DOE RUN COLDWATER CONSERVATION PLAN

Juniata College

Grant Lab

2020-2021



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Historical Landscape

Doe Run, located in Chester County, has a rich historical context that dates all the way back to the 1700s. During the time of the Pilgrim habitation in this area, Doe Run settlements were struggling to keep up with Great Britain's patents for woven wire cloth, which was used to make flour and meal. John Milne created the sifting reel to improve the production of flour. This sifting reel became the commercial milling machine we know of today. Since there was a concentration of Pilgrims in southeastern Pennsylvania, many mills and mill dams were constructed (Historic Operation of Water Powered Mills in the State of Pennsylvania). Mill dams create a pond in a stream/river by slowing down the flow of water and allowing the water to pool up, creating a pressure head and storing energy. The water that spills over the dam is used to turn the wheel(s) of the mill to produce energy and create flour. Many historical mill dams in southeastern Pennsylvania exist from this era, and one such Dam is still standing in the middle of the Doe Run watershed, but is located on an inholding within the Runnymede Property.

Starting in 1946, the famous King Ranch from Texas moved up to the Chester County area to find more suitable farming land (Conserving the King Ranch, 2015). With the new green pastures between Coatesville and Unionville, King ranch bought up the Buck and Doe run watershed compiling 5,367 acres in total (Conserving the King Ranch 2015). The King Ranch property was bought by various people. The owner of Runnymede purchased 1,856 acres of King Ranch that now encompasses a large part of the Doe Run watershed. Runnymede Sanctuary is a 1,865 acre property in Chester County with a mission that "is for this generation, and beyond, to enjoy the ongoing activities and traditions of the area and respect, appreciate and enjoy the simplicity and beauty of nature". A significant portion of the Doe Run watershed falls within the Runnymede Sanctuary, and the sanctuary is very interested in having an assessment of Doe Run to further protect and enhance the stream ecosystem, to better share these resources with the community.

The Watershed

Doe Run is a tributary to Buck Run, located in Chester County. This stream is a headwater to the West Branch of the Brandywine Creek. The Brandywine Creek is a tributary to the Christiana River. The Christiana River flows into the Brandywine River. The Doe Run watershed is of special interest because there is anecdotal evidence of native brook trout and naturalized brown trout residing in the watershed. Doe Run is not currently listed on the PA Fish and Boat trout streams as a high quality coldwater fishery (HQCWF) or an exceptional value (EV) stream. To our knowledge, no formal fish assemblage assessments have been conducted on any of the tributaries to Doe Run that reside on the sanctuary. Limited macroinvertebrate sampling and physicochemical assessments of the Doe Run watershed have been conducted by Stroud Water Research center in past years. Making sure this stream network is healthy will continue to improve the rest of the watersheds downstream.

Doe Run, and especially its tributaries, are headwater streams. Headwater streams are the beginning of watersheds and therefore lay the groundwork for how the rest of the downstream ecosystem function. The river continuum concept states that water, nutrients and biota constantly move downstream which helps to maintain the health of the watershed (River Continuum Concept). Keeping headwaters healthy will benefit the organic matter processing,

nutrient cycling, and will ultimately contribute to the whole health of the river network (Clarke et al. 2008).

The historical and ongoing presence of agriculture in the Doe Run watershed presents a potential disruption to these natural ecological processes. Stream morphology, nutrient availability, biota diversity and much more can become negatively affected by the access cattle have to water resources. Their manure can affect the stream's physiochemistry and their excessive grazing can cause erosion (O'Callaghan et al. 2019). While cattle have largely been removed since the King Ranch ownership from the Doe Run watershed, some of that historical impact continues, with very narrow or non-existent riparian buffers existing on some of the tributaries to Doe Run. Riparian buffers play a key role in nutrient and sediment filtration and helping to mediate maximum summer stream temperatures in coldwater habitat. These are some of the key factors in providing habitat for native brook trout (*Salvelinus fontinalis*).

Fish passage is another important ecological factor for the habitation, reproduction, and sustainability of brook trout populations. Many aquatic organisms rely on the connections of waterways to survive. Brook trout use the connected waterways to escape from warmer summer water temperatures, forage, and to find more suitable areas to reproduce. With the increase of residential development, numerous culverts have been built for roads to cross over Doe Run and its tributaries (Nilsson et al. 2005). These culverts can act as fish passage barriers and create habitat fragmentation if aquatic connectivity is not considered during installation. And until recently, road culverts were not known to pose potential risks to aquatic organism) movement, threatening long-term survival (What is Fish Passage).

Methods

The Grant Lab, with the help of the Runnymede Sanctuary directors, identified 13 potential fish passage barriers on Doe Run Watershed on the Sanctuary. Stream crossing surveys were conducted on the Runnymede Sanctuary according to the North Atlantic Aquatic Connectivity Collaborative's (NAACC) Aquatic Connectivity Stream Crossing Surveys. All the surveys were conducted by level 1 certified surveyor (C. Grant). This comprehensive survey will be used to assess whether the stream crossing poses a threat to fish and other aquatic organism passage. At each location, a survey sheet was completed to assess the quality of the stream crossing and fish passage (Appendix A). Once the survey sheets were completed they were then entered into the NAACC national database for a long-term public record and are available for use in any future restoration efforts.

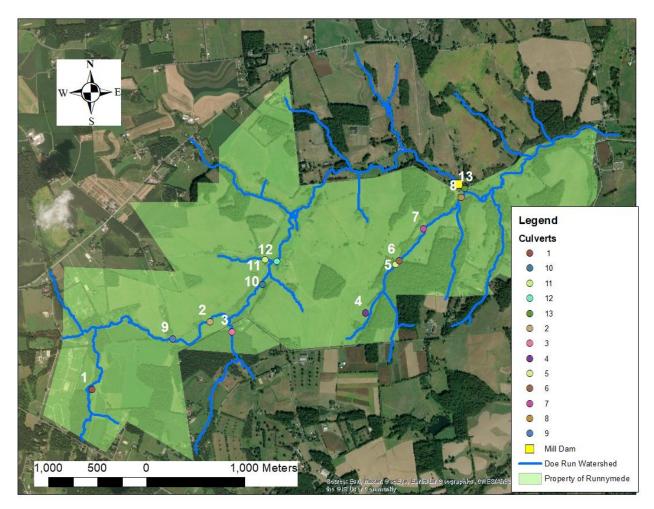


Figure 1. Map of Runnymede Sanctuary and the Doe Run watershed. Legend describes the culverts on the property as well as the historical mill dam, Runnymede property line and the Doe Run stream network (in blue).

Once NAACC surveys were completed, five stream crossings that pose the biggest threat to fish passage were selected for additional follow up assessment work. At each of the selected sites, a detailed stream assessment at 100m reaches upstream and downstream of the culvert was conducted. In order to test the physical organismal movement, we conducted macroinvertebrate surveys at 9 sites (had proposed to do 6). Benthic macroinvertebrates live in and on the substrate in the streams (Hauer and Resh 2017). Macroinvertebrates play a critical part in maintaining the health of stream ecosystems and the transfer of organic materials through stream food webs (Hauer and Resh 2017). Since these organisms are sensitive to pollution in streams, they are good indicators of stream health. The more diversity of macroinvertebrates in an ecosystem the healthier the stream is. Macroinvertebrates were sampled at each site by using a D-frame kick net and kicking for 5 minutes upstream of the kick net (Rapid Bioassessment Protocols For Use in Wadable Streams and Rivers, 1999). Each stream crossing was sampled upstream and downstream during the summer of 2020 and winter of 2021. Seasonally collected macroinvertebrate samples at a given location (e.g. upstream culvert #5) were composited for all later biodiversity measures. After kicking was finished all of the macroinvertebrates were removed from the net and were stored in 70% ethanol.

Macroinvertebrates were later identified in the lab to the order level with a Leico 3x dissecting microscope and using the Stroud Water macroinvertebrate key for identification.

At each site physiochemical water measurements were taken using an Oakton PCR Testr probe and a HANNA HI 9813-6 DO probe, which was calibrated weekly to ensure accurate results. The parameters being sampled were temperature (°C), pH, dissolved oxygen (mg/L), conductivity (μ S/cm), and total dissolved solids (ppm). The water quality parameters were sampled upstream of any recent disturbance following the US Geological Survey's National Field Manual for the Collection of Water-Quality Data (National Field Manual for the Collection of Water-Quality Data).

Fish assemblages were determined through single-pass unblocked electro-fishing with a Smith and Root LR 24 backpack electrofisher using pulsed direct currents ranging from 200-600 volts, depending on stream conductivity. Both above and below the culverts were sampled to compare fish abundance. All captured fish were held in five-gallon buckets until completion of the pass, where they were identified to species level, and released to the stream unharmed. Additionally, we measured the total length (nearest mm) of any trout captured.

Data Analysis

Summer and winter sets of macroinvertebrates were combined to analyze. After all of the macroinvertebrates were identified, % EPT abundance, Taxa Richness and Shannon's Diversity index for each reach were calculated to assess community composition and stream health. Health of the stream can be quantified by counting how many different bugs were collected (Taxa Richness), the percentage of bugs that are sensitive to pollution (% EPT abundance), and the overall diversity at a single site (Shannon's Diversity/Species Evenness) (Hughes 1978). % EPT abundance tells us if an ecosystem is healthy enough to support the most pollution sensitive macroinvertebrates, Ephemeroptera, Plecoptera, and Trichoptera. Net difference calculations were also used to compare diversity differences between sampling sites.

Each culvert was given a score using the NAACC protocol (Aquatic Connectivity-Non Tidal, 2018). The score was based on 13 variables. Each variable was given a certain weight. Once the weights were calculated they were all added together to give a score from 0 (no passability) to 1 (complete passability). The variables that held the most weight are outlet drop and physical barriers. If the outlet drop score is lower than the weighted assessment score then the lower score is given as the final passability score. Once the numerical score is assigned there is also a descriptor based on the numeric score. A score of 1 is "no barrier", 0.8-0.99 is "insignificant barrier", 0.6-0.79 is "minor barrier", 0.4-0.59 is "moderate barrier", 0.2-0.39 is "significant barrier", and 0-0.19 is a "server barrier" (Aquatic Connectivity-Non Tidal, 2018).

The net difference for Shannon's Diversity Index (SDI) is calculated by taking the upstream SDI and subtracting the downstream SDI. Once the net SDI is calculated, we ran correlations between net biodiversity measures and culvert scores. This will show if poor culverts scores and low net SDI are correlated. The net difference is another indicator of fish passage. If the net difference is positive then there is more diversity upstream, if it is negative then there is more diversity downstream, and if the number is zero then the diversity is the same.

Results

Upon preliminary site visits to Doe Run, a young dead brook trout (Fig 2) was found in the UNT (unnamed tributary) of Doe Run just upstream of culvert 5 (Fig. 1). This was an exciting find since brook trout were not yet documented in this watershed. The same UNT to Doe Run was also found to contain several of the lowest scoring culverts in the Doe Run watershed. The NAACC data and the discovery of the dead young brook trout lead us to focus on this sub-watershed of Doe Run for the majority of detailed macroinvertebrate and fish assemblage work (Fig 3).

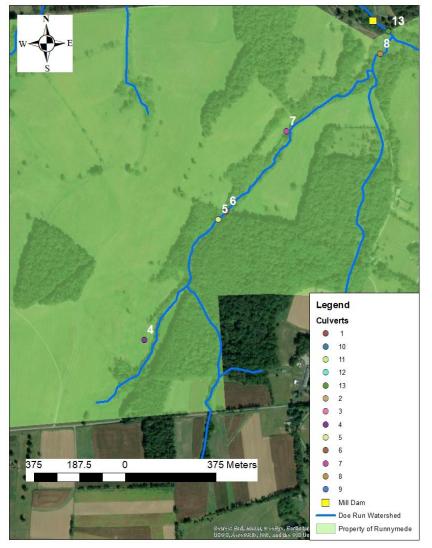
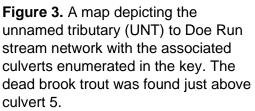




Figure 2. Dead young Brook Trout found at the UNT of Doe Run upstream of culvert 5.



Culvert Scores

NAACC culvert scores varied from 0.62-1 (Table 1). There were no severe, significant, or moderate fish passage barriers, on the Runnymede property. Out of the 13 culverts assessed, numbers 6, 1, 5, 4, 8 received the lowest scores. We originally proposed to only assess the worst three culverts for fish passage, however, we felt it would be more thorough to assess all five culverts because of their low NAACC culvert score relative to the other scores on the Runnymede property. Furthermore, 4 of those 5 culverts were located in the sub-basin where the dead brook trout was found (Fig 3).

Fish Assemblages

Our fish assessment found both brook trout and brown trout (*Salmo trutta*) inhabited the Doe Run watershed. Overall, 15 fish species were found across all five assessed sites. A total of 10 brown trout and 14 brook trout (*Salvelinus fontinalis*) were collected. Another interesting finding was the capture of an American Eel (*Anguilla rostrata*), at the highest sampled point in the watershed, at culvert number 1 (Fig.7).

Within the UNT to Doe Run, more brook trout (Fig. 4) were encountered further upstream from the confluence with Doe Run, while more brown trout were observed downstream near the mouth (Fig 5). Grouping both species together, trout populations increased as distance upstream from the confluence Doe Run increased (Fig 8). While trout populations increased with distance upstream from the confluence, overall fish diversity decreased.

Culverts scoring under 0.6 means that it is a moderate, significant or severe barrier that is damaging the stream ecosystem. While most of our culvert scores were above 0.6, we still observed a positive correlation (r=0.93, p=0.072) between the net difference fish diversity and the culvert score within the UNT to Doe Run (Fig.9).



Figure 4. Image of a 180 mm Brook Trout found downstream of culvert 5 during electrofishing.



Figure 5. Image of a 210 mm Brown Trout found upstream of culvert 1 during electrofishing.



Figure 6. Image of three young trout found below culvert 5 during electrofishing. Two brook trout (70 mm and 70.5 mm) and one brown trout (70.5 mm).



Figure 7. Image of an American Eel collected above culvert 1 during electrofishing.

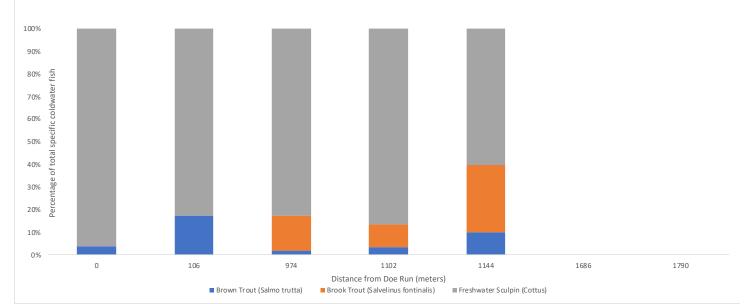


Figure 8. This graph shows the percentage of brook trout, brown trout, and freshwater sculpin spp. caught on the UNT to Doe Run at upstream distances from the Doe Run confluence. Each distance on the x-axis represents the culvert sample sites on the tributary (0 meters from Doe Run is culvert 8 and 1790 meters from Doe Run is culvert 4). At distance 1144 meters from Doe Run (culvert 5) we see the greatest amount of brook trout. No fish were captured at the headwaters of the UNT (1686, 1790).

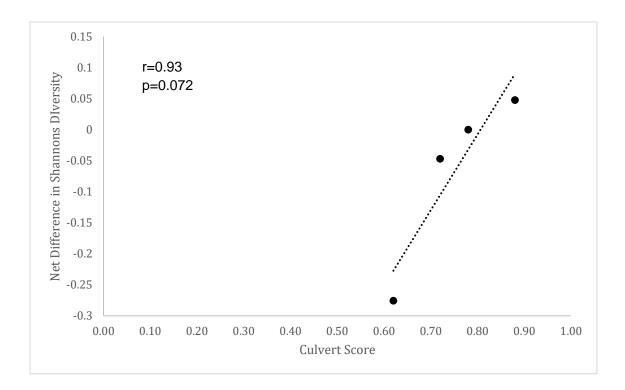


Figure 9. This graph shows the culvert scores for culverts 4, 5, 6, and 8, plotted against Net Shannon's Diversity difference for fish captured at sites on the UNT. Site sampling at culvert 1 was removed since no score can be calculated for fjords.

Macroinvertebrates

Across all sites, the macroinvertebrates totaled 675 individuals, with 14 order levels. Caddisfly (*Trichoptera*) was the most captured taxa. Overall, we saw a slight increase in macroinvertebrate diversity below the culverts sampled. In addition to sampling upstream and downstream of three select culverts, we also collected macroinvertebrates at sites at a distance above and below the historical mill dam on the main branch of Doe Run but on Runnymede Sanctuary property. These extra sites gave us information on the health of the watershed as a whole. The main branch sampling point above the Mill Dam on Doe Run supported all three of the sensitive macroinvertebrate families (Ephemeroptera, Plecoptera, and Tricoptera; Appendix B). The farthest upstream site (headwaters of Doe Run, culvert 1) showed the most diversity with the highest number of Shannon's diversity index and taxa evenness. Culverts 5 and 6 had the greatest difference in macroinvertebrate data above and below them, with more macroinvertebrate orders observed below the two structures (Fig 10). Below culvert 6 had a higher diversity and more taxa were collected. However, more pollution sensitive macroinvertebrates were found above culvert 5 with a higher % EPT abundance number (Fig 11).

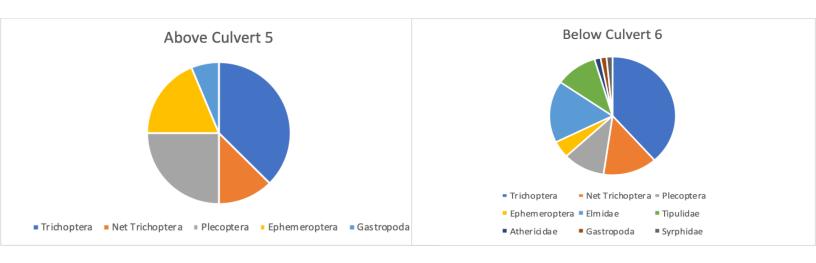
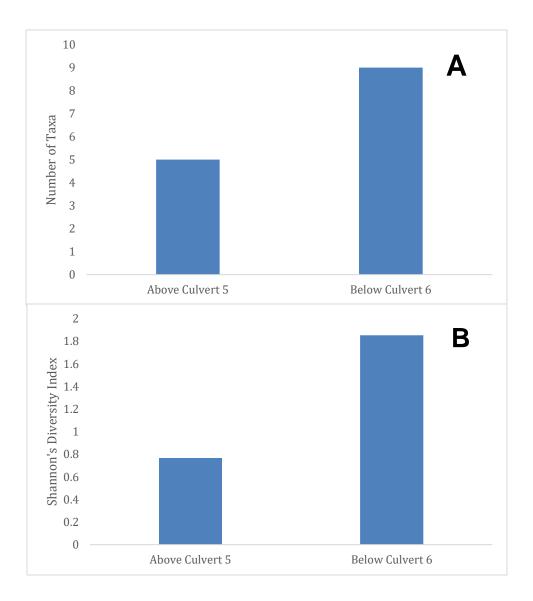


Figure 10. Total taxa present above culvert 5 and below culvert 6.



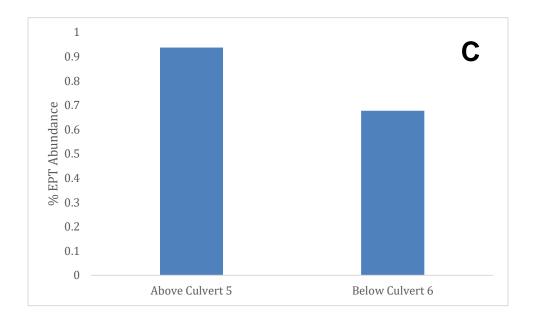


Figure 11. Bar graphs comparing the % EPT Abundance (C), Shannons Diveristy Index (SDI) (B), and Taxa richness (A) for macroinvertebrates at the sampling sites above and below of culverts 5 and 6.

Stream Physiochemistry

Overall, the stream physiochemistry was consistent and typical of the hilly piedmont physiographic region. The temperature ranged from 16.2°C-17.9°C, pH ranged from 6.72-7.14, TDS was between 85.3-168 ppm, Conductivity varied from 120-234 uS/cm, and DO fluctuated between 9.5-14.5 mg/L (Table 1).

Table 1. Showing the physiochemistry, fish, and macroinvertebrate data collected at each site, upstream and downstream of the five worst culverts.

Site	Score	Orientation	рН	Temperature °C	TDS (ppm)	Conductivity (ms/cm)	DO (mg/L)	Macro SDI	%EPT Abundance
		Upstream	6.88	17.9	111	159.6	9.5		
1	-	Downstream	6.96	17.61	113	159	14.5	1.990*	0.706*
		Upstream	6.76	16.2	168	234	12.1	-	-
4	0.78	Downstream	7.14	17.3	168	232	10.6	-	-
		Upstream	6.54	16.3	108	152.2	12.8	0.767	0.938
5	0.72	Downstream	6.72	16.3	107	153.2	13	0.752	0.765
		Upstream	6.53	16.78	115	161.7	12.1	0.752	0.765
6	0.62	Downstream	6.54	16.3	108	152.2	12.8	1.853	0.677
		Upstream	6.82	16.5	86.3	120	12.7	1.192139	0.246
8	0.88	Downstream	6.96	16.67	85.3	121	12.1	0.892	0.556

*Denotes that there was only one sample sites due to insufficient habitat for upstream/downstream sampling.

Discussion

Culvert Assessments

NAACC assessments suggest culvert 5 and 6 as being the lowest scoring fish passage barriers (Fig. 12). Culvert 5 had a score of 0.72 and culvert 6 had a score of 0.62 putting them in the range of a minor barrier (Appendix B). These culverts are only 60 meters away from each other which is not accounted for in the culvert scoring. Culvert 5 had moderate constriction and physical barriers that slowed down the stream flow, hindering fish passage, especially during low flow conditions. Culvert 6 scored poorly because it had a large amount of constriction at the inlet, no substrate cover, shallow water depth within the culvert and a significant scour pool at the outlet. The next worst fish passage barrier on the Runnymede Property of Doe Run is culvert 8 (Fig. 13). Culvert 8 is a double culvert made out of concrete and had a free-fall of up to 1.18 tenths of a foot on the outlet, and very little plunge pool length. These characteristics would make it very difficult to pass fish like brook trout. The best culverts have an open stream bottom that is on the same level as the stream, with ample openness for all aquatic organisms to pass, and no freefalls (a drop from the outlet to the stream) that come out of the outlet. Culvert number 3 on Runnymede is a good example of a passable box culvert (Fig 14). It should be noted that one low scoring culvert can significantly alter fish movement and populations in an entire watershed.



Figure 12. Showing inlets of culverts 5 and 6. Culvert 5 (left) has major constriction at the inlet and was mostly buried. The white circle on the left picture shows the relative area of where the culvert is being clogged. Culvert 6 (right) has physical barriers and little to no matching substrate covering the bottom of it.



