Baseline Assessment – Stream Attributes

REVISIT

*ADDITIONAL FIELD VISITS WERE COMPLETED ON 3-24-2022. LIMITED ACCESS DUE TO EXISTING SPAN; HOWEVER, ADDITIONAL DATA COULD BE COLLECTED.

Reach S-C40 (Temporary Access Road) Perennial Spread F Monroe County, West Virginia

| Data | Included |
|--|--|
| Photos | √* |
| SWVM Form | √* |
| FCI Calculator and HGM Form | N/A – PERENNIAL (NOT SHADEABLE) |
| RBP Physical Characteristics Form | √* |
| Water Quality Data | √* |
| RBP Habitat Form | √* |
| RBP Benthic Form | √* |
| Benthic Identification Sheet | N/A – NO HABITAT/OUTSIDE WV COLLECTION |
| | SEASON |
| Wolman Pebble Count | √* |
| Reference Reach Software Pebble Count Data | √* |
| Longitudinal Profile and Cross Sections | N/A – LIMITED ACCESS/EXISTING SPAN |

Spread F Stream S-C40 (Temporary Access Road) Monroe County



Photo Type: US Edge of TMB, Looking Down Location, Orientation, Photographer Initials: Upstream Edge of Bridge, Looking Down View, AK/TF (8/18/2021)



Photo Type: US Edge of TMB, US View Location, Orientation, Photographer Initials: Upstream Edge of Bridge, Upstream View, AK/TF (8/18/2021)

Spread F Stream S-C40 (Temporary Access Road) Monroe County



Photo Type: DS Edge of TMB, Looking Downstream Location, Orientation, Photographer Initials: Downstream Edge of Bridge, Looking Downstream, AK/TF (8/18/2021)



Photo Type: DS Edge of TMB, DS View Location, Orientation, Photographer Initials: Downstream Edge of Bridge, Downstream View, AK/TF (8/18/2021)



Spread F Stream S-C40 (Temporary Access Road) Monroe County

Photo Type: View Going Down AR, N

Location, Orientation, Photographer Initials: View Going Down Access Road, Facing North, AK/TF (8/18/2021)



Photo Type: View Going Up AR, S Location, Orientation, Photographer Initials: View Going Up Access Road, Facing South, AK/TF (8/18/2021)

"Q:\Charleston\2021 Projects\21-0244- MVP- STREAM AND WETLAND CONDITIONS ASSESSMENT AND SURVEY PLAN\002 - Pre-Crossing Monitoring\Spread F\S-C40"

Spread F Stream S-C40 (Temporary Access Road) Monroe County



Photo Type: DS, US View Location, Orientation, Photographer Initials: Downstream, Upstream View, BB/ABK (3/24/2022)



Photo Type: DS, DS View Location, Orientation, Photographer Initials: Downstream, Downstream View, BB/ABK (3/24/2022)



Spread F Stream S-C40 (Temporary Access Road) Monroe County

Photo Type: View Up AR, S Location, Orientation, Photographer Initials: View Up Access Road, South, BB/ABK (3/24/2022)



Photo Type: View Down AR, N Location, Orientation, Photographer Initials: View Down Access Road, North, BB/ABK (3/24/2022)

Spread F Stream S-C40 (Temporary Access Road) Monroe County



Photo Type: US, US View Location, Orientation, Photographer Initials: Upstream, Upstream View, BB/ABK (3/24/2022)



Photo Type: US, DS View Location, Orientation, Photographer Initials: Upstream, Downstream View, BB/ABK (3/24/2022)

"Q:\Charleston\2021 Projects\21-0244- MVP- STREAM AND WETLAND CONDITIONS ASSESSMENT AND SURVEY PLAN\002 - Pre-Crossing Monitoring\Spread F\S-C40\Photos - Spread F - S-C40 - March 24, 2022 (21-0244-002).docx"

