



Freshwater Mussel Survey Report

Glade Road from Northbound State Highway 360 to West Airfield Drive

Cox|McLain Environmental Consulting, Inc. for TXDOT Fort Worth District and TxDOT
Environmental Affairs Division

CSJ Number: 0902-90-117 and 0902-90-061

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 9, 2019, and executed by FHWA and TxDOT.

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1.0 Introduction

The Dallas/Fort Worth (DFW) Airport and the Fort Worth District of the Texas Department of Transportation (TxDOT) proposes to reconstruct Glade Road from northbound State Highway (SH) 360 Frontage Road to West Airfield Drive for an approximate length of 0.802 mile in the City of Grapevine, Tarrant County, Texas. To facilitate the construction of this project, work is proposed within the water of two stream crossings, Big Bear Creek and an unnamed tributary to Big Bear Creek (**Attachment A, Figure 1**). This report evaluates the potential impacts to native freshwater mussel species caused by construction of the proposed project and documents the results of a presence/absence field survey conducted by qualified biologists within the Big Bear Creek and the unnamed tributary to Big Bear Creek crossings on October 25, 2020. The survey areas, substrate compositions, and mussel identification were documented and photographed. An Aquatic Resource Relocation Plan (ARRP) and an Application for Permit to Introduce Fish, Shellfish, or Aquatic Plants into Public Waters were prepared for both survey areas and submitted to the Texas Parks and Wildlife Department (TPWD) on October 13, 2020. The ARRP and Permit to Introduce Shellfish into Public Freshwater (INT: TDOT 20 10-19a and INT: TDOT 20 10-219b) were approved by TPWD on October 19, 2020.

The work documented in this report has been conducted in accordance with the 2013 Best Management Practices (BMPs) Programmatic Agreement (2017 Revision) between TXDOT and the TPWD. This Programmatic Agreement states that when a project is within the range of and contains suitable habitat for a species of greatest conservation need (SGCN), state-listed threatened species, or state-listed endangered species, specific BMPs should be implemented to avoid and minimize the potential impacts to that particular species. The proposed crossings are within the range of three species of state-listed threatened freshwater mussels: Louisiana pigtoe (*Pleurobema riddellii*), sandbank pocketbook (*Lampsilis satura*), and Texas heelsplitter (*Potamilus amphichaenus*) (TPWD 2020).

The following freshwater mussel BMPs are provided for the Louisiana pigtoe, sandbank pocketbook, and Texas heelsplitter state-listed threatened freshwater mussels:

- When work is in the water, survey project footprints for state-listed species where appropriate habitat exists.
- When work is in the water and mussels are discovered during surveys, relocate state-listed and SGCN mussels under a TPWD permit and implement Water Quality BMPs.
- When work is adjacent to the water, Water Quality BMPs will be implemented as part of the Stormwater Pollution Prevention Plan associated with the construction general permit or as part of any conditions of the 401 water quality certification for the project. No TPWD Coordination is required.

Additionally, the proposed project is subject to TPWD's Kills and Spills Team (KAST) Freshwater Mussel Survey and Relocation Protocols. The freshwater mussel presence/absence survey at the Big Bear Creek and unnamed tributary to Big Bear Creek crossings were carried out in accordance with the initial wadable survey protocol during which sampling is used to establish the presence/absence of state-listed mussel species (TPWD 2017) (**Attachment D**).

2.0 Freshwater Mussels

2.1 *Habitat*

A freshwater mussel survey was conducted for all native Unionids, with specific emphasis on the three state-listed threatened species, at the Big Bear Creek and unnamed tributary to Big Bear Creek crossings. Although these were the species of interest, field method protocols require that all observed native and invasive freshwater bivalves be recorded. The state-listed threatened species' habitat is described below.

The Louisiana pigtoe occurs in small streams to large rivers in slow to moderate currents in substrates of clay, mud, sand, and gravel. The species is not known from impoundments (TPWD 2020).

The sandbank pocketbook occurs in small streams to large rivers in slow to moderate current in sandy mud to sand and gravel substrate. This species can occur in a variety of habitats but is most common in littoral habitats such as banks or backwaters or in protected areas along point bars (TPWD 2020).

The Texas heelsplitter occurs in small streams to large rivers in standing to slow-flowing water; most common in banks, backwaters and quiet pools; adapts to some reservoirs. Often found in soft substrates such as mud, silt or sand (TPWD 2020).

3.0 Survey Area Delineation

3.1 *General Description of the Big Bear Creek Survey Area*

According to the approved ARRP (**Attachment D**), the survey area for freshwater mussels includes areas of the wetted stream bed that would be directly impacted by construction and project activities (e.g. sedimentation). Additionally, the Big Bear Creek freshwater mussel survey area included a 100-meter buffer downstream and a 50-meter buffer upstream of the construction footprint at the Big Bear Creek crossing. A total of 190 linear meters of stream channel were surveyed (**Attachment A, Figure 2a**).

Weather during the survey period was cloudy and misty with an air temperature of 64.1 degrees Fahrenheit (°F) and water temperature of 63.0°F. The 190-linear-meter survey area was subdivided into five equal survey reaches of 38 linear meters each (**Attachment A, Figure 2a**). Survey reach 1 included a substrate composed of approximately 40% sand, 30% gravel, and 30% hard-packed clay, with run habitat present and an average water depth of 18 inches and a max depth of 24 inches. Survey reach 2 included a substrate composed of approximately 40% gravel, 40% sand, and 20% detritus, with run habitat present and an average water depth of 24 inches, with a max depth of 36 inches. Survey reach 3 included a substrate composed of approximately 35% sand, 35% gravel, 20% rock, 5% hard-packed clay, and 5% detritus, with run/pool habitats present and an average water depth of 24 inches, with a max depth of 36 inches. Survey reach 4 included a substrate composed of approximately 25% cobble, 25% bedrock, 25% sand, and 25% gravel, with riffle/run habitats present and an average water depth of 12 inches, with a max depth of 18 inches. Survey reach 5 included a substrate composed of approximately 50% sand, 40% gravel, and 10% bedrock, with run habitat present and an average water depth of 18 inches, with a max depth of 24 inches.