Figure 13. Depicts outlet of culvert 8. Freefall numbers were 1.18 and 0.66 tenths of a foot respectively.



Figure 14. Culvert 3 is an example of a good culvert on the Runnymede Sanctuary property.

Fish Assemblages

Both brook trout and brown trout were present in the UNT to Doe Run, suggesting the stream habitat is a High Quality Coldwater Fishery (HQCWF). Brook trout are good indicator species since they need cold and clean water to thrive and are sensitive to low oxygen levels, presence of pollution, and fluctuations of pH (Brook Trout. Southeast Region of the USFWS). On the UNT to Doe Run, the most brook trout were found in the vicinity of culverts 5 and 6. Looking at culverts 5 and 6, there were more brook trout below the two culverts. That larger population of brook trout may not be able to swim upstream or reproduce with the other nearby populations since they are disconnected. The fragmented populations may also experience problems because not enough diversity is present in the genetic pool in small and isolated populations (Torterotot et al. 2014). Another possible way that ecosystems on UNT to Doe Run are affected by culverts, is the lack of overall fish diversity that culverts can create when they fragment populations (Letcher et al. 2007). No trout were found at culvert 4, which was the highest sampled point on the UNT to Doe Run Tributary. This suggests that there are fish passage barriers or other environmental conditions that are not allowing trout and other fish to travel and habitat the headwaters of the UNT.

At the highest sampled point in the entire Doe Run watershed overall (culvert 1, Fig 1) two brown trout were found, suggesting habitable water for brook trout higher up in the watershed. The historical mill dam being preserved upstream of the UNT to Doe Run may be preventing brook trout from reaching the upper watershed as no brook trout were found upstream of the dam. The mill dam is located on a separate private inholding off of the Runnymede Property.

We are hopeful that the newly assessed brook trout and brown trout in the UNT to Doe Run will allow for protection of this watershed as a HQCWF. We will be entering this data into the PAFBC science collectors database for their review and submission. This should allow for future protection of this watershed by the PADEP

Macroinvertebrates

Macroinvertebrate data gives us indication of the health of the ecosystem. Since most macroinvertebrates live for 1-2 years, they reflect the recent health of a stream (Fish Passage at Dams Strategic Anaylsis). With the data collected we can conclude the stream's condition above and below the culverts. If the culverts are blocking biota movement or altering habitat, then we may see a decrease in health between the separated stream sections. Below culverts 5 and 6 had the greatest taxa richness/evenness and diversity (Fig. 9). More abundant and diverse macroinvertebrates below these culverts may mean that the culvert is having an impact on stream habitat conditions, potentially altering macroinvertebrate biodiversity.

Habitat differences upstream vs downstream of the culverts are likely driven by the changing flow dynamics and sediment load to the stream. Changing the flow velocities, scour, and direction impacts the movement of bed load and erosion and depositional features of the stream upstream and downstream of low scoring culverts. Upstream of culvert 5 had less diversity than below culvert 6, which is likely due to the "damming effect" observed upstream of culvert 5 (Fig 12). The increase of bed sediment load and siltation in that reach will change the stream substrate. Changing the stream characteristics will decrease habitat for the macroinvertebrate

taxa that require rock/cobble and woody debris substrate to thrive. From our data we see that above culvert 6, where the "damming effect" occurred, is where there was a decrease in diversity and taxa richness. These alterations to macroinvertebrate habitat will have cascading effects through the ecosystem's food web and will ultimately impact the fish communities. Specifically, brook trout are seen to have increased populations where there are more caddisflies, stoneflies, or mayflies present (Haley).

Stream Physiochemical Measures

The stream physiochemical numbers suggest that the stream is a suitable habitat for trout. Trout need high dissolved oxygen levels to survive, which the stream provides. Both species of trout survive best in a temperature range of 14–23°C (Hitt et al. 2017). The highest temperatures that brook trout will withstand is 23°C, when the water becomes this warm the brook trout will move upstream to cooler water (Meisner 1990). However, the temperature in UNT to Doe Run is warmer in the headwaters at the time of our June sampling. While the temperature is still within the brook trout's temperature range the maximum stream temperatures are not usually experienced until late August, so the temperature could approach the brook trout's upper limit.

The higher conductivity levels are likely due to karst topography and limestone geology. The limestone presence in the stream aids in buffering the pH of the stream against anthropogenic changes, like acid rain and pollution (McClurg et al. 2007). These higher levels of conductivity are helping to buffer the stream in a positive way.

Larger Riparian areas can help keep stream physiochemistry levels stable and will lower the temperature of the stream. More trees lead to more overhead cover which keeps the streams at lower temperatures (McClurg et al. 2007). The riparian area helps to buffer against agrochemicals and nutrient runoff. The trees also provide more habitat for terrestrial and aquatic insects, providing more food for the fish (Parkyn et al. 2003). The root systems of the trees will lower the amount of erosion that occurs, which keeps the total dissolved solid (TDS) levels down (Janisch et al. 2012).

Recommendations

The recent documentation of native brook trout populations in the Doe Run watershed is of great importance. To protect and enhance these current brook trout populations, and improve overall ecosystem connectivity and aquatic organism habitat, we propose several recommendations for future restoration efforts.

1) Replace or remove Culvert #5

Culvert 5 was visually assessed to have the largest fish passage impact. It was one of the lowest scoring culverts of all 13 since it has a blocked inlet that does not allow for fish to pass. This culvert passability also worsened from our documented NAACC score because of a 7-inch rain event that occurred on June 11, the week before fish sampling. The culvert could not handle the bankful flow and caused the stream to fill in the culvert completely, and flow around the culvert and erode an abandoned township road (Fig. 14). We recommend either reconstructing the culvert to allow for fish passage, or completely removing the culvert (if road is no longer used for access). We recommend that either option be done in combination with typical in-stream fish habitat work to help

increase habitat and stabilize stream banks and stream bed. If the culvert is not essential, it is better to be completely removed.



Figure 14. Left image shows the conditions following 7-inch rainfall event where the stream reached a level above bank full, bypassing culvert 5 and eroding township road (left). The right image shows culvert 5 inlet completely blocked following bankfull event.

2) Conduct riparian plantings at key locations along the UNT watershed

To further improve the populations of brook trout we recommend increasing the size of the riparian buffer along areas of the UNT to Doe Run. Riparian planting will have a number of benefits to the stream including decreasing thermal load, decreasing erosion, and increasing habitat for macroinvertebrates (Parkyn et al. 2003). Multiple areas surrounding the UNT to Doe Run would benefit from an increased riparian buffer (Fig. 15). Particularly the headwaters region of the tributary, near culvert 4, would be most important to focus riparian planting. Since we did not find any brook trout up near culvert 4, completing riparian planting in that area will aid in decreasing stream temperature and improving fish habitat. Providing a greater riparian zone of 15-20 meters (in unison with fish barrier and habitat work) will create healthier stream ecosystems that will continue to grow the brook trout populations.

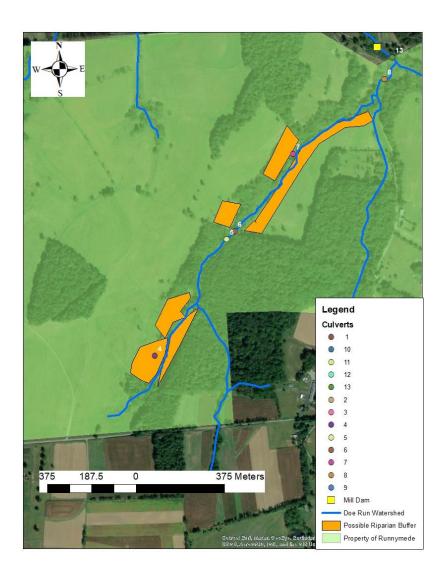


Figure 15. Map of UNT to Doe Run watershed with the culvert numbers denoted. The orange shaded areas on the map indicates locations to focus future riparian planting efforts.

3) Replace Culvert #8

Culvert 8 was another culvert in the UNT to negatively affect the brook trout population. The main reason was because of its outlet freefalls (Fig. 13). This gives the culvert a low NAACC scoring meaning fish passage and other aquatic organism passage is low. The free fall at the outlet makes it difficult for trout and other fish to jump up the culvert to then swim through it. We recommend replacing this culvert in a way that there is no free fall and there is only one single structure.

Recommendation Summary:

We believe that these recommendations will increase the distribution of trout in the UNT to Doe Run by creating a connected area of refugia within the larger watershed. Increasing distribution will not only help to create a more robust population of brook trout in the UNT but may also help to repopulate the entire Doe Run watershed in the long-term. However, to increase upstream range of brook trout in Doe Run (outside of the UNT), steps will need to be taken to address the historical fish passage barrier of the mill dam that is located on an inholding within the Runnymede Property. Dam removal would be most ideal from an aquatic organism perspective; however, we recognize that the historical significance of the dam may make that unlikely. If that is the case, creating a fish ladder near the mill dam or relocating brook trout to key locations upstream of the dam may help to increase brook trout range in the Doe Run watershed.

These recommendations will not only increase aquatic connectivity and fish habitat but will also create opportunities for the local community to partner in environmental stewardship and education with the Runnymede Sanctuary. The Grant Lab at Juniata is happy to help to facilitate these future efforts as needed. We have a long-standing relationship with the US Fish and Wildlife Service with work on dam removal, stream restoration and habitat work, and riparian tree plantings. This would be best implemented in collaboration with a local group such as the Chester County Conservation District or another non-profit group to help build community ties. Runnymede has expressed interest in continued involvement in helping increase brook trout habitat and connectivity within the Doe Run watershed.

Runnymede has discussed the recommendations and will strive to implement them as soon as possible. They have been planning on planting more trees on the property and will be putting some of those near culvert 4. Culvert 5 will be removed to stop the barrier it creates on the UNT to Doe Run. Culvert 8 is a part of the Londonderry township's road. Therefore, reconstructing this culvert will be harder to achieve. They anticipate the road near the culvert being fixed in the near future. They will ask about reconstructing the culvert when the township comes out to fix that section of the road.

Potential Partners

- Chester County Conservation District 313 West Market St West Chester, PA 19380 Phone: (610) 344-6000
- Octoraro Watershed Association 517 Pine Grove Rd Nottingham, PA 19362 Phone: (717) 529-2132
- Brandywine Conservancy 1 Hoffman's Mill Rd P.O. Box 141 Chadds Ford, PA 19317 Phone: (610) 388-2700
- Natural Lands Trust 1031 Palmers Mill Rd Media, PA 19063 Phone: (610) 353-5587
- Brownfield Science and Technology John Kollmeier
 3157 Limestone Rd
 Cochranville, PA 19330
 Phone: (610) 593-5500
- Runnymede Sanctuary Tim Durborrow 304-394 Creek Rd Coatesville, PA 19320 Phone: (610) 367-8288
- Open Land Conservancy of Chester County

PO Box 1031 Paoli, PA, 19301 Phone: (610) 647-5380

Future Funding Opportunities

- The National Fish and Wildlife Foundation
 <u>https://www.nfwf.org/programs/bring-back-natives</u>
- U.S Fish and Wildlife Service

https://www.fws.gov/fisheries/fish-passage.html

NOAA Fisheries

https://www.fisheries.noaa.gov/national/funding-and-financial-services/priorities-habitatrestoration-grants

- Washington State Recreation and Conservation Office <u>https://rco.wa.gov/grant/brian-abbott-fish-barrier-removal-board/</u>
- Stroud Water Research Center
 <u>https://stroudcenter.org/education/projects/</u>
- Trout Unlimited
 <u>https://www.tu.org/conservation/conservation-areas/watershed-restoration/conservation-funding/</u>
- Coldwater Heritage Partnership <u>https://coldwaterheritage.org/</u>
- Keystone 10 million Trees Partnership
 <u>http://www.tenmilliontrees.org/partners/pia/luzerne-conservation-district.html</u>
- Eastern Brook Trout Joint Venture
 <u>https://easternbrooktrout.org/funding-opportunities</u>
- Foundation for Pennsylvania Watersheds <u>http://pennsylvaniawatersheds.org/apply-for-a-grant/</u>

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Appendix A: NAACC Forms

4	AQUATIC CONNECTIVITY Stream Crossing Survey DATA FORM DATA FORM DATA ENTRY REVIEWED BY REVIEW DATE
CROSSING DATA	crossing code Tractor Crossing # 1 (culver+1) Date Observed (00/00/000) 6/30/20 Lead Observer Chris Grant Town/county COATESVILLE Road Gibble ROAD (~/2 mile) Type MULTILANE & PAVED UNPAVED DRIVEWAY TRAIL RAILROAD
CROSS	Road G1 DD U ROOD (* 72 M(U) Type MULTILANE XPAVED UNPAVED DRIVEWAY TRAIL RAILROAD GPS Coordinates (Decimal degrees) 39.8851 *N Latitude -75.8954 94 *W Longitude
	Location Description Crossing Type BRIDGE CULVERT FORD NO CROSSING REMOVED CROSSING Number of Culverts/ Bridge Cells BURIED STREAM INACCESSIBLE PARTIALLY INACCESSIBLE NO UPSTREAM CHANNEL BRIDGE ADEQUATE N/A
	Photo IDs INLET NA OUTLET NA UPSTREAM 1 DOWNSTREAM 2 OTHER
	Flow Condition NO FLOW TYPICAL-LOW MODERATE HIGH Crossing Condition K POOR NEW UNKNOWN Tidal Site YES NO UNKNOWN Alignment FLOW-ALIGNED SKEWED (>457) Road Fill Height (Top of culvert to road surface; bridge = 0) O/NA
	Bankfull Width (Optional) 28.2 Confidence MIGH LOW/ESTIMATED Constriction Severe MODERATE SPANS ONLY BANKFULL/ Tailwater Scour Pool NONE SMALL LARGE SPANS FULL CHANNEL & BANKS
T	Crossing Comments Jackson RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION
	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOWN Outlet Dimensions A. Width 2 9 8. Height NA C. Substrate/Water Width 2 9 0 2.62 Outlet Drop to Water Surface 0 0 Outlet Drop to Stream Bottom 0 0 E. Abutment Height (Type 7 bridges only) NA
	Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSI Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOWN Outlet Dimensions A. Width 2 9 B. Height NA C. Substrate/Water Width 2 9 0 24
	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOWN Outlet Dimensions A. Width 2 9 B. Height NA . C. Substrate/Water Width 2 9 D. Water Depth 0 2.60 Outlet Drop to Water Surface 0 0 Outlet Drop to Stream Bottom 0 0 E. Abutment Height (Type 7 bridges only) NA L. Structure Length (Overall length from inlet to outlet)
	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOWN Outlet Dimensions A. Width 2 9 8. Height NA C. Substrate/Water Width 2 9 D. Water Depth 0.2.62 Outlet Drop to Water Surface 0 0 Outlet Drop to Stream Bottom 0 0 E. Abutment Height (Type 7 bridges only) NA L Structure Length (Overall length from inlet to outlet)
	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE EXTENSIVE Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOWN Outlet Dimensions A. Width 2 9 8 Height NA C. Substrate/Water Width 2 9 D. Water Depth 0.2.62 Outlet Drop to Water Surface 0 0 Outlet Drop to Stream Bottom 0 0 E. Abutment Height (Type 7 bridges only) NA L Structure Length (overall length from inlet to outlet)
	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOW Outlet Dimensions A. Width 2 9.3 B. Height NA C. Substrate/Water Width 2.95 D. Water Depth 0.262 Outlet Drop to Water Surface 0 0 Outlet Drop to Stream Bottom 0.0 E. Abutment Height (Type 7 bridges only) NA L Structure Length (Overall length from inlet to outlet)
	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOWN Outlet Dimensions A. Width 2 9 B. Height NA C. Substrate/Water Width 2 9 D. Water Depth 0.2.62 Outlet Drop to Water Surface 0 0 Outlet Drop to Stream Bottom 0 0 E. Abutment Height (Type 7 bridges only) NA L. Structure Length (overall length from inlet to outlet)
DDITIONAL CONDITIONS INLET OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoning NONE NOT EXTENSIVE EXTENSIVE Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOWN Outlet Dimensions A. Width 2 9 B. Height NA C. Substrate/Water Width 2 9 D. Water Depth 0.2.62 Outlet Drop to Water Surface 0 0 Outlet Drop to Stream Bottom 0 0 E. Abutment Height (Type 7 birdget only) NA L. Structure Length (Overall length from inlet to outlet)

4	AQUATIC CONNECTIVITY Stream Crossing Survey DATA FORM DATA ANTRY REVIEWED BY REVIEWED BY REVIEWED BY REVIEWED BY REVIEWED DATA
DATA	Crossing Code Tractor Crossing # 2 (culver+2) Date Observed (00/00/0000) 6/30/20 Lead Observer Chris Grant
9	Town/County COQ LESVILLE Stream
CROSSING	Road NEAY FORN WOOD RD Type MULTILANE PAVED UNPAVED DRIVEWAY TRAIL RAILROAD GPS Coordinates (Decimal degrees) 39.8911 % Latitude -75.88811 w Longitude
	Location Description Tipping
	Crossing Type BRIDGE CULVERT FORD NO CROSSING REMOVED CROSSING BURIED STREAM INACCESSIBLE PARTIALLY INACCESSIBLE NO UPSTREAM CHANNEL BRIDGE ADEQUATE
	Photo IDs INLET NA UPSTREAM 3 DOWNSTREAM 4 OTHER
	Flow Condition NO FLOW TYPICAL-LOW MODERATE HIGH Crossing Condition VOK POOR NEW UNKNOWN
	Tidal Site 🔤 YES 🖌 NO 🔤 UNKNOWN Alignment 🖌 FLOW-ALIGNED 🔤 SKEWED (>457) Road Fill Height (Top of culvert to road surface; bridge = 0).
	Bankfull Width (Optional) 26.9 Confidence of HIGH LOW/ESTIMATED Constriction SEVERE MODERATE SPANS ONLY BANKFULL/
	Tailwater Scour Pool NONE SMALL LARGE ACTIVE CHANNEL & BANKS
	Crossing Comments
ST	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION
	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSI
	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSI
outlet s	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSI Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOW Outlet Dimensions A. Width 17.39 B. Height NA C. Substrate/Water Width 17.39 D. Water Depth 0.328
	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOWN Outlet Dimensions A. Width 17 39 D. Water Depth 0 328 Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA E. Abutment Height (Type 7 bridges only) NA
	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOWN Outlet Dimensions A. Width IT 39 D. Water Depth 0.328 Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA E. Abutment Height (Type 7 bridges only) NA L. Structure Length (Overall length from Inlet to outlet) IH 16 IH 16
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OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSI Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOW Outlet Dimensions A. Width 17 39 D. Water Depth 0 328 Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA E. Abutment Height (Type 7 bridges only) NA L. Structure Length (Overail length from inlet to outlet) IH476 IH476 Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Inlet Grade (Pick one) AT STREAM GRADE INLET DROP PERCHED CLOGGED/COLLAPSED/SUBMERGED UNKNOWN Inlet Grade (Pick one) AT STREAM GRADE INLET DROP PERCHED CLOGGED/COLLAPSED/SUBMERGED UNKNOWN Inlet Dimensions <
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INLET OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE EXTENSIVE Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOWN Outlet Dimensions A. Width 17.39 B. Height NA C. Substrate/Water Width 17.39 D. Water Depth 0.328 Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA E. Abutment Height (Type 7 bridges only) NA L. Structure Length (Overall length from inlet to outlet) 1436 IH376 Inlet Stape OTHER NONE Inlet Type PROJECTING HEADWALL WINGWALLS HEADWALL & WINGWALLS MITERED TO SLOPE OTHER NONE Inlet Grade (Pick one) AT STREAM GRADE INLET DROP PERCHED CLOGGED/COLLAPSED/SUBMERGED UNKNOWN Inlet Dimensions A. Width 1 48
INLET OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSI Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOW Outlet Dimensions A. Width IP 39 B. Height NA C. Substrate/Water Width IP 39 D. Water Depth 0 328 Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA E. Abutment Height (Type 7 bridges only) NA L. Structure Length (Overall length from inlet to outlet) IP IP IP IP IP NONE INE Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Inlet Shape IP NONE NONE Inlet Shape 1 2 3 4 5 6 7 <t< td=""></t<>
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CONDITIONS INLET OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOWN Outlet Dimensions A. Width [7:39] B. Height MA C. Substrate/Water Width [7:39] D. Water Depth O. 3230 Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA E. Abutment Height (Type 7 bridges only) NA L. Structure Length (overall length from inlet to outlet) IH 376 IH 376 INNE INNE INNE INNE Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Intert Type PROJECTING HEADWALL WINGWALLS MITERED TO SLOPE OTHER NONE Inlet Type PROJECTING HEADWALL WINGWALLS H
CONDITIONS INLET OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOWN Outlet Dimensions A. Width [7] 39 B. Height NA C. Substrate/Water Width 17] 39 D. Water Depth 0.328 Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA E. Abutment Height (Type 7 bridges only) NA L. Structure Length (Overall length from inlet to outlet) 11 11 12 3 4 5 6 7 FORD UNKNOWN REMOVED Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Inlet Snape 1 2 3 4 5 6 7 FORD <
CONDITIONS INLET OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE Outlet Dimensions A. Width [7] C. Substrate/Water Width 17 </td
INLET OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL CLOGGED/COLLAPSED/SUBMERGED UNKNOWN Outlet Dimensions A. Width [7] 39 B. Height A C. Substrate/Water Width 17 39 D. Water Depth 0.328 Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA E. Abutment Height (Type 7 bridges only) NA L. Structure Length (Overall length from inlet to outlet) IH136 IH1376 INNONE INNONE INNONE Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Inlet Snape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED UNKNOWN Inlet Type

