



Endangered Species Act Programmatic Consultation Agreement

Covering Minor Projects for Eurycea Salamanders and Karst Invertebrates (WAC, AUS, SAT)

This programmatic consultation and addendum address project effects to Eurycea salamanders and terrestrial karst invertebrates in WAC, AUS, and SAT Districts under the Endangered Species Act, for geotechnical boreholes, SUE test holes, and installation of traffic signal infrastructure, ITS, MBGF, headlight barriers, illumination poles, guardrail end treatments, cable barrier, small and large signs, illumination poles, noise wall columns, and joint-bid utility poles projects that “may affect, but are not likely to adversely affect” the species.



United States Department of the Interior

FISH AND WILDLIFE SERVICE
10711 Burnet Road, Suite 200
Austin, Texas 78758



April 21, 2022

In Reply Refer to:
2022-0019409

Ms. Clover Clamons
Section Director, Natural Resource Management
Environmental Affairs Division
Texas Department of Transportation
125 East 11th Street
Austin, TX 78701-2483

Dear Ms. Clamons:

This responds to your letter of March 15, 2021, in which the Texas Department of Transportation (TxDOT) requested informal programmatic project-level consultation to perform routine and predictably occurring activities related to transportation improvements utilizing geotechnical boreholes, installation of traffic signal infrastructure, and intelligent transportation systems (ITS) within the range of seven *Eurycea* salamander species and 15 karst invertebrate species listed pursuant to the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*) from Bell, Bexar, Comal, Hays, Medina, Travis, and Williams counties collectively. The covered activities include projects environmentally reviewed by TxDOT when federally funded or authorized and may be located within city, county, state, or federal transportation Rights of Way (ROW) and easements. TxDOT wishes to cover the following species under this programmatic consultation:

Eurycea Species

- Salado salamander (*Eurycea chisholmensis*), threatened;
- San Marcos salamander (*Eurycea nana*), threatened;
- Georgetown salamander (*Eurycea naufragia*), threatened;
- Texas Blind salamander (*Eurycea rathbuni*), endangered;
- Barton Springs salamander (*Eurycea sosorum*), endangered;
- Jollyville Plateau salamander (*Eurycea tonkawae*), threatened; and,
- Austin Blind salamander (*Eurycea waterlooensis*), endangered;

Karst Invertebrate Species

- Madla Cave meshweaver (*Cicurina madla*), endangered;
- Robber Baron Cave meshweaver (*Cicurina baronia*), endangered;
- Government Canyon Bat Cave meshweaver (*Cicurina vespera*), endangered;
- Government Canyon Bat Cave spider (*Tayshaneta microps*), endangered;
- Cokendolpher cave harvestman (*Texella cokendolpheri*), endangered;
- Unnamed ground beetle (*Rhadine exilis*), endangered;
- Unnamed ground beetle (*Rhadine infernalis*), endangered;
- Helotes mold beetle (*Batrisodes venyivi*), endangered;
- Bee Creek Cave harvestman (*Texella reddelli*), endangered;
- Kretschmarr Cave mold beetle (*Texamaurops reddelli*), endangered;
- Tooth Cave pseudoscorpion (*Tartarocreagris texana*), endangered;
- Tooth Cave spider (*Tayshaneta myopica*), endangered;
- Tooth Cave ground beetle (*Rhadine persephone*), endangered;
- Bone Cave harvestman (*Texella reyesi*), endangered; and
- Coffin Cave mold beetle (*Batrisodes texanus*), endangered.

The geographic scope of this consultation includes lands within Bell, Bexar, Comal, Hays, Medina, Travis, and Williamson Counties, Texas. Although other species listed as threatened or endangered (golden check warbler) may occur within the listed counties, the projects as described in this programmatic are not anticipated to cause any adverse effects to those species and therefore are not discussed any further.

TxDOT submitted documentation to the U.S. Fish and Wildlife Service (Service) requesting our concurrence that projects described in this informal programmatic consultation may affect but are not likely to adversely affect the seven species of salamanders and 15 karst invertebrate species that occur within seven Texas counties. TxDOT also requested Service concurrence that projects described in this informal programmatic consultation will not result in the destruction or adverse modification of karst invertebrate federally designated critical habitat.

Section 7 of the Act requires that all Federal agencies consult with the Service to ensure that the actions authorized, funded, or carried out by such agencies do not jeopardize the continued existence of any threatened or endangered species or destroy or adversely modify designated critical habitat of such species. The Federal Highway Administration (FHWA) assigned TxDOT as their non-federal representative for all section 7 consultations associated with National Environmental Policy Act (NEPA) Categorical Exclusions to TxDOT in a Memorandum of Understanding (MOU) dated December 9, 2019. Therefore, TxDOT is the designated non-federal representative associated with this proposed informal programmatic consultation (23 U.S.C. 326).

The structure of this informal programmatic consultation is designed to provide an overall section 7 consultation framework pursuant to the Act within which TxDOT may seek regulatory approval for covered projects over a five-year period. An activity with adverse effects to listed species that do not meet the criteria set forth in this programmatic consultation will not be covered by and will require separate consultation with the Service. The Service will evaluate projects pursuant to the informal programmatic consultation as needed to ensure that its continued application will not result in adverse effects to listed species or their habitat. If the Service determines the covered activities are more impactful than originally anticipated, we will notify TxDOT of our intent to revoke this concurrence document.

DESCRIPTION OF THE ACTIONS

TxDOT actions and those environmentally reviewed by TxDOT eligible to be included under this informal programmatic consultation include routine transportation improvement activities that meet the following criteria:

- the action has a federal nexus;
- the action is located entirely within existing transportation ROW;
- the action is located more than 984 feet away, or outside of the mapped subsurface drainage of any known, federally listed *Eurycea* salamander location;
- are located more than 750 feet away, or outside of the mapped subsurface drainage basin of any feature occupied by federally listed karst invertebrates, and;
- the actions are located outside of designated or proposed critical habitat for any of the covered species.