West Virginia Stream and Wetland Valuation Metric (SWVM) Version 2.1, September 2017

| USACE FILE NO./ Project Name: (v2.1, Sept 2015) | | MOUNTAIN V | ALLEY PIPELINE | | COORDINATES: cimal Degrees) | Lat. | 37.425372 | Lon. | -8 | 80.693417 | WEATHER: | SUNNY; RE | CENT I 24 HI |
|---|---------------------|------------------------|--|--------------------|--------------------------------|------|---|-------------------------------------|-------------------|------------|--|--------------------|-----------------|
| IMPACT STREAM/SITE ID (watershed size {acreage}, | | | S-C40 (UNT I | PAINTER RUN | 1) | | MITIGATION STREAM CL (watershed size {a | ASS./SITE ID acreage}, unaltered | | SCRIPTION: | | | |
| STREAM IMPACT LENGTH: | 77 | FORM OF MITIGATION: | RESTORATION (Levels I-III) | | OORDINATES: cimal Degrees) | Lat. | | Lon. | | | PRECIPITATION PAST 48 HRS: | | |
| Column No. 1- Impact Existing | g Condition (Deb | pit) | Column No. 2- Mitigation Existing C | ondition - Base | eline (Credit) | | Column No. 3- Mitigati Post Com | ion Projected a pletion (Credit) | | | Column No. 4- Mitigation Pro Post Completion | | ears |
| Stream Classification: | Pere | nnial | Stream Classification: | | | | Stream Classification: | | 0 | | Stream Classification: | | 0 |
| Percent Stream Channel Slo | ope | | Percent Stream Channel Slo | pe | | | Percent Stream Chan | nel Slope | | 0 | Percent Stream Channel S | оре | |
| HGM Score (attach da | ata forms): | | HGM Score (attach | data forms): | | | HGM Score (a | ttach data for | ms): | | HGM Score (attach o | ata forms): | |
| | | Average | | | Average | | | | A | verage | | | Av |
| Hydrology | | | Hydrology | | | | Hydrology | | | | Hydrology | | |
| Biogeochemical Cycling | | 0 | Biogeochemical Cycling | | 0 | | Biogeochemical Cycling | | | 0 | Biogeochemical Cycling | | |
| Habitat | | | Habitat | | | | Habitat | | | | Habitat | | |
| PART I - Physical, Chemical and | Biological Indic | ators | PART I - Physical, Chemical an | d Biological In | dicators | | PART I - Physical, Chem | ical and Biolog | gical Indicators | ; | PART I - Physical, Chemical and | Biological Ind | icators |
| | Points Scale Range | Site Score | | Points Scale Range | Site Score | | | Points Scale | e Range : | Site Score | | Points Scale Range | e S |
| PHYSICAL INDICATOR (Applies to all streams | classifications) | | PHYSICAL INDICATOR (Applies to all streams | classifications) | | | PHYSICAL INDICATOR (Applies to all s | streams classifica | tions) | | PHYSICAL INDICATOR (Applies to all stream | s classifications) | |
| USEPA RBP (High Gradient Data Sheet) | | | USEPA RBP (Low Gradient Data Sheet) | | | | USEPA RBP (High Gradient Data Sh | | | | USEPA RBP (High Gradient Data Sheet) | | |
| 1. Epifaunal Substrate/Available Cover | 0-20 | 15 | 1. Epifaunal Substrate/Available Cover | 0-20 | | | 1. Epifaunal Substrate/Available Cover | | | | 1. Epifaunal Substrate/Available Cover | 0-20 | |
| 2. Embeddedness | 0-20 | 12 | 2. Pool Substrate Characterization | 0-20 | | | 2. Embeddedness | 0-20 | | | 2. Embeddedness | 0-20 | |
| 3. Velocity/ Depth Regime | 0-20 | 9 | 3. Pool Variability | 0-20 | | | 3. Velocity/ Depth Regime | 0-20 | | | 3. Velocity/ Depth Regime | 0-20 | |