	Stream Crossing		DATABASE ENTRY BY	ENTRY DATE
4			DATA ENTRY REVIEWED BY	REVIEW DATE
A	crossing code Old TOWNShip Bridge	(culvert	3) Local ID (Optional)	
DATA			Grant	
	Town/County COCILESVILLE		itream DOC RUL	\mathbf{O}
SIN	Road Fernwood Rd COFF) TY	pe 📕 MULTILANE	PAVED UNPAVED	DRIVEWAY TRAIL RAILRO
CROSSING	GPS Coordinates (Decimal degrees) 39.8901	°N Latitude	-75.87	85 W Longitude
	Location Description			
	Crossing Type BRIDGE CULVERT MULTIPLE CULVERT FO			Number of Culverts/ Bridge Cells
	Photo IDs INLET 7 OUTLET 8 UPST	REAM 5	DOWNSTREAM 6	OTHER
	Flow Condition NO FLOW TYPICAL-LOW MODERATE	IIGH Crossing C	ondition 🌾 OK 🔳 POOR	NEW UNKNOWN
	Tidal Site 📑 YES 🖌 NO 💼 UNKNOWN Alignment 📑 FLOW-AL		>45") Road Fill Height (Top of	culvert to road surface; bridge = 0)
	Bankfull Width (Optional) 36.18 Confidence 🖌 HIGH 📄 LOW/ESTI	MATED Constric	tion SEVERE MODERA	
	Tailwater Scour Pool NONE SMALL LARGE			ACTIVE CHANNEL
	Tailwater Scour Pool 📓 NONE 📃 SMALL 📃 LARGE	SPAN	IS FULL CHANNEL & BANKS	
	Crossing Comments Old I-beam WOOD	ete plastic own removed	WOOD ROCK/STONE	
	Crossing Comments Old I-beam WOOD RUCTURE 1 Structure Material METAL CONCRE Outlet Shape 1 2 3 4 5 6 7 FORD UNKN Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCAL Outlet Dimensions A. Width 10.06 B. Height 5.58 Outlet Drop to Water Surface 0.0 Outlet Drop to Stream	TE PLASTIC OWN REMOVED DE FREE FALL ON C. Substrate/Water Bottom NA	WOOD ROCK/STONE Outlet Armoring NC TO CASCADE CLOGGED/CC Width LB.OS D. Wat	DNE NOT EXTENSIVE EXTENSI
	Crossing Comments Old I-beam WOOD RUCTURE 1 Structure Material METAL CONCRI Outlet Shape 1 2 3 4 5 6 7 FORD UNKN Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCAL Outlet Dimensions A. Width 18.06 B. Height 5.68 Outlet Drop to Water Surface 0 0 Outlet Drop to Stream L. Structure Length (Overall length from inlet to outlet) 15.42	ETE PLASTIC OWN REMOVED DE FREE FALL ON C. Substrate/Water Bottom NA	WOOD ROCK/STONE Outlet Armoring NC TO CASCADE CLOGGED/CC Width LB.OS D. Wat E. Abutment Height (Ty	DNE NOT EXTENSIVE EXTENSIVE VICTOR
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4	NAACC	Stream Crossing Survey	DATABASE ENTRY BY	ENTRY DATE REVIEW DATE
æ	Crossing Code CUI	vert 4, Silo Area	Local ID (Optional)	
DATA	Date Observed (00/00/0000)		is Grant	
	Town/County COAtes		Stream DOC RUN	6 (b)
CROSSING	RoadGPS Coordinates (Decimal degree		PAVED UNPAVED	DRIVEWAY TRAIL RAILROAD
0	Location Description			
	Crossing Type BRIDGE	CULVERT MULTIPLE CULVERT FORD NO CRO	DSSING REMOVED CROSSING CHANNEL BRIDGE ADEQUATE	Number of Culverts/ Bridge Cells
	Photo IDs INLET	OUTLET 12 UPSTREAM 9	DOWNSTREAM_10	OTHER
	Flow Condition 📃 NO FLO	W TYPICAL-LOW MODERATE HIGH Crossin	ng Condition VOK POOR	NEW UNKNOWN
	Tidal Site 🔤 YES 📢 NO	UNKNOWN Alignment FLOW-ALIGNED SKEW	(ED (>45") Road Fill Height (Top o	f culvert to road surface; bridge = 0) 1.017
	Bankfull Width (Optional)	47 confidence NHIGH LOW/ESTIMATED Cons	striction 📄 SEVERE 🖌 MODER	
	Tailwater Scour Pool	ONE SMALL LARGE	SPANS FULL CHANNEL & BANKS	ACTIVE CHANNEL
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NS INLET OUTLET	Crossing Comments Free RUCTURE 1 Outlet Shape 1 2 4 Outlet Grade (Pick one) AT Outlet Dimensions A. Width Outlet Drop to Water Surface L. Structure Length (Overall len Inlet Shape 1 2 Inlet Type PROJECTING Inlet Grade (Pick one) AT Inlet Dimensions A. Width Slope % (Optional) NA	Structure Material METAL CONCRETE PLASTIC Structure Material METAL CONCRETE PLASTIC 3 4 5 6 7 FORD UNKNOWN REMOV TSREAM GRADE FREE FALL CASCADE FREE FALL CASCADE FREE FALL 3 .0 B. Height 2.46 c. Substrate/Was .0 Outlet Drop to Stream Bottom Concent .1 .0 .0 Outlet Drop to Stream Bottom Concent .3 .4 .5 .6 .7 FORD UNKNOWN HEADWALL WINGWALLS HEADWALL & WINGWALLS HEADWALL & WINGWALLS HEADWALL & WINGWALLS STREAM GRADE INLET DROP PERCHED CLOGG .0 .0 .0 .0 .5 .0 .0 .0 .0 .5	WOOD ROCK/STONE VED Outlet Armoring ONTO CASCADE CLOGGED/C ater Width	FIBERGLASS COMBINATION ONE NOT EXTENSIVE EXTENSIVE OLLAPSED/SUBMERGED UNKNOWN Iter Depth O. 262 V/PE 7 bridges only) NA HER NONE UNKNOWN O. 984 RS SUPPORTS OTHER
NS INLET OUTLET	Crossing Comments Free RUCTURE 1 Outlet Shape 1 2 4 Outlet Grade (Pick one) AI Outlet Dimensions A. Width Outlet Drop to Water Surface L. Structure Length (Overall Ien Inlet Shape 1 2 Inlet Type PROJECTING Inlet Grade (Pick one) AI Inlet Dimensions A. Width Slope % (Optional) NA Structure Substrate Matches	Structure Material METAL CONCRETE PLASTIC Structure Material METAL CONCRETE PLASTIC 3 4 5 6 7 FORD UNKNOWN REMOV STREAM GRADE FREE FALL CASCADE FREE FALL CASCADE FREE FALL 3 .01 B. Height 2.46 c. Substrate/Wa .01 Outlet Drop to Stream Bottom Context .01 Outlet Drop to Stream Bottom Context .01 .01 B. Height 2.46 c. Substrate/Wa .02 .01 Outlet Drop to Stream Bottom Context .01 .01 B. Height .02 .02 .03 .4 .5 .6 .7 FORD UNKNOWN HEADWALL WINGWALLS HEADWALL & WINGWALL WINGWALLS HEADWALL & WINGWALL Stope Confidence HIGH LOW Internal Struct	WOOD ROCK/STONE WOOD ROCK/STONE VED Outlet Armoring ONTO CASCADE CLOGGED/CO ater Width I.GH D.OV E. Abutment Height (T) REMOVED I.S MITERED TO SLOPE OT SED/COLLAPSED/SUBMERGED MITERED TO SLOPE OT I.HERED/SUBMERGED MUTERS NONE BAFFLES/WEI NOKNOWN	FIBERGLASS COMBINATION ONE NOT EXTENSIVE EXTENSIVE OLLAPSED/SUBMERGED UNKNOWN Iter Depth O. 2 6 2 vpe 7 bridges only) NA HER NONE UNKNOWN O. 984 RS SUPPORTS OTHER
NS INLET OUTLET	Crossing Comments Free RUCTURE 1 Outlet Shape 1 2 3 Outlet Grade (Pick one) A Outlet Dimensions A. Width Outlet Drop to Water Surface L. Structure Length (Overall len Inlet Shape 1 2 Inlet Type PROJECTING Inlet Grade (Pick one) A Inlet Dimensions A. Width Slope % (Optional) NA Structure Substrate Type (Pick Structure Substrate Coverage	e fall inside of culvert (.2) structure Material METAL CONCRETE PLASTIC 3 4 5 6 7 FORD UNKNOWN REMOV STREAM GRADE FREE FALL CASCADE FREE FALL CASCADE FREE FALL 3 4 5 6 7 FORD UNKNOWN REMOV agth from inlet to outlet) L4 GOG GOG GOG GOG 3 4 5 6 7 FORD UNKNOWN HEADWALL WINGWALLS HEADWALL & WINGWALLS HEADWALL & WINGWALL STREAM GRADE INLET DROP PERCHED CLOGG 3 6 7 FORD UNKNOWN HEADWALL WINGWALLS HEADWALL & WINGWALL STREAM GRADE INLET DROP PERCHED CLOGGG 3 6 7 FORD UNKNOWN Stream NONE COMPARABLE CONTRASTING Konel VNONE SILT SAND GRAVEL COBBLI <td>WOOD ROCK/STONE WOOD ROCK/STONE VED Outlet Armoring ONTO CASCADE CLOGGED/C ater Width I.CH D.OV E. Abutment Height (T) REMOVED E. LS MITERED TO SLOPE OCLLAPSED/SUBMERGED Other ater Width I.H D.OV E. Abutment Height (T) BED/COLLAPSED/SUBMERGED OT SED/COLLAPSED/SUBMERGED INONE BAFFLES/WEI INON APPROPRIATE UNKNOWN E BOULDER BEDROCK</td> <td>FIBERGLASS COMBINATION ONE NOT EXTENSIVE EXTENSIVE OLLAPSED/SUBMERGED UNKNOWN Iter Depth O. 2.6.2 Image: NONE Image: NONE UNKNOWN D. 984 RS SUPPORTS OTHER I UNKNOWN</td>	WOOD ROCK/STONE WOOD ROCK/STONE VED Outlet Armoring ONTO CASCADE CLOGGED/C ater Width I.CH D.OV E. Abutment Height (T) REMOVED E. LS MITERED TO SLOPE OCLLAPSED/SUBMERGED Other ater Width I.H D.OV E. Abutment Height (T) BED/COLLAPSED/SUBMERGED OT SED/COLLAPSED/SUBMERGED INONE BAFFLES/WEI INON APPROPRIATE UNKNOWN E BOULDER BEDROCK	FIBERGLASS COMBINATION ONE NOT EXTENSIVE EXTENSIVE OLLAPSED/SUBMERGED UNKNOWN Iter Depth O. 2.6.2 Image: NONE Image: NONE UNKNOWN D. 984 RS SUPPORTS OTHER I UNKNOWN
AL CONDITIONS INLET OUTLET	Crossing Comments Free RUCTURE 1 Outlet Shape 1 2 4 Outlet Grade (Pick one) AT Outlet Dimensions A. Width Outlet Drop to Water Surface L. Structure Length (Overall Ien Inlet Shape 1 2 Inlet Type PROJECTING Inlet Grade (Pick one) AT Inlet Dimensions A. Width Slope % (Optional) NA Structure Substrate Matchess Structure Substrate Coverage Physical Barriers (Pick all that ap	Structure Material METAL CONCRETE PLASTIC Structure Material METAL CONCRETE PLASTIC 3 4 5 6 7 FORD UNKNOWN REMOV TSTREAM GRADE FREE FALL CASCADE FREE FALL CASCADE FREE FALL 3 .01 B. Height 2 .46 c. Substrate/Wat .01 Outlet Drop to Stream Bottom .01 .01 B. Height .4604 .01 .01 B. Height .4604 .01 .01 B. Height .02 .02 .01 B. Height .04 .01 .01 B. Height .02 .02 .01 B. Height .02 .03 .01 B. Height .03 .04 .01 B. Height .03 .04 .04	WOOD ROCK/STONE VED Outlet Armoring ONTO CASCADE CLOGGED/C ater Width	FIBERGLASS COMBINATION ONE NOT EXTENSIVE EXTENSIVE OLLAPSED/SUBMERGED UNKNOWN Iter Depth O. 2.6.2 Image: NONE Image: NONE UNKNOWN D. 984 RS SUPPORTS OTHER I UNKNOWN
AL CONDITIONS INLET OUTLET	Crossing Comments Free RUCTURE 1 Outlet Shape 1 2 4 Outlet Grade (Pick one) AT Outlet Dimensions A. Width Outlet Drop to Water Surface L. Structure Length (Overall Ien Inlet Shape 1 2 Inlet Type PROJECTING Inlet Grade (Pick one) AT Inlet Dimensions A. Width Slope % (Optional) NA Structure Substrate Type (Pick Structure Substrate Type (Pick Structure Substrate Coverage Physical Barriers (Pick all that ap Severity (Choose carefully based of	Structure Material METAL CONCRETE PLASTIC Structure Material METAL CONCRETE PLASTIC 3 4 5 6 7 FORD UNKNOWN REMOV TSTREAM GRADE FREE FALL CASCADE FREE FALL CASCADE FREE FALL 3 .4 .5 .6 .7 FORD UNKNOWN gth from inlet to outlet) .2.4 .60.4 .9 .9 3 .4 .5 .6 .7 FORD UNKNOWN HEADWALL WINGWALLS HEADWALL & WINGWALLS HEADWALL & WINGWALL STREAM GRADE INILET DROP PERCHED CLOGG .61 B. Height 2.30 C. Substrate/Wat Slope Confidence HIGH LOW Internal Struct Stream NONE COMPARABLE CONTRASTING Konel .51LT SAND GRAVEL COBBLIC MONE 25% 50% 75% 100% UNK	WOOD ROCK/STONE VED Outlet Armoring ONTO CASCADE CLOGGED/C ater Width I.CH D E. Abutment Height (T) REMOVED I.S MITERED TO SLOPE OT SED/COLLAPSED/SUBMERGED OT ater Width I.H NONE BAFFLES/WEI NOT APPROPRIATE UNKNOWN E BOULDER BEDROCK KNOWN FREE FALL FENCING SEVERE SEVERE SEVERE	FIBERGLASS COMBINATION ONE NOT EXTENSIVE EXTENSIVE OLLAPSED/SUBMERGED UNKNOWN Iter Depth O. 2.6.2 Image: NONE Image: NONE UNKNOWN D. 984 RS SUPPORTS OTHER I UNKNOWN
CONDITIONS INLET OUTLET	Crossing Comments Free RUCTURE 1 Outlet Shape 1 2 4 Outlet Grade (Pick one) AT Outlet Dimensions A. Width Outlet Drop to Water Surface L. Structure Length (Overall Ien Inlet Shape 1 2 Inlet Type PROJECTING Inlet Grade (Pick one) AT Inlet Dimensions A. Width Slope % (Optional) NA Structure Substrate Type (Pick Structure Substrate Type (Pick Structure Substrate Coverage Physical Barriers (Pick all that ap Severity (Choose carefully based of	Contraction Contraction Structure Material METAL CONCRETE PLASTIC Structure Material METAL CONCRETE PLASTIC 3 4 5 6 7 FORD UNKNOWN REMOV TSTREAM GRADE FREE FALL CASCADE FREE FALL CASCADE FREE FALL 3 G1 B. Height 2.46 c. Substrate/Wa a O Outlet Drop to Stream Bottom Contraction a G1 B. Height 2.46 c. Substrate/Wa a G1 B. Height 2.46 c. Substrate/Wa a G1 B. Height 2.90 c. Substrate/Wa a G1 B. Height 2.90 c. Substrate/Wa Stream NONE COMPARABLE CONTRASTING stream NONE COMPARABLE CONTRASTING wone) NONE SILT SAND GRAVEL COBBLI vply) NONE DEBRIS/SEDIMENT/ROCK DEFORMATIC DEFORMATIC n barrier type(s) above) NONE MINOR MODERATE NONE	WOOD ROCK/STONE WOOD ROCK/STONE VED Outlet Armoring ONTO CASCADE CLOGGED/C ater Width I.GH D.OY E. Abutment Height (T) REMOVED I.GH LIS MITERED TO SLOPE OCLLAPSED/SUBMERGED OT ater Width I.H D.OY E. Abutment Height (T) BED/COLLAPSED/SUBMERGED OT BAFFLES/WEI NONE NONE BAFFLES/WEI NOT APPROPRIATE UNKNOWN E BOULDER BEDROCK SEVERE WN DRY	FIBERGLASS COMBINATION ONE NOT EXTENSIVE EXTENSIVE OLLAPSED/SUBMERGED UNKNOWN Iter Depth O. 2.6.2 Image: NONE Image: NONE UNKNOWN D. 984 RS SUPPORTS OTHER I UNKNOWN

	Stream Crossing Survey	DATABASE ENTRY BY	ENTRY DATE
	AAACC DATA FORM	DATA ENTRY REVIEWED BY	REVIEW DATE
A	crossing Code Twins Culver+ 5	Local ID (Optional)	
DATA	Date Observed (00/00/0000) G/30/2020 Lead Observer Chris	Grant	
	1.10	tream DOC RUN	
SIN	RoadType MULTILANE	PAVED UNPAVED DF	
CROSSING	GPS Coordinates (Decimal degrees) 39.8960 N Latitude	-75.858	3 8 W Longitude
	Location Description		
	BURIED STREAM INACCESSIBLE PARTIALLY INACCESSIBLE NO UPSTREAM CHAN	INEL BRIDGE ADEQUATE	Number of Culverts/ Bridge Cells
	Photo IDs INLET 16 UPSTREAM 13		OTHER
	Flow Condition NO FLOW TYPICAL-LOW MODERATE HIGH Crossing Co		
	Tidal Site YES NO UNKNOWN Alignment FLOW-ALIGNED SKEWED (S	45") Road Fill Height (Top of culve	ert to road surface; bridge = 0) 3.28
	Bankfull Width (Optional) 6.76 Confidence VHIGH LOW/ESTIMATED Constrict	tion 📄 SEVERE 🖌 MODERATE	SPANS ONLY BANKFULL/
	Tailwater Scour Pool 🖌 NONE 🔳 SMALL 📕 LARGE	S FULL CHANNEL & BANKS	ACTIVE CHANNEL
	Crossing Comments		
	crossing comments		
51		WOOD ROCK/STONE FI	
51		WOOD ROCK/STONE FI Outlet Armoring NONE	
	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC	Outlet Armoring 📃 NONE	
	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED	Outlet Armoring NONE	NOT EXTENSIVE EXTENSIV
OUTLET 1	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL CASCADE FREE FALL	Outlet Armoring NONE	NOT EXTENSIVE EXTENSIV APSED/SUBMERGED UNKNOWN Depth 0.656
	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL CASCADE FREE FALL ON Outlet Dimensions A. Width 3 1 8 Height 1 57 C. Substrate/Water	Outlet Armoring NONE TO CASCADE CLOGGED/COLL Width 3.10 D. Water	NOT EXTENSIVE EXTENSI APSED/SUBMERGED UNKNOWN
OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONT Outlet Dimensions A. Width 3 18 B. Height 1 57 C. Substrate/Water V Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA NA	Outlet Armoring NONE TO CASCADE CLOGGED/COLL Width 3.10 D. Water I E. Abutment Height (Type 7	NOT EXTENSIVE EXTENSI APSED/SUBMERGED UNKNOWN
OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Fick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL CASCADE FREE FALL ONT Outlet Dimensions A. Width 3 1 8 Height 1 57 C. Substrate/Water Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA L. Structure Length (Overall length from inlet to outlet) 16 75	Outlet Armoring NONE NO CASCADE CLOGGED/COLL Width 3.10 D. Water I E. Abutment Height (Type 7	NOT EXTENSIVE EXTENSIV APSED/SUBMERGED UNKNOWN Depth 0.656 bridges only) NA
	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONT Outlet Dimensions A. Width 3 1 8 Height 1 5 7 Substrate/Water Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA . L. Structure Length (Overall length from inlet to outlet) 16 .7 FORD UNKNOWN F Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN F	Outlet Armoring NONE FO CASCADE CLOGGED/COLL Width 3.10 D. Water I E. Abutment Height (Type 7 REMOVED MITERED TO SLOPE OTHER	NOT EXTENSIVE EXTENSIV APSED/SUBMERGED UNKNOWN Depth 0.656 bridges only) NA
OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Fick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL CASCADE FREE FALL ONT Outlet Dimensions A. Width 3 1 8 Height 1 57 C. Substrate/Water Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA L. Structure Length (Overall length from inlet to outlet) 16 7 FORD UNKNOWN FILL Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN FILL	Outlet Armoring NONE NO CASCADE CLOGGED/COLL Width 3.10 D. Water I E. Abutment Height (Type 7 REMOVED MITERED TO SLOPE OTHER COLLAPSED/SUBMERGED UNK	NOT EXTENSIVE EXTENSIV APSED/SUBMERGED UNKNOWN Depth 0.656 bridges only) NA
OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL Outlet Dimensions A. Width 3 10 B. Height I SF C. Substrate/Water Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA . L. Structure Length (Overall length from inlet to outlet) 16 .	Outlet Armoring NONE NO CASCADE CLOGGED/COLL Width 3.10 D. Water I E. Abutment Height (Type 7 REMOVED MITERED TO SLOPE OTHER COLLAPSED/SUBMERGED UNK	NOT EXTENSIVE EXTENSION APSED/SUBMERGED UNKNOWN Depth 0.636 bridges only) NA NONE NONE NOWN Depth NA
S INLET OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONT Outlet Dimensions A. Width 3 18 B. Height 1 57 C. Substrate/Water Outlet Drop to Water Surface NA . Outlet Drop to Stream Bottom NA L. Structure Length (Overall length from inlet to outlet) . 16 . . Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN F Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN F Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN F Inlet Grade (Pick one) AT STREAM GRADE </td <td>Outlet Armoring NONE IO CASCADE CLOGGED/COLL Width 3.10 D. Water I E. Abutment Height (Type 7 REMOVED MITERED TO SLOPE OTHER COLLAPSED/SUBMERGED UNK Width NA D. Water I D. Water I</td> <td>NOT EXTENSIVE EXTENSION APSED/SUBMERGED UNKNOWN Depth 0.636 bridges only) NA NONE NONE NOWN Depth NA</td>	Outlet Armoring NONE IO CASCADE CLOGGED/COLL Width 3.10 D. Water I E. Abutment Height (Type 7 REMOVED MITERED TO SLOPE OTHER COLLAPSED/SUBMERGED UNK Width NA D. Water I D. Water I	NOT EXTENSIVE EXTENSION APSED/SUBMERGED UNKNOWN Depth 0.636 bridges only) NA NONE NONE NOWN Depth NA
S INLET OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL Outlet Dimensions A. Width 3 18 B. Height 1 57 C. Substrate/Water Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA . L. Structure Length (Overall length from inlet to outlet) 15 75 . Substrate/Water Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN If Inlet Type PROJECTING HEADWALL WINGWALLS HEADWALL & WINGWALLS Inlet Outlet DROP PERCHED CLOGGED/C Inlet Grade (Pick one) AT STREAM GRADE INLET DROP PERCHED CLOGGED/C Inlet Dimensions A. Width MA B. Height LOW	Outlet Armoring NONE NO CASCADE CLOGGED/COLL Width 3.10 D. Water I E. Abutment Height (Type 7 REMOVED MITERED TO SLOPE OTHER COLLAPSED/SUBMERGED UNK Width VA D. Water I NONE BAFFLES/WEIRS CAPPROPRIATE UNKNOWN	NOT EXTENSIVE EXTENSI APSED/SUBMERGED UNKNOWN Depth 0.636 bridges only) NA NONE NOWN Depth VA SUPPORTS OTHER
S INLET OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL Outlet Dimensions A. Width 3 10 B. Height 1 5 7 C. Substrate/Water Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA . L. Structure Length (Overall length from inlet to outlet) 16 FS Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN NA Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN NA Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN NA Inlet Grade (Pick one) AT STREAM GRADE VINGWALLS <t< td=""><td>Outlet Armoring NONE NO CASCADE CLOGGED/COLL Width 3.10 D. Water I E. Abutment Height (Type 7 REMOVED OTHER MITERED TO SLOPE OTHER COLLAPSED/SUBMERGED UNK Width NONE BAFFLES/WEIRS APPROPRIATE UNKNOWN BOULDER</td><td>NOT EXTENSIVE EXTENSIV APSED/SUBMERGED UNKNOWN Depth 0.636 bridges only) NA NONE NOWN Depth 1.4 SUPPORTS OTHER</td></t<>	Outlet Armoring NONE NO CASCADE CLOGGED/COLL Width 3.10 D. Water I E. Abutment Height (Type 7 REMOVED OTHER MITERED TO SLOPE OTHER COLLAPSED/SUBMERGED UNK Width NONE BAFFLES/WEIRS APPROPRIATE UNKNOWN BOULDER	NOT EXTENSIVE EXTENSIV APSED/SUBMERGED UNKNOWN Depth 0.636 bridges only) NA NONE NOWN Depth 1.4 SUPPORTS OTHER
S INLET OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONT Outlet Dimensions A. Width 3 18 B. Height 1 57 C. Substrate/Water Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA L. Structure Length (Overall length from inlet to outlet) 15 75 FORD UNKNOWN F Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN F Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN F Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN F Inlet Grade (Pick one) AT STRE	Outlet Armoring NONE NO CASCADE CLOGGED/COLLA Width 3.10 D. Water I E. Abutment Height (Type 7 REMOVED MITERED TO SLOPE OTHER COLLAPSED/SUBMERGED UNK Width VA D. Water I NONE BAFFLES/WEIRS APPROPRIATE UNKNOWN BOULDER BEDROCK UN	NOT EXTENSIVE EXTENSIVE
CONDITIONS INLET OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONT Outlet Dimensions A. Width 3 10 B. Height 1 55 C. Substrate/Water Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA L. Structure Length (Overall length from inlet to outlet) 16 75 FORD UNKNOWN NA Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN NA Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN NA Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN NA Inlet Grade (Pick one) AT	Outlet Armoring NONE NO CASCADE CLOGGED/COLLA Width 3.10 D. Water I E. Abutment Height (Type 7 REMOVED MITERED TO SLOPE OTHER COLLAPSED/SUBMERGED UNK Width VA D. Water I NONE BAFFLES/WEIRS APPROPRIATE UNKNOWN BOULDER BEDROCK UN	NOT EXTENSIVE EXTENSIVE
CONDITIONS INLET OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONT Outlet Dimensions A. Width 3 18 B. Height 1 57 C. Substrate/Water Outlet Drop to Water Surface NA . . Outlet Drop to Stream Bottom NA L. Structure Length (Overall length from inlet to outlet) Inlet Shape 1 2 3 4 5 6 Inlet Shape 1 2 3 4 5 6 Inlet Shape 1 2 3 4 5 6 Inlet Shape <td>Outlet Armoring NONE NO CASCADE CLOGGED/COLLA Width 3.10 D. Water I E. Abutment Height (Type 7 REMOVED OTHER MITERED TO SLOPE OTHER COLLAPSED/SUBMERGED UNK Width VA D. Water I NONE BAFFLES/WEIRS APPROPRIATE UNKNOWN BOULDER BEDROCK UN YN FREE FALL FENCING I</td> <td>NOT EXTENSIVE EXTENSIVE</td>	Outlet Armoring NONE NO CASCADE CLOGGED/COLLA Width 3.10 D. Water I E. Abutment Height (Type 7 REMOVED OTHER MITERED TO SLOPE OTHER COLLAPSED/SUBMERGED UNK Width VA D. Water I NONE BAFFLES/WEIRS APPROPRIATE UNKNOWN BOULDER BEDROCK UN YN FREE FALL FENCING I	NOT EXTENSIVE EXTENSIVE
CONDITIONS INLET OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL Outlet Dimensions A. Width 3 1 B. Height 1 .57 C. Substrate/Water Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA . L. Structure Length (Overall length from inlet to outlet) 16 .75 FORD UNKNOWN Inlet Shape Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Inlet Shape Inlet Grade (Pick one) AT STREAM GRADE INLET DROP PERCHED CLOGGED/C Inlet Grade (Pick one) AT STREAM GRADE INLET DROP PERCHED C Substrate/Water Slope % (Optional) NA Slope Confidence HIGH LOW Internal Structures <td>Outlet Armoring NONE NO CASCADE CLOGGED/COLLA Width 3.10 D. Water I E. Abutment Height (Type 7 REMOVED OTHER MITERED TO SLOPE OTHER COLLAPSED/SUBMERGED UNK Width VA D. Water I NONE BAFFLES/WEIRS APPROPRIATE UNKNOWN BOULDER BEDROCK UN VN FREE FALL FENCING I VPR FREE DRY I</td> <td>NOT EXTENSIVE EXTENSIVE</td>	Outlet Armoring NONE NO CASCADE CLOGGED/COLLA Width 3.10 D. Water I E. Abutment Height (Type 7 REMOVED OTHER MITERED TO SLOPE OTHER COLLAPSED/SUBMERGED UNK Width VA D. Water I NONE BAFFLES/WEIRS APPROPRIATE UNKNOWN BOULDER BEDROCK UN VN FREE FALL FENCING I VPR FREE DRY I	NOT EXTENSIVE EXTENSIVE
S INLET OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL Outlet Dimensions A. Width 3 10 B. Height 1 57 C. Substrate/Water Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA . L. Structure Length (Overall length from inlet to outlet) 16 756 . INKNOWN . Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN . Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN . Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN . Inlet Shape 1 2	Outlet Armoring NONE NO CASCADE CLOGGED/COLL Width 3.10 D. Water E. Abutment Height (Type 7 REMOVED MITERED TO SLOPE OTHER COLLAPSED/SUBMERGED UNK NONE BAFFLES/WEIRS APPROPRIATE UNKNOWN BOULDER BEDROCK UNK VN FREE FALL FENCING I VR DRY DRY DR	NOT EXTENSIVE EXTENSIVE