TxDOT has conducted numerous informal roadway project consultations with the Service within the five and seven county ranges in Central Texas for *Eurycea* and karst species respectively. Typical projects included the modernization of traffic signals, the installation of intelligent travel systems, and the drilling of boreholes to determine the thickness and competency of bedrock. Three activities are included in the March 15, 2021, consultation request letter, attached biological evaluation (BE) and subsequent versions of the BE, and covered under this informal programmatic consultation: geotechnical boreholes, traffic signal infrastructure, and intelligent transportation systems (ITS) and are summarized below. Table 2.1 in the BE gives a complete excavation detail for each of the covered activities.

Geotechnical Boreholes

Boreholes are necessary to complete the project design and they occur before or during the construction letting timeframe and will determine the thickness and competency of the rock. This activity is conducted from a truck mounted drill rig (typical rigs range from 10 to 14 feet in width, 20 to 30 feet in length, and 10 to 15 feet in height) and will use water or air to assist with bit lubrication and aid in

carrying off the tailings. Figure 2-1 in the BE shows a typical rig completing a geotechnical borehole. The boreholes range from 2 to 12-inch holes with varying depth of 10 and 100 feet depending on the need of the project. Once complete, the boreholes are backfilled with bentonite, cuttings, or gravel and in specific instances, non-shrink grout is used to plug from the bottom of the hole to within 3 feet of the surface.

Traffic Signal Infrastructure

This action mostly occurs in developed areas such as intersections of roadways and pedestrian crossways and is used to continue safe passage and promote mobility. Older existing traffic signal infrastructure is replaced and upgraded and involves drilling boreholes for signal poles, shallow excavation for installing junction boxes and underground conduit, the installation or repairing of permanent concrete, relocating existing utilities, and grading or re-grading of disturbed soil areas. Single pole boreholes usually use single drilled shafts that are advanced by trucks like and larger than those used for geotechnical boreholes (see Figure 2-2 in the BE).

Depth for single pole drilled shafts vary between 5 and 66 feet and can reach diameters of 26 to 32 inches and vary with the needs of the project. If the project requires electric poles, these poles require a 24-inch diameter drilled shaft that is 5 feet deep. In cases where drilled shafts will support overhead infrastructure, steel rebar cage casings are placed in the shaft with added concrete to stabilize the rebar.

Machinery used to complete excavations for the traffic signals consists of trackhoes and backhoes and typically range in size from 7 to 9 feet in width, 20 to 25 feet in length, 9 to 12 feet in height, and weigh as much as 24,000 pounds. Junction boxes for traffic signals involve a 24-inch diameter pre-cast structure and need a foundation depth of 6 to 12 inches.

Intelligent Transportation Systems (ITS)

ITS provides TxDOT with the ability to employ active traffic management strategies to increase traffic efficiencies, reduce congestion, and enhance intersection mobility and safety. Several components of the ITS system include dynamic message signs (DMS), closed-circuit television cameras (CCTV), wireless fidelity detectors and Bluetooth travel time readers, road vehicle sensing devices (RVSD), ITS control cabinets and communication nodes, and underground conduits containing fiber optic cables. Drilling is involved for DMS, CCTV, RSVD, Bluetooth, and electrical service poles. Shallow excavation and boring is also necessary for underground conduit systems, installing or repairing permanent concrete, and grading or regrading of disturbed areas.

TxDOT locates ITS poles every 0.3 to 0.9 miles and when feasible, are located in previously developed intersection. DMS and CCTV pole drilled shafts range from 48 to 54 inches in diameter with depths reaching 20 to 29 feet. RSVD and

Bluetooth devices in most cases are located on CCTV pole, however in instances where standalone poles are necessary, 36-inch diameter drill shafts and foundation depths of 14 feet are needed.

Excavation for ITS structures utilizes the same equipment as traffic signal infrastructure. Ground boxes for ITSs are 4 feet by 3 feet wide and installed at a depth of 24 to 42 inches and are placed every 500 feet along a roadway. Control cabinets placed along the roadway utilize 6 feet by 4 feet concrete pad that is buried 6 inches. A 2-inch diameter conduit is needed for ITSs and are buried 24 to 42 inches deep. Trenches for the conduit 18 to 24 inches wide with depths from 42 to 54 inches however in some instances, 24-inch depths are sufficient. There are occasions where boring under water crossings, roadways, driveways, and drainage structures are necessary. These types of excavations range from 5 to 6.5 feet deep and generally use a backhoe and boring machine to complete the process.

Construction Timelines

Construction for each of the covered activities will vary. Geotechnical boreholes usually occur prior to road construction and typically last 1 to 2 hours. Depending on the scale of the project, installation of traffic signals and ITS structures can vary from several days to several months. However, bedrock exposure during these excavations will last 1-3 days per location.

Construction Access and Staging

All covered activities would use previously disturbed areas and will include the drill rig and two or three pickup trucks and occur within the transportation ROW. If the contractor chooses, he/she may place Project Specific Locations (PSLs) outside of the project area. TxDOT will inform the contractor that he/she is responsible for environmental compliance should the PSLs be located outside of the transportation ROW.

Site Preparation

TxDOT defines minor vegetation removal as partial or complete removal of fewer than 5 trees and/or shrubs measuring 6 inches diameter at breast height (DBH) or smaller. ITS and traffic signal installation will be limited to previously developed areas where roadways and sidewalks may be disturbed as well. TxDOT will use hydro-ax and hand clearing of vegetation when appropriate. However, TxDOT may require a cleared 10-foot-wide linear strips in undeveloped areas from the nearest access point to the proposed borehole to accommodate the drill rig. This may result in substantially more vegetation removal than for other activities in developed areas.

Post-site Restoration

TxDOT will revegetate all disturbed areas in accordance with TxDOT's standard practices for urban areas and in compliance with Texas Pollutant Discharge Elimination System and Construction General Permit established by Texas Commission on

Environmental Quality.

