (D)	Roadway improvements	This site is plotted atop and on the west side of a steep bluff along the west side of the roadway. As described by Barz (1995), the portion of the site atop the bluff and adjacent to the roadway has been obliterated by blading, and the features and artifacts associated with the site are below the roadway along the sides of the bluff. Aerial review of current conditions confirms this. The intact portion of the site would be avoided by project activities. No further cultural resources work is recommended.
06-2435(TNF)/ AZ U:8:607(ASM)	MP 239.43	Historic work camp and access road	Determined eligible (D)	Roadway improvements	Only the historic access road is located within the APE. Review of aerial imagery reveals that within the project APE, the road is no longer is accessible from the roadway. As a result, this site would be avoided. No further cultural resources work is recommended.
06-2503(TNF)/ AZ U:8:632(ASM)	MP 234.45-MP 234.65	Historic blasting cans	Determined eligible	Roadway improvements	The site is plotted atop a cut bank above the roadway in a location where line of sight improvements are planned. It is recommended that the site be avoided. If avoidance is not feasible, it is recommended that an appropriate level of treatment be outlined in a project-specific Memorandum of Agreement (MOA), and implemented prior to construction to mitigate any potential adverse effect.
06-218(TNF)/Apache Trail roadway and historic roadway features	MP 229.20-240.60	Historic roadway	Determined eligible (A, C, D)	Roadway improvements, including paving, and line of sight improvements; removal and/or alteration of historic roadway features	Roadway improvements such as paving and improving line of sight would adversely affect the NRHP qualities of the historic roadway. Removal of historic roadway features would also adversely affect the NRHP characteristics of the roadway. It is recommended that an appropriate level of documentation and treatment be outlined in a project-specific MOA to mitigate the adverse effect.

MOA
Attachment C.
Apache Trail (SR 88) Character Defining Features for HAER Documentation

SR88 – Apache Trail MP 229.2 to 240.6
HAER Documentation Recommendations
1/4/2021

SR88 – Character Defining Features for HAER Documentation				
#	Mile Post	Character Defining Feature #	Post Natural Disaster Condition[1]	HAER Documentation
1	229.2	608	Intact - Minimal Damage	Yes
2	229.26	610	Intact - Minimal Damage	Yes Outlet Only
3	229.55	616	Intact - Minimal Damage	Yes
4	229.94	624	Intact - Minimal Damage	Yes
5	230.14	628	Inlet Damage/ Outlet Intact - Minimal Damage	Yes Outlet Only
6	231.17	643	Inlet Damage/ Outlet Intact - Minimal Damage	Yes Outlet Only
7	231.36	646	Inlet Damaged/ Outlet Intact - Minimal Damage	Yes Outlet Only
8	232.24	666	Intact - Minimal Damage	Yes
9	236.76	729	Intact – Minimal Damage	Yes Inlet Only
10	237.31	735	Intact – Minimal Damage	Yes
11	237.9	748	Intact – Minimal Damage	Yes
12	238.65	765	Inlet Damage / Outlet Intact – Minimal Damage	Yes Outlet Only
13	239.52	776	Inlet Damage / Outlet Intact - Minimal Damage	Yes Outlet Only
14	239.72	777	Intact – Minimal Damage	Yes
15	240.48	788	Inlet Damage / Outlet Intact - Minimal Damage	Yes Outlet Only

[1] In the summer of 2019 the Woodbury Fire burned and denuded 88% of Tonto National Monument. On September 23, 2019 and November 19, 2019 severe thunderstorms originating from the remnants of Tropical Storms Lorena and Raymond respectively moved over the project area for the Apache Trail project. These storms released intense rainfall over this denuded and degraded watershed which resulted in significant flooding and debris flows over segments of the Apache Trail roadway. Much of the roadways drainage features, many which were historic character defining features (CDF) for the Apache Trail (SR 88), were damaged or destroyed.

