

Appendix G
Desert Tortoise Survey Report

Final

**Desert Tortoise Survey Report
Red Rock Canyon Trail and Intersections Project
NV FLAP 500(1)
Clark County, Nevada**

**Federal Highway Administration
Central Federal Lands Highway Division
12300 West Dakota Avenue
Lakewood, Colorado 80228**



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Summary

The Central Federal Lands Highway Division of the Federal Highway Administration, in cooperation with the U.S. Bureau of Land Management (BLM), is proposing to implement the Red Rock Canyon Trail and Intersections Project (Project) (DOI-BLM-NV-S020-2020-00-EA) in Clark County, Nevada. The proposed Project consists of a new shared-use trail that would connect the Red Rock Canyon National Conservation Area (RRCNCA) entrance station with the Summerlin residential development via a route approximately 5.5 miles long. An alternative alignment approximately 0.4 mile long is also being investigated. Several safety and access improvements are also proposed along State Route 159 (SR 159), including relocation of the Red Rock Canyon sign and the addition of a small parking lot with a deceleration lane.

The purpose of this report is to summarize field data collected during presence/absence desert tortoise surveys conducted May 5 and 6, 2020. The data generated from this survey provide information necessary for U.S. Fish and Wildlife Service (USFWS) to estimate the amount of incidental take that could result from geotechnical investigations for the proposed Project, in compliance with the Programmatic Biological Opinion.

No live desert tortoises were observed during the protocol surveys. Ten sign observations were detected during the protocol surveys, including three scat detections and seven burrows. Six live tortoises and one carcass were incidentally detected while walking to transects and within the project area by project personnel conducting other investigations during the same timeframe.

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Acronyms and Abbreviations

Acronym	Definition
BLM	U.S. Bureau of Land Management
Jacobs	Jacobs Engineering Group Inc.
Project	Red Rock Canyon Trail and Intersections Project
RRCNCA	Red Rock Canyon National Conservation Area
SR	State Route
USFWS	U.S. Fish and Wildlife Service

1. Introduction

The Central Federal Lands Highway Division of the Federal Highway Administration, in cooperation with the U.S. Bureau of Land Management (BLM), is proposing to implement the Red Rock Canyon Trail and Intersections Project (Project) (DOI-BLM-NV-S020-2020-00-EA) in Clark County, Nevada. Located near Las Vegas, the Project will include improvements to Red Rock Canyon National Conservation Area (RRCNCA) and State Route 159 (SR 159) (Appendix A, Figure 1). The proposed Project consists of a new shared-use trail that would connect the RRCNCA entrance station with the Summerlin residential development via a route approximately 5.5 miles long. An alternative alignment approximately 0.4 mile long is also being investigated. Several safety and access improvements are also proposed along SR 159, including relocation of the Red Rock Canyon sign and the addition of a small parking lot with a deceleration lane. The sign relocation would reduce the frequency of motorists pulling off the road shoulder to take photographs at the current sign location, and the parking lot would provide short-term parking for these motorists. Three other parking area improvements included in the Project would provide access to the new trail. These improvements would improve the safety of SR 159 for motorized and non-motorized users, provide improved access to the RRCNCA, create a new high-quality recreation experience, and help conserve RRCNCA's rare and diverse natural resources.

Environmental impacts from the Project are being analyzed in an Environmental Assessment according to the National Environmental Policy Act. As part of project development, geotechnical investigations are needed to prepare for construction of the new shared-use trail and roadway improvements.

The purpose of this report is to summarize field data collected during presence/absence desert tortoise surveys conducted May 5 and 6, 2020. The data generated from this survey provide information necessary for U.S. Fish and Wildlife Service (USFWS) to estimate the amount of incidental take that could result from geotechnical investigations for the proposed Project, in compliance with the Programmatic Biological Opinion.

1.1 Geotechnical Investigations

Geotechnical investigations for the Project would involve drilling 25 borings along the preliminary trail alignment, which generally follows existing social trails through this portion of RRCNCA and along SR 159. The preliminary trail alignment consists of the 5.5-mile proposed trail and the 0.4-mile alternative trail. Any additional borings would occur within the proposed trail alignment and would be coordinated with BLM staff before drilling. The exact locations and numbers of borings may be revised based on conditions encountered at the project site.

Borings associated with improvements along the proposed trail alignment, parking areas, and SR 159 would be done within undisturbed and existing disturbed areas. A track-mounted 8-foot-wide drill rig would be used for the subsurface exploration. Borings would be drilled using either a 4-inch-diameter solid-stem auger or 6-inch-diameter hollow-stem auger to depths ranging from 5 to 70 feet. All borings would be immediately backfilled with the excavated native material following boring completion. Based on the drill rig size and the length of the path for geotechnical investigations, drilling activities would occur over 5.9 linear miles (5.5 miles of the proposed trail alignment and 0.4 mile of alternative trail alignment), resulting in 5.8 acres of temporary disturbance.