| 4. Sediment Deposition 5. Channel Flow Status | 0-20 | <u>14</u> 16 | 4. Sediment Deposition 5. Channel Flow Status | 0-20 | | | 4. Sediment Deposition 5. Channel Flow Status | 0-20 | | | 4. Sediment Deposition 5. Channel Flow Status | 0-20 | |
| 6. Channel Alteration | 0-20 0-1 | 16 | 6. Channel Alteration | 0-20 0-1 | | | 6. Channel Alteration | 0-20 | 0-1 | | 6. Channel Alteration | 0-20 0-1 | |
| Channel Alteration Frequency of Riffles (or bends) | 0-20 | 14 | 7. Channel Sinuosity | | | | Channel Alteration Frequency of Riffles (or bends) | 0-20 | - | | 7. Frequency of Riffles (or bends) | 0-20 | |
| 8. Bank Stability (LB & RB) | 0-20 | 12 | 8. Bank Stability (LB & RB) | 0-20 | | | 8. Bank Stability (LB & RB) | 0-20 | | | 8. Bank Stability (LB & RB) | 0-20 | |
| 9. Vegetative Protection (LB & RB) | 0-20 | 16 | 9. Vegetative Protection (LB & RB) | 0-20 | | | 9. Vegetative Protection (LB & RB) | 0-20 | | | 9. Vegetative Protection (LB & RB) | 0-20 | |
| 10. Riparian Vegetative Zone Width (LB & RB) | 0-20 | 8 | 10. Riparian Vegetative Zone Width (LB & RB) | 0-20 | | | 10. Riparian Vegetative Zone Width (LB & | | | | 10. Riparian Vegetative Zone Width (LB & RB) | 0-20 | |
| Total RBP Score | Suboptimal | 130 | Total RBP Score | Poor | 0 | | Total RBP Score | , | oor | 0 | Total RBP Score | Poor | |
| Sub-Total | | 0.65 | Sub-Total | | Ō | | Sub-Total | | | 0 | Sub-Total | - | |
| CHEMICAL INDICATOR (Applies to Intermitter | nt and Perennial St | reams) | CHEMICAL INDICATOR (Applies to Intermitten | t and Perennial S | treams) | | CHEMICAL INDICATOR (Applies to Inte | ermittent and Per | ennial Streams) | | CHEMICAL INDICATOR (Applies to Intermitte | ent and Perennial | Streams) |
| WVDEP Water Quality Indicators (General) |) | | WVDEP Water Quality Indicators (General) | | | | WVDEP Water Quality Indicators (Ge | eneral) | | | WVDEP Water Quality Indicators (Genera | d) | |
| Specific Conductivity | | | Specific Conductivity | | 0 | | Specific Conductivity | | | | Specific Conductivity | | |
| | 0-90 | 283.4 | | 0-90 | | | | 0-90 | | | - | 0-90 | |
| 200-299 - 80 points | 0-00 | 203.4 | | 0-30 | | | | 0-30 | | | | 0-50 | |
| рН | | | pH | | 0 | | рН | | | | рН | | |
| | 0-80 | 7.9 | | 5-90 0-1 | | | | 5-90 | 0-1 | | | 5-90 0-1 | |
| 6.0-8.0 = 80 points | | | P.0 | | | | 50 | | | | PO | | |
| DO | 1 | | DO | | | | DO | | | | DO | | |
| >5.0 = 30 points | 10-30 | 11.9 | | 10-30 | | | | 10-30 | | | | 10-30 | |
| Sub-Total | 1 1 | 0.95 | Sub-Total | | 0 | | Sub-Total | | | 0 | Sub-Total | | |
| BIOLOGICAL INDICATOR (Applies to Intermit | tent and Perennial | Streams) | BIOLOGICAL INDICATOR (Applies to Intermit | ent and Perennial | l Streams) | | BIOLOGICAL INDICATOR (Applies to | Intermittent and | d Perennial Strea | ims) | BIOLOGICAL INDICATOR (Applies to Inter | mittent and Perer | nnial Str |
| WV Stream Condition Index (WVSCI) | | | WV Stream Condition Index (WVSCI) | | | | WV Stream Condition Index (WVSCI |) | | | WV Stream Condition Index (WVSCI) | | |
| 0 | 0-100 0-1 | | | 0-100 0-1 | | | | 0-100 | 0-1 | | | 0-100 0-1 | |
| Sub-Total | | 0 | Sub-Total | | 0 | | Sub-Total | 1 | | 0 | Sub-Total | <u> </u> | |
| | | | u | | - | | <u>u</u> | | | | | | _ |
| | | | | | | | | | | | | | |