MOA
Attachment D.
Contact Information

Contact List

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Arizona Department of Transportation
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Appendix D

Summary of Avoidance, Minimization and/or Mitigation Measures

Summary of Avoidance, Minimization, and/or Mitigation Measures

This appendix summarizes the avoidance, minimization and mitigation measures discussed in Chapter 3. Additional details regarding these measures are included in the applicable resource sections within Chapter 3. Some measures pertain to the protection of multiple resources.

Transportation

During construction, the following measures will be implemented to help minimize transportation impacts:

- During the majority of the construction period, at least one lane of traffic shall remain open during construction with a maximum daytime 30-minute delay. Temporary full closures would be anticipated to accomplish specific construction activities, such as culvert replacements or blasting. Prior to Memorial Day, an extended delay from 9 am to 3 pm would be permitted with the contractor passing traffic once through this delay to perform blasting operations and major earthwork where maintaining a single traffic lane would not be feasible. Nighttime closures would be considered for culvert replacements or heavy earthwork/blasting as needed. Public notification of anticipated closures and delays would be posted on ADOT's and TNF's website and along the route. Prior to full closures, notice must be provided to the public, relevant local agencies, school districts, and emergency service providers.

- Emergency vehicles shall be permitted to pass through the construction limits during construction without delay.

Socioeconomics

During construction, the following measures will be implemented to help minimize socioeconomic impacts:

- During the majority of construction period, at least one lane of traffic shall remain open, with a maximum daytime 30-minute delay. If any delay longer than 30 minutes is anticipated to accomplish specific construction activities, then notice shall be provided. Prior to Memorial Day, an extended delay from 9 am to 3 pm would be permitted with the contractor passing traffic once through this delay to perform blasting operations and major earthwork where maintaining a single traffic lane would not be feasible. Nighttime closures would be considered for culvert replacements or heavy earthwork/blasting as needed. Public notification of anticipated closures and delays would be posted on ADOT's and TNF's website and along the route. Prior to full closures, notice must be provided to the public, relevant local agencies, school districts, and emergency service providers.

- Emergency vehicles shall be permitted to pass through the construction limits during construction without delay.

- The contractor shall provide the construction schedule to businesses and nearby residences adjacent to the construction limits and notify them at least 48 hours in advance of construction work.

- FHWA will coordinate closely with the Apache Lake Marina & Resort, Apache Trail Tours, private ranch owner, and other entities before and during the project to ensure appropriate public outreach and notification is employed.

Recreation and Visitor Experience

During construction, the following measures will be implemented to help minimize impacts to recreational users:

- At least one lane of traffic will remain open during construction, with a maximum daytime 30-minute delay. If any delay longer than 30 minutes is anticipated to accomplish specific construction activities, then notice shall be provided. Prior to Memorial Day, an extended delay from 9 am to 3 pm would be permitted with the contractor passing traffic once through this delay to perform blasting operations and major earthwork where maintaining a single traffic lane would not be feasible. Nighttime closures would be considered for culvert replacements or heavy earthwork/blasting as needed. Public notification of anticipated closures and delays would be posted on ADOT's and TNF's website and along the route. Prior to full closures, notice must be provided to the public, relevant local agencies, school districts, and emergency service providers.
- Emergency vehicles shall be permitted to pass through the construction limits during construction without delay.

Cultural Resources

The following measures will be implemented to reduce potential impacts to historic properties:

- Any ground disturbing activities in proximity to features with a known potential for buried walls would require the presence of a qualified archaeologist.
- A site boundary and a 50-foot buffer avoidance would be flagged by a qualified archaeologist prior to construction around the historic work camp and the historic site of unknown use in order to avoid impacts to these sites.
- FHWA CFLHD shall, if possible, avoid adverse effects to all types of historic properties, with input from consulting parties. Avoidance measures for historic properties may include (but are not limited to) fencing or flagging of sites during construction, monitoring of construction near site areas within a buffer zone, or placing infrastructure outside of site boundaries. A Monitoring and Discovery Plan (see HPTP measure below) will be in place to ensure avoidance during construction.