3.2 *General Description of the Unnamed Tributary to Big Bear Creek Survey Area*

According to the approved ARRP (**Attachment D**), the survey area for freshwater mussels included areas of the wetted stream bed that would be directly impacted by construction and project activities (e.g. sedimentation). Additionally, the unnamed tributary to Big Bear Creek freshwater mussel survey area included a 100-meter buffer downstream and a 50-meter buffer upstream of the construction footprint at the unnamed tributary to Big Bear Creek crossing. A total of 199 linear meters of stream channel was surveyed (**Attachment A, Figure 2b**).

Weather during the survey period was cloudy and misty with an air temperature of 64.1°F and water temperature of 63.2°F. The 199 linear meter survey area was subdivided into 5 equal survey reaches of 39.8 linear meters each (**Attachment A, Figure 2b**). Survey reach 1 included a substrate composed of approximately 50% hard-packed clay, 20% gravel, 20% bedrock, 5% cobble, and 5% fines, with run/riffle habitats present and an average water depth of 12 inches, with a max depth of 30 inches. Survey reach 2 included a substrate composed of approximately 50% hard-packed clay, 20% gravel, 20% bedrock, 5% cobble, and 5% fines, with run/riffle/pool habitats present and an average water depth of 12 inches, with a max depth of 24 inches. Survey reach 3 included a substrate composed of approximately 50% cobble, 25% gravel, 20% bedrock, and 5% fines, with run/riffle/pool habitats present and an average water depth of 12 inches, with a max depth of 24 inches. Survey reach 4 included a substrate composed of approximately 35% sand, 25% hard-packed clay, 20% gravel, 10% cobble, and 10% boulder, with run habitat present and an average water depth of 24 inches, with a max depth of 30 inches. Survey reach 5 included a substrate composed of approximately 50% sand, 40% gravel, and 10% bedrock, with run habitat present and an average water depth of 24 inches, with a max depth of 32 inches.

4.0 Survey Methods

4.1 *Survey Procedures*

Three qualified biologists conducted field investigations within the survey areas on October 25, 2020. The work documented in this section was conducted under the authority of TPWD Scientific Research Permit No. SPR-0691-409 and the Permit to Introduce Shellfish into Public Freshwater (INT 20 10-19a and INT 20 10-19b).

Field investigations were conducted in accordance with TPWD's initial wadable survey protocols. A stream or river is considered wadable if at least 50% of the channel is accessible by wading during normal flow conditions. At the time of the surveys, 100% of the surveyed areas were deemed to be wadable.

In compliance with standard mussel survey protocol, any native mussels, living or dead, were to be collected and placed in nylon mesh bags, which would be subsequently given a unique identification number to produce a series of discrete samples within the pre-determined reach. If any mussels should be found, they should be processed after the completion of each surveyed reach. During processing, each native mussel would be measured and identified to the species level, and the mussels would be photographed collectively by segment. The mussels would then be returned (anterior end down) to the reach where they were originally collected. If found, each freshwater mussel would be identified, measured, and returned to a designated relocation area further upstream. During the survey, the presence/absence of non-native bivalve specimens would be noted,

and individuals would not undergo further processing. No mussels were vouchered or removed from the site during the sampling event.

The initial survey for wadable locations is a qualitative survey (Strayer and Smith 2003) during which sampling is used to establish the presence/absence of state-listed mussel species. This method allows the surveyor to develop a species list of mussels present within the survey area using timed searches. Because the amount of survey effort (person-hours) needed to obtain an adequate representation of the mussel species present varies by water body type (Huang et al. 2011), a minimum search time of five person-hours (divided into five one-person-hour searches) was conducted within the survey area. Where applicable, the total survey area was divided into five equal-length reaches, and each reach was surveyed for one person-hour (**Attachment A, Figures 2a and 2b**). Three qualified biologists conducted each timed search, and the total duration of each search was 20 minutes (20 minutes x 3 persons = one person-hour) within each reach. At the end of each search period (i.e., a one person-hour search of a reach), mussels were identified and collected to be placed in the designated relocation area. If no new species of mussels were collected during the fifth time trial period, the survey was considered complete. If at least one new mussel species had been collected during the fifth search period, an additional one person-hour search period would be required. The process would be repeated until no new species were collected. Surveyors began on the most downstream extent (represented as Reach 1 on **Attachment A, Figures 2a and 2b**) and continued upstream until reaching Reach 5.

Qualified biologists systematically searched for and removed live mussels from the survey area. In areas considered wadable (less than 42 inches), a combination of visual and tactile search methods was employed to locate mussels, beginning along the shoreline and searching from downstream to upstream moving back and forth across the stream channel. In areas where visibility was low, search methods were primarily tactile and included hand excavation of the top 4-6 inches of substrate. No live specimens were vouchered for this project.

5.0 Results

5.1 *Freshwater Mussel Abundance and Species Diversity*

No native Unionids were found during the visual or tactile survey effort within the Big Bear Creek and unnamed tributary to Big Bear Creek survey areas. Non-native Asian clams (*Corbicula fluminea*) were found in the Big Bear Creek survey area.

5.2 *Freshwater Mussel Distribution*

No native Unionids were found during the visual or tactile survey effort within the Big Bear Creek and unnamed tributary to Big Bear Creek survey areas. Non-native Asian clams (*Corbicula fluminea*) were found in the Big Bear Creek survey area.

6.0 Conclusions

Following submittal and approval of an ARRP, freshwater mussel survey and relocation efforts were conducted at the Big Bear Creek and unnamed tributary to Big Bear Creek crossings on October 25, 2020. After thorough inspection of the stream bed, banks, and adjacent depositional areas, no evidence was found to indicate the presence of native freshwater mussels within the limits of the survey areas. Based on this survey effort, no federal or state-listed native freshwater mussels are present within the survey area along the Big Bear Creek and unnamed tributary to Big Bear Creek crossings of Glade Road in Tarrant County, Texas. Therefore, no freshwater mussels would be impacted by the proposed project. Construction activities within the water may proceed in accordance with TPWD protocols.