The proposed trail alignment would require up to four new wash crossings. Borings would be located at each wash, and geotechnical findings would inform the type of structure applied to each wash crossing. Along SR 159, the geotechnical analysis would inform pavement decisions for the proposed lengthening of vehicle storage in the existing deceleration lane at the Red Rock Scenic Loop Drive/SR 159 intersection and at the Calico Basin Road/SR 159 intersection.

The geotechnical investigation is anticipated to last approximately 5 to 10 days. Borings would be conducted during daytime hours. Because the proposed trail alignment is off-road, impacts to visitor access are not anticipated. Borings along SR 159 would use a single-lane closure to complete the drilling. No staging areas would be required.

1.2 Mojave Desert Tortoise

The Mojave desert tortoise (*Gopherus agassizii*) is listed as federally threatened under the U.S. Endangered Species Act and state threatened under the Nevada Administrative Code (NAC 50.080). Habitat for the Mojave desert tortoise occurs within the project area, although historical survey data indicate the surrounding area is low-density habitat (BLM 2014). The proposed project does not occur within designated critical habitat for this species (USFWS 1994).

2. Survey Area Description

The Red Rock Trail shared-use trail is located at the southwestern side of the community of Summerlin within the city of Las Vegas in Clark County, Nevada (Appendix A, Figure 1).

According to the U.S. Department of Agriculture Natural Resources Conservation Service, soils in over 85 percent of the survey area are well-drained, gravelly loam soils, consisting of calcareous material weathered from limestone and wind-deposited sand (2019). The remainder of the survey area consists of well-drained, shallow, gravelly loam soils consisting of alluvial deposits derived from limestone and siltstone.

Elevation in the survey area ranges from 3,600 to 4,700 feet. Land cover types transition between creosote bush-bursage desert scrub to blackbrush-dominated Mojave mixed desert scrub with pockets of desert wash. Common plant species observed include creosote bush (*Larrea tridentata*), blackbrush (*Coleogyne ramosissima*), white bursage (*Ambrosia dumosa*), broom snakeweed (*Gutierrezia sarothrae*), rubber rabbitbrush (*Ericameria nauseosa*), silver cholla (*Cylindropuntia echinocarpa*), Joshua tree (*Yucca brevifolia*), Mojave yucca (*Y. schidigera*), and desert globemallow (*Sphaeralcea ambigua*). Appendix B (Photos 1 through 4) includes representative habitat photographs.

3. Survey Methodology

Presence/absence surveys were conducted in accordance with the small and linear project protocol detailed in the USFWS *Desert Tortoise (Mojave Population) Field Manual (Gopherus agassizii) (Desert Tortoise Field Manual)*, Chapter 4 (2009). Under this protocol, the action area is “the right-of-way and the adjacent areas on both sides of the right-of-way where tortoises may be moved from harm’s way during implementation of the project” (USFWS 2009). Although habitat suitability has been reduced in the project area, suitable cover sites are available throughout for placement of desert tortoises relocated out of harm’s way during geotechnical investigations. Additionally, because of the low density of tortoises anticipated within the project area, it is not expected that tortoises would need to be relocated greater than 100 meters (328 feet) beyond the project footprint.

The survey area extended approximately 100 meters to each side of the preliminary trail alignment centerline, resulting in a 200-meter-wide project survey area (action area) totaling 407.14 acres (Appendix A, Figure 2). The preliminary trail alignment includes the 5.5-mile-long proposed trail, the 0.4-mile-long alternative trail, and a buffer to account for potential disturbance and/or realignment. The trail itself would be 10 feet wide, and a 200-foot buffer was added to either side of the trail centerline.

Following the linear projects protocol, one 10-meter-wide (32-foot-wide) belt transect is required for every 100 meters of habitat adjacent to the linear corridor. Therefore, surveys included one 10-meter belt transect centered on the proposed and alternative trail alignments, and two 10-meter-wide belt transects located 100 meters to each side of the centerline (Appendix A, Figure 2). All tortoises and their sign were documented in accordance with the USFWS survey protocol. Surveyors were trained in this protocol and had previous experience searching for tortoises and sign. Locations of tortoises and sign were recorded using GPS (global positioning system) equipment, and photographs were taken of all scat, burrows, carcasses, and live tortoises that were encountered. Data sheets containing the information as outlined in the *Desert Tortoise Field Manual* were completed for each transect. Additionally, tortoise burrows were georeferenced to assist in tortoise relocation during the geotechnical investigations.