| PART II - Index and Unit Score | | | | | |
|--------------------------------|-------------|------------|--|--|--|
| Index | Linear Feet | Unit Score | | | |
| 0.800 | 77 | 61.6 | | | |

| PART II - Index and Unit Score | | | | | | |
|--------------------------------|-------------|------------|--|--|--|--|
| Index | Linear Feet | Unit Score | | | | |
| 0 | 0 | 0 | | | | |

| PART II - Index and Unit Score | | | | |
|--------------------------------|-------------|------------|--|--|
| Index | Linear Feet | Unit Score | | |
| 0 | 0 | 0 | | |

| | | • |
|-----------------------|-------------|------------|
| | | |
| PART II - Index and U | nit Score | |
| | | |
| Index | Linear Feet | Unit Score |
| | | |
| 0 | 0 | 0 |
| | | |

| RAIN (PREVIOUS | DATE: | | | |
|----------------|---|---------------|-----------|-------------|
| HRS) | DAIL. | 3/24/2022 | |)22 |
| | Comments: | | | |
| | Mitigation Length: | | | |
| | Column No. 5- Mitigation Projecte | d at Matu | rity (Cr | edit) |
| | Stream Classification: | | 0 | |
| 0 | Percent Stream Channel Slo | pe | | 0 |
| | HGM Score (attach da | ta forms |): | |
| Average | | | | Average |
| | Hydrology | | | |
| 0 | Biogeochemical Cycling | | | 0 |
| - | Habitat | | | • |
| S | PART I - Physical, Chemical and I | Biologica | l Indica | tors |
| Site Score | | Points Scale | Range | Site Score |
| | PHYSICAL INDICATOR (Applies to all streams | classificatio | ons) | |
| | USEPA RBP (High Gradient Data Sheet) | | | |
| | Epifaunal Substrate/Available Cover | 0-20 | | |
| | 2. Embeddedness | 0-20 | | |
| | 3. Velocity/ Depth Regime | 0-20 | | |
| | 4. Sediment Deposition | 0-20 | | |
| | 5. Channel Flow Status | 0-20 | 0-1 | |
| | 6. Channel Alteration | 0-20 | | |
| | 7. Frequency of Riffles (or bends) | 0-20 | | |
| | 8. Bank Stability (LB & RB) | 0-20 | | |
| | 9. Vegetative Protection (LB & RB) | 0-20 | | |
| 0 | 10. Riparian Vegetative Zone Width (LB & RB) Total RBP Score | 0-20 | | 0 |
| 0 | Sub-Total | Poo | או | 0 |
| s) | CHEMICAL INDICATOR (Applies to Intermitten | and Perer | nial Stre | |
| | WVDEP Water Quality Indicators (General) | | 1 | |
| | Specific Conductivity | | | |
| | -11 | 0-90 | | |
| | рН | 5-90 | 0-1 | |
| | DO | | | |
| | | 10-30 | | |
| 0 | Sub-Total | | | 0 |
| treams) | BIOLOGICAL INDICATOR (Applies to Intermi | ttent and I | Perennia | Il Streams) |
| | WV Stream Condition Index (WVSCI) | | | |
| | | | | |
| 0 | Sub-Total | 0-100 | 0-1 | 0 |

| PART II - Index and Unit Score | | | | | |
|--------------------------------|-------------|------------|--|--|--|
| Index | Linear Feet | Unit Score | | | |
| 0 | 0 | 0 | | | |

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (FRONT)

| STREAM NAME UNT to Painter Run | LOCATION | | | |
|---|---|--|--|--|
| STATION #S-C40 RIVERMILE | STREAM CLASS Perennial | | | |
| LAT <u>37.425372</u> LONG <u>-80.693417</u> | COUNTY Monroe | | | |
| STORET # | AGENCYPOTESTA | | | |
| INVESTIGATORS ABK/BB | | | | |
| FORM COMPLETED BY ABK | DATE 3-24-2022 TIME 900 Baseline Assessment Revisit | | | |

| WEATHER CONDITIONS | Now Past 24 Has there been a heavy rain in the last 7 days? hours Yes V No |
|----------------------------|---|
| | storm (heavy rain) Air Temperature 42 °F ° C % % % % % % % % % % % % % % % % % % % % % % % % % % % % % % % % % % |
| SITE LOCATION/MAP | Draw a map of the site and indicate the areas sampled (or attach a photograph) |
| | AR W V V V 4Ct Timber V V V V V V V V V V V V V V |
| | AR HAR |
| STREAM CHARACTERIZATION | Stream Subsystem Stream Type |
| | Stream Origin Glacial Non-glacial montane Swamp and bog Catchment Areakm ² Mixture of origins |