7.0 References

- Huang, J., Y. Cao, and K. S. Cummings. 2011. Assessing sampling adequacy of mussel diversity surveys in wadable Illinois streams. *Journal of North American Benthological Society* 30(4):923–934.
- Strayer, D. L., and D. R. Smith. 2003. A guide to sampling freshwater mussel populations. *American Fisheries Society Monograph No. 8*. American Fisheries Society, Bethesda, Maryland.
- Texas Department of Transportation (TXDOT). 2017. Texas Parks and Wildlife 2013 Memorandum of Understanding. Best Management Practices 2017 Revision. Accessed at <http://ftp.dot.state.tx.us/pub/txdot-info/env/toolkit/300-01-pa.pdf>.
- Texas Parks and Wildlife Department (TPWD). 2013. Freshwater Mussels of Texas Distribution Chart. Last Updated September 2013.
- _____. 2017. Freshwater Mussel Survey and Relocation Protocols. Kills and Spills Team. PWD LF T3200-1957.
- _____. 2020. Annotated County Lists of Rare Species. Tarrant County. Last Updated August 25, 2020.

Attachment A

Figures

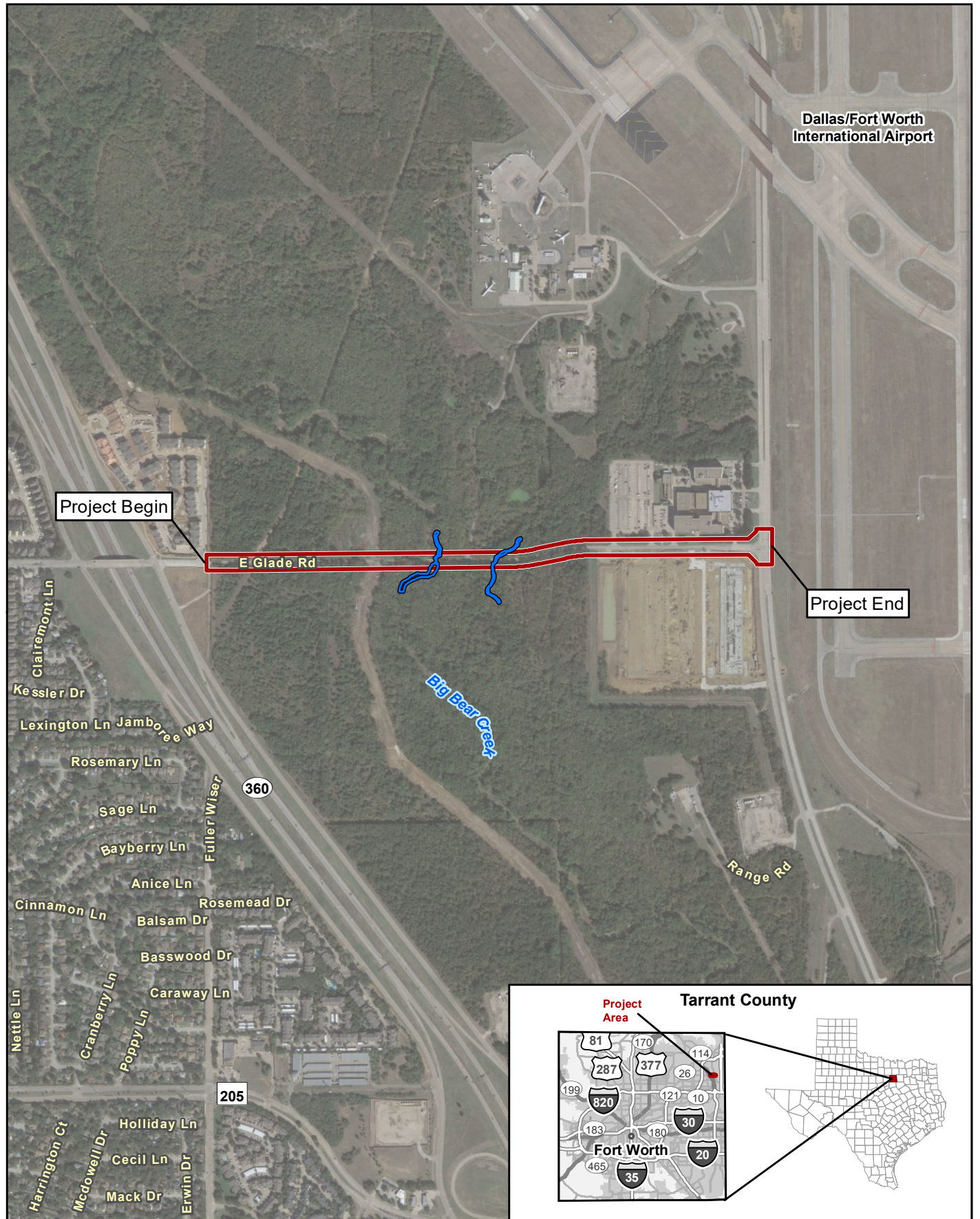




Figure 1.
Project Location (Aerial Base)

Glade Road

 Project Location
 Mussel Survey Area

Aerial Source: Google (2019)