Voluntary Conservation Measures

TxDOT proposed the following general and species-specific voluntary conservation measures (VCMs) to avoid and minimize direct and indirect effects to salamanders and karst invertebrate species resulting from the activities described in the Programmatic Consultation:

General Voluntary Conservation Measures

- Limit activities to existing ROW and easements.
- Limit the clearing of vegetation and topsoil to only the areas needed to accomplish the project or activity.
- Limit the size of boreholes and drilled shafts to the smallest diameter and shallowest depth needed to minimize disturbance to subsurface bedrock and groundwater.
- When possible, RSVD and Bluetooth readers will be co-located on CCTV poles for the installation of ITS infrastructure to minimize disturbance to bedrock and groundwater.
- Projects will be designed to minimize depth of excavation and prioritize the use of areas with existing fill material (i.e., previously disturbed areas), minimizing potential impacts to subsurface bedrock and groundwater. Excavation for the installation of conduit systems and boxes/cabinets over karst zones 1 and 2 will be restricted to the top 2 feet.
- When applicable, power to traffic signal and/or ITS infrastructure will be co-located to one single electrical service and separated by branch circuits to minimize bedrock disturbance associated with conduit installation.
- If covered activities occur in an area that would require a karst feature survey, survey for *Eurycea* habitat, or Geological Assessment, those surveys will be performed throughout the project area where ground disturbance will occur prior to initiating covered activities.
- Covered activities will be relocated at least 750 feet away from potential karst invertebrate habitat and 984 feet from potential *Eurycea* habitat unless presence/absence surveys are conducted for the relevant species following current USFWS protocols and absence can be inferred.
- Design and implement appropriate temporary best management practices (BMPs) to minimize construction-phase erosion and sedimentation impacts and to protect sensitive recharge features and include these in any required Texas Commission on Environmental Quality (TCEQ) permitting documents, such as the [include or delete as applicable to project requirements] Storm Water Pollution Prevention Plan (SWP3), Water Pollution Abatement Plan (WPAP) or Contributing Zone Plan (CZP), and TxDOT construction plans, in accordance with the Texas Pollutant Discharge Elimination System (TPDES) requirements and Edwards Aquifer Rules.
 - BMPs may include temporary vegetation, silt fencing, blanket/matting, mulch, sodding, interceptor swales, diversion dikes, mulch filter berms, biodegradable erosion control logs, silt fencing, rock berms, bio-degradable erosion control logs, and triangular filter dikes.
 - BMPs shall be in place before construction activities are initiated and shall be monitored and maintained in accordance with the SWP3, and WPAP or CZP, as applicable.

- Place all conservation measures into the Environmental Permits, Issues, & Commitments (EPIC) sheet in the project plans.
- Hold a pre-construction meeting with its employees and contractors working on projects. TxDOT shall provide specific instructions on the implementation of TxDOT's proposed VCMs, and awareness training to project contractors, which includes information on protected species and habitat that may occur in the project area and outside the ROW, and requirements to avoid effects to these species and their habitats.
- Train personnel and contractors to report voids and seeping groundwater, if appropriate, found during construction.
- Place project specific locations (PSL) within the existing ROW outside of karst feature protection zones to minimize potential impacts to listed species and their habitat. Environmental compliance for PSLs located outside of the ROW is the project contractor's responsibility. TxDOT will notify the contractor of the possibility of listed species and habitat in the project area and the specific requirements to avoid impacts or the need to consult with the Service.
- Adhere to the project SWP3, WPAP or CZP, as applicable, regarding equipment maintenance, materials storage, spill containment and response, waste containment and disposal.
- Provide an on-call construction monitor throughout ground-disturbing activities to inspect and report karst voids encountered during construction in accordance with the Void Discovery Oversight and Reporting protocol described below. If standing, seeping, or flowing water is encountered, the Groundwater Flow Mitigation and Protection Measures described below shall be implemented.
- Provide the Service with annual monitoring reports for the duration of this Programmatic Consultation due by June 30th documenting the status of the project and results of void evaluations, presence/absence surveys, and the status of void closures, as applicable.
- Disturbed areas shall be re-vegetated according to TxDOT's standard practices for urban areas and the TCEQ Construction General Permit. Re-vegetation efforts shall provide appropriate and sustainable cover to prevent erosion and siltation.

Eurycea salamander specific conservation measures:

- Covered activities will be completed within Bell, Comal, Hays, Travis, and Williamson counties where TxDOT will perform desktop analysis to identify the closest known locations of listed *Eurycea* species.
- Proposed covered activity locations within 984 feet of a known locality will not be eligible for inclusion under this PC.
- Staging for covered activities will occur more than 984 feet from a known locality.
- Covered activities will follow the void discovery protocols detailed in section 2.2.4 of the BE.

Karst invertebrate specific conservation measures

TxDOT will evaluate all proposed activities for proximity to known karst locations within Karst Zones 1-4 in Bexar and Medina counties, or Karst Zone 1-3 in Travis and Williamson counties through a desktop analysis. Projects located outside of Karst Zones 1-4 in Bexar or Medina counties will not be included under this programmatic consultation. If the project is located

outside of Karst Zones 1-3 in Travis and Williamson counties, TxDOT will evaluate projects for potential impacts to salamander habitat.

- Excavation for the installation of conduit systems and boxes/cabinets over karst zones 1 and 2 will be restricted to the top 2 feet.
- Covered activities located within a subsurface drainage basin, or within 750 feet if the drainage basin is unknown, of a feature known or suspected to be occupied by a federally listed karst invertebrate will not be eligible to use this PC.
- Covered activities within 345 feet of an occupied feature that require vegetation removal will not be eligible to use this PC.
- Covered activities will follow the void discovery protocols detailed in Section 2.2.4.
- Staging for covered activities will not occur within the subsurface drainage basin, or within 750 feet if the drainage basin is unknown, or an occupied feature.
- Boreholes/drilled shafts occurring over karst zones 1 and 2 will utilize unchlorinated water or air and no other drilling fluid will be used.

