



Form
Documentation of Applicability of Programmatic Consultation
with USFWS

Project Name: **FM 149 Shoulder Widening**

CSJ(s): **0720-02-095**

County(ies): **Montgomery**

Date Form Completed: **September 7, 2023**

Prepared by: **Adam Wood, TxDOT Environmental Specialist IV**

This project is Federally funded:

- Yes
- No (Programmatic Consultation does NOT apply)

Select the species for which this form is prepared:

- Red-cockaded Woodpecker
- Golden-cheeked Warbler
- Houston toad
- Eurycea* salamander or karst invertebrate species (identified in Section IV)

If this form is prepared for the Red-cockaded Woodpecker, complete Section I below.

If this form is being prepared for the Golden-cheeked Warbler, complete Section II below.

If this form is being prepared for the Houston toad, complete Section III below.

If this form is being prepared for the *Eurycea* salamander or karst invertebrate species, complete Section IV below.

I. Red-cockaded Woodpecker (RCW)

Explain methods used to identify potential RCW habitat in the vicinity of the project area (e.g., formal presence/absence surveys, formal transects, visual observation from right-of-way where right-of-entry has not been granted, species and/or managed area information from resource agencies, etc.):

Visual observation of habitat and confirmation of USFS-mapped nest trees/clusters from right-of-way

Date(s) of field reconnaissance: **July 27, 2023**

Name and job title of person(s) who conducted field reconnaissance: **Meghan Lind (Senior Ecologist/Ornithologist), Jake Hafermalz (Ecologist)**



Report title or file name of any further documentation of field reconnaissance (only if further documentation was prepared): **Red-cockaded Woodpecker Habitat Report**

Select the checkbox below (required):

- A map and photos of potential RCW habitat in the vicinity of the project area are included with this form.

Select the appropriate statement below (select only one statement):

- The project area is bordered exclusively by privately owned land.
- The project area is bordered exclusively by publicly owned land.
- The project area is bordered by some privately owned land and some publicly owned land.

Select the appropriate statement below (select only one statement):

- Field reconnaissance indicated that suitable RCW nesting habitat occurs within 400 feet of the project area.
- Field reconnaissance indicated that suitable RCW nesting habitat does not occur within 400 feet of the project area.

If this second box is checked, then the correct effect call for the RCW is “no effect,” and use of the programmatic consultation agreement for the RCW is not needed. Revise the species analysis spreadsheet accordingly, and do not complete the rest of this Section I.

Identify the applicable project type(s) as listed on page 2 of **ENV’s Endangered Species Act Programmatic Consultation Agreement for Red-cockaded Woodpecker**:

Roadway widening that does not add capacity

Identify the types of impact(s) to the RCW or its habitat that may result from this project (e.g., noise, removal of vegetation, removal of mature trees > 10-inch diameter at breast height):

Noise, removal of vegetation and mature trees > 10-inch dbh

Select the checkbox below (required):

- The following voluntary conservation measures will be implemented for this project:
- Stockpile and equipment storage areas and other PSLs would not be placed adjacent to active RCW clusters within 200 feet of the cleared ROW.
 - Avoid work during the RCW breeding season (April 1 to July 31) adjacent to any project area where active RCW cavity trees are located within 200 feet of the ROW.



- Work would not begin until one hour after sunrise and would cease one hour before sunset each day where active RCW cavity trees are located within 200 feet of the ROW to ensure that birds are not flushed from their cavities in the morning or prevented from roosting in the evening.