A North	NAACC	AQUATIC CONNECTIVITY Stream Crossing Survey DATA FORM	DATABASE ENTRY BY	ENTRY DATE
•	Crossing Code CUIVER		Local ID (Optional)	
DATA	Date Observed (00/00/0000) 6/	30/2020 Lead Observer Chis	Grant	
100	Town/County COCLESV	ille	Stream DOC PUN	
SIS	Road	Type MULTILANE	PAVED UNPAVED	
CROSSING		39.8963 N Latitude	-76.85	84 WLongitude
	Location Description	a		
		ULVERT MULTIPLE CULVERT FORD NO CROSSI SIBLE PARTIALLY INACCESSIBLE NO UPSTREAM CHA		Number of Culverts/ Bridge Cells
	Photo IDs INLET 20	OUTLET 19 UPSTREAM 17	DOWNSTREAM 18	OTHER
	Flow Condition 📃 NO FLOW	TYPICAL-LOW MODERATE HIGH Crossing	Condition 📃 OK 📄 POOR	NEW UNKNOWN
	Tidal Site 🔳 YES 🖌 NO 🔳 U	JNKNOWN Alignment 🔤 FLOW-ALIGNED 🗹 SKEWED	(>45") Road Fill Height (Top of	culvert to road surface; bridge = 0) 1.312
	Bankfull Width (Optional) 5.75	Confidence HIGH LOW/ESTIMATED Constri		ATE SPANS ONLY BANKFULL/
	Tailwater Scour Pool NONE		NS FULL CHANNEL & BANKS	ACTIVE CHANNEL
	Crossing Comments			
	RUCTURE 1 Stru	cture Material METAL CONCRETE PLASTIC		FIBERGLASS COMBINATION
OUTLET	CUCTURE 1 Stru Outlet Shape 1 2 3	4 5 6 7 FORD UNKNOWN REMOVED CAM GRADE FREE FALL CASCADE FREE FALL OF 4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 <td>Outlet Armoring</td> <td>DNE NOT EXTENSIVE EXTENS DILAPSED/SUBMERGED UNKNOW ter Depth O.OCS</td>	Outlet Armoring	DNE NOT EXTENSIVE EXTENS DILAPSED/SUBMERGED UNKNOW ter Depth O.OCS
OUTLET	Outlet Shape 1 2 3 Outlet Grade (Pick one) AT STRE Outlet Dimensions A. Width Outlet Drop to Water Surface	4 5 6 7 FORD UNKNOWN REMOVED CAM GRADE FREE FALL CASCADE FREE FALL OF 4 .17 B. Height 3 .19 C. Substrate/Water MA . Outlet Drop to Stream Bottom 0 am inlet to outlet) .29 .86	Outlet Armoring NO NTO CASCADE CLOGGED/CC r Width 220 D. Wa 2.62.E. Abutment Height (Ty	DNE NOT EXTENSIVE EXTENS DILAPSED/SUBMERGED UNKNOW ter Depth O.OCS
ET OUTLET	RUCTURE 1 Stru Outlet Shape 1 2 3 Outlet Grade (Pick one) AT STRE Outlet Dimensions A. Width Outlet Drop to Water Surface L. Structure Length (Overall length fro Inlet Shape 1 2 3	4 5 6 7 FORD UNKNOWN REMOVED CAM GRADE FREE FALL CASCADE FREE FALL OF 4 .14 .14 .14 .14 4 .14 .14 .14 .14 4 .14 .14 .14 .14 4 .14 .14 .14 .14 4 .14 .14 .14 .14 4 .14 .14 .14 .14 4 .14 .14 .14 .14 4 .14 .14 .14 .14 5 .14 .14 .14 .14 6 .14 .14 .14 .14 7 .14 .14 .14 .14 7 .14 .14 .14 .14 14 .14 .14 .14 .14 15 .14 .14 .14 .14 16 .14 .14 .14 .14 17 .14 .14 .14	Outlet Armoring NO NTO CASCADE CLOGGED/CC r Width 220 D. Wa 2.62.E. Abutment Height (Ty	DNE NOT EXTENSIVE EXTENSI DLLAPSED/SUBMERGED UNKNOW ter Depth O.OCS pe 7 bridges only. NA
INLET OUTLET	RUCTURE 1 Stru Outlet Shape 1 2 3 Outlet Grade (Pick one) AT STRE Outlet Dimensions A. Width	4 5 6 7 FORD UNKNOWN REMOVED CAM GRADE FREE FALL CASCADE FREE FALL OF 4 .14 B. Height 3 .19 C. Substrate/Water MA Outlet Drop to Stream Bottom O am inlet to outlet) .29 .860 4 .5 .6 .7 FORD UNKNOWN HEADWALL WINGWALLS HEADWALL & WINGWALLS	Outlet Armoring NO NTO CASCADE CLOGGED/CC r Width 2 .2.60 D. War .2.60 E. Abutment Height (Ty REMOVED MITERED TO SLOPE OTION	DNE NOT EXTENSIVE EXTENSI DLLAPSED/SUBMERGED UNKNOW ter Depth O.OCS pe 7 bridges only) NA
	RUCTURE 1 Stru Outlet Shape 1 2 3 Outlet Grade (Pick one) AT STRE Outlet Dimensions A. Width Outlet Dimensions A. Width Outlet Drop to Water Surface L. L. Structure Length (Overall length fro Inlet Shape 1 2 3 Inlet Shape 1 2 3 3 Inlet Grade (Pick one) PROJECTING H	4 5 6 7 FORD UNKNOWN REMOVED AM GRADE FREE FALL CASCADE FREE FALL OF 4	Outlet Armoring No NTO CASCADE CLOGGED/CC r Width 220 D. Wa 2.62.E. Abutment Height (Ty REMOVED MITERED TO SLOPE OTT /COLLAPSED/SUBMERGED (DNE NOT EXTENSIVE EXTENSIVE
INLET OUTLET	RUCTURE 1 Stru Outlet Shape 1 2 3 Outlet Grade (Pick one) AT STRE Outlet Dimensions A. Width Outlet Drop to Water Surface L. Structure Length (Overall length fro Inlet Shape 1 2 3 Inlet Shape 1 2 3 Inlet Grade (Pick one) AT STRE Inlet Dimensions A. Width	4 5 6 7 FORD UNKNOWN REMOVED AM GRADE FREE FALL CASCADE FREE FALL OF 4	Outlet Armoring No NTO CASCADE CLOGGED/CC r Width 220 D. Wa 2.62.E. Abutment Height (Ty REMOVED MITERED TO SLOPE OT //COLLAPSED/SUBMERGED TO r Width 263 D. Wa	DNE NOT EXTENSIVE EXTENSIVE DLLAPSED/SUBMERGED UNKNOW ter Depth O.OCS pe 7 bridges only) NA HER NONE UNKNOWN ter Depth O.164
S INLET OUTLET	RUCTURE 1 Stru Outlet Shape 1 2 3 Outlet Grade (Pick one) AT STRE Outlet Dimensions A. Width Outlet Drop to Water Surface L. Structure Length (Overall length from the structure length from the structure length (Overall length from the structure length from the structure length (Overall length from the structure leng	4 5 6 7 FORD UNKNOWN REMOVED AM GRADE FREE FALL CASCADE FREE FALL OF 4 14 7 B. Height 3 .40 C. Substrate/Water MA Outlet Drop to Stream Bottom 0 am inlet to outlet) 29 .86 4 5 6 7 FORD UNKNOWN HEADWALL WINGWALLS HEADWALL & WINGWALLS HEADWALL WINGWALLS HEADWALL & WINGWALLS AM GRADE INLET DROP PERCHED CLOGGED 4 .43 B. Height .3 .2 C. Substrate/Water	Outlet Armoring NG NTO CASCADE CLOGGED/CC r Width 2 2 20 D. Wait	DNE NOT EXTENSIVE EXTENSIVE DLLAPSED/SUBMERGED UNKNOW ter Depth O.OCS pe 7 bridges only) NA
NS INLET OUTLET	RUCTURE 1 Stru Outlet Shape 1 2 3 Outlet Grade (Pick one) AT STRE Outlet Dimensions A. Width Outlet Drop to Water Surface L. Structure Length (Overall length fro Inlet Shape 1 2 3 Inlet Shape 1 2 3 Inlet Grade (Pick one) PROJECTING In Inlet Grade (Pick one) AT STRE Inlet Dimensions A. Width Slope % (Optional) Slop Structure Substrate Matches Streat	4 5 6 7 FORD UNKNOWN REMOVED CAM GRADE FREE FALL CASCADE FREE FALL OR 4 0 0 MA Outlet Drop to Stream Bottom 0 minilet to outlet) 29 0 4 6 FORD UNKNOWN 4 0 4 0 4 0 4 0 4 0 4 <td>Outlet Armoring NG NTO CASCADE CLOGGED/CG r Width 220 D. Wat 262.e. Abutment Height (Ty REMOVED MITERED TO SLOPE OTLAPSED/SUBMERGED r Width 263 D. Wat Width 263 D. Wat</td> <td>DNE NOT EXTENSIVE EXTENSIVE DLLAPSED/SUBMERGED UNKNOW ter Depth O.OCS pe 7 bridges only) NA HER NONE UNKNOWN ter Depth O.164 RS SUPPORTS OTHER</td>	Outlet Armoring NG NTO CASCADE CLOGGED/CG r Width 220 D. Wat 262.e. Abutment Height (Ty REMOVED MITERED TO SLOPE OTLAPSED/SUBMERGED r Width 263 D. Wat Width 263 D. Wat	DNE NOT EXTENSIVE EXTENSIVE DLLAPSED/SUBMERGED UNKNOW ter Depth O.OCS pe 7 bridges only) NA HER NONE UNKNOWN ter Depth O.164 RS SUPPORTS OTHER
NS INLET OUTLET	RUCTURE 1 Stru Outlet Shape 1 2 3 Outlet Grade (Pick one) AT STRE Outlet Dimensions A. Width Outlet Drop to Water Surface	4 5 6 7 FORD UNKNOWN REMOVED AM GRADE FREE FALL CASCADE FREE FALL OF 4 14 7 B. Height 3 .40 C. Substrate/Water MA Outlet Drop to Stream Bottom 0 am inlet to outlet) 29 .86 4 5 6 7 FORD UNKNOWN HEADWALL WINGWALLS HEADWALL & WINGWALLS HEADWALL WINGWALLS HEADWALL & WINGWALLS AM GRADE INLET DROP PERCHED CLOGGED 4 .43 B. Height .3 .2 C. Substrate/Water	Outlet Armoring NG NTO CASCADE CLOGGED/CC r Width 2 2.62.e. Abutment Height (Ty REMOVED MITERED TO SLOPE OTIL YCOLLAPSED/SUBMERGED VCOLLAPSED/SUBMERGED Width 2.63 D. Wait NONE BAFFLES/WEIF DT APPROPRIATE UNKNOWN BOULDER	DNE NOT EXTENSIVE EXTENSI DLLAPSED/SUBMERGED UNKNOW ter Depth O.OCS pe 7 bridges only. NA HER NONE UNKNOWN ter Depth O.164 RS SUPPORTS OTHER
NS INLET OUTLET	RUCTURE 1 Stru Outlet Shape 1 2 3 Outlet Grade (Pick one) AT STRE Outlet Dimensions A. Width Outlet Drop to Water Surface	4 5 6 7 FORD UNKNOWN REMOVED AM GRADE FREE FALL CASCADE FREE FALL OF 4 14 8. Height 3 30 C. Substrate/Water MA Outlet Drop to Stream Bottom O am inlet to outlet) 29 86 4 5 6 7 FORD UNKNOWN HEADWALL WINGWALLS HEADWALL & WINGWALLS HEADWALL WINGWALLS HEADWALL & WINGWALLS AM GRADE INLET DROP PERCHED CLOGGED 4	Outlet Armoring NG NTO CASCADE CLOGGED/CG r Width 220 D. Wat 262.e. Abutment Height (Ty REMOVED MITERED TO SLOPE MITERED TO SLOPE VCOLLAPSED/SUBMERGED r Width 2263 D. Wat Width 263 D. Wat BAFFLES/WEIF DT APPROPRIATE UNKNOWN BOULDER BEDROCK	DNE NOT EXTENSIVE EXTENSIVE DLLAPSED/SUBMERGED UNKNOW ter Depth O.OCS pe 7 bridges only) NA
CONDITIONS INLET OUTLET	RUCTURE 1 Stru Outlet Shape 1 2 3 Outlet Grade (Pick one) AT STRE Outlet Dimensions A. Width Outlet Drop to Water Surface L. Structure Length (Overall length fro Inlet Shape 1 2 3 Inlet Shape 1 2 3 Inlet Type PROJECTING H Inlet Grade (Pick one) AT STRE Inlet Dimensions A. Width Slope % (Optional) Slop Structure Substrate Matches Street Structure Substrate Coverage Physical Barriers (Pick all that apply)	4 5 6 7 FORD UNKNOWN REMOVED AM GRADE FREE FALL CASCADE FREE FALL OF 4 14 8. Height 3 3.20 C. Substrate/Water MA Outlet Drop to Stream Bottom 0 am inlet to outlet) 29 86 4 5 6 7 FORD UNKNOWN HEADWALL WINGWALLS HEADWALL & WINGWALLS HEADWALL WINGWALLS HEADWALL & WINGWALLS AM GRADE INLET DROP PERCHED CLOGGED 4 .3 .3 C. Substrate/Water Confidence HIGH LOW Internal Structure am NONE COMPARABLE CONTRASTING NO NONE SILT SAND GRAVEL COBBLE NONE 25% 50% 75% 100% UNKNOW	Outlet Armoring NG NTO CASCADE CLOGGED/CG r Width 2.20 D. Wat	DNE NOT EXTENSIVE EXTENSI DLLAPSED/SUBMERGED UNKNOW ter Depth O.OCS pe 7 bridges only) NA HER NONE JNKNOWN ter Depth O.164 RS SUPPORTS OTHER
CONDITIONS INLET OUTLET	RUCTURE 1 Stru Outlet Shape 1 2 3 Outlet Grade (Pick one) AT STRE Outlet Dimensions A. Width Outlet Drop to Water Surface L. Structure Length (Overall length fro Inlet Shape 1 2 3 Inlet Shape 1 2 3 Inlet Type PROJECTING H Inlet Grade (Pick one) AT STRE Inlet Dimensions A. Width Slope % (Optional) Slop Structure Substrate Matches Street Structure Substrate Coverage Physical Barriers (Pick all that apply)	4 5 6 7 FORD UNKNOWN REMOVED AM GRADE FREE FALL CASCADE FREE FALL OF 4 7 B. Height 3 3 C. Substrate/Water MA Outlet Drop to Stream Bottom O am inlet to outlet) 29 86 4 5 6 7 FORD UNKNOWN HEADWALL WINGWALLS HEADWALL & WINGWALLS HEADWALL WINGWALLS HEADWALL & WINGWALLS AM GRADE INLET DROP PERCHED CLOGGED H .4 5 .3 C. Substrate/Water Confidence HIGH LOW Internal Structure MONE COMPARABLE CONTRASTING NO NONE SILT SAND GRAVEL COBBLE NONE DEBRIS/SEDIMENT/ROCK DEFORMATION MODERATE S	Outlet Armoring NG NTO CASCADE CLOGGED/CO r Width 2 2 20 D. Wai 2.62.e. Abutment Height (Ty REMOVED MITERED TO SLOPE MITERED TO SLOPE OTLAPSED/SUBMERGED VCOLLAPSED/SUBMERGED VCOLLAPSED/SUBMERGED NONE BAFFLES/WEIF OT APPROPRIATE UNKNOWN BOULDER BEDROCK DWN FREE FALL FENCING SEVERE	DNE NOT EXTENSIVE EXTENSI DLLAPSED/SUBMERGED UNKNOW ter Depth O.OCS pe 7 bridges only) NA HER NONE JNKNOWN ter Depth O.164 RS SUPPORTS OTHER
CONDITIONS INLET OUTLET	RUCTURE 1 Stru Outlet Shape 1 2 3 Outlet Grade (Pick one) AT STRE Outlet Dimensions A. Width Outlet Dimensions A. Width Outlet Drop to Water Surface	4 5 6 7 FORD UNKNOWN REMOVED AM GRADE FREE FALL CASCADE FREE FALL OF 4 7 B. Height 3 3 C. Substrate/Water MA Outlet Drop to Stream Bottom 0 am inlet to outlet) 29 86 4 5 6 7 FORD UNKNOWN HEADWALL WINGWALLS HEADWALL & WINGWALLS HEADWALL WINGWALLS HEADWALL & WINGWALLS AM GRADE INLET DROP PERCHED CLOGGED 4 9 8. Height 3 3 C. Substrate/Water Confidence HIGH LOW Internal Structure MONE COMPARABLE CONTRASTING NK NONE SILT SAND GRAVEL COBBLE NONE SILT SAND GRAVEL COBBLE NONE DEBRIS/SEDIMENT/ROCK DEFORMATION HINOR MODERATE	Outlet Armoring NG NTO CASCADE CLOGGED/CG r Width 220 D. Wat 262.e. Abutment Height (Ty REMOVED MITERED TO SLOPE MITERED TO SLOPE VCOLLAPSED/SUBMERGED VCOLLAPSED/SUBMERGED VONE BAFFLES/WEIF DI NONE BOULDER BOULDER BOULDER FREE FALL FREE FALL DRY	DNE NOT EXTENSIVE EXTENSI DLLAPSED/SUBMERGED UNKNOW ter Depth O.OCS pe 7 bridges only) NA HER NONE JNKNOWN ter Depth O.164 RS SUPPORTS OTHER
DDITIONAL CONDITIONS INLET OUTLET	RUCTURE 1 Stru Outlet Shape 1 2 3 Outlet Grade (Pick one) AT STRE Outlet Dimensions A. Width Outlet Dimensions A. Width Outlet Drop to Water Surface	4 5 6 7 FORD UNKNOWN REMOVED AM GRADE FREE FALL CASCADE FREE FALL OR 4 14 8. Height 3 30 C. Substrate/Water MA Outlet Drop to Stream Bottom 0 minilet to outlet) 29 86 4 5 6 7 FORD UNKNOWN HEADWALL WINGWALLS HEADWALL & WINGWALLS HEADWALL WINGWALLS HEADWALL & WINGWALLS AM GRADE INLET DROP PERCHED CLOGGED 4	Outlet Armoring NG NTO CASCADE CLOGGED/CG r Width 2.20 D. Wat	DNE NOT EXTENSIVE EXTENSI DLLAPSED/SUBMERGED UNKNOW ter Depth O.OCS pe 7 bridges only) NA HER NONE JNKNOWN ter Depth O.164 RS SUPPORTS OTHER