Void Discovery Oversight and Reporting

For all covered species, the following void discovery protocols apply:

- If a potential karst void is encountered during excavation activities within the current Service karst zones in Bell, Bexar, Medina, Travis or Williamson counties, work within 50 feet of the feature will cease until the feature is evaluated for potential karst invertebrate habitat by a karst scientist holding an appropriate 10(a)(1)(A) permit following current Service karst survey protocols, within one business day, where practical.
- For smaller geotechnical boreholes (six inches or less), the work stoppage areas may be determined by TxDOT based on safety, and feature protection, site conditions and other activities in the area, but will not be less than 10 feet from the borehole to ensure surveyor safety. When karst voids that are not humanly enterable are encountered, including those in drilled shafts or geotechnical boreholes, the feature will be evaluated using a side viewing downhole camera or other similar means, if feasible.
- The void will also be evaluated for groundwater if the activity occurs in any portion of Bell, Comal, Hays, Travis, or Williamson counties.
 - If standing, seeping, or flowing water is encountered, the void must be evaluated for potential salamander habitat in accordance with current Service protocols.
 - A geoscientist shall evaluate the excavation to determine the source of the water and potential connectivity to the Edwards Aquifer. If it is determined that the water is connected to the Edwards Aquifer, a site-specific groundwater mitigation and solution feature closure plan shall be developed as described in Section 2.2.4.1.
- If the void does not meet the criteria for potential karst habitat and does not contain groundwater, then the results of the evaluation shall be documented, and the covered activity shall continue, and the void shall be closed as described in Section 2.2.4.1.
- If a karst void meets the Service criteria for potential karst invertebrate habitat, or contains potential salamander habitat, work within the immediate area will remain stopped while presence/absence surveys are conducted in accordance with current Service karst and/or salamander survey protocols.
- Presence/absence surveys will not be conducted if surface conditions are unsafe to do so.

Examples of unsafe conditions could include situations where:

- the feature is in an active traffic lane that would have to be closed for an extended period to conduct the survey;
- the excavation cannot be stabilized to make the feature safe to survey, or;
- environmental conditions that create unsafe survey conditions (e.g., bad air, flooding, excessive temperature).

Reasons for not conducting a presence/absence survey when a feature meets the Service criteria for potential habitat shall be documented in writing and Service will determine the continued applicability of this PC or the need to initiate a separate consultation with the Service outside of this PC.

- Occupation of any karst feature will be presumed if potentially listed karst invertebrates collected during surveying are immature or otherwise cannot be identified to species. If a feature is determined to be occupied or presumed occupied by a listed karst invertebrate, work shall cease on the entire project and TxDOT will initiate a separate consultation with the Service outside of this PC.
- While a feature is being evaluated, the surface opening shall be covered to minimize the influence of diurnal variations in surface temperature. Protection of the feature may include a wood cover, plastic sheeting, and/or a blanket that is weighted down with rocks around the perimeter. During periods of high temperatures (>100° F), a piece of insulation shall be added to the cover. Hazard fencing or barricades may be used to protect the area if there is a fall hazard, such as the case of an open shaft. Appropriate BMPs shall be implemented to prevent surface runoff from entering the feature during evaluation and will remain in place until evaluation is completed. BMPs will be monitored and maintained in accordance with the TCEQ regulations and the project SWP3, CZP, or WPAP as applicable.
- Once evaluation is complete, the feature shall be closed as described in Section 2.2.4.1.
- All feature evaluations and surveys will be individually documented and tracked by TxDOT project and included in the Service annual report of activities conducted under the PC.

Karst Invertebrate Habitat and Groundwater Mitigation Plans

Should a void need to be closed or capped to preserve as much of the subsurface void space as possible, TxDOT will consider and implement each of the following:

- All groundwater mitigation and solution feature closure plans shall be completed and approved in accordance with TCEQ Edwards Aquifer Rules, as applicable.
- If work must continue at the feature, disturbance to the feature shall be minimized and the final status of the feature shall be determined on a case-by-case basis following recommendations from a permitted scientist, geoscientist, and an engineer, as applicable.
- When features are closed, they shall be closed in a condition as similar as possible to pre-excavation condition to preserve water and nutrient inflow and void volume, while protecting the feature from contaminated runoff.
- The mitigation plan would also prevent surface and closure materials such as concrete from migrating into mesocaverns and other potential habitat beyond the excavation area.
- Geotechnical boreholes shall be plugged above the void, preserving the void space, then backfilled above the plug. The TCEQ Edwards Aquifer Rules require borings in the

recharge zone to be plugged with non-shrink grout from the bottom of the borehole (top of the plug in the case of a void) to within 3 feet of the surface. The remainder of the borehole must be filled with cuttings or gravel.

- If standing, seeping, or flowing water encountered and it is determined that the water is connected to the Edwards Aquifer, a site-specific groundwater mitigation and solution feature closure plan shall be developed before work can continue near the groundwater feature. Plans involving groundwater will consider and address the following, as applicable:
 - Available water level data should be considered in the development of the plan.
 - The groundwater mitigation and solution feature closure plan shall be designed to permanently seal off the excavation from the groundwater feature. Where a feature contains flowing water that could be a groundwater flow path for the Edwards Aquifer, the plan will also include measures designed to maintain hydrologic connectivity across, under, or around the excavation. This will generally be accomplished with the use of clean, porous media such as clean washed rock, and PVC pipe of various sizes. The plan for excavations with flowing groundwater will also include measures designed to permanently isolate and seal off the groundwater flow path from the rest of the excavation.
 - For drilled shafts, the groundwater mitigation and solution feature closure plan shall typically use permanent casing to seal off the groundwater source and prevent contamination before pouring concrete. Casing is intended to prevent the migration of concrete into voids. If flowing water is encountered during the excavation of drilled shafts, the plan may include the permanent placement of casing in a manner that seals the drilled shaft off from the area of groundwater conductivity while allowing continuity of groundwater flow through the annular space surrounding the casing. If casing is not used, concrete migration into voids will be addressed on a case-by-case basis based on the nature of the void and the engineering needs of the project with an emphasis on groundwater protection.
 - If accumulated groundwater must be pumped from an excavation, all pump intakes must be screened to exclude salamanders by placing cages with 1/16" or smaller mesh over any intake to exclude salamanders. Water must be removed at a low velocity (≤ 1 cubic feet per second), to prevent salamanders from becoming trapped on intake screens/cages.
 - For geotechnical boring activities, the groundwater mitigation and solution feature closure plan shall typically involve filling the borehole with clean washed 1-inch rock to approximately 2 feet above the groundwater level, placing a hole plug above the rock surface, capping the hole plug with a packed bentonite plug, and then sealing the top of the boring with suitable materials. The TCEQ Edwards Aquifer Rules require borings in the recharge zone to be plugged with non-shrink grout from the bottom of the borehole (top of the plug in the case of a void) to within 3 feet of the surface. The remainder of the borehole must be filled with cuttings or gravel.