CSJ: 092-90-117, 0902-90-061

0 1,000 Feet 1 in = 1,000 feet
0 300 Meters Scale: 1:12,000
Date: 11/3/2020

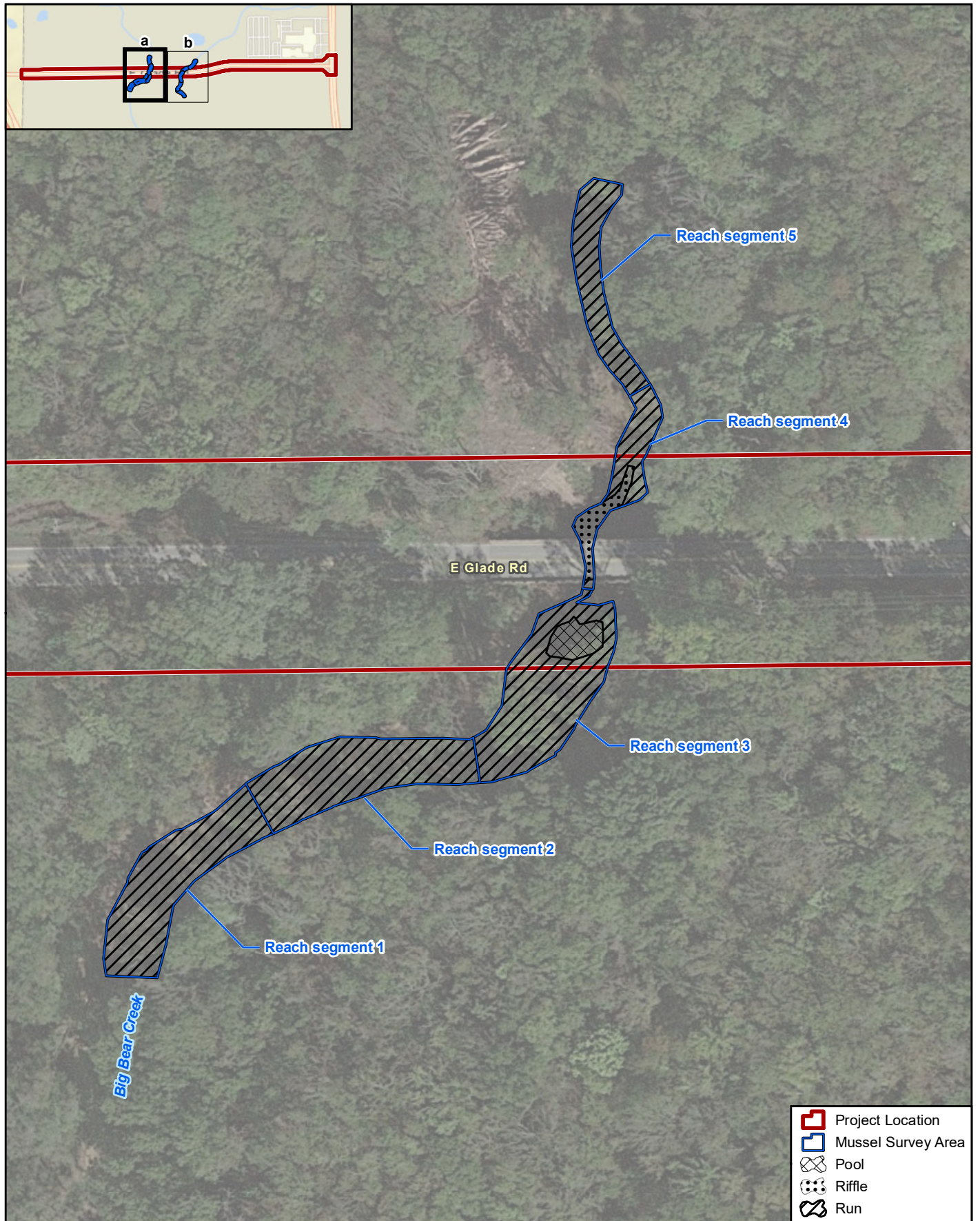
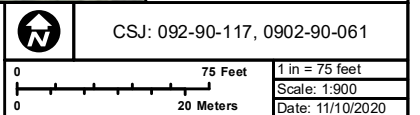


Figure 2a.
Mussel Survey Area

Glade Road

Data Source: CMEC (2020)
Aerial Source: Google (2019)