4	AQUATIC CONNECTIVITY Stream Crossing Survey DATA FORM	DATABASE ENTRY BY	ENTRY DATE
G DATA	Crossing Code CUIVERT 7 Date Observed (00/00/0000) 6/30/20 Lead Observer Chris Town/County COartes VIILE	DOA DUN	
CROSSING	RoadType MULTILANE GPS Coordinates (Decimal degrees) 39.0992 N Latitude Location Description	PAVED UNPAVED	DRIVEWAY TRAIL RAILRO/
	Crossing Type BRIDGE CULVERT MULTIPLE CULVERT FORD NO CROSSI BURIED STREAM INACCESSIBLE PARTIALLY INACCESSIBLE NO UPSTREAM CHA		Number of Culverts/ Bridge Cells
	Photo IDs INLET 23 OUTLET 24 UPSTREAM 21	DOWNSTREAM 22	OTHER
	Flow Condition NO FLOW TYPICAL-LOW MODERATE HIGH Crossing (Condition VOK POOR	NEW UNKNOWN
	Tidal Site YES VO UNKNOWN Alignment VFLOW-ALIGNED SKEWED	(>45") Road Fill Height (Top of	culvert to road surface; bridge = 0) \cdot 7-54
	Bankfull Width (Optional) 14.76 Confidence VHIGH DOW/ESTIMATED Constri		TE SPANS ONLY BANKFULL/
	Tailwater Scour Pool VNONE SMALL LARGE SPA	NS FULL CHANNEL & BANKS	ACTIVE CHANNEL
		is i ole channel a brands	
	Crossing Comments RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED	wood Rock/stone	FIBERGLASS COMBINATION
	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ON Outlet Dimensions A. Width 3 6008. Height 2 9 C. Substrate/Water Outlet Drop to Water Surface NA/O O Outlet Drop to Stream Bottom 0	WOOD ROCK/STONE Outlet Armoring NC	DNE NOT EXTENSIVE EXTENS DLLAPSED/SUBMERGED UNKNOW
	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL FREE FALL FREE FALL FREE	WOOD ROCK/STONE Outlet Armoring NO NO CLOGGED/CC Width 2.94 D. Wat . E. Abutment Height (Ty)	DNE NOT EXTENSIVE EXTENS DLLAPSED/SUBMERGED UNKNOW
LET OUTLET S	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL CASCADE FREE FALL ON Outlet Dimensions A. Width 3 6008. Height 2 95 c. Substrate/Water Outlet Drop to Water Surface NA/O O Outlet Drop to Stream Bottom 0 L. Structure Length (Overall length from inlet to outlet) 20.013 3	WOOD ROCK/STONE Outlet Armoring NO NO CLOGGED/CC Width 2.94 D. Wat . E. Abutment Height (Ty)	NNE NOT EXTENSIVE EXTENSIVE DLLAPSED/SUBMERGED UNKNOW cer Depth D. S Depth V.A
T OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE The Costanter/Water Outlet Drop to Water Surface NA 0 Outlet Drop to Stream Bottom 0 0 1 <td>WOOD ROCK/STONE Outlet Armoring NO NTO CASCADE CLOGGED/CC Width 3.94 D. Wat E. Abutment Height (Ty) REMOVED MITERED TO SLOPE OTH YCOLLAPSED/SUBMERGED U U</td> <td>DNE NOT EXTENSIVE EXTENS DLLAPSED/SUBMERGED UNKNOW ter Depth D.S or 7 bridges only) NA</td>	WOOD ROCK/STONE Outlet Armoring NO NTO CASCADE CLOGGED/CC Width 3.94 D. Wat E. Abutment Height (Ty) REMOVED MITERED TO SLOPE OTH YCOLLAPSED/SUBMERGED U U	DNE NOT EXTENSIVE EXTENS DLLAPSED/SUBMERGED UNKNOW ter Depth D.S or 7 bridges only) NA
T OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL CASCADE FREE FALL ON Outlet Dimensions A. Width 3 GOBs. Height 2 95 c. Substrate/Water Outlet Drop to Water Surface NA/O Outlet Drop to Stream Bottom O L. Structure Length (Overall length from inlet to outlet) 20 0 3 Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Inlet Grade (Pick one) AT STREAM GRADE INLET DROP	WOOD ROCK/STONE Outlet Armoring NO NTO CASCADE CLOGGED/CC Width 3.94 D. Wat E. Abutment Height (Ty) REMOVED MITERED TO SLOPE OTH YCOLLAPSED/SUBMERGED U U	NOT EXTENSIVE EXTENSIVE DLLAPSED/SUBMERGED UNKNOW er Depth D.S. be 7 bridges only) NA
INLET OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ON Outlet Dimensions A. Width 3 6008. Height 2 9.5 c. Substrate/Water Outlet Drop to Water Surface NA/O O Outlet Drop to Stream Bottom O L. Structure Length (Overall length from inlet to outlet) 20 0 3 Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Inlet Shape 1 2 3 4 5	WOOD ROCK/STONE Outlet Armoring NO NTO CASCADE CLOGGED/CC Width 3.94 D. Wat E. Abutment Height (Ty) REMOVED MITERED TO SLOPE OTH Vidth 3.94 D. Wat WITERED TO SLOPE OTH Vidth 3.94 D. Wat S NONE BAFFLES/WEIF DT APPROPRIATE UNKNOWN BOULDER BEDROCK	NNE NOT EXTENSIVE EXTENS DLLAPSED/SUBMERGED UNKNOW rer Depth D. S. MAR NONE INKNOWN rer Depth 2.460 S SUPPORTS OTHER
CONDITIONS INLET OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL CASCADE FREE FALL ON Outlet Dimensions A. Width 3 GO88. Height 2 95 c. Substrate/Water Outlet Drop to Water Surface NA/O Outlet Drop to Stream Bottom O L. Structure Length (Overall length from inlet to outlet) 20 013 Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Inlet Type PROJECTING HEADWALL WINGWALLS HEADWALL & WINGWALLS Inlet Grade (Pick one) AT STREAM GRADE INLET DROP PERCHED CLOGGED, Inlet Grade (Pick one) AT STREAM GRADE INLET DROP PERCHED CLOGGED, Inlet Dimensions A. Width Solpe	WOOD ROCK/STONE Outlet Armoring NO ITO CASCADE CLOGGED/CO Width 3.94 D. Wat E. Abutment Height (Ty) REMOVED MITERED TO SLOPE OTH YCOLLAPSED/SUBMERGED U Width 3.94 D. Wat S NONE BAFFLES/WEIF MONE BAFFLES/WEIF UNKNOWN BOULDER BEDROCK WN FREE FALL FENCING FENCING	NNE NOT EXTENSIVE EXTENSIVE NULAPSED/SUBMERGED UNKNOW Ver Depth D.S. par 7 bridges only) NA HER NONE INKNOWN er Depth 2.460 S SUPPORTS OTHER UNKNOWN
T OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL CASCADE FREE FALL ON Outlet Dimensions A. Width 3 6008 Height 2 95 c. Substrate/Water Outlet Drop to Water Surface NA/O O Outlet Drop to Stream Bottom O L. Structure Length (Overall length from inlet to outlet) 20 0 13 Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Inlet Grade (Pick one) AT STREAM GRADE	WOOD ROCK/STONE Outlet Armoring NO NTO CASCADE CLOGGED/CC Width 3.94 D. Wat E. Abutment Height (Ty) REMOVED MITERED TO SLOPE OTH YOULAPSED/SUBMERGED UN Width 3.94 D. Wat Solution BAFFLES/WEIF UN NONE BAFFLES/WEIF UN MIT APPROPRIATE UNNNOWN BOULDER BOULDER BEDROCK MIN FREE FALL FENCING EVERE DRY DRY DR	NNE NOT EXTENSIVE EXTENSIVE NULAPSED/SUBMERGED UNKNOW Ver Depth D.S. par 7 bridges only) NA HER NONE INKNOWN er Depth 2.460 S SUPPORTS OTHER UNKNOWN

4	AQUATIC CONNECTIVITY Stream Crossing Survey DATA FORM DATA ENTRY REVIEWED BY REVIEW DATE
CROSSING DATA	crossing code CUIVERT & (DOUBLE CUIVERT) Local ID (Optional) Date Observed (00/00/0000) 6/30/2020 Lead Observer Chris Grant Town/county COATES VILLE Road St Malachi Rd Type MULTILANE PAVED UNPAVED DRIVEWAY TRAIL RAILRO.
CROS	GPS Coordinates (Decimal degrees) 39.9020 *N Latitude -76.8508 *W Longitude
	Crossing Type BRIDGE CULVERT MULTIPLE CULVERT FORD NO CROSSING REMOVED CROSSING Number of Culverts/Bridge Cells BURIED STREAM INACCESSIBLE PARTIALLY INACCESSIBLE NO UPSTREAM CHANNEL BRIDGE ADEQUATE 1 Photo IDs INI FT 27 OLTI FT 18 UPSTREAM 26 OTHER
	Flow Condition NO FLOW TYPICAL-LOW MODERATE HIGH Crossing Condition OK POOR NEW UNKNOWN
	Bankfull Width (Optional) 12-99 Sconfidence HIGH LOW/ESTIMATED
	Tailwater Scour Pool NONE SMALL LARGE SPANS FULL CHANNEL & BANKS
ST	Crossing Comments RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE FXTENSIVE
OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOW Outlet Dimensions A. Width 4 9.72 B. Height 5 .23 C. Substrate/Water Width .48 D. Water Depth 0.066 Outlet Drop to Water Surface 1 .18 Outlet Drop to Stream Bottom 1 .31 E. Abutment Height (Type 7 bridges only) NA
TLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOW Outlet Dimensions A. Width 4 972 B. Height 5 25 C. Substrate/Water Width 48 D. Water Depth 0.066 Outlet Drop to Water Surface 1.18 Outlet Drop to Stream Bottom 31 E. Abutment Height (Type 7 bridges only) NA L. Structure Length (Overall length from inlet to outlet) 33.136
T OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOW Outlet Dimensions A. Width 4 9 B. Height 5 2.3 C. Substrate/Water Width .48 D. Water Depth 0.066 Outlet Drop to Water Surface 1.18 Outlet Drop to Stream Bottom 1.31 E. Abutment Height (Type 7 bridges only) NA L. Structure Length (Overall length from inlet to outlet) 3 3.136 Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED
TLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE Outlet Grade (rick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOW Outlet Dimensions A. Width 4 972 B. Height 5 25 C. Substrate/Water Width .48 D. Water Depth 0.0665 Outlet Drop to Water Surface 1 18 Outlet Drop to Stream Bottom .31 E. Abutment Height (Type 7 bridges only) NA L. Structure Length (Overall length from inlet to outlet) 33.136 .136
T OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOW Outlet Dimensions A. Width 4 972 B. Height 5 25 C. Substrate/Water Width .48 D. Water Depth 0.0665 Outlet Drop to Water Surface 1 18 Outlet Drop to Stream Bottom .31 E. Abutment Height (Type 7 bridges only) NA L. Structure Length (Overall length from inlet to outlet) 33.136 .136
T OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOW Outlet Dimensions A. Width 4 97 B. Height 5 23 C. Substrate/Water Width 4 48 D. Water Depth 0.0665 Outlet Drop to Water Surface 1 18 Outlet Drop to Stream Bottom 31 E. Abutment Height (Type 7 bridges only) NA L. Structure Length (Overall length from inlet to outlet) 33.136 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Inlet Shape 1 2 3 4 5 6 7<
INLET OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE Outlet Grade (Fick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOW Outlet Dimensions A. Width 4 97 B. Height 5 2.9 C. Substrate/Water Width .48 D. Water Depth 0.066 Outlet Drop to Water Surface 1 18 Outlet Drop to Stream Bottom .31 E. Abutment Height (Type 7 bridges only) NA L. Structure Length (Overall length from inlet to outlet) 33.136 .136
INLET OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOW Outlet Dimensions A. Width 4 9.7 B. Height 5 2.8 C. Substrate/Water Width 4 4 0.06% Outlet Drop to Water Surface 1 18 Outlet Drop to Stream Bottom 1 .31 E. Abutment Height (Type 7 bridges only) NA L. Structure Length (Overall length from inlet to outlet) 33.136 .136
INLET OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE EXTENSIVE Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOW Outlet Dimensions A. Width 4 97 B. Height 5 2.9 c. Substrate/Water Width 1 48 D. Water Depth 0 0.065 Outlet Drop to Water Surface 1.18 Outlet Drop to Stream Bottom 1 31 E. Abutment Height (Type 7 bridges only) NA L. Structure Length (Overall length from inlet to outlet) 33.136 Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Inlet Shape 1 2 <td< td=""></td<>
INLET OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOTE EXTENSIVE EXTENSIVE EXTENSIVE Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOW Outlet Dimensions A. Width 4 9.2 B. Height .5 .2.5 C. Substrate/Water Width 1 .48 D. Water Depth .0.066 Outlet Drop to Water Surface 1 .18 Outlet Drop to Stream Bottom 1 .31 E. Abutment Height (Type 2 bridges only) NA L. Structure Length (Overall length from inlet to outlet) .33.13.6 .4 .5 6 .7 FORD UNKNOWN REMOVED Inlet Shape 1 2 3 4 .5 6 .7 FORD UNKNOWN REMOVED Inlet Grade (Pick one) AT STREAM GRADE INLET DROP PERCHED CLOGGE
CONDITIONS INLET OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE EXTENSIVE Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOW Outlet Dimensions A. Width 4 .92* B. Height 5 .25* C. Substrate/Water Width .48 D. Water Depth .0665 Outlet Drop to Water Surface 1 .18 Outlet Drop to Stream Bottom .31 E. Abutment Height (Type 7 bridges only) NA L. Structure Length (Overall length from inlet to outlet) .33 .1366 .18 .136 .18 .18 .18 .18 .18 .18 .18 .18 .18 .18 .18 .18 .19 .18 .18 .18 .18 .18 .18 .18 .18 .18 .18 .18 .18 .18
CONDITIONS INLET OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOTE EXTENSIVE EXTENSIVE EXTENSIVE Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOW Outlet Dimensions A. Width 4 9.2 B. Height .5 .2.5 C. Substrate/Water Width 1 .48 D. Water Depth .0.066 Outlet Drop to Water Surface 1 .18 Outlet Drop to Stream Bottom 1 .31 E. Abutment Height (Type 2 bridges only) NA L. Structure Length (Overall length from inlet to outlet) .33.13.6 .4 .5 6 .7 FORD UNKNOWN REMOVED Inlet Shape 1 2 3 4 .5 6 .7 FORD UNKNOWN REMOVED Inlet Grade (Pick one) AT STREAM GRADE INLET DROP PERCHED CLOGGE
CONDITIONS INLET OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EX
INLET OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL OUTLET CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOW Outlet Dimensions A. Width 4 9.4 8. Height 5 2.5 C. Substrate/Water Width 1 48 0.006% Outlet Drop to Water Surface 1.18 Outlet Drop to Stream Bottom 1 3.1 E. Abutment Height (Type 7 bridges only) NA L. Structure Length (Overall length from inlet to outlet) 3.3 1.366 1 2.3 4 5 6 7 FORD UNKNOWN REMOVED Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Inlet Shape 1 2 3 4 5 6 7

STRUCTURE 2 Structure Material METAL CONCRETE PLASTIC WOOD POCK/STONE EIREPCLASS COMPLICATION
Stucture material militic concrete PLASTIC wood nockistone Plasticks Complication
Outlet Shape V1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENS
Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOW
0
Outlet Drop to Water Surface 0.63 Gutlet Drop to Stream Bottom 0.93 E. Abutment Height (Type 7 bridges only) NA
L. Structure Length (Overall length from inlet to outlet) 37.073
Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED
Inlet Type V PROJECTING HEADWALL WINGWALLS HEADWALL & WINGWALLS MITERED TO SLOPE OTHER NONE
Inlet Grade (Pick one)
Inlet Dimensions A. Width 492 B. Height 5.25 C. Substrate/Water Width 2.3 D. Water Depth 0.537
Slope % (Optional) NA Slope Confidence HIGH LOW Internal Structures NONE BAFFLES/WEIRS SUPPORTS OTHER
Structure Substrate Matches Stream NONE COMPARABLE CONTRASTING NOT APPROPRIATE UNKNOWN
Structure Substrate Type (Pick one) NONE SILT SAND GRAVEL COBBLE BOULDER BEDROCK UNKNOWN
Structure Substrate Coverage NONE 25% 50% 75% 100% UNKNOWN
Structure Substrate Matches Stream NONE COMPARABLE CONTRASTING NOT APPROPRIATE UNKNOWN Structure Substrate Type (Pick one) NONE SILT SAND GRAVEL COBBLE BOULDER BEDROCK UNKNOWN Structure Substrate Coverage NONE 25% 50% 75% 100% UNKNOWN Physical Barriers (Pick all that apply) NONE DEBRIS/SEDIMENT/ROCK DEFORMATION FREE FALL FENCING DRY OTHER
Severity (Choose carefully based on barrier type(s) above) NONE MINOR MODERATE SEVERE Water Depth Matches Stream YES NO-SHALLOWER NO-DEEPER UNKNOWN DRY Water Velocity Matches Stream YES NO-FASTER NO-SLOWER UNKNOWN DRY
🔮 Water Depth Matches Stream 🔲 YES 🐘 NO-SHALLOWER 🚿 NO-DEEPER 🐘 UNKNOWN 📗 DRY
Dry Passage through Structure? YES NO UNKNOWN Height above Dry Passage
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Dry Passage through Structure? YES NO UNKNOWN Height above Dry Passage
Dry Passage through Structure? YES NO UNKNOWN Height above Dry Passage Comments
Ory Passage through Structure? YES YES NO UNKNOWN Height above Dry Passage Comments Comments Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOW
Pry Passage through Structure? YES YES NO UNKNOWN Height above Dry Passage Comments Comments Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE
Pry Passage through Structure? YES NO UNKNOWN Height above Dry Passage Comments Comments Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOW
Pry Passage through Structure? YES NO UNKNOWN Height above Dry Passage Comments Comments STRUCTURE 3 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOW Outlet Dimensions A. Width B. Height C. Substrate/Water Width D. Water Depth
Ory Passage through Structure? YES NO UNKNOWN Height above Dry Passage Comments Comments Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOW Outlet Dimensions A.Width B. Height C. Substrate/Water Width D. Water Depth
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Pry Passage through Structure? YES NO UNKNOWN Height above Dry Passage Comments Comments STRUCTURE 3 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOW Outlet Drop to Water Surface Outlet Drop to Stream Bottom E. Abutment Height (Type 7 bridges only)
Pry Passage through Structure? YES NO UNKNOWN Height above Dry Passage Comments Comments STRUCTURE 3 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOW Outlet Drop to Water Surface Outlet Drop to Stream Bottom E. Abutment Height (Type 7 bridges only)
Pry Passage through Structure? YES NO UNKNOWN Height above Dry Passage Comments Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NOT NOT EXTENSIVE EXTENSIVE Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL OUTLet Armoring NOT NOT EXTENSIVE Outlet Dimensions A. Width B. Height C. Substrate/Water Width D. Water Depth
Ory Passage through Structure? YES NO UNKNOWN Height above Dry Passage Comments STRUCTURE 3 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL OUTlet Armoring NONE NONE OUTlet Dimensions A. Width B. Height C. Substrate/Water Width D. Water Depth Outlet Dimensions (Type 7 bridges only)
Ory Passage through Structure? YES NO UNKNOWN Height above Dry Passage Comments Comments Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL Outlet Dimensions A. Width D. Water Depth Outlet Dimensions A. Width B. Height C. Substrate/Water Width D. Water Depth
Dry Passage through Structure? YES NO UNKNOWN Height above Dry Passage Comments STRUCTURE 3 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE Outlet Grade (Pickone) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOW Outlet Drop to Water Surface Outlet Drop to Stream Bottom E. Abutment Height (Type 7 bridges only)
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Pry Passage through Structure? YES NO UNKNOWN Height above Dry Passage Comments STRUCTURE 3 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOW Outlet Dimensions A. Width B. Height C. Substrate/Water Width D. Water Depth Outlet Drop to Water Surface Outlet Drop to Stream Bottom E. Abutment Height (Type 7 bridges only)
Pry Passage through Structure? YES NO UNKNOWN Height above Dry Passage Comments Comments STRUCTURE 3 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOW Outlet Drop to Water Surface Outlet Drop to Stream Bottom E. Abutment Height (Type 7 birdges only)
Pry Passage through Structure? YES NO UNKNOWN Height above Dry Passage Comments STRUCTURE 3 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL Outlet Armoring NONE NONE NONE UNKNOW Outlet Drop to Water Surface Outlet Drop to Stream Bottom E. Abutment Height (Type 7 bridges only) Outlet Trop to Water Surface Outlet Drop to Stream Bottom E. Abutment Height (Type 7 bridges only) Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED </td