Explain where the above-listed voluntary conservation measures will be documented and communicated to the contractor (e.g., plan sheets, general notes, EPIC sheet, etc.):

BMPs will be documented in the Plan Sheets, project EPICs, and ECOS

Identify measures that will be taken to ensure implementation of the above-listed voluntary conservation measures (e.g., discussion at pre-construction meeting with contractor, TxDOT construction inspectors ensuring that contract terms are followed during construction, etc.):

Discussion at pre-construction meeting with contractor, TxDOT construction inspectors ensuring that contract terms are followed during construction

Select the appropriate statement below (select only one statement):

- The potential effects of this project on the Red-cockaded Woodpecker are covered by **ENV's Endangered Species Act Programmatic Consultation Agreement for Red-cockaded Woodpecker**; therefore, no project-specific consultation with the USFWS is required for this species.
- The potential effects of this project on the Red-cockaded Woodpecker are NOT covered by **ENV's Endangered Species Act Programmatic Consultation Agreement for Red-cockaded Woodpecker**; therefore, project-specific consultation with the USFWS is required for this species.

II. Golden-cheeked Warbler (GCW)

Explain methods used to identify potential GCW habitat in the vicinity of the project area (e.g., formal presence/absence surveys, formal transects, visual observation from right-of-way where right-of-entry has not been granted, species and/or managed area information from resource agencies, etc.):

<enter explanation>

Date(s) of field reconnaissance: **<enter date(s)>**

Name and job title of person(s) who conducted field reconnaissance: **<enter name(s) and job title(s)>**

Report title or file name of any further documentation of field reconnaissance (only if further documentation was prepared): **<enter title or file name>**

Select the appropriate statement below (select only one statement):

- Field reconnaissance indicated that known or potential GCW habitat occurs within 300 feet of the project area.
- Field reconnaissance indicated that known or potential GCW habitat does not occur within 300 feet of the project area.



If this second box is checked, then the correct effect call for the GCW is “no effect,” and use of the programmatic consultation agreement for the GCW is not needed. Revise the species analysis spreadsheet accordingly, and do not complete the rest of this Section II.

Identify the applicable project type(s) as listed in **ENV’s Endangered Species Act Programmatic Consultation Agreement for the Black-Capped Vireo and Golden-cheeked Warbler** (see “Attachment 1. Definition of Activities” included with TxDOT’s request for programmatic consultation dated July 27, 2017):

<enter project type(s)>

Identify the types of impact(s) to the GCW or its habitat that may result from this project (e.g., noise, removal of individual trees or shrubs, or areas of woody vegetation removal up to 2 acres in any single patch or 8 acres cumulative over the entire length of the project):

<enter types of impacts>

Select the checkbox below (required):

- The following voluntary conservation measures will be implemented for this project:
- Limit the operation of heavy machinery to paved areas, areas free of native vegetation, and to areas with slopes that are less than 33 percent consisting of stable soils.
 - Confirm the presence of listed species at or near the project site through pre-construction surveys or assume they are present and implement appropriate protection measures.
 - Minimize impacts to listed species and their habitats by limiting grading or topsoil removal to areas where this activity is absolutely necessary for construction activities.
 - Schedule the most effective amount of personnel and equipment to complete construction to reduce the time of disturbance to listed species.
 - Review temporary roadside material storage locations and notify contractors of the areas with potential to support habitat for rare, threatened, and endangered species and of the conservation need to avoid these areas.
 - Avoid use of non-native invasive plant species.
 - Sterilize equipment for tree trimming between trees in areas affected by surface transferable bacterial, viral, and fungal diseases.
 - Do not disturb, destroy, or remove active nests during the nesting season.
 - Do not collect, capture, relocate, or transport birds, eggs, young, or active nests without a permit.



- Limit the use of machinery in habitat that may support ground-nesting birds during the spring and early summer months.
- Coordinate with ENV and the District Environmental Coordinators prior to grading and blading activities for wildfire management and control.
- Train maintenance crews on how to handle hazardous chemicals if used, and encourage them to use them sparingly and only when absolutely necessary.
- Retain existing vegetation whenever possible.
- Use general good housekeeping practices and do not leave waste behind on the job site.
- Use care to avoid spills, leaks and drips of equipment and cleaning fluids when cleaning tools, servicing equipment or doing routine maintenance.
- Projects that would involve clearing or trimming of individual trees or shrubs in or near (within 300 feet of) potential habitat would be phased so that any clearing activities would occur outside the breeding season (between September 1st and February 28th) to minimize impacts to GCW.
- TxDOT personnel and project contractors, as appropriate, will be informed of these Programmatic Consultation requirements.
- Projects that would require trimming or removal of more than a few individual trees or shrubs or linear strips of woody vegetation will be inspected by qualified TxDOT biologists. Biologists would determine if areas of vegetation to be disturbed meet the criteria for potential GCW habitat and make an effect call based on the potential impacts in order to determine if a project-specific consultation is warranted.