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (BACK)

| WATERSHED FEATURES RIPARIAN VEGETATION (18 meter buffer) | Predominant Surrounding Landuse Forest Commercial Field/Pasture Industrial Agricultural Other Residential Industrial Indicate the dominant type and record the dominant species present | Local Watershed NPS Pollution □No evidence ☑ Some potential sources □Obvious sources Local Watershed Erosion ☑None □Moderate □Herbaccous |
|--|--|---|
| INSTREAM FEATURES | Estimated Reach Length 14 ft m Estimated Stream Width 2.5 ft m Sampling Reach Area 35 ft^2 m² Area in km² (m²x1000) km² Estimated Stream Depth 0.10 ft m Surface Velocity (at thalweg) 0.41 ft/sec m/sec | Canopy Cover □Partly shaded □Shaded □Partly open □Partly shaded □Shaded High Water Mark m Proportion of Reach Represented by Stream Morphology Types Riffle ³⁵ % Pool ⁵ % Run ⁴⁰ % Channelized □Yes Dam Present □Yes |
| LARGE WOODY DEBRIS AQUATIC VEGETATION | LWDm² Density of LWDm²/km² (LWD/ res Indicate the dominant type and record the dominant type and record the dominant floating Algae Boninant species present N/A | inant species present ☐Rooted floating ☐Free floating |
| WATER QUALITY | Portion of the reach with aquatic vegetation Temperature 10.1 ° C Specific Conductance 283.4 us/cm Dissolved Oxygen 11.9 mg/L pH 7.90 SU Turbidity 8.40 NTU WQ Instrument Used YSI | % Water Odors Petroleum Fishy Water Surface Oils Slick Slick Slick Other UNone Clear Slightly turbid Opaque Stained UNother UNot |
| SEDIMENT/ SUBSTRATE | Odors Petroleum ○Normal Sewage ○Chemical Anaerobic ○Other None Oils Profuse | Deposits Sludge Sawdust Paper fiber Sand Relict shells Other |
| INORGANIC SUI | BSTRATE COMPONENTS C | DRGANIC SUBSTRATE COMPONENTS |

| INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) | | | ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%) | | | |
|---|----------------------|------------------------------------|---|----------------------------|-----------------------------------|--|
| Substrate Diameter Type | | % Composition in Sampling Reach | Substrate Type | Characteristic | % Composition in Sampling Area | |
| Bedrock | | 0 | Detritus | sticks, wood, coarse plant | 5 | |
| Boulder | > 256 mm (10") | 0 | | materials (CPOM) | 5 | |
| Cobble | 64-256 mm (2.5"-10") | 20 | Muck-Mud | black, very fine organic | 0 | |
| Gravel | 2-64 mm (0.1"-2.5") | 20 | | (FPOM) | U | |
| Sand | 0.06-2mm (gritty) | 40 | Marl | grey, shell fragments | • | |
| Silt | 0.004-0.06 mm | 10 | | | | |
| Clay | < 0.004 mm (slick) | 10 | | | U | |

WQ = Downstream Readings

HABITAT ASSESSMENT FIELD DATA SHEET - HG - USE ON ALL STREAMS (FRONT)

| STREAM NAME UNT to Painter Run | LOCATION |
|---|---|
| STATION # S-C40 RIVERMILE | STREAM CLASS Perennial |
| LAT <u>37.425372</u> LONG <u>-80.693417</u> | COUNTY Monroe |
| STORET # | AGENCYPOTESTA |
| INVESTIGATORS ABK/BB | |
| FORM COMPLETED BY | DATE 3-24-2022 TIME 930 AM PM Baseline Assessment Revisit |

| | Habitat | | Condition | ı Category | | | | | | |
|--|---|--|---|---|---|--|--|--|--|--|
| | Parameter | Optimal | Suboptimal | Marginal | Poor | | | | | |
| | 1. Epifaunal Substrate/ Available Cover | Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are <u>not</u> new fall and not transient). | 40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale). | 20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed. | Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking. | | | | | |
| | _{SCORE} 15 | 20 19 18 17 16 | 15 14 13 12 11 | 10 9 8 7 6 | 5 4 3 2 1 0 | | | | | |
| ı sampling reach | 2. Embeddedness | Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space. | Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment. | Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment. | Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment. | | | | | |
| ted ir | _{SCORE} 12 | 20 19 18 17 16 | 15 14 13 12 11 | 10 9 8 7 6 | 5 4 3 2 1 0 | | | | | |
| Parameters to be evaluated in sampling reach | 3. Velocity/Depth Regime | All four velocity/depth regimes present (slow- deep, slow-shallow, fast- deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.) | Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes). | Only 2 of the 4 habitat regimes present (if fast- shallow or slow-shallow are missing, score low). | Dominated by 1 velocity/ depth regime (usually slow-deep). | | | | | |
| aran | _{score} 9 | 20 19 18 17 16 | 15 14 13 12 11 | 10 9 8 7 6 | 5 4 3 2 1 0 | | | | | |
| 4 | 4. Sediment Deposition | Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition. | Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools. | Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent. | Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due to substantial sediment deposition. | | | | | |
| | _{score} 14 | 20 19 18 17 16 | 15 14 13 12 11 | 10 9 8 7 6 | 5 4 3 2 1 0 | | | | | |
| | 5. Channel Flow Status N/A | Water reaches base of both lower banks, and minimal amount of channel substrate is exposed. | Water fills >75% of the available channel; or <25% of channel substrate is exposed. | Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed. | Very little water in channel and mostly present as standing pools. | | | | | |
| | SCORE 10 | 20 19 18 17 16 | 15 14 13 12 11 | 10 9 8 7 6 | 5 4 3 2 1 0 | | | | | |