By June 30 of each year, TxDOT will provide the Service with a list of projects completed under this programmatic consultation. The list will include the project name with description of activities, project location in a shapefile or similar format, if the project is located within TxDOT

or another transportation ROW, and confirmation that all VCMs were implemented, including a discussion of relevant BMPs, documentation of all events where salamanders or karst invertebrates are observed in a project area, and results of any surveys. TxDOT and the Service will meet on an annual basis, or as needed to discuss the effectiveness of this programmatic consultation and update consultation and reporting procedures or conservation measures as necessary. This consultation is subject to review and renewal after five years from the date of this concurrence letter.

ANALYSIS

The action area covered by this Programmatic Consultation includes seven counties in central Texas comprised of geologic features known to support and restrict the distribution of karst invertebrates as well as include springs inside and outside of the Edwards Aquifer recharge zone where salamanders occur and may exist. The Service designated 5,992 acres of critical habitat within 54 Critical Habitat Units (CHUs) in Bell, Hays, Travis, and Williamson counties for *Eurycea* species. Additionally, the Service designated 4,216 acres of critical habitat in 30 CHUs just in Bexar County for karst species. This Programmatic Consultation does not cover any projects occurring within critical habitat for any species listed in this document.

TxDOT understands the risks of operating in karst zones suitable for karst and *Eurycea* species. To avoid and minimize impacts to the listed species covered in the list Programmatic Consultation, TxDOT will conduct a combination of desktop and onsite surveys to identify suitable potential *Eurycea* and karst habitats in or adjacent to the project area prior to project implementation. The desktop analysis for proposed activities will extend out to the appropriate buffers from any known locality (at least 750 feet for karst and 984 feet for *Eurycea* species) which will not be eligible for inclusion under this Programmatic Consultation. The covered projects are predictable, localized, and the length of time for bedrock exposure is minimized to the greatest extent possible. While drilling for boreholes will require greater depths, excavation for open trenches, ground boxes, control cabinets, and conduit systems will be no greater than 6.5 feet deep and for projects located within karst zones 1 and 2, excavation will be limited to the top 24 inches and utilize roadway fill. Vegetation removal is limited to no less than 345 feet from a known karst location and to only areas needed to accomplish the project.

While it is possible that the proposed construction activities may impact listed species, TxDOT will conduct pre-construction surveys to identify potential surface *Eurycea* habitats, minimize excavation and disturbance to subsurface habitat to greatest extents possible, and implement the proposed VCMs listed above such that effects from the covered activities to listed species are expected to be insignificant and discountable.

CONCLUSION

TxDOT will review all projects for consideration under this Programmatic Consultation to determine and ensure effects from covered activities to federally listed species covered under this consultation remain insignificant and discountable. All suitable *Eureycea* and karst habitat will be adequately surveyed, delineated, and appropriate VCMs will be implemented based on the activity covered under this programmatic consultation. We also note all projects authorized

under this Programmatic Consultation will occur within preexisting, disturbed, and generally maintained transportation ROWs and will not be located within critical habitat for listed species covered by this document.

Therefore, after reviewing the provided information, the Service concurs with TxDOT's conclusion that the projects associated with this informal programmatic consultation may affect but are not likely to adversely affect seven salamander and 15 karst invertebrate species and will not result in the destruction or adverse modification of salamander or karst invertebrate federally designated critical habitat. Our decision is based on the description of the action and full implementation of all avoidance and minimization measures as described within the March 15, 2021, request for consultation and within this letter. No further endangered species consultation will be required unless: 1) the identified action is subsequently modified in a manner that causes an effect on a listed species or designated critical habitat; 2) new information reveals the identified action may affect federally protected species or designated critical habitat in a manner or to an extent not previously considered; or 3) a new species is listed or critical habitat is designated under the Act that may be affected by the identified action. If new effects are identified in the future, the project proposal should be resubmitted to our office for further consideration.

We appreciate TxDOT's effort to conserve the seven salamander and 15 karst invertebrate federally listed species discussed in this Programmatic Consultation across seven Central Texas counties. We believe the issuance of this Programmatic Consultation will improve trust and cooperation between agencies, increase predictability, save time, and state funding, and improve the resiliency of completed projects. If you have any questions, comments, or need additional information, please contact Ms. Donna Anderson at (713) 542-1861 and refer to consultation 2022-0019409.

Sincerely,

ADAM ZERRENNER

Digitally signed by ADAM

ZERRENNER

Date: 2022.04.21 14:36:41 -05'00'

Adam Zerrenner

Field Supervisor

cc: Stirling Robertson, TxDOT Environmental Affairs Division, Austin, TX (electronic)



United States Department of the Interior

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May 5, 2023

In Reply Refer To:

Consultation Number: 2022-0019409

Ms. Clover Clamons
Natural Resource Management Section Director
Texas Department of Transportation
Environmental Affairs Division
125 East 11th Street
Austin, Texas 78701-2483

RE: Reinitiation of the Informal Programmatic Consultation on Geotechnical Boreholes, and installation of Traffic Signal Infrastructure and Intelligent Transportation Systems to Aquatic Salamander and Karst Invertebrate Species in Central Texas.

Dear Ms. Clamons:

This letter responds to the Texas Department of Transportation's (TxDOT) January 27, 2023, request to amend their previous Action for which consultation was completed via a letter of concurrence dated April 21, 2022 (Reference # 2022-001949). The proposed revised action would amend the consultation to include seven similar activities all within the range of seven *Eurycea* salamander species and 15 karst invertebrate species listed pursuant to the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.) from Bell, Bexar, Comal, Hays, Medina, Travis, and Williamson counties collectively. TxDOT submitted supporting documentation to the U.S. Fish and Wildlife Service (Service) and requested concurrence that the proposed activities may affect but are not likely to adversely affect the 7 salamander and 15 terrestrial karst invertebrate species listed pursuant to the Act and addressed in the previous consultation and their designated critical habitats (see Table 1).