Explain where the above-listed voluntary conservation measures will be documented and communicated to the contractor (e.g., plan sheets, general notes, EPIC sheet, etc.):

<enter explanation>

Identify measures that will be taken to ensure implementation of the above-listed voluntary conservation measures (e.g., discussion at pre-construction meeting with contractor, TxDOT construction inspectors ensuring that contract terms are followed during construction, etc.):

<enter explanation>

Select the appropriate statement below (select only one statement):

- The potential effects of this project on the Golden-cheeked Warbler are covered by **ENV's Endangered Species Act Programmatic Consultation Agreement for the Black-capped Vireo and Golden-cheeked Warbler**; therefore, no project-specific consultation with the USFWS is required for this species.



- The potential effects of this project on the Golden-cheeked Warbler are NOT covered by **ENV's Endangered Species Act Programmatic Consultation Agreement for the Black-capped Vireo and Golden-cheeked Warbler**; therefore, project-specific consultation with the USFWS is required for this species.

III. Houston toad (HT)

Explain methods used to identify potential HT habitat in the vicinity of the project area (e.g., formal presence/absence surveys, formal transects, visual observation from right-of-way where right-of-entry has not been granted, species and/or managed area information from resource agencies, etc.):

<enter explanation>

Date(s) of field reconnaissance: <enter date(s)>

Name and job title of person(s) who conducted field reconnaissance: <enter name(s) and job title(s)>

Report title or file name of any further documentation of field reconnaissance (only if further documentation was prepared): <enter title or file name>

Select the appropriate statement below (select only one statement):

- Field reconnaissance indicated that potential HT habitat occurs within 1300 meters of the project area.
- Field reconnaissance indicated that potential HT habitat does not occur within 1300 meters of the project area.

If this second box is checked, then the correct effect call for the HT is "no effect," and use of the programmatic consultation agreement for the HT is not needed. Revise the species analysis spreadsheet accordingly, and do not complete the rest of this Section III.

Identify the applicable activity type(s) as listed in **ENV's Endangered Species Act Informal Programmatic Consultation Agreement for the Houston toad**

<enter activity type(s)>

Select the checkbox below (required):

- All project activities are low-risk activities
- Project activities include both low and high-risk activities, or are all high-risk activities.

Identify the applicable voluntary conservation measures as listed in **ENV's Endangered Species Act Informal Programmatic Consultation Agreement for the Houston toad** by selecting the appropriate checkbox below (required):

- The following voluntary conservation measures will be implemented for all projects using **ENV's Endangered Species Act Informal Programmatic Consultation Agreement for the Houston toad**:

- No trees with a diameter at breast height (dbh) of 4 inches or greater will be removed from areas within 200 feet of suitable Houston toad habitat, or from the riparian area of water features in suitable Houston toad habitat.
- If limited trimming of canopy tree branches is necessary to facilitate equipment access within the ROW, all trimmed branches will be removed and disposed of outside of the ROW daily. Trimmed branch disposal areas will not be in suitable Houston toad habitat.
- As part of the preconstruction conference, TxDOT environmental staff will meet with the construction contractor and staff to explain the rationale for the conservation measures, the proper implementation of those measures, and the consequences to the project from failing to ensure full compliance with the measures. The importance of immediately reporting any toad sightings and proper on-site waste management to reduce the potential of attracting Houston toad's predators such as raccoons will be presented.
- Proposed locations for Project Specific Locations (PSLs) such as staging areas, equipment storage, contractor parking, or fill material borrow sites must be approved by District environmental staff before the contractor may move into the selected site.