HABITAT ASSESSMENT FIELD DATA SHEET—HIGH GRADIENT STREAMS (BACK)

| | Habitat | | Condition | n Category | | | | | |
|--|--|--|--|--|---|--|--|--|--|
| | Parameter | Optimal | Suboptimal | Marginal | Poor | | | | |
| | 6. Channel Alteration | Channelization or dredging absent or minimal; stream with normal pattern. | Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present. | Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted. | Banks shored with gabior or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely. | | | | |
| | score 14 | 20 19 18 17 16 | 15 14 13 12 11 | 10 9 8 7 6 | 5 4 3 2 1 0 | | | | |
| mg reach | 7. Frequency of Riffles (or bends) | Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important. | Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15. | Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25. | Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25. | | | | |
| | _{score} 14 | 20 19 18 17 16 | 15 14 13 12 11 | 10 9 8 7 6 | 5 4 3 2 1 0 | | | | |
| | 8. Bank Stability (score each bank) Note: determine left or right side by facing deurstream. | Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected. | Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion. | Moderately unstable; 30- 60% of bank in reach has areas of erosion; high erosion potential during floods. | Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing 60-100% of bank has erosional scars. | | | | |
| 2 | SCORE 7 | Left Bank 10 9 | 8 7 6 | 5 4 3 | 2 1 0 | | | | |
| 3 | SCORE 5 | Right Bank 10 9 | 8 7 6 | 5 4 3 | 2 1 0 | | | | |
| rarameters to be evaluated proader than sampling reach | 9. Vegetative Protection (score each bank) | More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally. | 70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well- represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining. | 50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one- half of the potential plant stubble height remaining. | Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height. | | | | |
| | SCORE 8 | Left Bank 10 9 | 8 7 6 | 5 4 3 | 2 1 0 | | | | |
| | SCORE 8 | Right Bank 10 9 | 8 7 6 | 5 4 3 | 2 1 0 | | | | |
| | 10. Riparian Vegetative Zone Width (score each bank riparian zone) | Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone. | Width of riparian zone 12-18 meters; human activities have impacted zone only minimally. | Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal. | Width of riparian zone < meters: little or no riparian vegetation due t human activities. | | | | |
| | SCORE 4 | Left Bank 10 9 | 8 7 6 | 5 4 3 | 2 1 0 | | | | |
| | SCORE (1) | Right Bank 10 9 | 8 7 6 | 5 4 3 | 2 1 0 | | | | |

Total Score 130

BENTHIC MACROINVERTEBRATE FIELD DATA SHEET

| STREAM NAME UN | IT to Painter Run | LOCATION | |
|----------------------|---|---|--|
| STATION #S-C40 | _ RIVERMILE | STREAM CLASS Perennia | I |
| LAT 37.425372 | LONG -80.693417 | COUNTY Monroe | |
| STORET # | | AGENCYPOTESTA | |
| INVESTIGATORS A | | | LOT NUMBER |
| FORM COMPLETED | ABK | DATE <u>3-24-2022</u> TIME <u>930</u> | REASON FOR SURVEY Baseline Assessment Revisit |
| HABITAT TYPES | Indicate the percentage of Cobble% S Submerged Macrophytes | each habitat type present nags % % □Vegetated B % □Other (| Banks% □Sand% |
| SAMPLE COLLECTION | Gear used D-frame How were the samples coll Indicate the number of jat CobbleSn Submerged Macrophytes | lected? ☐wading ☐ f ps/kicks taken in each habitat ty ags ☐Vegetated B | Banks Sand |
| GENERAL COMMENTS | No suitable benthi | c habitat, flow too lov | <i>w</i> , out of benthic collection season. |