4. Results

Surveys were conducted by Jacobs Engineering Group Inc. (Jacobs) biologists Samantha Vaughan and Jill Harris on May 5 and 6, 2020, for a total of 27 survey hours. A total of 20.2 miles was walked over 47 transects, which ranged between 0.09 and 4.86 miles long (Appendix A, Figure 2). Weather was clear and sunny with ambient temperatures ranging from 63 to 95 degrees Fahrenheit. Surveys started in the early morning and ended in the early afternoon. Photographs from the survey are in Appendix B, and data results are in Appendix C.

No live desert tortoises were observed during the protocol surveys. Ten sign observations were detected during the protocol surveys, including three scat detections and seven burrows (Table 1; Appendix A, Figure 3). Tortoise burrows were mostly recorded on the perimeter of the study area and were at least 0.21 mile from any road. Complete results for protocol surveys are located in Appendix C (Tables C-1 through C-3), and photographs of tortoise sign are in Appendix B (Photos 5 through 14). Data sheets are on file with Jacobs.

Table 1. Summary of Tortoise Sign Detected During Protocol Surveys

Observation	Observation Condition ^[1]	Total
Live tortoises	Not observed	0
Burrows	<ul style="list-style-type: none"> • 1 (active) • 6 (Status unknown) 	7
Carcasses	Not observed	0
Scat	<ul style="list-style-type: none"> • 2 (1 to 2 years old) • 1 (Fresh, from current year) 	3
Total Sign		10

^[1] Observed conditions for each sign were pulled from the following predetermined descriptions:

Live Tortoises

- Hatchling
- Juvenile
- Adult

Carcasses

- Normal color, scutes adhered to bone
- Shell bones falling apart; growth rings on scutes are peeling
- Disarticulated and scattered

Burrows

- Active
- Inactive
- Status unknown

Scat

- Fresh, from current year
- 1 to 2 years old
- More than 2 years old
- Unknown

Six live tortoises were incidentally detected while walking to transects and within the project area by project personnel conducting other investigations during the same timeframe. These incidental detections included one adult (>180 millimeters) and five immature/juvenile (<180 millimeters) (Table 2; Appendix A, Figure 4). The large adult was found in upland non-wash habitat on the western side of the survey area, while a juvenile was found in cobble and rocks on the eastern side of the survey area. Another juvenile tortoise was detected on the shoulder of SR 159. Other juvenile detections were in alluvial washes throughout the survey area. A juvenile tortoise carcass, estimated to have died within the last year, was also recorded along Calico Basin Road. Complete results for incidental detections are located in Appendix C (Table C-4), and photographs of live tortoises are in Appendix B (Photos 15 through 22).

Table 2. Summary of Incidental Observations of Tortoise Sign Detected in the Survey Area

Observation	Observation Condition ^[1]	Total
Live tortoises	<ul style="list-style-type: none"> • 5 (Juvenile) • 1(Adult) 	6
Burrows	Not Observed	0
Carcasses	<ul style="list-style-type: none"> • 1 (Normal color, scutes adhered to bone) 	1
Scat	Not Observed	0
Total Sign		14

^[1] Observed conditions for each sign were pulled from the following predetermined descriptions:

Live Tortoises

- Hatchling
- Juvenile
- Adult

Carcasses

- Normal color, scutes adhered to bone
- Shell bones falling apart; growth rings on scutes are peeling
- Disarticulated and scattered

Burrows

- Active
- Inactive
- Status unknown

Scat

- Fresh, from current year
- 1 to 2 years old
- More than 2 years old
- Unknown

5. Discussion

The lack of precipitation in the weeks leading up to the survey resulted in marginal forage production (National Weather Service Forecasting Office 2020), which may have contributed to low aboveground activity by tortoises in the survey area. However, the presence of tortoise sign in the survey area and the incidental observations of live tortoises in the project vicinity indicate tortoises are active within the Project area. Further, contiguous undisturbed habitat north and west of the Project area may provide corridors for additional desert tortoises to pass through the Project area.

6. List of Preparers

Jacobs Engineering

- Jill Harris, Biologist, Lead Author
- Bruce Palmer, Senior Biologist, Reviewer/Approver

7. References

Nafus, M.G., J.M. Germano, J.A. Perry, B.D. Todd, A. Walsh, and R.R. Swaisgood. 2015. "Hiding in plain sight: a study on camouflage and habitat selection in a slow-moving desert herbivore." *Behavioral Ecology*. Volume 26, Issue 5. September-October.