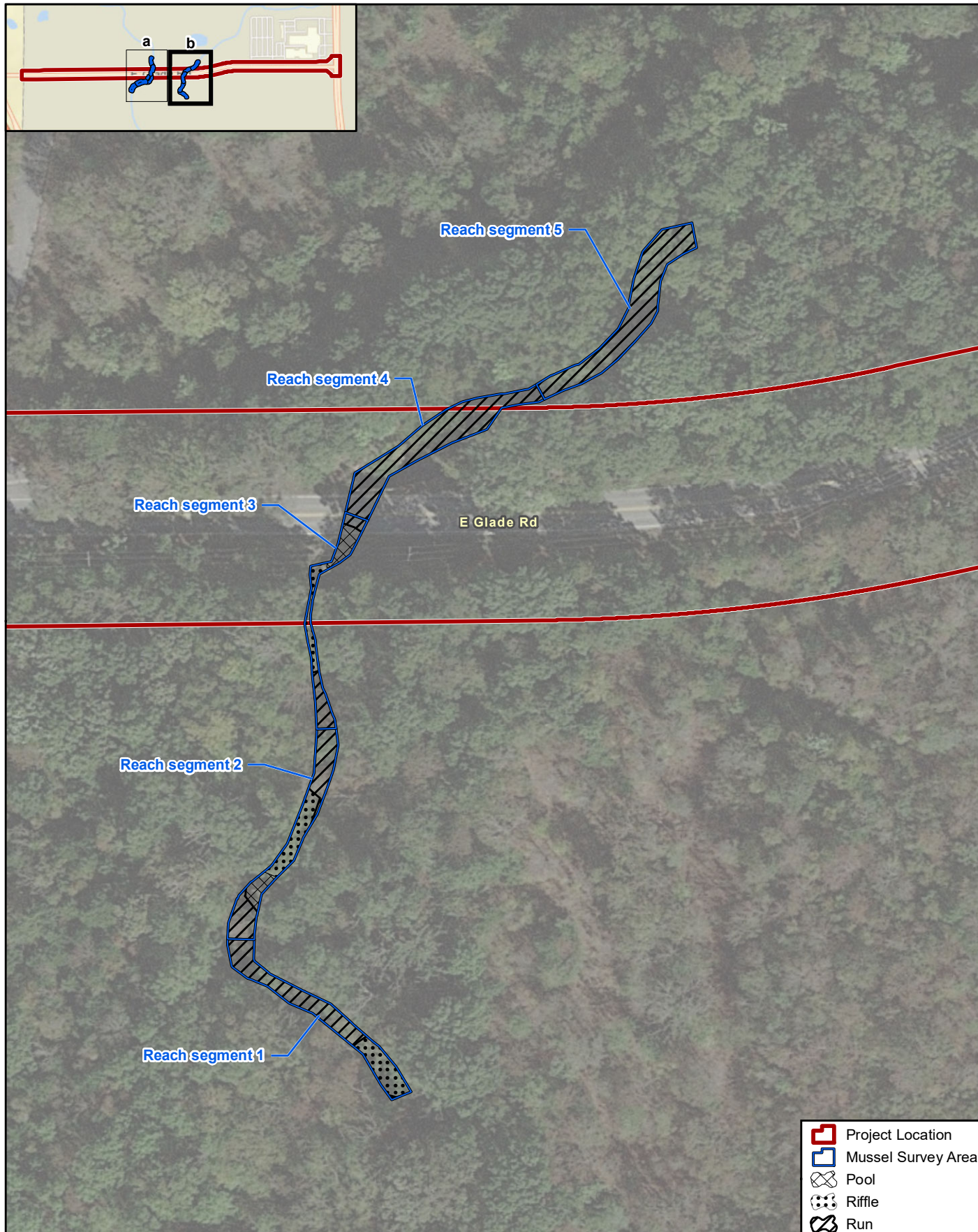


Figure 2b.
Mussel Survey Area

Glade Road

G:\Projects\TXDOT\Glade_Road\GladeRd_Mussel_Figure 2_Survey_Area_20201110_TLS.mxd

Data Source: CMEC (2020)
Aerial Source: Google (2019)