PSLs cannot be placed within 200 feet of any suitable Houston toad habitat. In the event there is no practical alternative to placement of a PSL beyond 200 feet of suitable Houston toad habitat, that PSL and the methods for managing ingress and egress from that PSL must be approved in writing by the USFWS.

- Toad identification and work-stop conditions for all projects under this programmatic:

If any species of toad is found in the project area during construction, construction activities will be immediately suspended, a photograph will be taken and sent to TxDOT environmental staff, and construction activities will remain suspended until identification can be confirmed. If TxDOT environmental staff are unable to properly identify the species, work will remain suspended until a USFWS permitted 10(a)(1)(A) Houston toad biologist confirms the species is not a Houston toad. If the species in the project area is confirmed to be a Houston toad, work would remain suspended until guidance is received from the USFWS.

- The following voluntary conservation measures will be implemented for projects with low-risk activities using **ENV's Endangered Species Act Informal Programmatic Consultation Agreement for the Houston toad**:

- No work will occur within the project area where suitable Houston toad habitat is adjacent to the project ROW during the Houston toad breeding season (January 1- June 30) as described in the USFWS's Habitat Characteristics of the Houston Toad (Anaxyrus=Bufo houstonensis), September 2020 document (USFWS 2020b). TxDOT

will add additional notation to plan sheets for projects using this programmatic consultation to inform the contractor of this limitation

- All work adjacent to Houston toad habitat will be conducted during daylight hours from one hour after sunrise to one hour before sunset.

The following voluntary conservation measures will be implemented for projects with high-risk activities using **ENV's Endangered Species Act Informal Programmatic Consultation Agreement for the Houston toad**:

- For projects where suitable habitat (USFWS 2020b) exists in or adjacent to a TxDOT project area, and the best available information indicates no known Houston toad occupancy within five kilometers (3.1 miles) of the project area within the last 20 years, TxDOT commits to complete three years of acoustic monitoring of the project area following the USFWS's Section 10(a)(1)(A) Scientific Permit Requirements for Conducting Houston Toad Presence/Absence Surveys (2020). The best available information includes use of Texas Natural Diversity Database (TXNDD) records, publications, TxDOT and other audio logger data, Houston toad researcher information, other resource agency data, and discussions with the USFWS. The most recent Houston toad survey protocol will be followed if or when the USFWS revises or changes the September 2020 version. Auditory monitoring will begin as soon as possible.
- This multi-year monitoring will be conducted at sites selected based on habitat suitability and will be coordinated with the USFWS. The results of the multi-year survey efforts will be transmitted annually to the USFWS in accordance with reporting requirements of this consultation.
- No work will occur within the project area where suitable Houston toad habitat (USFWS 2020b) is adjacent to the project ROW during the Houston toad breeding season (January 1- June 30) unless the project area has been separated from adjacent suitable habitat by the installation of Amphibian and Reptile Exclusion Fence (AREF) per TxDOT Special Specification 5116. AREF would be installed prior to the beginning of Houston toad breeding season (January 1). AREF specifications are shown in TxDOT's Special Specification 5116 Amphibian and Reptile Exclusion Fence document and is included as Attachment A of the October 6, 2020, consultation request letter. To impede Houston toads from entering the project area and to direct toads away from those areas AREF will be placed, where possible, 200 feet beyond areas identified as suitable Houston toad habitat. In areas where it is not possible to extend the AREF for 200 feet (i.e., terminal ends at driveway breaks and roadway intersections), it will be extended to the maximum feasible distance and terminate with the J-Hook as shown in Attachment A. AREF will be installed according to the specifications shown in Attachment A so that posts and additional wire fence supports face the inside (work side) of the project boundary and the fabric side faces the suitable Houston toad habitat. AREF will be clearly marked to distinguish it from sediment control fence placed for stormwater management.
- TxDOT District environmental staff will review and approve the placement and installation of the AREF in coordination with the USFWS. TxDOT will add additional



notation to the plan sheets for projects using this programmatic consultation to inform the contractor of this limitation.