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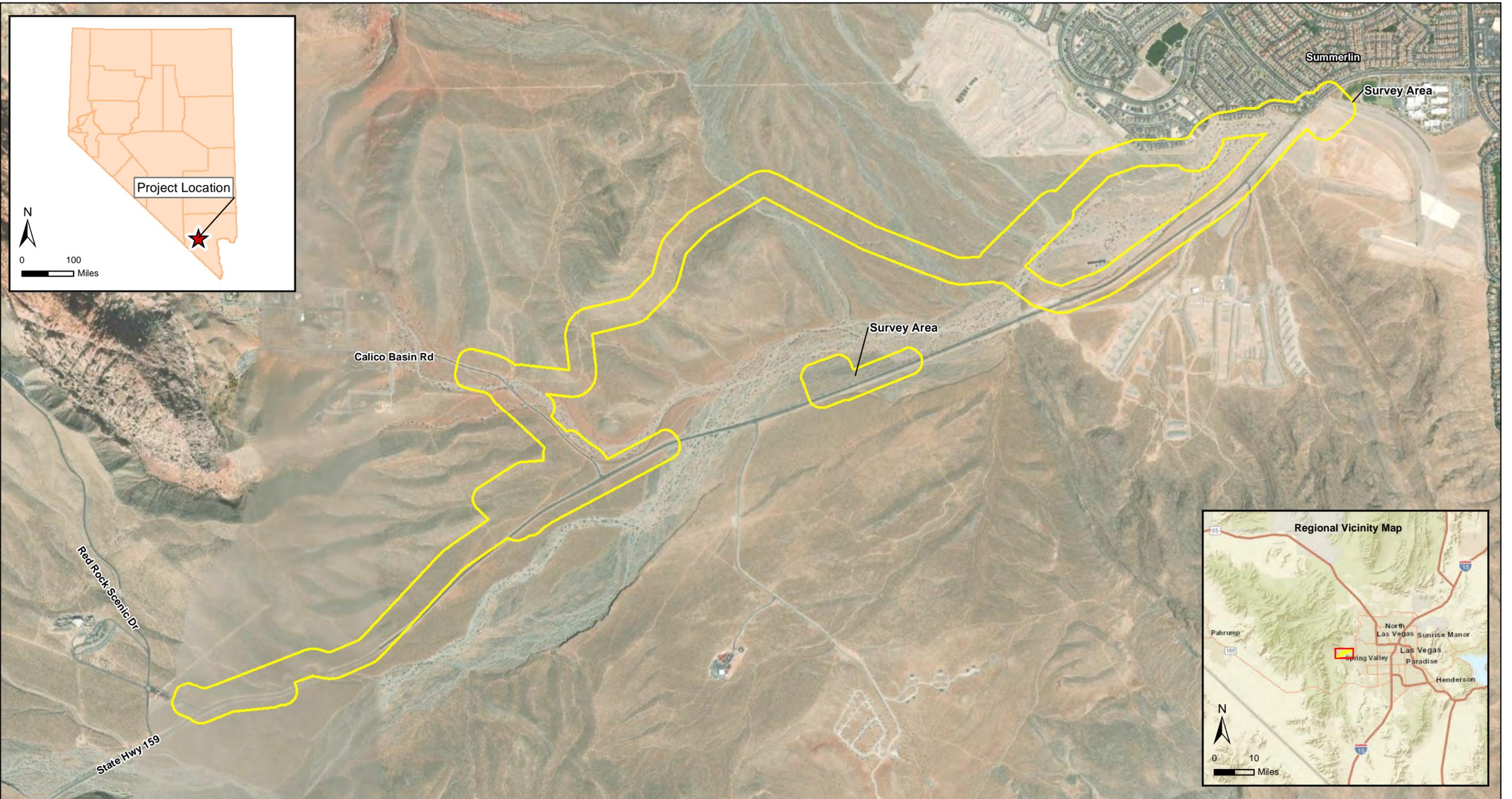
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U.S. Fish and Wildlife Service (USFWS). 2009. *Desert Tortoise (Mojave Population) Field Manual: (Gopherus agassizii)*. Chapter 4: "Preparing for Any Action That May Occur Within the Range of the Mojave Desert Tortoise (*Gopherus agassizii*)." Amended October 8, 2019. Region 8, Sacramento, California. https://www.fws.gov/nevada/desert_tortoise/documents/manuals/MojaveDesertTortoisePre-projectSurveyProtocol_2019_v2.pdf.