CSJ: 092-90-117, 0902-90-061

0 75 Feet
0 20 Meters

1 in = 75 feet
Scale: 1:900
Date: 11/10/2020

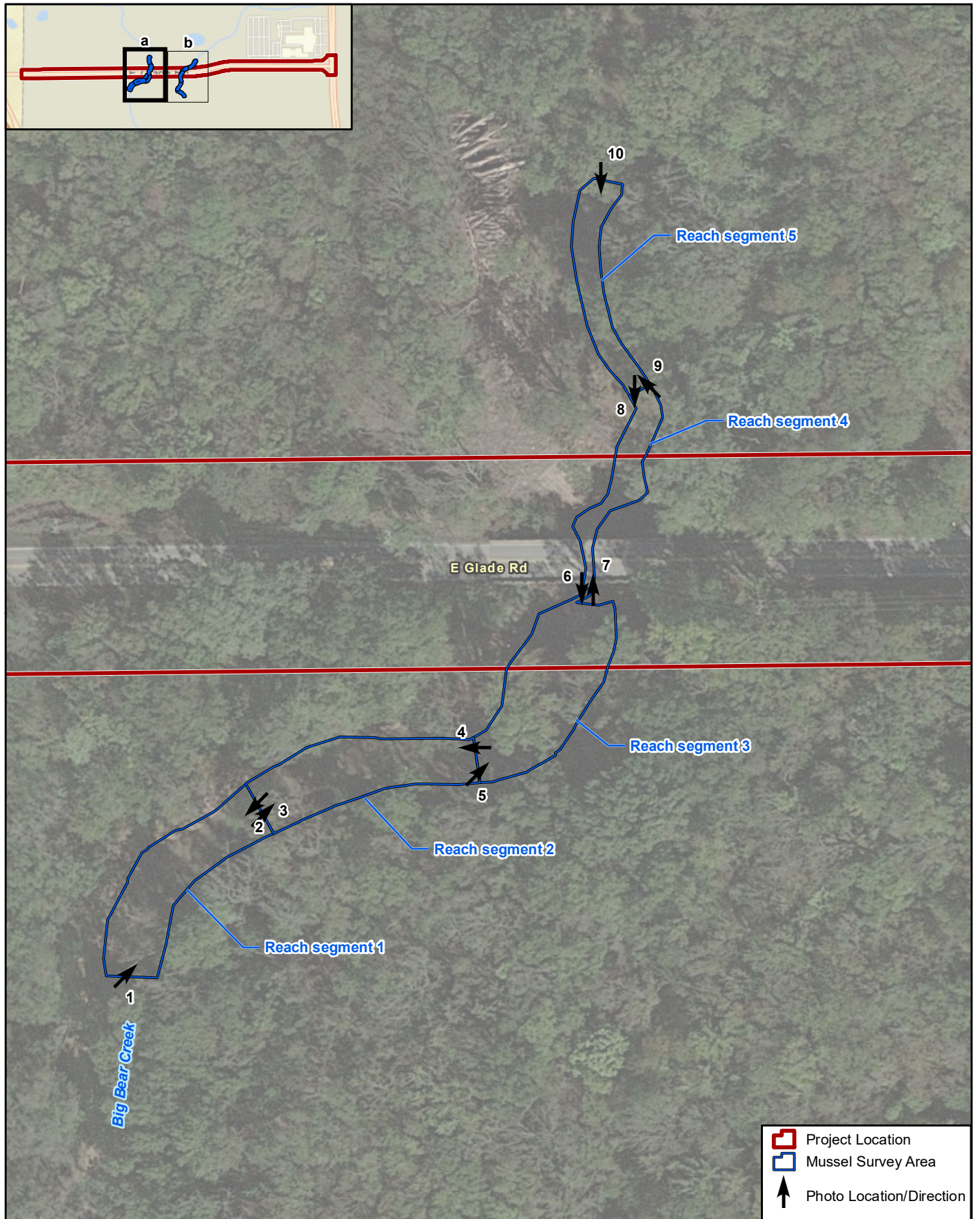


Figure 3a.
Photo Location Map

Glade Road

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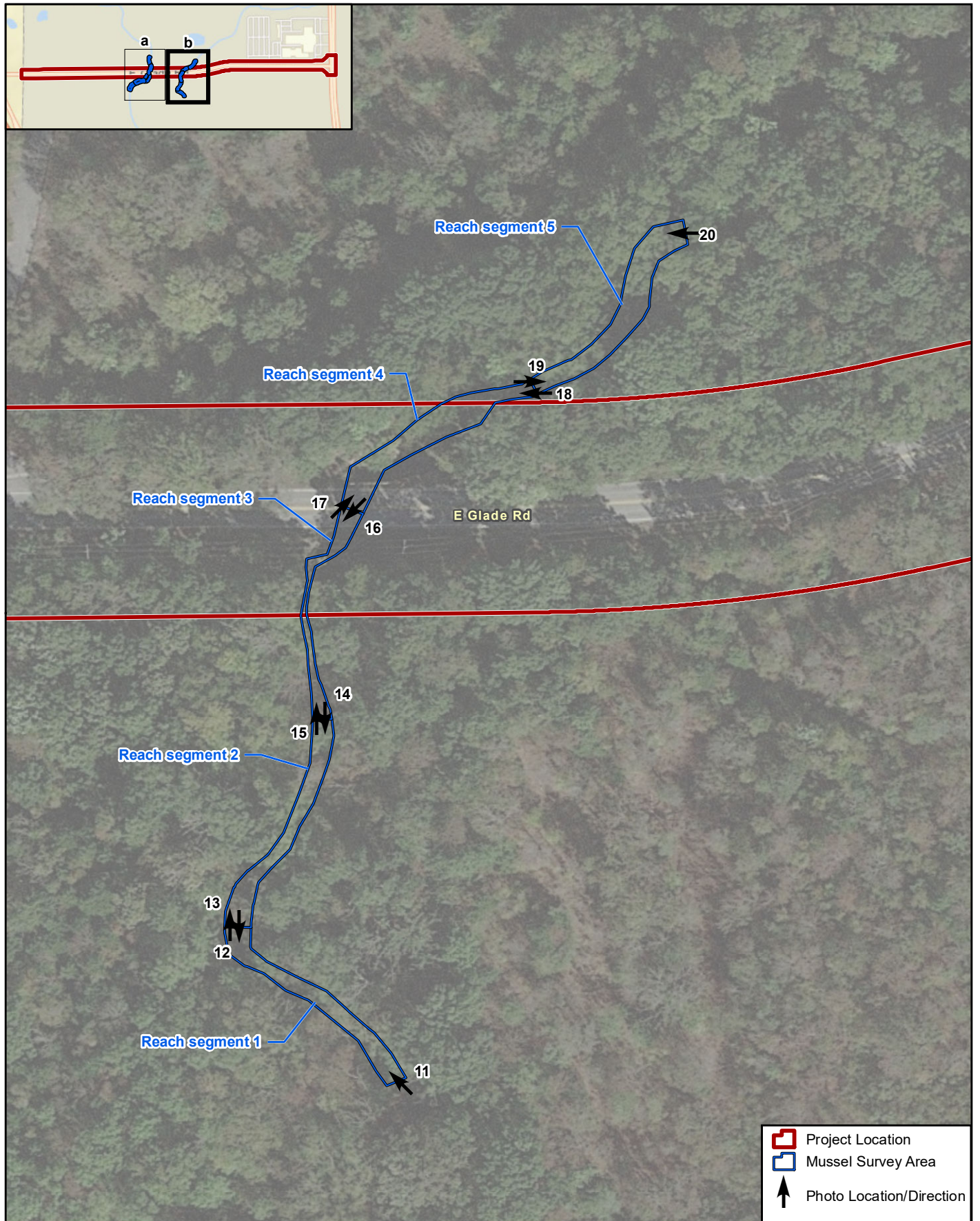


Figure 3b.
Photo Location Map

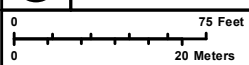
Glade Road

G:\Projects\TXDOT\Glade_Road\GladeRd_Mussel_Figure 3 Photo_Locations_20201110_TLS.mxd

Data Source: CMEC (2020)
Aerial Source: Google (2019)



CSJ: 092-90-117, 0902-90-061



1 in = 75 feet
Scale: 1:900
Date: 11/10/2020

Attachment B

Big Bear Creek and unnamed tributary to Big Bear Creek at Glade Road Survey
Area Photographs – Taken October 25, 2020



Photo 1: Big Bear Creek; survey reach 1, viewing northwest (upstream).



Photo 2: Big Bear Creek; survey reach 1, viewing south (downstream).



Photo 3: Big Bear Creek; survey reach 2, viewing north (upstream).



Photo 4: Big Bear Creek; survey reach 2, viewing west (downstream).



Photo 5: Big Bear Creek; survey reach 3, viewing northeast (upstream).



Photo 6: Big Bear Creek; survey reach segment 3, viewing south (downstream).



Photo 7: Big Bear Creek; survey reach 4, viewing north (upstream).



Photo 8: Big Bear Creek; survey reach 4, viewing south (downstream).



Photo 9: Big Bear Creek; survey reach 5, viewing north (upstream).



Photo 10: Big Bear Creek; survey reach 5, viewing south (downstream).



Photo 11: Unnamed tributary to Big Bear Creek; survey reach 1, viewing northwest (upstream).



Photo 12: Unnamed tributary to Big Bear Creek; survey reach 1, viewing south (downstream).



Photo 13: Unnamed tributary to Big Bear Creek; survey reach 2, viewing north (upstream).



Photo 14: Unnamed tributary to Big Bear Creek; survey reach 2, viewing south (downstream).



Photo 15: Representative example of non-native Asian clam (*Corbicula fluminea*) that was found during the survey.



Photo 16: Unnamed tributary to Big Bear Creek; survey reach 3, viewing south (downstream).



Photo 17: Unnamed tributary to Big Bear Creek; survey reach 4, viewing northeast (upstream).



Photo 18: Unnamed tributary to Big Bear Creek; survey reach 4, viewing west (downstream).



Photo 19: Unnamed tributary to Big Bear Creek; survey reach 5, viewing east (upstream).



Photo 20: Unnamed tributary to Big Bear Creek; survey reach 5, viewing southwest (downstream).