QUALITATIVE LISTING OF AQUATIC BIOTA

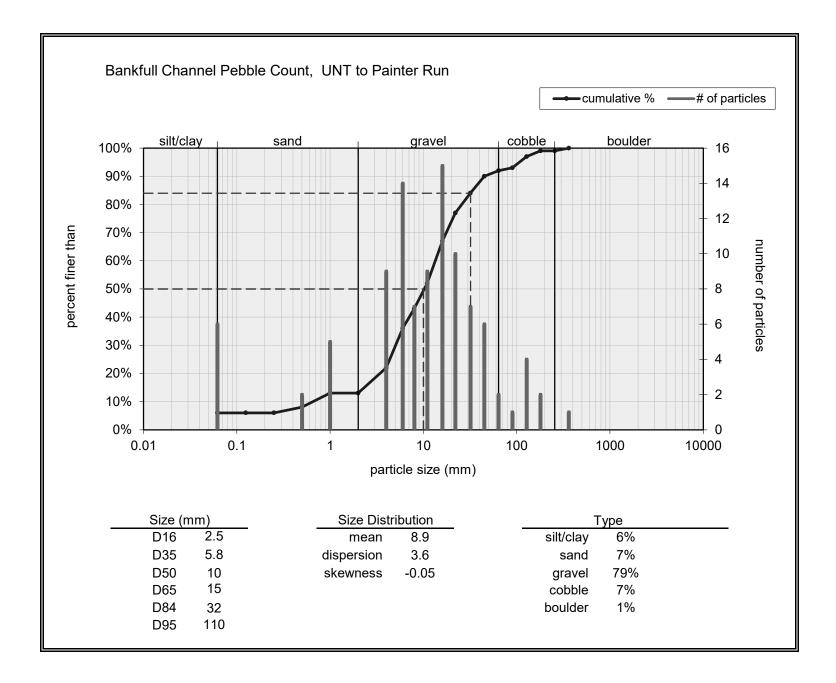
Indicate estimated abundance: 0 = Absent/Not Observed, 1 = Rare, 2 = Common, 3= Abundant, 4 = Dominant

| Periphyton | 0 | 1 | 2 | 3 | 4 | Slimes | 0 | 1 | 2 | 3 | 4 |
|-------------------|---|---|---|---|---|--------------------|---|---|---|---|---|
| Filamentous Algae | 0 | 1 | 2 | 3 | 4 | Macroinvertebrates | 0 | 1 | 2 | 3 | 4 |
| Macrophytes | 0 | 1 | 2 | 3 | 4 | Fish | 0 | 1 | 2 | 3 | 4 |

FIELD OBSERVATIONS OF MACROBENTHOS

Indicate estimated abundance: 0 = Absent/Not Observed, 1 = Rare (1-3 organisms), 2 = Common (3-9 organisms), 3= Abundant (>10 organisms), 4 = Dominant (>50 organisms)

| Porifera | 0 | 1 | 2 | 3 | 4 | Anisoptera | 0 | 1 | 2 | 3 | 4 | Chironomidae | 0 | 1 | 2 | 3 | 4 |
|-----------------|---|---|---|---|---|-------------|---|---|---|---|---|---------------|---|---|---|---|---|
| Hydrozoa | 0 | 1 | 2 | 3 | 4 | Zygoptera | 0 | 1 | 2 | 3 | 4 | Ephemeroptera | 0 | 1 | 2 | 3 | 4 |
| Platyhelminthes | 0 | 1 | 2 | 3 | 4 | Hemiptera | 0 | 1 | 2 | 3 | 4 | Trichoptera | 0 | 1 | 2 | 3 | 4 |
| Turbellaria | 0 | 1 | 2 | 3 | 4 | Coleoptera | 0 | 1 | 2 | 3 | 4 | Other | 0 | 1 | 2 | 3 | 4 |
| Hirudinea | 0 | 1 | 2 | 3 | 4 | Lepidoptera | 0 | 1 | 2 | 3 | 4 | | | | | | |
| Oligochaeta | 0 | 1 | 2 | 3 | 4 | Sialidae | 0 | 1 | 2 | 3 | 4 | | | | | | |
| Isopoda | 0 | 1 | 2 | 3 | 4 | Corydalidae | 0 | 1 | 2 | 3 | 4 | | | | | | |
| Amphipoda | 0 | 1 | 2 | 3 | 4 | Tipulidae | 0 | 1 | 2 | 3 | 4 | | | | | | |
| Decapoda | 0 | 1 | 2 | 3 | 4 | Empididae | 0 | 1 | 2 | 3 | 4 | | | | | | |
| Gastropoda | 0 | 1 | 2 | 3 | 4 | Simuliidae | 0 | 1 | 2 | 3 | 4 | | | | | | |
| Bivalvia | 0 | 1 | 2 | 3 | 4 | Tabinidae | 0 | 1 | 2 | 3 | 4 | | | | | | |
| | | | | | | Culcidae | 0 | 1 | 2 | 3 | 4 | | | | | | |