Appendix A

Figures



Basemap Source: NAIP Imagery

\\DC1VS01\GIS\PROJECT\CENTRALFEDERALLANDS\REDROCKCANYON\PATH\MAPS\REPORT\2022\REDROCKCANYON_PROJLOC_DT.MXD

Legend
 Survey Area

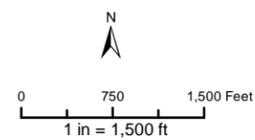
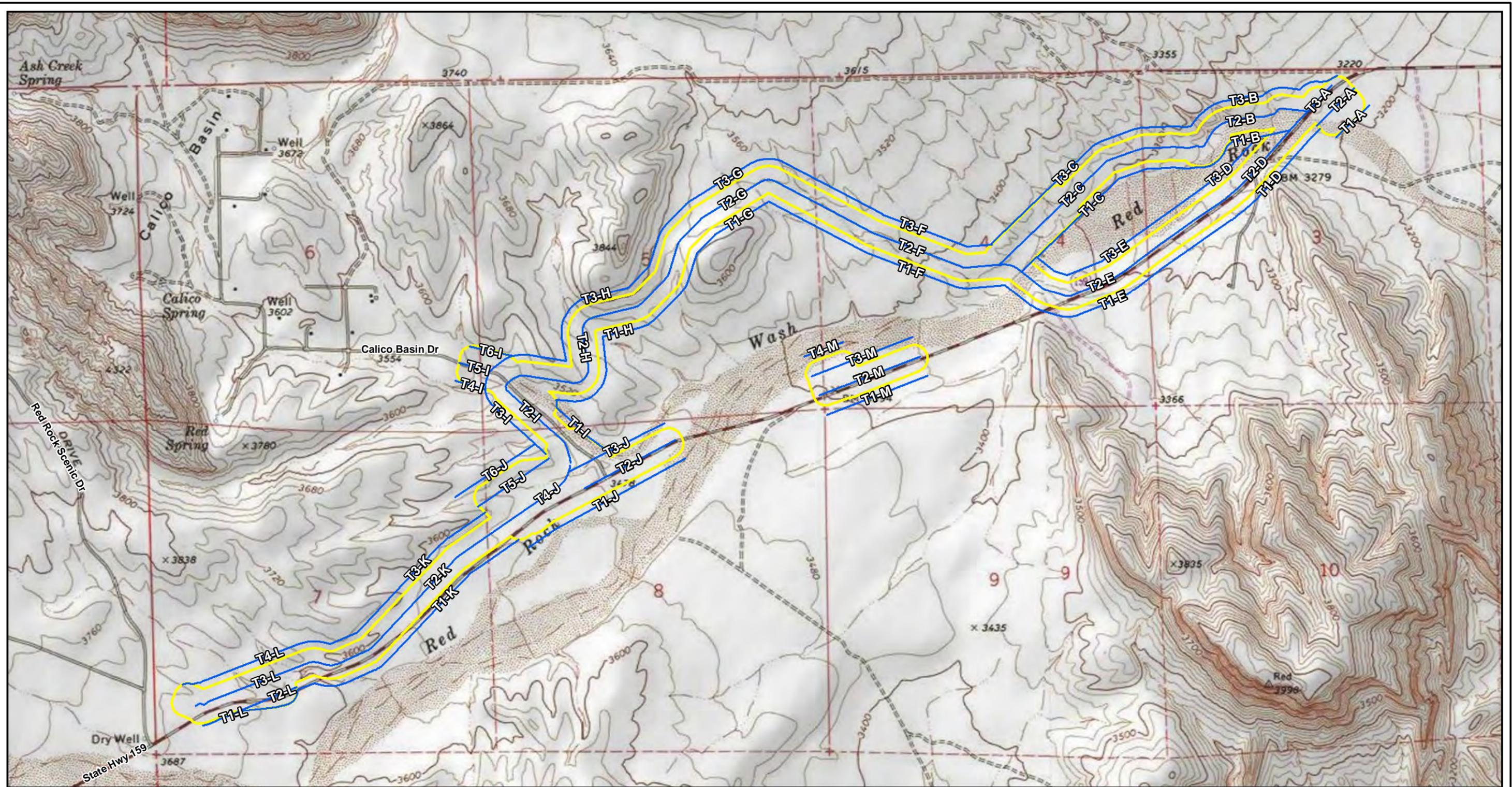


Figure 1
Project Location Map
 Desert Tortoise Surveys
 Red Rock Canyon Trail and Intersections Improvements Project
 Central Federal Lands Highway Division
 NV FLAP 500(1)
 Clark County, NV