Section 7(a)(2) of the Act requires that Federal agencies ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any threatened or endangered species, or adversely modify or destroy designated critical habitat of such species. The Federal Highway Administration (FHWA) assigned responsibility for compliance with the National Environmental Policy Act (42 U.S.C. 4321-4347, with implementing regulations) and all Federal resource agency consultations, including section 7 consultations, to TxDOT in a Memorandum of Understanding dated December 16, 2014 (23 U.S.C. 327). TxDOT has the authority to complete consultations under the Memorandum of Understanding and has requested reinitiation of consultation with the Service, as their proposed revised action may affect the listed species in Table 1 below.

Table 1. Species addressed in this consultation.

| Common Name | Scientific Name | Status | Critical Habitat* |
|---------------------------------------|------------------------------|-------------|-------------------|
| Salado salamander | <i>Eurycea chisholmensis</i> | Threatened; | Designated |
| San Marcos salamander | <i>Eurycea nana</i> | Threatened | Designated |
| Georgetown salamander | <i>Eurycea naufragia</i> | Threatened | Designated |
| Texas Blind salamander | <i>Eurycea rathbuni</i> | Endangered | None |
| Barton Springs salamander | <i>Eurycea sosorum</i> | Endangered | None |
| Jollyville Plateau salamander | <i>Eurycea tonkawae</i> | Threatened | Designated |
| Austin Blind salamander | <i>Eurycea waterlooensis</i> | Endangered | Designated |
| Madla Cave meshweaver | <i>Cicurina madla</i> | Endangered | Designated |
| Robber Baron Cave meshweaver | <i>Cicurina baronia</i> | Endangered | Designated |
| Government Canyon Bat Cave meshweaver | <i>Tayshaneta microps</i> | Endangered | Designated |
| Cokendolpher Cave harvestman | <i>Texella cokendolpheri</i> | Endangered | Designated |
| Unnamed ground beetle | <i>Rhadine exilis</i> | Endangered | Designated |
| Unnamed ground beetle | <i>Rhadine infernalis</i> | Endangered | Designated |
| Helotes mold beetle | <i>Batrisodes venyivi</i> | Endangered | Designated |
| Bee Creek Cave harvestman | <i>Texella reddelli</i> | Endangered | None |
| Krestschmarr Cave mold beetle | <i>Texamaurops reddelli</i> | Endangered | None |
| Tooth Cave pseudoscorpion | <i>Tayshaneta texana</i> | Endangered | None |
| Tooth Cave spider | <i>Tayshaneta myopica</i> | Endangered | None |
| Tooth Cave ground beetle | <i>Rhadine persephone</i> | Endangered | None |
| Bone Cave harvestman | <i>Texella reyesi</i> | Endangered | None |
| Coffin Cave mold beetle | <i>Batrisodes texanus</i> | Endangered | None |

* TxDOT did not make “may affect” calls for critical habitat for these species, and indicated activities would not occur in critical habitat. Thus, we do not address critical habitat further in our analysis, although we reference critical habitat below when referencing the description of activities.

Background

The original consultation addressed three primary actions (geotechnical boreholes, traffic signal infrastructure, and Intelligent Transportation Systems (ITS)), and included eight drilling or

trenching activities (drilling for geotechnical boreholes; drilling for signal poles; excavation for signal junction boxes; open trenching for signal infrastructure conduit system, drilling for ITS dynamic message signs poles and closed-circuit television camera poles; drilling for ITS road vehicle sensing device poles; drilling for ITS electrical service poles; and open trenching for ITS conduit systems), that are further described in Section 2.1 of the April 2022 BE. Consultation was concluded with a letter from the Service concurring with TxDOT's "may affect, not likely to adversely affect" determination for the species in Table 1 above. TxDOT wishes to amend their programmatic consultation to include additional activities that, while slightly different than those proposed under the previous consultation, will be conducted in a similar manner requiring drilled shaft methods with minimal surface disturbance. The additional proposed activities include installation of metal beam guard fence (MBGF), cable barrier, small and large signs, illumination poles, noise wall columns, installation and relocation of joint-bid utility poles, and subsurface utility engineering test holes within Bell, Bexar, Comal, Hays, Medina, Travis, and Williamson counties. TxDOT will use a variety of heavy equipment types for the activities, including pile mounted drill rigs, trackhoes, backhoes, drivers, and cement trucks as necessary. All activities will be land-based and conducted within the existing Right of Way (ROW) for the project sites or from other hard, previously disturbed surfaces. The proposed activities must meet the following criteria to be eligible for inclusion under this consultation reinitiation:

- the action is located entirely within existing transportation ROW;
- the action is located more than 984 feet away, or outside of the mapped subsurface drainage of any known, federally listed Eurycea salamander location;
- are located more than 750 feet away, or outside of the mapped subsurface drainage basin of any feature occupied by federally listed karst invertebrates, and;
- the actions are located outside of designated or proposed critical habitat for any of the covered species.

TxDOT proposed conservation measures and the Service concurred with the application of these measures for the three primary actions and the eight sub activities in our concurrence letter. These conservation measures,¹ found in Section 2.2 of the March 2022 BE, remain applicable to each of the seven activities covered under this reinitiation. The activities included in this reinitiation, are briefly described below:

Installation of MBGF, Headlight barriers, and guardrail end treatments

A MBGF is installed to prevent vehicles from encountering dangerous objects or areas adjacent to the roadway. To block headlight glare from oncoming traffic, headlight barriers are installed on the MBGF and other median barriers. Likewise, the guardrail end treatment systems are installed on the MBGF to protect both motorists and the barrier. Typical drilling or driving of posts range from 3 to 6.5 feet, with diameters between 6 to 9 inches for these activities. Posts are spaced 6 feet apart and run parallel to the highway. Covered activities associated with this treatment include installation of terminal anchors, headlight barrier fence, and repair of each

¹ TxDOT uses the phrase "voluntary conservation measures" or "VCMs" to describe these measures in their BE and documentation for staff and contractors; however, TxDOT has clarified that these measures are not volitional for crews and that they will be incorporated into all the construction actions associated with these activities.

item, and the installation of concrete mow strips that are typically 3 to 8 inches wide and run the length of the MBGF.