The following measures have been proposed to mitigate for those adverse impacts that would result under the Action Alternative:

- Where avoidance is not possible, FHWA-CFLHD shall minimize or mitigate adverse effects to historic properties through the development and implementation of an HPTP. The HPTP will be developed in consultation with the parties to the agreement, and will specify a program of measures to minimize (if applicable) and/or mitigate adverse effects. FHWA-CFLHD shall ensure that the HPTP is consistent with the Secretary of the Interior's Standards and Guidelines for Archaeological Documentation (48 FR 44734-44737). The HPTP will include additional detail regarding the following items:
    - Development of interpretive materials such as signs, kiosks, pamphlets, books and/or electronic documentation for the historic corridor, further described below.

- A data recovery/documentation plan for contributing elements along the Apache Trail.
- The proposed disposition and curation of recovered materials and records in accordance with relevant state and federal laws (ARS 41-842, 844) (36 CFR 79).
- A Monitoring and Discovery Plan with procedures for monitoring, evaluating, and treating existing features and discoveries of unexpected or newly identified cultural resources during construction of the Undertaking, including the consultation process and timelines with appropriate consulting parties.
- A project suspension/termination statement that stipulates the procedures to be followed if the project is halted during data recovery for any reason. This statement shall include the steps to be taken in order to complete any data recovery or other treatment measures that are in progress at the time of project termination; a brief discussion shall also be included that outlines how analysis, interpretation, reporting, and curation of remains obtained during treatment measures at all historic properties will be completed if the project is terminated prior to completion of the archaeological investigations.
- A proposed schedule for the Undertaking tasks, and a schedule for the submittal of draft and final reports (preliminary data recovery reports and data recovery reports) to consulting parties for review and comment.

- Prior to the start of any work that could adversely affect any characteristics that qualify the Apache Trail as a historic property, FHWA-CFLHD shall have a Secretary of the Interior-qualified professional in history or architectural history (as specified in 36 CFR Part 61) complete historical recordation and documentation of up to 15 character-defining features of the Apache Trail to the "outline format: engineering structures" specified in the Historic American Engineering Record (HAER) Guidelines for Historical Reports (2008, updated December 2017).
- FHWA-CFLHD will develop interpretive materials such as signs, kiosks, and/or electronic documentation for the historic corridor as outlined below.
  - Prior to construction completion, FHWA-CFLHD shall develop and install interpretation materials (i.e., signs/kiosk) at up to five currently developed recreation sites (i.e. Needle Vista Recreation Site, Canyon Lake Vista, Tortilla Flat, Fish Creek Hill Vista, and Apache Lake Vista) located along the Apache Trail. Developed and installed interpretive signs/panels shall not exceed 11 in number. The interpretive materials may include topics such as characteristics of the historic road (i.e. drainage features, retaining walls, bridges, etc.); engineering, construction methods and challenges of building the historic road; work force or people involved in designing and building the original road; stagecoach stops along the Apache Trail; tribal occupation and history; desert culture living and cultural landscapes; history of the of town of Tortilla Flat; and/or history of tourism along Apache Trail. Final topics will be determined by FHWA-CFLHD in consultation with SHPO, signatories and concurring parties of the MOA, but shall not deviate from the history of the Apache Trail and the cultural resources associated with it.

- FHWA-CFLHD will document the historic context of the Apache Trail and related resources, including Roosevelt Dam, Apache Lake and Marina, Fish Creek Hill, as well as contributing elements of the Apache Trail to provide a permanent record of how maintenance, fire, and flooding (including the 2019 events) have affected resources in the area. In coordination with ADOT, the historic context document will be made available to interested parties on the ADOT website for a minimum of five years.