- For bridge repairs and rehabilitation projects with suitable habitat adjacent to both sides of the ROW, the AREF will connect on both sides of the ROW with a continuous extension of the AREF between the two ROW AREF alignments. The connecting AREF will be placed 10 linear feet up gradient of the ordinary high water mark of the water feature being bridged. If this configuration is not feasible, a solution will be coordinated and reviewed by the USFWS.
- The AREF will be inspected and maintained daily from January 1 to June 30 in areas adjacent to suitable Houston toad habitat, and weekly during the remainder of the year, or after a storm event to ensure the exclusion of Houston toad. A 24-hour work stoppage would occur following a cumulative rain event of 2 inches or more within the previous 48 hours as shown on National Weather Service's cumulative precipitation website (<https://water.weather.gov/precip/>). Rain gauge(s) located on-site at area(s) of construction would be used to determine rainfall amounts and confirm two inches of rainfall within 48 hours.
- If the integrity of AREF is compromised by natural or construction related impacts, work in the area will stop until the AREF is restored to original design specifications. The project area must be inspected by a USFWS 10(a)(1)(A) permitted biologist to ensure no Houston toads entered the project area prior to work resuming.
- Following the completion of construction, disturbed areas would be smoothed to avoid the creation of undesirable breeding sites within the ROW. All disturbed areas would be revegetated according to the Austin or Yoakum districts' Specification Item 164 Permanent Rural Seed Mix for sandy soils (Attachment B), and in compliance with Executive Order 13112 on Invasive Species and the Executive Memorandum on Beneficial Landscaping. The Austin and Yoakum district seed mixes are comprised of natives suited for their respective regions. TxDOT's Bryan district will utilize either the Austin or Yoakum seed mixes for sandy soils. No mat or sod forming grasses will be used (i.e., seed mixes do not contain Bermuda grass).
- Pre-project mowing within existing and maintained TxDOT ROW will only be performed during the Houston toad non-breeding season (July 1-December 31).
- A TxDOT construction inspector will be on site regularly to ensure that the conservation measures are being implemented and followed.

Explain where the above-listed voluntary conservation measures will be documented and communicated to the contractor (e.g., plan sheets, general notes, EPIC sheet, etc.):

<enter explanation>

Identify measures that will be taken to ensure implementation of the above-listed voluntary conservation measures (e.g., discussion at pre-construction meeting with contractor, TxDOT construction inspectors ensuring that contract terms are followed during construction, etc.):

<enter explanation>



Select the appropriate statement below (select only one statement):

- The potential effects of this project on the Houston toad are covered by **ENV's Endangered Species Act Informal Programmatic Consultation Agreement for the Houston toad**; therefore, no project-specific consultation with the USFWS is required for this species.

- The potential effects of this project on the Houston toad are NOT covered by **ENV's Endangered Species Act Informal Programmatic Consultation Agreement for the Houston toad**; therefore, project-specific consultation with the USFWS is required for this species.

IV. *Eurycea* salamanders or karst invertebrates

Select the species for which this Programmatic Consultation is being applied:

Salamander Species

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

Karst Invertebrate Species

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



- Bone Cave harvestman (*Texella reyesi*)
- Coffin Cave mold beetle (*Batrisodes texanus*)

Any salamander or karst invertebrate species that may be affected by this project that is not listed above is not covered under this programmatic. The project sponsor must seek individual consultation for impacts to any additional species with the USFWS through an ENV NRM Biologist.