Basemap Source: USGS Topographic Map

Legend
 Survey Area
 Transects

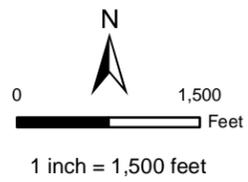
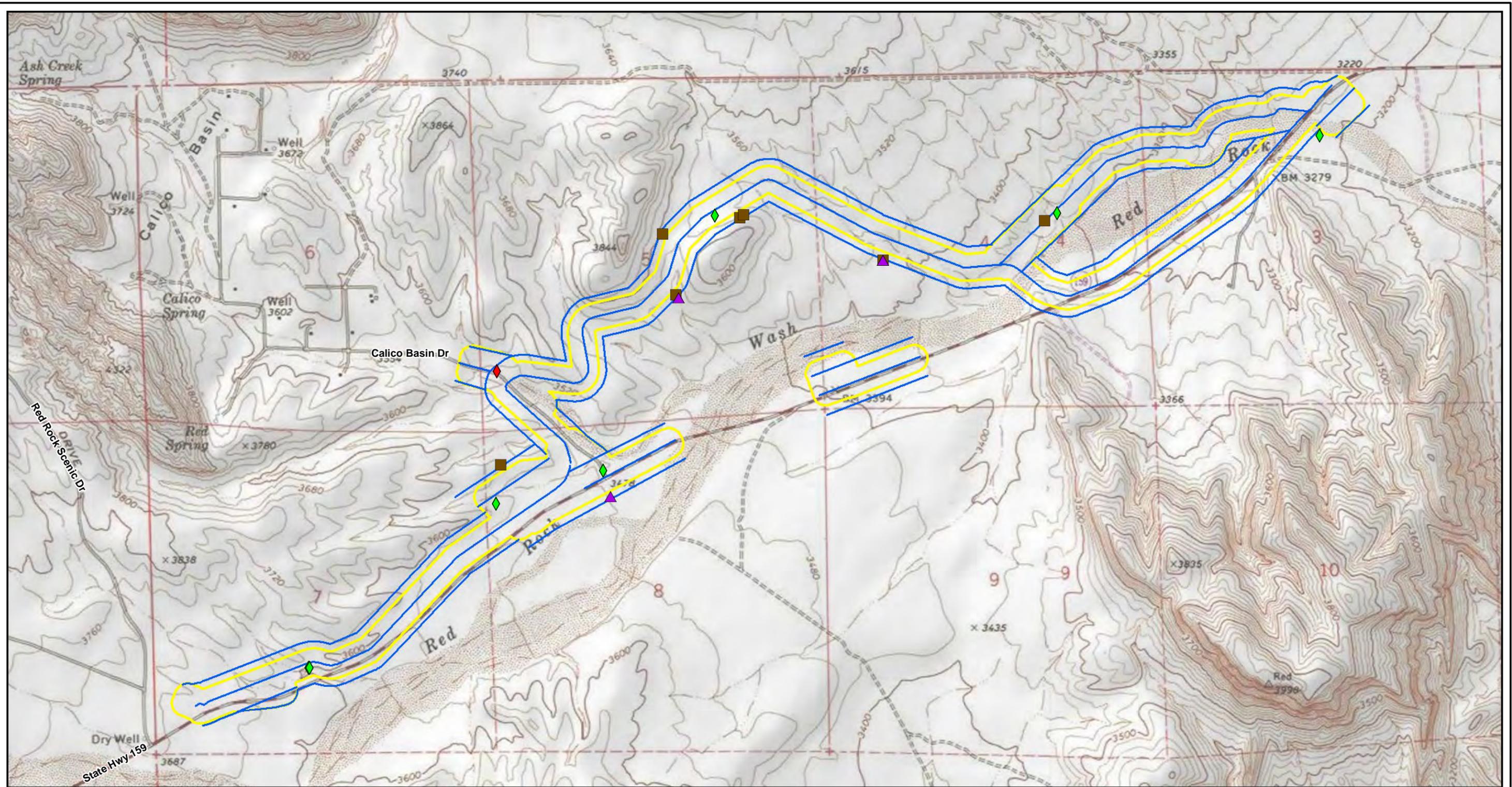


Figure 2
Survey Area and Transects Map
 Desert Tortoise Surveys

Red Rock Canyon Path and Intersections Project
 Central Federal Lands Highway Division
 NV FLAP 500(1)
 Clark County, NV



Basemap Source: USGS Topographic Map

Legend

- ▭ Survey Area
- Transects
- ◆ Desert Tortoise Live
- ◆ Desert Tortoise Carcass
- Desert Tortoise Burrow
- ▲ Desert Tortoise Scat