- FHWA-CFLHD shall ensure that all artifacts, samples and records resulting from the mitigation program are curated in accordance with 36 CFR Part 79, except as determined through consultations with Tribes carried out in accordance with federal and state laws pertaining to the treatment and disposition of Native American Human Remains, Associated/Unassociated Funerary Objects, and Objects of Cultural Patrimony. FHWA-CFLHD would be responsible for any written agreements or fees associated with the curation.
- All materials and records from any archaeological investigations necessitated by the Undertaking will be curated at the ASM, or other repository that meets the standards set forth in 36 CFR Part 79, in accordance with Archaeological Resources Protection Act (ARPA) (Section 4.b.3) and 36 CFR Part 79.
- If new cultural resources are discovered, or if unanticipated effects on historic properties are identified, FHWA-CFLHD shall implement the project specific Monitoring and Discovery Plan (MDP) that is part of the HPTP.
- Should a discovery of archaeological or historical materials not covered under NAGPRA or the Arizona State Burial Laws occur, FHWA-CFLHD and the Project Contractor will follow procedures detailed in the MDP of the HPTP. FHWA-CFLHD will require that any cultural resources discovered during construction or other ground-disturbing activities be protected immediately in accordance with all applicable laws. The contractor will cease all construction activity in the immediate vicinity and all ground disturbing activities within 50 feet of any discovery, and will notify FHWA-CFLHD of the discovery within 24 hours. FHWA-CFLHD will notify the SHPO and appropriate consulting parties (e.g., the land manager) of the discovery.
- FHWA-CFLHD will consult with all of the consulting parties on the eligibility of newly discovered cultural resources. If eligible, FHWA-CFLHD will ensure that treatment measures follow the final HPTP, as well as the review processes and timelines for all reports as embodied in this agreement document.
- Unanticipated discoveries of cultural items covered under NAGPRA (i.e., human remains, funerary objects, sacred objects, and objects of cultural patrimony) are the responsibility of TNF, the federal landowner. If human remains or NAGPRA cultural items as described in 43 C.F.R. 10 are discovered, the protocol for the treatment of human remains and NAGPRA cultural items found in the HPTP will be followed. All construction within 50 feet of the discovery will cease and TNF will be notified.

Visual

The project design minimizes visual impacts in the following ways:

- Minimize the size of cut and fill slopes to the extent practicable.
- Minimize removal of trees, saguaros and other vegetation to the extent practicable.

- Minimize the number of road signs.
- Design cut slopes to blend into the adjacent natural topography.

Implementation of the following measures will offset the visual changes that would result from the proposed roadway improvements:

- The limits of clearing shall be irregular, and straight clearing lines shall be avoided by varying the width of the area to be cleared or by leaving selected clumps of vegetation, rock formations, and or boulders near the edge of the clearing limit.
- All disturbed areas shall be reseeded to the limits of clearing with native seeding mix.
- The contractor shall preserve and protect all vegetation outside of the approved clearing limits. Removal of vegetation outside of the approved clearing limits shall only occur with the authorization of the contracting officer.
- The contractor shall round and blend new slopes to mimic the existing contours, maintain slope stability, and highlight natural formations.
- Erosion-control fiber rolls shall be of natural earth-tone and biodegradable material.
- Integral natural appearing concrete coloring, natural rock, and/or form liners will be used for highly visible headwalls and/or wingwalls when deemed appropriate.

Noise

During construction, the following measures will be implemented to help reduce noise levels:

- Construction equipment shall have mufflers conforming to original manufacturer specifications that are in good working order and are in constant operation to prevent excessive noise or unusual noise.
- Operators shall avoid leaving equipment idling for more than five minutes when parked or not in use.

Geology and Soils

During construction, the following measures will be implemented to help reduce impacts to geology and soils:

- As part of the National Pollutant Discharge Elimination System (NPDES) Permit, a Stormwater Pollution Prevention Plan shall be implemented which would reduce impacts to soils.
- The area beyond the construction limits shall not be disturbed. Areas impacted from construction-related activity shall be replanted or reseeded with native plants under guidance from TNF and/or ADOT biologists. Revegetated areas shall be protected and cared for until restoration criteria have been met under NPDES standards.