4	AQUATIC CONNECTIVITY Stream Crossing Survey DATA FORM DATA ENTRY REVIEWED BY REVIEW DATE
A	Crossing Code CUIVERT 9 Local ID (Optional)
DATA	Date Observed (00/00/0000) 8/7/2020 Lead Observer
	Town/CountyStream
CROSSING	Road Fernwood Rd. GPS Coordinates (Decimal degrees) 39.8896 N Latitude -75.8856 W Longitude
	Location Description
	Crossing Type BRIDGE CULVERT FORD NO CROSSING REMOVED CROSSING Number of Culverts/ Bridge Cells BURIED STREAM INACCESSIBLE PARTIALLY INACCESSIBLE NO UPSTREAM CHANNEL BRIDGE ADEQUATE
	Photo IDs INLET 31 OUTLET 32 UPSTREAM 29 DOWNSTREAM 30 OTHER
	Flow Condition NO FLOW TYPICAL-LOW MODERATE HIGH Crossing Condition KOK POOR NEW UNKNOWN
	Tidal Site YES NO UNKNOWN Alignment FLOW-ALIGNED SKEWED (>457) Road Fill Height (Top of culvert to road surface; bridge = 0).
	Bankfull Width (Optional) Confidence HIGH LOW/ESTIMATED Constriction SEVERE MODERATE SPANS ONLY BANKFULL/
	Tailwater Scour Pool NONE SMALL LARGE SPANS FULL CHANNEL & BANKS
ST	Crossing Comments RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE
ST	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE Outlet Grade (Pick one) VAT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOWN Outlet Dimensions A. Width 29 95 B. Height 4 59 c. Substrate/Water Width 20 94 0. Water Depth 3 2 15 Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA E. Abutment Height (Type 7 bridges only) NA
	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOWN Outlet Dimensions A. Width 2.9 9 B. Height 4 .59 C. Substrate/Water Width 2.0 .99 D. Water Depth 3 .2 .5 Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA E. Abutment Height (Type 7 bridges only) NA L. Structure Length (Overall length from inlet to outlet) 1 5 4 9
OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE Outlet Grade (Pick one) VAT STREAM GRADE FREE FALL CASCADE FREE FALL CLOGGED/COLLAPSED/SUBMERGED UNKNOWN Outlet Dimensions A. Width 29.95 B. Height 4.59 C. Substrate/Water Width 20.994 D. Water Depth 3.215 Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA E. Abutment Height (Type 7 bridges only) NA L. Structure Length (Overall length from inlet to outlet) 15.419 Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED
	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE Outlet Grade (Pick one) VAT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOWN Outlet Dimensions A. Width 2.9 9 B. Height 4 .59 C. Substrate/Water Width 2.0 .94 0.0 WATER Depth 3 2 .5 Outlet Drop to Water Surface VA Outlet Drop to Stream Bottom N/A E. Abutment Height (Type 7 bridges only) N/A L. Structure Length (Overall length from inlet to outlet) 1 5 6 7 FORD UNKNOWN REMOVED Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Inlet Type PROJECTING HEADWALL WINGWALLS MITERED TO SLOPE OTHER NONE
OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE Outlet Grade (Pick one) VAT STREAM GRADE FREE FALL CASCADE FREE FALL CLOGGED/COLLAPSED/SUBMERGED UNKNOWN Outlet Dimensions A. Width 29.95 B. Height 4.59 c. Substrate/Water Width 20.996 D. Water Depth 3.215 Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA E. Abutment Height (Type 7 bridges only) NA I. Structure Length (Overall length from inlet to outlet) 15.4[19 Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Inlet Shape 1 2 3 4 5 6 7 FORD
INLET OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL OUTLET DIMENSIONS A. Width 29.99 B. Height 4.59 C. Substrate/Water Width 20.99 D. Water Depth 3.215 Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA E. Abutment Height (Type 7 bridges only) NA L. Structure Length (Overall length from inlet to outlet) 15.419 Internal Structure Length (Overall length from inlet to outlet) 15.419 Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Inlet Shape 1 2 3 4 5 6 7
INLET OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE EXTENSIVE Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL OUTLET DIMENSIONS A. Width 2.9 .0 D. Water Depth 3.2.1 S Outlet Drop to Water Surface N/A Outlet Drop to Stream Bottom N/A E. Abutment Height (Type 7 bridges only) N/A L. Structure Length (Overall length from inlet to outlet) 1 5 6 7 FORD UNKNOWN REMOVED Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Inlet Type PROJECTING HEADWALL WINGWALLS MITERED TO SLOPE OTHER NONE
INLET OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL OUTLET DIMENSIONS A. Width 29.99 B. Height 4.59 C. Substrate/Water Width 20.99 D. Water Depth 3.215 Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA E. Abutment Height (Type 7 bridges only) NA L. Structure Length (Overall length from inlet to outlet) 15.419 Internal Structure Length (Overall length from inlet to outlet) 15.419 Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Inlet Shape 1 2 3 4 5 6 7
INLET OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE EXTENSIVE Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL OUTLET DIMENSIONS A. Width 2.9
CONDITIONS INLET OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE EXTENSIVE Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOWN Outlet Dimensions A. Width 2.9 9 B. Height 4 59 C. Substrate/Water Width 2.0 .99 D. Water Depth 3 2.1 S Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA E. Abutment Height (Type 7 bridges only) N/A L. Structure Length (Overall length from Inlet to outlet) 1 5 6 7 FORD UNKNOWN REMOVED Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Inlet Grade (Pick one) AT STREAM GRADE INLET DROP PERCHED CLOGGED/COLLAPSED/SUBMERGED <t< td=""></t<>
CONDITIONS INLET OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EX
INLET OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE Outlet Grade (Pick one) VAT STREAM GRADE FREE FALL CASCADE FREE FALL COGGED/COLLAPSED/SUBMERGED UNKNOWN Outlet Drop to Water Surface NA 4 5.9 c. Substrate/Water Width 20.99 D. Water Depth 3.215 Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA E. Abutment Height (Type 7 bridges only) NA L. Structure Length (Overall length from inlet to outlet) 1 5.4 9 6 7 FORD UNKNOWN REMOVED Inlet Type PROJECTING HEADWALL WINGWALLS HEADWALL & WINGWALLS MITERED TO SLOPE OTHER NONE Inlet Grade (Pick one) VET STREAM GRADE INLET DROP PERCHED CLOGGED/COLLAPSED/SUBMERGED UNKNOWN Inlet Type PROJECTING HEADWALL WINGW

4	AQUATIC CONNECTIVITY Stream Crossing Survey DATA FORM	DATABASE ENTRY BY	ENTRY DATE REVIEW DATE
	Crossing Code CULVERT 10		
	0/7/20	Local ID (Optional)	
5	Date Observed (00/00/0000) 8/ +/ 20 Lead Observer	8	
	1 01	itream	
2	Road RUNNYMEDE KO Type MULTILANE	PAVED UNPAVED	DRIVEWAY TRAIL RAILROA
PAIRCOUT	GPS Coordinates (Decimal degrees) 39.8999999 N Latitude	-75.8+	• 4 7 W Longitude
	Location Description		
	Crossing Type BRIDGE CULVERT MULTIPLE CULVERT FORD NO CROSSIN BURIED STREAM INACCESSIBLE PARTIALLY INACCESSIBLE NO UPSTREAM CHAP		Number of Culverts/ Bridge Cells
	Photo IDs INLET 36 UPSTREAM 33	DOWNSTREAM 34	OTHER
ľ	Flow Condition NO FLOW TYPICAL-LOW MODERATE HIGH Crossing C	ondition VOK POOR	
	Tidal Site YES NO UNKNOWN Alignment FLOW-ALIGNED SKEWED (>45") Road Fill Height (Top of	culvert to road surface; bridge = 0)
	Bankfull Width (Optional) Confidence HIGH LOW/ESTIMATED Constrict	tion 📃 SEVERE 🔝 MODERA	TE SPANS ONLY BANKFULL/
	Tailwater Scour Pool VNONE SMALL LARGE SPAN		ACTIVE CHANNEL
	Idiiwater Scour Pool W NOINE SMALL LARGE SPAN	IS FULL CHANNEL & BANKS	
	Crossing Comments RUCTURE 1 Structure Material METAL CONCRETE PLASTIC	WOOD ROCK/STONE	
		WOOD ROCK/STONE	DNE 📄 NOT EXTENSIVE 📄 EXTENSIV
	Crossing Comments RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) VAT STREAM GRADE FREE FALL CASCADE FREE FALL ONTICE	WOOD ROCK/STONE Outlet Armoring NC	DNE NOT EXTENSIVE EXTENSIV
	Crossing Comments RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL CASCADE FREE FALL ON Outlet Dimensions A. Width 1 9 88 B. Height 4 0 7 c. Substrate/Water	WOOD ROCK/STONE Outlet Armoring NC TO CASCADE CLOGGED/CC Width 19.800 D. Wat	DNE NOT EXTENSIVE EXTENSIV
	Crossing Comments RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ON Outlet Dimensions A. Width 9 80 B. Height 4.07 c. Substrate/Water	WOOD ROCK/STONE Outlet Armoring NC	DNE NOT EXTENSIVE EXTENSION DLLAPSED/SUBMERGED UNKNOWN er Depth 2.49
	Crossing Comments RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ON Outlet Dimensions A. Width 19.88 B. Height 4.07 c. Substrate/Water Outlet Drop to Water Surface NA. Outlet Drop to Stream Bottom NA. L. Structure Length (Overall length from inlet to outlet)	WOOD ROCK/STONE Outlet Armoring NC TO CASCADE CLOGGED/CC Width 19.30D. Wat E. Abutment Height (Tyr	DNE NOT EXTENSIVE EXTENSION DLLAPSED/SUBMERGED UNKNOWN er Depth 2.49
	Crossing Comments RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ON Outlet Dimensions A. Width 19 30 B. Height 4 0.07 c. Substrate/Water Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA L. Structure Length (Overall length from inlet to outlet) 16 3 2 Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN 1	WOOD ROCK/STONE Outlet Armoring NC TO CASCADE CLOGGED/CC Width 19.800 D. Wat E. Abutment Height (Tyr REMOVED	NE NOT EXTENSIVE EXTENSIV NLLAPSED/SUBMERGED UNKNOWN er Depth 2.49 be 7 bridges only) AA
	Crossing Comments RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONT Outlet Dimensions A. Width 19 BB Height 4 07 C. Substrate/Water Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA L Structure Length (overall length from inlet to outlet) 16 3 2 Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Inlet Type PROJECTING HEADWALL WINGWALLS HEADWALL & WINGWALLS	WOOD ROCK/STONE Outlet Armoring NC TO CASCADE CLOGGED/CC Width I G. So D. Wat E. Abutment Height (Typ REMOVED MITERED TO SLOPE OTH	NNE NOT EXTENSIVE EXTENSIV DLLAPSED/SUBMERGED UNKNOWN er Depth 2.49 be 7 bridges only) A/A HER NONE
	Crossing Comments RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ON Outlet Dimensions A. Width 19 98 B. Height 4 04 07 C. Substrate/Water Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA L. Structure Length (Overall length from inlet to outlet) 16 3 2 Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN 1 Inlet Type PROJECTING HEADWALL WINGWALLS HEADWALL & WINGWALLS Inlet Grade (Pick one) AT STREAM GRADE INLET DROP PERCHED CLOGGED/C	WOOD ROCK/STONE Outlet Armoring NC TO CASCADE CLOGGED/CC Width I9.80D, Wat E. Abutment Height (Typ REMOVED MITERED TO SLOPE OTH COLLAPSED/SUBMERGED U	NNE NOT EXTENSIVE EXTENSIV DLLAPSED/SUBMERGED UNKNOWN er Depth 2.49 bridges only) A/A HER NONE
	Crossing Comments RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO Outlet Dimensions A. Width 19 30 B. Height 4 0.07 C. Substrate/Water Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA . L. Structure Length (Overall length from inlet to outlet) 16 3 2 Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN 1 Inlet Type PROJECTING HEADWALL WINGWALLS HEADWALL & WINGWALLS HEADWALL & WINGWALLS Inlet Grade (Pick one) AT STREAM GRADE INLET DROP PERCHED CLOGGED/C Inlet Dimensions A. Width 18 36 B. Height 4 59 c. Substrate/Water	WOOD ROCK/STONE Outlet Armoring NC TO CASCADE CLOGGED/CC Width 19.38D, Wat E. Abutment Height (Type REMOVED MITERED TO SLOPE OTH COLLAPSED/SUBMERGED L Width 18.86D, Wat	NE NOT EXTENSIVE EXTENSIV NULAPSED/SUBMERGED UNKNOWN er Depth 2.49 NONE HER NONE NKNOWN er Depth 3.61
	Crossing Comments RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL OUTLOT CASCADE FREE FALL OUTLOT Substrate/Water Outlet Dimensions A. Width 19 90 B. Height 4 0 C. Substrate/Water Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA L. Structure Length (Overall length from inlet to outlet) 16 3 2 Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN 10 Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN 10 Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN	WOOD ROCK/STONE Outlet Armoring NC TO CASCADE CLOGGED/CC Width 19.800, Wat E. Abutment Height (Typ REMOVED MITERED TO SLOPE OTH COLLAPSED/SUBMERGED U Width 10.800, Wat NONE BAFFLES/WEIR	NR NOT EXTENSIVE EXTENSIV NLLAPSED/SUBMERGED UNKNOWN er Depth 2.49 NONE HER NONE INKNOWN er Depth 3.61
	Crossing Comments RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONT Outlet Dimensions A. Width 19 30 B. Height 4.07 C. Substrate/Water Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Internal Structure Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Internal Structure Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Internal Structure Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN <t< td=""><td>WOOD ROCK/STONE Outlet Armoring NC TO CASCADE CLOGGED/CC Width 19 80 D. Wat E. Abutment Height (Type REMOVED MITERED TO SLOPE OTH COLLAPSED/SUBMERGED UL Width 18</td><td>NOT EXTENSIVE EXTENSION EXTENSIO</td></t<>	WOOD ROCK/STONE Outlet Armoring NC TO CASCADE CLOGGED/CC Width 19 80 D. Wat E. Abutment Height (Type REMOVED MITERED TO SLOPE OTH COLLAPSED/SUBMERGED UL Width 18	NOT EXTENSIVE EXTENSION EXTENSIO
	Crossing Comments RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL CASCADE FREE FALL ON Outlet Dimensions A. Width 19 98 B. Height 4 07 C. Substrate/Water Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA L. Structure Length (Overall length from inlet to outlet) 16 3 2 Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN 10 Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN 10 Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN 10 Inlet Shape <td>WOOD ROCK/STONE Outlet Armoring NC TO CASCADE CLOGGED/CC Width 19.800, Wat E. Abutment Height (Tyr REMOVED MITERED TO SLOPE OTH COLLAPSED/SUBMERGED U Width 10.800, Wat NONE BAFFLES/WEIR T APPROPRIATE UNKNOWN BOULDER BEDROCK</td> <td>NOT EXTENSIVE EXTENSION EXTENSIO</td>	WOOD ROCK/STONE Outlet Armoring NC TO CASCADE CLOGGED/CC Width 19.800, Wat E. Abutment Height (Tyr REMOVED MITERED TO SLOPE OTH COLLAPSED/SUBMERGED U Width 10.800, Wat NONE BAFFLES/WEIR T APPROPRIATE UNKNOWN BOULDER BEDROCK	NOT EXTENSIVE EXTENSION EXTENSIO
	Crossing Comments RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ON Outlet Dimensions A. Width 19 30 B. Height 4 0.07 c. Substrate/Water Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA 16 3 2 Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Internal Structure Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Internal Structure Inlet Type PROJECTING HEADWALL WINGWALLS HEADWALL & WINGWALLS Internal Structures Inlet Grade (Pick one) AT STREAM GRADE INLET DROP PERCHED CLOGGED/C Inlet Dimensions A. Width 18 36 B. Height LOW Internal Structures	WOOD ROCK/STONE Outlet Armoring NC TO CASCADE CLOGGED/CC Width 19.80 D. Wat E. Abutment Height (Tyr REMOVED MITERED TO SLOPE OTH COLLAPSED/SUBMERGED U Width 10.800 BAFFLES/WEIR NONE BAFFLES/WEIR T APPROPRIATE UNKNOWN BOULDER BEDROCK	NNE NOT EXTENSIVE EXTENSIV NULAPSED/SUBMERGED UNKNOWN er Depth 2.49 Sor 7 bridges only) AA HER NONE INKNOWN er Depth 3.61 S UPPORTS OTHER UNKNOWN
	Crossing Comments RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONT Outlet Dimensions A. Width 19.38 B. Height 4.07 C. Substrate/Water Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA L Structure Length (Overall length from inlet to outlet) Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN 10 Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN 10 Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN 10 Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN	WOOD ROCK/STONE Outlet Armoring NC TO CASCADE CLOGGED/CC Width 19 80 D. Wat E. Abutment Height (Type REMOVED MITERED TO SLOPE OTH COLLAPSED/SUBMERGED U Width 18	NOT EXTENSIVE EXTENSIV EXTENSIVE EXTENSIVE UNKNOWN EVENTS SUPPORTS OTHER DRY OTHER
	Crossing Comments RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL Outlet Dimensions A. Width 19 38 B. Height 4 0.07 C. Substrate/Water Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA . <td>WOOD ROCK/STONE Outlet Armoring NC TO CASCADE CLOGGED/CC Width 19.800, Wat E. Abutment Height (Typ REMOVED MITERED TO SLOPE OTH COLLAPSED/SUBMERGED U Width 18.860, Wat NONE BAFFLES/WEIR NONE BAFFLES/WEIR T APPROPRIATE UNKNOWN BOULDER BEDROCK WN FREE FALL FENCING EVERE X £LOODI</td> <td>NOT EXTENSIVE EXTENSIV EXTENSIVE EXTENSIVE UNKNOWN EVENTS OTHER DRY OTHER</td>	WOOD ROCK/STONE Outlet Armoring NC TO CASCADE CLOGGED/CC Width 19.800, Wat E. Abutment Height (Typ REMOVED MITERED TO SLOPE OTH COLLAPSED/SUBMERGED U Width 18.860, Wat NONE BAFFLES/WEIR NONE BAFFLES/WEIR T APPROPRIATE UNKNOWN BOULDER BEDROCK WN FREE FALL FENCING EVERE X £LOODI	NOT EXTENSIVE EXTENSIV EXTENSIVE EXTENSIVE UNKNOWN EVENTS OTHER DRY OTHER
	Crossing Comments RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ON Outlet Dimensions A. Width 19 30 B. Height 4 0.07 c. Substrate/Water Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA 16 3.2 Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Internal Structure Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Internal Structure Inlet Grade (Pick one) NAT STREAM GRADE INLET DROP PERCHED CLOGGED/C Inlet Dimensions A. Width 18 30 B. Height 4 59 C. Substrate/Water Slope % (Optional) Slope Confidence HIGH LOW Internal Structures Structure Substrate T	WOOD ROCK/STONE Outlet Armoring NC TO CASCADE CLOGGED/CC Width 19.80 D. Wat E. Abutment Height (Tyr REMOVED MITERED TO SLOPE OTH COLLAPSED/SUBMERGED UL Width 18.86 D. Wat NONE BAFFLES/WEIR T APPROPRIATE UNKNOWN BOULDER BEDROCK WN FREE FALL FENCING VN FREE FALL FENCING EVERE X £LOODI	NOT EXTENSIVE EXTENSIV EXTENSIVE EXTENSIVE UNKNOWN EVENTS OTHER DRY OTHER
	Crossing Comments RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL Outlet Dimensions A. Width 19 38 B. Height 4 0.07 C. Substrate/Water Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA . <td>WOOD ROCK/STONE Outlet Armoring NC TO CASCADE CLOGGED/CC Width 19.80 D. Wat E. Abutment Height (Type REMOVED MITERED TO SLOPE OTH COLLAPSED/SUBMERGED UN MITERED TO SLOPE OTH COLLAPSED/SUBMERGED UN MONE BAFFLES/WEIR NONE BAFFLES/WEIR T APPROPRIATE UNKNOWN BOULDER BEDROCK WN FREE FALL FENCING VN FREE FALL FENCING VN</td> <td>NOT EXTENSIVE EXTENSIV EXTENSIVE EXTENSIVE UNKNOWN EVENTS SUPPORTS OTHER DRY OTHER</td>	WOOD ROCK/STONE Outlet Armoring NC TO CASCADE CLOGGED/CC Width 19.80 D. Wat E. Abutment Height (Type REMOVED MITERED TO SLOPE OTH COLLAPSED/SUBMERGED UN MITERED TO SLOPE OTH COLLAPSED/SUBMERGED UN MONE BAFFLES/WEIR NONE BAFFLES/WEIR T APPROPRIATE UNKNOWN BOULDER BEDROCK WN FREE FALL FENCING VN FREE FALL FENCING VN	NOT EXTENSIVE EXTENSIV EXTENSIVE EXTENSIVE UNKNOWN EVENTS SUPPORTS OTHER DRY OTHER