Installation of Cable Barrier

This barrier is installed to prevent head-on collisions from occurring by stopping vehicles from crossing the medial between alternate directions of main lane traffic. The installation and maintenance of high-tension cable medial barrier systems includes drilling to accommodate the cable, posts and end treatments and the maintenance or removal of either of these components. Required drillings for cable barriers are typically 3 feet with a diameter of 12 inches. These posts are drilled and then stabilized with poured or preformed concrete. The cable posts are typically located 20 feet apart but may be closer in curved sections of the roadway. End anchor terminals are deeper and wider than those of the cable barrier with depths up to 8 feet and widths up to 24 inches. Concrete mow strips may be added, and typically are 3 to 8 inches deep and 3 feet wide running the entire length of the cable barrier.

Installation of Small and Large Signs

Large and small signs are used to communicate with travelers to provide safe and informed transportation. This action includes installing and maintaining breakaway features of sign supports to ensure the function operates as designed, assuring the sign message is always visible; replacing signs and posts as needed and performance of scheduled inspections by trained personnel. The signs are designed to yield on impact, with small signs typically bending or fracturing while larger signs give way through a slip-base and hinge combination. Breakaway posts can be easily repaired or replaced and cause less damage to vehicles. Small signs are excavated by drilling or by hand to 2.5 to 18 feet deep at a diameter of 8 to 24 inches. If the area already has paved concrete, small signs can be attached using bolts instead of drilling. Large sign foundations are installed by drilling between 7 and 55 feet deep at diameters ranging from 25 to 54 inches. Both small and large signs foundations are stabilized within the shaft with poured concrete.

Installation of Illumination Poles

The installation and maintenance of illumination systems, including continuous lighting, safety lighting, and sign illumination consists of trenching, placing electrical conduit, pulling electrical wire, terminating electrical connections, pouring concrete base, setting pole and mast arm, installing lighting head, installing controller, replacing bulbs, trouble-shooting illumination system malfunctions, and site restoration and clean up. Illumination pole installation typically requires shafts 6 to 10 feet in depth and 30-inches in diameter. High mast illumination poles require drilling shafts of 12 to 45 feet in depth and 48 to 60 inches in diameter.

Installation of Noise Wall Columns

To reduce the straight-line path of noise from the source to the receiver, noise barriers are installed to attenuate the sound level by a factor of three (one-third of traffic sound levels). By making the barrier even higher, noise is forced to travel along a longer path and additional

attenuation is usually produced. Most noise barriers consist of prefabricated concrete² panels placed between posts and can be stacked either as single panels or with several shorter panels stacked vertically. Posts are usually concrete or steel and utilizes drilled shafts 4 to 20 feet deep and 18 to 30 inches in diameter.

Installation and Relocation of Joint-bid Utility Poles

Utility poles that are “joint bid” between TxDOT and the utility company require existing pole-mounted utilities located within the right of way and may need to be relocated to accommodate new infrastructure. This may include the placement of support poles for overhead utilities such as electric and communications lines. Utilities such as traffic signals, lighting, electric, and telecommunications require the placement of supporting poles or structures. The smaller utility poles are typically directly imbedded in a 3- to 5-foot diameter augured shaft at a depth of 6 to 15 feet and are backfilled with the material removed and compacted at the surface. Larger and taller utility support structures for larger utility lines may require larger diameter shafts from 6 to 12 feet and up to 50 feet deep with an engineered support foundation containing concrete and steel. TxDOT has indicated that utility support structures that require shafts wider and deeper than what is required for High Mast Lighting (5-feet in diameter, and 45-feet deep) will not be considered as a covered activity under this reinitiation.

Subsurface Utility Engineering Test Holes

The mapping of subsurface utility engineering test holes provides for visual confirmation of the underground utilities that guarantees the utility’s horizontal and vertical location. Data obtained from the test holes provide critical updates for project planning and execution. These holes require the use of non-destructive vacuum excavation to create the test holes, where the utilities are exposed, measured, and mapped safely and without damage. Test holes range from 2 to 10 inches in depth and may extend to 25 feet on rare occasions and are 12 to 36 inches in diameter.

Discussion

The seven activities covered under this reinitiation are similar in nature to the three primary actions and the eight activities covered in the informal borehole programmatic consultation dated April 21, 2022. TxDOT has confirmed that all the previously agreed-to conservation measures from the April 21, 2022, consultation are applicable to this consultation reinitiation and shall be incorporated into each project as it is evaluated. **Table 2-1** in TxDOT’s 2023 BE provides a summary of the excavation details for each of the proposed activities. Duration for the proposed covered activities will range from a few days to a few months depending on the project; however, maximum bedrock exposure will be less than two days for any of the covered activities. All construction access and staging will occur in previously disturbed areas within the ROW where previous surface void surveys were conducted. TxDOT will conduct a desktop analysis prior to construction to identify any newly documented karst or spring features, critical habitat designations, proximal preserves or areas of conservation interest and assess impacts from the covered activities on proposed or listed species. Site preparation includes vegetation removal in areas previously disturbed by construction and roadway maintenance where TxDOT will seek to minimize disturbance to vegetation to the greatest extent possible. The duration, site

² Prefabricated concrete is the most frequently used material; other materials used include but are not limited to metal, brick, or wood.

access and staging, and the site preparation for the proposed activities is consistent with TxDOT's initial request for consultation.

Effects of the Activities

In the following sections, we describe effects to listed salamanders and karst invertebrates from the proposed activities related to the seven activities included in this reinitiation.

Salamanders

Although the proposed activities have the potential to result in effects to salamanders in the absence of effective conservation measures, we anticipate that site-specific conditions, as well as TxDOT's incorporation of several measures described above and in the BE, are likely to preclude any adverse effects to the Salado salamander, Georgetown salamander, Jollyville Plateau salamander, Austin Blind salamander, Barton Springs salamander, Texas Blind salamander, and the San Marcos salamander. For example, we previously identified increases in impervious cover³ to be a threat to federally listed aquatic salamanders as these surfaces likely alter stream flow regimes, introduce contaminants in surface runoff, and increase sediment deposited into streams. The mow strips (generally less than 3 feet wide) constructed out of concrete and installed in the middle of a median as a result of the MBGF or cable barrier will likely increase the amount of impervious cover within the action area. However, we do not anticipate this effect would be measurable to salamanders or their habitat as the impact would be likely highly localized to the vegetated median or ROW of the roadway of which they are installed.