Air Quality

Standard construction BMPs will be implemented to minimize fugitive dust and NOx emissions during construction. Examples of which include the following:

- Maintain roadways during construction as follows:
    - Manage dust on the traveled way such that visibility and air quality are not affected and a hazardous condition is not created.
    - Remove accumulations of soil and other material from traveled way.
- Before grubbing or grading construct sediment controls around the perimeter of the project including filter barriers, diversion, and settling structures.
- Provide an adequate water supply and apply water uniformly across the traveled way as necessary to control dust. Uniformly apply water using pressure-type distributors, pipelines equipped with spray systems, or hoses with nozzles.
- Control dust within the construction limits as necessary including nights, weekends, and periods of non-work when the project is open to public traffic. When the project is not open to public traffic, control dust in areas of the project that have adjacent residences or businesses. Apply water at the locations, rates, and frequencies as ordered.
- Control dust on active haul roads, in pits and staging areas, and on the project during periods not covered above.

Wetlands and Other Waters of the U.S.

There is no practicable alternative to avoid impacting ephemeral streams (i.e. non-jurisdictional waters) while meeting the purpose and need of the project. The following measures will be implemented in order to avoid or minimize impacts:

- Maintain the existing roadway alignment to minimize impacts to adjacent WOTUS.
- In certain locations, the road width and numerous curves will have design exceptions in order to minimize ground disturbance.
- Culvert repair or replacement and associated work shall not be completed if there is flowing water within the ephemeral channel.
- The construction contractor shall use BMPs to prevent the discharge of equipment fluids. All equipment shall be stored, repaired, maintained, and fueled at least 65 feet away from waterways. A plan to allow a prompt and effective response to any accidental spills shall be developed prior to construction.
- The area beyond the construction limits shall not be disturbed. Degraded areas impacted from construction-related activity shall be replanted or reseeded with native plants. FHWA-CFLHD shall work with TNF and ADOT for appropriate seed mixes.

Water Quality and Hydrology

The following measures would be implemented to reduce impacts on water quality:

- The area beyond the construction limits shall not be disturbed. Degraded areas impacted from construction-related activity shall be replanted or reseeded with native plants. FHWA-CFLHD shall work with TNF and ADOT for appropriate seed mixes.
- Certified weed-free permanent and temporary erosion control measures shall be used to minimize erosion and sedimentation during and after construction according to the contract erosion control plan, contract permits, Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects (referred to as FP) Section 107 and FP Section 157.
- Any spill of petroleum products, hazardous materials, or other chemical or biological products released from stationary sources or construction, fleet, or other support vehicles shall be properly cleaned, mitigated, and remedied, if necessary. Any spill of petroleum products or a hazardous material shall be reported to the appropriate federal, state, and local authorities, if the spill is a reportable quantity. Response shall occur in accordance with federal, state, and local regulations.
- The contractor shall repair leaks immediately on discovery. Equipment that leaks shall not be used. Oil pans and absorbent material shall be in place prior to beginning work. The contractor shall be required to provide the "on-scene" capability of catching and absorbing leaks or petroleum product spills, including antifreeze from breakdowns or repair actions, with approved absorbent materials. A supply of acceptable absorbent materials at the job site in the event of spills, as defined in the SWPPP, shall be available. Sand and soil are not approved absorbent materials. Soils contaminated with fluids shall be removed, placed in appropriate safety containers, and disposed of according to state and/or federal regulations.
- The construction contractor shall use BMPs to prevent the discharge of equipment fluids. All equipment shall be stored, repaired, maintained, and fueled at least 65 feet away from waterways, wetlands, and riparian habitat. A plan for prompt and effective response to any accidental spills shall be developed prior to construction.
- Temporary erosion control measures shall be maintained in working condition until the project is complete or the measures are no longer needed.
- Only apply herbicides conforming to U.S. Environmental Protection Agency (EPA), Arizona Department of Agriculture, and/or Arizona Department of Environmental (ADEQ) requirements on project corridor.
- Apply herbicides prior to ground disturbance where there are visible noxious and invasive plant species only.
- Herbicides proposed for use on projects within transportation easements on USFS Lands shall be in conformance with the following current environmental documents including the *Environmental Assessment for Management of Noxious Weeds and Hazardous Vegetation on Public Roads on National Forest System Lands in Arizona* which is available at: http://www.fs.usda.gov/main/r3/landmanagement/projects .