4	AQUATIC CONNECTIVITY Stream Crossing Survey DATA FORM	DATABASE ENTRY BY	ENTRY DATE REVIEW DATE
Ā	Crossing Code CUIVERT 11	Local ID (Optional)	
DATA	Date Observed (00/00/0000) 8/7/20 Lead Observer		
9	Town/County	Stream	
S	Road RUNNYMEDE RO Type MULTILANE	PAVED UNPAVED	DRIVEWAY TRAIL RAILROA
CROSSIN	GPS Coordinates (Decimal degrees) 39.8967 N Latitude	-75.87	44 w Longitude
	Location Description		
	Crossing Type Selection Culvert Multiple culvert Ford NO CROSSII BURIED STREAM INACCESSIBLE PARTIALLY INACCESSIBLE NO UPSTREAM CHA		Number of Culverts/ Bridge Cells
	Photo IDs INLET 39 OUTLET 40 UPSTREAM 37	DOWNSTREAM 38	OTHER
	Flow Condition NO FLOW TYPICAL-LOW MODERATE HIGH Crossing C	Condition 📄 OK 📄 POOR	NEW UNKNOWN
	Tidal Site YES NO UNKNOWN Alignment FLOW-ALIGNED	(>45") Road Fill Height (Top of	culvert to road surface; bridge = 0)
	Bankfull Width (Optional) Confidence HIGH LOW/ESTIMATED Constrict	ction SEVERE MODER	ATE SPANS ONLY BANKFULL/
	Tailwater Scour Pool NONE SMALL LARGE	NS FULL CHANNEL & BANKS	ACTIVE CHANNEL
	Crossing Comments RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED	WOOD ROCK/STONE	FIBERGLASS COMBINATION
	Crossing Comments RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pickone) AT STREAM GRADE FREE FALL CASCADE FREE FALL ON Outlet Dimensions A. Width 8.53 B. Height 4.92 c. Substrate/Water Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA	WOOD ROCK/STONE Outlet Armoring No ITO CASCADE CLOGGED/CC Width S.77-D. Wa	DNE NOT EXTENSIVE EXTENS DLLAPSED/SUBMERGED UNKNOW ter Depth 0.328
	Crossing Comments RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pickone) AT STREAM GRADE FREE FALL CASCADE FREE FALL ON Outlet Dimensions A. Width 8.53 B. Height 4.92 c. Substrate/Water	WOOD ROCK/STONE Outlet Armoring No NTO CASCADE CLOGGED/CO Width 5.77 D. Water	DNE NOT EXTENSIVE EXTENS DLLAPSED/SUBMERGED UNKNOW ter Depth 0.328
001161	Crossing Comments RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ON Outlet Dimensions A. Width 8 5 8 Height 4 9 2 Substrate/Water Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA	WOOD ROCK/STONE Outlet Armoring No ITO CASCADE CLOGGED/CO Width 5.777 D. Wa E. Abutment Height (Ty	DNE NOT EXTENSIVE EXTENS DLLAPSED/SUBMERGED UNKNOW ter Depth 0.328
EI 0011EI	Crossing Comments RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL CASCADE FREE FALL ON Outlet Dimensions A. Width 8 5.3 B. Height 4 .912 c. Substrate/Water Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA L Structure Length (Overall length from inlet to outlet) 28 08 3	WOOD ROCK/STONE Outlet Armoring No ITO CASCADE CLOGGED/CC width 5.77 D. wa E. Abutment Height (Ty REMOVED REMOVED	DNE NOT EXTENSIVE EXTENS DLLAPSED/SUBMERGED UNKNOW ter Depth 0, 32-8 pe 7 bridges only) NA
	Crossing Comments RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Srade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ON Outlet Dimensions A. Width 8 5 8 Height 4 9.2 C. Substrate/Water Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA L. Structure Length (Overail length from inlet to outlet) 28 08 3 Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN	WOOD ROCK/STONE Outlet Armoring No NTO CASCADE CLOGGED/CO Width 5.777 D. Wa E. Abutment Height (ny REMOVED MITERED TO SLOPE OTH	DNE NOT EXTENSIVE EXTENS DLLAPSED/SUBMERGED UNKNOW ter Depth 0, 32-8 pe 7 bridges only) NA
	Crossing Comments RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL CASCADE FREE FALL ON Outlet Dimensions A. Width B 5 B Height 4 912 c. Substrate/Water Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA L. Structure Length (Overall length from inlet to outlet) 28 083 Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Inlet Type PROJECTING HEADWALL WINGWALLS HEADWALL & WINGWALLS	WOOD ROCK/STONE Outlet Armoring No NTO CASCADE CLOGGED/CO Width 5.777 D. Wa E. Abutment Height (Ty REMOVED MITERED TO SLOPE OTI COLLAPSED/SUBMERGED OTI / C12	DNE NOT EXTENSIVE EXTENS DLLAPSED/SUBMERGED UNKNOW ter Depth 0,328 pe 7 bridges only) NA
	Crossing Comments RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pickone) AT STREAM GRADE FREE FALL CASCADE FREE FALL ON Outlet Dimensions A. Width 8 5 8 Height 4 912 c. Substrate/Water Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA L. Structure Length (Overall length from inlet to outlet) 28 083 Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Inlet Shape 1 2 3 4 5 6	WOOD ROCK/STONE Outlet Armoring No NTO CASCADE CLOGGED/CO Width S.77 D. Waith E. Abutment Height (Ty REMOVED MITERED TO SLOPE OTLLAPSED/SUBMERGED Width I.977 D. Waith	DNE NOT EXTENSIVE EXTENS DLLAPSED/SUBMERGED UNKNOW ter Depth 0.328 pe 7 bridges only) NA
	Crossing Comments RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pickone) AT STREAM GRADE FREE FALL CASCADE FREE FALL ON Outlet Dimensions A. Width 8 5 8 Height 4 92 c. Substrate/Water Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA L. Structure Length (overall length from inlet to outlet) 28 083 Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Inlet Type PROJECTING HEADWALL WINGWALLS HEADWALL & WINGWALLS Inlet Grade (Pick one) AT STREAM GRADE INLET DROP PERCHED CLOGGED/	WOOD ROCK/STONE Outlet Armoring No NTO CASCADE CLOGGED/CO Width 5.777 D. Wa E. Abutment Height (Ty) REMOVED MITERED TO SLOPE OTH COLLAPSED/SUBMERGED U Width 1.917 D. Wa S NONE BAFFLES/WEIF	DNE NOT EXTENSIVE EXTENS DLLAPSED/SUBMERGED UNKNOW ter Depth 0,32-8 pe 7 bridges only) NA HER NONE UNKNOWN ter Depth 0.489
	Crossing Comments RUCTURE 1 Structure Material METAL CONCRETE Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL CASCADE FREE FALL ON Outlet Dimensions A. Width B 5 B. Height 4 9 2 S. Substrate/Water Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA L. Structure Length (Overall length from inlet to outlet) 2 8 0 8 7 FORD UNKNOWN Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Inlet Type PROJECTING HEADWALL WINGWALLS HEADWALL & WINGWALLS Inlet Grade (Pick one) AT STREAM GRADE IN	WOOD ROCK/STONE Outlet Armoring Nr NTO CASCADE CLOGGED/CO Width 5.777 D. Wa E. Abutment Height (Ty REMOVED MITERED TO SLOPE OTI COLLAPSED/SUBMERGED TO Width 1.977 D. Wa S NONE BAFFLES/WEIF	NOT EXTENSIVE EXTENS DLLAPSED/SUBMERGED UNKNOW ter Depth 0,328 pe 7 bridges only) NA
	Crossing Comments RUCTURE 1 Structure Material METAL CONCRETE Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ON Outlet Dimensions A. Width 8 5 8 Height 4 92 c. Substrate/Water Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA L Structure Length (overall length from inlet to outlet) 28 083 Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Inlet Shape 1 2 3 4 5 6 7 FORD	WOOD ROCK/STONE Outlet Armoring No NTO CASCADE CLOGGED/CO Width 5.777 D. Wa E. Abutment Height (Ty REMOVED MITERED TO SLOPE OTH COLLAPSED/SUBMERGED OTH Vidth 1.917 D. Wa S NONE BAFFLES/WEIF MONE BAFFLES/WEIF MONE BEDROCK	DNE NOT EXTENSIVE EXTENSI DLLAPSED/SUBMERGED UNKNOW ter Depth 0,32-8 pe 7 bridges only) NA HER NONE UNKNOWN ter Depth 0.469 IS SUPPORTS OTHER
- INLET	Crossing Comments RUCTURE 1 Structure Material METAL CONCRETE Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL Outlet Drop to Stream Bottom NA Outlet Drop to Water Surface NA Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA L. Structure Length (Overall length from inlet to outlet) 28 083 Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN	WOOD ROCK/STONE Outlet Armoring No NTO CASCADE CLOGGED/CC Width 5.77 D. B. Abutment Height (Ty REMOVED MITERED TO SLOPE OTLLAPSED/SUBMERGED Width I. 917 D. Was NONE BAFFLES/WEIF MINNE BOULDER BEDROCK	DNE NOT EXTENSIVE EXTENSI DLLAPSED/SUBMERGED UNKNOW ter Depth 0.328 pe 7 bridges only NA HER NONE JNKNOWN ter Depth 0.469 ts SUPPORTS OTHER
CONDITIONS INLET OUTLET	Crossing Comments RUCTURE 1 Structure Material METAL CONCRETE Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pickone) AT STREAM GRADE FREE FALL CASCADE FREE FALL ON Outlet Dimensions A. Width 8 5 3 B. Height 4 9 2 C. Substrate/Water Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA L. Structure Length (Overall length from inlet to outlet) 28 08 3 Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Inlet Shape 1 2 3 4	WOOD ROCK/STONE Outlet Armoring No MITO CASCADE CLOGGED/CO Width S.77 D. Wa E. Abutment Height (Ty REMOVED MITERED TO SLOPE OTH COLLAPSED/SUBMERGED OTH Width I.97 D. Wa S NONE BAFFLES/WEIF MONE BAFFLES/WEIF MONE BAFFLES/WEIF MURKNOWN BOULDER BEDROCK WN FREE FALL FENCING	DNE NOT EXTENSIVE EXTENSI DLLAPSED/SUBMERGED UNKNOW ter Depth 0.328 pe 7 bridges only NA HER NONE JNKNOWN ter Depth 0.469 ts SUPPORTS OTHER
CONDITIONS INLET OUTLET	Crossing Comments RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL Outlet Drop to Stream Bottom NA Outlet Drop to Water Surface NA Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA L. Structure Length (overall length from inlet to outlet) 28 0833 Inlet Type PROJECTING HEADWALL WINGWALLS HEADWALL & WINGWALLS Inlet Grade (Pick one) AT STREAM GRADE INLET DROP PERCHED CLOGGED/ Inlet Grade (Pick one) AT STREAM GRADE INLET DROP PERCHED CLOGGED/ Inlet Grade (Pick one) AT STREAM GRADE INLET DROP <td>WOOD ROCK/STONE Outlet Armoring No NTO CASCADE CLOGGED/CO Width 5.777 D. Wa E. Abutment Height (Ty REMOVED MITERED TO SLOPE OTH YCOLLAPSED/SUBMERGED OTH Width I.917 D. Wa S NONE BAFFLES/WEIF VT APPROPRIATE UNKNOWN BOULDER BEDROCK WN FREE FALL FENCING EVERE EVERE</td> <td>DNE NOT EXTENSIVE EXTENSI DLLAPSED/SUBMERGED UNKNOW ter Depth 0.328 pe 7 bridges only NA HER NONE JNKNOWN ter Depth 0.469 ts SUPPORTS OTHER</td>	WOOD ROCK/STONE Outlet Armoring No NTO CASCADE CLOGGED/CO Width 5.777 D. Wa E. Abutment Height (Ty REMOVED MITERED TO SLOPE OTH YCOLLAPSED/SUBMERGED OTH Width I.917 D. Wa S NONE BAFFLES/WEIF VT APPROPRIATE UNKNOWN BOULDER BEDROCK WN FREE FALL FENCING EVERE EVERE	DNE NOT EXTENSIVE EXTENSI DLLAPSED/SUBMERGED UNKNOW ter Depth 0.328 pe 7 bridges only NA HER NONE JNKNOWN ter Depth 0.469 ts SUPPORTS OTHER
CONDITIONS INLET OUTLET	Crossing Comments RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL CASCADE FREE FALL Outlet Drop to Stream Bottom NA Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA L. Structure Length (Overall length from inlet to outlet) 28.083 Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Inlet Grade (Pick one)	WOOD ROCK/STONE Outlet Armoring No NTO CASCADE CLOGGED/CC Width 5.777 D. Wa E. Abutment Height (Ty REMOVED MITERED TO SLOPE OTI YCOLLAPSED/SUBMERGED OTI YCOLLAPSED/SUBMERGED OTI YCOLLAPSED/SUBMERGED OTI YCOLLAPSED/SUBMERGED OTI YCOLLAPSED/SUBMERGED WI YCOLLAPSED/SUBMERGED WI YCOLLAPSED/SUBMERGED WI YCOLLAPSED/SUBMERGED WI YCOLLAPSED/SUBMERGED WI YCOLLAPSED/SUBMERGED WI YCOLLAPSED/SUBMERGED WIN BOULDER BEDROCK WN FREE FALL FENCING EVERE DRY	DNE NOT EXTENSIVE EXTENSI DLLAPSED/SUBMERGED UNKNOW ter Depth 0.328 pe 7 bridges only NA HER NONE JNKNOWN ter Depth 0.469 ts SUPPORTS OTHER
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6	NAACCA AQUATIC CONNECTIVITY Stream Crossing Survey DATA FORM	DATABASE ENTRY BY	ENTRY DATE
АТА	Crossing Code CUIVERT 12	Local ID (Optional)	
DA	Date Observed (00/00/0000) 8/7/20 Lead Observer		
	Town/County	Stream	
ROSSING	Road RUNNY Mede Rd Type MULTILANE		DRIVEWAY TRAIL RAILROAD
CKO	GPS Coordinates (Decimal degrees) 39.89966 N Latitude	-75.87	W Longitude
	Location Description		
	Crossing Type BRIDGE CULVERT MULTIPLE CULVERT FORD NO CROSSIN BURIED STREAM INACCESSIBLE PARTIALLY INACCESSIBLE NO UPSTREAM CHAI	NG REMOVED CROSSING	Number of Culverts/ Bridge Cells
	Photo IDs INLET 43 OUTLET 44 UPSTREAM 41	DOWNSTREAM 42	OTHER
	Flow Condition NO FLOW TYPICAL-LOW MODERATE HIGH Crossing C	Condition VOK POOR	
	Tidal Site YES NO UNKNOWN Alignment FLOW-ALIGNED SKEWED	(>45") Road Fill Height (Top o	f culvert to road surface; bridge = 0)
	Bankfull Width (Optional) Confidence HIGH LOW/ESTIMATED Constric		ATE 📕 SPANS ONLY BANKFULL/
	Tailwater Scour Pool NONE SMALL LARGE SPAN	NS FULL CHANNEL & BANKS	ACTIVE CHANNEL
	Crossing Comments		
	Crossing Comments		
T			
ST	1 .		FIBERGLASS COMBINATION
	Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED	Outlet Armoring 📃 N	ONE 🔲 NOT EXTENSIVE 📄 EXTENSI
	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL CASCADE FREE FALL	Outlet Armoring N	ONE NOT EXTENSIVE EXTENSI
	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ON Outlet Dimensions A. Width 3 1.96 B. Height 6.96 C. Substrate/Water	Outlet Armoring N NTO CASCADE CLOGGED/C Width 3.96 D. Wa	ONE NOT EXTENSIVE EXTENSI OLLAPSED/SUBMERGED UNKNOW
	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ON Outlet Dimensions A. Width 3 9 6 B. Height 6 9 6 c. Substrate/Water Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA	Outlet Armoring N	ONE NOT EXTENSIVE EXTENSI OLLAPSED/SUBMERGED UNKNOWN
	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ON Outlet Dimensions A. Width 3 1.96 B. Height 6.96 C. Substrate/Water Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA L. Structure Length (Overall length from inlet to outlet) 17 814	Outlet Armoring N NTO CASCADE CLOGGED/C Width 3.96 D. Wa E. Abutment Height (Tr	ONE NOT EXTENSIVE EXTENSI OLLAPSED/SUBMERGED UNKNOW
EI OUILEI	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL CASCADE FREE FALL ON Outlet Dimensions A. Width 3 1.96 B. Height 6.96 C. Substrate/Water Outlet Drop to Water Surface NA	Outlet Armoring N NTO CASCADE CLOGGED/C Width 3.96 D. Wa E. Abutment Height (Tr REMOVED	ONE NOT EXTENSIVE EXTENSI OLLAPSED/SUBMERGED UNKNOW Inter Depth 1.87 ype 7 bridges only)
EI OUILEI	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ON Outlet Dimensions A. Width 3 1.96 B. Height 6.96 C. Substrate/Water Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA L. Structure Length (Overall length from inlet to outlet) 17 81.4 5 6 7 FORD UNKNOWN Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Inlet Type PROJECTING HEADWALL WINGWALLS HEADWALL & WINGWALLS	Outlet Armoring N ITO CASCADE CLOGGED/C Width 3 96 D. Wa E. Abutment Height (T REMOVED MITERED TO SLOPE OT	ONE NOT EXTENSIVE EXTENSI OLLAPSED/SUBMERGED UNKNOW Iter Depth 1.87 ype 7 bridges only) NA
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	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ON Outlet Dimensions A. Width 3 1.96 B. Height G.96 C. Substrate/Water Outlet Drop to Water Surface NA	Outlet Armoring N ITO CASCADE CLOGGED/C Width 3 96 D. Wa E. Abutment Height (T) REMOVED MITERED TO SLOPE OT YCOLLAPSED/SUBMERGED Width 34.38 D. Wa	ONE NOT EXTENSIVE EXTENSI OLLAPSED/SUBMERGED UNKNOW Iter Depth 1.87 ype 7 bridges only) NA HER NONE UNKNOWN Iter Depth 3.94
INLEI OUILEI	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ON Outlet Dimensions A. Width 3 1.96 B. Height 6.96 C. Substrate/Water Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA L. Structure Length (Overall length from inlet to outlet) 17 .814 5 6 7 FORD UNKNOWN Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Inlet Shape 1 2 3 4 </td <td>Outlet Armoring N NTO CASCADE CLOGGED/C Width 3.96 D. Wa E. Abutment Height (T) REMOVED MITERED TO SLOPE OT YCOLLAPSED/SUBMERGED Width 34.38 D. wa S NONE BAFFLES/WEI</td> <td>ONE NOT EXTENSIVE EXTENSI OLLAPSED/SUBMERGED UNKNOWN Iter Depth 1.87 ype 7 bridges only) MA HER NONE UNKNOWN Iter Depth 3.94 RS SUPPORTS OTHER</td>	Outlet Armoring N NTO CASCADE CLOGGED/C Width 3.96 D. Wa E. Abutment Height (T) REMOVED MITERED TO SLOPE OT YCOLLAPSED/SUBMERGED Width 34.38 D. wa S NONE BAFFLES/WEI	ONE NOT EXTENSIVE EXTENSI OLLAPSED/SUBMERGED UNKNOWN Iter Depth 1.87 ype 7 bridges only) MA HER NONE UNKNOWN Iter Depth 3.94 RS SUPPORTS OTHER
INLEI OUILEI	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL Outlet Dimensions A. Width 3 1.96 B. Height G.96 C. Substrate/Water Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA L. Structure Length (Overall length from inlet to outlet) 17 814 Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Inlet Grade (Pick one) AT STREAM GRADE INLET DROP PERCHED CLOGGED/ Inlet Dimensions A. Wi	Outlet Armoring N NTO CASCADE CLOGGED/C Width 3.96 p. was E. Abutment Height (T) REMOVED MITERED TO SLOPE OTLAPSED/SUBMERGED Width 34.38 p. was S MONE BAFFLES/WEI OT APPROPRIATE	ONE NOT EXTENSIVE EXTENSI OLLAPSED/SUBMERGED UNKNOWN ther Depth 1.87 ype 7 bridges only) MA HER NONE UNKNOWN ther Depth 3.94 RS SUPPORTS OTHER
INLEI OUILEI	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ON Outlet Dimensions A. Width 3 1.90 B. Height 6.91 C. Substrate/Water Outlet Drop to Water Surface NAT Outlet Drop to Stream Bottom NAT L. Structure Length (Overall length from inlet to outlet) IT 17 814 Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Inlet Type PROJECTING HEADWALL WINGWALLS HEADWALL & WINGWALLS HEADWALL & WINGWALLS Internal Structures Inlet Grade (Pick one) AT STREAM GRADE INLET DROP PERCHED CLOGGED/ Inlet Dimensions A. Width 34 38 B. Height 7 55 C. Substrate/Water <td>Outlet Armoring N ITO CASCADE CLOGGED/C Width 3 9 D. wa E. Abutment Height (T) REMOVED MITERED TO SLOPE OT Width 34.38 Ot YOULAPSED/SUBMERGED Width 34.38 Width 34.38 D. wa S NONE BAFFLES/WEI DT APPROPRIATE UNKNOWN BOULDER BEDROCK</td> <td>ONE NOT EXTENSIVE EXTENSI OLLAPSED/SUBMERGED UNKNOWN ther Depth 1.87 ype 7 bridges only) MA HER NONE UNKNOWN ther Depth 3.94 RS SUPPORTS OTHER</td>	Outlet Armoring N ITO CASCADE CLOGGED/C Width 3 9 D. wa E. Abutment Height (T) REMOVED MITERED TO SLOPE OT Width 34.38 Ot YOULAPSED/SUBMERGED Width 34.38 Width 34.38 D. wa S NONE BAFFLES/WEI DT APPROPRIATE UNKNOWN BOULDER BEDROCK	ONE NOT EXTENSIVE EXTENSI OLLAPSED/SUBMERGED UNKNOWN ther Depth 1.87 ype 7 bridges only) MA HER NONE UNKNOWN ther Depth 3.94 RS SUPPORTS OTHER
INLEI OUILEI	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL Outlet Dimensions A. Width 3 1.96 B. Height G.96 C. Substrate/Water Outlet Drop to Water Surface NA . . Outlet Drop to Stream Bottom NA L. Structure Length (Overall length from inlet to outlet) Inlet Shape 1 2 3 4 5 6 . </td <td>Outlet Armoring N ITO CASCADE CLOGGED/C Width 3.96 p. was E. Abutment Height (T) REMOVED MITERED TO SLOPE OT YCOLLAPSED/SUBMERGED Width 34.38 p. was S NONE BAFFLES/WEI TAPPROPRIATE UNKNOWN BOULDER BEDROCK</td> <td>ONE NOT EXTENSIVE EXTENSI OLLAPSED/SUBMERGED UNKNOWN Iter Depth 1.87 WA HER NONE UNKNOWN Iter Depth 3.94 SUPPORTS OTHER</td>	Outlet Armoring N ITO CASCADE CLOGGED/C Width 3.96 p. was E. Abutment Height (T) REMOVED MITERED TO SLOPE OT YCOLLAPSED/SUBMERGED Width 34.38 p. was S NONE BAFFLES/WEI TAPPROPRIATE UNKNOWN BOULDER BEDROCK	ONE NOT EXTENSIVE EXTENSI OLLAPSED/SUBMERGED UNKNOWN Iter Depth 1.87 WA HER NONE UNKNOWN Iter Depth 3.94 SUPPORTS OTHER
CONDITIONS INLET OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL Outlet Dimensions A. Width 3 1.90 B. Height G.90 C. Substrate/Water Outlet Drop to Water Surface NA Outlet Drop to Stream Bottom NA L. Structure Length (Overall length from inlet to outlet) 17 .814 1 Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Inlet Type PROJECTING HEADWALL WINGWALLS HEADWALL & WINGWALLS Inlet DROP PERCHED CLOGGED/ Inlet Dimensions A. Width 34 38 B. Height 7 55 C. Substrate/Water Slope Confidence HIGH LOW Internal Structures Structure Substrate Matches Stream NONE </td <td>Outlet Armoring N ITO CASCADE CLOGGED/C Width 3.96 D.Wa E. Abutment Height (T REMOVED MITERED TO SLOPE OT VCOLLAPSED/SUBMERGED OT Width 34.38 D.Wa s NONE BAFFLES/WEI VT APPROPRIATE UNKNOWN BOULDER BEDROCK WN FREE FALL FENCING</td> <td>ONE NOT EXTENSIVE EXTENSI OLLAPSED/SUBMERGED UNKNOWN ther Depth 1.87 ype 7 bridges only) MA HER NONE UNKNOWN ther Depth 3.94 RS SUPPORTS OTHER</td>	Outlet Armoring N ITO CASCADE CLOGGED/C Width 3.96 D.Wa E. Abutment Height (T REMOVED MITERED TO SLOPE OT VCOLLAPSED/SUBMERGED OT Width 34.38 D.Wa s NONE BAFFLES/WEI VT APPROPRIATE UNKNOWN BOULDER BEDROCK WN FREE FALL FENCING	ONE NOT EXTENSIVE EXTENSI OLLAPSED/SUBMERGED UNKNOWN ther Depth 1.87 ype 7 bridges only) MA HER NONE UNKNOWN ther Depth 3.94 RS SUPPORTS OTHER
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CONDITIONS INLET OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL Outlet Dimensions A. Width 3 1.90 B. Height G.90 C. Substrate/Water Outlet Drop to Water Surface NA . Outlet Drop to Stream Bottom NA L. Structure Length (Overall length from inlet to outlet) Inlet Shape 1 2 3 4 5 6 7 FORD . . . Inlet Shape 1 2 3 4 5 6 7 FORD .<	Outlet Armoring N ITO CASCADE CLOGGED/C Width 3.96 p. was E. Abutment Height (T) REMOVED MITERED TO SLOPE OT YOULLAPSED/SUBMERGED Width 34.38 p. was S NONE BAFFLES/WEI OT APPROPRIATE UNKNOWN BOULDER BEDROCK WN FREE FALL FENCING SEVERE DRY	ONE NOT EXTENSIVE EXTENSI OLLAPSED/SUBMERGED UNKNOWN Iter Depth 1.87 WA HER NONE UNKNOWN Iter Depth 3.94 SUPPORTS OTHER
INLET OUTLET	RUCTURE 1 Structure Material METAL CONCRETE PLASTIC Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL Outlet Dimensions A. Width 3 1.90 B. Height G.90 C. Substrate/Water Outlet Drop to Water Surface NA . Outlet Drop to Stream Bottom NA L. Structure Length (Overall length from inlet to outlet) Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN . Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN Inlet Shape 1 2 3 <td>Outlet Armoring N ITO CASCADE CLOGGED/C Width 3.96 D.Wa E. Abutment Height (T REMOVED MITERED TO SLOPE OT Width 34.38 D.Wa VCOLLAPSED/SUBMERGED OT Width 34.38 D.Wa S NONE BAFFLES/WEI OT APPROPRIATE UNKNOWN BOULDER BEDROCK WN FREE FALL FENCING SEVERE DRY</td> <td>ONE NOT EXTENSIVE EXTENSIV OLLAPSED/SUBMERGED UNKNOWN Iter Depth 1.87 WA HER NONE UNKNOWN Iter Depth 3.94 SUPPORTS OTHER</td>	Outlet Armoring N ITO CASCADE CLOGGED/C Width 3.96 D.Wa E. Abutment Height (T REMOVED MITERED TO SLOPE OT Width 34.38 D.Wa VCOLLAPSED/SUBMERGED OT Width 34.38 D.Wa S NONE BAFFLES/WEI OT APPROPRIATE UNKNOWN BOULDER BEDROCK WN FREE FALL FENCING SEVERE DRY	ONE NOT EXTENSIVE EXTENSIV OLLAPSED/SUBMERGED UNKNOWN Iter Depth 1.87 WA HER NONE UNKNOWN Iter Depth 3.94 SUPPORTS OTHER