SITE ID: S-C40 UNT +& Painter Run DATE: 3/24/22

COLLECTOR(S): ABK BB

| 9 | 120 | 11 65 | 11 A A | | | | | | | | | | |
|-------------|-------|-------|------------|----------|-----|-----|-----|-----|-----|---------------------------------|-----------|-----------------|-------------------------|
| 5 | 100 | 145 | 26 | 11 | US | 10 | SIC | 16 | 22 | | | | |
| | 5 | 11 | 81 | CS | 7 | Col | FGZ | 14 | 31- | a In CL coods | | | |
| 1 | 710 | 34 | Ti | 10 | 11 | 43 | 21 | 34 | 0 | ~ 10ft reach, 1ft increments | Inches | l men of | Millimeters |
| 1 | 40 | 54 | 7 | 10 | 9 | | a | | 9 | | inchei | See Clay | - Stilligheters. |
| 2 | SC | 5 | 0 | | 8 | 4 | 24 | US | 14 | ffincrements | | Very Fine | 1211-128 |
| 5 | MS | 0 | 17 | 3 | 5 | 2 | 18 | CIS | FG | | | Fine | 125 - 25 |
| Z | 7 | 109 | 5 | 5 | 32 | 26 | E | 17 | 160 | | | Medium | 25 - 51 |
| 4 | 16 | 10 | 60 | 15 | G | 11 | 10 | FG | 17 | | | Ötarse | 50-112-05 |
| | 10 | 00 | and a loss | 0 | - | 22 | 1.1 | 19 | | - | 040+ 18 | Zery Conte | 65.62 |
| 3 | 50 | 24 | 22 | <u> </u> | 510 | 41 | 9 | 10 | FG | | 18 - 16 | very Fine | 2 - 4 |
| 2 | 50 | 30 | 13 | 8 | 10 | SIC | 16 | 14 | 2 | | 16 22 | Ente | 4 - 5 7 |
| 5 | CS | 101 | D | Q | 11 | GI | 9 | 9 | 41 | | 22 - 31 | Fine | 5.7 - 1 |
| | | 101 | | 6 | V L | | Q. | | | | 31 44 | Medium | i de la Miller |
| Pebble (| Count | | | | | | | | | 10750 | 44 - 69 | Vedrum | 112.16 |
| . T CODIC (| oount | | | | | | | | | NOTES: | 2007-09 | Coarse | 16 - 22 6 |
| | | | | | | | | | | | 89 - 13 | Coarse | 22.6 - 51 |
| | | | | | | | | | | | 19-18 | Very Coarse | 35 - 45 |
| | | | | | | | | | | | 1 - 5 | Verv Ocarse | 45,84 |
| | | | | | | | | | | | 2.5 | Small | 64 i Bi |
| - | | | | | | | | | | | 35 | 5712 | <u>₩</u> - 123 |
| | | | | | | | | | | | .67. | Large | 128 - 991 |
| | | | | | | | | | | | 71 101 | 1. 1. St | 185 - 256 |
| | | | | | | | | | | | 13.1 - 14 | Small | 256 - 362 |
| | | | | | | | | | | | 14 3 | Smail Medium | 362 - 512 512 - 1024 |
| | | | | | | | | | | | 41 5 | Large-Vry Large | |
| | | | | | | | | | | | | Bedrock | |
| | | | | | | | | | | | | | |
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| | | | | | | | | | | NOTES: | | | |
| | T | | | | | | | | | NOTED. | | | |
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Image: selection of the selection of the