- For the use and application of herbicides, follow the Tonto National Forest EA for Treatment of Noxious Weeds: http://data.ecosystem-management.org/nepaweb/nepa_project_exp.php?project=4454, including information provided at: https://www.fs.usda.gov/detail/tonto/landmanagement/resourcemanagement/?cid=fsbdev3_018789.

Wildlife (Including Special Status Species)

The following BMPs would help avoid and minimize impacts to all species:

- All vehicles and equipment entering the project area must be clean of noxious weeds and free from oil leaks, and are subject to inspection. All construction equipment shall be washed thoroughly to remove all dirt, plant, and other foreign material prior to entering the project area. Particular attention shall be shown to the under-carriage and any surface where soil containing exotic seeds may exist. These efforts are critical to prevent the introduction and establishment of non-native plant species into the project area. Arrangements shall be made for inspections of each piece of equipment before entering the project, and records of inspections shall be maintained. Equipment found operating on the project that has not been inspected or has oil leaks shall be shut down and subject to citation.
- Operators shall avoid leaving equipment and vehicles idling for more than five minutes when parked or not in use.
- Any spill of petroleum products, hazardous materials, or other chemical or biological products released from construction, fleet, or other support vehicles, or stationary sources shall be properly cleaned, mitigated, and remedied, if necessary. Response shall occur in accordance with federal, state, and local regulations. Any spill of petroleum products or a hazardous material shall be reported to the appropriate federal, state, and local authorities, if the spill is a reportable quantity.
- Leaks shall be repaired immediately on discovery. Equipment that leaks shall not be used. Oil pans and absorbent material shall be in place prior to beginning work. The contractor shall be required to provide the "on-scene" capability of catching and absorbing leaks or petroleum product spills, including antifreeze from breakdowns or repair actions, with approved absorbent materials. A supply of acceptable absorbent materials at the job site in the event of spills, as defined in the SWPPP, shall be available. Sand and soil are not approved absorbent materials. Soils contaminated with fluids shall be removed, placed in appropriate safety containers, and disposed of according to state and/or federal regulations.
- The construction contractor shall be required to take appropriate measures to prevent the discharge of equipment fluids. All equipment shall be stored, repaired, maintained, and fueled at least 65 feet away from waterways. A plan to allow a prompt and effective response to any accidental spills shall be developed prior to construction.
- Certified weed-free permanent and temporary erosion control measures shall be implemented to minimize erosion and sedimentation during and after construction.
- FHWA-CFLHD shall conform to the Federal Seed Act, the Federal Noxious Weed Act, and applicable state and local seed and noxious weed laws.

The following measures will be implemented to avoid and minimize impacts to migratory birds:

- No vegetation clearing should occur during the migratory bird breeding season (February 1–August 31). During the non-breeding season (September 1–January 31) vegetation is not subject to this restriction. If vegetation clearing must occur between February 1 and August 31, pre-construction surveys for active migratory bird nests will be conducted by a qualified biologist in all suitable habitat that will be disturbed.

- If active bird nests are identified within the project limits, construction activities will avoid disturbing any active nest. A qualified biologist will determine the appropriate avoidance strategy until the nestlings have fledged and the nest is no longer active.

- In the year of proposed construction, FHWA-CFLHD would contact AGFD to determine if bald or golden eagles were known to be nesting within 0.5 miles of the project corridor between MP 238.6 and the eastern terminus of the project (MP 240.6). If an active eagle nest is present in this area, no work will occur until FHWA-CFLHD has determined that work can commence based on the location of the nest, type of construction, and expected noise levels associated with project activities in that area, consistent with the *National Bald Eagle Management Guidelines* (USFWS 2007).
- In the year of proposed construction, FHWA-CFLHD would contact AGFD to determine if peregrine falcons were known to be nesting within 0.5 miles of the project corridor between MP 237 to the eastern terminus of the project (MP 240.6). If an active falcon nest is present in this area, no work will occur until FHWA-CFLHD has determined that work can commence based on the location of the nest, type of construction, and expected noise levels associated with project activities in that area.