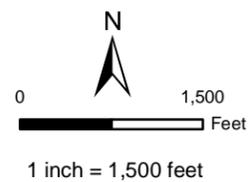
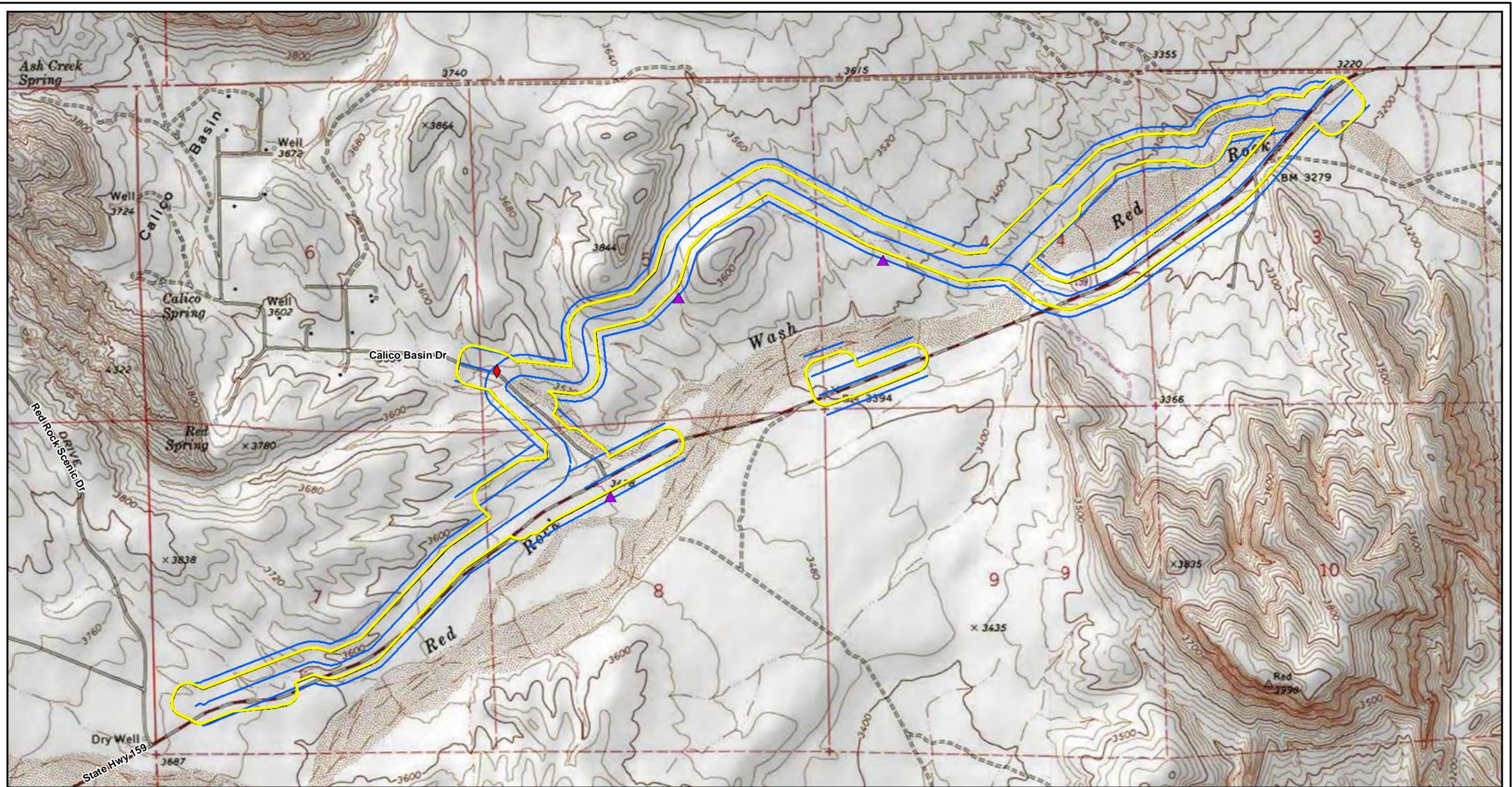


Figure 3
Survey Results
 Desert Tortoise Surveys
 Red Rock Canyon Path and Intersections Project
 Central Federal Lands Highway Division
 NV FLAP 500(1)
 Clark County, NV



Basemap Source: USGS Topographic Map

- Legend**
- Survey Area
 - Transects
 - ◆ Desert Tortoise Carcass
 - ▲ Desert Tortoise Scat

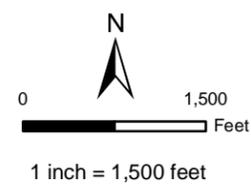


Figure 4
Incidental Sightings
 Desert Tortoise Surveys
 Red Rock Canyon Path and Intersections Project
 Central Federal Lands Highway Division
 NV FLAP 500(1)
 Clark County, NV

Appendix B

Photographs



Photo 1. View to the west of Mojave desert scrub habitat in the survey area adjacent to residential development near the eastern side.



Photo 2. View to the northwest of Mojave desert scrub habitat in the survey area east of Calico Basin Road.



Photo 3. View to the south of Mojave desert scrub habitat in the survey area north and east of Calico Basin Road. SR 159 is in the midground.