4	NAACC	Stream Crossing Survey	DATABASE ENTRY BY	ENTRY DATE
4	Crossing Code CL	ulvert 13	Local ID (Optional)	
DATA	Date Observed (00/00/0000)	8/7/20 Lead Observer	Local in (optional)	
	Town/County RUNI	numede Rda	Stream	
SIN	Road		PAVED UNPAVED	
CROSSING	GPS Coordinates (Decimal degre	2000000	-75.85	053 W Longitude
	Location Description	elow the Dam!		
	Crossing Type BRIDGE	CULVERT MULTIPLE CULVERT FORD NO CROSS		Number of Culverts/ Bridge Cells
	Photo IDs INLET_43	OUTLET 48 UPSTREAM 46	DOWNSTREAMQ	OTHER
	Flow Condition NO FLC	DW VTYPICAL-LOW MODERATE HIGH Crossing	Condition 💕 OK 🔳 POOR	NEW UNKNOWN
	Tidal Site 📰 YES 📰 NO	UNKNOWN Alignment FLOW-ALIGNED SKEWED	(>45") Road Fill Height (Top of	culvert to road surface; bridge = 0)
	Bankfull Width (Optional)	Confidence HIGH LOW/ESTIMATED Constri	ction SEVERE MODER/	TE SPANS ONLY BANKFULL/
	Tailwater Scour Pool 🗹 N	ONE SMALL LARGE SPA	NS FULL CHANNEL & BANKS	ACTIVE CHANNEL
	Crossing Comments			
ST	RUCTURE 1	Structure Material METAL CONCRETE PLASTIC		FIBERGLASS COMBINATION
	RUCTURE 1 Outlet Shape 1 2	3 4 5 6 7 FORD UNKNOWN REMOVED T STREAM GRADE FREE FALL CASCADE FREE FALL OI h 47.08 B. Height 6.89 C. Substrate/Wate	Outlet Armoring NO NTO CASCADE CLOGGED/CC r Width 33.83 D. Wa	DNE NOT EXTENSIVE EXTENS DLLAPSED/SUBMERGED UNKNOW ter Depth 4.27
	RUCTURE 1 Outlet Shape 1 2 Outlet Grade (Pick one)	3 4 5 √6 7 FORD UNKNOWN REMOVED T STREAM GRADE FREE FALL CASCADE FREE FALL O h 47.05 B. Height 6.89 C. Substrate/Wate e NA. Outlet Drop to Stream Bottom NA 10 2 2 1	Outlet Armoring NO NTO CASCADE CLOGGED/CC r Width 33.83 D. Wa	DNE NOT EXTENSIVE EXTENS DLLAPSED/SUBMERGED UNKNOW ter Depth 4.27
OUTLET	RUCTURE 1 Outlet Shape 1 2 Outlet Grade (Pick one) A Outlet Dimensions A. Widt Outlet Drop to Water Surfac	3 4 5 √6 7 FORD UNKNOWN REMOVED T STREAM GRADE FREE FALL CASCADE FREE FALL O h 47.05 B. Height 6.89 C. Substrate/Wate e NA. Outlet Drop to Stream Bottom NA 10 2 2 1	Outlet Armoring No NTO CASCADE CLOGGED/CC r Width 33.83 D. Wa E. Abutment Height (Ty	DNE NOT EXTENSIVE EXTENS DLLAPSED/SUBMERGED UNKNOW ter Depth 4.27
OUTLET	RUCTURE 1 Outlet Shape 1 2 Outlet Grade (Pick one) A Outlet Dimensions A. Widt Outlet Drop to Water Surfac L. Structure Length (Overall le Inlet Shape 1 2	3 4 5 6 7 FORD UNKNOWN REMOVED T STREAM GRADE FREE FALL CASCADE FREE FALL OL h 47.08 B. Height 6.89 C. Substrate/Wate e NA. Outlet Drop to Stream Bottom NA ngth from inlet to outlet) 18.37	Outlet Armoring NO NTO CASCADE CLOGGED/CO r Width 33.83 D. Wait E. Abutment Height (Ty REMOVED	DNE NOT EXTENSIVE EXTENS DLLAPSED/SUBMERGED UNKNOW ter Depth 4.27 pe 7 bridges only. NA
OUTLET	RUCTURE 1 Outlet Shape 1 2 Outlet Grade (Pick one) A Outlet Dimensions A. Widt Outlet Drop to Water Surfac L. Structure Length (Overall le Inlet Shape 1 2 Inlet Type PROJECTING	3 4 5 6 7 FORD UNKNOWN REMOVED IT STREAM GRADE FREE FALL CASCADE FREE FALL OL h 41,05 B. Height 6 .89 c. Substrate/Wate e NA Outlet Drop to Stream Bottom NA ngth from inlet to outlet) 18.37 3 4 5 6 7 FORD UNKNOWN HEADWALL WINGWALLS HEADWALL & WINGWALLS HEADWALL & WINGWALLS TSTREAM GRADE INLET DROP PERCHED CLOGGED	Outlet Armoring NO NTO CASCADE CLOGGED/CC r Width 33.83 D. Wa E. Abutment Height (Ty REMOVED MITERED TO SLOPE OTIL /COLLAPSED/SUBMERGED	DNE NOT EXTENSIVE EXTENS DLLAPSED/SUBMERGED UNKNOW ter Depth 4.27 pe 7 bridges only. NA HER NONE
OUTLET	RUCTURE 1 Outlet Shape 1 2 Outlet Grade (Pick one) A Outlet Dimensions A. Widt Outlet Drop to Water Surfac L. Structure Length (Overall le Inlet Shape 1 2 Inlet Type PROJECTING Inlet Grade (Pick one) A	3 4 5 6 7 FORD UNKNOWN REMOVED T STREAM GRADE FREE FALL CASCADE FREE FALL OL h 47.08 B. Height 6 89 c. Substrate/Wate e NA Outlet Drop to Stream Bottom NA ngth from inlet to outlet) 18.37 3 4 5 6 7 FORD UNKNOWN HEADWALL WINGWALLS HEADWALL & WINGWALLS It ADWALL & WINGWALLS T STREAM GRADE INLET DROP PERCHED CLOGGED h 45.28 B. Height 99 c. Substrate/Wate	Outlet Armoring NO NTO CASCADE CLOGGED/CC r Width 33.83 D. Wa E. Abutment Height (Ty REMOVED MITERED TO SLOPE OTIL /COLLAPSED/SUBMERGED	DNE NOT EXTENSIVE EXTENS DLLAPSED/SUBMERGED UNKNOW Arer Depth 4.27 pe 7 bridges only) NA HER NONE JNKNOWN ter Depth 2.98
INLET OUTLET	RUCTURE 1 Outlet Shape 1 2 Outlet Grade (Pick one) A Outlet Dimensions A. Widt Outlet Drop to Water Surfac L. Structure Length (Overall lee Inlet Shape 1 2 Inlet Type PROJECTING Inlet Grade (Pick one) A. Widt Slope % (Optiona)	3 4 5 6 7 FORD UNKNOWN REMOVED IT STREAM GRADE FREE FALL CASCADE FREE FALL OLD CASCADE FREE FALL OLD h 4100 B. Height G. 89 C. Substrate/Wate MA Outlet Drop to Stream Bottom NA ngth from inlet to outlet) 18.37 3 4 5 6 7 FORD UNKNOWN HEADWALL WINGWALLS HEADWALL & WINGWALLS T STREAM GRADE INLET DROP PERCHED CLOGGED h 45.28 B. Height G. 89 c. Substrate/Wate	Outlet Armoring NO NTO CASCADE CLOGGED/CO r Width 33.83 D. Wait E. Abutment Height (Ty REMOVED MITERED TO SLOPE OTIL /COLLAPSED/SUBMERGED Width 41.57 width 41.57 NONE BAFFLES/WEIF	DNE NOT EXTENSIVE EXTENS DLLAPSED/SUBMERGED UNKNOW ter Depth 4.27 pe 7 bridges only NA HER NONE JNKNOWN ter Depth 2.98 IS SUPPORTS OTHER
INLET OUTLET	RUCTURE 1 Outlet Shape 1 2 Outlet Grade (Pick one) A Outlet Dimensions A. Widt Outlet Drop to Water Surfac L. Structure Length (overall le Inlet Shape 1 2 Inlet Type PROJECTING Inlet Grade (Pick one) A Inlet Dimensions A. Widt Slope % (optional) Structure Substrate Matcher	3 4 5 6 7 FORD UNKNOWN REMOVED T STREAM GRADE FREE FALL CASCADE FREE FALL OL h 4100 B. Height 6.89 C. Substrate/Wate e NA Outlet Drop to Stream Bottom NA ngth from inlet to outlet) 18.37 3 4 5 6 7 FORD UNKNOWN HEADWALL WINGWALLS HEADWALL & WINGWALLS HEADWALL & WINGWALLS TSTREAM GRADE INLET DROP PERCHED CLOGGED h 45.28 B. Height 6.99 c. Substrate/Wate Slope Confidence HIGH LOW Internal Structure	Outlet Armoring NO NTO CASCADE CLOGGED/CO r Width 33.83 D. Wait E. Abutment Height (Ty REMOVED MITERED TO SLOPE OTLAPSED/SUBMERGED r Width 41.53 D. Wait With MITERED TO SLOPE OTLAPSED/SUBMERGED Width MITERED TO SLOPE MITERED TO SLOPE	DNE NOT EXTENSIVE EXTENS DLLAPSED/SUBMERGED UNKNOW ter Depth 4.27 NA HER NONE UNKNOWN ter Depth 2.96 NS SUPPORTS OTHER
INLET OUTLET	RUCTURE 1 Outlet Shape 1 2 Outlet Grade (Pick one) A Outlet Dimensions A. Widt Outlet Drop to Water Surfac L. Structure Length (Overall le Inlet Shape 1 2 Inlet Type PROJECTING Inlet Grade (Pick one) A Inlet Dimensions A. Widt Slope % (Optional) Structure Substrate Matcher Structure Substrate Type (Pice	3 4 5 6 7 FORD UNKNOWN REMOVED IT STREAM GRADE FREE FALL CASCADE FREE FALL OL h 4100 B. Height 6.89 C. Substrate/Wate e NA Outlet Drop to Stream Bottom NA ngth from inlet to outlet) 18.37 3 4 5 6 7 FORD UNKNOWN HEADWALL WINGWALLS HEADWALL & WINGWALLS HEADWALL & WINGWALLS TSTREAM GRADE INLET DROP PERCHED CLOGGED h 45.28 B. Height 9 C. Substrate/Wate Slope Confidence HIGH LOW Internal Structure s Stream NONE COMPARABLE CONTRASTING NO	Outlet Armoring NO NTO CASCADE CLOGGED/CO r Width 33.83 D. Wait E. Abutment Height (Ty REMOVED MITERED TO SLOPE OTIL YCOLLAPSED/SUBMERGED Width 41.57 D. Wait BAFFLES/WEIF DT APPROPRIATE UNKNOWN BOULDER	DNE NOT EXTENSIVE EXTENS DLLAPSED/SUBMERGED UNKNOW ter Depth 4.27 NA HER NONE UNKNOWN ter Depth 2.96 NS SUPPORTS OTHER
CONDITIONS INLET OUTLET	RUCTURE 1 Outlet Shape 1 2 Outlet Grade (Pick one) A Outlet Dimensions A. Widt Outlet Drop to Water Surfac L. Structure Length (overall le Inlet Shape 1 2 Inlet Type PROJECTING Inlet Grade (Pick one) A Inlet Dimensions A. Widt Slope % (optional) Structure Substrate Matcher Structure Substrate Type (Pic	3 4 5 6 7 FORD UNKNOWN REMOVED T STREAM GRADE FREE FALL CASCADE FREE FALL OL CASCADE FREE FALL OL h 417.08 B. Height 6 .89 C. Substrate/Wate e NA Outlet Drop to Stream Bottom NA ngth from inlet to outlet) 18.37 3 4 5 6 7 FORD UNKNOWN HEADWALL WINGWALLS HEADWALL & WINGWALLS T STREAM GRADE INLET DROP PERCHED CLOGGED h 45.28 B. Height 0.99 C. Substrate/Wate Slope Confidence HIGH LOW Internal Structure s Stream NONE SLIT SAND GRAVEL COBBLE	Outlet Armoring NO NTO CASCADE CLOGGED/CO r Width 33.83 D. Wait E. Abutment Height (Ty REMOVED MITERED TO SLOPE MITERED TO SLOPE OCULLAPSED/SUBMERGED Width 41.57 D. Wait INONE BAFFLES/WEIF ONNE BAFFLES/WEIF DI APPROPRIATE UNKNOWN BOULDER BEDROCK	DNE NOT EXTENSIVE EXTENSI DLLAPSED/SUBMERGED UNKNOW ter Depth 4.27 Pridges only NA HER NONE UNKNOWN ter Depth 2.96 NS SUPPORTS OTHER
CONDITIONS INLET OUTLET	RUCTURE 1 Outlet Shape 1 2 Outlet Grade (Pick one) A Outlet Dimensions A. Widt Outlet Drop to Water Surfac L. Structure Length (Overall le Inlet Shape 1 2 Inlet Shape 1 2 Inlet Grade (Pick one) A Inlet Dimensions A. Widt Slope % (Optiona) Structure Substrate Matcher Structure Substrate Matcher Structure Substrate Type (Pic Structure Substrate Coverage Physical Barriers (Pick all that a	3 4 5 6 7 FORD UNKNOWN REMOVED T STREAM GRADE FREE FALL CASCADE FREE FALL OL h 4100 B. Height 6.89 C. Substrate/Wate e NA 0utlet Drop to Stream Bottom NA ngth from inlet to outlet) 18.37	Outlet Armoring NG NTO CASCADE CLOGGED/CG Width 33.83 D. Wait E. Abutment Height (Ty REMOVED MITERED TO SLOPE MITERED TO SLOPE OTH VCOLLAPSED/SUBMERGED NONE BAFFLES/WEIF DI APPROPRIATE UNKNOWN BOULDER BEDROCK WWN	DNE NOT EXTENSIVE EXTENSI DLLAPSED/SUBMERGED UNKNOW ter Depth 4.27 Pridges only NA HER NONE UNKNOWN ter Depth 2.96 NS SUPPORTS OTHER
CONDITIONS INLET OUTLET	RUCTURE 1 Outlet Shape 1 2 Outlet Grade (Pick one) A Outlet Dimensions A. Widt Outlet Drop to Water Surfac L. Structure Length (Overall le Inlet Shape 1 2 Inlet Shape 1 2 Inlet Grade (Pick one) A Inlet Dimensions A. Widt Slope % (Optiona) Structure Substrate Matcher Structure Substrate Matcher Structure Substrate Type (Pic Structure Substrate Coverage Physical Barriers (Pick all that a	3 4 5 6 7 FORD UNKNOWN REMOVED T STREAM GRADE FREE FALL CASCADE FREE FALL OLD C. Substrate/Wate a 4 7 B. Height G. S9 C. Substrate/Wate a MA Outlet Drop to Stream Bottom NA ngth from inlet to outlet) 18.37 3 4 5 6 7 FORD UNKNOWN HEADWALL WINGWALLS HEADWALL & WINGWALLS HEADWALL & WINGWALLS TSTREAM GRADE INLET DROP PERCHED CLOGGED h 45.28 B. Height 9 99 C. Substrate/Wate Slope Confidence HIGH LOW Internal Structure s Stream NONE SILT SAND GRAVEL COBBLE is one NONE SOM 75% 100%	Outlet Armoring NO NTO CASCADE CLOGGED/CO r Width 33.83 D. Wait E. Abutment Height (Ty REMOVED MITERED TO SLOPE OTILAPSED/SUBMERGED YCOLLAPSED/SUBMERGED Width UNNE BAFFLES/WEIF ST APPROPRIATE UNKNOWN BOULDER BEDROCK WN FREE FALL FENCING SEVERE	DNE NOT EXTENSIVE EXTENSI DLLAPSED/SUBMERGED UNKNOW ter Depth 4.27 Pridges only NA HER NONE UNKNOWN ter Depth 2.96 NS SUPPORTS OTHER
INLET OUTLET	RUCTURE 1 Outlet Shape 1 2 Outlet Grade (Pick one) A. Widt Outlet Dimensions A. Widt Outlet Drop to Water Surfac L. Structure Length (Overall le Inlet Shape 1 2 Inlet Type PROJECTING Inlet Grade (Pick one) A. Widt Slope % (Optional) Structure Substrate Matcher Structure Substrate Type (Pick Structure Substrate Coverage Physical Barriers (Pick all that a Severity (Choose carefully based	3 4 5 6 7 FORD UNKNOWN REMOVED T STREAM GRADE FREE FALL CASCADE FREE FALL OL CASCADE FREE FALL OL h 4100 B. Height 6 89 C. Substrate/Wate e NA Outlet Drop to Stream Bottom NA ngth from inlet to outlet) 18.37 3 4 5 6 7 FORD UNKNOWN HEADWALL WINGWALLS HEADWALL & WINGWALLS HEADWALL & WINGWALLS HEADWALL & WINGWALLS T STREAM GRADE INLET DROP PERCHED CLOGGED h 45.28 B. Height 99 C. Substrate/Wate Slope Confidence HIGH LOW Internal Structure s Stream NONE SILT SAND GRAVEL COBBLE re NONE SILT SAND GRAVEL COBBLE re NONE SILT SAND GRAVEL COBBLE re NONE SO% 75% 100% UNKNOW on barrier type(s) above) NONE	Outlet Armoring NO NTO CASCADE CLOGGED/CO r Width 33.83 D. Wait E. Abutment Height (Ty REMOVED MITERED TO SLOPE MITERED TO SLOPE OCULLAPSED/SUBMERGED VIOLLAPSED/SUBMERGED VIOLLAPSED/SUBMERGED Width MONE BAFFLES/WEIF UNKNOWN BOULDER BEDROCK WWN FREE FALL FENCING SEVERE DRY	DNE NOT EXTENSIVE EXTENSI DLLAPSED/SUBMERGED UNKNOW ter Depth 4.27 Pridges only NA HER NONE UNKNOWN ter Depth 2.96 NS SUPPORTS OTHER

Appendix B: Master Data Table Shows every site that was sampled and all of the statistics ran at every site. * denotes no data available. **denotes that there was only one palace to sample for macroinvertebrates at the culvert site. *** These sites did not have culverts to sample or the culvert was not sampled. **** Fords cannot be scored using the NAACC scoring system.

SITE SCOTE	nesciptor	Stream Unentation Latitude		rongimoe		rown Irout Adundance D	TOOK I FOUL ADUITION I	LISI STATITION D'AVERSILY D'OWN TOUL ADURATIVE DIOUX TOUL ADURATIVE MACTOTINAETERIALE STATITION SELT ADURATIVE MACTOTINAETERIALE LAVE EVENTERIA	VELT AUUIUMICE	ומרוחוואבו ובחומוב ומעמ באבווובאא
		Upstream	39.8853321	39.8853321 -75.8957977	7 1.508	1	0			
1 ****	 Insignificant Barrier 	Downstream	39.8859037	39.8859037 -75.8946708	8 1.602	1	0	1.990**	0.706**	0.735**
		Upstream			*	*	*		*	
2 ****	* Minor Barrier	Downstream	39.8851	-75.8954	*	*	*		*	
0.94	I Insignificant Barrier		39.8901	-75.8785	*	*	*		*	
					*	*	*		*	
0.78	8 Minor Barrier	Upstream	39.8909197	39.8909197 -75.8622265	0.000	0	* 0		*	
		Downstream	39.891797	-75.861957	0.000	0	* 0		*	
0.72	Minor Barrier	Upstream	39.895866	-75.859049	9 0.754	1	æ	0.767	0.938	0.283
		Downstream	39.896074	-75.858612	1.030	1	c	0.752	0.765	0.278
0.62	Minor Barrier	Upstream	39.896074	-75.858612	1.030	1	œ	0.752	0.765	0.278
		Downstream	39.896744	-75.857543	3 1.077	1	8	1.853	0.677	0.684
0.92	0.92 Insignificant Barrier		39.8992	-75.8554	*	*	*	Ţ	*	
		Downstream			*	*	*		*	
0.88	8 Insignificant Barrier		39.901979	-75.85087	7 1.355	4	0	1.192139401	0.245614035	-0.350
		Downstream	39.9026709	39.9026709 -75.8501009	9 1.307	-	0	0.891855888	0.5555555556	0.329
0.97	Insignificant Barrier		39.8895	-75.8856	*	*	*	v	*	
		Downstream			*	*	*	Ţ	*	
0.97	0.97 Insignificant Barrier	Upstream	39.8944	-75.8747	*	*	*		*	
10		Downstream			*	*	*	ŭ	*	
0.91	L Insignificant Barrier	Upstream	39.8967	-75.8744	*	*	*		*	
11		Downstream			*	*	*	Ţ	*	
0.93	0.93 Insignificant Barrier		39.8965	-75.873	*	*	*		*	
		Downstream			*	*	*	×	*	
1.00) No Barrier	Upstream	39.02817	-75.850404 *	*	*	*		*	
		Downstream			*	*	*	×	*	
14 ***	*	*	39.9027	-75.850134 *	* * *	*		1.658	0.741	0.612
15 ***	*	*	39.90326	-75.86803 *	*	*		1.253	0.832	0.463
16 ***	*	*	20000	-75 8715/0 *	*	*		1 667	JUL U	0 E 70