Explain methods used to identify potential habitat for salamander or karst invertebrate habitat in the vicinity of the project area (e.g., desktop analysis of Karst Zone maps, salamander habitat survey, geological assessment, karst feature survey, species and/or managed area information from resource agencies, etc.):

<enter explanation>

Date(s) of field reconnaissance: <enter date(s)>

Name and job title of person(s) who conducted field reconnaissance: <enter name(s) and job title(s)>

Report title or file name of any further documentation of field reconnaissance (only if further documentation was prepared): <enter title or file name>

Select the appropriate statement below (select only one statement):

- Desktop analysis or field reconnaissance indicated that potential salamander or karst invertebrate habitat occurs within the project area.
- Desktop analysis of Karst Zone maps indicated that potential salamander or karst invertebrate habitat does not occur within the project area.

If the second box is checked, then the correct effect call for the salamander or karst invertebrate species is/are “no effect,” and use of the programmatic consultation agreement for the salamander or karst invertebrate species is not needed. Revise the species analysis spreadsheet accordingly, and do not complete the rest of this Section IV.

Select the appropriate applicable project type(s) as listed below and described in **ENV’s Endangered Species Act Informal Programmatic Consultation Agreement for *Eurycea* Salamanders and Karst Invertebrates**:

- Geotechnical Boreholes
- Traffic Signal Infrastructure
- Intelligent Transportation Systems

Select the checkbox below:

- The proposed project meets the following criteria:
 - the actions are located entirely within existing transportation ROW;



- the actions are located more than 984 feet away, or outside of the mapped subsurface drainage of any known, federally listed *Eurycea* salamander location;
- the actions 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.

The proposed project does not meet the following criteria:

If this box is checked, this programmatic consultation agreement for the salamander or karst invertebrate species is not applicable and the project sponsor must seek individual consultation with the USFWS through an ENV NRM Biologist.

Identify the applicable voluntary conservation measures as listed in **ENV's Endangered Species Act Informal Programmatic Consultation Agreement for *Eurycea* Salamanders and Karst Invertebrates** by selecting the appropriate checkboxes below (required):

The following voluntary conservation measures will be implemented for all projects using **ENV's Endangered Species Act Informal Programmatic Consultation Agreement for *Eurycea* Salamanders and Karst Invertebrates** (required):

- 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 USFWS.
- 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 USFWS 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.

The following voluntary conservation measures will be implemented for projects with potential impacts to salamander using **ENV's Endangered Species Act Informal Programmatic Consultation Agreement for *Eurycea* Salamanders and Karst Invertebrates** (required for salamander species):

- 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.

The following voluntary conservation measures will be implemented for projects with potential impacts to karst invertebrate using **ENV's Endangered Species Act Informal Programmatic Consultation Agreement for *Eurycea* Salamanders and Karst Invertebrates** (required for karst invertebrate species):

- 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.

The following Void Discovery Oversight and Reporting will be implemented for projects with potential impacts to salamander or karst invertebrate using **ENV's Endangered Species Act Informal Programmatic Consultation Agreement for *Eurycea* Salamanders and Karst Invertebrates** (required):

- If a potential karst void is encountered during excavation activities within the current USFWS 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 USFWS 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 USFWS 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 USFWS 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 USFWS 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 USFWS criteria for potential habitat shall be documented in writing and USFWS will determine the continued applicability of this PC or the need to initiate a separate consultation with the USFWS 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 USFWS 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 USFWS annual report of activities conducted under the PC.

- The following Karst Invertebrate Habitat and Groundwater Mitigation Plans will be implemented for projects with potential impacts to salamander or karst invertebrate using **ENV's Endangered Species Act Informal Programmatic Consultation Agreement for *Eurycea* Salamanders and Karst Invertebrates** (required):

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.

Explain where the above-listed voluntary conservation measures will be documented and communicated to the contractor (e.g., plan sheets, general notes, EPIC sheet, etc.):

<enter explanation>

Identify measures that will be taken to ensure implementation of the above-listed voluntary conservation measures (e.g., discussion at pre-construction meeting with contractor, TxDOT construction inspectors ensuring that contract terms are followed during construction, etc.):

<enter explanation>