Similarly, noise walls and their columns have the potential to alter pre-existing drainage patterns of surface water. These structures have the potential to redirect existing flow patterns of surface water by collecting and diverting water from an overland flow into a directed current. We expect that the altered hydrology resulting from the noise wall may concentrate and increase the amount of sediment and contaminants released into water sources and streams that would otherwise be filtered out with slower and more distributed water dispersal. This redirection of existing flow patterns may also reduce current water quantity inputs in some water features and increase them for other water features. However, we expect that the use of several design features is likely to reduce the effects from the noise walls and columns to salamanders. Noise wall designs vary across the landscape and may be designed with drainage holes placed in each ground level panel or by elevating the entire panel to provide a continuous gap. The drainage holes are routinely fitted with bars to minimize access to animals but allow for water to pass. There are alternative designs for noise walls that may including overlapping sections that would carry water out of the ROW at preferred locations. In some instances, water may also be directed along the sound wall via ditches or swales to inlets or culverts that allow it to exit to the ROW. TxDOT will only use sound barriers that allow water to move through each individual ground panel by using drainage holes or elevated panels as part of this reinitiation, which will reduce the likelihood of measurable effects to individual salamanders from the activities.

³ Texas Blind Salamander 5-Year Review: Summary and Evaluation. Service, 2021 p.14

Terrestrial Karst Invertebrates

The proposed activities will occur within Karst Zones 1-4 in Bexar and Medina counties and in zones 1-3 in Travis, and Williamson counties. Karst Zones 1 and 2 in any of the counties referenced here, are areas known to or have a higher probability of containing habitat suitable for listed karst invertebrate species. Therefore, it is reasonable to assume that the proposed activities may encounter subsurface voids. The effects associated with the roadway activities covered under this reinitiation could temporarily or permanently alter the distribution of karst invertebrates within the action area, where exposure occurs. For example, discovery of a previously unknown karst void occupied by individuals of a listed species may result in changes to the stable climatic conditions in the feature, negatively affecting those individuals. Drilled shafts have the potential to destroy a karst void or remove a significant portion of it, depending on the diameter and depth of the shaft. Voids encountered during the drilled shaft process may expose the void to significant climate alteration if the proposed conservation measures are not utilized. However, we expect that such effects would be avoided or would be not be measurable based on the inclusion of several conservation measures. If a karst feature is uncovered during construction, TxDOT would require all construction work to stop within 50-foot of the void opening until a professional geoscientist investigates the feature to determine if karst invertebrate habitat exists. If the feature does contain potential karst invertebrate habitat, it would be surveyed by a Service-permitted biologist to determine if it is occupied by listed karst invertebrates. In the unlikely event the feature is determined to be occupied by listed karst species individuals, TxDOT would immediately discontinue the project and request formal consultation with the Service⁴. Thus, due to TxDOT's implementation of these and other measures, we anticipate that effects to karst invertebrates, their food base, and their habitat from the above activities will either not be measurable, or will be extremely unlikely to occur.

Summary and Conclusion

The Service reviewed all supporting documentation provided by TxDOT on the seven activities proposed under this reinitiation and anticipates the effects to listed species resulting from these similar seven activities are insignificant or discountable based on the following rationale:

- The seven proposed activities all use similar methods for drilling boreholes where their impacts are similar in nature to those considered and addressed in the programmatic consultation dated April 21, 2022, where all effects were considered not measurable or extremely unlikely to occur;
- All previously agreed to conservation measures from the programmatic consultation dated April 21, 2022, are applicable to this amendment, reducing the likelihood of exposure or measurable effects, depending on activity type. Furthermore, all proposed activities will be evaluated through a desktop analysis to identify evidence of new features, springs, critical habitat, or conservation areas aimed at providing protection for listed species individuals;

⁴⁴ If formal consultation is required, TxDOT would evaluate further project impacts for any new feature found to contain listed karst invertebrates. Once the evaluation is complete, the feature will be permanently closed in accordance with the Texas Commission on Environmental Quality Edwards Aquifer Rules to a condition as similar as possible to the pre-excavation condition

- TxDOT will limit these seven activities to occur within the existing ROW or easement, where exposure of individuals is extremely unlikely to occur and any effects to food base or habitat is not likely to be measurable;
- The proposed activities will not measurably alter established hydrological flow patterns that may provide nutrients to karst habitats. Specifically, only mow strips that maintain the existing direction and concentration of surface water flow will be considered as a covered activity under this amendment, and we do not anticipate measurable effects would occur from this activity; and
- Individual listed salamanders and karst invertebrates are extremely unlikely to be exposed to the proposed activities, as impacts from the proposed activities: will remain highly localized; in many cases would occur in prioritized areas prioritized that already contain fill material; will require shallow depths compared to other drilling activities; will expose bedrock for less than 2 days, and in most cases, such exposure will be limited to only 1-2 hours. This short duration of exposed bedrock conditions would be unlikely to result in measurable effects to individuals of these listed species.

For these reasons, we expect that the proposed activities addressed in this reinitiation will result in, at most, insignificant or discountable effects to listed species. Thus, we concur with TxDOT's determination of "may affect, not likely to adversely affect" for each of the listed species listed above.

This concludes the consultation. As stated at 50 CFR §402.16, reinitiation of consultation is required and shall be requested by TxDOT or by the Service, where discretionary Federal involvement or control over the action has been retained or is authorized by law and: (1) If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (2) If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this concurrence letter; or (3) If a new species is listed or critical habitat designated that may be affected by the identified action.

If you have any questions, comments, or need additional information, please contact Ms. Donna Anderson at donna_anderson@fws.gov.

Sincerely,

Karen Myers
Project Leader
Austin Ecological Services Field Office

Ms. Clover Clamons

May 5, 2023

cc: Dennis Palafox, TxDOT ENV, Austin, TX (electronic)
Becki Perkins, TxDOT-SAT, San Antonio, TX (electronic)