Attachment C
Completed Data Sheets

0902-90-117 Glade Road at Big Bear Creek
Time Trial Mussel Survey Results Oct. 25, 2020

Freshwater Mussel Survey - Time Trials					
Date: 10.25.2020		Location: Big Bear Creek			
Start Time: 1450		End Time: 1650			
Trial/Reach #	Number of Surveyors	Person Hour Increments	Start Time	End Time	Positive/Negative for Mussels
1	3	20 minutes	1450	1510	Negative
2	3	20 minutes	1513	1533	Negative
3	3	20 minutes	1542	1602	Negative
4	3	20 minutes	1604	1624	Negative
5	3	20 minutes	1630	1650	Negative

Freshwater Mussel Survey - Habitat											
Date: 10.25.2020			Location: Big Bear Creek								
Reach Number	Type	Water Temp	Average Water Depth	Maximum Water Depth	% Sand	% Gravel	% Cobble	% Rock	% Clay	% Detritus	% Other
1	Run	63.0°F	18 inches	24 inches	40	30	0	0	30	0	0
2	Run	63.0°F	24 inches	36 inches	40	40	0	0	0	20	0
3	Run/Pool	63.0°F	24 inches	36 inches	35	35	0	20	5	5	0
4	Riffle/Run	63.0°F	12 inches	18 inches	25	25	25	0	0	0	25
5	Run	63.0°F	18 inches	24 inches	50	40	0	0	0	0	10

0902-90-117 Glade Road at an unnamed tributary to Big Bear Creek
Time Trial Mussel Survey Results Oct. 25, 2020

Freshwater Mussel Survey - Time Trials					
Date: 10.25.2020		Location: Unnamed tributary to Big Bear Creek			
Start Time: 1220		End Time: 1420			
Trial/Reach #	Number of Surveyors	Person Hour Increments	Start Time	End Time	Positive/Negative for Mussels
1	3	20 minutes	1220	1240	Negative
2	3	20 minutes	1250	1310	Negative
3	3	20 minutes	1315	1335	Negative
4	3	20 minutes	1335	1355	Negative
5	3	20 minutes	1400	1420	Negative

Freshwater Mussel Survey - Habitat											
Date: 10.25.2020			Location: Unnamed Tributary to Big Bear Creek								
Reach Number	Type	Water Temp	Average Water Depth	Maximum Water Depth	% Sand	% Gravel	% Cobble	% Rock	% Clay	% Detritus	% Other
1	Run/Riffle	63.2°F	12 inches	30 inches	0	20	5	0	50	0	25
2	Run/Riffle/Pool	63.2°F	12 inches	24 inches	0	20	5	0	50	0	25
3	Run/Riffle/Pool	63.2°F	12 inches	24 inches	0	25	50	0	0	0	25
4	Run	63.2°F	24 inches	30 inches	35	20	10	0	25	0	10
5	Run	63.2°F	24 inches	32 inches	50	40	0	0	0	0	10

Attachment D

Approved Aquatic Resources Relocation Plan and Permit for Big Bear Creek
and unnamed tributary to Big Bear Creek at Glade Road



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10/19/2020

Ryan Blankenship
Cox/McLain
600 E John Carpenter Frwy
Ste 186
Irving TX 75062

Ryan Blankenship:

This letter is in response to your application to introduce fish, shellfish or aquatic plants into public water of the state. Your request to introduce shellfish into public water has been approved.

Attached to this letter is an approved permit (INT:TDOT 20 10-19a) to introduce all native aquatic species removed from the project site where Glade Road crosses over Big Bear Creek back into suitable upstream habitat within the same waterbody following the terms of the permit and the approved Aquatic Resource Relocation Plan. This permit is being issued to prevent potential loss or destruction of aquatic species due to construction. This permit is valid from 10/19/2020 to 12/31/2020.

The official Texas Parks & Wildlife Department (TPWD) contact listed on the permit, Bregan Brown, must be notified three days prior to the relocation by phone at 903-520-3821 or by email at kirian.brown@tpwd.texas.gov so that a TPWD biologist may be present, if available, to verify that procedures and protocols described in the Aquatic Resource Relocation Plan are being followed. Within 30 days of completion of the relocation, the permit holder shall submit to the department a summary list of species relocated or disposed as specified in the permit.

We appreciate your careful review of the conditions of the permit and your efforts to consistently meet all applicable requirements. If you need further information or have any questions, please contact the Permit Coordinator at ifpermits@tpwd.texas.gov.

Sincerely,

Inland Fisheries Permits

cc: Bregan Brown



**Permit to Introduce Fish,
Shellfish or Aquatic Plants into Public Waters
INT:TDOT 20 10-19a**

A permit is hereby issued to Ryan Blankenship (permit holder; Cox/McLain) authorizing the introduction of native aquatic species removed from the project site where Glade Road crosses over Big Bear Creek (project area) into suitable upstream habitat within the same waterbody (relocation area: 32.882144°, -97.068167°).

1. All representations contained in the permit application shall be conditions upon which the permit is issued. Variations from these representations shall be unauthorized unless the permit holder first contacts the Texas Parks and Wildlife Department to amend the permit and the department approves the amendment.
2. Acceptance of the permit by an applicant constitutes an acknowledgment and agreement that the permit holder will comply with all rules, regulations, and orders of the department issued in conformity with the Parks and Wildlife Code and the conditions precedent to the granting of the permit. Acceptance includes consent to the entrance of department employees and agents into the project area and relocation area at reasonable times to investigate conditions relating to the activities authorized by the permit including compliance with the permit.
3. The permit shall not be sold or transferred except with the approval of the department.
4. The permit is valid from 10/19/2020 to 12/31/2020 or until the permitted introduction has been completed, whichever comes first.
5. The official department contact for this permit is:
Bregan Brown, TPWD KAST
Phone: 903-520-3821
Email: kirian.brown@tpwd.texas.gov
6. The permit holder shall provide written or verbal notice to the department contact listed above at least three days in advance of introducing aquatic species. Notice should include the name and telephone number of the permitted individual who will be supervising the activity.
7. Upon completion of a survey or relocation, the permit holder shall submit to the department a summary, in list form, of all species relocated. In addition, the permit holder shall document how dead fish and shellfish, including exotic and invasive species, were disposed of and provide documentation. Documentation should include no less than the species and number of individuals (fish and mussels) found dead, or disposed of, including the lengths (for fish only; inches, by size class) of all native species that were affected by the event for which this permit was granted. All documentation must be submitted to the department contact listed above no more than 30 days after the relocation is complete.
8. The permit holder shall provide copies of any future project reports to the department contact listed above.
9. The permit holder shall adhere to all procedures and protocols described in the approved Aquatic Resource Relocation Plan.