Photo 4. View to the northwest of wash habitat (foreground) and Mojave desert scrub habitat (background) in the survey area east of the RRCNCA visitor center.



Photo 5. Burrow detected at 646119, 4002080 (UTM Zone 11S) along transect T2-C.



Photo 6. Burrow detected at 644338, 4001717 (UTM Zone 11S), along transect T1-H.



Photo 7. Burrow detected at 643494, 4000893 (UTM Zone 11S) along transect T6-J.



Photo 8. Burrow detected at 644646, 4002089 (UTM Zone 11S) along transect T1-G.



Photo 9. Burrow detected at 645339, 4001888 (UTM Zone 11S) along transect T1-F.



Photo 10. Burrow detected at 644664, 4002104 (UTM Zone 11S) along transect T1-G.



Photo 11. Burrow detected at 644272, 4002010 (UTM Zone 11S) along transect T3-G.



Photo 12. Scat detected at 645339, 4001887 (UTM Zone 11S) along transect T1-F.



Photo 13. Scat detected at 644025, 4000743 (UTM Zone 11S) along transect T1-J, south of SR 159.



Photo 14. Scat detected at 644352, 4001703 (UTM Zone 11S) along transect T1-H.



Photo 15. Juvenile tortoise carcass detected at 643475, 4001348 (UTM Zone 11S) along Calico Basin Road.



Photo 16. Juvenile tortoise detected at 647436, 4002494 (UTM Zone 11S), at the eastern end of the survey area near Summerlin residential community.



Photo 17. Juvenile tortoise detected at 642575, 3999915 (UTM Zone 11S), at Calico Basin Road and SR 159.



Photo 18. Adult tortoise detected at 643473, 4000709 (UTM Zone 11S), west of Calico Basin Road.



Photo 19. Juvenile tortoise detected at 642571, 3999915 (UTM Zone 11S) in wash east of Scenic Drive, north of SR 159.



Photo 21. Juvenile tortoise detected at 646179, 4002119 (UTM Zone 11S) in wash.



Photo 22. Juvenile tortoise detected at 644526, 4002100 (UTM Zone 11S) in wash east of Scenic Drive, just north of SR 159.

Appendix C
Data on Detections

Table C-1. Tortoise burrows detected during protocol surveys

Date	Transect Number	Burrow Status	Observer	Easting Location (UTM Zone 11S)	Northing Location (UTM Zone 11S)
5/5/2020	T2-C	Inactive	Samantha Vaughan	646119	4002080
5/5/2020	T1-H	Inactive	Jill Harris	644338	4001717
5/6/2020	T6-J	Inactive	Jill Harris	643494	4000893
5/6/2020	T1-G	Inactive	Jill Harris	644646	4002089
5/6/2020	T1-F	Active	Jill Harris	645339	4001888
5/6/2020	T1-G	Inactive	Jill Harris	644664	4002104
5/6/2020	T3-G	Inactive	Samantha Vaughan	644272	4002010

Table C-2. Tortoise scat detected during protocol surveys

Date	Transect Number	Scat Age (years)	Observer	Easting Location (UTM Zone 11S)	Northing Location (UTM Zone 11S)
5/6/2020	T1-F	older than 1	Jill Harris	645339	4001887
5/6/2020	T1-J	less than 1	Jill Harris	644025	4000743
5/6/2020	T1-H	less than 1	Jill Harris	644352	4001703

Table C-3. Tortoise carcasses detected in the survey area

Date	Location	Condition Class ^[1]	Observer	Easting Location (UTM Zone 11S)	Northing Location (UTM Zone 11S)
5/6/2020	Adjacent to Calico Basin Road	1 = normal color, scutes adhered to bone	Samantha Vaughan	643475	4001348

^[1] Condition Class categories:

1. normal color, scutes adhered to bone
2. shell bones falling apart; growth rings on scutes are peeling
3. disarticulated and scattered

Table C-4. Live tortoises detected in the survey area ^[1]

Photo Number	Date	Age	Observer	Trail or Buffer	Easting Location (UTM Zone 11S)	Northing Location (UTM Zone 11S)
1	5/5/2020	Juvenile	Samantha Vaughan	Buffer	647436	4002494
2	5/5/2020	Juvenile	Morgan King	Buffer	642575	3999915
3	5/6/2020	Adult	Samantha Vaughan	Buffer	643473	4000709
4	5/6/2020	Juvenile	Rachel Newton	Buffer	642571	3999915
5	5/6/2020	Juvenile	Rachel Newton	Buffer	646179	4002119
6	5/7/2020	Juvenile	Rachel Newton	Buffer	644526	4002100

^[1] Tortoises observed while traveling through survey area and/or recording other data in the survey area boundaries, but not during official surveys.