The following measures will be implemented to avoid or minimize potential adverse effects to the Sonoran Desert tortoise:

- During construction, FHWA-CFLHD would ensure the project adheres to the *ADOT Sonoran Desert Tortoise Awareness Program Handout* and AFGD's *Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects* guidance documents which are both available online at: https://azdot.gov/sites/default/files/2019/06/tortoise_awareness_handout.pdf.
- The project contractor would be required to arrange for a qualified biologist to present an environmental awareness program to all personnel who would be onsite that would contain, at minimum, information regarding the desert tortoise and procedures to be implemented in case a desert tortoise is found within the project limits. No work would begin prior to presentation of the environmental awareness program.
- The project contractor shall notify FHWA-CFLHD if a desert tortoise is encountered during construction.
- During construction, FHWA-CFLHD would report all encountered desert tortoises (live, injured, or dead) to the Arizona Department of Transportation Environmental Planning Biologist within 24 (twenty-four) hours of the encounter using the Arizona Department of Transportation Sonoran Desert Tortoise Observation Form. Photos should be taken of tortoises encountered and included in the report, if possible.
- If any desert tortoises were encountered in the project area, the contractor would take any measures necessary to ensure that project activities would not harm or disturb any desert tortoise, while adhering to ADOT's current handling guidelines for Sonoran desert tortoise.

- The contractor would require all on-site workers to check under their parked vehicles and equipment prior to driving to make sure there wasn't a tortoise sheltering underneath. If a desert tortoise were found sheltering underneath a parked vehicle or piece of equipment, the tortoise would be allowed to move out from under the vehicle on its own or be relocated following the current guidelines for Sonoran desert tortoise handling before the vehicle could be moved.
- Before replacement and/or repair of any existing culverts, the culverts must be checked to ensure no Sonoran desert tortoises are present. If a desert tortoise is found inside a culvert, the tortoise shall be allowed to move out from the culvert under its own volition, or relocated by a qualified biologist. The current guidelines for Sonoran desert tortoise handling must be followed if any tortoises must be handled.
- A qualified biologist would be required to be onsite to monitor initial vegetation clearing activities greater than 100 SF for the protection of desert tortoises in that area. For vegetation clearing of less than 100 SF, the area would be checked by construction staff (who have received the environmental awareness program) to ensure no desert tortoise were present immediately prior to commencement of vegetation clearing.
- The contractor would not begin vegetation removal activities of over 100 SF or blasting activities until receiving project engineer approval. Project engineer approval would only be given following an initial survey of the vegetation clearing or blasting area for the presence of desert tortoises or other sensitive species by a qualified biologist immediately prior to commencement of vegetation clearing. The contractor would not conduct initial vegetation removal of over 100 SF unless a qualified biologist was present to handle Sonoran desert tortoises.

Vegetation and Noxious Weeds

The following measures will be implemented to minimize or mitigate impacts to vegetation and reduce the spread of invasive species. These measures are specific to the project area, which encompasses the project construction limits:

- All vehicles and equipment entering the project area shall be clean of noxious weeds and free from oil leaks, and are subject to inspection. All construction equipment shall be washed thoroughly to remove all dirt, plant, and other foreign material prior to entering the project area. Particular attention shall be shown to the under-carriage and any surface where soil containing exotic seeds may exist. These efforts are critical to prevent the introduction and establishment of non-native plant species into the project area.
- Certified weed-free permanent and temporary erosion control measures shall be implemented to minimize erosion and sedimentation during and after construction.
- FHWA-CFLHD shall conform to the Federal Seed Act, the Federal Noxious Weed Act, and applicable state and local seed and noxious weed laws.
- Degraded areas impacted from construction-related activity shall be reseeded with guidance from TNF biologists. Revegetated areas shall be protected and cared for, including watering when needed, until restoration criteria have been met under USACE permits or NPDES standards. Revegetated areas shall be monitored in accordance with the approved restoration plan to ensure success criteria are met.