**Permit to Introduce Fish,
Shellfish or Aquatic Plants into Public Waters
INT:TDOT 20 10-19a**

10. Nothing in the permit acts as a waiver or release of any potential liability under Parks and Wildlife Code §§ 12.0011(b)(1) and 12.301–12.308, or of responsibility to comply with any applicable federal, state, or local law, rule, regulation, or permit.

11. A person who violates a provision of the permit commits an offense punishable by the penalty prescribed by Parks and Wildlife Code § 66.012.

12. If a person violates a provision of the permit, the department may suspend or revoke the permit after notifying the permit holder that a violation has occurred. All contested cases on the suspension or revocation shall be conducted pursuant to the provisions of Government Code, Chapter 2001.

Permit No. INT:TDOT 20 10-19a
Issued on: 10/19/2020

A handwritten signature in black ink, appearing to read "Lauren Reynolds", written in a cursive style.

Lauren Reynolds, Permit Coordinator



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10/19/2020

Ryan Blankenship
Cox/McLain
600 E John Carpenter Frwy
Ste 186
Irving TX 75062

Ryan Blankenship:

This letter is in response to your application to introduce fish, shellfish or aquatic plants into public water of the state. Your request to introduce shellfish into public water has been approved.

Attached to this letter is an approved permit (INT: TDOT 20 10-19b) to introduce all native aquatic species removed from the project site where Glade Road crosses over an unnamed tributary to Big Bear Creek back into suitable habitat within Big Bear Creek following the terms of the permit and the approved Aquatic Resource Relocation Plan. This permit is being issued to prevent potential loss or destruction of aquatic species due to construction. This permit is valid from 10/19/2020 to 12/31/2020.

The official Texas Parks & Wildlife Department (TPWD) contact listed on the permit, Bregan Brown, must be notified three days prior to the relocation by phone at 903-520-3821 or by email at kirian.brown@tpwd.texas.gov so that a TPWD biologist may be present, if available, to verify that procedures and protocols described in the Aquatic Resource Relocation Plan are being followed. Within 30 days of completion of the relocation, the permit holder shall submit to the department a summary list of species relocated or disposed as specified in the permit.

We appreciate your careful review of the conditions of the permit and your efforts to consistently meet all applicable requirements. If you need further information or have any questions, please contact the Permit Coordinator at ifpermits@tpwd.texas.gov.

Sincerely,

Inland Fisheries Permits

cc: Bregan Brown



**Permit to Introduce Fish,
Shellfish or Aquatic Plants into Public Waters
INT: TDOT 20 10-19b**

A permit is hereby issued to Ryan Blankenship (permit holder; Cox/McLain) authorizing the introduction of native aquatic species removed from the project site where Glade Road crosses over an unnamed tributary to Big Bear Creek (project area) into suitable habitat within Big Bear Creek (relocation area: 32.882144°, -97.068167°).

1. All representations contained in the permit application shall be conditions upon which the permit is issued. Variations from these representations shall be unauthorized unless the permit holder first contacts the Texas Parks and Wildlife Department to amend the permit and the department approves the amendment.
2. Acceptance of the permit by an applicant constitutes an acknowledgment and agreement that the permit holder will comply with all rules, regulations, and orders of the department issued in conformity with the Parks and Wildlife Code and the conditions precedent to the granting of the permit. Acceptance includes consent to the entrance of department employees and agents into the project area and relocation area at reasonable times to investigate conditions relating to the activities authorized by the permit including compliance with the permit.
3. The permit shall not be sold or transferred except with the approval of the department.
4. The permit is valid from 10/19/2020 to 12/31/2020 or until the permitted introduction has been completed, whichever comes first.
5. The official department contact for this permit is:
Bregan Brown, TPWD KAST
Phone: 903-520-3821
Email: kirian.brown@tpwd.texas.gov
6. The permit holder shall provide written or verbal notice to the department contact listed above at least three days in advance of introducing aquatic species. Notice should include the name and telephone number of the permitted individual who will be supervising the activity.
7. Upon completion of a survey or relocation, the permit holder shall submit to the department a summary, in list form, of all species relocated. In addition, the permit holder shall document how dead fish and shellfish, including exotic and invasive species, were disposed of and provide documentation. Documentation should include no less than the species and number of individuals (fish and mussels) found dead, or disposed of, including the lengths (for fish only; inches, by size class) of all native species that were affected by the event for which this permit was granted. All documentation must be submitted to the department contact listed above no more than 30 days after the relocation is complete.
8. The permit holder shall provide copies of any future project reports to the department contact listed above.
9. The permit holder shall adhere to all procedures and protocols described in the approved Aquatic Resource Relocation Plan.



**Permit to Introduce Fish,
Shellfish or Aquatic Plants into Public Waters
INT: TDOT 20 10-19b**

10. Nothing in the permit acts as a waiver or release of any potential liability under Parks and Wildlife Code §§ 12.0011(b)(1) and 12.301–12.308, or of responsibility to comply with any applicable federal, state, or local law, rule, regulation, or permit.

11. A person who violates a provision of the permit commits an offense punishable by the penalty prescribed by Parks and Wildlife Code § 66.012.

12. If a person violates a provision of the permit, the department may suspend or revoke the permit after notifying the permit holder that a violation has occurred. All contested cases on the suspension or revocation shall be conducted pursuant to the provisions of Government Code, Chapter 2001.

Permit No. INT: TDOT 20 10-19b

Issued on: 10/19/2020

A handwritten signature in black ink, appearing to read "Lauren Reynolds", written in a cursive style.

Lauren Reynolds, Permit Coordinator